Secude

HaloCAD

HaloCAD for Windchill

Installation Manual

Version 3.0

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Typographic Conventions

This guide uses the following typographic conventions to distinguish types of in-text information and icons to alert you to important information.

Convention	Description
Boldface type	• Items you must select, such as menu options, command buttons, or items in a list. • Titles of sections, sub-sections, etc.
Italic type	• To emphasize a word • Error messages • Table and Figure captions
`Consolas Font`	• Package names • Filenames and directory names • XML element names and attribute names • Parameters • File type • Code examples Example: `hesadm.exe start -user <domain\user> -pwd <password>`
Hyperlink	Provides quick and easy access to cross-referenced topics. Hyperlinks are highlighted in blue and underlined.
Admonitions	Note Provides additional information relevant to the topic. Warning Contains information about circumstances, parameters, and so on that MUST be fulfilled. Failure to comply will have consequences for the current operation. Tip Contains useful information about the operation of the application. Info Contains information, guidelines, or suggestions for performing tasks more effectively.

1. Introduction

Companies in industries such as automotive, aviation, and high-tech create and manage intellectual property (IP) through engineering drawings. These drawings are created digitally using computer-aided design (CAD) applications and are often shared with external users for business collaboration. It is important to understand the risks associated with sharing sensitive business information. Protecting sensitive engineering data requires comprehensive security measures. HaloCAD is a data protection solution that helps organizations protect sensitive engineering data.

2. How HaloCAD for PLM Protects Data

HaloCAD for PLM continuously monitors file upload and download operations within the PLM environment. It integrates with Microsoft Purview Information Protection to download sensitivity labels and perform file encryption and decryption.

- During file upload, HaloCAD for PLM checks whether the file is protected. If the file is encrypted, HaloCAD for PLM decrypts it before storing it in the PLM Vault.
- During file download, HaloCAD for PLM applies protection based on the configured action rules before delivering the file to the user.

For file uploads, HaloCAD for PLM performs file processing independently. For file downloads, HaloCAD for PLM relies on HaloENGINE GenNXT to evaluate the configured classification and action rules.

3. About this Manual

This manual describes the installation and configuration procedures specific to HaloCAD for Windchill.

Reference

Before proceeding with the instructions in this manual, administrators should:

1. Review the Technical Reference Manual to understand the HaloCAD architecture and prerequisites.
2. Review the Release Notes to verify the supported CAD applications.

3.1. Reference Manuals

The following table describes the HaloCAD documentation set and the information available in each manual.

For information on	Refer to
Step 1: Verify the supported operating systems, file types, and CAD applications.	`HaloCAD_Windchill_ReleaseNotes_EN_Online.pdf`
Step 2: Review the prerequisites before installation, including: • Registering an Application in Microsoft Entra ID - Web • HaloCAD Architecture • Office 365 Subscription Details • Recommended URLs, Addresses, and Ports for MPIP • Enable Support for TLS 1.2 at the Client Workstation for Microsoft Entra ID	`HaloCAD_Technical_Reference_Manual_EN_Online.pdf`
Step 3: Install the HaloCAD Add-on for Creo	`HaloCAD_Creo_Manual_Installation_EN_Online.pdf`
Step 4: Install and configure HaloENGINE GenNXT.	`HaloENGINEGenNXT_Manual_Installation_EN_Online.pdf`
Step 5: Install and configure HaloCAD for Windchill.	Refer to the current manual.
Step 6: Understand the protection and decryption workflow.	`HaloCAD_Windchill_Manual_Operations_EN_Online.pdf`

HaloCAD reference documentation

3.2. Component Functions

The following components are involved in the HaloCAD architecture when deployed in an integrated environment:

1. HaloCAD Add-on for Creo
2. HaloCAD for Windchill
3. HaloENGINE GenNXT
4. Microsoft Purview Information Protection

The following sections describe the functions of each component.

HaloCAD Add-on for Creo

- **HaloCAD Add-on for Creo** - Operates within Creo Parametric.
- Receives protected files from Windchill and displays their associated labels while enforcing permissions.
- Logs all add-on related activities for auditing purposes.

HaloCAD for Windchill

- Resides on the server hosting Windchill PLM Server.
- Listens for check-in and check-out actions initiated via the browser or Creo.
- Connects to Microsoft Purview Information Protection to download sensitivity labels.
- Collects metadata for the user-selected file.
- Obtains action and label information for the selected file from HaloENGINE GenNXT.
- Encrypts the file and forwards the file stream to the CAD client during check-out operations.
- Decrypts the file and stores the unprotected file in the PLM Vault during check-in operations.
- Logs HaloCAD for Windchill activities to the local log and sends monitoring logs to HaloENGINE GenNXT.

HaloENGINE GenNXT

- Is a Java-based server component that exposes a web service to HaloCAD for Windchill.
- Connects to Microsoft Purview Information Protection to download sensitivity labels and make them available for configuration.
- Implements business logic.
- Logs events received from HaloCAD for Windchill.

Microsoft Purview Information Protection

HaloCAD integrates with Microsoft Purview Information Protection to protect sensitive documents. Microsoft Purview Information Protection is an enterprise document security solution that ensures only authorized users can open protected content while controlling the actions they can perform, such as printing, editing, or saving. Even if sensitive data is accidentally or maliciously disclosed, unauthorized users cannot view the content in clear text.

Microsoft documentation

This manual assumes that Microsoft Purview Information Protection is already configured and that you are familiar with the Microsoft Entra admin center and related concepts. If you are new to Microsoft Purview Information Protection, refer to the Microsoft documentation for setup and configuration instructions.

4. Installing the HaloCAD for Windchill

This chapter explains the requirements, prerequisites, and how to install HaloCAD for Windchill.

4.1. System Requirements

The following table lists the system requirements for installing and running HaloCAD for Windchill.

Components	Details
Supported Operating Systems	Windows Server 2022 and above with updates installed.
Supported file types	1. Creo file types 2. MS Office native file types 3. Non-Office file types
Other requirements	Install HaloENGINE GenNXT and HaloCAD for Windchill separately on Windows servers.

Requirements

4.2. Prerequisites

Before installing HaloCAD for Windchill, ensure that the following prerequisites are met.

1. Ensure that you have administrative access to install HaloCAD for Windchill.
2. Ensure that the client computer running the HaloCAD Add-on for Creo can connect to the Windchill Server.
3. If you download your files from a Replication Server, install HaloCAD for Windchill on the Replication Server.
4. If you want to use custom attributes as metadata while protecting files, ensure that the **Type and Attribute Management Utility** page is configured.
5. Ensure that HaloENGINE GenNXT meets the following requirements:
    a. License file enabled with the Windchill client type
    b. Proper action rules
6. Ensure that your Microsoft Entra ID application information is available. Refer to the Technical Reference Manual for more information.
7. Ensure that the certificate required for MPIP authentication is installed in the **Local Computer** certificate store, along with the Root CA and Intermediate CA certificates.
    a. If the certificate is CA-signed, install all related certificates in their respective stores (Root, Intermediate, and Personal).
    b. If the certificate is self-signed, install it in both the Trusted Root Certification Authorities and Personal stores of the Local Computer.
8. Ensure that an authentication approach is selected for HaloENGINE GenNXT and HaloCAD for Windchill PLM: **Self-Signed Certificate** or **CA-Signed Certificate**.
    a. For a **Self-Signed Certificate**, export the public key of the HaloENGINE GenNXT server's self-signed certificate and install it in **Trusted Root Certification Authorities** on the system where HaloCAD for Windchill is installed.
    b. For a **CA-signed certificate**, install the **Root CA certificate** in **Trusted Root Certification Authorities** on the system where HaloCAD for Windchill is installed. If an intermediate CA is used, ensure that the **intermediate CA certificate** is also available on the client system to validate the certificate chain.
9. Ensure that **PATH** is added to the system environment variable to run the HaloCAD Configuration Tool. For example, `PATH=C:\WINDOWS\system32;C:\WINDOWS;C:\Program Files\Java\jdk1.8.0_241\bin`

10. In a Windchill setup with Single Sign On (SSO) implemented on the master/main server and a replica server connected to it, HaloCAD has a limitation when obtaining metadata from the replica server using SSO-based authentication. In this case, we recommend that you enable split authentication for the HaloCAD REST endpoint. Please refer to the section "Enabling Split Authentication" and for more information, see PTC Knowledge Base Article CS291543.
11. If you want to implement a failover mechanism in HaloENGINE GenNXT, please refer to the section "Failover Mechanism for HaloENGINE GenNXT in HaloCAD for PLM".
12. Ensure that HaloCAD for Windchill and HaloENGINE GenNXT are installed using the same Azure tenant details. A mismatch in tenant details causes configuration errors.
13. To improve performance, configure MPIP labels to allow offline access. In the Microsoft Entra admin center, navigate to **Information Protection** > **Sensitivity labels** > select a label > **Items** > **Access control** > **Allow offline access**, and select **Always**. Note: Allowing offline access can affect revocation. Consider this impact when configuring the offline access setting. For more information, see the Microsoft documentation, Restrict access to content by using sensitivity labels to apply encryption.

4.2.1. Conditions for Running the HaloENGINE GenNXT Tomcat Service

Before running the HaloENGINE GenNXT Tomcat Service, ensure that the following prerequisites are met.

4.2.1.1. Deny log on as a service policy

If the service runs under a specific user account or group, ensure that the user is not restricted by the **Deny log on as a service** policy (**Local Security Policy > Security Settings > Local Policies > User Rights Assignment**).

If the user is restricted by this policy, the following error message appears when starting the HaloENGINE GenNXT Tomcat Service: "*Error 1069: The service did not start due to a logon failure.*"

Allow non-admin users to access a private key (without full administrator rights)

During installation, HaloENGINE GenNXT retrieves the required Microsoft Entra ID application details and certificate thumbprint. When the HaloENGINE GenNXT Tomcat Service starts, it connects to the MPIP services by using the details provided during installation. As part of this process, it validates the certificate thumbprint against the certificate installed in the **Local Computer** certificate store. The thumbprint entered during installation must match the thumbprint of the certificate installed in the **Local Computer** certificate store.

