Secude

HaloCAD

HaloCAD for Windchill 2.6

Installation Manual

Copyright

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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 Contains detailed information about a topic and are of direct importance to the subject at hand. 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 across industries, such as automotive, aviation, high tech, and even fashion, create and manage their intellectual property (IP) based on drawings. These drawings are created digitally using computer-aided design (CAD) applications and are shared with users outside the organization owing to business considerations. It's essential to understand the potential risks associated with sharing business information. By implementing comprehensive security measures, you can significantly reduce the risks and safeguard your data.

1.1. How does HaloCAD protect your Data?

HaloCAD effortlessly integrates Microsoft Purview Information Protection (MPIP), formerly known as Microsoft Information Protection (MIP), the leading technology for Enterprise Digital Rights Management (EDRM). It acts as a shield for your CAD files by automatically labeling them with MPIP and managing data assets across your environment.

It offers access to MPIP-protected files, including label handling and privilege enforcement. CAD users will not notice any differences in the handling of CAD files because they take place in the background. By seamlessly attaching MPIP labels to the CAD files while they are being created, it provides end-to-end security for those files.

1.2. What is HaloCAD for PLM?

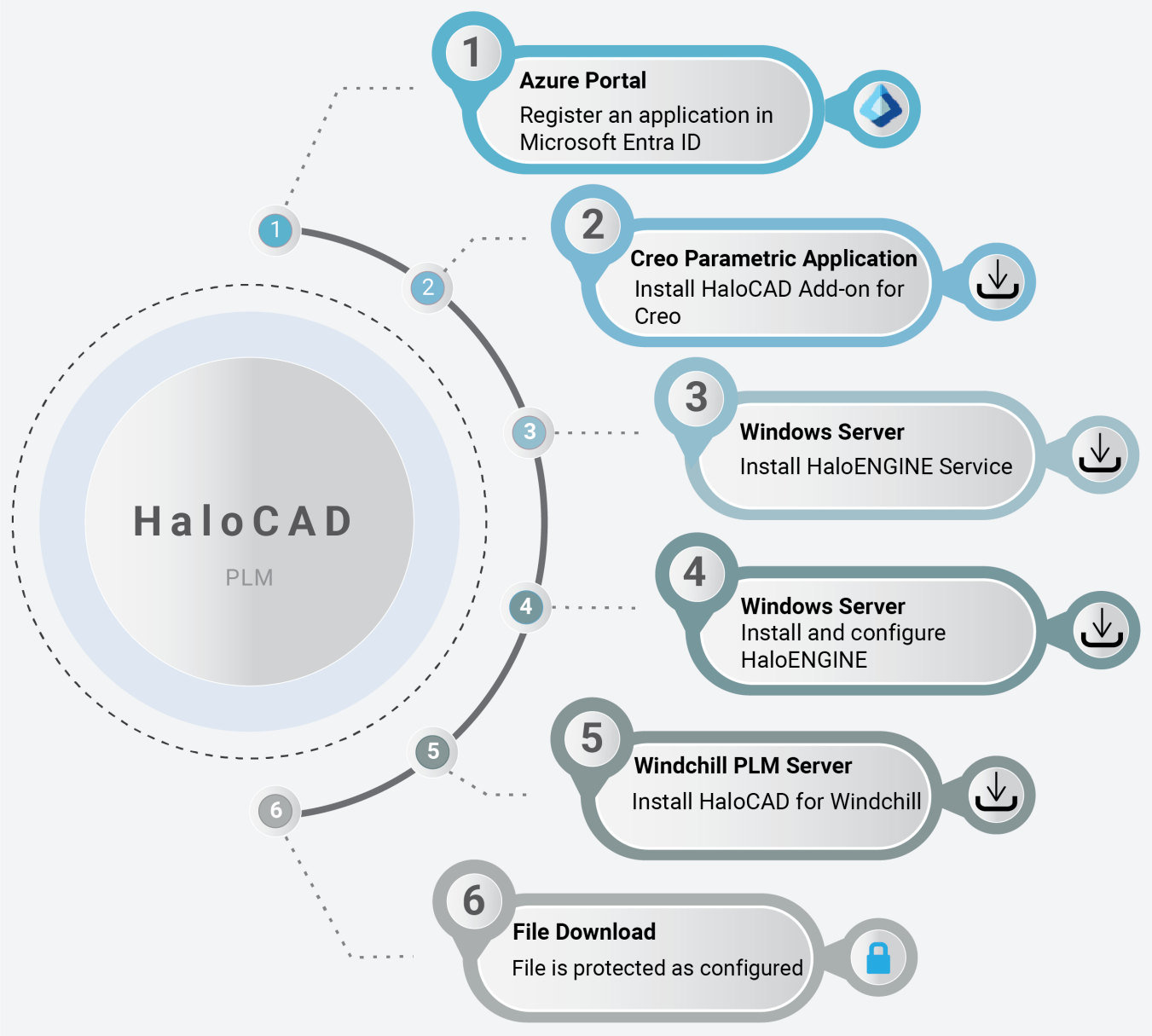
The HaloCAD for PLM solution integrates with the respective PLM application and includes the functionality of HaloCAD PROTECT and HaloCAD MONITOR. Files are automatically protected during the access/download or check-out process and are stored unprotected back into the PLM Vault during the upload/check-in process. In the background, upload and download events are monitored and logged in a log file.

1.3. About this Manual

This manual walks you through the installation and configuration procedures unique to HaloCAD for Windchill.

2. Quick Start Installation Summary

The following image shows the high-level idea of setting up HaloCAD.



HaloCAD quick start installation steps with PLM

Reference Manuals

The table below describes where to obtain information in the HaloCAD documentation set.

Component	Refer to
Step 1 – How to register an application in Entra ID.	`HaloCAD_Technical_Reference_Manual_EN_Online.pdf`
Step 2 – How to install HaloCAD Add-on for Creo.	`HaloCAD_Creo_Manual_Installation_EN_Online.pdf`
Step 3 – How to install HaloENGINE.	`HaloENGINE_Manual_Installation_EN_Online.pdf`
Step 4 – How to install HaloENGINE Service.	
Step 5 – How to install HaloCAD for Windchill.	Refer to the current manual.
Step 6 – How to download a protected file.	`HaloCAD_Windchill_Manual_Operations_EN_Online.pdf`

HaloCAD documentation

3. HaloCAD Architecture

HaloCAD is available in three variants:

HaloCAD Add-on for CAD—A standalone solution that contains the HaloCAD PROTECT feature. It enables CAD applications to use MPIP directly with user interaction. For more details, please refer to "Standalone Installation Manual of HaloCAD Add-on for Creo".

HaloCAD for PLM—This solution includes HaloCAD PROTECT and MONITOR capabilities and interacts with the respective PLM application. HaloCAD for Windchill actively monitors file access, upload, and download events while running in the background. During a file upload, HaloCAD examines to see if the file is already encrypted, and if so, it decrypts and then allows the file to get check-in to the PLM Vault. In the event of a file access/download, the selected file is automatically protected. HaloCAD operates independently throughout the check-in and check-out process in accordance with the rules stated in the Classification Engine. Please note that currently, PTC Windchill PLM protects Creo, MS Office, and PDF files.

HaloCAD Extension—HaloCAD extends its support to read the MPIP-protected files through a free-of-charge standalone HaloCAD Reader Add-on.

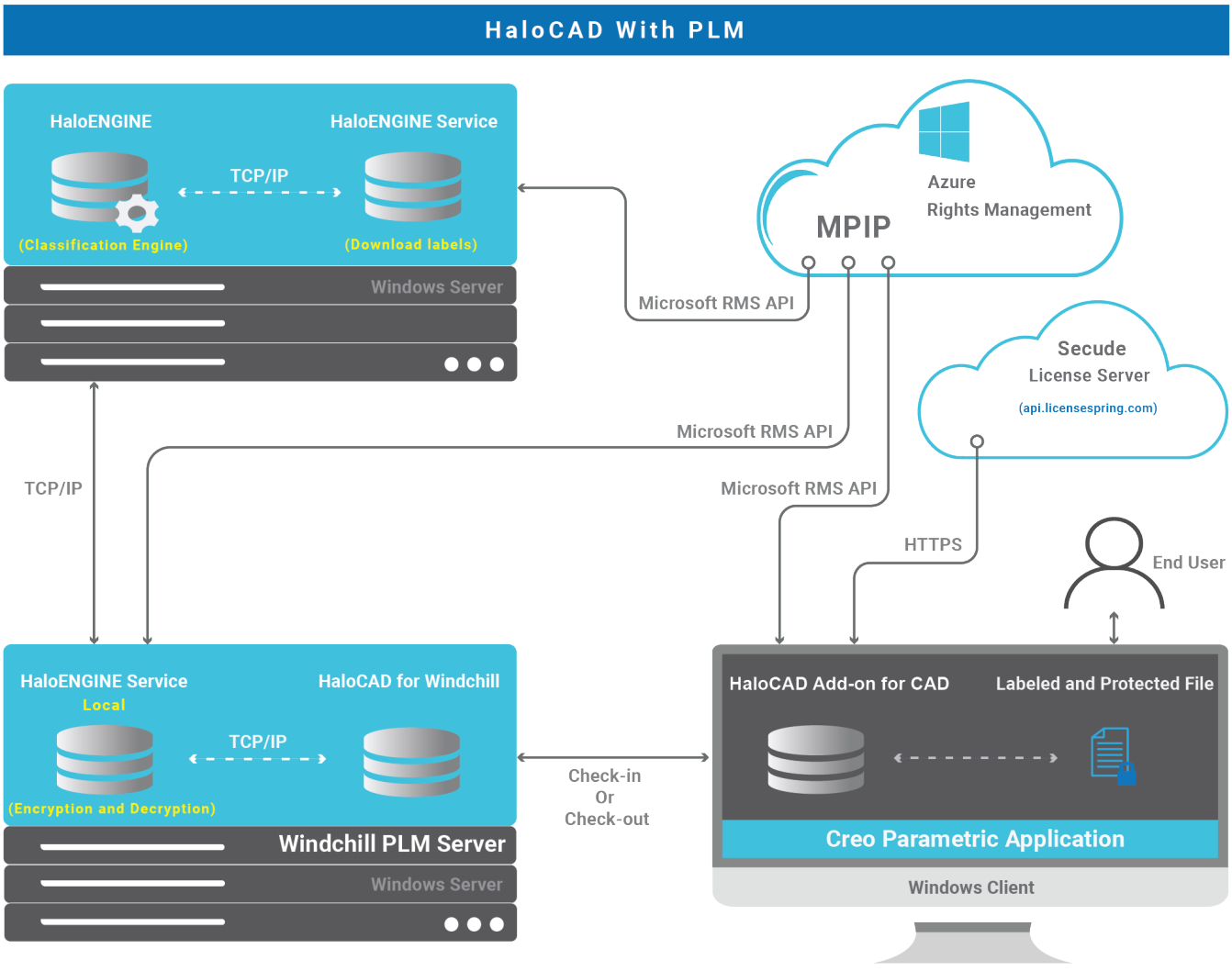
Components of HaloCAD

The following section explains about components of HaloCAD.

1. HaloCAD for Windchill—contains the functionality of HaloCAD PROTECT and MONITOR.
2. HaloCAD Add-on for Creo—reads the protected files, enforces corresponding privileges, and changes MPIP labels.
3. HaloENGINE—Significant role where business logic is located.
4. HaloENGINE Service—Serves file processing (encryption and decryption). Based on the PLM configuration (Local mode or remote mode), the file processing place differs.
   a. With **Local** mode, HaloENGINE Service and HaloCAD for Windchill should be installed on the same machine on which Windchill PLM is installed. For file encryption and decryption, HaloCAD for Windchill interacts with this HaloENGINE Service.
   Whereas HaloENGINE and a second HaloENGINE Service must be configured on another server machine, and this second HaloENGINE Service is primarily responsible for downloading labels from Azure RMS.
   b. With **Remote** mode, HaloCAD for Windchill is installed on a separate server machine and communicates with the HaloENGINE to get the file encrypted/decrypted by the HaloENGINE Service, which is installed locally on the HaloENGINE installed machine.

c. During a file check-in/check-out action, the HaloCAD for Windchill actively listens to the request and collects the metadata, and sends it to the HaloENGINE for label derivation. The file, along with the derived information, is then passed to the local HaloENGINE Service or HaloENGINE (to remote HaloENGINE Service) for file processing (encryption/decryption).

d. The only difference between local mode and remote mode is where encryption/decryption occurs.



