



**Voyantic**

# **Ensurance™ for Reelsurance™ Pro**

**Manual**

**Ensurance™ 1.3**

Version 11/2019

# 1 Important Information

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## About Ensurance

Ensurance is a software used to manage tag personalization process activities in smart label production, including memory programming, data printing, quality testing, and data verification. The software provides a graphical user interface (GUI) for the machine operator, the necessary tools for production engineers to create and edit process definitions, and it manages processing equipment and in-process dataflow.

The Ensurance personalization system is intended to be used in production environment as a part of a machine, and operated by professional personnel. It should be noted that if antennas or other radiating elements are used with the system, local regulations may limit the frequency range and transmit power that can be used. Particularly, related to RAIN/UHF reader, regulations related to features, such as channel-hopping and dwell time are specific to country. If the device is transported to different region, please check that settings and reader type comply with the local regulations.

## About this document

This document provides an overview on system capabilities and describes how to operate Ensurance software with Reelsurance Pro. Process design options and limitations relative to Reelsurance Pro are discussed.

## Related documentation

*Ensurance hardware setup guides.* This manual includes information on the processing options and Ensurance workflow on system level. Setting up, adjusting, and troubleshooting hardware is described in the device-specific setup guides.

*Reelsurance manual and other technical documentation.* This manual includes information on the processing options and Ensurance workflow on system level. Setting up, adjusting, and troubleshooting Reelsurance Pro machine operation is described in the Reelsurance manual.

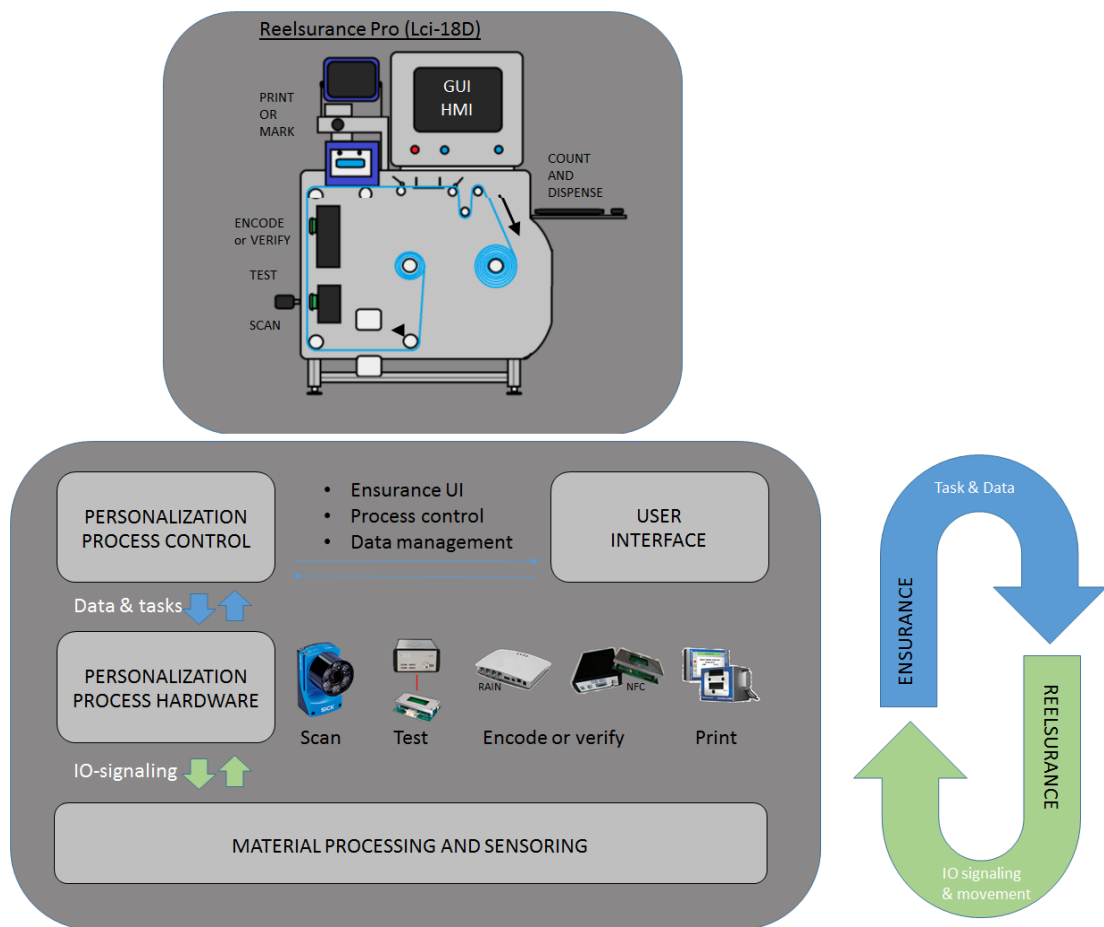
*Ensurance case builder manual.* This manual includes information on the application of Ensurance GUI for Reelsurance Pro. Generation and construction of Ensurance process recipe is described in detail in Ensurance case builder manual.

### 3 Reelsurance Pro with Ensurance

#### 3.1 System overview

Ensurance system with Reelsurance Pro includes three parts (Fig 1): machine, personalization process hardware, and process control software.