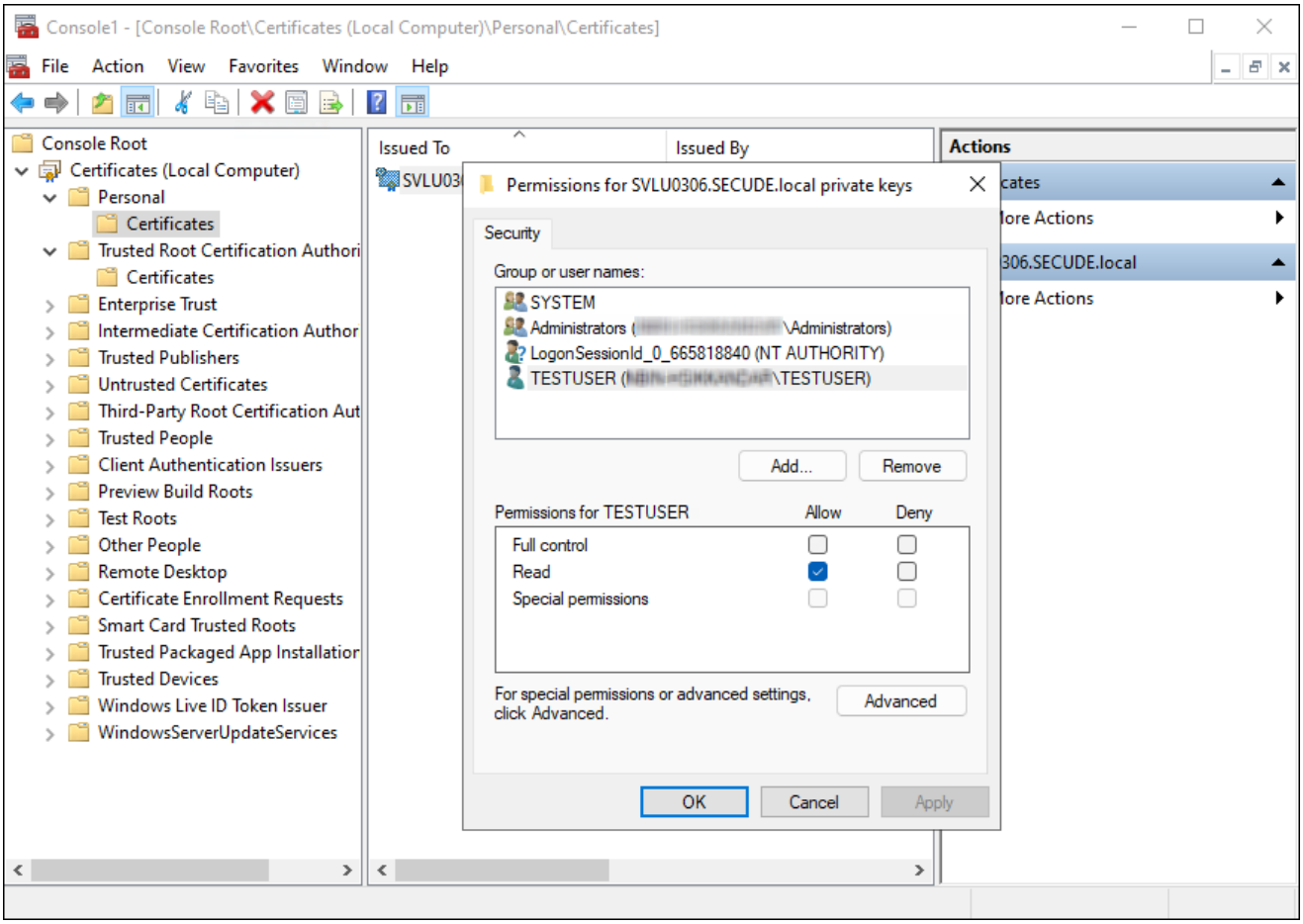
If the service runs under a non-administrative user account, the user might not have sufficient permissions to access the certificate's private key when the certificate is installed in the **Local Computer** certificate store. This restriction prevents successful authentication with MPIP services. To resolve this issue, grant the user **Read** permission to access the certificate's private key by following the procedure below. Any errors encountered during this process are recorded in the log file. If the verification succeeds, the service continues with initialization.

4.2.1.2. Prerequisites

- The required certificates (certificate used by MPIP service, root CA, and intermediate CA) are installed.
- The private key is stored in the Windows Certificate Store under **Local Computer**.
- You have administrator privileges to perform the configuration.

Follow the procedure below to grant read access:

1. Open **Certificate Manager** as Administrator.
2. Press **Win + R**, type mmc, and press **Enter**.
3. In the console, go to **File** and select **Add/Remove Snap-in**.
4. Select **Certificates** from the list and click **Add**.
5. Select **Computer account**, click **Next**, select **Finish**, and then click **OK**.
6. In the left navigation pane, expand **Certificates (Local Computer)**, expand **Personal**, and select **Certificates**.
7. Identify the certificate that contains the private key.
8. Right-click the certificate, select **All Tasks**, and then select **Manage Private Keys**.
9. In the **Permissions** window, click **Add** and enter the non-administrator username (for example, TESTIL) and click **OK**.
10. Select the **Read** permission, click **Apply**, and then click **OK**.



Granting private key access to a non-admin user

Result

The specified non-administrative user can access the certificate's private key, allowing the HaloENGINE GenNXT Tomcat Service to authenticate successfully with MPIP services.

4.3. HaloCAD in Windows Environment

This section explains how to install HaloCAD for Windchill on Windows-based Master and Replica Servers by using the installer included in the installation package.

4.3.1. Installation Modes

HaloCAD for Windchill supports the following installation modes:

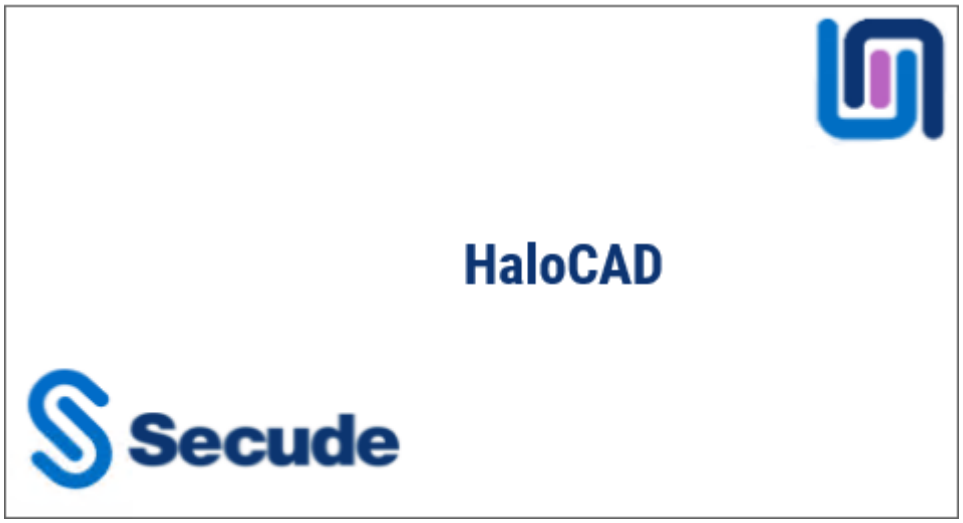
1. **Graphical Mode**
   Graphical mode is an interactive installation method that uses a wizard-based graphical user interface.
2. **Silent Mode**
   Silent mode is a non-interactive installation method that installs HaloCAD for Windchill by using command-line options.

Installer selection: Use the installer based on your **PTC Windchill** version:

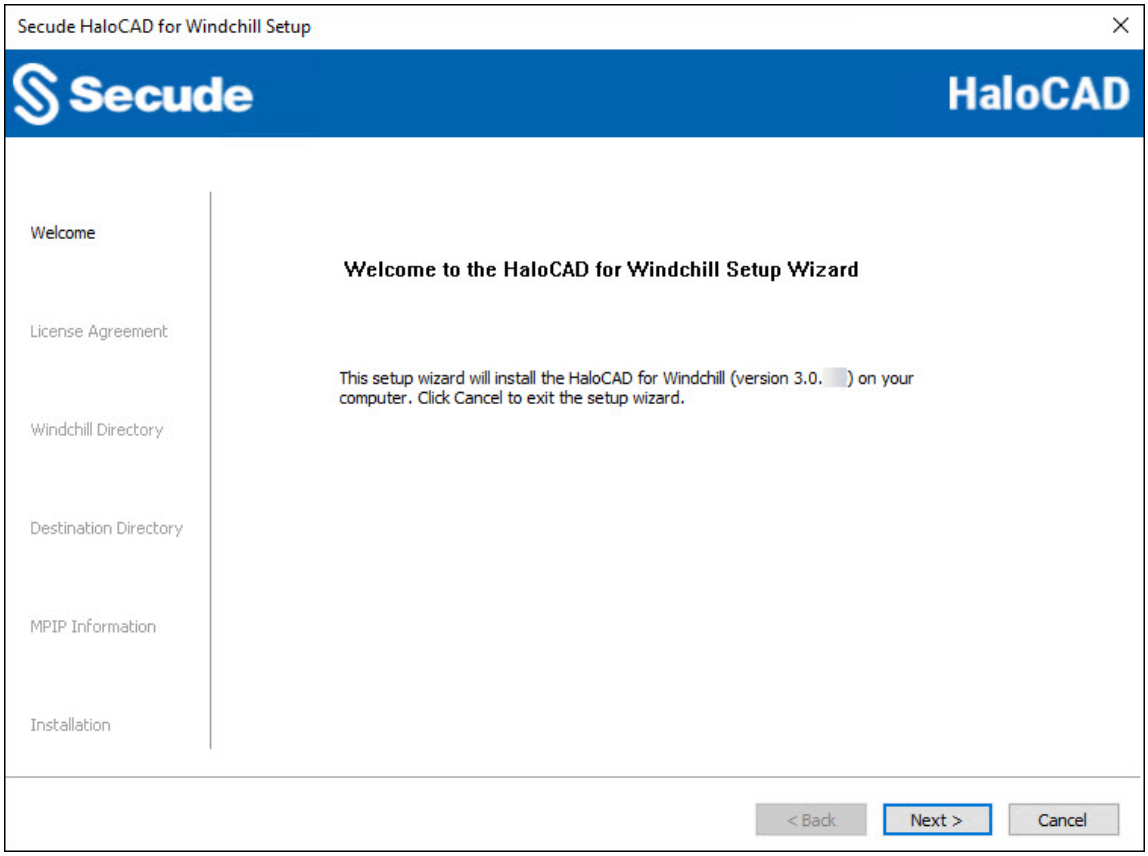
- For **Windchill 13.0.2.0** to **13.0.2.4**, use the installer in `<Product package>\<Version>\Windchill 13.0.2.x\windows`
- For **Windchill 13.1.0.0** to **13.1.2.0**, use the installer in `<Product package>\<Version>\Windchill 13.1.0.0\windows`

4.3.1.1. Graphical Mode

1. To begin the interactive installation, double-click the `HaloCAD_Windchill_Setup.exe` installer. Depending on your Windows security settings, a security warning similar to *"Do you want to allow the following program to make changes to this computer?"* may appear. If prompted, click **Yes** to continue the installation.
2. When the installer starts, the **Startup** dialog appears, followed by the **Welcome** dialog.

