Honeywell

Apply / Verify Seal Application

ENTIS R130.1

About this manual

This manual provides information related to the Sign and Seal Application for ENTIS.

Information on ENTIS documents is listed below in References.

Safety and prevention of damage

'Cautions', and 'Notes' have been used throughout this manual to bring special matters to the immediate attention of the reader

A Note points out a statement deserving more emphasis than the general text but does not deserve a "Warning" or a "Caution".

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Support

For support, contact your local Honeywell Process Solutions Customer Contact Centre (CCC). To find your local CCC visit the website, https://www.honeywellprocess.com/en-US/contactus/pages/default.aspx

Revision History

Apply / Verify Seal Application (This document = BA081-1976000)

September 2019 (R101.1)	1st Release
December 2019 (R110.1)	Sealing redundant systems, Weights and Measures changed to Legal Metrology
June 2020 (R120.1)	Localization, 400 tanks support
September 2020 (R121.1)	Movement and Unplanned Flow Alarm, Experion HS Languages
October 2020 (R121.2)	Legal Metrology improvements
December 2022 (R130.1)	ENTIS license option updates New applications added in the application tab, some calibrate commands added on sealed tank tab

Documentation References

The following list identifies publications that may contain information relevant to the information in this document.

ETDOC-X612-en-R130.1	ENTIS Quick Start Guide
ETDOC-X615-en-R130.1	ENTIS User's Guide
ETDOC-X613-en-R130.1	ENTIS Installation and Configuration Guide

ENTIS Hub page for documentation and videos:

https://process.honeywell.com/us/en/products/terminals/enraf-tank-gauging/entis-tank-inventory-system

ENTIS documentation on HPSweb:

Entis Tank Inventory System | Honeywell

Contacts

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1.   Apply / Verify Seal Application

To comply with the requirements of LM (Legal Metrology), ENTIS has built-in some dedicated software modules. These modules operate with Legal Metrology relevant configuration parameters. The application described here shows how the LM applications, Tanks, and their legally relevant parameters, can be sealed.

One of the dedicated software modules is an application that is available for LM users to verify and seal tanks.

When the ENTIS license has the license option *EnCustWM* set to **"True"** this application can be launched by any user.

The application appears as shown in Figure 1-1 and is described below.

The application shows several tab-pages containing data that is sensitive for Legal Metrology. The last page has an option to store all information together in one file, which is called the **"Seal".**

1.1.   Prerequisite

To operate the application, the user needs to be a member of the local operators or local engineers group. Any user of this group can review all settings at any time. Changes to calibration settings are related to the state of the configuration switches mounted at the front of the CIU 888.
The LM official and LM accredited personnel can use the apply button on the last application tab to seal the application.

> **Note:** Per the Legal Metrology procedure, the initial sealing must be done by a LM official. The LM accredited user is only allowed to remove and re-apply the calibration of existing seals.

1.2. Application tabs

This section reviews the tab pages from left to right. The content of all tabs will get embedded in the **"Seal"** file. See Figure 1-1.

1.2.1. ENTIS Seal tab

The first tab *"ENTIS Seal"* shows the current seal status. SealDate and UserID is also shown.

