

Entitlement and License Manager

USER MANUAL

The screenshot shows the Emerson Entitlement and License Manager application window. The title bar includes the Emerson logo and the text "ENTITLEMENT AND LICENSE MANAGER". The interface is divided into several sections:

- Device Information:** Located on the left, it contains a monitor icon with a key and a clock. Below the icon, the following details are listed:
 - Status : **ACTIVE**
 - Machine Type : Physical
 - Device Name : USMAS-4ND20X2
 - Primary Locking Code : *12Y QSSR C997 HNHK
 - Secondary Locking Code : *1NS P259 HBMC TRER
- Leased License:** The active tab, which includes sub-tabs for "Computer Locked" and "Hardware Key". It features two radio buttons: "Available Licenses on Server" (selected) and "Activated Leases on Machine".
- License Server Configuration:** Includes a "License Server HostName *" field, a "Port" field with the value "5093", and a "Show Available Licenses" button.
- Available Lease licenses on Server (0):** A table with two columns: "Product Name" and "Version". The table is currently empty.
- Footer:** Includes "Version 1.4" and a link to the "Emerson Customer Center >".
- Buttons:** A "Create Lease" button is located at the bottom right.

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Warnings and Caution Notes as Used in this Publication

WARNING

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

CAUTION

Caution notices are used where equipment might be damaged if care is not taken.

Note: *Notes merely call attention to information that is especially significant to understanding and operating the equipment.*

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met during installation, operation, and maintenance. The information is supplied for informational purposes only, and Emerson makes no warranty as to the accuracy of the information included herein. Changes, modifications, and/or improvements to equipment and specifications are made periodically and these changes may or may not be reflected herein. It is understood that Emerson may make changes, modifications, or improvements to the equipment referenced herein or to the document itself at any time. This document is intended for trained personnel familiar with the Emerson products referenced herein.

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Section 1: About this Manual

1.1 Glossary

Entitlement – An entitlement is a purchased right to use a software application for a specified period or in perpetuity. An entitlement is activated on a supported device for use. An activated entitlement results in a license that is bound to a device.

License – A license results from activating an entitlement onto a supported device. A license enables customers to use the software on the device to which it is bound.

Exclusive Licensing – a licensing method where activation will replace an old license with a new license. This licensing method is used with computer-locked and hardware key licenses. For example, if a customer has an entitlement with multiple activations for the same product, then activating the same product twice on the same device will result in one active license based on the last activation.

Lease – A temporary license, usually for 30 days, taken from the available pool of licenses on the PAC License Server. The lease gives the client exclusive rights to use that license during the lease period.

Activation Code – An activation code is used to convert a customer's entitlement to a software license.

Device Locking Code – A device locking code binds a license to a specific device.

Type 1 Hypervisor Virtual Machines – A Type 1 Hypervisor (or a bare-metal hypervisor) is installed directly on a physical host server in place of an operating system.

Type 2 Hypervisor Virtual Machines – A Type 2 hypervisor (or hosted virtual machine) is a virtual machine manager that is installed as a software application on a host operating system. In Type 2 Hypervisor with a Software Key (VMware Workstation Running on a Local Machine), we discuss a use case in which a customer may wish to install and license Emerson software on a guest virtual machine.

Environment Variable – An environment variable is a device-wide variable that is configured outside of an application. Users can specify a name and value for the environment variable that can be referenced by any number of applications.

1.2 Revisions in this Manual

Revision	Date	Description
E	April 2022	<p>Adds support for ELM version 1.4:</p> <ul style="list-style-type: none"> • Users can activate, renew, and end lease licenses using Entitlement and License Manager • Users can lease licenses for 30 days. <p>Documentation support for ELM 1.3 and higher</p> <ul style="list-style-type: none"> • Licenses can only be returned when PME software is not running • When a host connects to VPN, PME within the VM variable must be pointing to the VPN IP Address
D	Feb 2022	<p>Adds support for ELM 1.3:</p> <ul style="list-style-type: none"> • License refresh can be performed through Entitlement and License Manager. • Automatic Refresh - PCs with an internet connection can refresh Emerson software licenses. • Manual Refresh - Licenses on PCs without an internet connection can be manually refreshed by downloading the updated license file from the Customer Center portal. • ELM now has a more intuitive user interface that shows users what licenses are installed and their status. • Hardware key-based licensing reflash is now supported for PAC Machine Edition 9.8 software product through the Entitlement and License Manager. • Contextual help access allows users to find information more conveniently. • Information on the device information that the license is bound to be readily available so that tracking licenses between the Customer Center portal and the device that they are deployed on is possible.
C	Mar 2021	<ul style="list-style-type: none"> ▪ Hardware License Keys compatible with ELM 1.2 or later ▪ Instructions for using Hardware License Keys with virtualization ▪ ELM splash screen to display the locking device information and the Emerson Customer Center link ▪ The automatic license activation process now activates entitlements with the host computer name ▪ The manual activation process allows users to customize the device name ▪ ELM is used to read licenses from Hardware License Key ▪ The activation process allows users to share a license for up to three instances of an application on the same computer ▪ Troubleshooting section expanded

B	May 2020	<ul style="list-style-type: none">▪ Instructions for activating entitlements▪ Instructions for returning entitlements▪ Addition of the troubleshooting section▪ Updates to screenshots▪ Adds firewall and proxy issues to the Appendix▪ Adds further instruction on licensing in a Type 2 hypervisor environment to the Appendix (B1)
A	Jan 2020	Initial Release

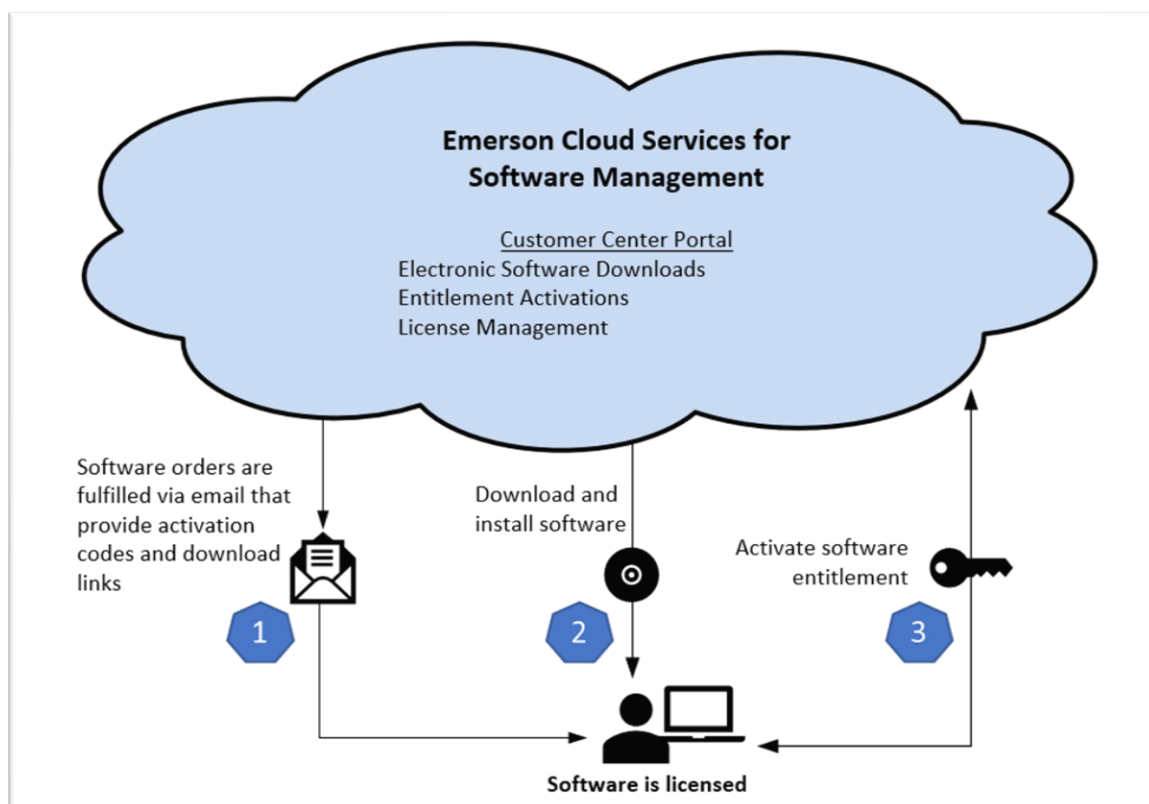
Section 2: Overview of Emerson Software Licensing

Emerson provides cloud services to allow end-users to manage their investment in Machine Automation Solutions software. These services start with the fulfillment of the ordered software where an end-user receives an email on how to download the ordered software and activate it. End-users can use services to download the ordered software anywhere in the world – no need to wait for the software to be delivered by mail. Once installed, the cloud services allow end-users to activate the entitled software. Services are flexible to allow software activation on devices that are connected to the internet or not connected to the internet.

Figure 1 illustrates the three steps that are accomplished using Emerson cloud services:

- order fulfillment notification
- software installation
- entitlement activation

Figure 1: Emerson Software Licensing Overview



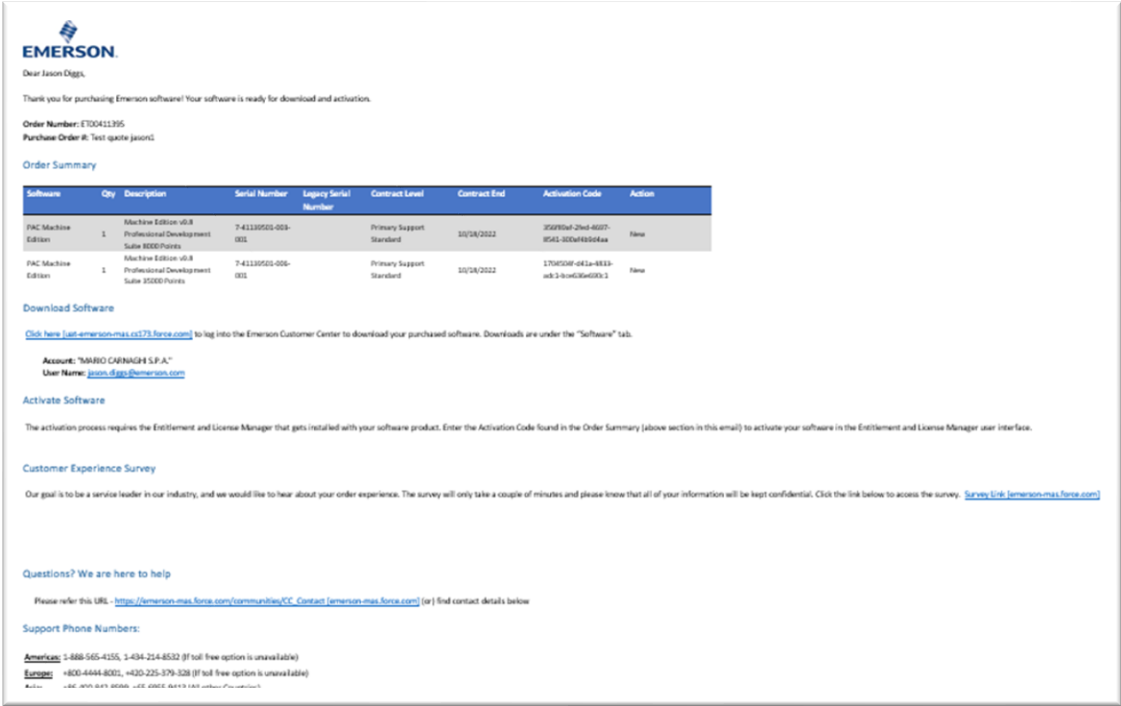
2.1 Software Fulfillment

Note: This section references the first heptagon in Figure 1.

2.1.1 Order Fulfillment Email

Once an order for Emerson software has been placed, customers will receive an order fulfillment email with a link to the Emerson Customer Center (Figure 2). This email will provide the customer with their activation code, account number, username, and temporary password. Follow the links provided in the email to continue to the Emerson Customer Center.