- Reelsurance Pro is the processing machine which manages the processing of the smart label material and provides triggering for the personalization process devices. It takes care of roll movement, material alignment, line tension, process monitoring, and provision of correctly-timed triggers for the subsystems.
- Process devices, or subsystems, are a composition of hardware for performing personalization activities. The process steps may include barcode reading, RFID performance testing, data programming and verification, and data printing or bad tag marking.
- Ensurance is the process control software which also provides user interface for the operator. The software takes care of initializing personalization process hardware and handles in-process data flow and data processing activities.



**Fig 1. Ensurance system running on Reelsurance Pro.**

### 3.2 Reelsurance Pro and hardware options

Reelsurance Pro machine is capable of running the material and providing triggering in continuous movement or intermittent, i.e. stop-and-go mode. It will manage speed, tension, and alignment of the material during the process and is also capable of doing dispense counting and automatically stopping failed tags and missing label positions on the splicing table. The absolute maximum rewinding speed of the machine is 50m/min in continuous movement, and minimum recommended line tension is 4-5N. However, a sustainable process settings depend also on the material processed, selected personalization process actions, and machine processing options, e.g. if dispense count or conditional stopping of material is chosen.

The standard Reelsurance Pro setup includes two antenna positions which can be used for encoding or performance testing and three trigger sensors to provide a suitable triggering option for different materials. To expand functionality, it can be added with a barcode reader and variable data printer or a bad tag marker with their individual installation frames and IO signaling channels if ordered with such options. Performance of the personalization actions are managed through Ensurance GUI. Thus, the processing devices needs to be compatible with the software in order to enable data transfer from Ensurance.

A list of the compatible hardware for label processing is presented in Table 1 and the key specifications and assembly options for Reelsurance Pro platform in Table 2. For more details on Reelsurance Pro functionality and options, refer to Reelsurance Pro documentation.

**Table 1. Supported hardware options for Reelsurance Pro.**

PROCESS TYPE	SUPPORTED DEVICE MODELS
<b>Barcode reading</b>	Sick Lector 631, for 1D and 2D code registration and printed data verification
<b>Performance testing</b>	Tagsurance UHF, for UHF/RAIN smart-label performance testing Tagsurance HF, for HF/NFC smart-label performance testing
<b>Encoding</b>	Ensurance RAIN encoder, for UHF/RAIN smart-label encoding and data verification Ensurance HF encoder, for HF/NFC smart-label encoding and data verification
<b>Variable data printing</b>	Videojet DataFlex 6420, 107 mm wide thermal transfer printer for variable data printing Videojet DataFlex 6530, 53 mm wide thermal transfer printer for variable data printing Videojet DataFlex 6530, 107 mm wide thermal transfer printer for variable data printing
<b>Bad tag marking</b>	Micron HSAJET, inkjet printer for bad tag marking

**Table 2. Reelsurance Pro specifications and processing options.**

Operation modes	Intermittent, continuous
Rewind speed	Available range: 3 – 50 m/min  Sustainable speed depends on the processed material, process parameters and the performance of the sub-processes which may limit the feasible throughput. When targeting high speed in the excess of 15m/min, feasible speed needs to be verified with the functional options, e.g. dispense counting mode, and process equipment, e.g. printer, occupied.
Tension control	Minimum tension 5N.  Material processed may also affect the feasible range. If processing highly rigid material, such as paper substrate, spring load roller option is recommended to enable smoother operation of the machine
Triggering options	Sensor 1: Baumer FEDK/FSDK 07P6901/KS35A through-beam sensor pair for liner materials which pass through light well  Sensor 2: Sick KTM WP11182P contrast sensor for materials which have graphic patters which can be detected monochromatically  Sensor 3: Sick KTS-WB9114115AZZZZ color contrast sensor for materials which have graphic patters which cannot be detected monochromatically
Processing options	<b>Dispense counting</b> option stops the Nth processed tag on the splicing table according to the user-defined count.  <b>Stop failed tags</b> option stops the failed tag on the splicing table allowing operator to process it and then continue operation by click 'START'  <b>Stop missing tags</b> option stops the missing tag positions on the splicing table allowing operator to process it and then continue operation by click 'START'. Missing tag detection is based on machine automatically learning label pitch. To enable this function work properly, there should not be any missing tags among the first 10 labels.  Note that enabling these features may limit the sustainable processing speed of the machine.
Hardware options	<b>Standard assembly:</b> 2 antenna positions and 3 trigger sensors  <b>Device options:</b> barcode reader, variable data printer or marker, roll-label printer,  <b>Other options:</b> air ionizers, air-spring tension roller

### 3.3 Ensurance GUI and software options

Ensurance GUI is a software which manages the personalization process activities, flow of data, and runtime processing of data, as well as provides user interface for the operator. Standard delivery includes the Ensurance GUI with basic data processing options and Ensurance case builder. Adding devices or extended data sourcing options, or user-specific features typically involve new license features. Device-specific license options are typically included the hardware bundle.

**Table 3. Reelsurance Pro specifications and processing options.**

Standard options	<p>Ensurance GUI with process engine Ensurance case builder</p> <p><b>Data management:</b></p> <ul style="list-style-type: none"> <li>- static data or data reading from file</li> <li>- basic in-process data conversions</li> <li>- result data logging</li> <li>- error logging</li> </ul>
Optional features	<p><b>Personalization process capabilities</b></p> <ul style="list-style-type: none"> <li>- RAIN encode and read</li> <li>- NFC encode and read</li> <li>- Barcode reading and verification (including barcode reader setup tool)</li> <li>- Variable data printing (including supporting software)</li> </ul> <p><b>Data management:</b></p> <ul style="list-style-type: none"> <li>- Special data conversions</li> <li>- User-specific functionality</li> <li>- Advanced data sourcing options e.g. database access</li> </ul>



## 4 Application instructions

### 4.1 Setting up Ensurance

#### 4.1.1 Before You Begin

Ensurance is delivered with USB installation media containing the necessary software installers and manuals for the products. Some parts of the system make use of 3<sup>rd</sup> party software which are available either on the device installation media or through the manufacturer's webpage. Some of them may require a specific license which is delivered with the system.