When the *IsSealed* property shows "**True**", the ENTIS application is properly sealed.
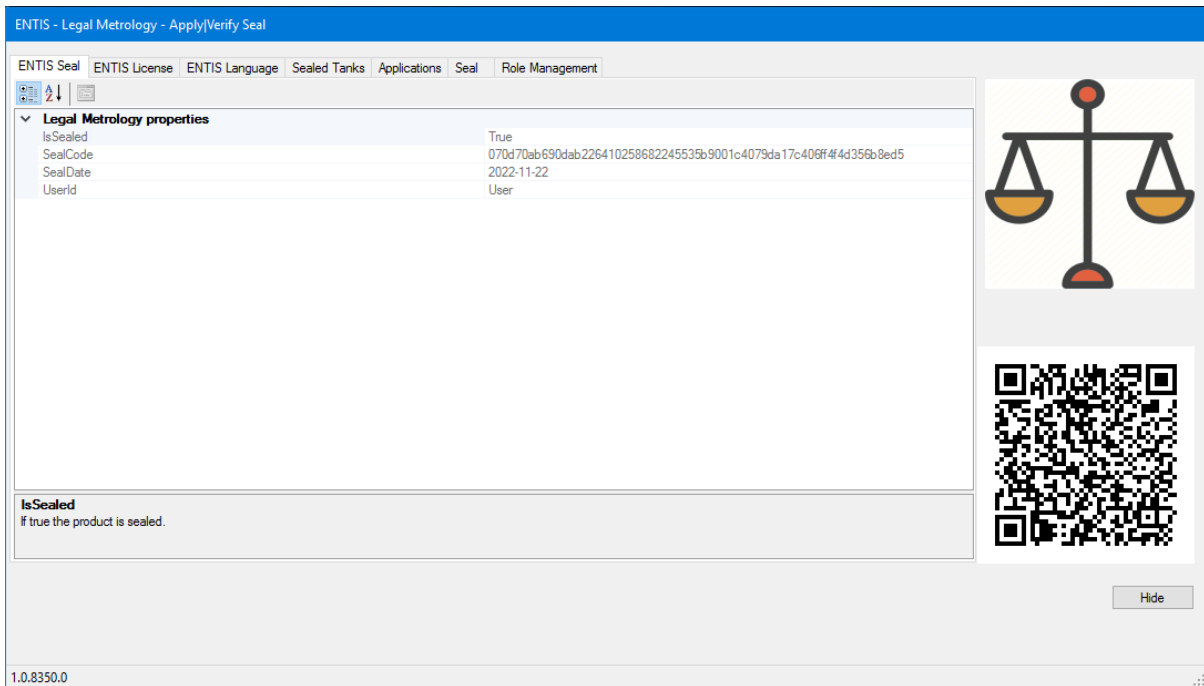

Figure 1-1: ENTIS Seal tab

1.3. ENTIS License tab

The second tab page *"ENTIS License"* shows detailed information for the current license. See Figure 1-2.

The tab's content reflects the installed ENTIS License, which embeds the purchased options. To be able to apply the seal, the options *EnBaseW, EnCustWM,* and *IsValid* must show as "**True**".

The option **EnRedund** indicates whether the ENTIS server has a redundant server connected. If this is the case, the sealing procedure needs to be executed on both the Primary and Secondary system.

The license gets monitored.
Any change in the license will be reflected in this tab immediately.

Note: A change in the ENTIS license, while the application is in operation and sealed, breaks the seal immediately.
All LM output on the screens and reports generated from that point onward will show as being **Not compliant to the Legal Metrology standard**
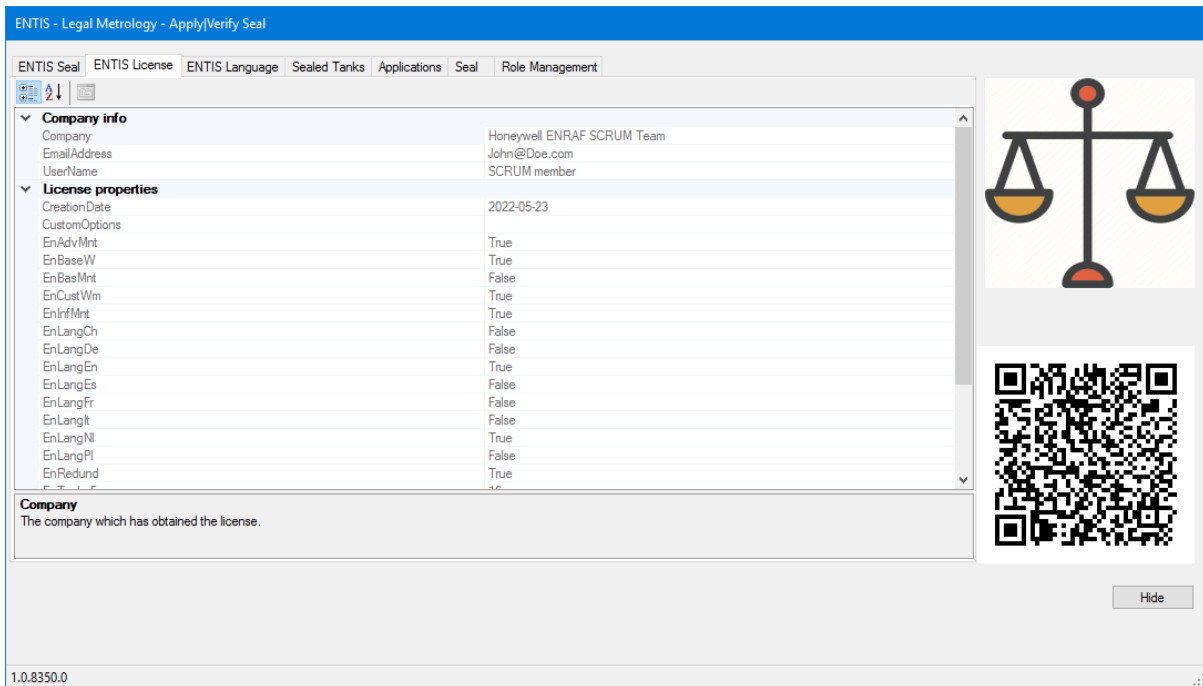