HaloCAD with PLM (Local)

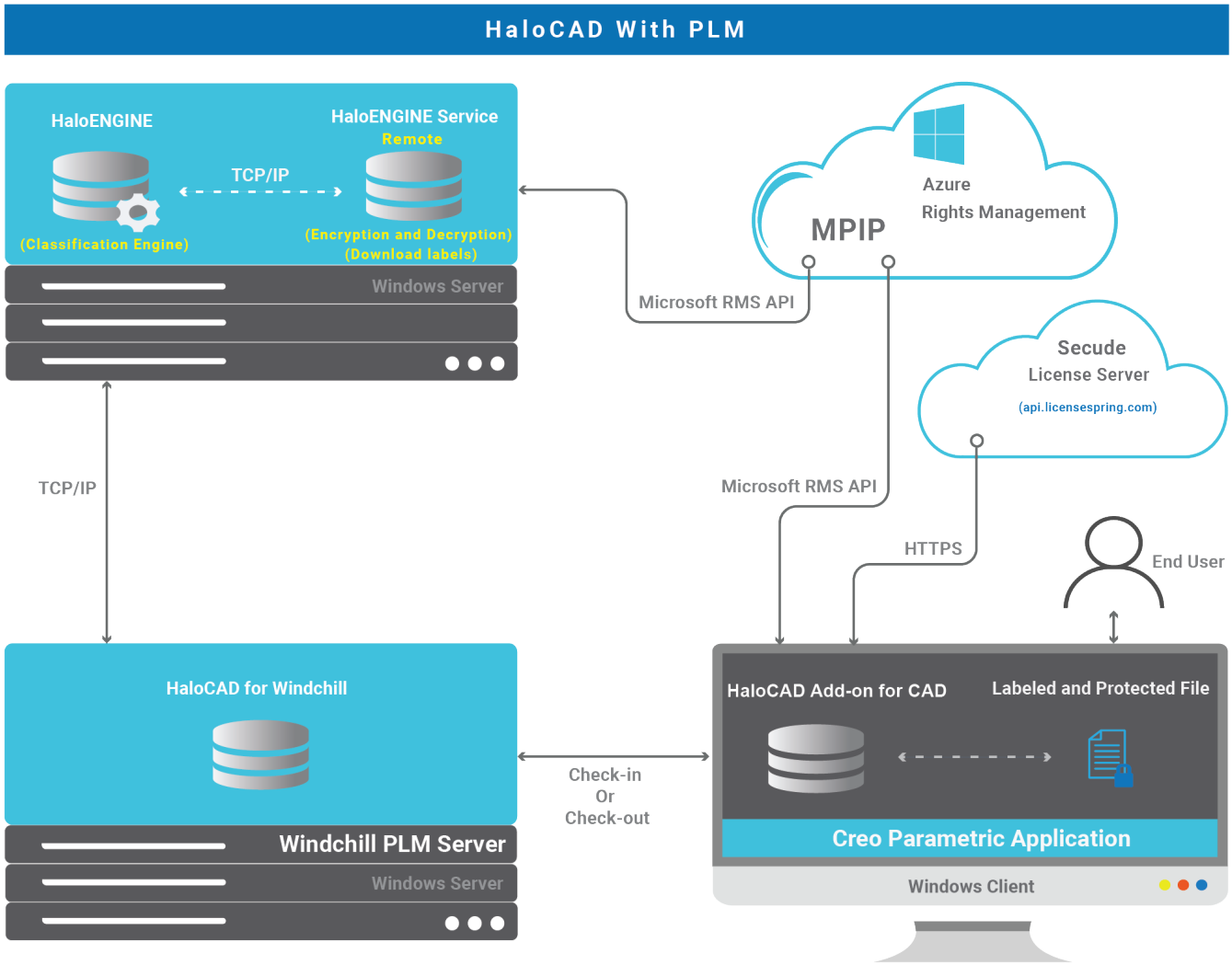
Recommendations for improving performance

1. HaloENGINE Service in local mode

   In local mode, one HaloENGINE Service should be configured with HaloCAD, while another server machine should have HaloENGINE installed, along with another HaloENGINE Service to download MPIP labels. Having a local instance of HaloENGINE Service with HaloCAD for data protection enhances overall performance.

2. MPIP offline access

   Configure the labels to allow offline access. This must be configured in the Microsoft Purview portal under Items > Allow offline access > Always. Choosing this option could have an effect on the revocation process. Therefore, it needs to be taken into account when choosing the offline access option.



HaloCAD with PLM (Remote)

HaloCAD Add-on for Creo performs the following functions:

1. Resides in Creo Parametric application.
2. Responsible for receiving the protected file from Windchill and displaying the label with permission enforcement.
3. Responsible for forwarding the encrypted file stream (if labeled) to HaloCAD for Windchill.
4. Responsible for logging the add-on-related activities.

HaloCAD for Windchill performs the following functions:

1. Resides in Windchill PLM Server.
2. Listen for check-in and check-out actions through the browser/Creo.
3. Remote mode: Responsible for the collection of metadata and label information from the HaloENGINE and then sending the file to the (remote) HaloENGINE Service for file processing.
4. Local mode: Responsible for the collection of metadata and label information from the HaloENGINE and then forwarding the file directly to the (local) HaloENGINE Service for file processing either in “File path” or “Stream”.
5. Responsible for receiving the encrypted file via the HaloENGINE (in remote mode) and from the HaloENGINE Service (in local mode) during the check-out process.
6. Responsible for logging HaloCAD component activities to the local log and also for sending monitor logs to the HaloENGINE.

HaloENGINE performs the following functions:

HaloENGINE is a Java-based server component that exposes a web service to HaloCAD for Windchill.

1. Responsible for business logic. The HaloENGINE (classification engine) interprets the metadata collected in Windchill PLM and makes all decisions. The action derivation is based on the rules generated with metadata, which are captured during a file download.
2. Responsible for forwarding the file stream to the HaloENGINE Service for encryption (in Remote mode) during check-out action.
3. Responsible for forwarding the file stream to the HaloENGINE Service for decryption in remote mode if the file is already protected during the check-in process.
4. Responsible for logging events sent by HaloCAD for Windchill.

HaloENGINE Service performs the following functions:

HaloENGINE Service, a Windows service, is responsible for communicating with HaloENGINE via TCP/IP. It is the only component that directly communicates with the Azure Right Management Service (Azure RMS).

1. Responsible for fetching the MPIP labels.

2. Responsible for protecting the file that the HaloENGINE sends to it, based on the defined MPIP label.
3. Responsible for decrypting a protected file while uploading.

Microsoft Purview Information Protection

HaloCAD solution effortlessly integrates Microsoft Purview Information Protection to protect your sensitive documents. Microsoft Purview Information Protection is an industry document security solution that enables businesses to ensure that only authorized users can open the protected content while also regulating what they can do with it such as print, edit, or save. Even if sensitive data is leaked accidentally or maliciously, unauthorized parties cannot view it in clear text, thus leaving it useless.

Microsoft documentation

This manual assumes that you already have a complete setup of Microsoft Purview Information Protection and you are familiar with using the Microsoft Purview portal and related concepts. If you are new, you can refer to Microsoft's online documentation for setup and configuration.

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 system requirements table specifies the minimum and recommended technical specifications, such as software and network resources, necessary to run the product.

Components	Details
Supported Operating Systems	1. Windows Server 2022 and above. 2. Red Hat Enterprise Linux 7.4 and 8.1
Supported file types	1. Creo file types 2. MS Office native file types 3. Non-Office file types
Other components	HaloENGINE and HaloENGINE Service

Requirements

4.2. Prerequisites

The following preparatory steps or conditions must be met before installing the product.

1. Make sure you have administrative access to install the HaloCAD component.
2. Make sure 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, make sure the **Type and Attribute Management Utility** page is configured.
5. Make sure your HaloENGINE complies with the requirements listed below:
   a. License file (enabled with WINDCHILL system type).
   b. Proper action rules
   c. Client certificate (`.JKS`)
6. Make sure that `PATH` is added to the **System variable** to run the HaloCAD Configuration Tool:
   For example, `PATH=C:\WINDOWS\system32;C:\WINDOWS;C:\Program Files\Java\jdk1.8.0_241\bin`
7. 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.
8. If you want to implement a failover mechanism in HaloENGINE, please refer to the section "Failover Mechanism for HaloENGINE in HaloCAD for PLM".

If you are using a version that is less than 2.2.x.x, you must first uninstall it using the tool provided with it before using the new installer to install the more recent version.
This is due to incompatibility between the jar files.
If this is your first time installing the CAD component, you can use the installer directly.

4.3. HaloCAD in Windows Environment

This section explains how to set up HaloCAD using an installer for Windows-based Master and Replica Servers. The installer is included in the installation package.

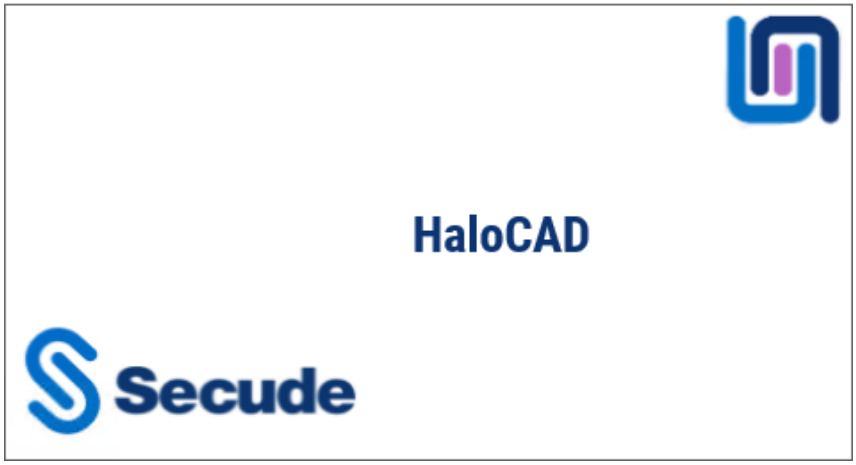
4.3.1. Installation Modes

You can install the HaloCAD component in the following modes:

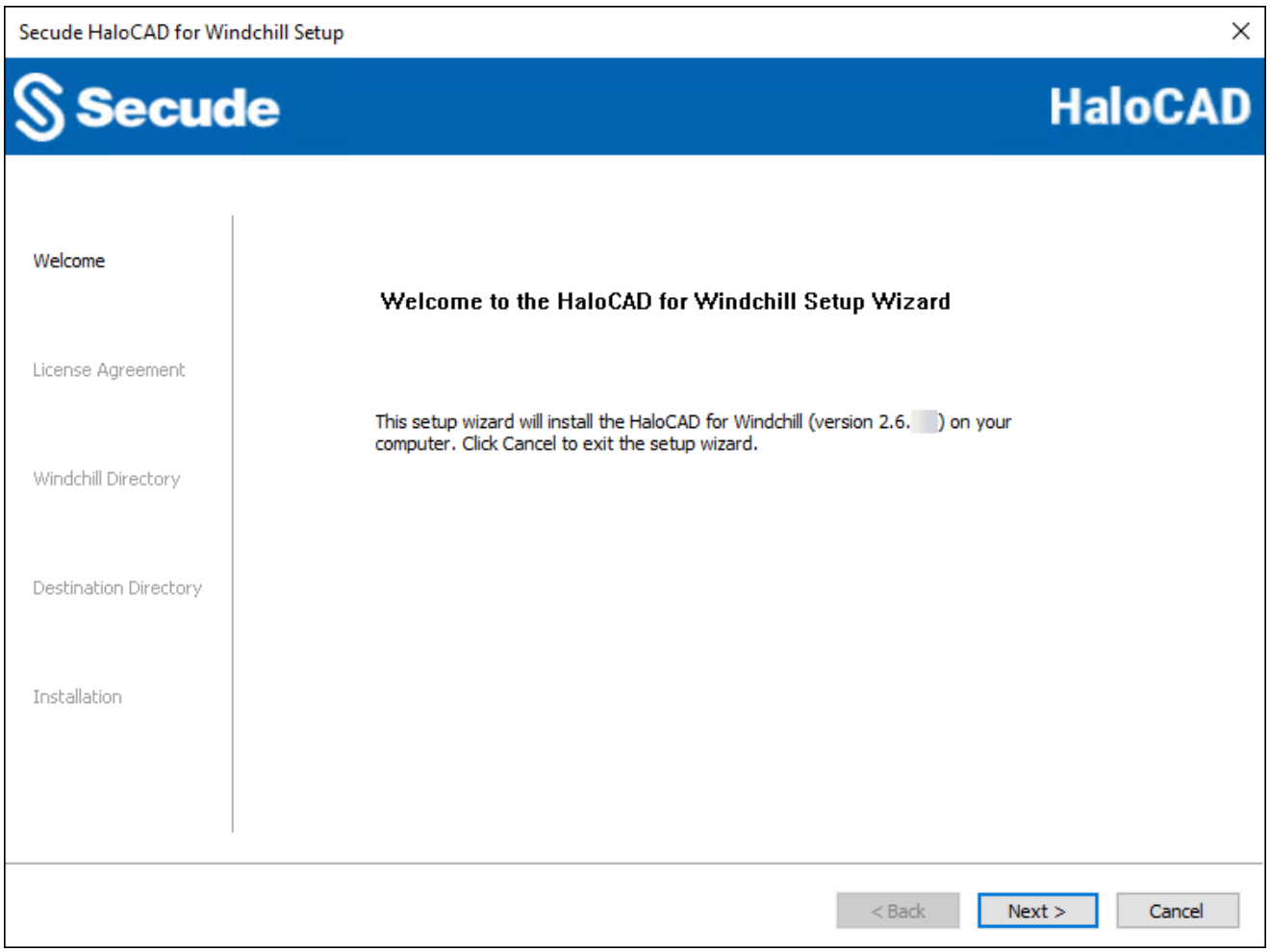
1. **Graphical Mode**
   Graphical mode installation is an interactive, graphical user interface-based method that is driven by a wizard.
2. **Silent Mode**
   Silent-mode installation is a non-interactive method of installing the HaloCAD component using command lines.