Figure 2: Order Fulfillment Email Example



2.2

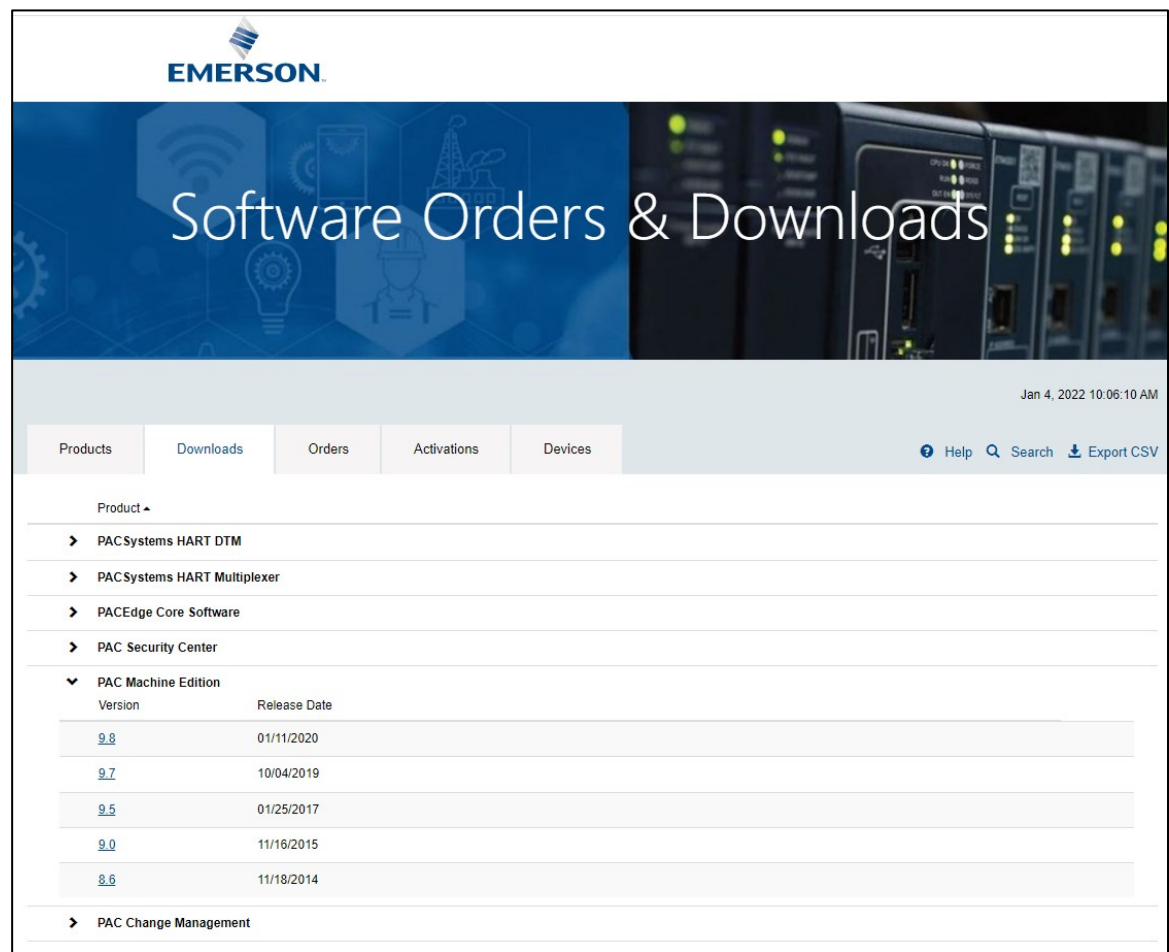
Electronic Software Download and Install



Note: This section references the second heptagon in Figure 1.

Customers may visit the Emerson Customer Center to download the ordered software. The ordered software will be displayed in the **Orders** tab in Figure 3.

Figure 3: Download Software



2.3 Activating Entitlements

Note: This section references the third heptagon in Figure 1.

2.3.1 Overview of Activation Options

Customers can activate software entitlements automatically and manually using Entitlement and License Manager and Emerson's Customer Center.

Note: The license management methods discussed at length in this user manual presume that the user is licensing software on a physical machine. For information on entitlement activation on a virtual machine, please see Appendix B: *Licensing PAC Software on Virtual Machines*.

2.4 New Updates for this Release

- Refreshing licenses can be performed through Entitlement and License Manager.
- Automatic Refresh - PCs with an internet connection can refresh Emerson software licenses.
- Manual Refresh - Licenses on PCs without an internet connection can be manually refreshed by downloading the updated license file from the Customer Center portal.
- ELM now has a more intuitive user interface that shows users what licenses are installed and their status.
- Hardware key-based licensing reflash is now supported for PAC Machine Edition 9.8 through the Entitlement and License Manager.
- Contextual help access allows users to find information more conveniently.
- Information on the device information that the license is bound to be readily available so that tracking licenses between the Customer Center portal and the device that they are deployed on is possible.

Section 3: Entitlement and Licensing Manager Overview and Installation

3.1 Entitlement and Licensing Manager Overview

Emerson provides a cloud-based entitlement and license management solution for all PAC and PACSystems™ software products designed to aid End User License Contacts (EULC) to activate and return licenses to devices in their administrative domain.

Customers will have the opportunity to manage the following entities using Emerson cloud services:

- Products
- Downloads
- Orders
- Activations
- Devices

3.2 Entitlement and Licensing

The Entitlement and Licensing Manager (ELM) is a desktop application that is distributed with Machine Automation Solutions software products like PAC Machine Edition. It acts as a client application to the Emerson cloud services and allows customers to easily interface with those services. It is used to activate entitlements on supported devices resulting in a license bound to the device. It can also manage licenses by returning them to the cloud, hence making the associated entitlement available to be activated onto another device. For example, a license is returned from a laptop that is being retired so that the associated entitlement can be activated onto a new laptop.

3.3 Minimum Installation Requirements

System Requirements for the ELM Suite:

- MS Server 2016, MS Server 2019, Windows 10, Windows 10 IoT, or Windows 11
- At least 1 GB of Disk Space
- At least 2 GB of RAM

3.4 Other System Requirements

ELM Software (Required)

- Entitlement and License Manager (ELM)

System Requirements for Application Software

- Specific to the application software being used, the application may reside on a physical or virtual machine

Internet Access Requirements for Online Activation / Return of Licenses

- Internet access is required for online activation and license return from the ELM software using HTTPS protocol on TCP port 443.

3.5 Installing Entitlement and Licensing Manager

The ELM software can be installed in one of two ways: with its installer as a stand-alone application or as part of the installation of an application software product; e.g. PAC Machine Edition.

Launch the installer file for Entitlement and License Manager and follow the installation wizard prompts.



Troubleshooting

RMS License Server Error

In some cases, users may experience issues with the license server file after installation. To ensure functionality, it is recommended to stop the license manager service and remove the license server file. This will allow the application to rebuild the file and resume functionality. Please contact technical support at the number listed at the end of this document for instruction.



Troubleshooting

Windows Update Required


If a user is experiencing issues installing the Entitlement and License Manager software, verify that Windows is up-to-date. Installing the latest Windows and the Microsoft Windows C++ redistributable 2015 and 2015-2022 updates should fix the issue.

Section 4: Activating Entitlements


Emerson makes it easy for customers to activate entitlements and return licenses. The Entitlement and Licensing Manager uses an intuitive interface to activate entitlements and return and refresh licenses.

Note: Hardware License Keys are configured-to-order in the factory. They do not require activation.

Figure 4: Entitlement and Licensing Manager Home Screen



ENTITLEMENT AND LICENSE MANAGER



Status

: INACTIVE

Machine Type

: Physical

Device Name

: INEICP-AS-L731

Primary Locking Code

: *1PF R86K 784T B6HK

Secondary Locking Code

: *1X5 AJCD GV48 VTDB

Version 1.4

[Emerson Customer Center >](#)

Leased License

Computer Locked

Hardware Key

☒ Available Licenses on Server

☐ Activated Leases on Machine

License Server Endpoint

Port

SHOW AVAILABLE LICENSES

Product Name	Activation Code
--------------	-----------------

Activate Lease

Help

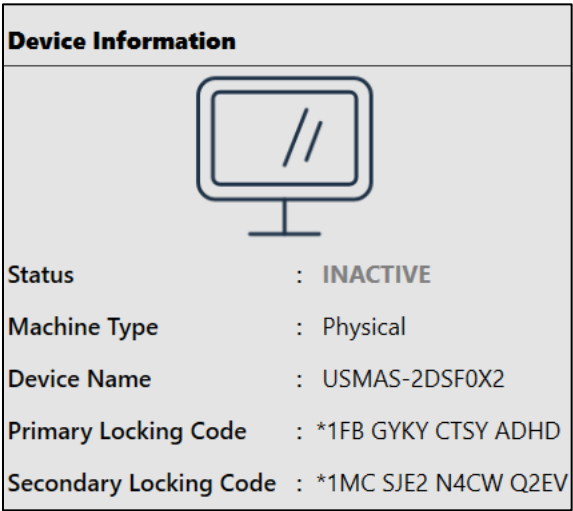
Note: Ensure that you have administrative permissions on the machine designated to receive the installation.

4.1 Activating Entitlement Explanation

By clicking the **Activate Entitlement** button, the ELM software will detect whether the target device has access to Emerson Cloud Services via the internet. If there is access, the software will prompt the user for their activation code and attempt to license the software automatically. If the target device does not have internet access, then users will need to copy or document their device locking code and manually activate their device from a second device with internet access.

The device's primary locking code, secondary locking code, and name can all be accessed from the left panel on the home screen (Figure 5).

Figure 5: Device Locking Information



Note: If for some reason the computer equipment was damaged or destroyed and a manual return of a license is not feasible, the customer may call technical support to recover a license. Please find the technical support numbers provided at the end of this document. Please be sure to have your license activation code ready upon request.

4.2 Automatic Entitlement Activation

Customers can activate an entitlement on a target device using two methods, namely automatic or manual

Note: The target device is where the entitlement will be licensed. The license can be used to exercise the rights to use the software on that device.

If the target machine has direct internet access, the automatic activation method can be used by executing the following steps.

1. Click on the **Activate Entitlement** button located on the screen shown in Figure 4.
2. Select **Automatic Activation Using the Internet**. Click **Next**.

Figure 6: Automatic Using the Internet

The screenshot shows a window titled "Activate Entitlement" with a close button (X) in the top right corner. Below the title bar is a progress indicator with three steps: "Choose Activation Method" (active), "Enter Activation Code", and "User Confirmation". A green question mark icon is in the top right corner of the main area. The main content area is titled "Activate Entitlement" and contains two radio button options: "Automatic Activation Using the Internet" (selected) and "Manual Activation". A "Next" button is located at the bottom right of the main content area.

3. Enter the Activation Code found in the order fulfillment email as described in Section 2.1.1. The message **Activation Code is Valid** will display if the activation code is entered correctly. Click **Next**.

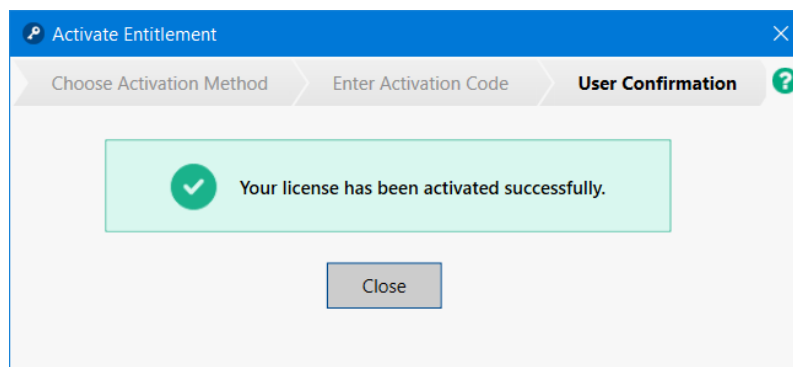
Note: If you no longer have access to the order fulfillment email, you may locate the activation code on the **Order** screen of Emerson Customer Center as described in Section 2.1.

Figure 7: Activation Code

The screenshot shows the same "Activate Entitlement" window, but the progress indicator now shows "Enter Activation Code" as the active step. The main content area is titled "Enter Activation Code" and contains a single text input field. Below the input field are two buttons: "Back" on the left and "Next" on the right.

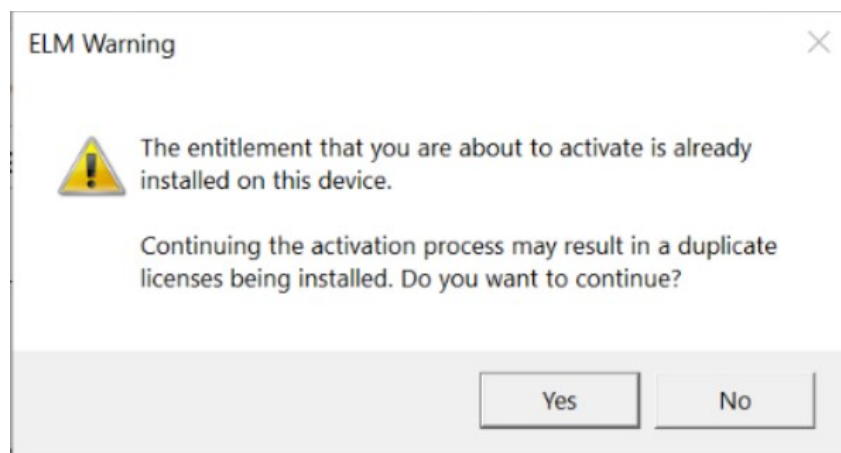
4. **Your License is Activated Successfully** will display if the activation code is accepted. Click **Close** to return to the previous screen.

Figure 8: Successfully Activated



Note: If the user has already previously activated the license, they may receive the following dialog that proceeding with a duplicate license.