Figure 1-2: ENTIS License tab

1.4. ENTIS Language tab

The third tab "ENTIS language" displays the current selected language. See Figure 1-3.

To make sure regenerated reports, to hand-out an extra copy or to audit the system will show the exact same content, the language selected for ENTIS will be sealed. If the language gets changed, which is limited to be performed by the (product) administrator, the seal will break.
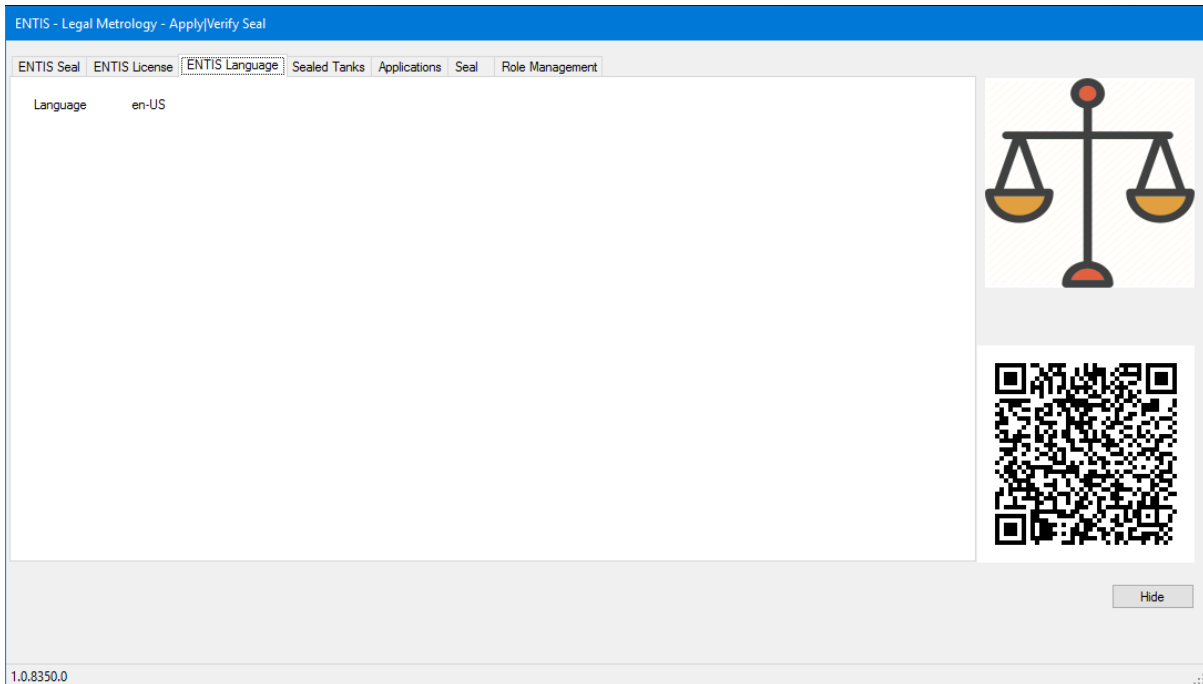

Figure 1-3: ENTIS Language tab

1.5. Sealed Tanks tab

The fourth tab *"Sealed Tanks"* displays the current seal status of all individual tanks. See Figure 1-4.