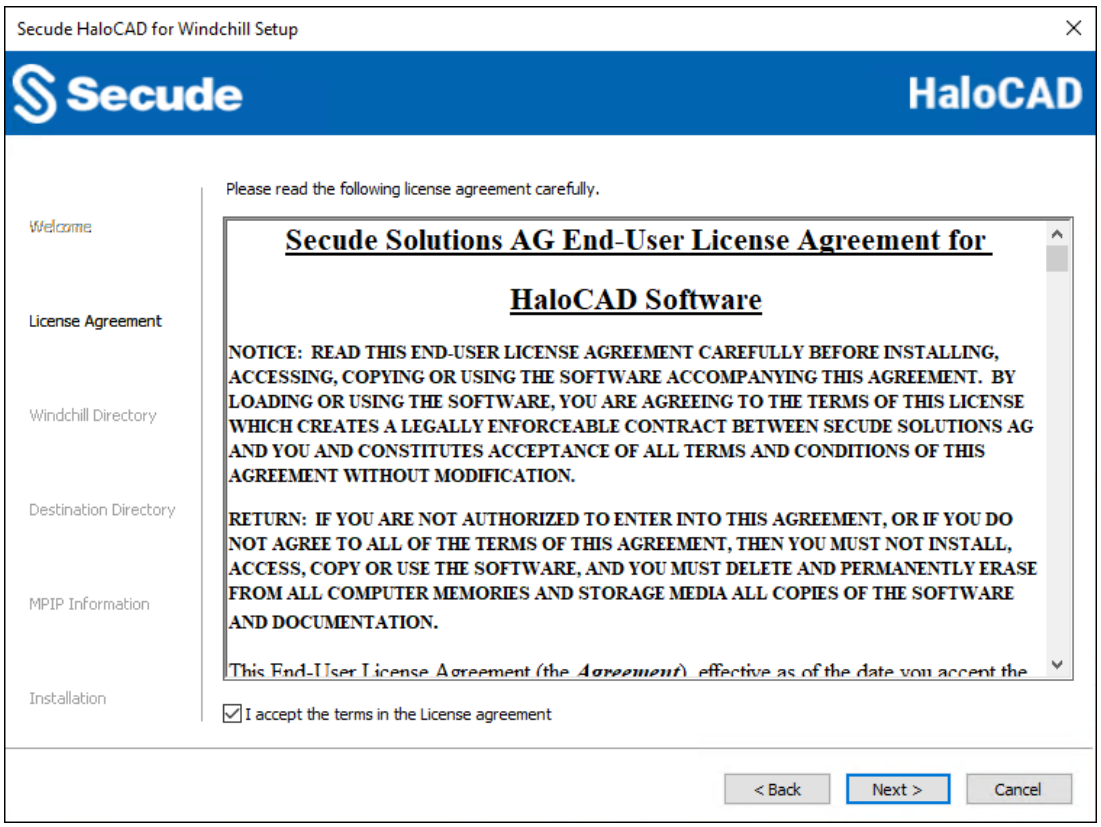


Startup dialog



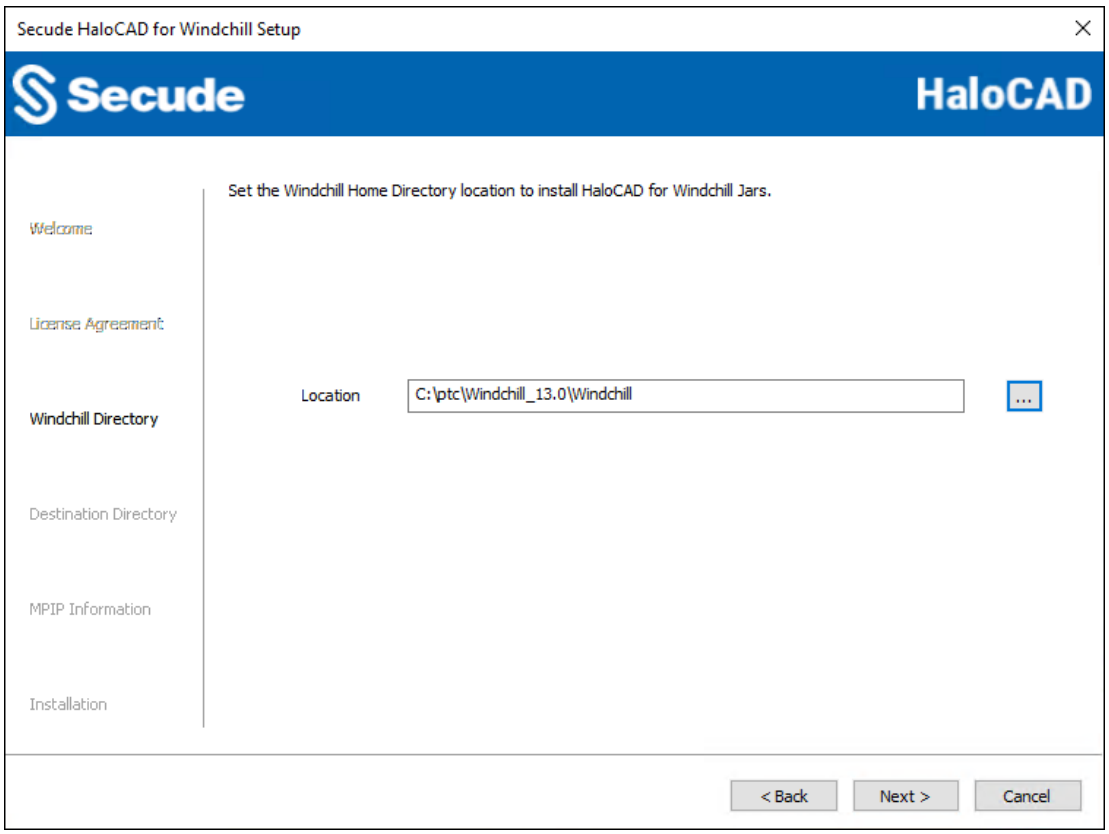
Welcome dialog

3. Click **Next** to continue.
4. The **License Agreement** dialog appears.



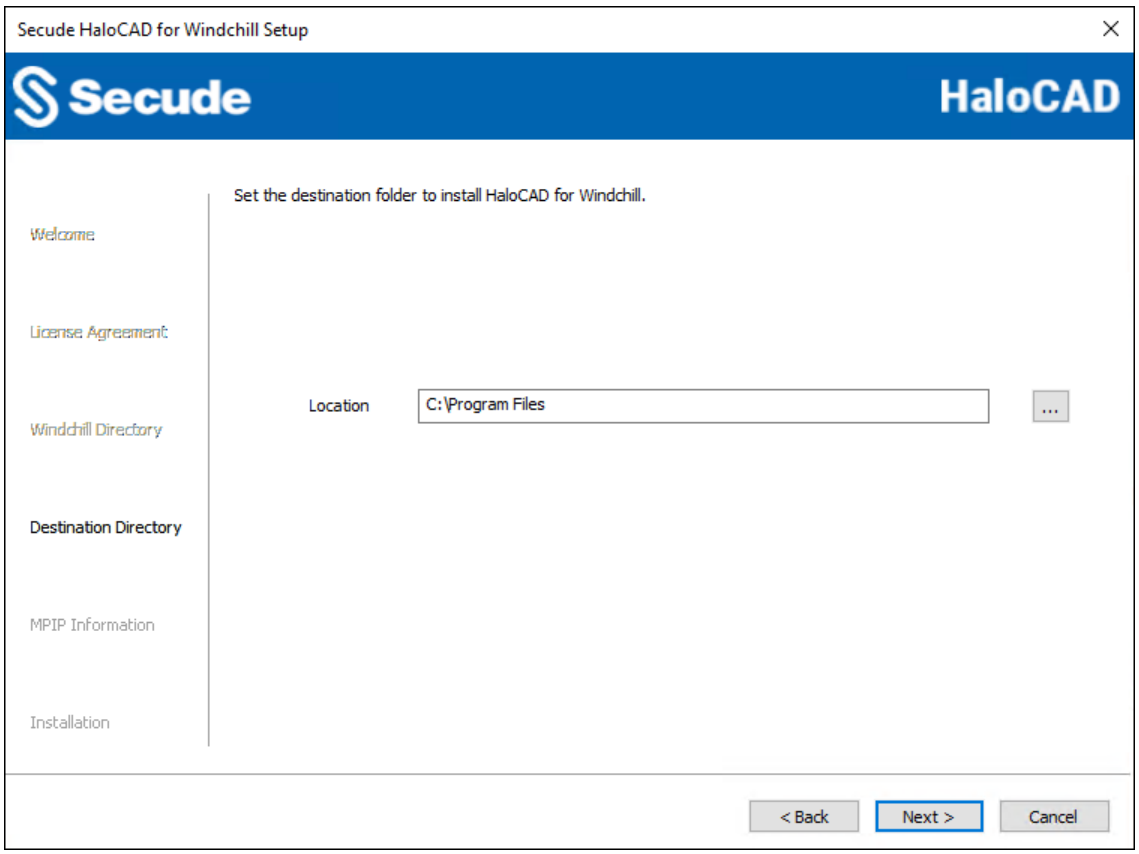
End-User License Agreement dialog

5. Read the **End-User License Agreement**. If you agree to the terms, select **I accept the terms in the License Agreement**, and then click **Next**.
6. The **Windchill Directory** dialog appears.



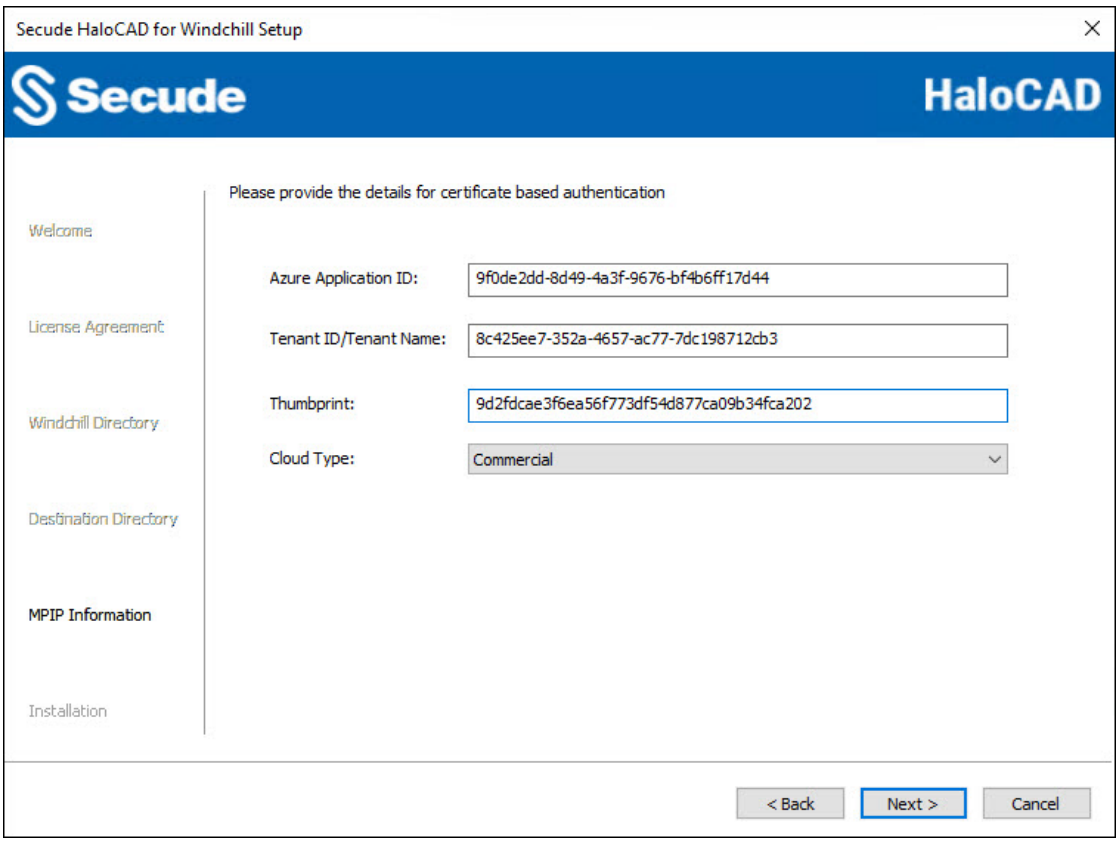
Windchill Home Directory Location dialog

7. Select the Windchill server's home directory, and then click **Next**. For example, `C:\ptc\Windchill_13.0\Windchill`. Ensure that the correct home directory path is specified. Otherwise, the installation fails and displays the following error message: *"Windchill Home Directory path is incorrect. Please enter the correct path."*
8. The **Destination Directory** dialog appears.