Ensurance software package:

- Ensurance GUI for Reelsurance
- Ensurance case builder
- Drivers for process devices (if applicable)

Documentation

- Ensurance for Reelsurance Pro manual
- Ensurance case builder manual
- Ensurance RAIN encoder setup guide (if applicable)
- Ensurance HF encoder setup guide (if applicable)
- Videojet DataFlex printer setup guide (if applicable)
- Sick camera setup guide (if applicable)
- Tagsurance 2 manual for Tagsurance UHF and Tagsurance HF (if applicable)
- Reelsurance manual and other technical documentation

Other important items:

- License dongle for the software
- License file for Ensurance GUI is provided readily installed or via email
- Tagsurance or Tagsurance 2 GUI delivered with Tagsurance units (if applicable)

Regarding Reelsurance Pro delivery with Ensurance, the standard software components are installed as a part of production assembly and factory configuration of the machine, but updates and maintenance implemented by customer.

##### 4.1.1.1 System Requirements

Computer and operating system:

- Minimum system requirements for Ensurance:
- Windows 7 / Windows 8 / Windows 10
- 2.4 GHz Pentium 4 or equivalent (e.g. 1.6 GHz Pentium M or AMD Athlon 2800+)

- 2 GB RAM, 1 GB free hard disk space
- Minimum screen resolution 1024 x 768

#### Peripherals

- Mouse, keyboard
- USB, ETHERNET, SERIAL ports for process devices

#### 4.1.1.2 Installing Software

1. Turn on your computer and wait for Windows to start up. Login to the computer with Administrator permissions.
2. Insert the Ensurance Software installation media.
3. If AutoPlay is enabled, the installation program will start automatically. If not, navigate to the installation media and double click setup.exe.
4. Follow the on-screen instructions. Voyantic recommends that you install the Software to the default folder suggested by the installation program.
5. Reboot your computer when the installation program prompts you to do so.
6. Login as normal user.
7. Place the license file to the C:\Ensurance\Data folder.

#### 4.1.1.3 Uninstalling Software

1. If you have any case files, setup files, result data files, etc. stored under C:\Ensurance, please take backups before continuing.
2. Login to the computer with Administrator permissions.
3. Go to Control Panel → Add/Remove Programs.
4. Find National Instruments Software from the list, click right mouse button on the row and select uninstall/change.
5. Select all National Instruments Software components and click remove.
6. The uninstaller will inform that Ensurance is dependent of these components and needs to be uninstalled as well, please click "Remove All".
7. Allow the uninstaller to finish and reboot when prompted to do so.
8. Login to the computer with Administrator permissions.
9. Delete the C:\Ensurance folder.

#### 4.1.2 Collection of system info

As the last part of setting up the systems, it's recommended to collect connection information of the process devices, including COM port number and IP address and network name. By default, the network connected devices in the Reelsurance Pro are configured with a static IP-address (see appendix). If changed, the new information needs to be acknowledged by the user. These data will be needed when preparing personalization cases for the system. For more information on basic device information, please refer to Ensurance case builder manual and respective device documentation.

## 4.2 Definition of a job

### 4.2.1 Job planning

Reelsurance Pro with Ensurance is quite flexible in terms of process flexibility. Ensurance does not effectively set any restrictions for the setup or the process, but functionality is primarily limited by the machine setup, hardware options, and capabilities of the processing devices. Also if there are dependencies between process steps, that would have to be accounted for in the process definitions. Below is a simple set of principles for designing the process for Reelsurance Pro with Ensurance and an overview on the possible functions to be included. For more details, refer to the hardware setup guide, Reelsurance manuals, and Ensurance case builder manual.

1. Process can involve single barcode reader, printer or marker, and two out of the following four options: UHF performance testing, HF performance testing, UHF encoding, HF encoding. Any of the subsets of the above is also valid for the process.
2. Data used in the process can be constant, read from a file, or acquired at any point of the process, and processed or calculated in-process. If a process, uses data from another process, this has to be accounted for in the process order.
3. Order of the process is dictated by the hardware assembly. There are antenna positions to be populated with a selection of readers and testers. Barcode reader can be placed anywhere along the vertical axis of the machine. Printer or bad tag marker should be the last step of the process.
4. If a variable data printer is involved in the process, it can be used for printing text, graphics, and data, or just a mark to indicate a bad label.
5. If a bad tag marker is installed to replace variable data printer, only bad tag marking is possible and that function is not controlled by Ensurance.
6. If Ensurance RAIN and HF encoders are involved in the process, they can be used to perform different encoding tasks, e.g. write, kill, lock, reading tracking data, as well as reading data for content verification purposes. Functionally, it's possible to perform several tasks in a single process round, but there cannot be any data processing between those steps. This means that e.g. encoding and data verification cannot be performed in a single process step. Thus, either a second reader or a second process round would be needed to perform both actions.
7. If Tagsurance UHF and HF testers are involved in the process, they can be used to check health of the labels being processed and to verify their performance by applying point, sensitivity, sweep, read, or write tests.
8. If a Barcode reader is involved in the process, it can be used to register 1D, 2D, and stacked codes or to verify printed code contents, but not both. If the process requires both actions, the material has to be processed in two rounds.