Figure 9: Duplicate Entitlement Activation Confirmation Prompt



4.3 Manual Entitlement Activation

The process of activating an entitlement requires communication between the Entitlement and License Manager and Emerson's Customer Center. The manual activation method starts in the Entitlement and License Manager application but requires some steps to be done in the Emerson Customer Center. Since internet accessibility might not be available on the target device, the user will need to ensure they have access to a second device with internet access and a transferable storage device (USB drive). The steps in the manual activation method that takes place in Customer Center result in a downloadable license file to use on the target device. When the license file is stored on the target device, the process is complete.

Note: When possible, Emerson strongly recommends connecting to the internet for automatic activation as it requires fewer steps.

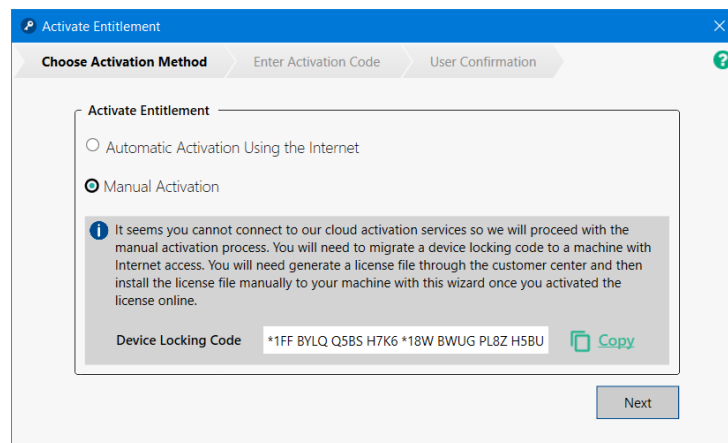
4.3.1 Requirements

- A second device with internet access
- Transferable Storage Device (such as USB drive)

4.3.2 Instructions

1. On the device where the license will be installed, click on the **Activate Entitlements** on the home screen
2. Select the **Manual** option and the wizard will provide a **Device Locking Code**.
3. Copy the Device Locking Code so it can be used to manually activate an entitlement in the Customer Center on a second device. The Device Locking Code is necessary to generate a license file that will bind to this device.

Figure 10: Locking Code



4. From a second machine with internet access, open a browser and enter the following URL:
<https://emerson.com/iac-support>
5. Sign in to the Customer Center and click the **Software** tab located on the navigation menu. A new tab will open to display the **Software Orders & Downloads** portal. This section will display all of the available entitlements associated with the user that logged on.

Figure 11: Navigation to Software Portal



6. From the **Software Orders and Downloads** portal, select the **Orders** tab to locate your entitlement.
7. Click the **Activate Manually** button next to the appropriate entitlement to proceed. The Emerson Customer Center will request the **Device Locking Code** that was noted down in step 3.

Figure 12: Activate Manually

ET00411395	"MARIO CARNAGHI S.P.A." CSN: 641071	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP350 License Expiration: 12/31/2099	1704504f-d41a-4833-adc1- bce636e690c1	0	1	Activate Manually
------------	---	--	--	---	---	-----------------------------------

8. In the **Device Locking Code** field, enter or paste the **Device Locking Code**.

Figure 13: Device Locking Code

Products

<input type="checkbox"/>	Product	Activated	Available	Quantity To Activate
<input checked="" type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP000-O License Expiration: 12/31/2099	0	1	<input type="text" value="1"/>
<input type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP350-O License Expiration: 12/31/2099	0	1	<input type="text" value="1"/>
<input type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP159-O License Expiration: 12/31/2099	0	1	<input type="text" value="1"/>

Device Locking Code

Cancel

Complete Activation

- Click the **Complete Activation** button.

Figure 14: Enter the Device Locking Code and Complete Activation

<input type="checkbox"/>	Product	Activated	Available	Quantity To Activate
<input type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP000-O License Expiration: 12/31/2099	1	0	
<input checked="" type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP350-O License Expiration: 12/31/2099	0	1	<input type="text" value="1"/>
<input type="checkbox"/>	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP159-O License Expiration: 12/31/2099	0	1	<input type="text" value="1"/>

Device Locking Code

- The screen will display **Activation Completed successfully**. Click the **Download License File** button.
The file will be called license.zip.

Figure 15: Download the License File

Order Activation

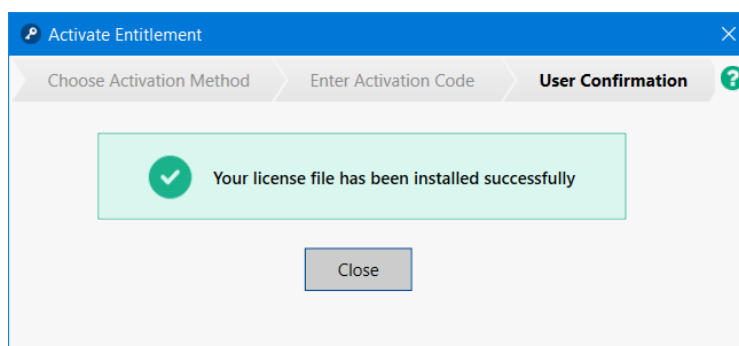
Activation Code: **5ebc5cd2-c115-46c2-b7b3-8592977e04a9**
Customer Name: **"MARIO CARNAGHI S.P.A."**

☒ **Activation Completed successfully**

Product	Activated
Machine Edition Professional Development Suite - Software Key 9.8 Part# MEMBP001-SWK Expiration: 12/31/2099	1

- Copy the **license.zip** onto a USB flash drive and return it to the target device running the Entitlement and License Manager. **Note:** Extraction of the zip file is not necessary.
- Insert the USB flash drive into the target device and click **Next** in ELM in step 1.
- Click the **Browse** button and select the unzipped license file from the USB flash.
- Click **Install License**.
- A screen will display to alert the user that the license file was installed successfully.

Figure 16: Activated Successfully



Note: If for some reason the computer equipment was damaged or destroyed and a manual return of a license is not feasible, the customer may call technical support to recover from an activated license. Please find the technical support numbers provided at the end of this document. Please be sure to have your license activation code ready upon request.

4.4 Licensing through PAC Machine Edition

Customers can launch Entitlement and License Manager using commands in PAC Machine Edition.

Located in the **Help** menu, the customer can click, **Activate** or **Remove**, to launch an instance of Entitlement and License Manager. However, the commands cannot be carried out through PAC Machine Edition. The customer will need to go through the routine actions using the Entitlement and License Manager.

The **License Report** command will display the license active on the local machine.

The **Reload** command will force PAC Machine Edition to reload license(s) stored on the local machine.

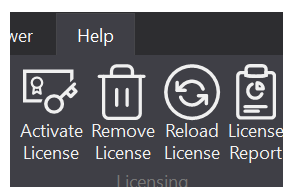
Note: PME must be closed to return a license.

Important

Refreshing a license is done by the Entitlement and License Manager to refresh the license based on changes made on the cloud. Reload forces PME to attempt to locally check for updates to a previously checked out license.

For example, if a customer refreshes their SP/OEM subscription makes their expiration date change or they upgraded their PME version from 9.8 to 10.0, this is done with Entitlement and License Manager. If the change happens while PME is open, they can use the Reload button to check for changes to that license without exiting PME.

Figure 17: Activation by App




4.5 Unable to Activate Entitlements

If the entitlement does not activate successfully, verify/retry the following:

Verify that the Sentinel RMS License Manager is Running

This is done by opening Window's Task Manager and clicking the Services tab. If there is no communication between the ELM application and the license manager, it may result in an error.

Figure 18: Sentinel RMS License Manager

File Options View				
Processes	Performance	App history	Startup	Users
Details	Services			
Name	PID	Description	Status	Group
 Sentinel RMS License Mana...	19500	Sentinel RMS License Manager	Running	

Virtual Machine Time Differs from Host Machine

Users have experienced difficulty licensing applications when their virtual machine date and time differs from the date and time on the host machine. Issues may arise if both operating systems are not synced to observe daylight savings changes. If users report that recent licenses have dropped, verify that the times on both the virtual machine and the host PC are the same.

Verify that the Correct License File was Uploaded to the Entitlement and License Manager

If the wrong license file (license.zip) is uploaded or is not valid, the manual activation may not be successful.

Accessing Log Files for Customer Support

Technical Support may require log files. Log files are located at the following location:

```
C:\Program Files (x86)\Emerson\Entitlement and License
Manager\ELM_1_3.log
```

Verify that the Locking Codes Match

Verify that the license record selected on Emerson Customer Center has the same Locking Code as the Primary Locking Code seen on ELM. This information is in the **Device Information** panel located on the left side of the home screen.

Verify that the Entitlement IDs Match

Verify that the license record selected on Emerson Customer Center has the same Activation Code as the Activation Code seen on ELM. This is in the **Activation Code** column of activated devices.

Section 5: Sharing Application Licenses

Emerson licensing allows up to three copies of the application to be opened on the same computer using the same login name. A single license cannot be shared between more than one computer while it is in use. If another computer on the network uses the same license, the licensing on the host computer is lost. This arrangement allows users to use a Type 2 Hypervisor configuration (such as VMware Workstation) while remaining within the terms of the licensing agreement.

Due to frequent issues with shared licensing, Emerson no longer supports sharing more than three licenses. In reducing the number of copies available, Emerson hopes to mitigate the opportunity for error.

Note: Sharing the same licensing on different computers is not supported, nor can licenses be shared on different terminal sessions on the same computer with different usernames supported (such as with RDP on a Windows Server).

5.1 Opening Multiple Instances with the Same License

To share a license across multiple instances, simply launch the application from the executable again. The second and third instances of the application will use the same licensing key.

5.2 Returning a Shared License

When a program is closed cleanly, the license is returned immediately. If the program is abruptly closed (for example, using the force quit command in the task manager), it is possible that the licensing software can take up to five minutes to make another copy available. This timeout will never exceed five minutes.

Section 6: Leasing a License

Emerson allows users to lease a license using Entitlement and License Manager. From the **Leased License** screen, users can check for available licenses on the license server or the user’s local machine.

Figure 19: Leased License Screen

EMERSON ENTITLEMENT AND LICENSE MANAGER

Device Information

Status : INACTIVE
Machine Type : Physical
Device Name : INEICP-AS-L352
Primary Locking Code : *1YF Z976 HEF7 XFDA
Secondary Locking Code : *1Y3 EMQM 8MT8 QRLV

Version 1.4
[Emerson Customer Center >](#)

Leased License Computer Locked Hardware Key

☒ Available Licenses on Server ☐ Activated Leases on Machine

License Server Hostname * Port [Show Available Licenses](#)

Product Name	Version
PAC Machine Edition Lite	10.0
PAC Machine Edition ProPlus	10.0

*Note : You already have computer locked licenses activated on your machine due to that you are not allowed to create lease license.

[Create Lease](#)

6.1 Checking Available Licenses on the License Server

1. Begin by ensuring that the **Available Licenses on Server** radio button is ticked (Figure 20).

Figure 20: Available Licenses on Server Option

Leased License Computer Locked Hardware Key

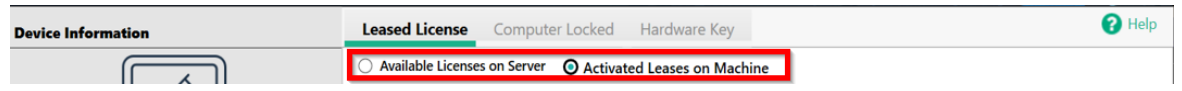
☒ Available Licenses on Server ☐ Activated Leases on Machine

2. Enter the license server hostname and port number and click **Show Available Licenses**.
3. A list of available licenses will display, providing the product name on the data grid.
4. Select one of the available licenses to highlight and click **Create Lease**.

6.2 Checking for Activated Leases on Local Machine

1. Begin by ensuring the Activated Leases on Machine radio button is ticked (Figure 21).

Figure 21: Activated Leases on Machine

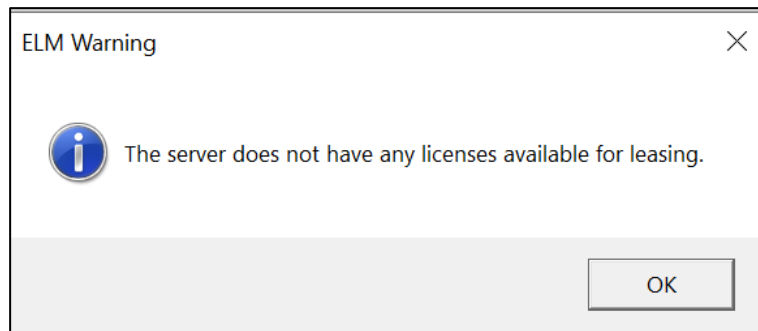


2. A list of available licenses will display, providing the product name on the data grid as well as lease status.

Note: The Refresh and Return buttons will only be enabled if the data grid shows data.

If no licenses are available, the user will receive a notification (Figure 22).