4.3.1.1. Graphical Mode

1. To begin the interactive installation, double-click the installer `HaloCAD_Windchill_Setup.exe` file. Depending on your Windows security settings, you may get a warning such 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 continue the installation.
2. When the installer starts, you will see the startup dialog followed by the welcome dialog:

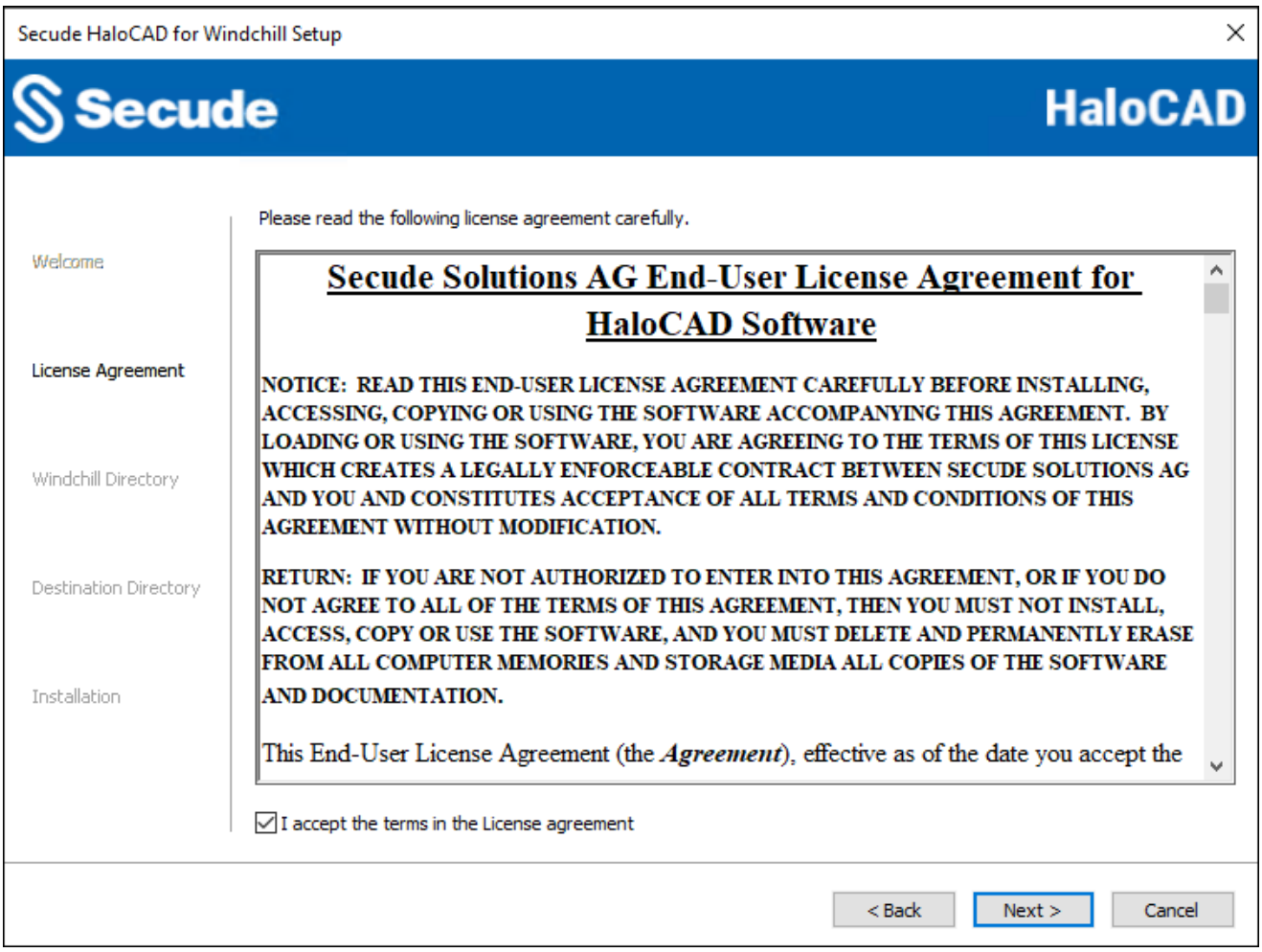


Startup dialog



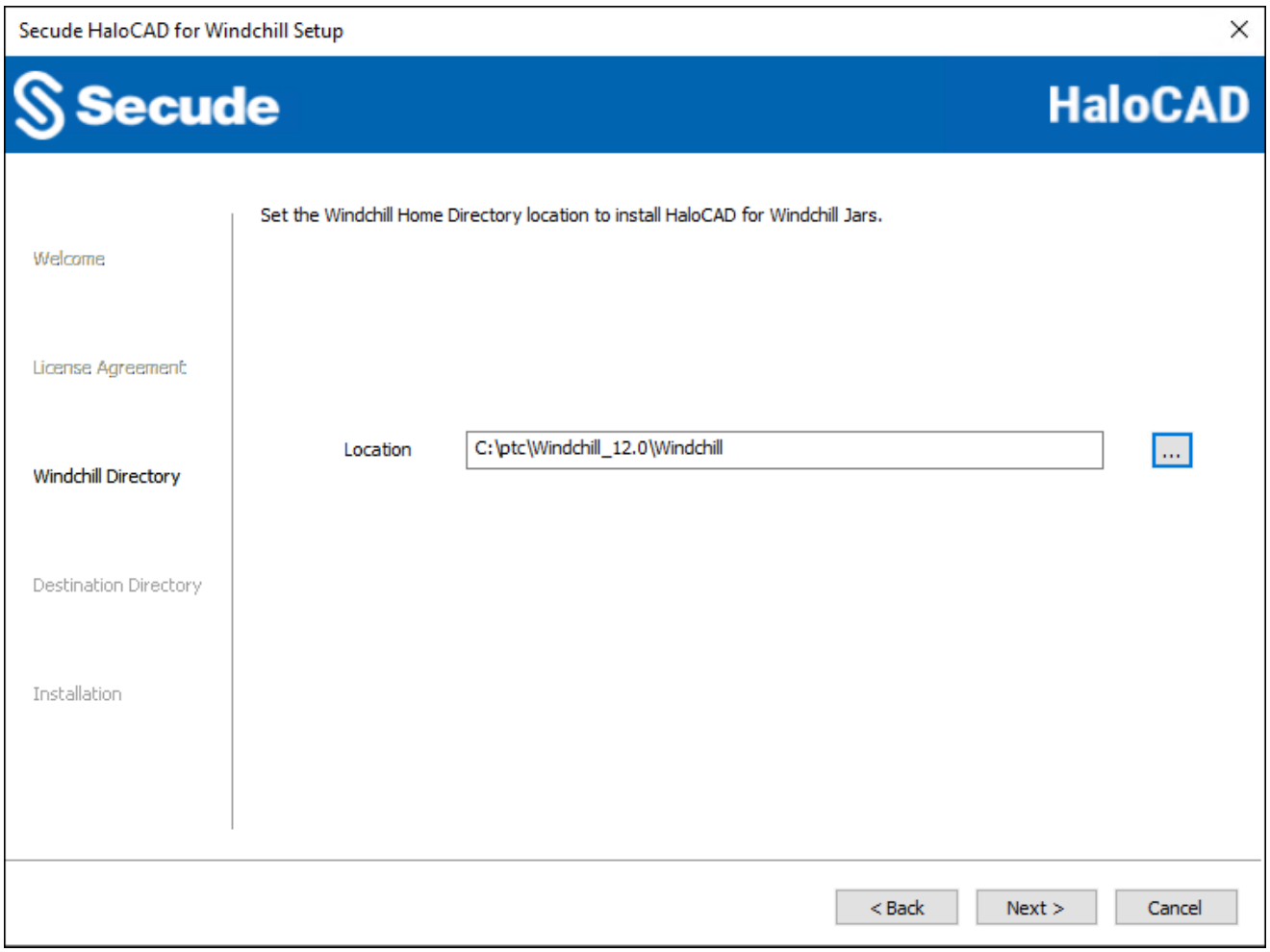
Welcome dialog

3. Click **Next** to continue the installation.
4. The end-user license agreement dialog will appear:



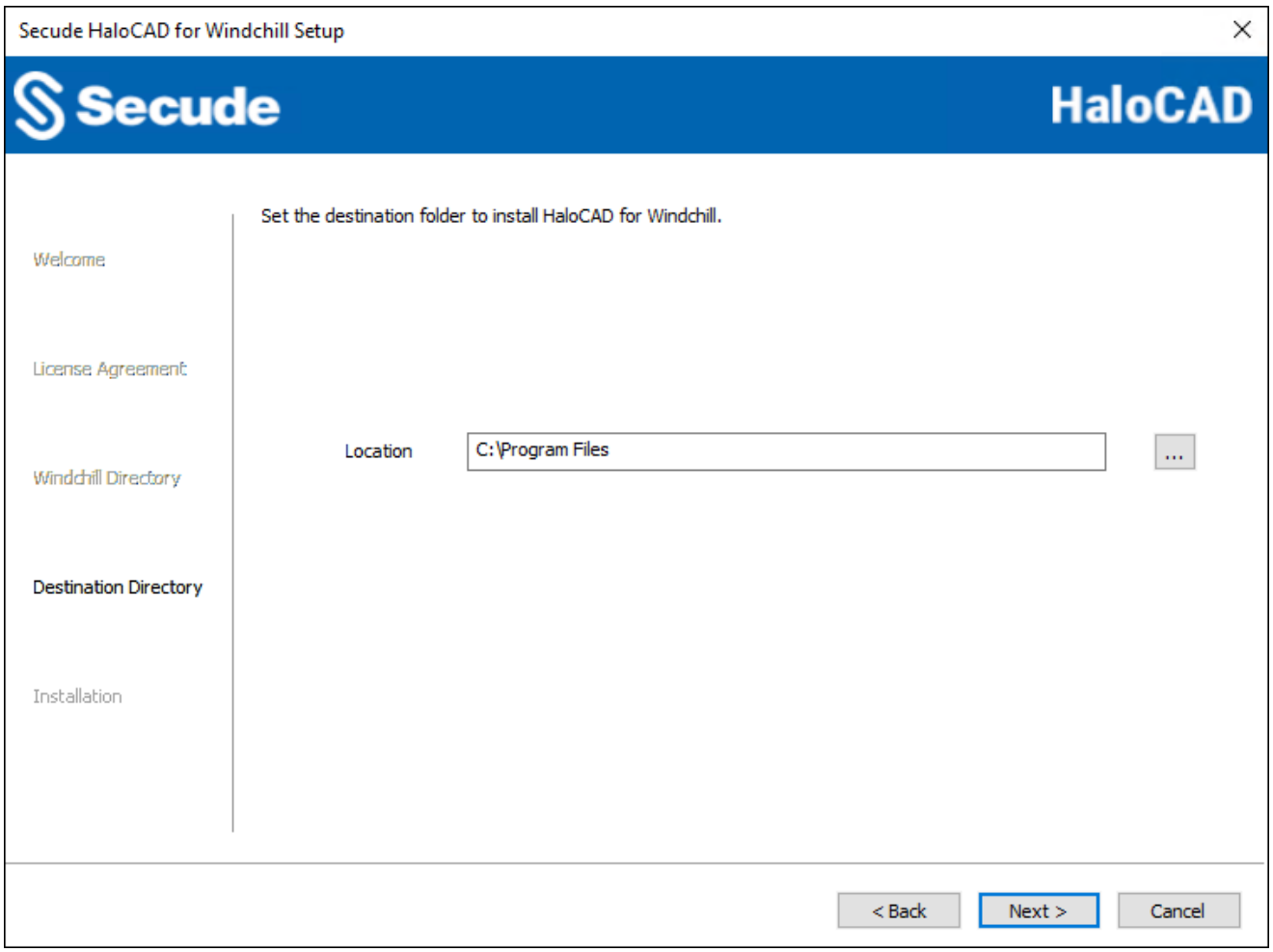
End-User License Agreement dialog

5. Read the End-User License Agreement. If you agree, select **I accept the terms in the License Agreement** and click **Next**.
6. The *Windchill Home Directory Location* dialog will appear:



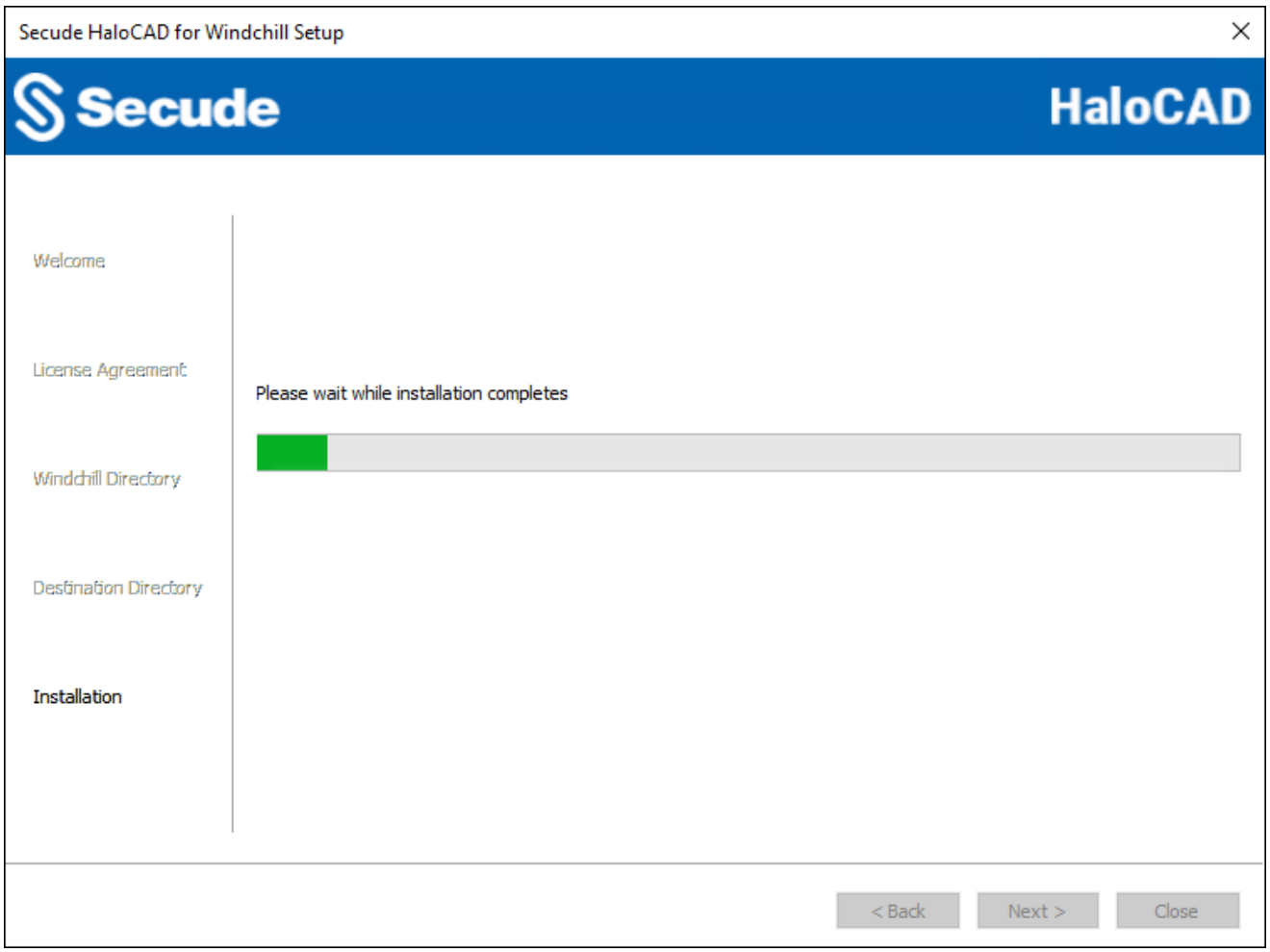
Windchill Home Directory Location dialog

7. Select the Windchill server's home directory in your system and click **Next**. For example, `C:\ptc\Windchill_12.0\Windchill`. Please enter the correct home directory path; otherwise, the installation fails with the error message "*Windchill Home Directory path is incorrect. So please enter the correct path.*" To return to any point in the installation process, click the **Back** button (optional).
8. The destination folder selection dialog will appear:



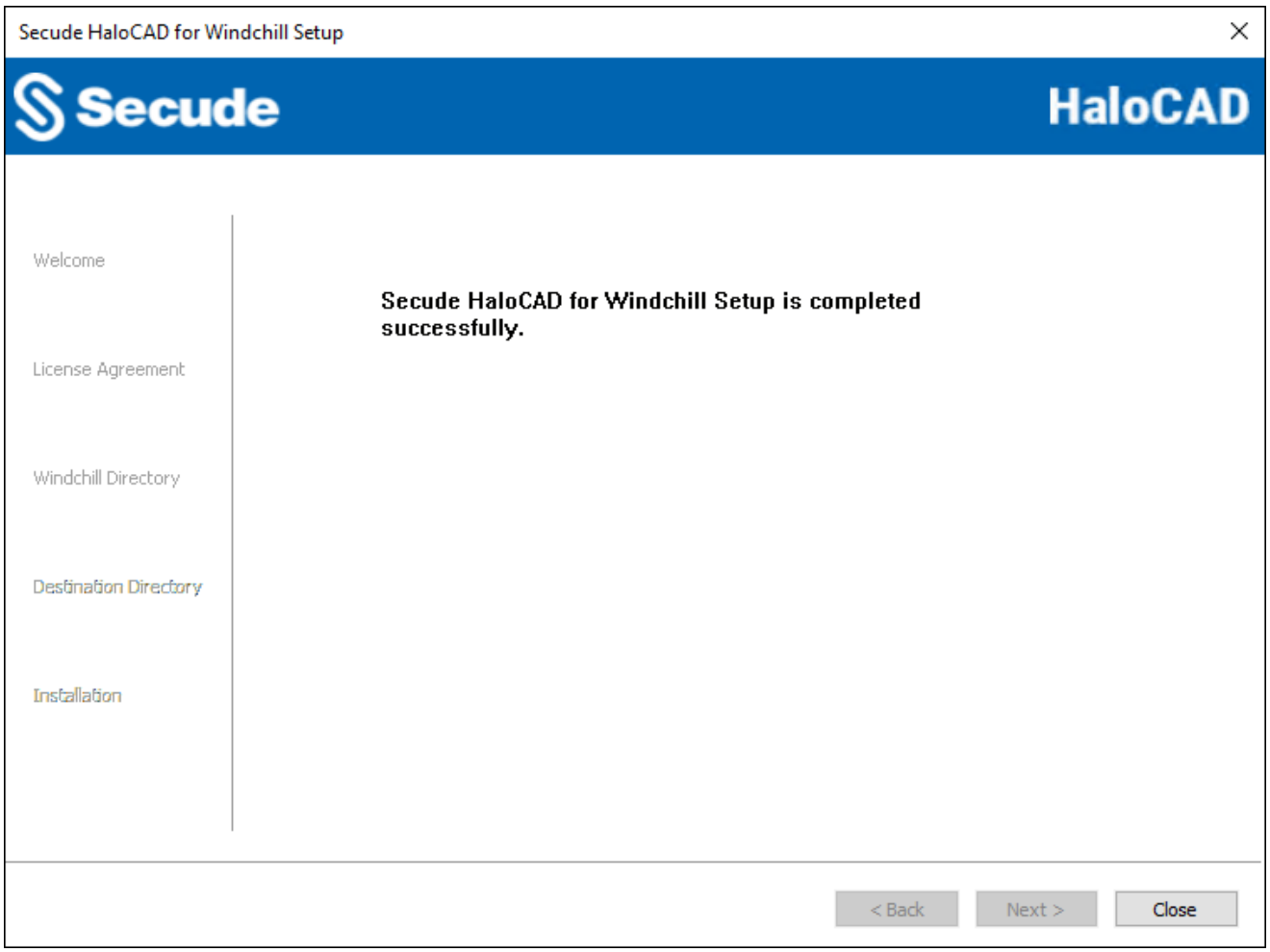
Destination folder selection dialog

9. By default, application files are stored in the program files directory (`C:\Program Files`). If you would like to choose an alternate location, click the **Browse** button and select your location preference.
10. The installation begins and progress is shown in the dialog.



Installation progress dialog

11. When the installation is completed, you will see a message confirming that the HaloCAD component has been successfully installed.



Installation completed dialog

12. Click **Close** to close the installation wizard.

Post Installation files:

1. Windchill-related HaloCAD Jar files are placed in the home directory (`Windchill\lib`) of the Windchill server that you provided.
2. The configuration tool is stored in the path `C:\Program Files\Secude\HaloCADWindchill\config`.

4.3.1.2. Silent Mode

Besides graphical mode, the HaloCAD component can be installed in silent mode, which does not require user involvement or display a user interface. It is a convenient way to streamline the installation process using commands at once.

1. Open the Command Prompt with elevated rights (Run as Administrator).
2. Navigate to the directory of the HaloCAD component installer.
3. To know the list of options available in silent mode, follow the steps given below:

   Type `HaloCAD_Windchill_Setup.exe -help`

Press `Enter`

Output

...

```
HaloCAD_Windchill_Setup.exe -install -wdir <Windchill_Home_Directory> -dir
<destination_directory>
HaloCAD_Windchill_Setup.exe -uninstall
```

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

```
HaloCAD_Windchill_Setup.exe -install -wdir "C:\ptc\Windchill_12.0\Windchill" -dir
"C:\Program Files"
```

5. Press `Enter`.
6. The installation is complete.

4.3.2. Configuration Methods

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

4.3.2.1. Configuration Using Tool (GUI)

Prerequisite: Ensure that HaloCAD for Windchill has been installed.

Follow the steps below to configure settings using the GUI.