#### 4.2.2 Job testing and process parameters tuning

Once the process description is ready, the process steps should be tested individually to locate possible malfunctions, verify process parameters, and to find the correct machine settings. The simplest way to do this is to work by the machine with a sample roll of the smart label material to be processed. There are a lot of parameters that can be used to set up the process and while working with those it's also useful to make a record of the feasible settings to be later applied in the productions. One example of such document is provided in Appendix A.

- While working with Reelsurance Pro, it's easiest to start testing by installing the sample roll, training the sensor, and setting-up machine recipe including running mode, speed, and tension parameters, as well as the triggering positions. Having set these, save them as a recipe on Reelsurance Pro HMI and make a record of the settings to the production data record sheet. For more information on how to perform these actions, refer to Reelsurance manual.
- To setup and test barcode reading, install roll to the machine and bring a single tag in the field of view of the barcode reader. Then use Ensurance barcode reader setup tool to define region of interest, timing parameters, and functionality. For more information on how to perform these actions and help for possible troubleshooting, refer to barcode reader's hardware set up guide. Once settings have been set and verified successfully, save setup file for later use and make a record of barcode reader settings to the production data record sheet.
- To setup tester and encoders bring the label on the correct triggering position and either change Reelsurance trigger position or adjust antenna to match tag position with Snoop Pro shielding plate opening. When configuring Ensurance Encoders, testing of the recipe can be made by using Ensurance so that only this single process step is involved in the process and use machine to run the labels. Same applies also for Tagsurance, but it's also possible to make use of Tagsurance GUI which enables more visibility to the data. Tagsurance GUI can also be used to setup and test different combinations of tasks. For more information on how to perform these actions and help for possible troubleshooting, refer to Ensurance RAIN and HF encoders' hardware set up guides, Tagsurance manuals, and Ensurance case builder manual. Once settings have been set and verified successfully make a record of the settings to the production data record sheet.
- To setup variable data printer or bad tag marker, bring a label to the printing position, and apply test print on the label. Especially the variable data printing involves setting up several parameters and finding a functional combination of printing parameters requires empirical testing. For more information on the adjustment of the printer, refer the Ensurance Videojet hardware setup guide. Once settings have been set and verified successfully make a record of the settings to the production data record sheet.

#### 4.2.3 Compilation of recipe files for the job

As the last step for preparing the software, the process has to be transformed into a form of an Ensurance recipe to enable application of Ensurance GUI: This recipe can be created manually or compiled using Ensurance Case Builder tool. For information on the recipe files and how to create them, refer to Ensurance Case Builder manual. Also mark down the recipe name and other possible information on the production data record sheet.

## 4.3 Running a job

### 4.3.1 Initialization of the hardware

Before starting production run, operator needs to set up Reelsurance and the process devices following the settings described in the product-specific production data record. The process of doing these actions is described step-by-step below.

1. Set up Snoop Pro coupling elements and adjust their position to match with the setup instructions for the product. Remember to install electrode extensions if required, and apply the correct shielding plate to ensure correct operation of the coupling element.
2. Connect reader or tester to antenna 1 according to production instructions and make sure the IO cable, data cable, and power cable are firmly connected, and the device powered on.
3. Connect reader or tester to antenna 1 according to production instructions and make sure the IO cable, data cable, and power cable are firmly connected, and the device powered on.
4. Install production material to the machine and load and activate correct test recipe according to production instructions. Check that the parameters match with the production instructions.
5. Check that the trigger sensor works reliably and re-train it if necessary, Training instructions for the different sensors are provided in Reelsurance Pro manual.
6. Set up barcode reader and adjust the position according to the production instructions. To check the placement, move a label in to the intended triggering position, open barcode setup tool, and check that the code is in the field of view and within the region of interest. It's also possible to run autoseup and verify that the reader can register the code on the label. In this kind of static setup, detection rate should be 100% unless the code or reader settings have flaws.
7. Set up printer and check through printer HMI that the design files have been made available for the printer. Then, check positioning of the trigger by moving a label to the trigger position and verify that the position matches the printhead position when printer is in active mode. Last, apply right printer parameters through printer HMI, verify that correct print platform (roller or platen) has been installed, and snap roller on the encoder tension wheel has been pushed down. If possible also try applying a test print to check that parameters are set correctly.
8. Rewind the material back to the source roll and verify that the first tag coming to the trigger sensor is the correct one. Then click. "RESET COUNTS" to reset the counters in the Reelsurance Pro machine.

