



# RAILWEIGHT

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## USER MANUAL

### I-LINE2

## Train Weighing System

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<b>Date:</b>	<b>07/11/2014</b>

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# 1 REVISION HISTORY

Revision	Date	Author	Description
1.0	20/06/2012	D. Hill	First version
1.1	10/07/2012	R. Davies	Revisions with updated screenshots
1.2	06/03/2013	R. Davies	Revisions with updated screenshots
1.3	21/06/2013	R. Davies	Minor revisions
2.0	13/05/2014	Neil Barlow	Manual rewritten and expanded with new screenshots and sections to cover new features.
2.1	08/08/2014	Neil Barlow	Updated to feature changes up to release v1.09.00
2.2	12/09/2014	Neil Barlow	Updated to feature changes up to release v1.09.01
2.3	07/11/2014	Neil Barlow	Updated to feature changes up to release v1.09.04

# 2 INTRODUCTION

This document provides user instructions for the I-LINE2 train weighing software. A separate User Guide is provided for use of the train weighing indicator.

To view the latest revision of this manual, click the Help tab in I-LINE2.

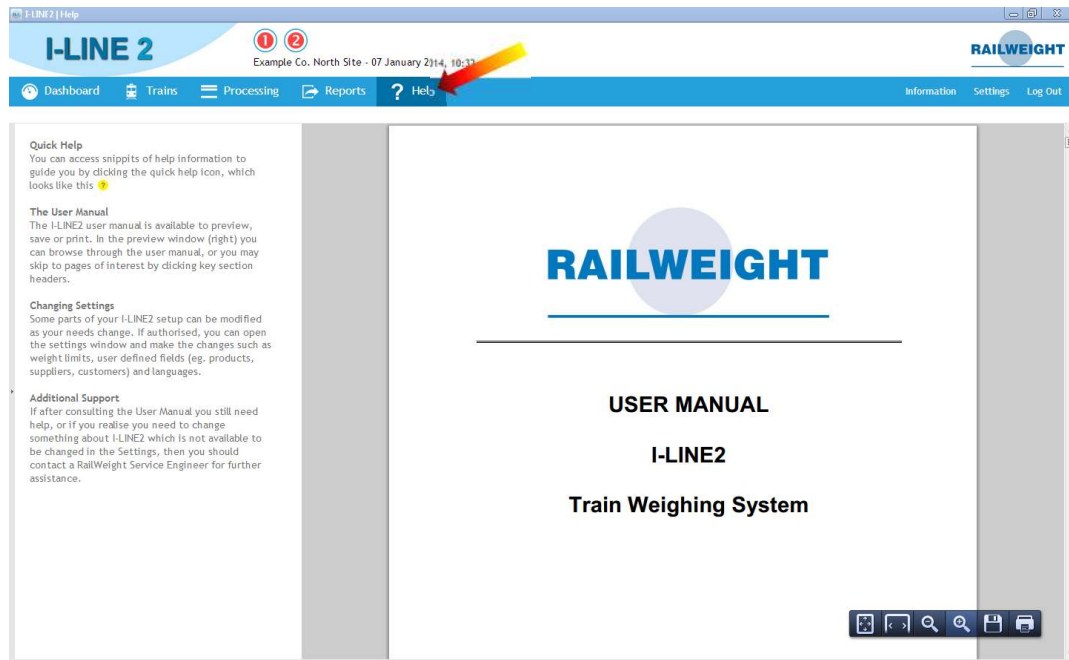


Figure 1: Help Screen

To print a copy of this manual from I-LINE2, select the Help Tab and hover the mouse in the lower right corner of the window to show the following menu:



The options are:

Icon	Description
	Resize to show full page
	Resize to show full width
	Zoom out
	Zoom in
	Save copy of the manual in .pdf format
	Print copy of the manual to local or networked printer

### 3 SYSTEM OVERVIEW

I-LINE2 is a fully featured train weighing and management application, providing an information interface for Railweight trackside instrumentation.

The I-LINE2 server software package consists of several service applications which gather and process the communications data and user instructions. The services start automatically at system boot, and run unobtrusively in the background. At the heart of I-LINE2 is a SQL Server 2008 R2 database providing an industry standard, secure and reliable data management system.

Typically, a server would house the SQL database, host a web service to provide access to the data, run a web application to allow interaction with the data from the clients and run a windows service to collect information from the instrumentation. The user interfaces to I-LINE2 via a browser window on an I-LINE2 client. The client can be any PC running XP service pack 2 or higher and can be located anywhere on site that has access to the server. It requires no software installation other than a Google chrome browser (if not already installed). The browser window displays the train data, and allows the user to edit data and match wagon weights on dual weighing systems.