Destination Directory dialog

9. By default, the application files are installed in the following directory: `C:\Program Files`. To install HaloCAD for Windchill in a different location, click **Browse** and select the required directory.
10. The **MPIP Information** dialog appears. To avoid errors, ensure that you enter the correct Microsoft Entra ID application details in the installation wizard.



Certificate-based authentication dialog

a. **Azure Application ID**: Enter the Application ID of the registered application in the Microsoft Entra admin center. For example, `9f0de2dd-8d49-4a3f-9676-bf4b6ff17d44`

b. **Tenant ID/Tenant Name**: Enter your Microsoft Entra tenant name (for example, `contoso.onmicrosoft.com`) or its tenant ID (for example, `8c425ee7-352a-4657-ac77-7dc198712cb3`).

c. **Thumbprint**: Enter the thumbprint of the MPIP authentication certificate installed in the **Local Computer** certificate store. For example, `9d2fdcae3f6ea56f773df54d877ca09b34fca202`.

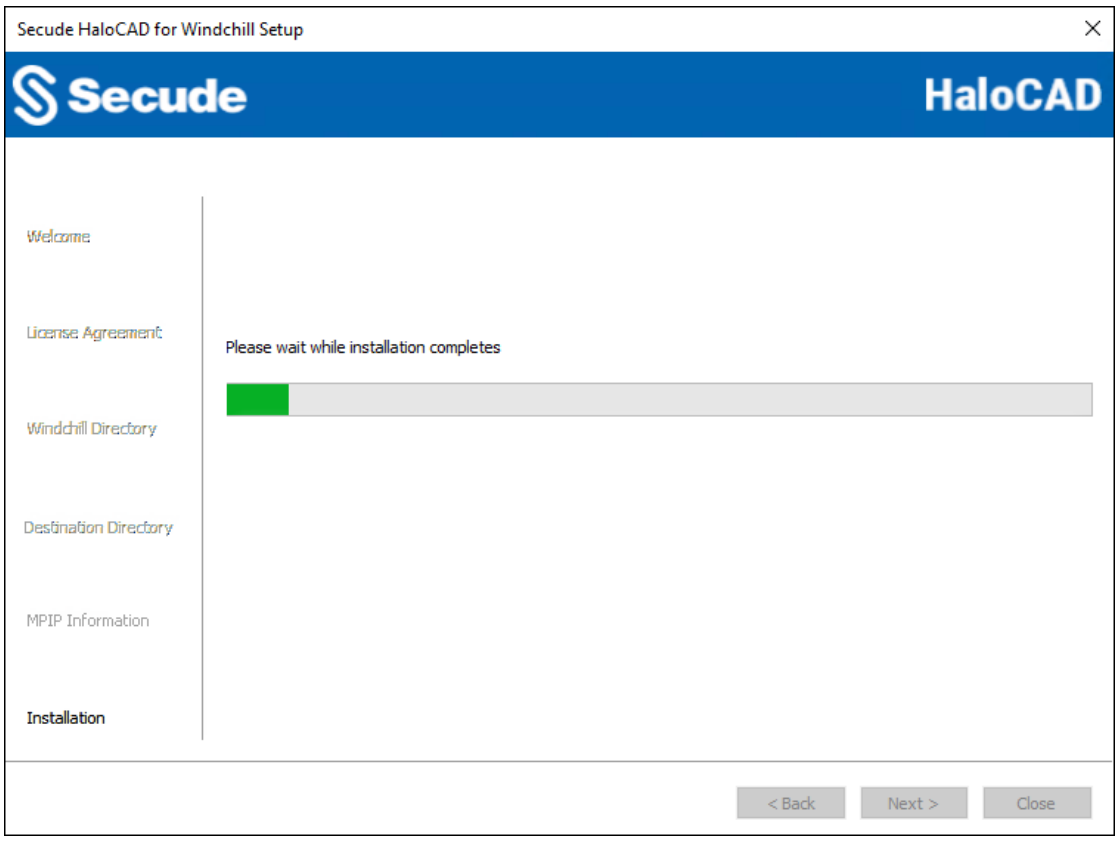
d. **Cloud Type**: **Commercial** is selected by default. Based on your Azure subscription and configuration, select the required cloud type from the list: Commercial, Custom, Germany, US_DoD, US_GCC, US_GCC_High, US_Sec, US_Nat, or China_01.

   If you select **Custom**, enter the appropriate URLs in the **Protection Cloud URL** (for example, `https://api.aadrm.com`) and **Policy Cloud URL** (for example, `https://dataservice.protection.outlook.com`) fields.

e. To return to a previous step in the installation, click **Back** (optional).

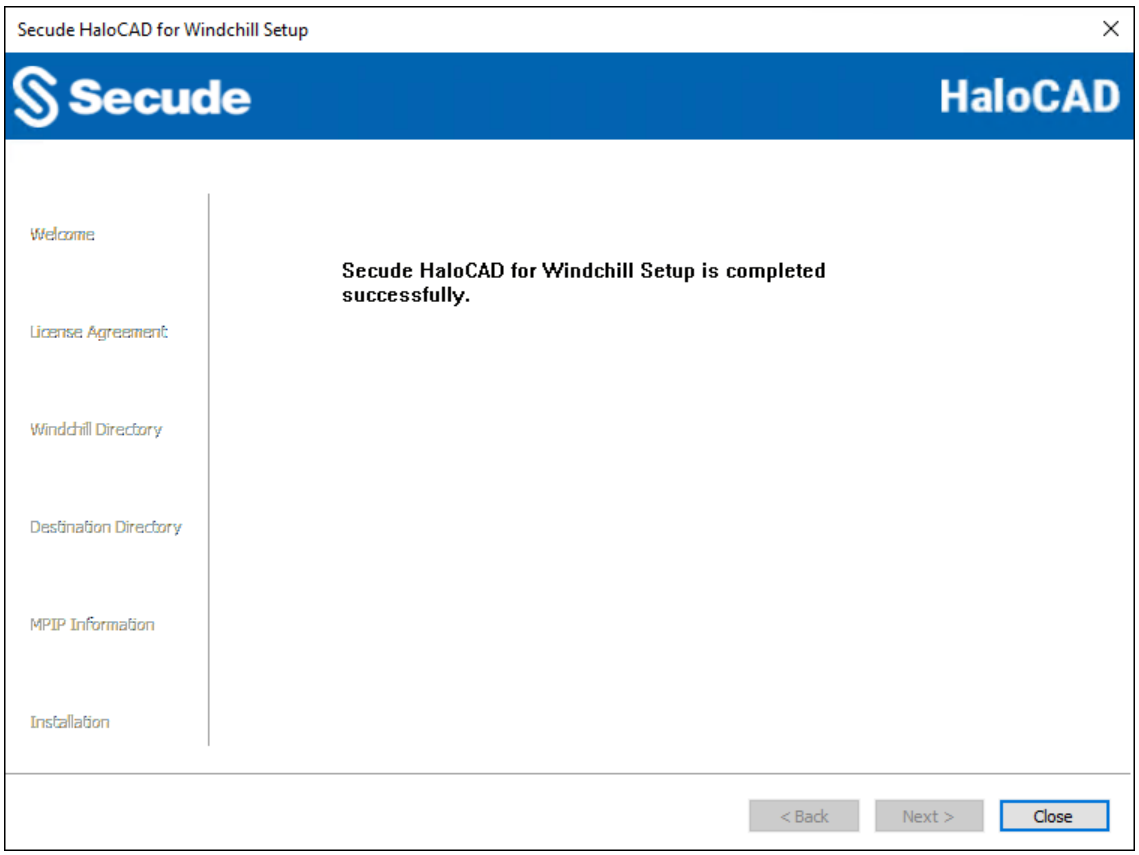
f. Click **Next**.

11. The installation begins, and the progress is displayed in the **Installation** dialog.



Installation dialog

12. When the installation is complete, a confirmation message appears indicating that the HaloCAD for Windchill component has been successfully installed.



Installation completed dialog

13. Click **Close** to exit the installation wizard.

4.3.1.2. Silent Mode

In addition to Graphical Mode, you can install the HaloCAD for Windchill component in **Silent Mode**. Silent Mode does not require user interaction or display a user interface. It enables you to install using command-line options.

1. Open the Command Prompt with elevated rights (Run as Administrator).
2. Navigate to the directory that contains the HaloCAD for Windchill installer.
3. To view the available **Silent Mode** options, run the following command:

   Type `HaloCAD_Windchill_Setup.exe -help`

   Press `Enter`

   Output

   ...

   ```
   HaloCAD_Windchill_Setup.exe -install -wdir <Windchill_Home_Directory> -dir
   <destination_directory> -applicationid <application_id> -tenantid <tenant_id> -
   thumbprint <thumb_print> -cloudtype
   <(Commercial|Custom|Germany|US_DoD|US_GCC|US_GCC_HIGH|US_Sec|US_Nat|China_01)> (if
   ```

```
cloudtype is Custom) <protectioncloudurl> <policycloudurl>
HaloCAD_Windchill_Setup.exe -uninstall
```

4. The following command illustrates how to install the HaloCAD for Windchill component.

```
HaloCAD_Windchill_Setup.exe -install -wdir "C:\ptc\Windchill_13.0\Windchill" -dir
"C:\Program Files" -applicationid "9f0de2dd-8d49-4a3f-9676-bf4b6ff17d44" -tenantid
"8c425ee7-352a-4657-ac77-7dc198712cb3" -thumbprint
"961602617275c2ab538cf28bb3648c0c6d97edab" -cloudtype "Commercial"
```

5. Press `Enter`.

Result

The installation is complete.

Certificate update

If you update or renew the client certificate, restart the Windchill server for the changes to take effect. Close any open Windchill shell, open a new one, and run the `windchill start` command.

4.3.2. Configuration Methods

This section describes two methods (command line and GUI) for configuring the parameters of HaloCAD for Windchill and HaloENGINE GenNXT components.

4.3.2.1. Configuration Using Tool (GUI)

Prerequisites: Ensure that HaloCAD for Windchill is installed before proceeding.

Follow these steps to configure the settings through the GUI:

Step 1. Stop PTC Windchill

1. Open the **Windchill Shell**.
2. Type the stop command `windchill stop` and press **Enter**.

   Result: A confirmation message appears indicating that the **Server Manager** has stopped.