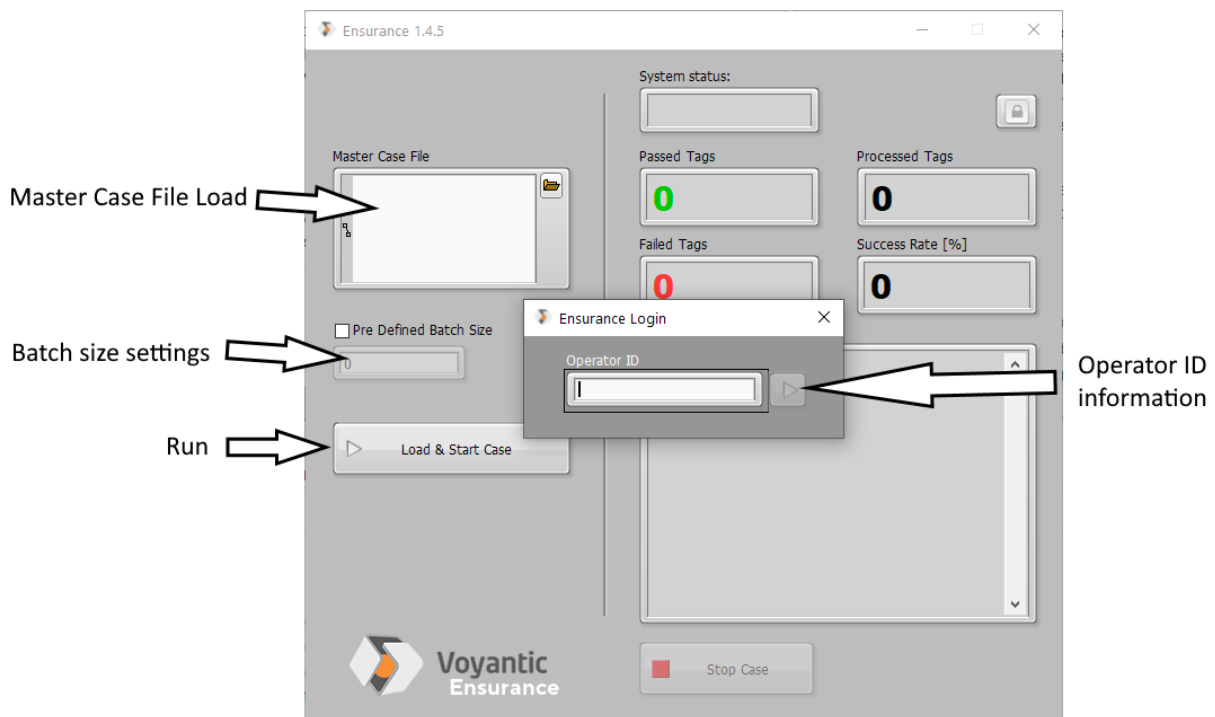
Having successfully completed the previous steps, the machine should be ready to run.

### 4.3.2 Initialization of the software

Performance of the personalization process steps is controlled from Ensurance software. After hardware has e set up, browse To Ensurance folder and run *Ensurance.exe* to open the Ensurance software.

Once the program opens, the operator is asked to fill in initials and then the program opens up in idle state (Fig 2). In the state, the operator can activate the job by browsing for the respective master case file and then click “Load and Start case” button.

Once the job has been activated, the system indicates “Initializing...” in the system status screen, and “Ready” once the initialization process has been completed and Ensurance is ready to run. In case there are issues with the initialization, the user will be indicated with a pop-up message.



**Fig 2. Ensurance GUI for Reinsurance in idle mode.**

### 4.3.3 Starting job and monitoring progress

Once hardware is setup and the Ensurance GUI indicates Ready, the job is started by clicking "START" from the Reelsurance Pro HMI. Should everything be set up correctly, the material will start moving and counters will start incrementing first on the Reelsurance Pro HMI and later on the Ensurance GUI as the labels progress in the process.

From Reelsurance Pro HMI, it's possible to monitor speed, tension, and counters, while Ensurance GUI provides more visibility to the data. In running mode (Fig 3), Ensurance GUI provides statistics and data of the whole process on the right side of the display, and process-specific performance indicators on the left side of the screen.

Should the hardware be set up correctly, the productions should run smoothly. However, in addition to monitoring yield and counts, it's recommended to visually follow-up the progress of the production at least in the early stage of the production run, and particularly if printing is involved since there's no print checking option in the process.

### 4.3.4 Stopping the job

Once the job is ready, operators should first click "STOP" on the Reelsurance Pro HMI to stop the machine, and then click "Stop Case" button on the Ensurance GUI to stop Ensurance. If dispense count mode applied, the machine will automatically stop when the defined amount of labels has been processed and the last processed label is on the splicing table. The Ensurance GUI needs to be closed manually.