The system will constantly monitor the status of the system, raising alarms for data that exceeds pre-set configurable limits and responding to events in real time.

The trackside instrumentation, in addition to providing weight, speed and vehicle type identification (based on wheelbase data) can also provide Automatic Vehicle Identification (AVI) from Radio Frequency Identification (RFID) tags placed on the wagons. The I-LINE2 system stores this information alongside the wagon details and allows automatic matching of tare/gross wagons when dual weighing.

## **4 SYSTEM FUNCTIONALITY**

A train will pass over the weighing system and data will be collected for each vehicle that passes. The data will be passed to the I-LINE2 communications service which will prepare the information and store it in the database. Any clients connected to the system will be alerted that a new train has arrived. The train data will be displayed as it is processed, and can be viewed from the top level train down to the bottom level of individual wheel weights.

The system allows the user to configure a number of threshold values for various alarms. The alarms cover wagon speed, min/max tare, overload (at wagon, bogie, axle and wheel level) and side/end imbalance. These alarm values can be used globally, individually set for wagon types or set by individual wagon. If an alarm threshold is breached the user can be alerted via a sound played by the client and displayed on screen. The train will be displayed with a red status to allow the user to easily identify potential problems.

When the train has passed the weighing system it will be marked as complete. Once complete the train identifier can be amended and wagon identifiers can be added or updated. The system also allows up to 5 configurable User Defined Fields (UDFs) to be associated with each wagon. These fields can store additional information about the wagon or contents such as Product Type, Customer or Supplier. The entry into these fields is restricted to a configurable list to speed data entry and prevent errors. These fields are entirely optional so can be removed, left blank, individually entered by wagon or by train.

In many circumstances the train will be weighed twice to determine the weight of the product contained in each of the wagons. The system caters for a wide range of different matching scenarios (associating the Gross and Tare weights) based on matching whole trains by sequence or individual wagons.

The trains matched by sequence can be any combination of forward or reverse, in or out, and loading or unloading. Individual wagons can be associated by wagon number (manual entry or AVI), or manually matched to any other wagon.

In situations where the matching is likely to be precise, predictable and repeatable, such as wagons being matched in sequence by two instruments on the same line, the process of matching can be automated. In other situations a match is made based on the best fit from a given scenario. The suggested match can then be checked and adjusted if necessary before being manually processed (see Processing, section 4.7).

The system can be configured to respond to one or more events on each instrument. The occurrence of these events, such as Train Started, Wagon Weighed or Train Matched can trigger one or more actions. The actions include creating data files, printing or creating reports and sending email or SMS messages. The available actions may depend on the availability or provision of other services such as an e-mail/SMS server.

The system can be configured to provide an output of the data dependent on system events. The data output is covered in more detail in section 4.9.



The system uses a powerful reports engine with the ability to display simple or complex reports. In addition to the standard reports giving full details of an individual train and a matched train pair, reports can be tailored to suit the precise requirements of the end user. Reports can include tabular or graphical information, and use logos, configurable text and corporate styles.

Appropriate reports can be accessed directly from the train list, from the processing screen once a train has been matched or from a separate reports tab. The reports can be printed to any networked printer or saved to any networked location. Examples of the reports can be seen in section 4.8.


## 4.1 Starting I-LINE2

The services which collect and process the train data begin as soon as the server/PC has loaded the Windows operating system, it is not necessary to login to Windows or I-LINE2, for the system to function.

Most systems are configured to login to windows automatically and then load into the I-LINE2 Login screen.

To manually start the I-LINE2 manager click on the  icon from the desktop or the  icon in the taskbar that is displayed along the bottom of the screen.

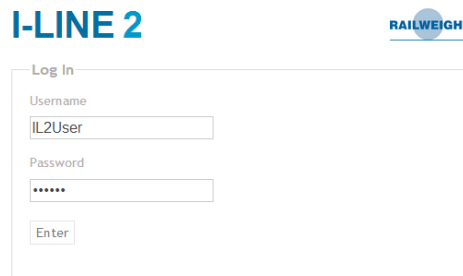
If the system needs to be restarted, first close the I-LINE2 Manager if it is running.

Double click on the  icon. This will individually stop and restart each component of the system. Manually start the I-LINE2 Manager as described above.