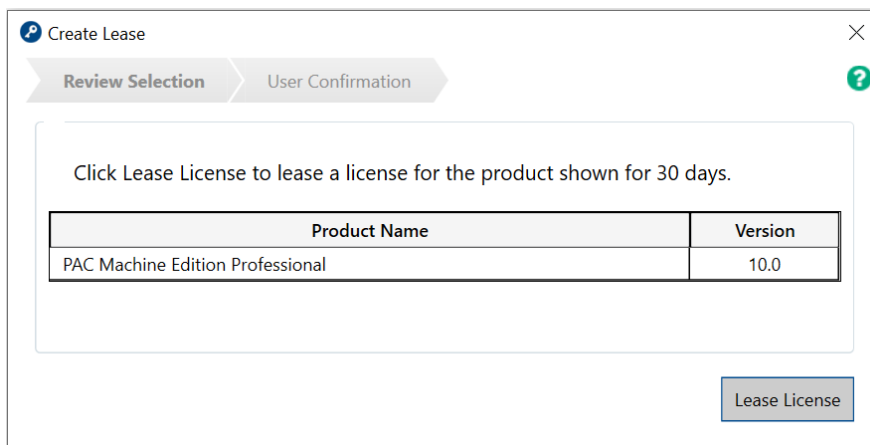
Figure 22: No Licenses Available for Leasing



6.3 Creating a Leased License

1. From the Leased License tab, click **Create Lease**. The application will ask for user confirmation.
2. ELM will display a confirmation page asking if the user wants to proceed.

Figure 23: Lease Confirmation



3. The leased license will be installed for 30 days. The status of the license will be displayed in the status window.

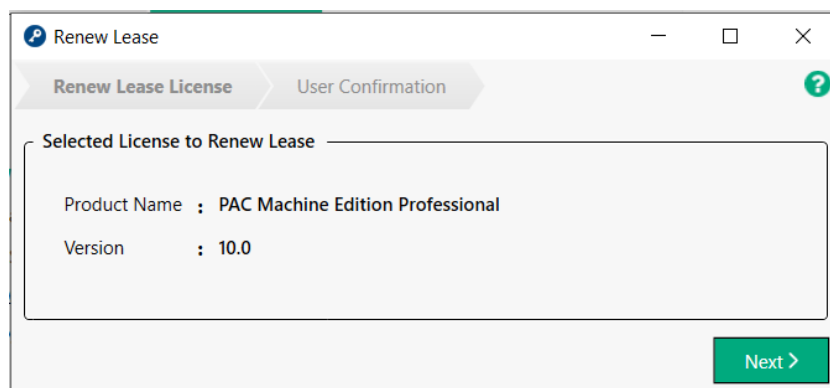
Note: Leased licenses may only be activated automatically with a connection to the license server. As of ELM 1.4, only computer-locked licenses can be manually activated and returned.

Note: Users cannot create a leased license if the computer already has computer-locked licenses. The user must return all computer-locked licenses before leasing a license.

6.4 Renewing a Leased License

1. From the Leased License tab, highlight a valid leased license for renewal and click the **Renew Current** button.
2. A confirmation window will display to verify that you have chosen the correct record. Click **Next** to begin the process. To decline, click the X to close out the window.

Figure 24: Renew Leased License



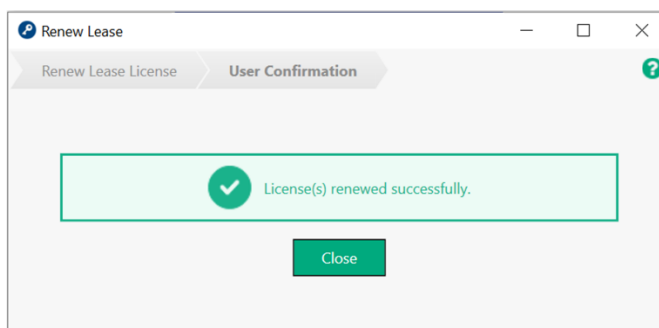
3. A confirmation window will display, asking the user to verify whether they want to return the leased license. Click **Yes** to begin the renewal process.

Figure 25: Renewed Leased License Confirmation



4. A confirmation window will appear to validate that the license was renewed successfully.

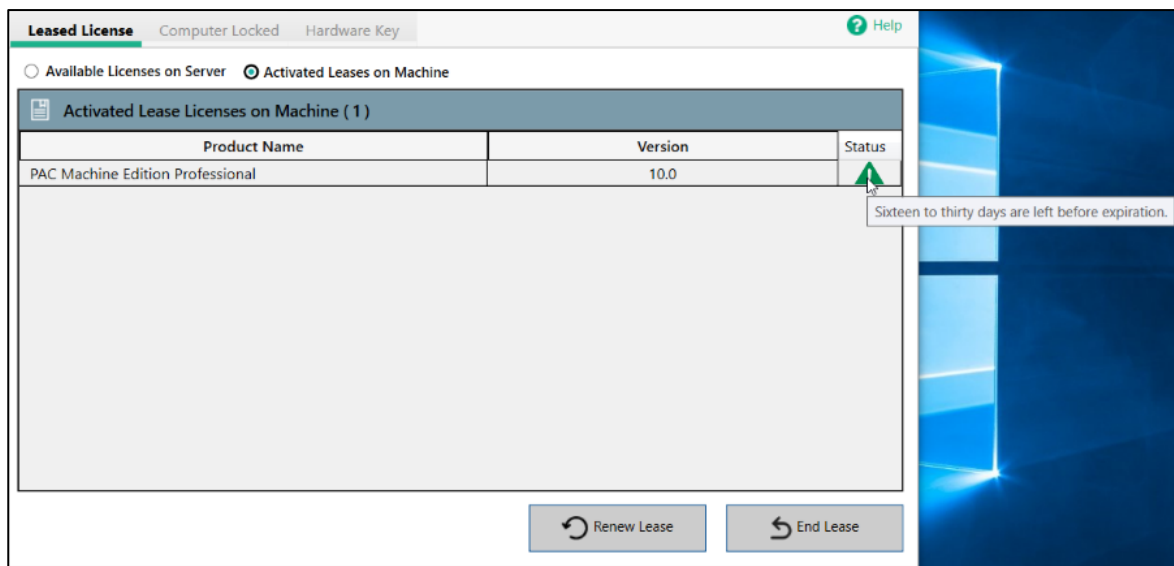
Figure 26: License Renewed Successfully



6.5 Checking Lease Expiration Date

To review the number of days remaining before expiration, place the cursor over the record's status icon to reveal the number of days left on the lease.

Figure 27: Checking for Expiration Date



Note: The option to renew a lease will only be available only after a valid lease is created.

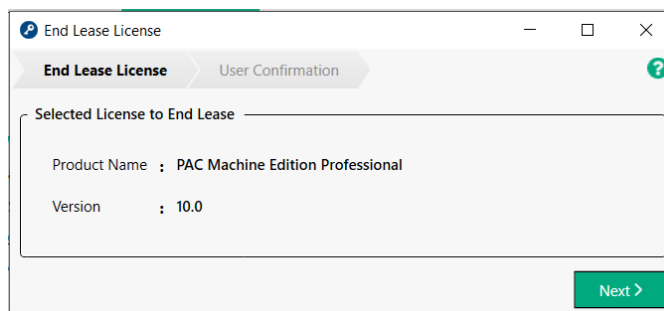
Note: Leased licenses may only be renewed automatically with a connection to the license server.

6.6 Ending a Lease

When the leased license is no longer needed, then the user can end the lease on the license with the End Lease functionality.

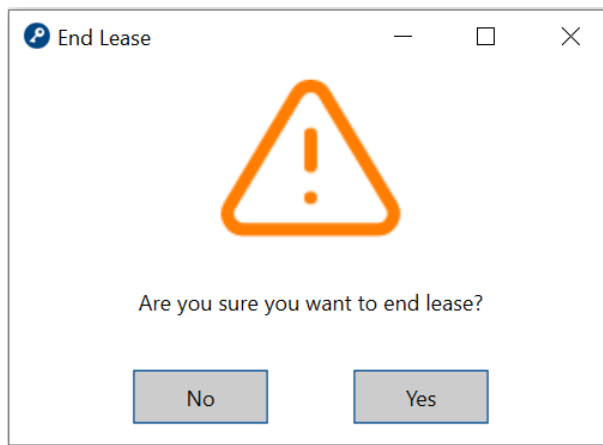
1. From the Leased License tab, highlight a valid leased license to the end and click the **End Lease** button.
2. A confirmation window will display to verify that you have chosen the correct record. Click **Next** to begin the process. To decline, click the X to close the window.

Figure 28: End Lease Confirmation



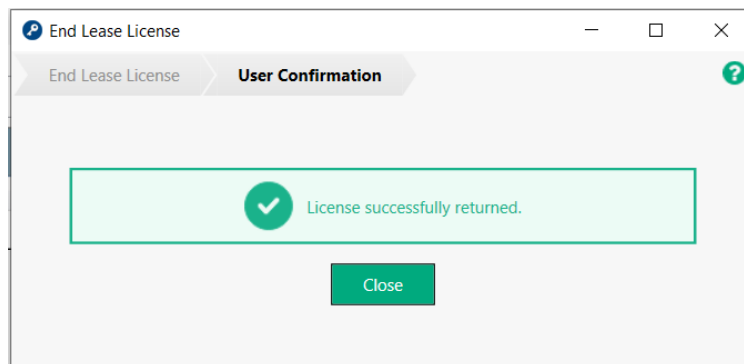
3. A confirmation window will display, asking the user to verify whether the user wants to end the lease. Click **Yes** to begin the end license process.

Figure 29: Ending License Confirmation



4. A status window will display if the leased license has ended successfully.

Figure 30: End Lease License Successful



Note: Leases may only be ended with the license server.

Section 7: Returning a License

Returning a license will allow users to return a license so that it can be activated onto another device.

7.1 Automatic License Returns

7.1.1 Requirements

- Internet connection to the Emerson Customer Center
- ELM is live and operational
- Activated licenses available for return
- Licenses can only be returned when PME software is not running

7.2 Instructions

Before completing this process, please ensure that all applications using the Emerson license are closed before returning the license.

1. Select **Automatic Return Using the Internet** and click **Next**. If the license is valid, the process will be complete.

Figure 31: Select Return Method

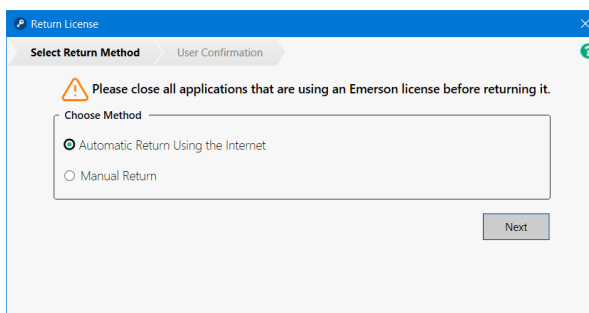


Figure 32: Select Return Method

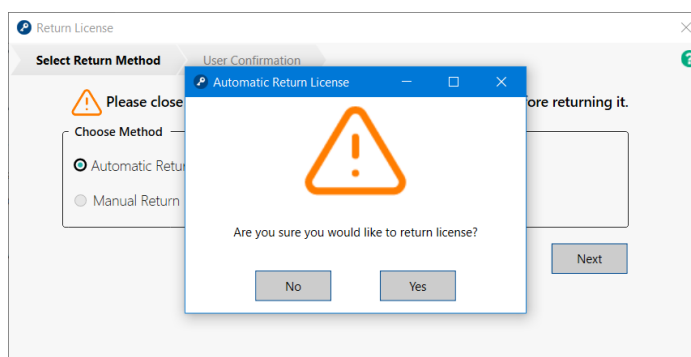
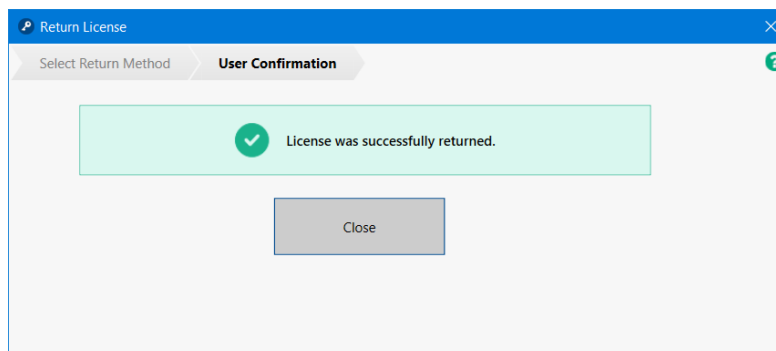


Figure 33: License Return Successful



7.3 Manually Returning a License

The process of returning licenses requires communication between the Entitlement and License Manager and Emerson Customer Center. The manual license return method is initiated in the ELM application, but some steps will be done in the Emerson Customer Center. Since Internet access may be impossible on the target device, the user will need to ensure they have access to a second device with internet access and a transferable storage device (USB drive). The manual activation procedure that is begun on ELM will produce a Return Confirmation file that will need to be uploaded to Emerson Customer Center. After the Return Confirmation file is uploaded, the return license method completes.