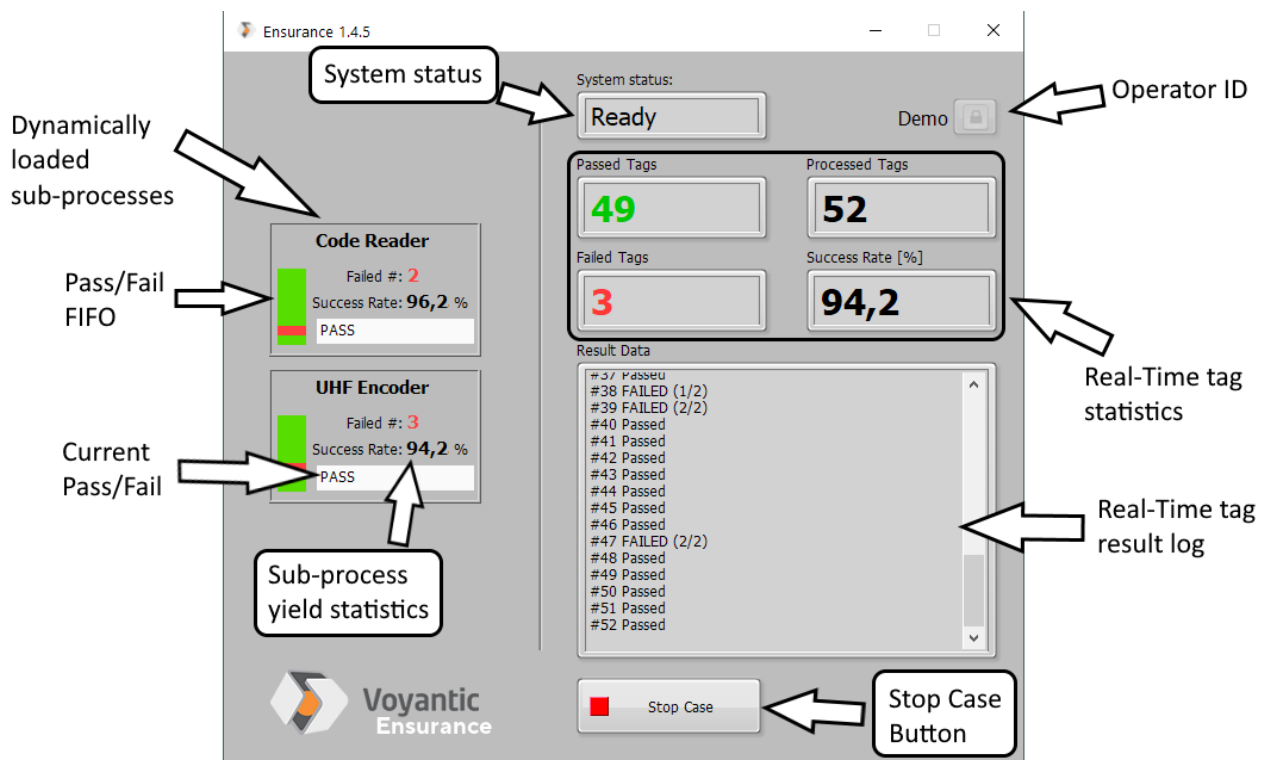


Fig 3. Ensurance GUI for Reelsurance in active mode.

## 4.4 Data output files

Ensurance GUI will automatically generate two kinds of process records: result log file and error log file.

**Result log file** is stored in Ensurance Data-folder and named according to the product name with timestamp. An individual result log file is generated for each job and it contains generic information of the process and tag specific data including the data which has been used in the process. The Log file includes three sections (Fig 4): device headers, global result data, and the devices result data.

- **Device headers** section contains a list of the devices used in the process. The device model, firmware version, and the applied Ensurance software plugin are all recorded for traceability.
- Device results and global results are provide for all labels processed. **Device results** contain a status indicating whether the label was processed successfully or not, and an output string including the data written and data which has been acquired from the label. **Global results** section is sort of a sum of all operations and it indicates whether all of the process steps were successful. Moreover, that section also includes time stamp and a running index to make post-processing of result data easier.

**Error log** data is stored in Ensurance Data-folder into a file named error.txt. This file contains information of the error events collected during the process and the timestamp for the event. This file may be useful in troubleshooting.

- On the fly report
- Tab delimited data (text and Excel compatibility)
- Devices headers
  - Device model
  - Firmware version
  - Plug-in loaded
- Global
  - Tag number
  - Tag Overall Status
  - Timestamp

Tag Number	Tag overall status	Timestamp	Device Reader	UHF Encoder	Write	Read	VarFieldN
1	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
2	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
3	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
4	FAIL	2018-08-0 10:30:20	FAIL	Notfound	[0,0,0,0,0,0,0,0,0,0,0,0]	[0,0,0,0,0,0,0,0,0,0,0,0]	FailTag
5	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
6	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
7	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
8	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
9	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
10	FAIL	2018-08-0 10:30:20	FAIL	Tag Not found	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	FailTag
11	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
12	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
13	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
14	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
15	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
16	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
17	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
18	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK
19	OK	2018-08-0 10:30:20	OK	OK	[0,0,0,0,0,0,11,34,58,79,39,80]	[0,0,0,0,0,0,11,34,58,79,39,80]	OK

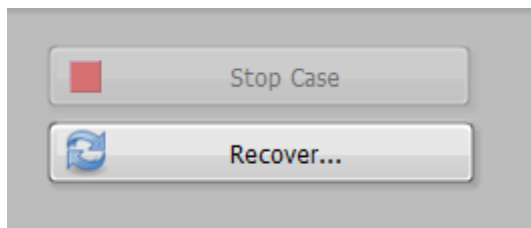
- Devices results
  - Barcode Reader
    - Status
    - Output String
  - Printer
    - Status
    - Job Name
    - VarFieldN
  - UHF/HF Encoder
    - Status
    - Tasks results
  - Tagsurance UHF/HF
    - Status
    - Tasks results

Fig 4. Structure of log file produced by Ensurance GUI.



## 4.5 Data Recovery

When the encoded data is read from file, it is possible to log the original data of failed tags to separate file. This is known here as *Data Recovery* which enables the re-producing the failed tags. If there is any recoverable data available when Ensurance is stopped, “Recover...” button will appear.



**Fig 5. Recovery button appears below the Stop button**

At the end of a Ensurance run, data can be considered to be recoverable if all of the following applies (to one or more lanes)

- One or more source data came from file (\*.csv)
- One or more tag operations failed

The recovery tools built in to Ensurance can be used for generating new source files based on the previously run case file. The new source files are a filtered version of the original source files, where the data intended for the failing tags in the previous run are saved.

### 4.5.1 Using the recovery tools

Once the “Recover...” button has been pressed, the Ensurance recovery tool opens. In it, an overview of each lane’s result can be seen.