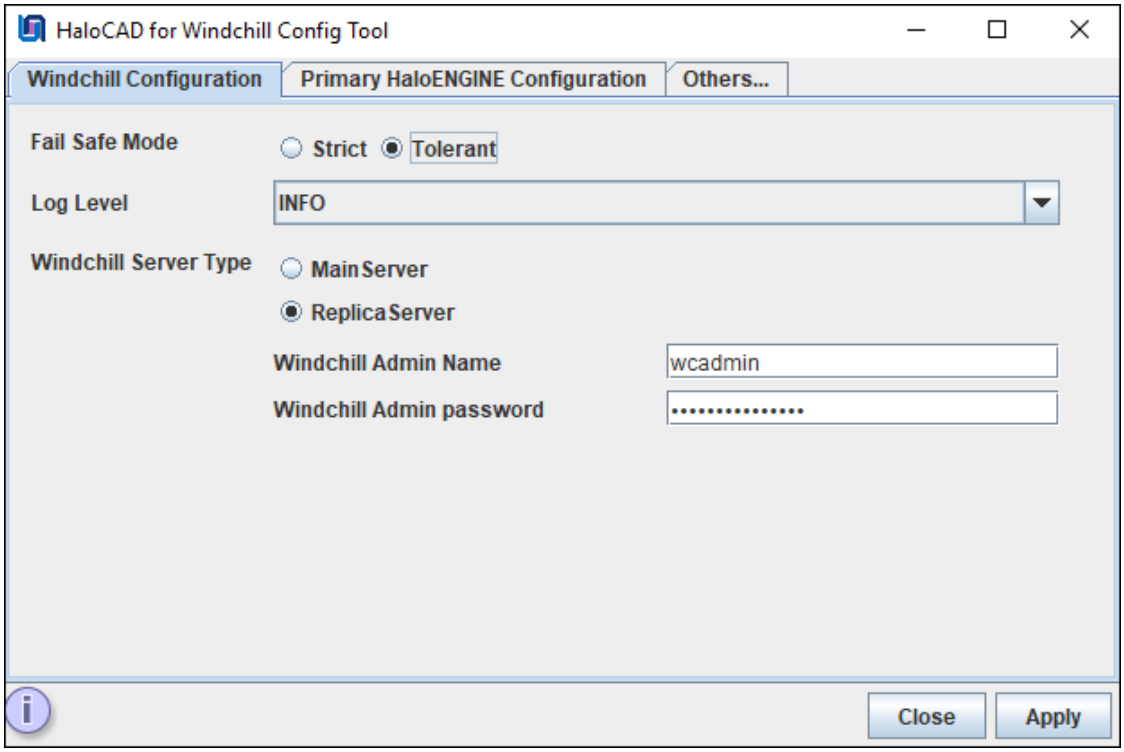
Step 1. Stop Windchill.

1. Launch **Windchill Shell**.
2. Type the stop command `windchill stop` and press **Enter**.
   Result: You will receive a confirmation message – `Server Manager stopped`.

Step 2. Run the HaloCAD Configuration Tool.

1. Navigate to the destination folder you specified during installation. The default folder is `C:\Program Files\Secude\HaloCADWindchill\config`.
2. Double-click the jar file or type `java -jar halocad-windchill-config-X.X.X.X.jar` and press Enter either in the Windows command prompt or Windchill Shell with administrative privileges.
   Example: `C:\Program Files\Secude\HaloCADWindchill\config>java -jar halocad-windchill-config-X.X.X.X.jar`
3. The *HaloCAD for Windchill Config Tool* UI will appear.

Step 2a. Enter the following information under the *Windchill Configuration* tab.



Windchill configuration tab

1. **Fail-Safe Mode**: The Fail-Safe Mode controls the system's behavior in case of inconsistencies that prevent the specified protection from being applied (conflicting configuration, server component unreachable, or returning an error message, etc.). You can define any one of the following:
   a. **Strict**: The file upload or download will be blocked, whenever any error occurs.
   b. **Tolerant** (default): The file upload or download will be allowed, even when an error occurs.
2. **Log Level**: Select a log level as per your choice.
   a. **INFO** (default): A standard log level that highlights the progress of the application.
   b. **ERROR**: Logs error events that prevent program execution.
   c. **DEBUG**: Logs detailed tracing messages. It should be used for information required for diagnosing issues and troubleshooting.
3. **Windchill Server Type**: Choose one of the following options based on your environment.
   a. **Main Server**: If you only have the **Main Server**, choose **Main Server** in **Windchill Server Type**. The UI shows **Disable Windchill REST**, indicating that the REST service for Windchill is disabled by default. However, you can enable it to retrieve application data from the Main Server. To do so, choose **Enable Windchill REST** in the list. Note: **Enabling** REST service is only required when the Main Server is linked to a Replica Server and files are downloaded from it.

b. **Replica Server**: This option applies to the Windchill File Server/Windchill Content Cache Server, which serves as a remote site for the Windchill environment. It is a lightweight server with master data storage but no Windchill database. Here, the master server controls the database metadata and holds details about the files that are present on the File Server. If you choose this option, you must configure the following:

- **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**. Any missing values will be indicated with a red tool tip message. This indicates that you need to enter and click **Apply**.

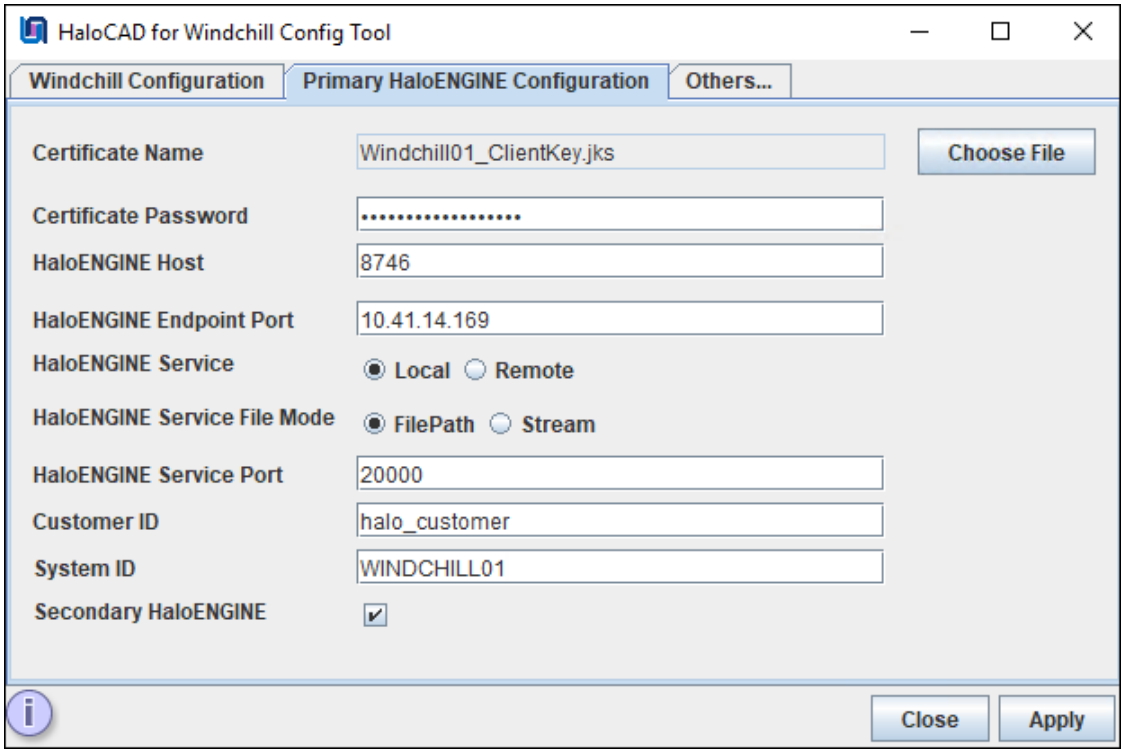
   Results:

   a. A confirmation message dialog box will appear.

   b. Click **OK** on the confirmation dialog box.

   c. The configuration files will be generated in the installation directory.

Step 2b. Enter the following information under the *Primary HaloENGINE Configuration* tab.



Primary HaloENGINE configuration tab

1. **Certificate Name**: Click **Choose File** to browse and select the client Keystore in JKS format, generated by the HaloENGINE Admin Portal [through which communication is established between HaloENGINE (primary) and Windchill]. For example, `Windchill01_ClientKey.jks`

2. **Certificate Password**: Enter the password of the selected client Keystore. For example, `Key$T#123`
3. **HaloENGINE Host**: Enter the IP address/FQDN of HaloENGINE. For example, `10.41.14.169`
4. **HaloENGINE Endpoint Port**: Enter the endpoint port from which HaloENGINE can be accessed. For example, `8746`
5. **HaloENGINE Service**: Select the location where the HaloENGINE Service is installed.
   a. **Remote**: Select **Remote** if HaloENGINE Service and HaloCAD for Windchill are installed on different machines.
   b. **Local** (default): Select **Local** if HaloENGINE Service and HaloCAD for Windchill are installed on the same machine on which Windchill PLM is installed. If you choose **Local**, you must select the file transmission method in the **HaloENGINE Service File Mode** (**Filepath**/**Stream**) and then enter the port number in the **HaloENGINE Service Port** text box.
      - **FilePath** (default): File stored in a local temporary location for encryption and decryption process. Here, file path information is used for transferring.
      - **Stream**: File as a sequence of bytes.
6. **HaloENGINE Service Port**: Enter the port assigned to the HaloENGINE Service during the installation. By default, HaloENGINE Service uses port `20000`.
7. **Customer ID**: Enter the **Customer ID** that is assigned for Single Customer mode or Multi-Customer mode in the admin portal. For example, `halo_customer`.
8. **System ID**: Enter the Windchill Server's hostname and the same must be entered in the **System Unique ID** (HaloENGINE admin portal). For example, `WINDCHILL01`
9. **Secondary HaloENGINE**: If you want to set up a failover mechanism in your environment, select this check box. HaloCAD supports connection failover between two HaloENGINEs. For more information, please refer to the section "Failover Mechanism for HaloENGINE in HaloCAD for PLM".
10. Click **Apply**. Any missing values will be indicated with a red tool tip message. This indicates that you need to enter and click **Apply**.

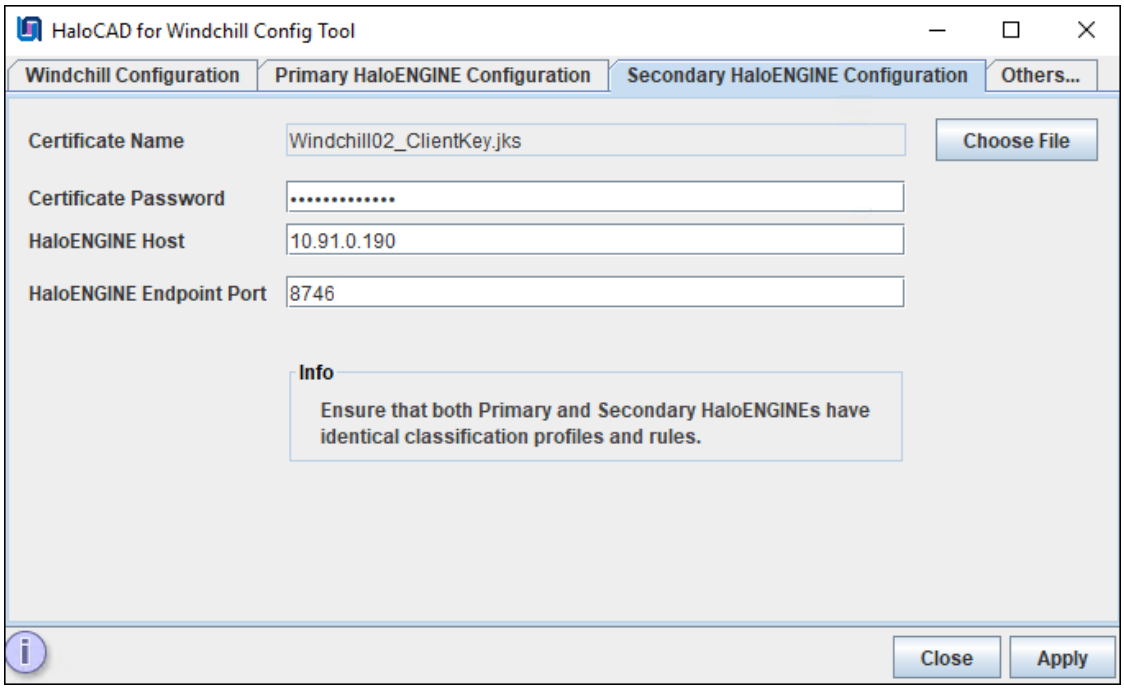
    Results:

    a. A confirmation message dialog box will appear.
    b. Click **OK** on the confirmation dialog box.
    c. If you have selected the **Secondary HaloENGINE** option, you can notice that the *Secondary HaloENGINE Configuration* tab has been added to the configuration tool as shown below in Step 2c.

Step 2c. Enter the following information under the *Secondary HaloENGINE Configuration* tab.

If you haven't selected the Secondary HaloENGINE option in the Windchill Configuration tab, skip this step. This step is only necessary if you want to use the failover mechanism.

Prerequisite: Ensure that the secondary HaloENGINE uses the same configuration profiles and rules as the primary HaloENGINE. Thus, when the primary HaloENGINE fails, the secondary HaloENGINE immediately takes over, assuring continuous operation.