The sealing procedure starts with a qualified service engineer who is required to perform commissioning of the CIU 888; this ensures that all settings for the tanks to be sealed are in line with the regulations.

For each tank to be sealed, the user needs to send the calibrate command for the tank, followed by the individual measured PV's (Process Variables) which are intended to be calibrated.
These can include: Gauge Level, Product Temperature, Measured Density, Measured Water Level, Vapor Room Temperature, Vapor Room Pressure, Product Pressure and FRLLevel.
The service engineer is responsible to ensure that all settings comply with the Legal Metrology regulations.

Finalization gets performed by setting the sealed cell to True.

> **Note:** Per the Legal Metrology procedure, the initial sealing must be done by an LM official. The LM accredited user is only allowed to remove and re-apply the calibration of existing seals.

Figure 1-4: Sealed tanks tab

The data grid shows the following columns which hold the data as described is the sections below. The checkboxes can have one different background colors.

White (old data) at opening of this tab al checkboxes have the same white background. The white background indicates the status of the last sealing.

Purple (connected data). If the application can have live communication with the CIU the actual values of the calibrate status get fetched from the CIU. Having the background in this color means the check box shows the current setting of the CIU.

Yellow (changed data) A checkbox gets this color when you have toggled the setting of a checkbox. As per result of the toggle, a message to switch the calibration gets send to the CIU. It depends on the connection and setting of the CIU LM Switch (hardware) whether the CIU will take the new value. If it does, by the next scan the background turns purple, and the settings remains. If not, your setting gets reset, which means the setting is not allowed or the communication with the CIU is not healthy. The same can be observed if the secondary of a redundant pair is not healthy.

Gray (disabled) Only values which get scanned can be set to calibrate. The background gray of a checkbox means this setting is not allowed.

1.5.1. TankName

The name of the tank is defined by the CIU 888 service tool. This name is used on all ENTIS displays.

1.5.2. Sealed

This is a flag which the LM user sets when all preconditions are met. This flag is intended to be altered by the LM official and can only be set if the Calibrate Status is checked. Any change in this column will color the background of the record yellow, which means a seal action is needed to reflect the changes in the seal and for the system to accept it.

1.5.3. CalibrateStatus

This reflects the calibration status of the tank, as reported by the CIU 888. Checking the option sends a tank command to instruct the CIU 888 to mark the tank as calibrated. Removing the check mark instructs the CIU 888 to remove the calibration of the selected tank. When performing this action, the user will be presented with a dialog box, explaining that the calibration will be removed.
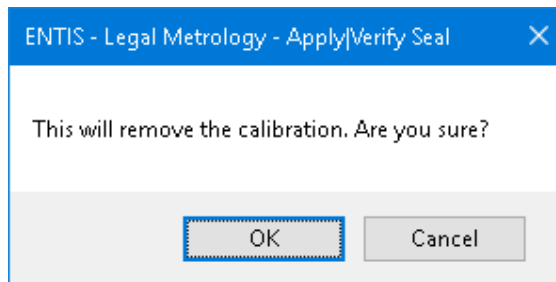
Figure 1-5: Calibration Status

Gauge Level, ProductTemp, Density, Waterlevel, VapourTemp, VapourPressure, Product Pressure and FRLLevel

The status of these columns shows whether the individual entities are calibrated. Checking a box in one of these columns will send a command to the CIU 888 to calibrate this measured value. Removing the check mark instructs the CIU 888 to remove the calibrated status of the measured value. A dialog box (like Figure 1-5) will prompt the user for confirmation before the command is sent.

The corresponding entity IDs are:

- Gauge Level (#40)
- Product Temperature (#44)
- Product DObs HIMS Density (#116)
- Measured Water Level (#120)
- Vapor Room Temp (#46)
- Vapor Room Pressure (#48).

- Product Pressure (#296)

- FRLLevel (#178, #180, #182)

Refresh button

At application launch, the user will be presented with the status of all check boxes as being set at the last seal or breakage.
At any time, the user can retrieve the current settings of the CIU 888 by pressing the Refresh button.
On executing the Refresh, the live data is retrieved for each tank. The data gets analyzed and the current status of the Tank and individual PV's is presented.