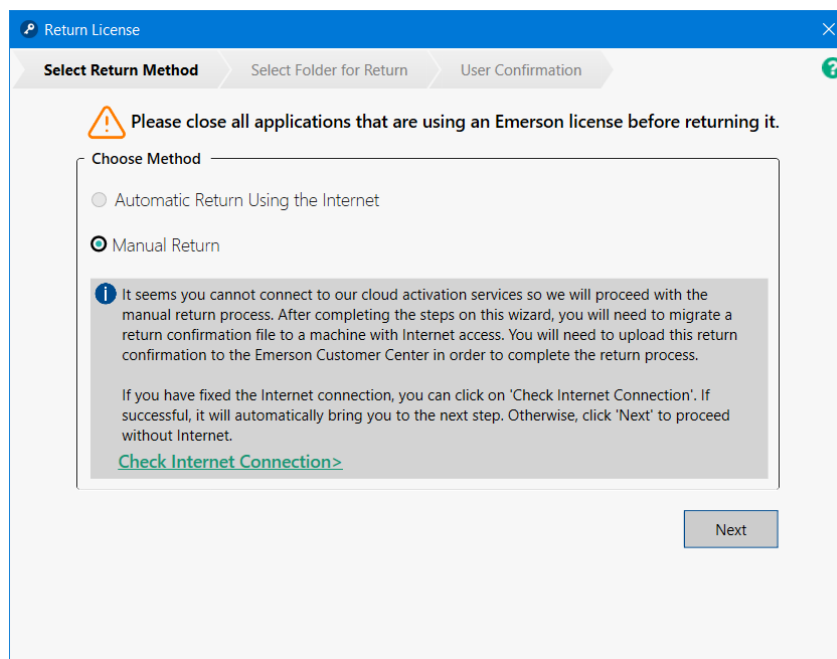
7.3.1 Requirements

- A second device with Internet access
- Transferable storage device (such as a USB drive)
- Licenses available to return
- Ability to transfer files from one computer to another computer

7.3.2 Manually Returning Licenses

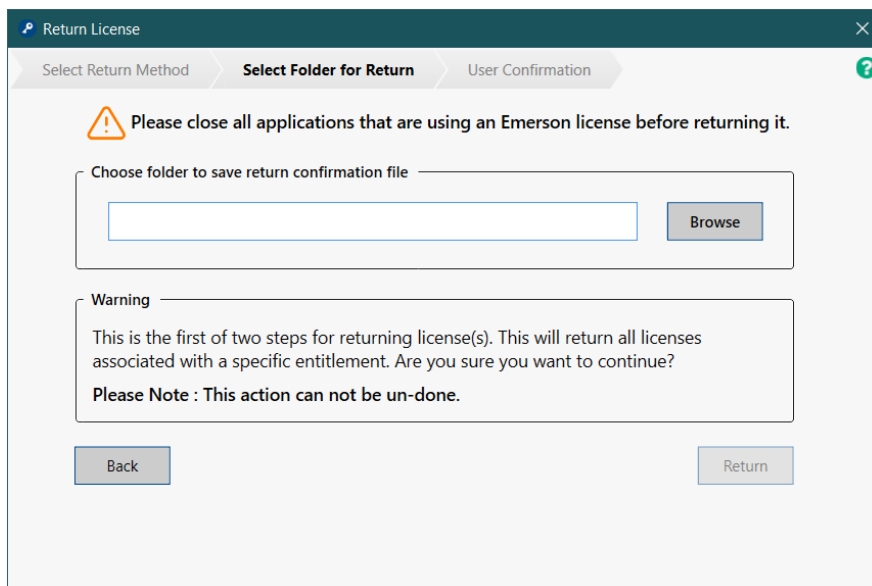
1. From the home screen, click the **Return Licenses** button.
2. Select **Manual Return** and click **Next**.

Figure 34: Select the Manual Return Method



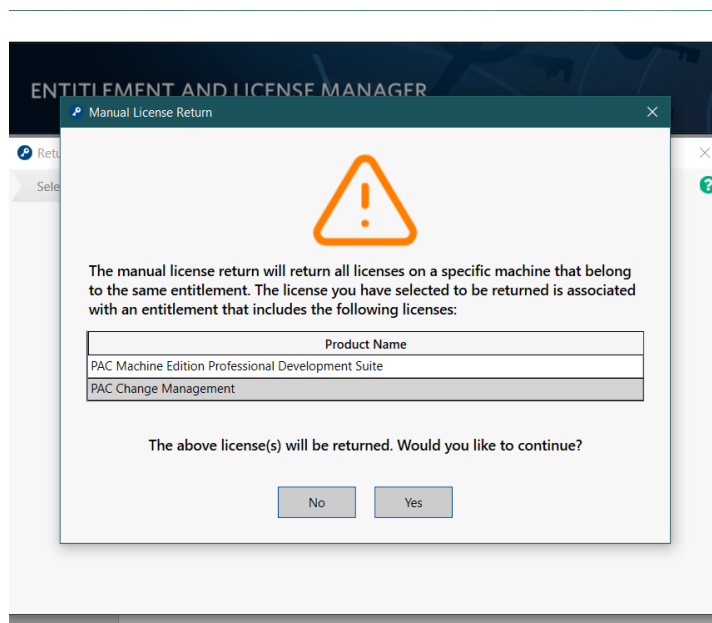
3. **Browse** to choose a path to save the Return Confirmation file and click **Return**. This file will need to be accessed to upload to Emerson Customer Center.

Figure 35: Choose Path for Return Confirmation File



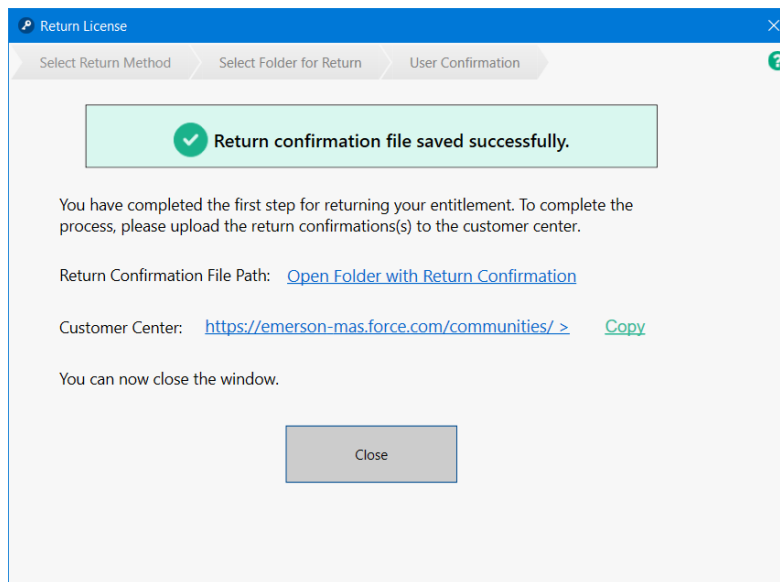
4. If you have multiple licenses that belong to the same Entitlement, then a confirmation screen will display. If the user confirms, then the listed licenses will be returned.

Figure 36: Choose Path for Return Confirmation File



- If successful, ELM will display the **Return confirmation file saved successfully**.

Figure 37: Saved Successfully



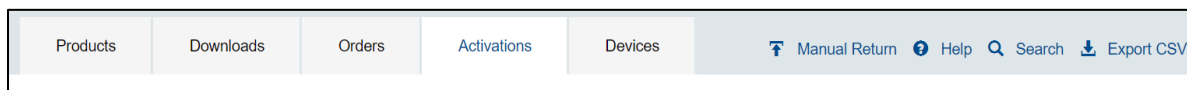
- Click **Close** and proceed to the next section to complete the upload of the return confirmation file.


7.3.3 Uploading Return Confirmation Files to the Emerson Customer Center

The manual return method that began in ELM should have produced a Return Confirmation file that will need to be uploaded to Emerson Customer Center. After the Return Confirmation file is uploaded, the return method completes.

- Login to the Emerson Customer Center (<https://emerson.com/iac-support>)
- Click the **Activations** tab and confirm that the activated entitlements are listed (Figure 38).

Figure 38: Activations Tab



- Click on the  **Manual Return** button on the top-right navigation panel and a screen will pop up (Figure 39).

4. Click the browse button below to locate and upload the Return Confirmation file. Click on the **Manual Return** button.

Figure 39: Confirm Return

Confirm Return

You are about to return the license for the entitlement. Upload **Return Confirmation File** and click **Manual Return**.

* Return Confirmation file

Specify a Return Confirmation file

Cancel Manual Return

7.4 Finding the Return Confirmation Summary

When returning an entitlement manually, along with the Return Confirmation file, a Return Confirmation summary file is also generated and placed in the same folder as the Return Confirmation. The naming convention of the Return Confirmation summary file is **returnconfirmation_lockingcode_XXX_XXXX_XXXX_XXXX**. The first line of the file will give you the status code at the end of the return operation, as well as the completion time. Each of the following lines will be the name of the Return Confirmation file that can be used to complete the return process in the Emerson Customer Center. Most entitlements should only generate a single Return Confirmation, but there are some cases where multiple may be generated, in which case, **all of them must be uploaded to the Customer Center to complete the process.**

When returning entitlement automatically, a Return Confirmation file and a Return Confirmation summary file are generated as a backup. They have placed in `/%AppData%/Emerson/Entitlement and License Manager/` folder, in a subfolder associated with the specific entitlement that the return attempt failed. The Return Confirmations in the folder will have the same file naming convention.

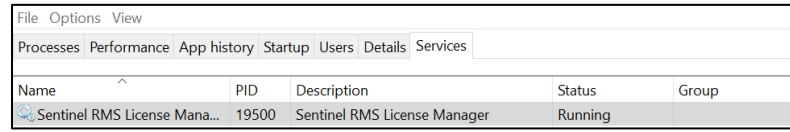
7.5 Unable to Return Entitlements


Many factors ensure parity between the Entitlement and License Manager and Emerson Customer Center. If the license does not return successfully, verify/retry the following:

Verify that the Sentinel RMS License Manager is Running

This is done by opening Window's Task Manager and clicking the Services tab. If there is no communication between the ELM application and the license manager, it may result in an error.

Figure 40: Sentinel RMS License Manager



File Options View				
Processes Performance App history Startup Users Details Services				
Name	PID	Description	Status	Group
 Sentinel RMS License Mana...	19500	Sentinel RMS License Manager	Running	

Verify Whether the Correct Return Confirmation File was Uploaded to Emerson Customer Center

If the wrong license file is uploaded or is not valid, the manual return method will not be successful.

Verify that the Locking Codes Match

Verify that the license selected on Emerson Customer Center has the same Locking Code as the Primary Locking Code seen on ELM. This information is in the **Device Information** panel located on the left side of the home screen.

Unable to Locate Returnable Entitlements

Please contact the technical support team. Contact information is available at the end of this document.

Section 8: Licensing with a Hardware License Key

ELM versions 1.2 or later, Emerson provides customers with the optional ability to license an application with a USB device called a Hardware License Key. The Emerson Hardware License Key is a preconfigured USB key that contains the activated license for the desired software. The user does not need to activate the key to begin using the software.

Emerson's hardware license key also supports application licensing on bare metal PCs and Type 2 Hypervisor virtual machines. For information on using Hardware License Keys with virtual machines, please see Appendix B.2: *Licensing and Application Running on a Type 2 Hypervisor with a Hardware License Key*.

8.1 Identifying Licenses on a Hardware License Keys

Emerson hardware license keys are configured on red Emerson USB drives. These keys are sometimes referred to by the part number which is M7. **Note:** Other hardware keys are not supported on ELM 1.3.

Figure 41: Emerson Hardware Keys (M7) for ELM 1.2 and Later



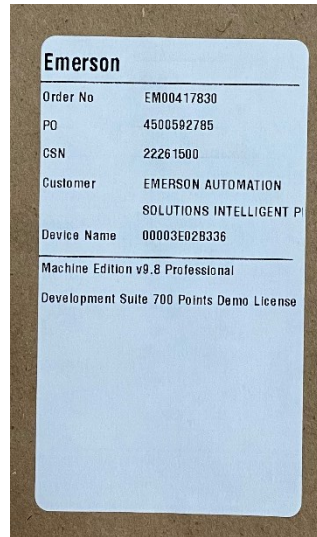
8.2 Reviewing Licenses on a Hardware License Key

Users can look up the licenses configured on each Hardware License Key by the Device Name

Hardware keys will feature a white label with the Device Name Serial Number (SN) indicated. The serial number will specify which software licenses are configured on the Hardware License Key.

Note: Customers are also able to find this information from their order details in their email.