Step 2. Run the HaloCAD for Windchill Configuration Tool.

1. Navigate to the installation directory. By default, the directory is: `C:\Program Files\Secude\HaloCADWindchill\config`.
2. Do one of the following:
   - Double-click the JAR file `halocad-windchill-config-<version>.jar`.
   - Open **Command Prompt** or the **Windchill Shell** as an administrator, type the following command, and then press **Enter**.

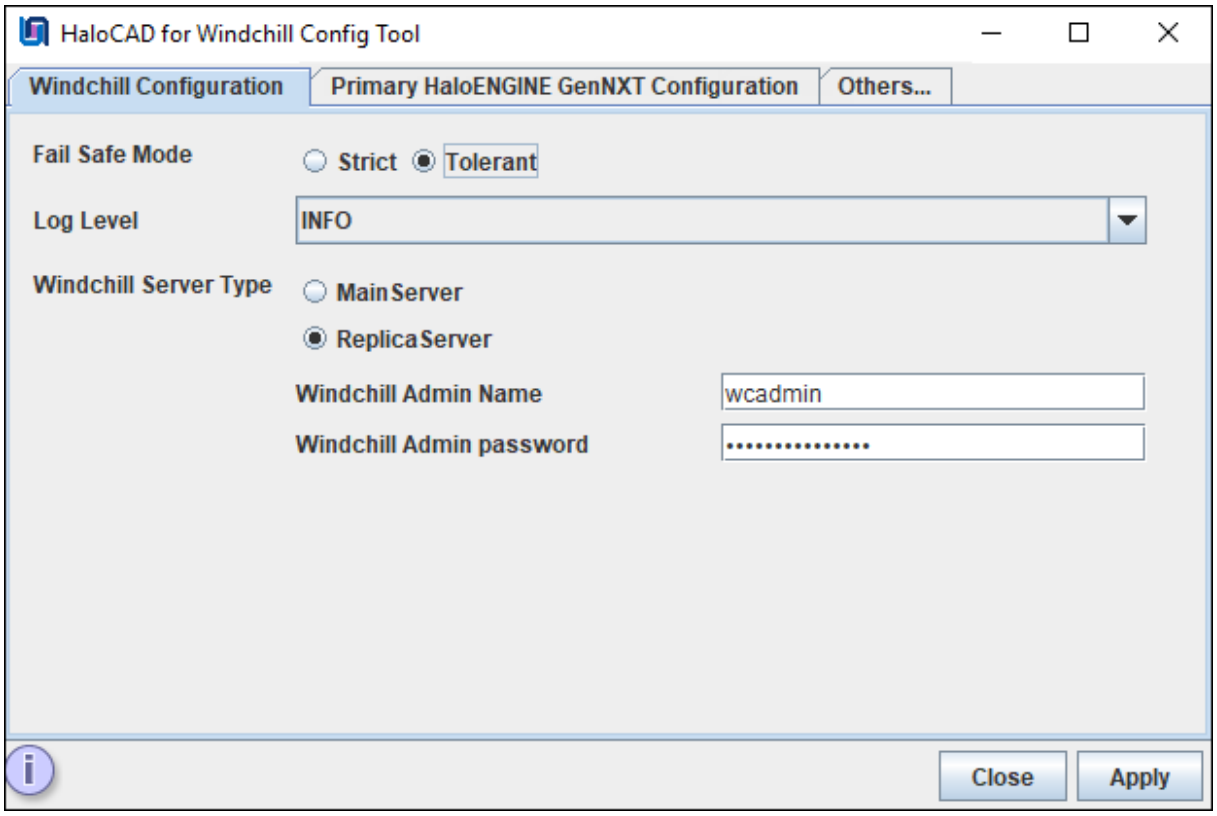
Syntax: `<pathtojar>java -jar halocad-windchill-config-<version>.jar`

Example: `C:\Program Files\Secude\HaloCADWindchill\config>java -jar halocad-windchill-config-<version>.jar`

Result: The **HaloCAD for Windchill Config Tool** window is displayed.

Step 3. Enter the Windchill Configuration Settings.

Select the **Windchill Configuration** tab, and then enter the following information.



Windchill configuration tab

1. **Fail Safe Mode**: The **Fail Safe Mode** controls the system behavior when inconsistencies prevent the specified protection from being applied (for example, conflicting configurations, unreachable server components, or returned error messages). Select one of the following options:
   a. **Strict:** Blocks file uploads and downloads whenever an error occurs.
   b. **Tolerant (default):** Allows file uploads and downloads even when an error occurs.
2. **Log Level**: Select the required log level.
   a. **INFO (default):** Logs standard application events that indicate the progress of the application.
   b. **ERROR:** Logs error events that prevent the application from functioning correctly.
   c. **DEBUG:** Logs detailed diagnostic information for troubleshooting.
3. **Windchill Server Type**: Choose one of the following options based on your environment.

a. **MainServer**: If you have only the Main Server, select **Main Server** in **Windchill Server Type**. By default, the UI displays **Disable Windchill REST**, indicating that the Windchill REST service is disabled. You can enable it to retrieve application data from the Main Server by selecting **Enable Windchill REST**.

   Note: Enabling the REST service is required only when the Main Server is linked to a Replica Server and files are downloaded from it.

b. **ReplicaServer**: This option applies to the **Windchill File Server/Windchill Content Cache Server**, which acts as a remote site in the Windchill environment. It is a lightweight server that stores master data but does not host the Windchill database. The master server manages the database metadata and maintains information about the files stored on the File Server. If you select **ReplicaServer**, configure the following settings:

   - **Windchill Admin Name**: Enter the administrator's name for the Main Server. For example, `wcadmin`.
   - **Windchill Admin password**: Enter the administrator password.

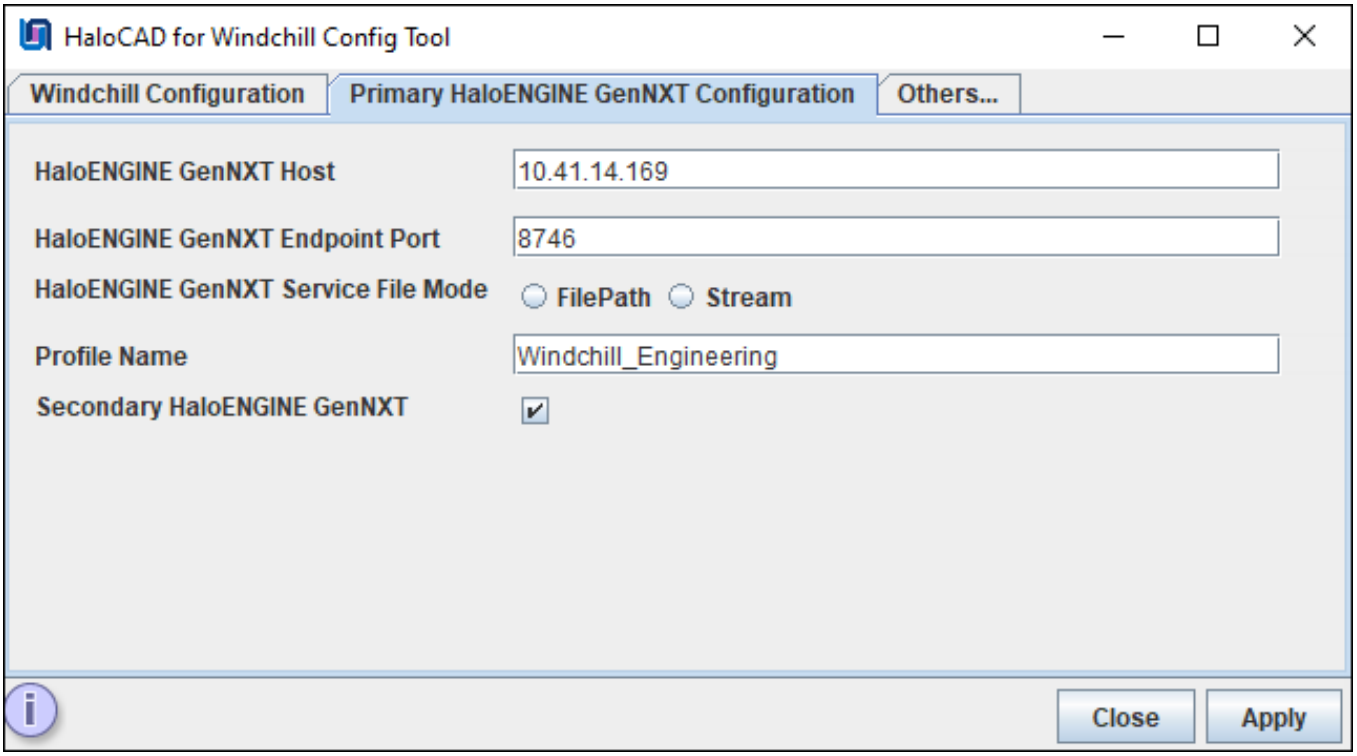
4. Click **Apply**. If required values are missing, a red tooltip message appears. Enter the missing information and click **Apply** to continue.

Result:

- A confirmation message dialog box appears.
- Click **OK** to close the dialog box.
- The configuration files are generated in the installation directory.

Step 4. Primary HaloENGINE GenNXT Configuration

Select the **Primary HaloENGINE GenNXT Configuration** tab, and then enter the following information.



Primary HaloENGINE GenNXT configuration tab

1. **HaloENGINE GenNXT Host**: Enter the IP address or fully qualified domain name (FQDN) of the HaloENGINE GenNXT server. For example, `10.41.14.169`
2. **HaloENGINE GenNXT Endpoint Port**: Enter the endpoint port used to access HaloENGINE GenNXT. For example, `8746`
3. **HaloENGINE GenNXT Service File Mode**: Select the file transmission method.
   a. **FilePath (default):** Stores the file in a local temporary location for the encryption and decryption process. The file path is used for file transfer.
   b. **Stream:** Transfers the file as a sequence of bytes.
4. **Profile Name**: Enter the profile name configured in the Admin Portal. For example, `Windchill_Engineering`.
5. **Secondary HaloENGINE GenNXT**: To configure a failover mechanism, select the **Secondary HaloENGINE GenNXT** check box. HaloCAD supports connection failover between two HaloENGINE GenNXT instances. For more information, please refer to the section "Failover Mechanism for HaloENGINE GenNXT in HaloCAD for PLM".
6. Click **Apply**. If required values are missing, a red tooltip message appears. Enter the missing information and click **Apply** to continue.

Result:

- A confirmation message dialog box appears.