1.6. Applications tab

The fifth tab shows the Legal Metrology "Applications" to be sealed. See Figure 1-6

Sealing the system for Legal Metrology means that all software involved in generating Legal Metrology compliant output, needs to be always qualified and operated together.
The software modules listed under the ApplicationName column get validated by the Legal Metrology agency and will be listed on the approvals certificate.

This screen informs the user which version of the software module is running. On confirming that the version matches with the certificate, the LM user is expected to check the ***LMApproved*** check box.

Note: From this point forward, any change in version number (legal after an upgrade or illegal after launching an altered substitute) will be noted and will break the seal immediately.

One who wants to seal the application must make sure the **report reprint module** has been started. If not, this application will be missed out when checking the LM-approved checkboxes. If this application is not sealed, false reports could be created without breaking the seal.
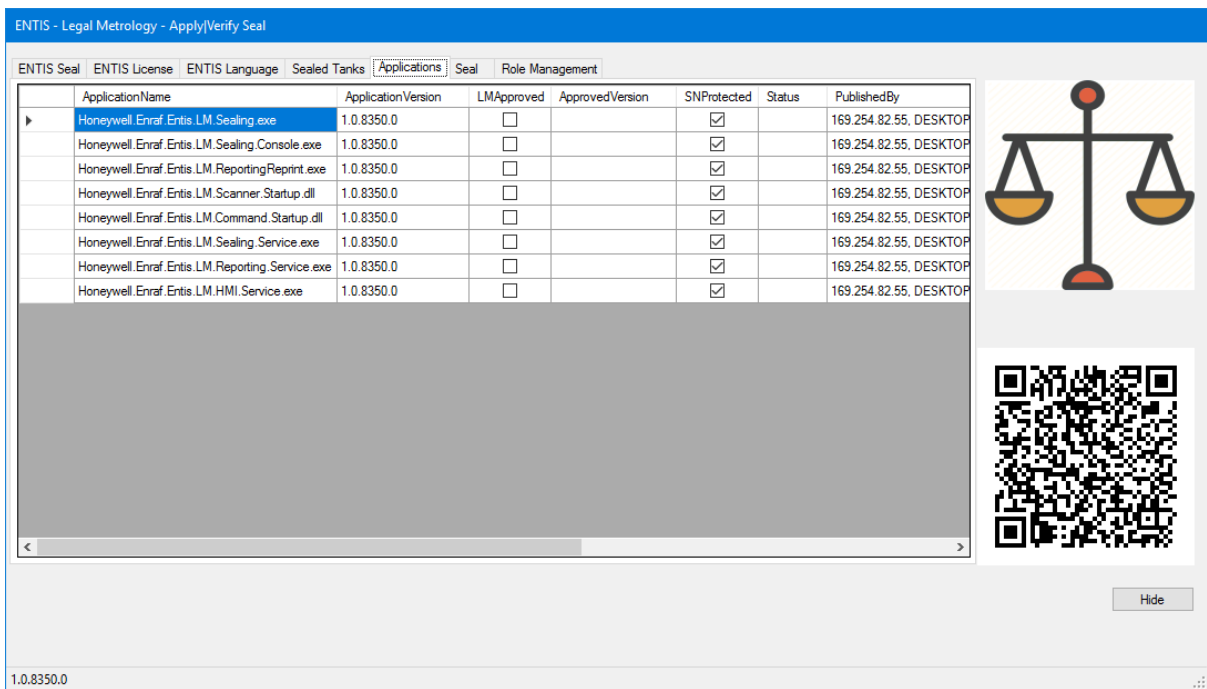
Figure 1-6: Applications tab

The data grid in the Applications tab shows the following columns:

1.6.1. ApplicationName

All ENTIS applications with assembly names starting with 'Honeywell.Enraf.ENTIS.LM' are listed here.
This list must be consistent with the list mentioned on the certificate. Whether an application is listed or not depends on the state of the application. When a listed application gets launched or stopped it sends a message which this application will use to update the record.

1.6.2. ApplicationVersion

The version number is as noted on the certificate. When the number shown on the certificate matches the software, the LM official should check the LMApproved check box.