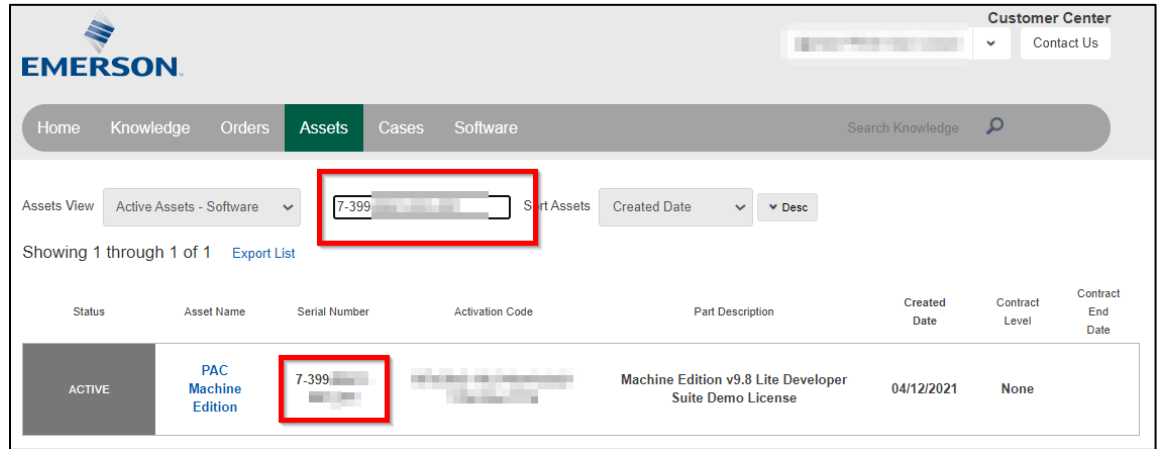
Figure 42: Device Name Located on Box Label



Customers can then use this information to locate their licenses at the Emerson Customer Center.

1. Navigate to <https://emerson.com/iac-support>
2. Select the **Assets** tab from the top menu.
3. Enter the **Device Name Serial Number** visible on the label of the Hardware License Key. Customer Center will match the Serial Number on file and the user will see the Licenses available under the **Part Description** field (Figure 43).

Figure 43: Serial Number Lookup



8.3 Using a Hardware License Key on a PC

The activated license is stored on the Hardware License Key. Once inserted into the computer, the user can launch and use the application without further action. The application will periodically check for the Hardware License Key. If the key is removed, the application will become unlicensed and the user will be unable to save changes, risking data loss.

1. Insert the Hardware License Key into the physical machine.
2. Wait one minute for the key to be detected by ELM.
3. Launch the application licensed with the Hardware License Key.

Section 9: Refreshing/Reflashing License Keys

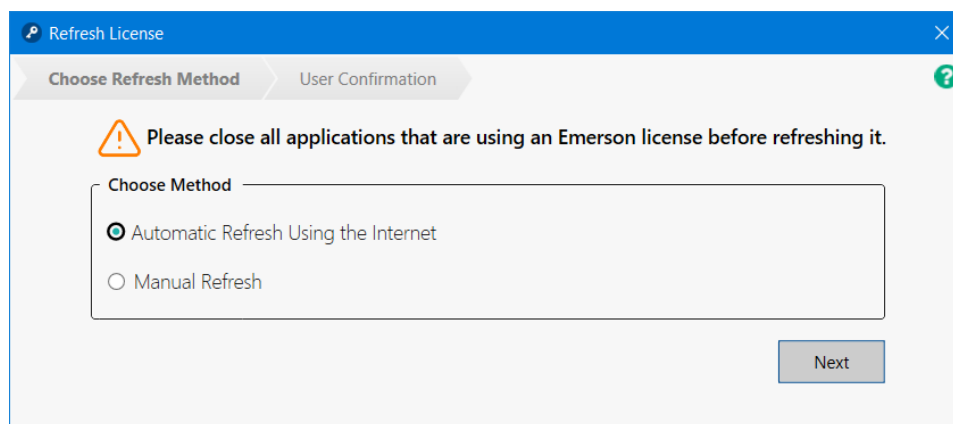
9.1 Software License Key Refreshing

Refreshing licenses can be performed through Entitlement and License Manager.

9.1.1 Automatically Refreshing Licenses

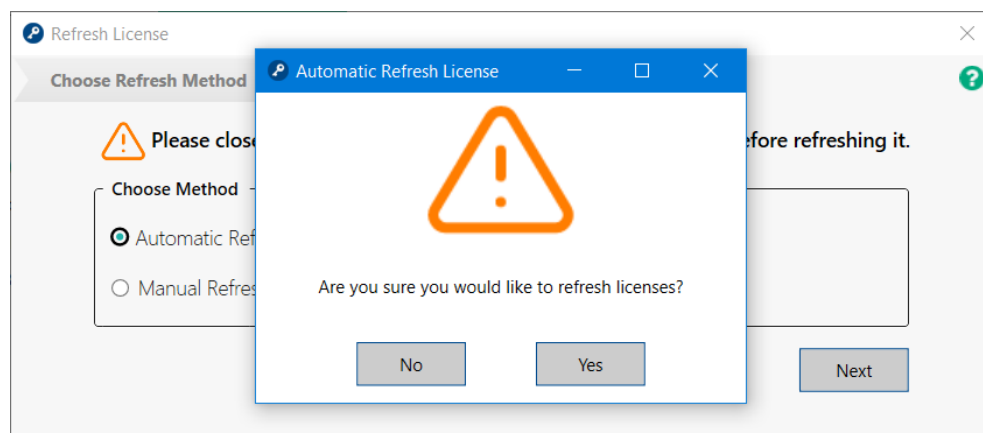
1. From the home screen, highlight the licenses to refresh and select the **Refresh Licenses** button.

Figure 44: Automatic License Refresh



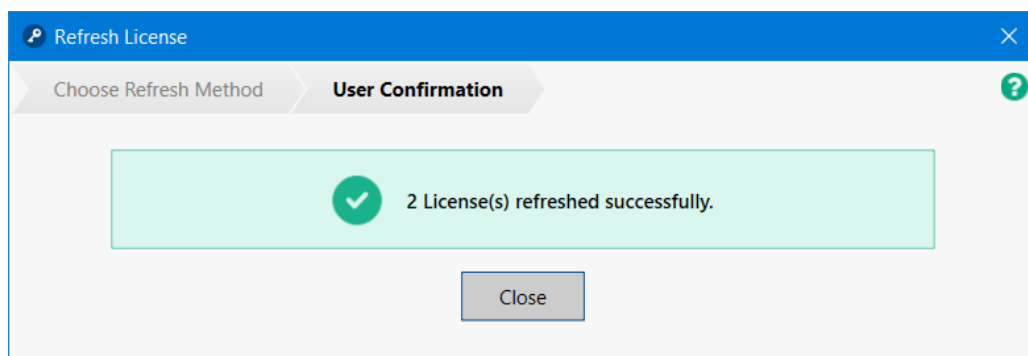
2. Click **Next**. The user will be prompted with a confirmation message. Click **Yes** to proceed.

Figure 45: Automatic License Refresh - User Prompt



- Once the user clicks **Yes**, a green success screen should indicate that the refresh was successful.

Figure 46: Automatic License Refresh - User Confirmation

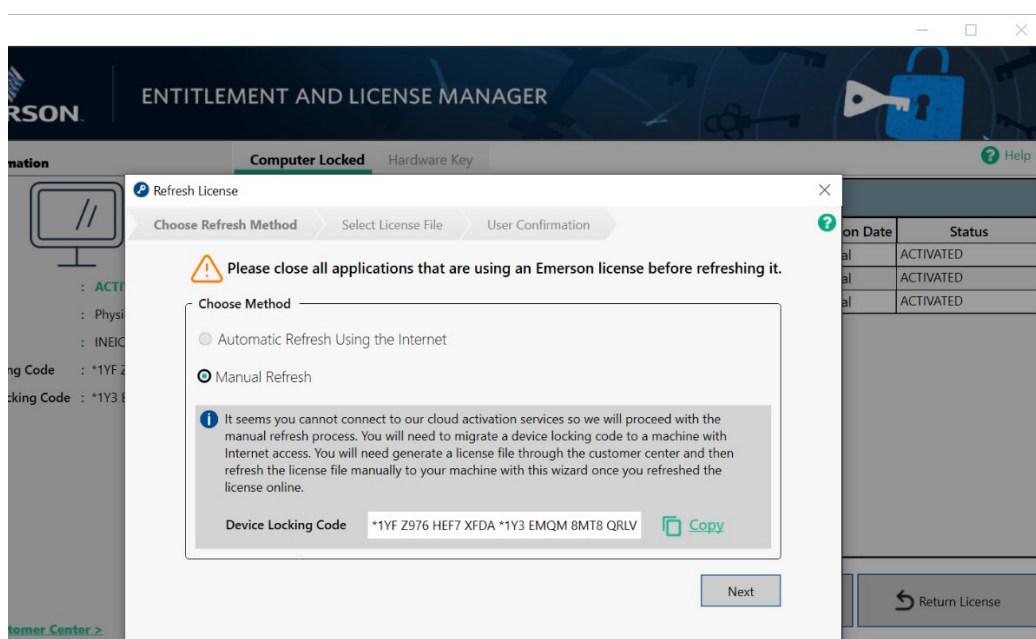


9.1.2 Manually Refreshing Licenses

Users on PCs without an internet connection can manually refresh licenses by downloading the updated license file from Emerson Customer Center.

- From the home screen, highlight the license you wish to refresh and click on **Refresh Licenses**.
- Select the **Manual Refresh** method.

Figure 47: Manual Refresh Method



4. Select the **Copy** link next to the **Device Locking Code**. This code will be used on Emerson Customer Center to generate a license file. If the user is accessing the code from another computer, the code will need to be written down.
5. From a second machine with internet access, open a browser and enter the following URL: <https://emerson.com/iac-support>
6. From the **Software Orders and Downloads** portal, select the **Activations** tab to locate your license. The license eligible for renewal will be marked with a **Renewal Pending** status. Click **Refresh**.

Figure 48: Refresh the License Pending Renewal

Products	Downloads	Orders	Activations	Devices	Manual Return Help Q Search Export CSV			
Activation Date	Activation Code	Device Name	Locking Code	Account	Product	Activated	Status	Action
11/30/2021	fc096b11-8d52-4eaa-aac3-e388038dab05	SN 00004E048 2A9	*18XW5R98 B8WFMGM	CITY OF GRAPEVINE CSN: 12981400	PAC Machine Edition Professional Development Suite 9.8 Part#: ME98MBP1 59-O License Expiration: 12/31/2099	1	Renewal Pending	Refresh

7. Select the **Devices** tab and select click the **Download** button. The license file should begin to download.

Figure 49: Download License

Products	Downloads	Orders	Activations	Devices	 Help  Search  Export CSV		
▼ USMAS-2DSF0X2		*1FB GYKY CTSY ADHD, *1MC SJE2 N4CW Q2EV					
Activation Date	Activation Code	Account	Product	License Action	Activated	Status	
11/23/2021	5ebc5cd2-c115-46c2-b7b3-8592977e04a9	"MARIO CARNAGHI S.P.A." CSN: 641071	PAC Machine Edition Professional Development Suite 9.8 Part#: MEMBP001-SWK	Download	1	Activated	

8. Return to the Entitlement and License Manager on the target machine and upload the license file previously downloaded.

Figure 50: Refresh License

Refresh License

Choose Refresh Method
Select License File
User Confirmation

Please close all applications that are using an Emerson license before refreshing it.

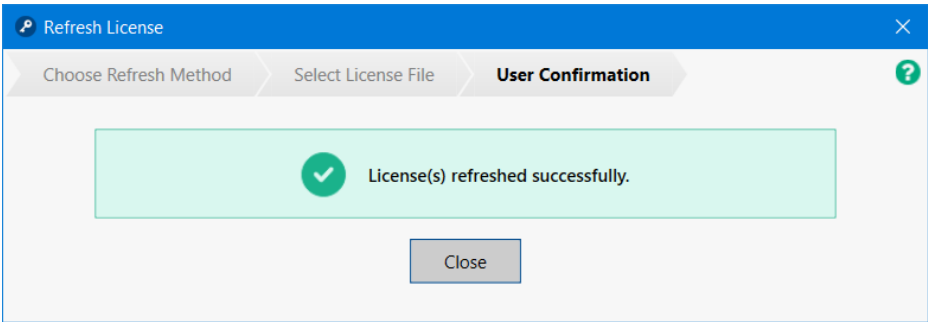
Browse for License File to Refresh

Browse

Back
Refresh

- Click **Refresh**. A green success screen should indicate that the refresh was successful.
- The screen will display whether the licenses have been refreshed successfully (Figure 51).