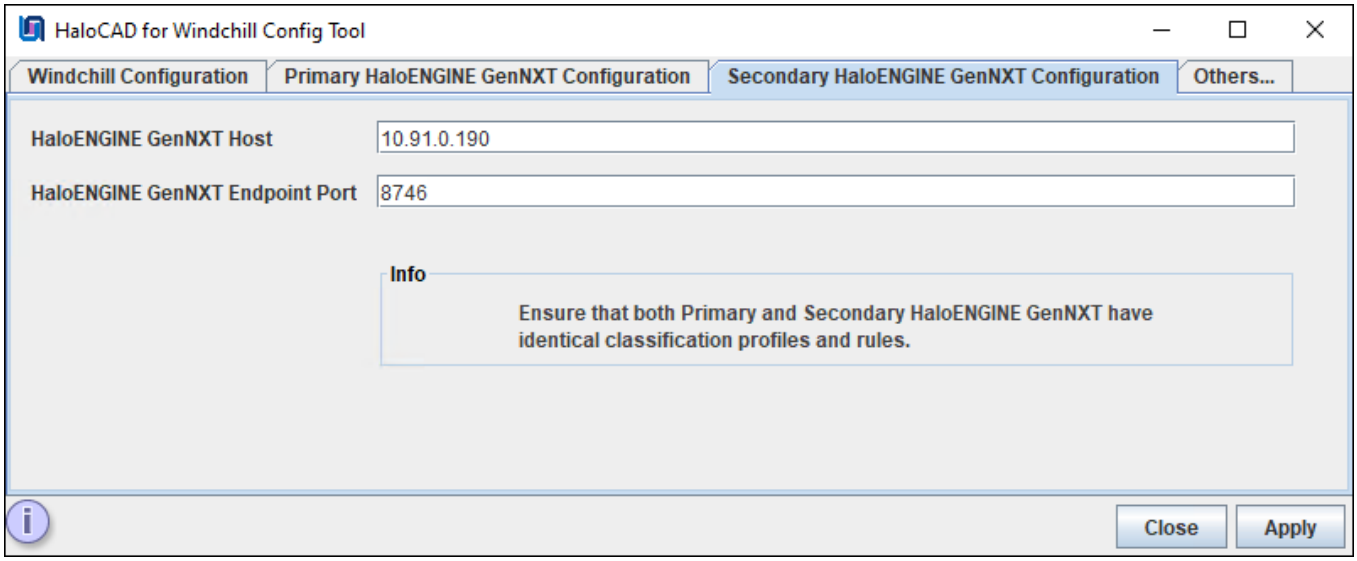
- Click **OK** to close the dialog box.
- If **Secondary HaloENGINE GenNXT** is selected, the **Secondary HaloENGINE GenNXT Configuration** tab appears in the Configuration Tool. Continue with **Step 5**.
- Otherwise, proceed to **Step 6**.

Step 5. Secondary HaloENGINE GenNXT Configuration Settings

Select the **Secondary HaloENGINE GenNXT Configuration** tab, and then enter the following information.

Skip this step if you are not configuring a secondary HaloENGINE GenNXT. This step is required only if you want to use the failover mechanism.

Prerequisite: Ensure that the secondary HaloENGINE GenNXT uses the same configuration profiles and rules as the primary HaloENGINE GenNXT. This ensures that, if the primary HaloENGINE GenNXT becomes unavailable, the secondary HaloENGINE GenNXT can immediately take over and maintain uninterrupted operation.



Secondary HaloENGINE GenNXT configuration tab

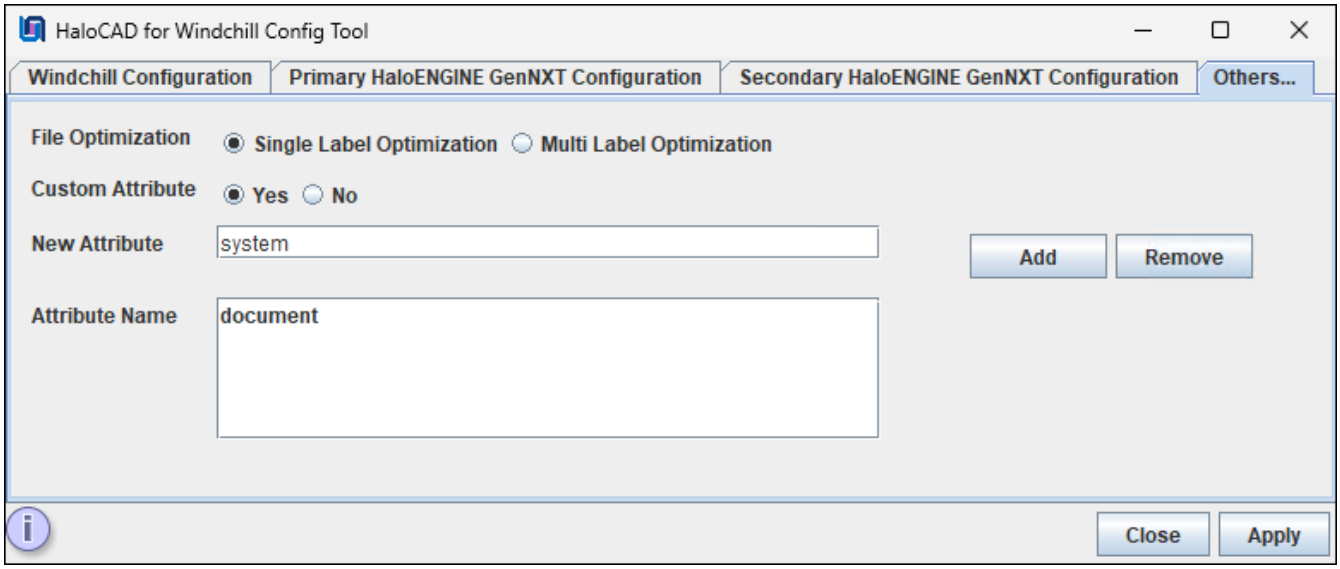
1. **HaloENGINE GenNXT Host**: Enter the IP address or fully qualified domain name (FQDN) of the HaloENGINE GenNXT server. For example, `10.91.0.190`
2. **HaloENGINE GenNXT Endpoint Port**: Enter the endpoint port used to access HaloENGINE GenNXT. For example, `8746`
3. Click **Apply**. If required values are missing, a red tooltip message appears. Enter the missing information and click **Apply** to continue.

Result:

- A confirmation message dialog box appears.
- Click **OK** to close the dialog box.

Step 6. Other Configuration Settings

Select the **Others** tab, and then enter the following information.



Others tab

1. **File Optimization**: Choose one of the following file optimization options. By default, **Single Label Optimization** is selected.
   a. **Single Label Optimization:** The label applied to the top-level file is considered and applied to all dependent files.
   b. **Multi Label Optimization:** The label defined for each file type group in the Classification Engine is considered and applied to the corresponding file group during assembly optimization.
2. **Custom Attribute** (Global Attribute)
   a. If you do not want to use custom attributes, click **Apply**, and then close the Configuration Tool.
   b. If you want to use custom attributes, select **Yes** for **Custom Attribute**, and then enter the following information.
3. **New Attribute**: Enter the attribute name, and then click **Add**. For example, **document** is added as a new attribute.
4. The attribute is added to the **Attribute Name** list.
5. Click **Apply**. If required values are missing, a red tooltip message appears. Enter the missing information and click **Apply** to continue.

Result:

- A confirmation message dialog box appears.
- Click **OK** to close the dialog box.
- Click **Close** to exit the Configuration Tool.

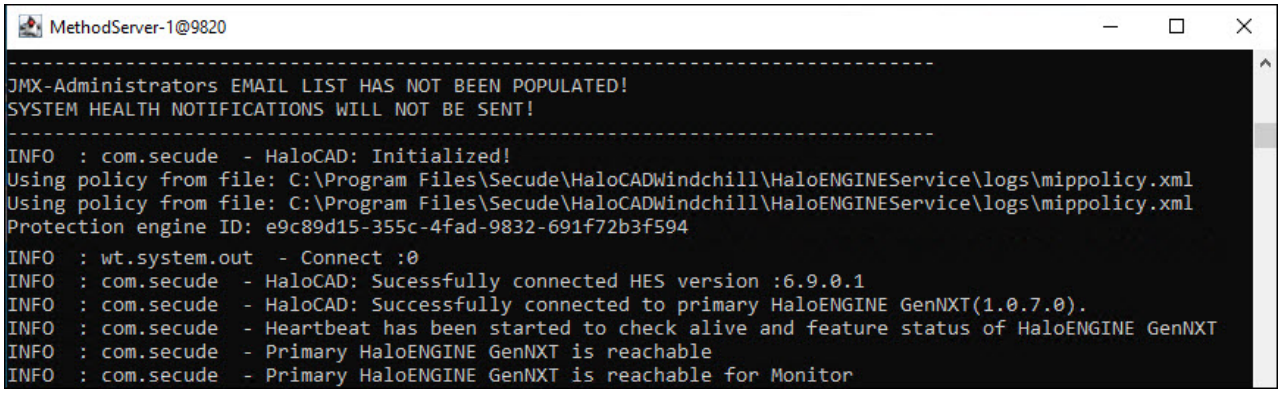
- To remove an attribute, select the attribute from the list, click **Remove**, and then click **Apply** to save the configuration.

Step 7. Start Windchill.

1. Close and reopen the Windchill shell.
2. Type the start command `windchill start` and press **Enter**.

Result:

- A confirmation message appears indicating *"wt.manager.ServerLauncher - Starting Server Manager"*.
- During initialization, the **MethodServer** log displays messages that confirm the configuration was successful.



Sample log file output

Related tasks

- The same logs can be seen in the `MethodServer-xxx-log4j.log` file.
- HaloCAD for Windchill component-related activities are logged in `%WINDCHILL_HOME%\Windchill\logs`.

4.3.2.2. Configuration Using the Command Line

This section describes an alternative method for configuring HaloCAD for Windchill and HaloENGINE GenNXT parameters by using the command line.

Prerequisite: Ensure that HaloCAD for Windchill is installed.