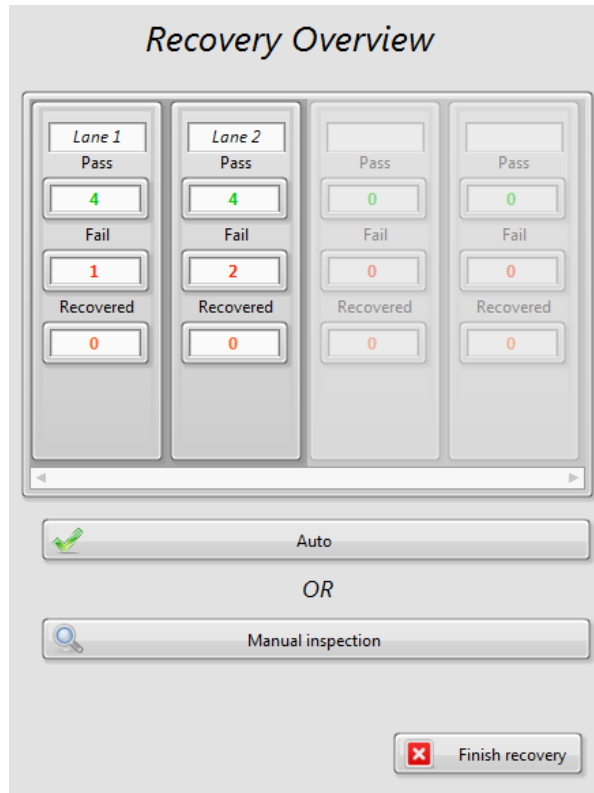
There are two approaches to creating recovery files; automatic and manual.

#### 4.5.1.1 Automatic recovery

If selecting the “Auto” option, Ensurance will automatically, for each lane, recover the data for all failed tags. After the recovery files have been created there will be pop-ups showing where the recovery files were saved.

*Note: The recovery files names will be the same as the original source data file, with an added postfix of “\_recovery”. The file will be saved in the same folder as the original source file. If a recovery file already exists in the target folder, the newly created recovery data file will have a increment number added to it.*

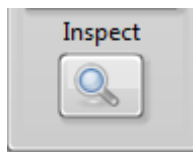
So, as an example, if original source name is “lane1\_EPC\_Data.csv” the recovered data will be stored in a file called “lane1\_EPC\_Data\_recovery.csv”



**Fig 6. Recovery overview**

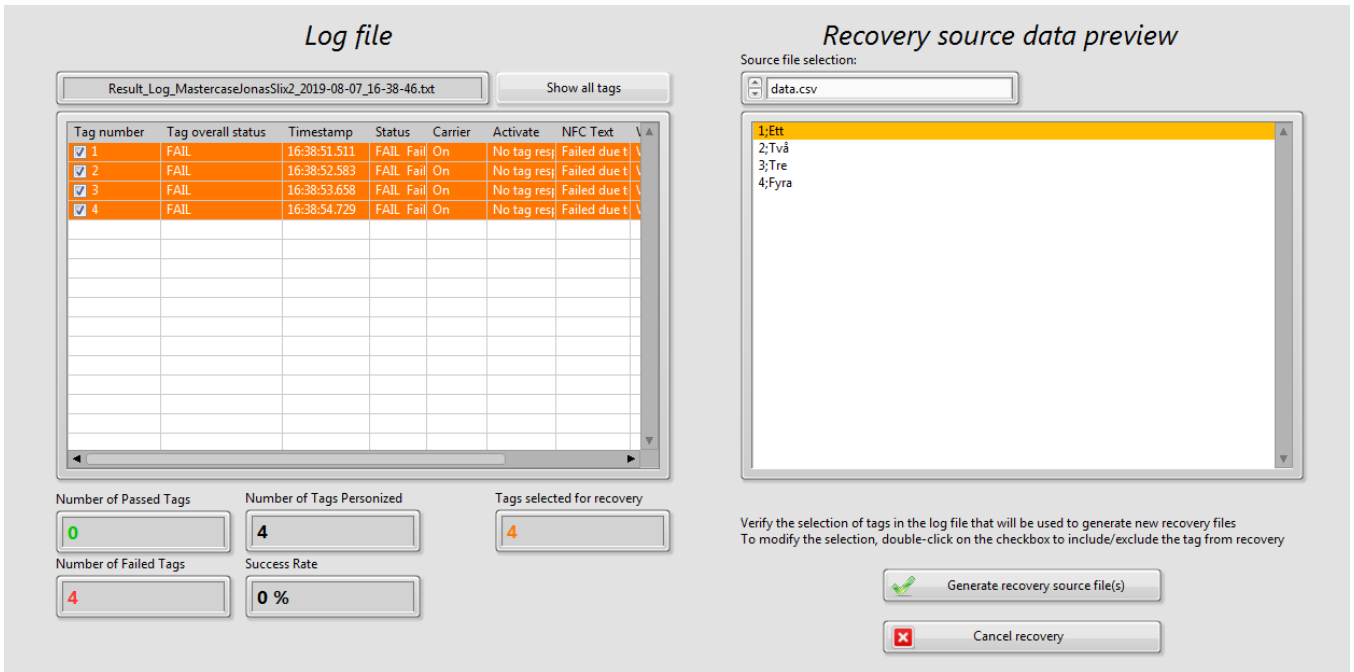
#### 4.5.1.2 Manual recovery

If the "Manual inspection" is selected, the inspection buttons will become enabled for each lane in the tool, see below



**Fig 7. Manual inspection button**

Manual inspection requires the operator to use the inspection buttons for each lane for which recovery data is to be generated. Upon clicking the inspection button, another tool opens up.