1.6.3. LMApproved

The content of this tab gets saved in the "Seal" file.
The LM Official and/or LM Accredited user needs to review each record and determine whether the information complies with the most recent certificate. When it does, this checkbox must be set by the user. If not, the seal should not be applied.

1.6.4 SNProtected

This checkbox indicates whether an application is Strong Name Protected. When an application is protected by strong naming, a single byte change in the application's executable, or in any of its dependent libraries, will invalidate the application."

1.6.5 Status

Reserved for future use.

1.6.6 Publishedby

This field shows information about the user who launched the application, the IP address, the name, and the version number of the application and or service.

1.6.7 Message

This field shows the last message published by the application.

1.6.8 Updated

Reserved for future use.

1.7. Seal tab

The sixth tab is to be used to seal the system.

1.7.1. Experion HS

The ENTIS system is hosted by Experion HS. Experion HS has two security models available to the user. The models are "Operator based security" and "Station based security". The first model is based on Windows users where each operator and manager have its own individual Windows account. Changing the roles forces each user to enter his credentials. Station based security differs by allowing the operators to elevate themselves to a manager role via the login process by entering the role: "mngr" only. The Station based model is not suitable to protect the LM settings. Until this check is automated, the audit requires validation of the "Operator based security" to be set.

> **Note:** Station based security" is not allowed for a LM system so the user should configure Experion HS for "Operator based security"

1.7.2 Sealing ENTIS connected to redundant CIUs

To seal a non-redundant ENTIS system, connected to a redundant CIU 888 pair it is important to have both primary and secondary fully commissioned, up and running and unlocked for LM during the complete sealing procedure.

1.7.3 Sealing a redundant ENTIS system

As part of the requirements of Legal Metrology, a seal applied on one system cannot be copied with intend to be used as a valid seal on another system. This means that in case of redundancy both the primary and secondary ENTIS systems need to be sealed individually. After having sealed the primary ENTIS, the LM User needs to launch the Apply / seal application on the hot standby machine and verify the content of all tabs like done for the primary ENTIS. Like above when the Connected CIUs are redundant both CIUs need to be up and running and unlocked to take calibration settings.

The refresh on the sealed tank tab will reflect the status of calibrated tanks and PV's. However, before pressing the seal button the check boxes of the column "sealed" on the sealed tanks tab, need to be checked manually like been done for the primary.

1.7.4 Close

The application can be closed by pressing OK. The display will minimize to the system tray and will continue to run. From the icon shown in the system tray, the dialog can be made visible again.

The seal monitor runs as a service (24/7 365) to monitor the seal, and to break the seal whenever there is reason to do so.
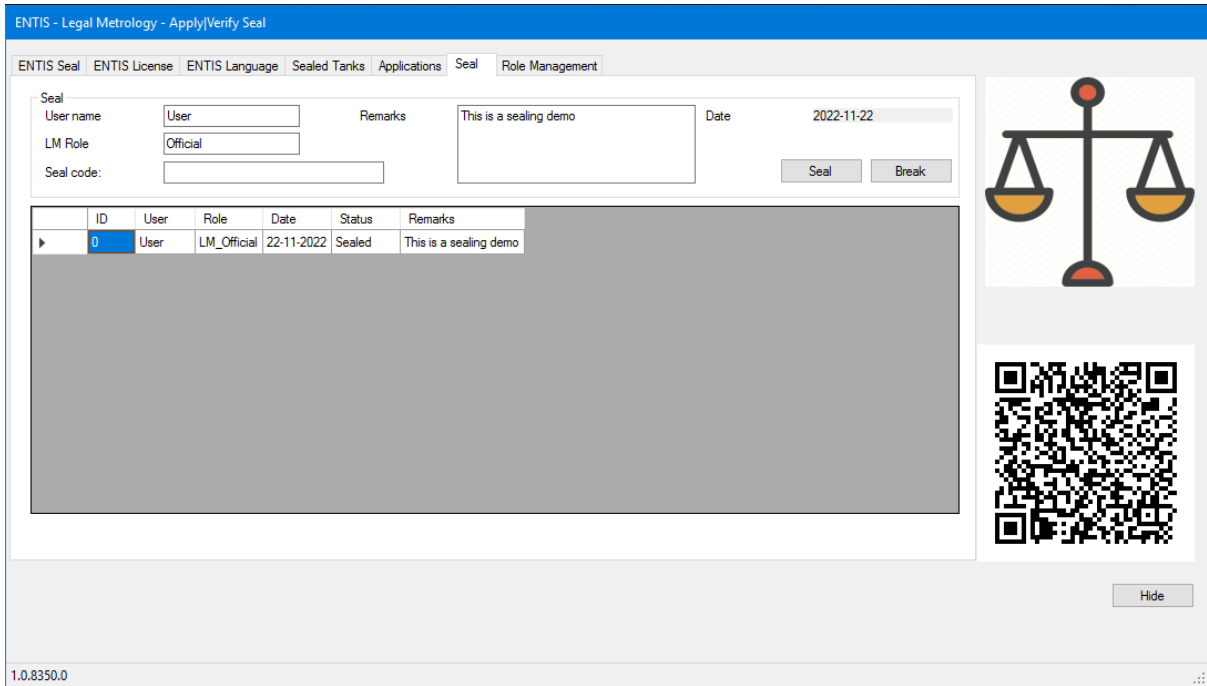
Figure 1-7: Seal tab