Follow the command-line instructions. A sample is provided below:

1. Open the Windchill Shell, type `java -jar halocad-windchill-config-<version no>.jar -shell`, and press **Enter**.

```
C:\Program Files\Secude\HaloCADWindchill\config>java -jar halocad-windchill-config-
<version>.jar -shell
```

```
--------------------------------------------------------------------------------


--------------------------------------------------------------------------------
HaloCAD for Windchill Config Path: C:\Program Files

1. Windchill Configuration
2. Primary HaloENGINE GenNXT Configuration
3. Others...
0. Exit
Note: If an invalid value is entered, the default value will be applied.

Please choose an option:
1
--------------------------------------------------------------------------------
Windchill Configuration:
--------------------------------------------------------------------------------
Fail Safe Mode: (Default:Tolerant)
1. Tolerant
2. Strict

Please choose an option:
1

Log Level: (Default:INFO)
1. INFO
2. DEBUG
3. ERROR

Please choose an option:
2

Windchill Server Type: (Default:MainServer)
1. MainServer
2. ReplicaServer

Please choose an option:
1

Windchill REST: (Default:Disable Windchill REST)
1. Disable Windchill REST
2. Enable Windchill REST

Please choose an option:
1
```

```
Saved Successfully.
--------------------------------------------------------------------------------
Windchill Configuration:

Fail Safe Mode                  :Tolerant
Log Level                       :DEBUG
Windchill Server Type           :MainServer
Windchill REST                  :Disable Windchill REST

1. Modify all configuration
2. Modify the particular configuration
3. Back to main menu
0. Exit

Please choose an option:
3
--------------------------------------------------------------------------------
1. Windchill Configuration
2. Primary HaloENGINE GenNXT Configuration
3. Others...
0. Exit
Note: If an invalid value is entered, the default value will be applied.

Please choose an option:
2
--------------------------------------------------------------------------------
Primary HaloENGINE GenNXT Configuration:
--------------------------------------------------------------------------------
Secondary HaloENGINE GenNXT: (Default:Disable)
1. Disable
2. Enable

Please choose an option:
1

Enter the HaloENGINE GenNXT Host:
10.41.14.169

Enter the HaloENGINE GenNXT Endpoint Port: (Default:8746)
8746

Enter the Profile Name:
Windchill_Engineering
```

```
HaloENGINE GenNXT Service File Mode: (Default:File Path)
1. File Path
2. Stream

Please choose an option:
2
Saved Successfully.
--------------------------------------------------------------------------------

Primary HaloENGINE GenNXT Configuration:
HaloENGINE GenNXT Host                  :10.41.14.169
HaloENGINE GenNXT Endpoint Port         :8746
HaloENGINE GenNXT Service File Mode     :Stream
Profile Name                            :Windchill_Engineering
Secondary HaloENGINE GenNXT             :Disabled

1. Modify all configuration
2. Modify the particular configuration
3. Back to main menu
0. Exit

Please choose an option:
3
--------------------------------------------------------------------------------
1. Windchill Configuration
2. Primary HaloENGINE GenNXT Configuration
3. Others...
0. Exit
Note: If an invalid value is entered, the default value will be applied.

Please choose an option:
3
--------------------------------------------------------------------------------
Others...

File Optimization               :Single Label Optimization
Custom Attribute                :No

1. File Optimization
2. Custom Attribute
3. Back to main menu
0. Exit

Please choose an option:
```

```
2
--------------------------------------------------------------------------------
Custom Attribute: (Default:No)
1. No
2. Yes

Please choose an option:
1
Custom Attribute Disabled Successfully.
--------------------------------------------------------------------------------
Others...

File Optimization                :Single Label Optimization
Custom Attribute                 :No

1. File Optimization
2. Custom Attribute
3. Back to main menu
0. Exit
```

2. Click **Close** to close the Windchill Shell.

4.4. Configuring the Tomcat Service

During installation, the Microsoft Entra ID application details initialize the **HaloENGINE GenNXT Tomcat service**. After successful authentication, the sensitivity labels are retrieved automatically.

Default locations of log files

Name	Default Path
HaloCAD log	`C:\Program Files\Secude\Tomcat\logs\haloproxy.log`.
Configuration tool	`C:\Program Files\Secude\HaloCADWindchill\HaloENGINEService\lib\heslibconfig.exe`
MIP logs	`C:\Program Files\Secude\HaloCADWindchill\HaloENGINEService\logs\mip_cache_storage\mip\logs`

Default locations

Use `heslibconfig.exe` to update MPIP-related settings, such as the Application ID, Tenant ID, thumbprint, and cloud type.

To update your Microsoft Entra ID application details, follow the procedure below.

1. Open the Command Prompt with elevated rights (Run as Administrator).
2. Navigate to the directory where `heslibconfig.exe` is located.
3. To view the list of available options in silent mode, enter the following command:

   Type `heslibconfig.exe -help`

   Press `Enter`

   Output

   ```
   Usage:
   heslibconfig.exe -testmip
   heslibconfig.exe -update -applicationid <application_id> -tenantid <tenant_id> -thumbprint <thumb_print> -cloudtype <(Commercial|Custom|Germany|US_DoD|US_GCC|US_GCC_HIGH|US_Sec|US_Nat|China_01) (if cloudtype is Custom) <protectioncloudurl> <policycloudurl>
   ```
4. To display the labels, enter the following command:

   ```
   heslibconfig.exe -testmip
   ```

   MPIP initializes, and the labels are fetched.
5. To update the JSON file, enter the following command:

   ```
   heslibconfig.exe -update -applicationid 9f0de2dd-8d49-4a3f-9676-bf4b6ff17d44 -
   ```

```
tenantid 8c425ee7-352a-4657-ac77-7dc198712cb3 -thumbprint
961602617275c2ab538cf28bb3648c0c6d97edab -cloudtype Custom https://api.aadrm.com
https://dataservice.protection.outlook.com
```

A confirmation message appears stating that the configuration JSON file location has been successfully updated to `...\config\HaloENGINESVC.json`.

Configuration change in JSON File

After installation, navigate to the configuration folder`...\HaloENGINEService\config`, and you will find a JSON file that contains the HaloENGINE GenNXT Tomcat Service configuration properties. Note: From the list of default parameters, only the parameters listed below should be modified, and only when necessary. All other parameters must remain at their default values to ensure proper system functionality and stability.

Name	Description
block_pii	Enable or disable the visibility of Personally Identifiable Information (PII) in the MIP SDK logs. • false—PII will be visible in clear text in the MIP SDK logs. • true—PII will be masked with asterisks in the MIP SDK logs. This helps to protect the PII's confidentiality.
cachetype	MPIP cache storage type used by the service. • In Memory—0, maintains the storage cache in memory in the application. • On Disk—1 (default storage type), stores the database (SQLite3) on disk in the directory provided in the settings object. The database is stored in plaintext. • On Disk Encrypted—2, stores the database (SQLite3) on disk in the directory provided in the settings object. The database is encrypted using OS-specific APIs.
cacheuserlicense	• 0—false, End User License (EUL) will NOT be stored in the MPIP cache storage. • 1—true (default value), End User License (EUL) will be stored in the MPIP cache storage
databoundary	Audit and telemetry events are sent to the nearest collector, where these events are stored and processed.

Name	Description
enabledke	Double Key Encryption • 0 (default value)—Disables the DKE functionality in the HaloENGINE GenNXT Tomcat Service. • 1 (On)—Enables the DKE functionality in the HaloENGINE GenNXT Tomcat Service. Please be aware that DKE labels are only visible when DKE functionality is enabled.
enablefiletracking	To register a protected file to track and revoke. • 0 (default value)—the protected file will not be registered for file tracking and access revocation. • 1—The protected file will be registered for file tracking and access revocation
enableminimaltelemetry	To transmit diagnostic information to Microsoft. • 0 (default value)—all diagnostic events are transmitted. • 1—Minimum diagnostic events are transmitted.
log_level	The available log levels are ERROR, WARNING, INFO, and DEBUG.
log_purge	It indicates removing files older than a defined time frame. By default, the log files older than 7 days will be deleted.
streambuffersize	It is a buffer size used for memory-based encryption with the MIP SDK. When the allotted buffer size is exceeded, an additional memory of stream buffer size is allocated, and this process is repeated until the encryption/decryption operation is completed. The default setting is 10MB.
templatefile_purge	Defines the purge time of template files that are generated for every CAD assembly file (compound file) download. The default value set is one hour. For example, when a file is downloaded at 15:25 hours, the HaloENGINE GenNXT Tomcat Service creates a template file in the tmp\GUID folder (which can be located in the HaloENGINE GenNXT Tomcat Service user's profile folder). In the background, it examines and

Name	Description
	deletes files that have reached the configured time, i.e., after 16:25 hours. Note: This is only applicable in the event of CAD assembly file labeling.

HaloENGINE GenNXT Tomcat service configuration

4.4.1. WinHTTP Proxy Settings

To allow MIP SDK to use the proxy settings set up in your environment, follow the steps below:

Determine whether the proxy server has been properly set up by running the following command.

```
C:\Windows\system32>netsh winhttp show proxy

Current WinHTTP proxy settings:

Direct access (no proxy server).
```

If the response to the command is as shown above, it indicates that the proxy server has not been configured in the registry for WinHTTP.

To configure the proxy server for WinHTTP, use the following command:

Syntax: `C:\Windows\system32>netsh winhttp set proxy <proxyservername>:<portnumber>`

Example: `C:\Windows\system32>netsh winhttp set proxy 190.160.166.191:8080`

In this case, the proxy server has been set up with `190.160.166.191:8080`. Once this command is executed successfully, the registry is updated with the proxy server URL, and the HaloENGINE GenNXT Tomcat Service ensures that the configured proxy settings are applied.

5. Updating the HaloCAD Configuration

You can modify the configuration at any time by using either the **HaloCAD Configuration Tool (GUI)** or the command line.

6. Appendix

This section provides supplemental information.

6.1. Enabling Split Authentication

In a Windchill setup with **Single Sign-On (SSO)** implemented on the master/main server and a replica server connected to it, HaloCAD has a limitation when obtaining metadata from the replica server by using SSO-based authentication.

Split authentication overcomes HaloCAD's limitation when accessing REST calls from the replica server to the main server. All other activities continue to use SSO authentication or the customized authentication configured by the customer, except for HaloCAD operations on the replica server.

PTC recommends this solution. For more information, see **Knowledge Base Article CS291543**.

The following example shows how to configure split authentication for the HaloCAD Controller endpoint on the main server.

Follow the steps for the configuration:

1. Stop the Windchill and Apache servers.
2. In the HTTPServer directory `<WT_HOME>\HttpServer\conf\conf.d` (for example, `C:\ptc\Windchill_12.0\HTTPServer\conf\conf.d`), create a new configuration file with a number higher than the existing `<number>-app-Windchill-Auth.conf` file. For example, if there is a file with `39-app-Windchill-Auth.conf`, you can create one with `40-app-Windchill-Auth.conf`.
3. Enter the following values into the file, and then save it.

```
<LocationMatch ^/+Windchill/+servlet/+HALOCADController(;.*)?>
      AuthName "Windchill"
      AuthType Basic
      AuthBasicProvider Windchill-LDAP
      Require valid-user
</LocationMatch>
```