Secondary HaloENGINE configuration tab

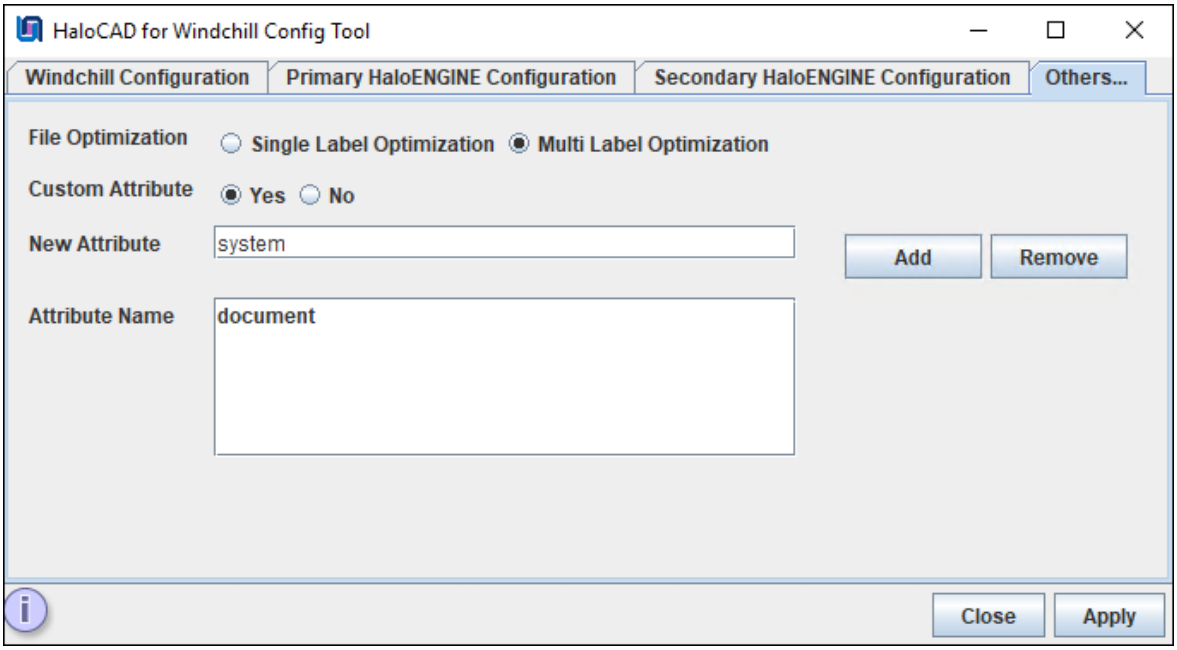
1. **Certificate Name**: Click **Choose File** to browse and select the client Keystore in JKS format, which is generated by the HaloENGINE Admin Portal [through which communication is established between HaloENGINE (secondary) and Windchill]. For example, `Windchill02_ClientKey.jks`
2. **Certificate Password**: Enter the password of the selected client Keystore. For example, `Key$T#1234`
3. **HaloENGINE Host**: Enter the IP address/FQDN of HaloENGINE. For example, `10.91.0.190`
4. **HaloENGINE Endpoint Port**: Enter the endpoint port from which HaloENGINE can be accessed. For example, `8746`
5. Click **Apply**. Any missing values will be indicated with a red tool tip message. This indicates that you need to enter and click **Apply**.

   Results:

   a. A confirmation message dialog box will appear.

   b. Click **OK** on the confirmation dialog box.

Step 2d. Enter the following information under the *Others* tab.



Others tab

1. **File Optimization**: Choose one of the following options for file optimization. By default, **Single Label Optimization** is set.
   a. **Single Label Optimization:** The top-level file label is taken into account and applied to all dependent files.
   b. **Multi-Label Optimization:** Each file type group label defined in the classification engine is taken into account and assigned to the appropriate group with ASM optimization.
2. **Custom Attribute** (Global Attribute)
   a. If you do not want to use custom attributes, simply click **Apply** and **Close** the configuration tool window.
   b. If you want to use custom attributes, choose **Yes** in **Custom Attribute**, and then fill out the following information.
3. **New Attribute**: Enter the name of an attribute and then click **Add**. For example, the **document** is a new attribute added to the list.
4. The attribute will be added to the **Attribute Name** list.
5. Click **Apply**. Any missing values will be indicated with a red tool tip message. This indicates that you need to enter and click **Apply**.

   Results:
   a. A confirmation message dialog box will appear.

b. Click **OK** on the confirmation dialog box.

c. Click **Close** to close the configuration window.

Related Task: If you wish to remove an attribute from the list, first select it, then click **Remove**, and then click **Apply** to save the configuration.

Step 3. Start Windchill.

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

   Results:

   a. You will receive a confirmation message as "*wt.manager.ServerLauncher - Starting Server Manager*".

   b. During the initialization phase, you can see the following messages in the "`MethodServer`" log which confirms the successful configuration.

```
INFO  : com.secude  - HaloCAD: Initialized!
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude  - HaloCAD: Successfully connected to primary HaloENGINE (6.8.0.2).
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude  - HaloCAD: Successfully connected to secondary HaloENGINE (6.8.0.2).
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude  - Heartbeat has been started to check alive and feature status of HaloENGINE
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude.halocore.proto.rest.util.TLSSetup  - Keystore exists true
INFO  : com.secude  - Primary HaloENGINE is reachable
INFO  : com.secude  - Local HaloENGINE Service is reachable for protection
INFO  : com.secude  - Primary HaloENGINE is reachable for Monitor
INFO  : com.secude  - Secondary HaloENGINE is reachable
INFO  : com.secude  - Secondary HaloENGINE is reachable for Monitor
```

Sample log file output

Related Tasks

a. The same logs can be seen in the `MethodServer-xxx-log4j.log` file.

b. HaloCAD component-related activities are logged in `%WINDCHILL_HOME%\Windchill\logs`.

4.3.2.2. Configuration Using the Command Line

This is an alternative method of configuring the HaloCAD and HaloENGINE parameters using the command line.

Prerequisite: Ensure that HaloCAD for Windchill has been installed.

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

1. Open the Windchill Shell window, 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 no>.jar -shell
--------------------------------------------------------------------------------
HaloCAD for Windchill Config Path: C:\Program Files
1. Windchill Configuration
2. Primary HaloENGINE 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 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 Configuration:
--------------------------------------------------------------------------------
Enter the Certificate Path:
C:\Users\Administrator\Desktop\Windchill01_ClientKey.jks
File name:Windchill01_ClientKey.jks.
Enter the Certificate Password:
Secondary HaloENGINE: (Default:Disable Secondary HaloENGINE)
1. Disable Secondary HaloENGINE
2. Enable Secondary HaloENGINE
Please choose an option:
2
Enter the HaloENGINE Host:
10.41.14.169
Enter the HaloENGINE Endpoint Port: (Default:8746)
8746
Enter the Customer ID:
halo_customer
Enter the System ID:
WINDCHILL01
HaloENGINE Service: (Default:Local)
1. Remote
2. Local
Please choose an option:
1
Saved Successfully.
--------------------------------------------------------------------------------
Primary HaloENGINE Configuration:
Certificate Name                :Windchill01_ClientKey.jks
HaloENGINE Host                 :10.41.14.169
```

```
HaloENGINE Endpoint Port          :8746
HaloENGINE Service                :Remote
Customer ID                       :halo_customer
System ID                         :WINDCHILL01
Secondary HaloENGINE              :Enable Secondary HaloENGINE

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 Configuration
3. Secondary HaloENGINE Configuration
4. Others...
0. Exit
Note: If an invalid value is entered, the default value will be applied.

Please choose an option:
3
--------------------------------------------------------------------------------
Secondary HaloENGINE Configuration:
--------------------------------------------------------------------------------
Enter the Certificate Path:
C:\Users\Administrator\Desktop\Windchill02_ClientKey.jks
File name:Windchill02_ClientKey.jks.
Enter the Certificate Password:
Enter the HaloENGINE Host:
10.91.0.190
Enter the HaloENGINE Endpoint Port: (Default:8746)
8746
Saved Successfully.
--------------------------------------------------------------------------------
Secondary HaloENGINE Configuration:
Certificate Name                  :Windchill02_ClientKey.jks
HaloENGINE Host                   :10.91.0.190
HaloENGINE Endpoint Port          :8746
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 Configuration
3. Secondary HaloENGINE Configuration
4. Others...
0. Exit
Note: If an invalid value is entered, the default value will be applied.
Please choose an option:
4
--------------------------------------------------------------------------------
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:
1
--------------------------------------------------------------------------------
File Optimization: (Default:Single Label Optimization)
1. Multi Label Optimization
2. Single Label Optimization
Please choose an option:
1
--------------------------------------------------------------------------------
Others...
File Optimization                :Multi 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                :Multi 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. HaloCAD in Linux Environment

This section describes setting up HaloCAD and HaloENGINE parameters in a Linux environment using the HaloCAD Config tool and the command line.

4.4.1. Configuration Using Tool (GUI)

Using the HaloCAD Configuration Tool, you can set up HaloCAD and HaloENGINE parameters.

Follow the steps below to configure settings using the GUI.

Step 1. Enter the command `./windchill stop` to terminate Windchill and press **Enter**.

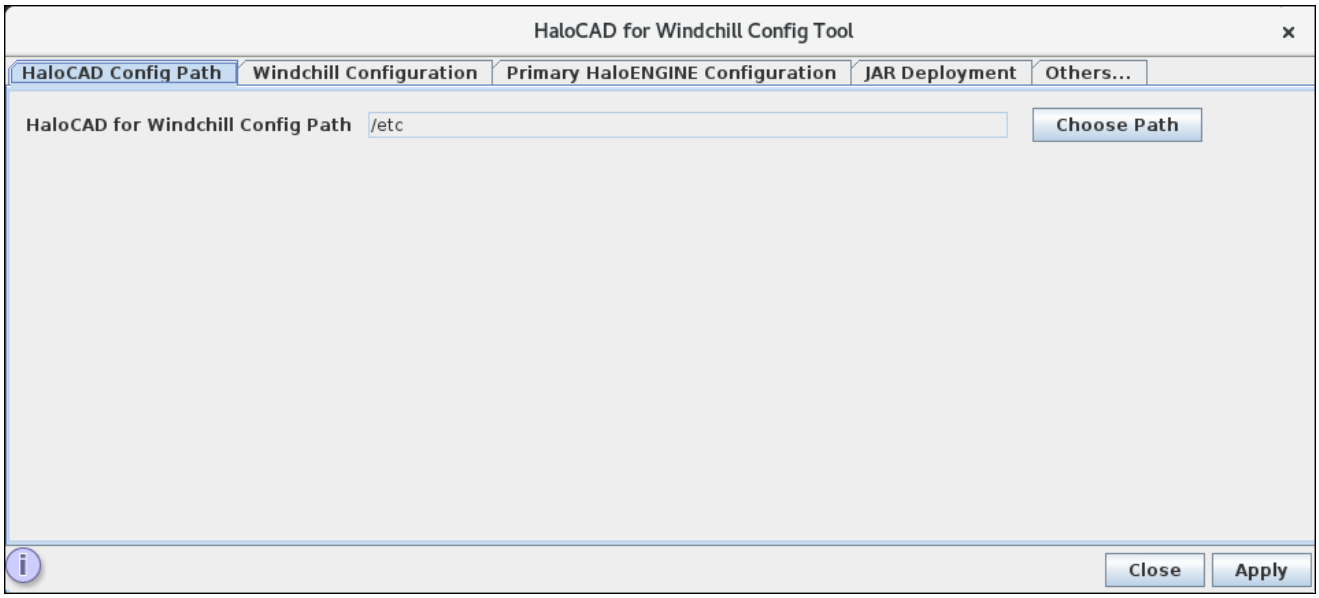
Step 2. Run the HaloCAD Configuration Tool.

1. Open the Terminal, navigate to the installation package directory where the tool is located, and then enter the following syntax.

   For example:

```
cd /opt/ptc/Windchill_12/Windchill/bin
./windchill shell
cd /opt/HaloCAD for Windchill/Linux/config-tool
java -jar halocad-windchill-config-<version>.jar
```

2. The *HaloCAD for Windchill Config Tool* window will appear as shown below:



Setting up configuration path

3. Under the **HaloCAD Config Path** tab, the default path `/etc` is set to save the configuration files. Alternatively, you can change it by clicking the **Choose Path** button.
4. When you are finished, click **Apply**.

Results:

a. A confirmation message dialog is displayed if the configuration is successful. Click **OK** on the confirmation dialog box.

b. The Terminal displays a message prompting you to close and reopen the current shell.