Figure 51: Refreshed Successfully

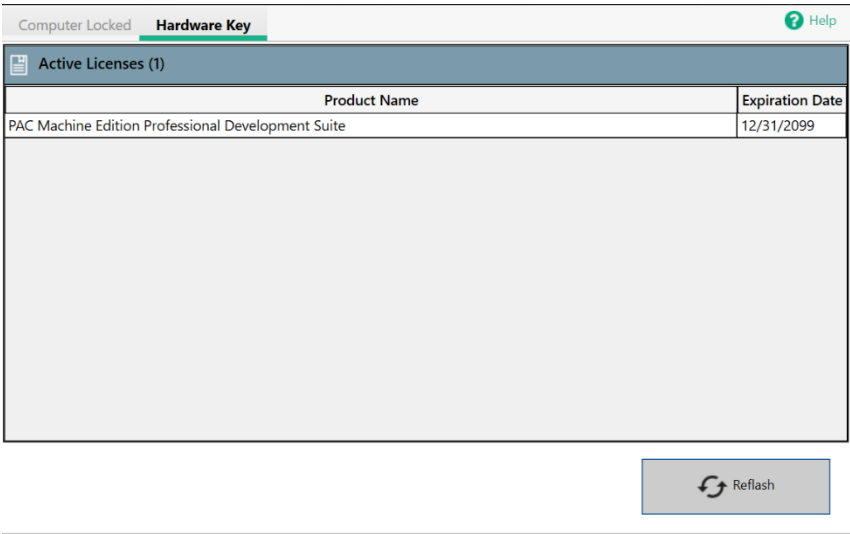


9.2 Hardware License Key Reflashing

Reflashing a hardware license key can be performed with the Entitlement and License Manager and the Emerson Customer Center.

- Using Entitlement and License Manager, select the **Hardware Key** tab located at the top of the dashboard.
- Click the **Reflash** button.

Figure 52: Hardware Key View



3. From a PC with an internet connection, open a browser and navigate to Emerson Customer Center:
<https://emerson.com/iac-support>
4. Sign in to the Customer Center and click the **Software** tab located on the navigation menu. A new tab will open to display the **Software Orders & Downloads** portal. This section will display all of the customer's available software licenses.

Figure 53: Navigation to Software Portal



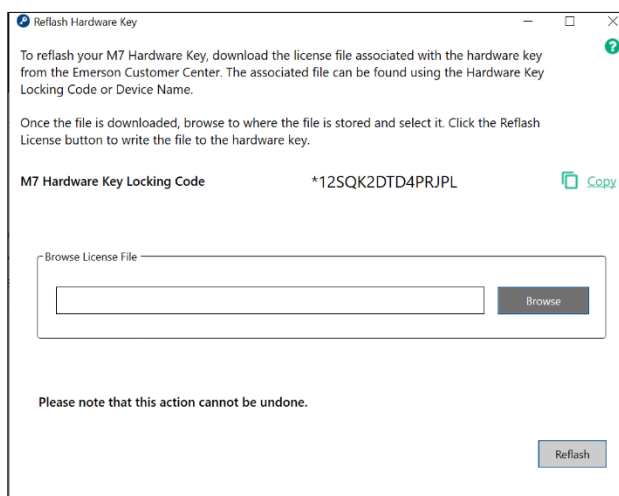
5. From the **Software Orders and Downloads** portal, select the **Devices** tab to locate your license.
6. A dropdown list will appear with a list of device names with activated licenses. Click the > next to the device name to reveal the license record and click the **Download** button.

Figure 54: Download License

Products							
Downloads							
Orders							
Activations							
Devices							
▼ *1QVS2RSK896DZG3							
Activation Date	Activation Code	Account	Product	License Action	Activated	Status	
02/21/2022	4772495b-7906-4e7e-8665-b7de9846eb49	MOTION INDUSTRIES CSN: 7350	PAC Machine Edition Professional Development Suite 9.8 Part#: MEMBP001-HWK	Download	1	Activated	

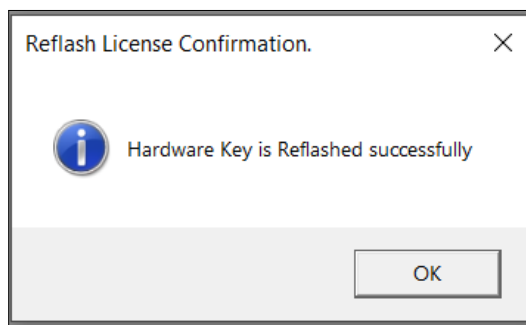
7. Return to the Entitlement and License Manager and upload the license file previously downloaded.

Figure 55: Browse and Upload the License Downloaded from Emerson Customer Center



8. Click **Reflash License**. The Entitlement and License Manager will ask you if you would like to continue. Click **Yes**. A green success screen should indicate that the reflash was successful.

Figure 56: Reflash Successful



Appendix A: Secure Deployment Guide

This section introduces the fundamentals of security and secure configuration and deployment.

A.1: What is Security?

Security is the process of maintaining the confidentiality, integrity, and availability of a system:

- Confidentiality: Ensure only the people you want to see the information can see it.
- Integrity: Ensure the data is what it is supposed to be.
- Availability: Ensure the system or data is available for use.

Emerson recognizes the importance of building and deploying products with these concepts in mind and encourages customers to take the appropriate care in securing their Emerson products and solutions.

A.2: General Security Recommendations

Emerson product users are recommended to follow the following general security recommendations:

- Harden system configurations by enabling/using the available security features, and by disabling unnecessary ports, services, functionality, and network file shares.
- Apply all of the latest Emerson product security updates, Software Improvement Modules (SIMs), and other recommendations.
- Apply all of the latest operating system security patches to control systems PCs.
- Use anti-virus software on control systems PCs and keep the associated anti-virus signatures up-to-date.
- Use whitelisting software on control systems PCs and keep the whitelist up-to-date.
- Limit the installation and usage of software to necessary user groups.
- Firewall: To use the ELM system with Emerson Cloud, allow all outbound traffic at TCP port 443 to URL `intelliplatform.prod.sentinelcloud.com`. Be sure to allow replies to connections as well.
- Proxy: When running ELM on a machine that connects to the internet via a proxy, ELM uses system proxy settings when communicating with the Emerson cloud to conduct activations and returns.

A.3: Secure Deployment and Hardening

Recommendations for setting up the Entitlement and License Manager include:

1. Implement the necessary ACL restrictions such that only users with an Administrator-level of privilege can run the Entitlement and License Manager.
2. Configure a local firewall to allow HTTPS traffic to reach out to the internet through port 443.
3. Configure a local firewall to allow incoming UDP port 5093, unless the default port has been changed.

Appendix B: Licensing PAC Software on Virtual Machines

This section covers common license management scenarios along with the recommended management software deployment strategies that accompany them.

For individual licenses (not intended to be shared across a network):

- Type 2 Hypervisor (Hosted Hypervisor)

Note: Emerson only supports the use of one Hardware License Key per physical machine. Only one virtual machine on a physical machine may use a Hardware License Key at a time.

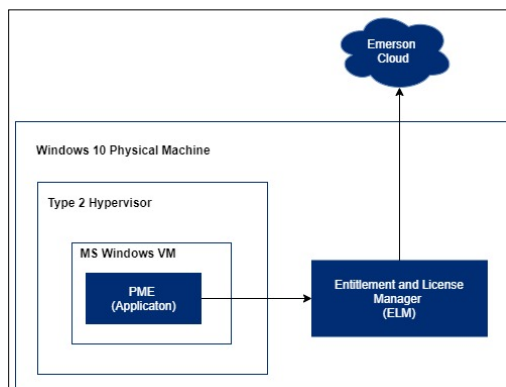
B.1: Type 2 Hypervisor with a Software Key (VMware Workstation Running on a Local Machine)

To use Emerson Software Licensing in a Type 2 Hypervisor environment, ELM is installed and runs on the same physical machine as the hypervisor software. Activation and return of entitlements can be performed using the ELM utility automatically or manually on the physical machine itself, but not within any virtual machines running on the Type 2 hypervisor. depicts a scenario in which a user has PAC Machine Edition on a virtual machine hosted on a Windows 10 physical machine. The deployment strategy is to install ELM on the physical machine that is hosting the hypervisor software.

Important

When licensing an application on a virtual machine with a software key, ELM must be installed on the physical machine. (By contrast, when licensing an application on a virtual machine with a Hardware License Key, ELM must be installed on the virtual machine.)

Figure 57: Hypervisor Type 2



Licensing in a Type 2 hypervisor Environment

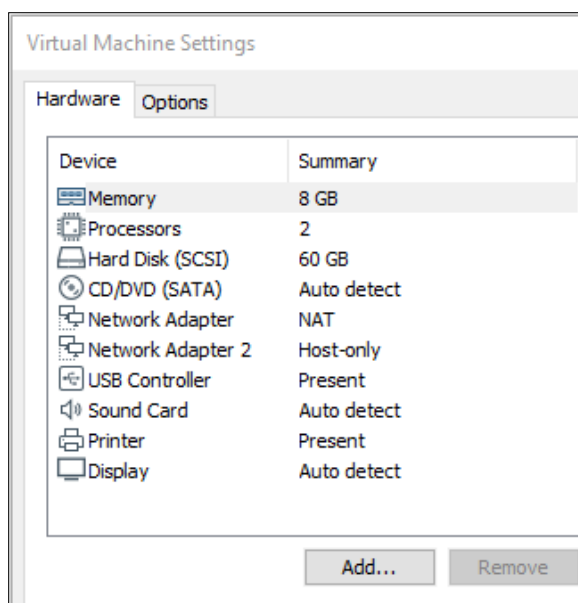
To use Emerson Software Licensing in a Type 2 hypervisor environment, it is recommended that an independent virtual network adapter be created and connected to the host-only network that exists on the host operating system. This will ensure that the network connection to the Entitlement and Licensing Manager software is uninterrupted. The following instructions assume that the operating systems involved are Microsoft Windows 10 and the virtualization software is VMWare Workstation Pro.

Creating a Network Adapter

Upon installation, VMWare Workstation Pro will create a host-only virtual network, typically labeled as "VMnet1." To add a second host-only virtual network adapter¹ to the virtual machine running applications such as PAC Machine Edition or PAC Productivity Suite, follow these instructions:

4. Power down the virtual machine.
5. Edit the virtual machine settings and add a second Network Adapter by clicking **Add...** button and selecting **Network Adapter** (Figure 58).
6. Click **Finish** to add a new adapter to the Device List.
7. Select the new adapter and click the radio button labeled **Host-only: A private network shared with the host** to finalize the configuration of the network adapter.
8. Power on the virtual machine.

Figure 58: VM Settings



¹ Only one network adapter is required to create licenses.

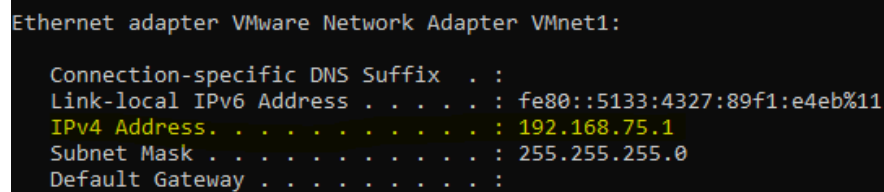
To verify that the new adapter is properly configured, record the IP address of the network adapter on the host operating system:

1. Launch the Command Prompt.
2. Type **ipconfig** and press enter.
3. Inspect the results to find the adapter labeled **Ethernet adapter VMWare Network Adapter VMnet1** and record the IPv4 address.

Note:

- Users should record the IPv4 address of the *adapter* VMnet1, not the VMWare Network by the same name.
- The IPv4 address on your computer may differ from the address shown in the screenshot below.

Figure 59: Host Network IP



```

Ethernet adapter VMware Network Adapter VMnet1:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::5133:4327:89f1:e4eb%11
    IPv4 Address. . . . . : 192.168.75.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 
  
```

From the virtual machine, ensure that the host-only network is reachable:

1. Launch the command prompt.
2. Type **Ping xxx.xxx.xxx.xxx**, where the Xs are replaced with the IPv4 address of the adapter for VMnet1, and press enter.

Emerson Software Licensing on the virtual machine can be configured to use the host physical machine's virtual network adaptor that is assigned to the host-only virtual network through the **LSFORCEHOST** system environment variable.

Please note that it is possible that the Virtual Network settings have been configured in a non-default way, in this case, the Virtual Network Editor tool will be needed to identify or configure a host-only virtual network for the specific environment in use. For further instructions on how to configure VMware Workstation virtual networking, please see the VMware documentation and support available at <https://www.vmware.com>.

Setting Environment Variables

When ELM must activate an entitlement for an application that is installed on a Type 2 Hypervisor, the user may also need to perform the following configuration steps on the virtual machine with the application.

Use the instructions in the following section *Setting Variable Definitions* to set the VM's environment variables to the values displayed in the table below:

Environment Variable	Value
LSFORCEHOST	IP Address of Host (see Figure 67) Note: The LSFORCEHOST variable is not available to use with a Hardware License Key. This setting is only used with software keys.
LSPORT	5093
LSFORCE_BROADCAST_INTERVAL	3
LSFORCE_NETWORK_TIMEOUT	3

Note: If the user creates or changes this environment variable after installing the application, the user may need to restart the application. With a restart, the value specified by the environment variable will not be used.