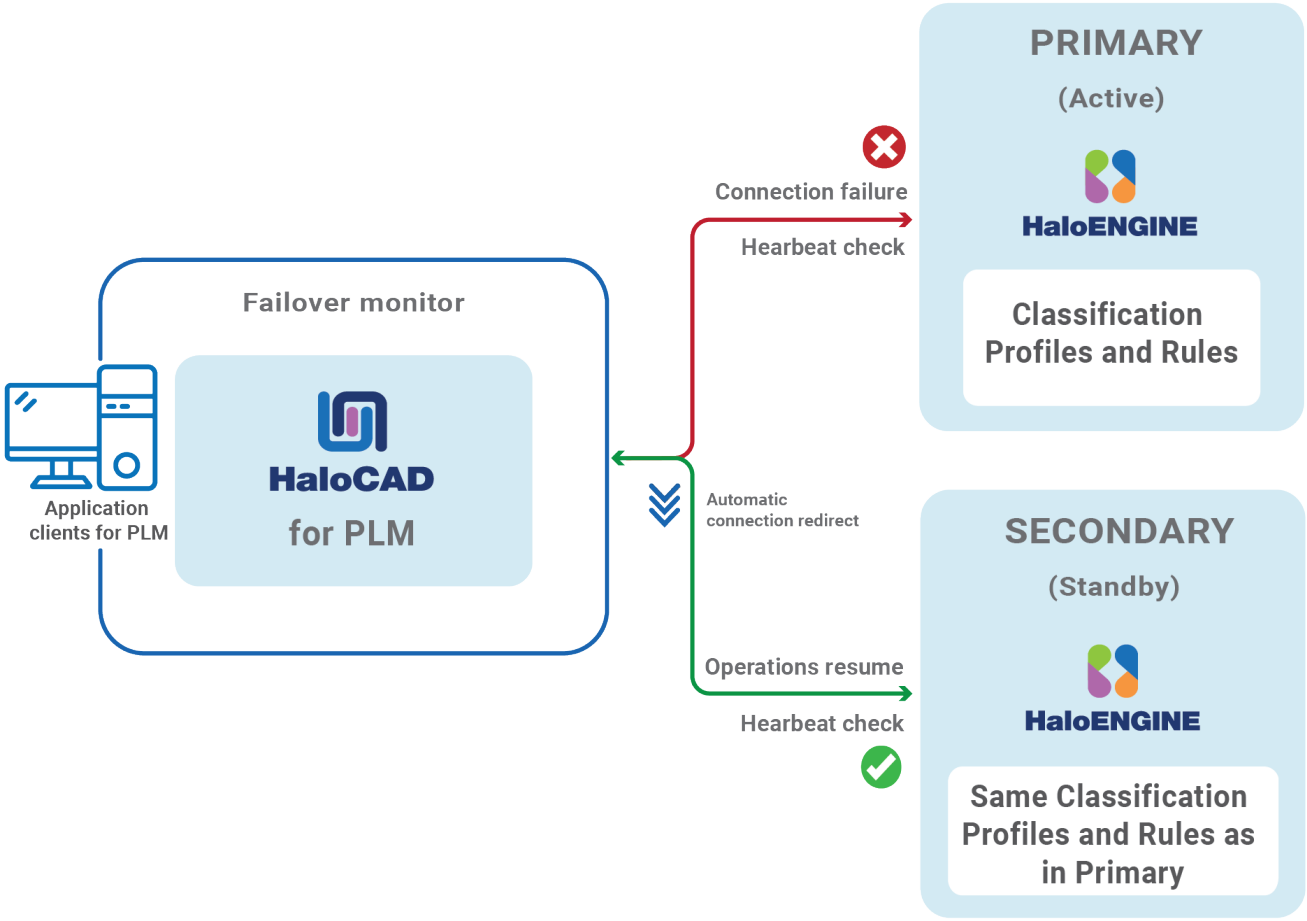
4. Restart the Windchill and Apache servers.

6.2. Failover Mechanism for HaloENGINE GenNXT in HaloCAD for PLM

Server failover between two systems supports uninterrupted operation and service reliability in the event of a failure. The server failover configuration is **active-standby**, where the primary server is **active,** and the secondary server is **standby**.

HaloCAD for PLM supports connection failover between two HaloENGINE GenNXT instances. The failover mechanism provides the following benefits:

1. **High Availability**: If the primary HaloENGINE GenNXT fails, the secondary HaloENGINE GenNXT takes over, reducing downtime and maintaining continuous operation.
   Example: Assume that your business process requires no downtime.
   As part of the business security policy, the administrator configures **Fail-Safe Mode** as **Strict** to block file uploads or downloads whenever an error occurs. If HaloENGINE GenNXT encounters an unexpected issue and fails to obtain label information, file uploads or downloads are prevented. In such cases, the HaloENGINE GenNXT failover mechanism handles the situation without affecting the end user. If the primary HaloENGINE GenNXT connection fails, HaloCAD detects the failure and immediately switches to the secondary HaloENGINE GenNXT to continue providing services.
   Once the primary HaloENGINE GenNXT is restored, it remains in standby while the secondary HaloENGINE GenNXT remains active. If the secondary HaloENGINE GenNXT fails, the primary HaloENGINE GenNXT takes over operations again.



Failover Mechanism for HaloENGINE GenNXT in HaloCAD for PLM

2. **Redundancy**: Provides redundancy by ensuring that another HaloENGINE GenNXT is always available to take over if the primary HaloENGINE GenNXT fails. This minimizes the possibility of a single point of failure.
3. **Data Integrity and Consistency**: In the event of a failure, the failover mechanism helps ensure that data remains consistent and that file upload and download activities are not lost. This is crucial for systems that rely on high data security.

Failover Mechanism Requirement

1. **Network Infrastructure:** Deploy the secondary HaloENGINE GenNXT on a separate network segment from the primary HaloENGINE GenNXT.
2. **Data Replication:** Ensure that both HaloENGINE GenNXT use the same classification profiles and rules.

6.3. Third-Party Libraries

Third-party software/code is included or bundled with Secude's products according to its appropriate license. Secude conducts testing to make sure the third-party products are compatible with and perform as intended with Secude applications.

The third-party libraries and dependencies used by HaloCAD for Windchill are shown in the table below.

Library names	Versions	Source Code URLs	License Links
commons-io	2.+	https://mvnrepository.com/artifact/commons-io/commons-io	https://www.apache.org/licenses/LICENSE-2.0.txt
jna	5.13.0	https://mvnrepository.com/artifact/net.java.dev.jna/jna	http://www.apache.org/licenses/LICENSE-2.0.txt http://www.gnu.org/licenses/licenses.html
jna-platform	5.13.0	https://mvnrepository.com/artifact/net.java.dev.jna/jna-platform	http://www.apache.org/licenses/LICENSE-2.0.txt http://www.gnu.org/licenses/licenses.html
MIP SDK	1.16.126.0	https://learn.microsoft.com/en-us/information-protection/develop/version-release-history	https://docs.microsoft.com/en-us/information-protection/develop/
MSAL	4.73.1	https://github.com/AzureAD/microsoft-authentication-library-for-dotnet	https://github.com/AzureAD/microsoft-authentication-library-for-dotnet/blob/master/LICENSE
Spdlog	1.15.3	-	https://github.com/gabime/spdlog

Third-party libraries

6.4. Windchill Metadata Definitions

The table below lists the Windchill metadata available in the HaloENGINE GenNXT.

Windchill metadata	Use
server_name	Derivation from the server name (FQDN of the Windchill server). (For example, `svin0007.secude.local`)
user_name	Derivation from the logged-in Windchill user. (For example, John and Derek)
file_name	Derivation from the file name.
project_name	Derivation from the project name. (For example, Windchill)
product_name	Derivation from the product name (For example, Windchill).
lifecycle_template	Derivation from the lifecycle of a file. Lifecycle provides an overview of how business items develop and serves as a model for the commercialization process. The lifecycle templates may be of the following types: Approval, Basic, Default, and so on. (For example, `Pipeline.prt` - Default)
user_role	Derivation from the user role. (For example, Designer and Engineer)
lifecycle_state	Derivation from the lifecycle of a file. Each phase of a lifecycle template is associated with a lifecycle state. There are different kinds of lifecycle states. 1. Approval (template): In work, under review, approved (states) 2. Basic (template): Basic: In work, released, canceled (states) 3. Default (template): Default: In work, under review, released (states) (For example, `Pipeline.prt`- Default-released)
security_label	Derivation from the Windchill access control policy. For more details, please refer to the online PTC Windchill documentation.

Windchill metadata	Use
	(For example, Export Control, Corporate Proprietary, and Third Party Proprietary)
file_type	Derivation from the file type (Creo file types and MS Office native file types). (For example, sec, prt, asm, xlsx)
library_name	Derivation from the library name. (For example, Density, Wheel, and Pipeline)
workspace_name	Derivation from workspace. (For example, Generic_computer and Drive System)
system_context	Derivation from the origin of the data. (For example, Generic_computer, and Drive System)
preexpression_custom_pre-expression	Derivation from custom pre-expression. 1. Yes 2. No

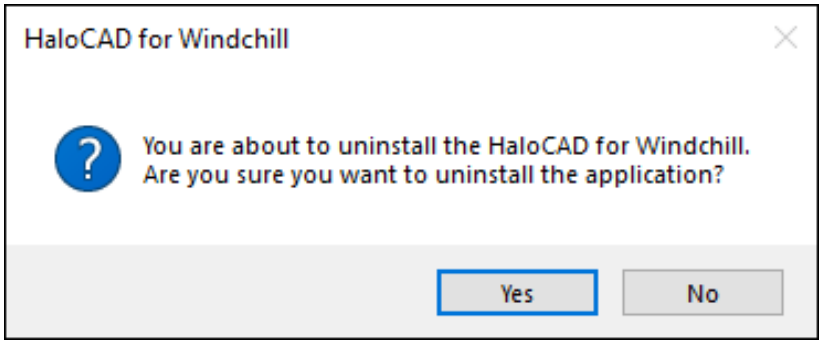
Windchill metadata

6.5. Uninstalling the HaloCAD Component from Windows

Once you stop using the HaloCAD component, you can uninstall it. Uninstalling removes all files and registry settings that were added to your computer during initial installation.

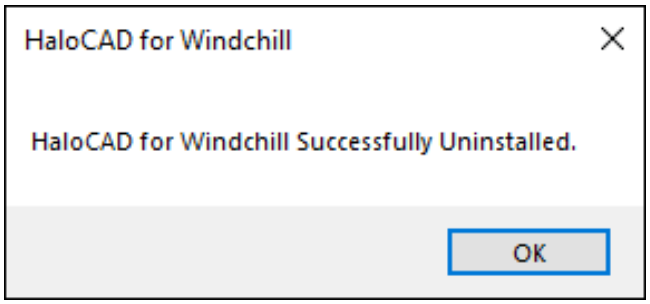
Prerequisite: Make sure to stop the Windchill Server before performing uninstallation. Otherwise, an error message appears such as "*Windchill Server instance is running. So please stop the server and retry unistallation.*"

1. Click **Start** menu > go to **Control Panel** > **Programs** > **Programs and Features** > **Uninstall a Program** > select **HaloCAD for Windchill** application from the list > right-click and select **Uninstall** option or double-click on the installer `HaloCAD_Windchill_Setup.exe` file.
2. Depending on your Windows security settings, you may get a security warning as "*Do you want to allow the following program to make changes to this computer*?". If you get this security warning, click the **Yes** button to confirm that you want to uninstall the HaloCAD component.
3. The following confirmation message appears.



Uninstall Message #1

4. Click **Yes** to confirm that you want to remove it from the computer.



Uninstall Message #2

Result

a. The HaloCAD component is successfully uninstalled.

b. Click **OK** to close the dialog.

c. Uninstallation is complete.

d. **Alternative method:** Remove configuration files using the **HaloCAD Configuration Tool**. Open **Command Prompt** as Administrator, then run this command:`HaloCAD_Windchill_Setup.exe -uninstall`

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Secude

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About Secude

Secude, a trusted Microsoft and Siemens Digital Industries Software partner, is a global leader in Zero Trust data protection and data governance.

Our solutions extend Microsoft Purview Information Protection (MPIP) to secure sensitive files—including CAD and PLM assets—from the moment of creation. By embedding persistent protection and access controls directly into design and engineering data, we help enterprises prevent Intellectual Property (IP) theft, data leakage, reputational damage, and compliance risks. With operations in Europe, North America, and Asia, Secude supports global manufacturers, defense contractors, and AEC firms in implementing robust IT security strategies across the product lifecycle and digital supply chain.