**Fig 8. Manual inspection view for selecting recovery data**

This tool can be used to manually select or deselect tags for recovery. The left side shows a filtered view of the result log for that particular lane. A highlighted orange row on the left side indicates that the tag is selected for recovery. A tag can be selected or deselected manually by double clicking the checkbox for that row.

The button “Show all tags” will display the other tags as well from the log file. On the right side of the display is a preview of what the recovered source data file will look like. Once done with the inspection, click the “Generate recovery source file(s)” button and exit the tool.

This has to be repeated for each lane that has data to recover. Finally finish the recovery process by clicking “Finnish recovery” button.

*Note: If the tool detects that one or more lanes contains failed tags and the operator has not selected tags for recovery, a popup will warn the operator of what could be a mistake. This is just a warning and the operator can proceed by dismissing the popup.*

## **5 Maintenance and troubleshooting**

### **5.1 Maintenance**

Reelsurance Pro with Ensurance includes several parts and subsystems which need to be maintained according to the device-specific instructions. Hardware maintenance plan is described in the device-specific manuals and need to be followed to help extend the lifetime of the products and maintain the high level of functionality. There may also be updates for the software which are announced separately.

### **5.2 Troubleshooting**

Issues with Ensurance are typically related to implantation of the process and performance of the hardware. Ensurance hardware setup guides and Reelsurance Pro manual contain information on typical troubleshooting scenarios. If the issues remain, contact [support@voyantic.com](mailto:support@voyantic.com) and remember to include error log file, and software and hardware information with the description of the issue.

## Appendix A: Example of production data record for Reelsurance Pro with Ensurance

Date: \_\_\_\_\_.

Product: \_\_\_\_\_

Author: \_\_\_\_\_

### ENSURANCE SETTINGS

Master case file: \_\_\_\_\_

Supporting files:

File name/path	File type
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file
	[ ] Data file, [ ] Print design file

## REELSURANCE SETTINGS

Reelsurance Recipe: \_\_\_\_\_

Running mode	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent
Speed	_____ m/min
Tension	_____ N
Dispense count	<input type="checkbox"/> Enabled Target count: _____ pcs
Trigger sensor	<input type="checkbox"/> Troughbeam <input type="checkbox"/> Contrast <input type="checkbox"/> Color contrast
Barcode reader	<input type="checkbox"/> Enabled HMI Position: _____
Antenna 1	<input type="checkbox"/> Enabled HMI Position: _____
Antenna 2	<input type="checkbox"/> Enabled HMI Position: _____
Printer / marker	<input type="checkbox"/> Disabled <input type="checkbox"/> Print failed <input type="checkbox"/> Print passed <input type="checkbox"/> Print all HMI Position: _____
Splicing table	<input type="checkbox"/> Stop failing <input type="checkbox"/> Stop missing HMI Position: _____

## DEVICE SETTINGS

Trigger sensor	<input type="checkbox"/> Troughbeam <input type="checkbox"/> Contrast <input type="checkbox"/> Color contrast Offset adjustment: X: _____ Y: _____ Z: _____
<input type="checkbox"/> Barcode reader	Focus setting: _____ Lens type: _____ Offset adjustment: X: _____ Y: _____ Z: _____
<input type="checkbox"/> Antenna 1	<input type="checkbox"/> Tagsurance UHF <input type="checkbox"/> Tagsurance HF <input type="checkbox"/> RAIN encoder <input type="checkbox"/> HF encoder Antenna type: _____ Orientation: <input type="checkbox"/> 0° <input type="checkbox"/> 90 Shielding plate: _____ Extensions: <input type="checkbox"/> pos1 <input type="checkbox"/> pos2 Offset adjustment: across line: _____
<input type="checkbox"/> Antenna 2	<input type="checkbox"/> Tagsurance UHF <input type="checkbox"/> Tagsurance HF <input type="checkbox"/> RAIN encoder <input type="checkbox"/> HF encoder Antenna type: _____ Orientation: <input type="checkbox"/> 0° <input type="checkbox"/> 90 Shielding plate: _____ Extensions: <input type="checkbox"/> pos1 <input type="checkbox"/> pos2 Offset adjustment: across line: _____ along line: _____
<input type="checkbox"/> Printer <input type="checkbox"/> Marker	Mode: <input type="checkbox"/> Disabled <input type="checkbox"/> Print failed <input type="checkbox"/> Print passed <input type="checkbox"/> Print all Print ribbon: _____ Print speed: _____ Print darkness: _____ Pressure: _____ Print delay: _____ Print position: _____ Printhead to platen distance: _____ Print surface: <input type="checkbox"/> roller <input type="checkbox"/> platen Material type: <input type="checkbox"/> standard <input type="checkbox"/> Custom type : _____ Offset adjustment: across line: _____

### NOTES & REMARKS

#	Note
1	
2	
3	
4	
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6	



## Appendix B: Default IP-addresses for Ensurance devices in Reelsurance Pro application

In an attempt to simplify connection management and setup of the system, the IP-addresses of the network connected devices included in the Ensurance for Reelsurance Pro system are set as fixed, according to the table below. If user changes these settings, it is recommended to make notes of the new settings to support recipe planning process.

Network Device	IP address
<b>RAIN Encoder</b>	192.168.250.70
<b>Tagsurance HF</b>	192.168.250.60
<b>Sick 1D/2D Code reader</b>	192.168.250.80