Note: When a host connects to VPN, PME within the VM variable must be pointing to the VPN IP Address

B.2: Licensing and Application Running on a Type 2 Hypervisor with a Hardware License Key

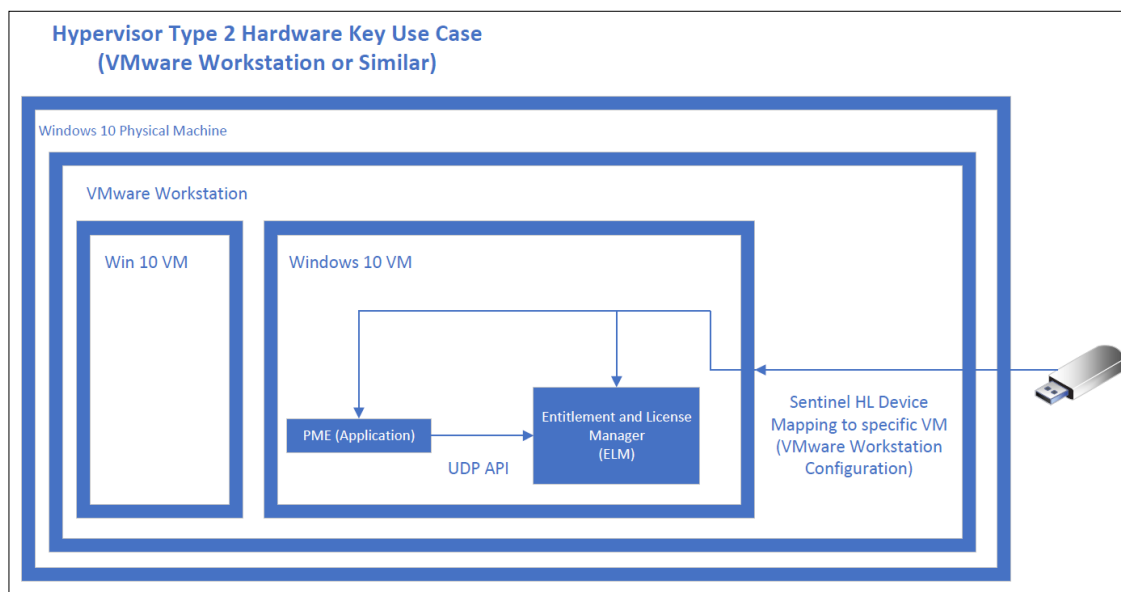
An Emerson hardware license key is a preconfigured removable media key that allows users to run applications without activating a license first. The activated license is stored on the removable media giving customers a plug-and-play experience.

Figure 66 illustrates a common configuration that would allow the Hardware License Key to be mapped to the VM and allow users to run licensed applications.

Important

When licensing an application on a virtual machine with a Hardware License Key, ELM must be installed on the virtual machine. (By contrast, when licensing an application on a virtual machine with a software key, ELM must be installed on the physical machine)

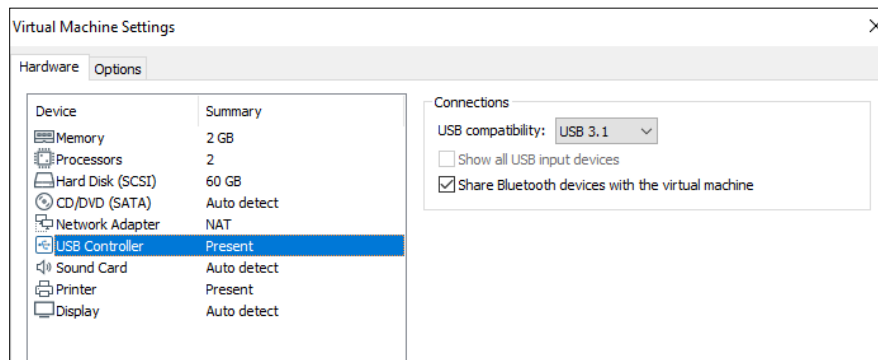
Figure 60: Overview of Hypervisor 2 Configuration for Hardware Key Activation



The following example uses Workstation 15.5 and a virtual machine with Windows 10 64-Bit installed.

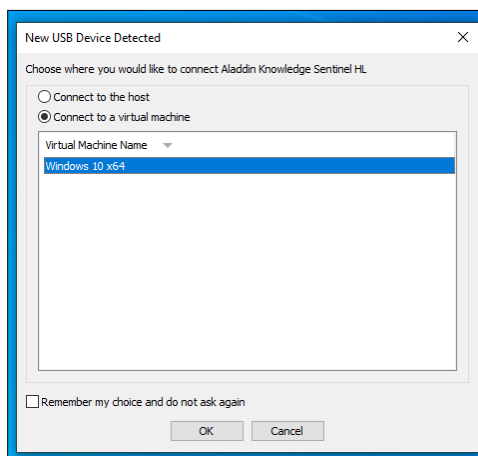
1. The USB controller must be present (configured in the VM settings)

Figure 61: Virtual Machine Settings



2. Plug the Hardware License Key into the physical machine and Windows will announce **New USB Device Detected** (Figure 62)
3. Select **Connect to a virtual machine** and then select the virtual machine by its name. Click **OK**.

Figure 62: Connector a Virtual Machine

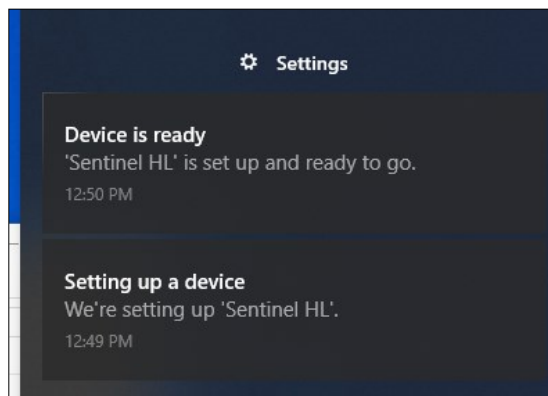


Important

The operating system will recognize the Hardware License Key as *two USB devices*. Thus, the dialog box in Figure 62 will appear once for each device. **Both devices must be connected to the same virtual machine for the Hardware License Key to function properly.**

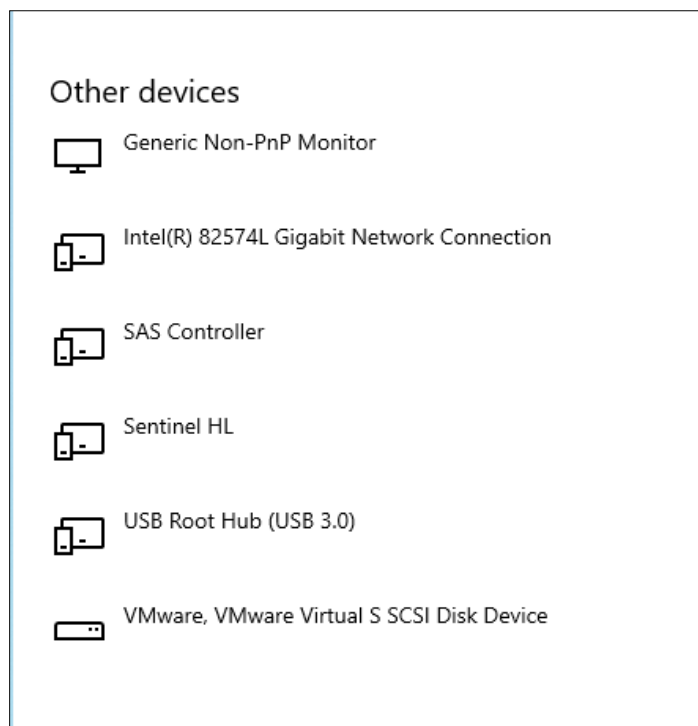
- Windows 10 on the VMWare Workstation will detect the device and announce that the device is ready (Figure 63).

Figure 63: Device is Ready



- The new device will be listed as an available device on the VM.

Figure 64: Sentinel HL Available



B.3: Setting System Environment Variables

Administrator privileges are required to create the following setting environment settings. Each environment variable should be added as a system variable (as opposed to a user variable).

Note: Environment variable **LSFORCEHOST** is ignored when using a Hardware License Key. The user will only need to configure the environment variable for software key configurations.

1. For Windows, follow this path to System Properties:
Control Panel > System > Advanced System Settings > Environment Variables
2. On the **Advanced** tab under **System Properties**, click the **Environment Variables** button (Figure 65).
3. Click the **New** button from the **System Variables** section (Figure 66).
4. Provide a system variable name and an IP address (Figure 67).

Note: The IP address should be the IP address of the host machine (not the VM).

5. Click **OK**. Repeat these steps for any additional variables that must be configured.

Figure 65: Setting Environment Variables

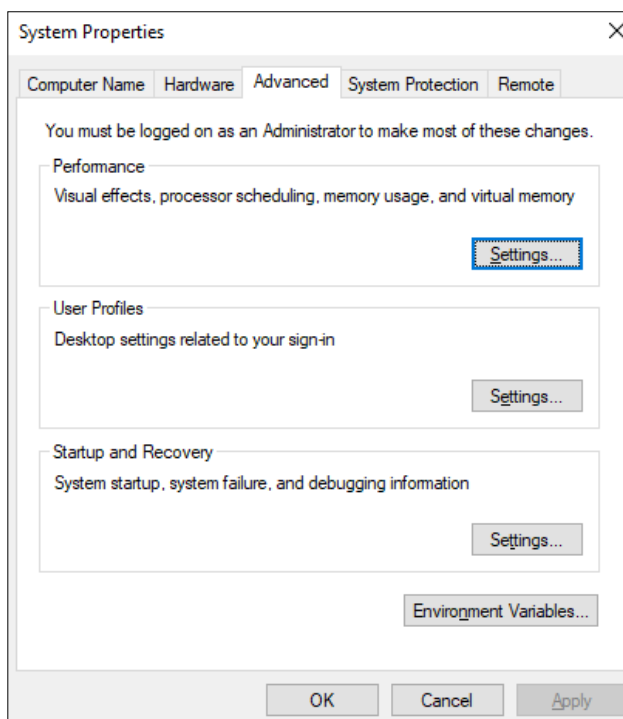


Figure 66: Adding New System Variables

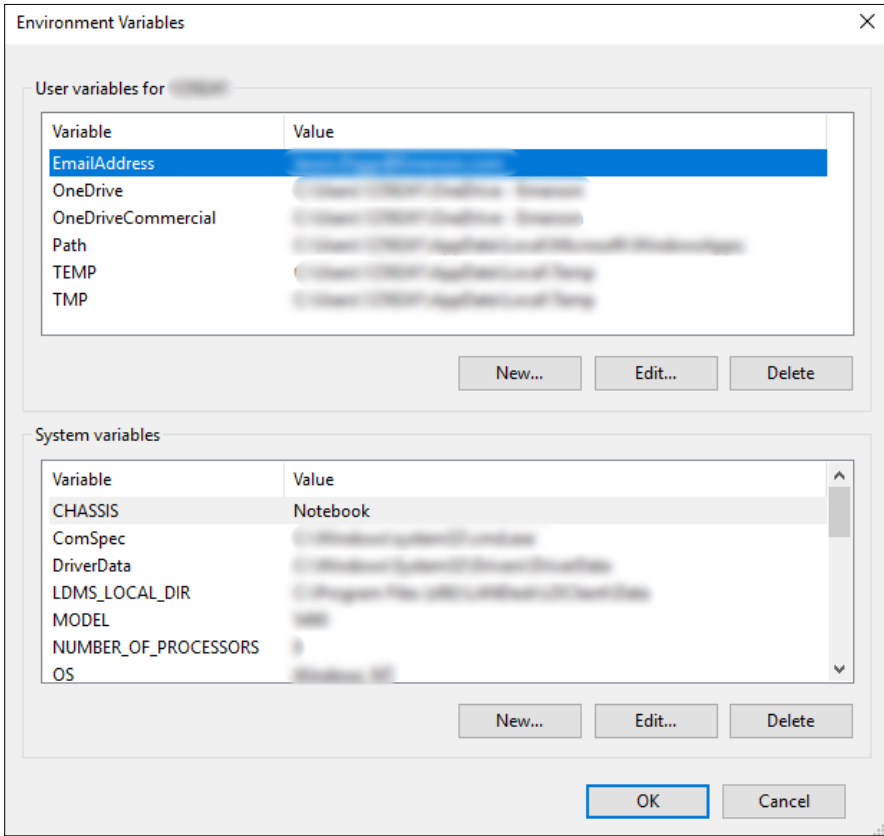
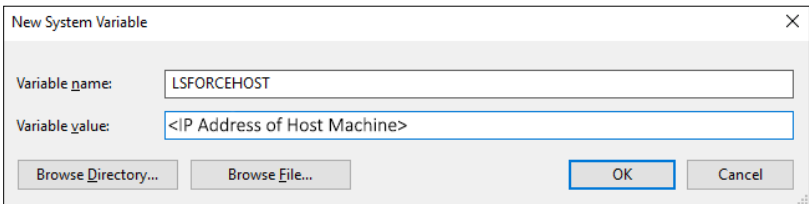


Figure 67: New System Variable



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