5. Click **Close** to close the configuration window.
6. Close the Terminal window.
7. **Related task**: You can manually set the environment variables using the following command.

```
export HALOCAD_WINDCHILL_CONFIG_PATH=<configuration folder path>
For example, export HALOCAD_WINDCHILL_CONFIG_PATH=/opt
```

Step 3. Configure properties

1. Reopen the Terminal window and run the tool as mentioned in step 2. Note: The *HaloCAD Config Path* tab does not appear as it is a one-time step that was done in the previous step.
2. **Windchill Configuration** tab
   a. The *Windchill Configuration* tab is similar to the Windows **Windchill Configuration** tab.
   b. Enter the required information as instructed in step 2a Windchill Configuration tab.
3. **Primary HaloENGINE Configuration** tab
   a. The *HaloENGINE Configuration* tab is similar to the Windows **Primary HaloENGINE Configuration** tab.
   b. Enter the required information as instructed in step 2b Primary HaloENGINE Configuration tab.
   c. Please note that the **local** mode is not supported in the current version because HaloENGINE Service installation on the Linux Server is not supported.
4. **Secondary HaloENGINE Configuration** tab
   a. The *HaloENGINE Configuration* tab is similar to the Windows **Secondary HaloENGINE Configuration** tab.
   b. Enter the required information as instructed in step 2c Secondary HaloENGINE Configuration tab.
5. **JAR Deployment** tab: Click the browse button to select a location to store the JAR files. For example: `.../opt/Linux`
6. **Others** tab
   a. The *Others* tab is similar to the Windows **Others** tab.
   b. Enter the required information as instructed in step 2d Others tab.

c. Additionally, the **Uninstall** button is shown in the UI. Please be aware to use the **Uninstall** button only if you want to remove HaloCAD-related files from your system.

d. For information on how to remove a CAD component, please refer to the section "Uninstalling the HaloCAD Component from Linux".

Step 4. Enter the command `./windchill start` to start Windchill and press **Enter**.

4.4.2. Configuration Using the Command Line

This section describes setting up HaloCAD and HaloCORE settings through the command line.

1. Open the Terminal window.
2. Run the syntax as shown in this example.

```
WINDCHILL CONFIGURATION:
[root@UXLU0363 ~]# cd /opt/ptc/Windchill_12.0/Windchill/bin/
[root@UXLU0363 bin]# ./windchill shell
[root@UXLU0363 bin]# cd /opt/HaloCAD for Windchill/Linux/config-tool
[root@UXLU0363 config-tool]# java -jar halocad-windchill-config-<version>.jar -
 shell
```

3. For instructions on using the command line, refer to the section “Configuration Using the Command Line” under Windows.
4. Click **Close** to close the terminal.

Next Steps

HaloCAD has been set up in your environment and is ready to protect file downloads. Please refer to the Operations Manual for more details. If you are not yet familiar with labels, you might need to consult the Microsoft online reference.

5. Updating the HaloCAD Configuration

In both Windows and Linux environments, you can alter 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 using SSO-based authentication.

Split authentication can overcome HaloCAD's limitation in accessing REST calls from the replica server to the main server. All other activities are performed using SSO authentication or customized authentication that the customer uses, except for HaloCAD operations on the replica server.

PTC has recommended this solution, and it can be found in 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. Now enter the following values into the file and save it.

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

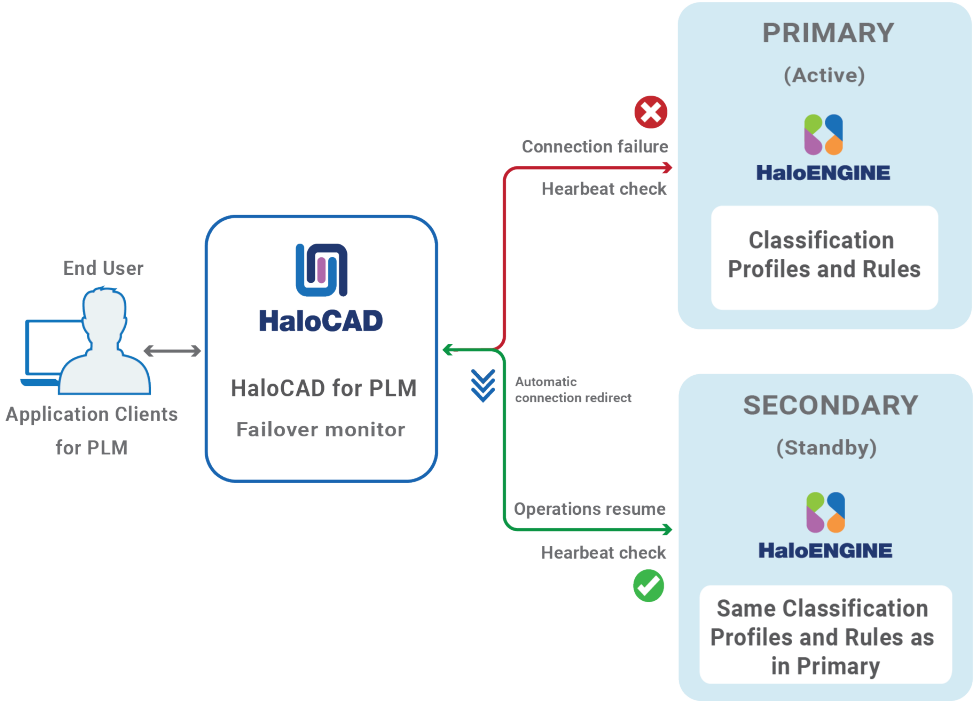
4. Restart the Windchill and Apache servers.

6.2. Failover Mechanism for HaloENGINE in HaloCAD for PLM

Server failover between two systems supports uninterrupted operation and service reliability in case of a breakdown. The server failover configuration is "active-standby," meaning that the primary server is "active", and the secondary server is "standby."

HaloCAD for PLM supports connection failover between two HaloENGINEs. Here's a summary of its purpose:

1. **High Availability**: If the primary HaloENGINE fails, the secondary HaloENGINE will take over, reducing downtime and maintaining continuous operation.
   Example: Let us assume that your business process requires no downtime.
   As per the business security policy, your administrator has configured Fail-Safe Mode as Strict to block any file upload or download whenever an error occurs. If HaloENGINE encounters an unexpected issue, failure to obtain label information will prevent file download or upload. In this instance, the failover mechanism in HaloENGINE will be the ideal option for dealing with such unforeseen scenarios, with no impact on the end user. Thus, even if the primary HaloENGINE connection fails, HaloCAD recognizes the failure and instantly switches to the secondary HaloENGINE to continue providing services.
   Once the primary HaloENGINE is restored, it will be a standby for the secondary HaloENGINE. If there is any failure in the secondary HaloENGINE, the primary HaloENGINE will again take over the operations.



Failover Mechanism for HaloENGINE in HaloCAD for PLM

2. **Redundancy**: It provides redundancy, which means there is always another HaloENGINE ready to take over if the primary one fails. This minimizes the possibility of a single point of failure.
3. **Data Integrity and Consistency**: In the event of a failure, the failover technique can help guarantee that data is consistent and file upload/download activities are not lost, which is crucial for systems that rely on high data security.

Failover Mechanism Requirement

1. Network Infrastructure: Minimal Secondary HaloENGINE needs to be segmented so that the primary and secondary HaloENGINEs don't share the same network.
2. Make sure the secondary HaloENGINE has HaloENGINE service installed as well.
3. Data replication: Both HaloENGINEs must have the same classification profiles and rules.

6.3. Open-source Software

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	Version	Source Code	License Link
httpmime	4.5.+	https://mvnrepository.com/artifact/org.apache.httpcomponents/httpmime	http://www.apache.org/licenses/LICENSE-2.0.txt
mail	1.4.1	https://mvnrepository.com/artifact/javax.mail/mail	Common Development and Distribution License (CDDL) v1.0 https://glassfish.dev.java.net/public/CDDLv1.0.html
commons-io	2.+	https://mvnrepository.com/artifact/commons-io/commons-io	https://www.apache.org/licenses/LICENSE-2.0.txt
javax.servlet-api	3.1.+	https://mvnrepository.com/artifact/javax.servlet/javax.servlet-api	https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html
jna	5.8.0	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	5.8.0	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
activation	1.1.1	https://mvnrepository.com/artifact/javax.activation/activation	https://glassfish.dev.java.net/public/CDDLv1.0.html
jaxws-api	2.3.1	https://mvnrepository.com/artifact/javax.xml.ws/jaxws-api	https://github.com/javaee/jax-ws-spec/blob/master/LICENSE.md
jaxws-ri	2.3.0	https://mvnrepository.com/artifact/com.sun.xml.ws/jaxws-ri	https://oss.oracle.com/licenses/CDDL+GPL-1.1

Library	Version	Source Code	License Link
rt	2.3.0	https://mvnrepository.com/artifact/com.sun.xml.ws/rt	https://oss.oracle.com/licenses/CDDL+GPL-1.1
stax2-api	4.0.0	https://mvnrepository.com/artifact/org.codehaus.woodstox/stax2-api	http://www.opensource.org/licenses/bsd-license.php

Open-source software

6.4. Metadata Definition

The Windchill metadata present in the HaloENGINE is listed in the table below.

Windchill metadata	Use
server_name	Derivation from server name (FQDN of the Windchill server). (For example, `svin0007.secude.local`)
user_name	Derivation from Windchill logged-in users. (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 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 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 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 file type (Creo file types and MS Office native file types). (For example, sec, prt, asm, xlsx)
library_name	Derivation from 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. Download Log Definition

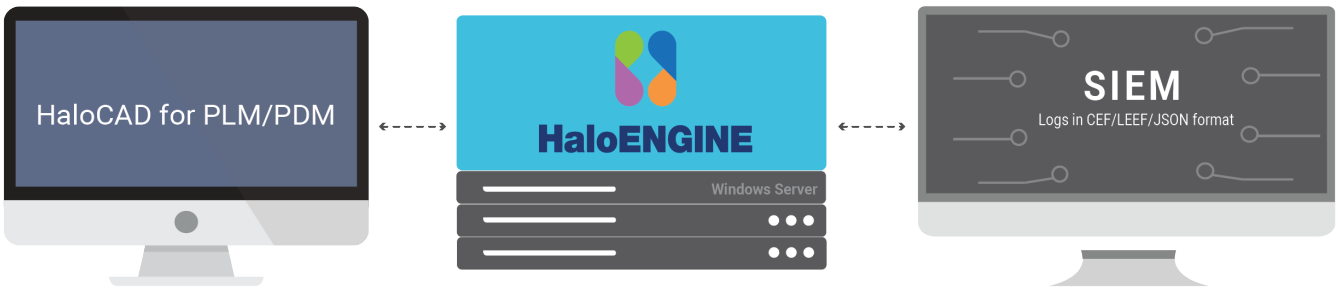
This section explains the log definition for every log format that HaloENGINE supports.

6.5.1. What is SIEM Integration?

SIEM, which stands for Security Information and Event Management, is a comprehensive approach to managing an organization's security information and events. SIEM integration refers to the process of incorporating SIEM solutions into an organization's existing IT infrastructure to enhance its ability to monitor, detect, and respond to security incidents. To support this approach, the HaloENGINE transmits logs in JavaScript Object Notation (JSON), Log Event Extended Format (LEEF), and Common Event Format (CEF).

1. Common Event Format is an open log management standard developed by HP ArcSight. CEF comprises a standard prefix and a variable extension that is formatted as key-value pairs.
2. Log Event Extended Format is a customized event format for IBM Security QRadar. LEEF comprises a LEEF header, event attributes, and an optional Syslog header.
3. JavaScript Object Notation is a lightweight text-based open standard designed for human-readable data interchange.

These logs are forwarded to the communications module, which transmits them to your collection server via UDP or TCP. Ideally, a SIEM (Microsoft Azure Sentinel, Splunk, RSA, and others) server would scan the received messages, sort them, and alert your security team.



Forwarding logs

6.5.2. Why CEF Standard?

The CEF format is an open log management standard that simplifies log management. CEF allows third parties to create their device schemas that are compatible with a standard that is used industry-wide for normalizing security events. Technology companies and customers can use the standardized CEF format to facilitate data collection and aggregation, for later analysis by an enterprise management system. CEF is an extensible, text-based format designed to support multiple device types by offering the most relevant information. It defines the syntax for log records consisting of a standard header and a variable extension, formatted as key-value pairs.