The data grid in the Seal tab shows the following columns: See Figure 1-7

1.7.5 ID

The sequential ID of the break or seal actions. This number gets increased by one whenever the Seal or Break action gets performed.

1.7.6 User

The name of the LM Official or Accredited user who performed the sealing action

1.7.7 Role

This field indicates whether the LM Official or Accredited user performed an action.

1.7.8 Date

The date the last seal / break action was performed.

1.7.9 Status

This field indicates whether a seal or break action has been performed.

1.7.10 Remarks

Remarks entered when performing the seal or break get shown here.

Seal

Successful execution of the creation/update of the seal file requires the credentials of the LM Official or LM Accredited role. Before pressing the button, the LM person must verify:

- All checkboxes on the 'sealed tanks' tab is set properly after having performed a refresh
- All applications mentioned on the certificate are listed on the 'Applications' tab.

The 'Operator base security model is applied' (ref 1.7.1

Experion).

Break

Valid credentials of the "LM Official" or "LM Accredited" user are required to break the seal explicitly. Breaking the seal can only be applied here.

Seal file

The seal file is named *[hostname]-**seal.json*** and will be located at *C:\ProgramData\Honeywell\ENTIS\License*. Only users with the LM role have read/write access to the file.

When there is a need to break the seal deliberately, a LM user can do so by using the break button.

1.8. Role management.

Only members of the Local LM user group can apply and or break the seal. At first installation the LM users do not exist yet.

To create the users, the help of the system administrator is needed. Launch the Apply/Verify Seal tool using the Windows feature "run as administrator" to view an extra tab page for role management. See Figure 1-8.