Syslog and CEF Header

The data is normalized and categorized into the ArcSight CEF for easy correlation and analysis. CEF uses Syslog as a transport mechanism. It uses the following format, consisting of a Syslog prefix, a header, and an extension, as shown below. If an event producer is unable to write Syslog messages, it is still possible to write the events to a file.

```
Prefix | Header |[Extension]
```

CEF format

```
10:29:48.486 host CEF:Version|Device Vendor|DeviceProduct|Device Version|Signature ID|Name|Severity|[Extension]
```

CEF format sample

Format	Description	Example
Prefix	Syslog applies a prefix to each message, no matter which device it arrives from, that contains the date and hostname.	`10:29:48.486`
Header	Version is an integer and identifies the version of the CEF format. The current CEF version is 0 (CEF:0).	`CEF:0`
	Device Vendor, Device Product, and Device Version are strings that uniquely identify the type of sending device.	`|Secude|HaloCAD|6.8.0.0|`
	• Device Event Class ID is a unique identifier per event-type.	`100` (User download)

Format	Description	Example
	• This can be a string or an integer. Device Event Class ID identifies the type of event reported.	
Extension	The Extension field contains a collection of key-value pairs. The keys are part of a predefined set. The standard allows for including additional keys as outlined in "ArcSight Extension Dictionary”. An event can contain any number of key-value pairs in any order, separated by spaces (""). If a field contains a space, such as a filename, this is valid and can be logged in exactly that manner. Secude uses only Standard Key Names from ArcSight Extension Directory and no custom extensions. The reason for that is to avoid significant limitations custom extensions will cause.	Please refer to the following table.

CEF Header details

```
10:41:49.413 CEF:0|Secude|HaloCAD|6.8.0.1|100|user
download|1|deviceCustomDate1Label=exportTime deviceCustomDate1=Oct 15 2024 05:03:44
UTC externalId=6AC3FE0920904D9DB8537EFA7393C87A deviceCustomDate2Label=logTime
deviceCustomDate2=Oct 15 2024 05:11:49 UTC act=unblocked;labeled;protected
fname=importList.txt filePath=New Product fileType=txt fsize=22 in=34895
shost=windchill123 duser=sakthi,type:WINDCHILL dst=10.41.13.21
requestClientApplication=[null] cs2Label=DataDestination cs2=[ platform\=[Windows NT],
browser\=[Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like
Gecko) Chrome/129.0.0.0 Safari/537.36], browser_version\=[null], device_type\=[null],
terminal_id\=[10.41.14.61], destination_attributes\=[{ key\=[client_ip],
value\=[10.41.13.21], type\=[null] }, { key\=[client_host], value\=[10.41.13.21],
type\=[null] }] ] cs3Label=DataOrigin cs3=[ source_type\=[PLM],
system_name\=[windchill123], client_type\=[WINDCHILL], plm_info\=[{
key\=[product_name], value\=[New Product], type\=[null] }, { key\=[system_context],
value\=[New Product], type\=[null] }, { key\=[organization_name], value\=[SECUDE],
type\=[null] }, { key\=[lifecycle_template], value\=[Basic], type\=[null] }, {
key\=[lifecycle_state], value\=[In Work], type\=[null] }]]
cs4Label=ClassifyProtectionData cs4=[ policy_id\=[d7e95033-e7f1-4218-8941-
7d60d8e9cf69], policy_name\=[CADSecured], policy_type\=[company_policy],
error\=[false], author\=[HaloENGINE Service] ]
```

CEF sample

6.5.3. Why LEEF Standard?

The Log Event Extended Format (LEEF) is a customized event format for IBM Security QRadar that contains readable and easily processed events for QRadar.

Syslog and LEEF Header

The LEEF format consists of a Syslog header, a LEEF header, and event attributes. The Syslog header is an optional field. The Syslog header contains the timestamp and IPv4 address or hostname of the system that sends the event. The LEEF header is a required field for LEEF events. The LEEF header is a pipe delimited (|) set of values that identifies your software or appliance to QRadar. Event attributes identify the payload information of the event that is produced by your appliance or software. Every event attribute is a key-value pair with a tab that separates individual payload events.

```
Syslog Header | LEEF Header |[Event Attributes]
```

LEEF format

```
10:45:30.771 LEEF:2.0|Secude|HaloCAD|6.8.0.1|100|^|exportTime=Oct 15 2024 05:07:26
UTC^eventName=user download^externalId=B47B422F50864D38AC54E637447C8118^logTime=Oct 15
2024 05:15:30 UTC^act=unblocked;labeled;protected^fname=importList.txt^filePath=New
Product^ftype=txt^fsize=22^fdwnsize=34895^shost=windchill123^usrName=sakthi,type:WINDC
HILL^dst=10.41.13.21^usrAgent=[null]^dataDestination=[ platform=[Windows NT],
browser=[Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like
Gecko) Chrome/129.0.0.0 Safari/537.36], browser_version=[null], device_type=[null],
terminal_id=[10.41.14.61], destination_attributes=[ {key=[client_ip],
value=[10.41.13.21], type=[null]}, {key=[client_host], value=[10.41.13.21],
type=[null]} ] ]^dataOrigin=[ source_type=[PLM], system_name=[windchill123],
client_type=[WINDCHILL], plm_info=[ {key=[product_name], value=[New Product],
type=[null]}, {key=[system_context], value=[New Product], type=[null]},
{key=[organization_name], value=[SECUDE], type=[null]}, {key=[lifecycle_template],
value=[Basic], type=[null]}, {key=[lifecycle_state], value=[In Work], type=[null]} ]
]^classifyProtectionData=[ policy_id=[d7e95033-e7f1-4218-8941-7d60d8e9cf69],
policy_name=[CADSecured], policy_type=[company_policy], error=[false],
author=[HaloENGINE Service] ]
```

LEEF sample

Format	Description	Example
Syslog Header	The Syslog header contains the timestamp.	`03:44:14.061`
LEEF Header	LEEF:version	An integer value that identifies the major and minor version of the LEEF format that is used for the event, for example, `LEEF:2.0|Vendor|Product|Version|EventID|`
	Product name	A text string that identifies the product that sends the event log to QRadar, for example, `LEEF:2.0|Secude|HaloCAD|6.8.0.0|100|`
	Product version	A string that identifies the version of the software or appliance that sends the event log, for example, `LEEF:2.0|Secude|HaloCAD|6.8.0.0|100|`

Format	Description	Example
	EventID	A unique identifier for an event.
	Delimiter Character	Pipe Specifies an alternative delimiter to the attributes. You can use a single character or the hex value for that character. The hex value can be represented by the prefix 0x or x, followed by a series of 1-4 characters (0-9A-Fa-f).
Event Attributes	Predefined Key Entries	A set of key-value pairs that provide detailed information about the security event. Each event attribute must be separated by a tab or the delimiter character, but the order of attributes is not enforced.

LEEF Header details

6.5.4. Why JSON Standard?

The JSON format is a lightweight text-based interchange format used for serializing and transmitting structured data over the network connection. Furthermore, it supports Security Information and Event Management solutions (e.g., Microsoft Azure Sentinel, Splunk, etc.,) seamlessly.

JSON syntax is considered as a subset of JavaScript syntax; it includes the following:

1. Data is represented in name/value pairs.
2. Curly braces hold objects and each name is followed by ':'(colon), the name/value pairs are separated by ','(comma).
3. Square brackets hold arrays and values are separated by ','(comma).

```
10:47:05.456
{"log_id":"BBB683F2EE114198B083196381598524","product":"HaloCAD","source_host":{"shost
":"windchill123"},"protection":{"policy_id":"d7e95033-e7f1-4218-8941-
7d60d8e9cf69","extended_tags":[],"policy_name":"CADSecured","error":false},"destinatio
n_info":{"hostname":"10.41.14.61","destination_attributes":[{"value":"10.41.13.21","ke
y":"client_ip"},{"value":"10.41.13.21","key":"client_host"}],"destination_ip":"10.41.1
3.21","os":"Windows NT","recipients":[],"browser":"Mozilla/5.0 (Windows NT 10.0;
Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/129.0.0.0
Safari/537.36","device_type":"null","browser_version":"null","user_agent":"null"},"cla
ssification":{"classification_by_system":[],"classification_by_user":[]},"version":"6.
8.0.1","log_time":"Oct 15 2024 05:17:05
UTC","event_id":100,"data_origin":{"generic_info":"null","sap_info":"null","system_nam
e":"windchill123","pre_process_info":[],"source_type":"PLM","client_type":"WINDCHILL",
"plm_info":[{"value":"New Product","key":"product_name"},{"value":"New
Product","key":"system_context"},{"value":"SECUDE","key":"organization_name"},{"value"
:"Basic","key":"lifecycle_template"},{"value":"In
Work","key":"lifecycle_state"}],"bi_info":"null"},"user_info":{"user_email":"HaloENGIN
E Service","user_type":"WINDCHILL","user_name":"sakthi"},"file_info":{"file_path":"New
Product","file_name":"importList.txt","file_type":"txt","download_file_size":34895,"or
iginal_file_size":22},"action":["unblocked","labeled","protected"],"export_time":"Oct
15 2024 05:08:59 UTC","event":"user download"}
```

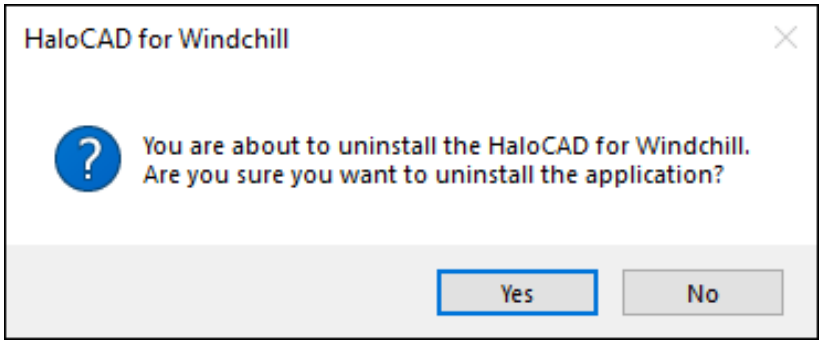

JSON sample

6.6. Uninstalling the HaloCAD Component from Windows

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

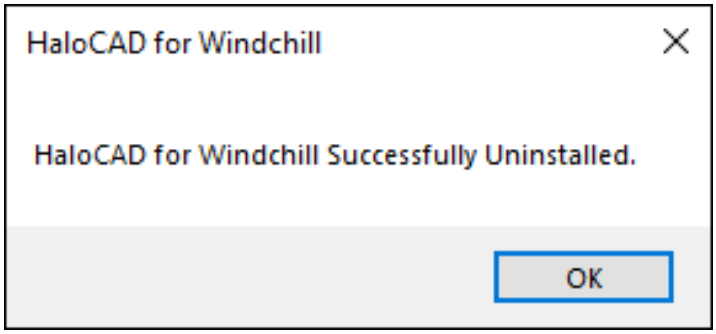
Prerequisite: Make sure to stop the Windchill Server before performing uninstallation. Otherwise, an error message will appear such as "*Windchill Server instance is running. So please stop the server and retry unistallation.*"

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 will appear.



Uninstall Message #1

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



Uninstall Message #2

Results:

a. The HaloCAD component has been successfully uninstalled.

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

c. The uninstalling process is complete.

5. **Alternate option:** Remove the configuration files with the Config tool, then run the following command.

   ```
   HaloCAD_Windchill_Setup.exe -uninstall
   ```

6.7. Uninstalling the HaloCAD Component from Linux

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

1. Run the HaloCAD Configuration Tool as mentioned in step 2.
2. Click the **Others…** tab, then click on the **Uninstall** button in the configuration tool UI.
3. Click **Apply**.

   Results:

   a. A confirmation message dialog is displayed if the configuration is successful. Click **OK** on the confirmation dialog box.

   b. The HaloCAD Configuration tool UI and Terminal will automatically close.

Secude

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About Secude

Secude, a Microsoft and SAP Partner, is a global leader for Zero Trust Data-centric security and Enterprise Digital Rights Management (EDRM) solutions.

For more than 25 years Secude has been trusted by many Fortune 500 and DAX-listed companies for architecting, implementing, and protecting their data. Our data-centric security professionals apply their passion and deep domain expertise to provide a holistic approach to protect priceless Intellectual Property (IP) in CAD & SAP based collaborations and supply chains.

With branches in Europe, North America and Asia, Secude supports customers with the implementation of IT security strategies through a global network.