1.8.1 Create Local Legal Metrology user group.

To create LM users, the first step is to create a Local LM group in Windows. This step can be done by pressing the "Create Local Legal Metrology user group" button once. Once created, the button becomes disabled automatically.
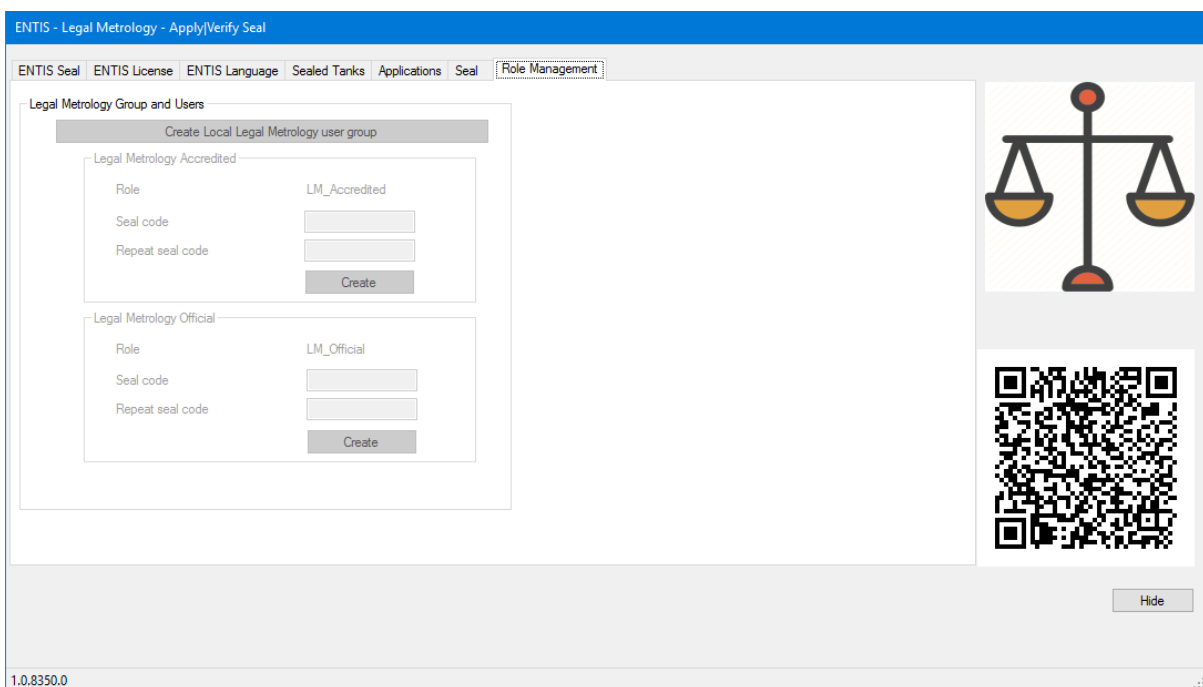

Figure 1-8: Role management tab

1.8.2 Create LM_Accredited role

To add the person acting in this role, they need to enter the same seal code twice. It is the responsibility of the accredited user to keep this code safe.

1.8.3 Create LM_Official

To add the person, they need to enter the same seal code twice. It is the responsibility of the accredited user to keep this code safe.

Note: It is intended that neither role needs to have knowledge of the others code.

Once the two roles are created, the first sealing can take place.

2.   Seal Service

The sign and seal application, as described in Section 1, creates the seal and takes care of the information of the application parts. However, this application can be launched and stopped by any user. To provide constant monitoring of the seal, a Windows service named the Seal Service has been added to the ENTIS application.
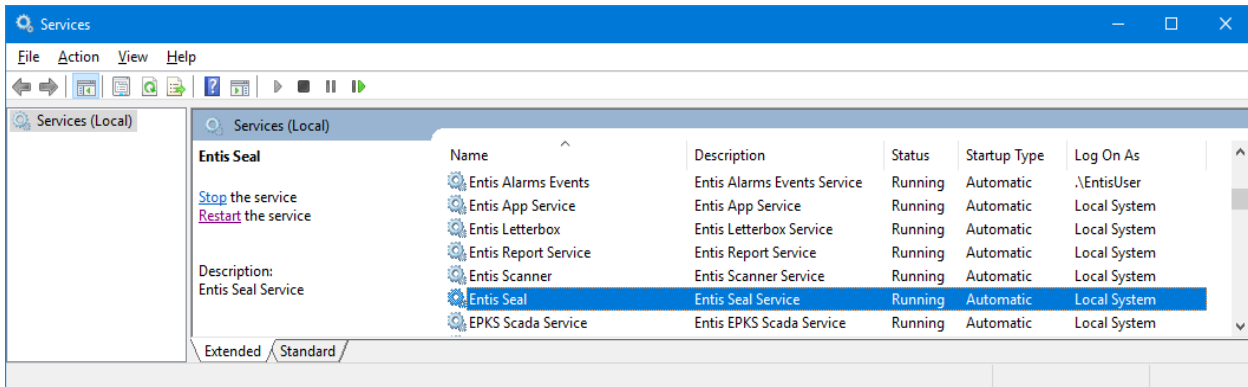

Figure 2-1: Seal Service

This seal service monitors the license. Whenever the license is updated, this service compares the license with the license as it was published in the seal.

Whenever there is a difference, this application publishes a message indicating that the ENTIS application is no longer sealed.

This application will also break the seal when one of the sealed LM applications gets replaced by a version other than what was sealed by the LM user.

For service-related questions, contact:

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