## 4.2 Login Screen

To get started in the I-LINE2 Manager, enter your username and password in the fields provided in the login screen. Most new systems are configured with a username of 'IL2User' and a password of 'userpw'.

The system can be configured to add new users with different levels of authority.



I-LINE 2

RAILWEIGHT

Log In

Username  
IL2User

Password  
\*\*\*\*\*

Enter

Figure 2: Login Screen

### 4.3 I-LINE2 Screen Layout

The I-LINE2 screen is divided into a number of sections as shown below:

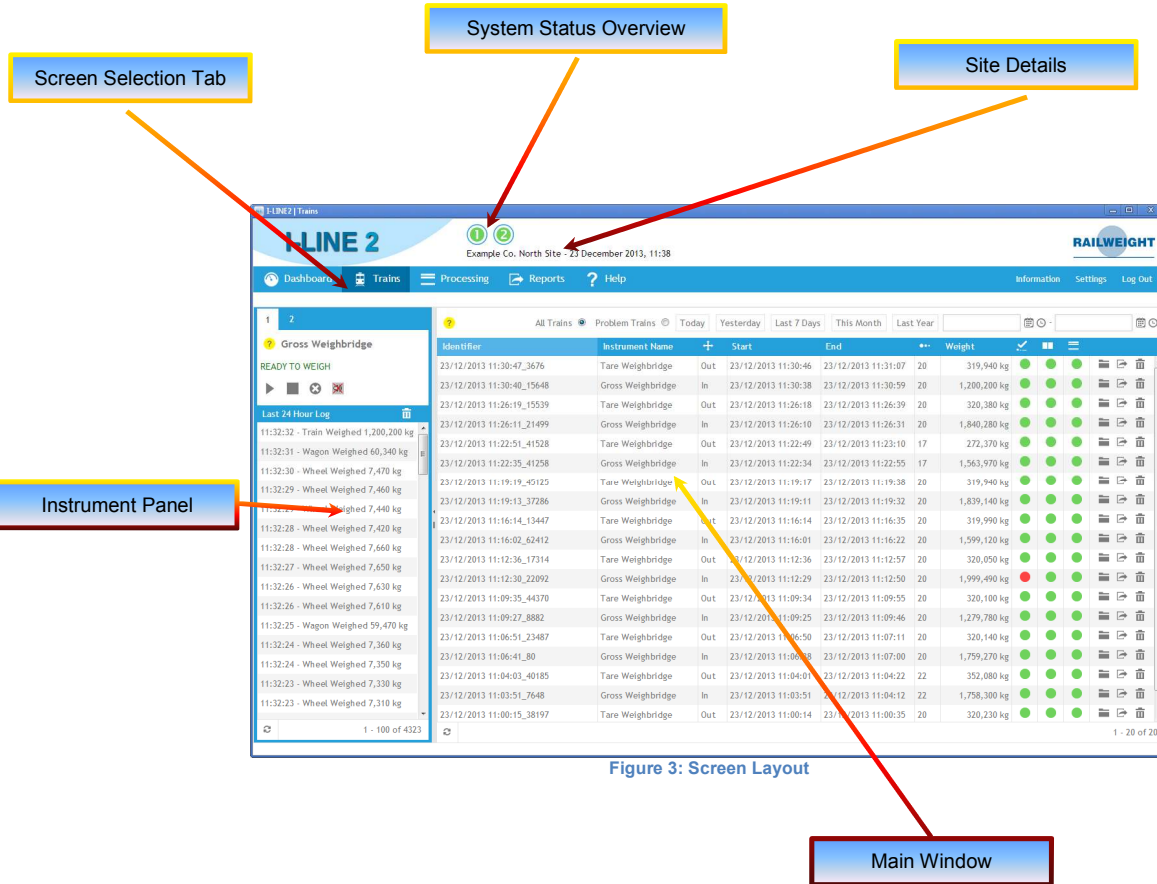


Figure 3: Screen Layout

#### 4.3.1 System Status Overview

The system status overview shows the current operational status of each instrument configured in the system. Each instrument is shown as a coloured disc, the number inside the disc represents the instrument number within the system and the colour provides the status overview. The colours represent the following status conditions:

Instrument Disc	Description
	Instrument is online and ready to weigh (green)
	Instrument is online and currently weighing a train (amber)
	Instrument is not ready to weigh or is disconnected, check instrument window for full status information (red)
	Instrument status is not available. Communications service is not running. Restart I-LINE2 (red)

### 4.3.2 Site Details

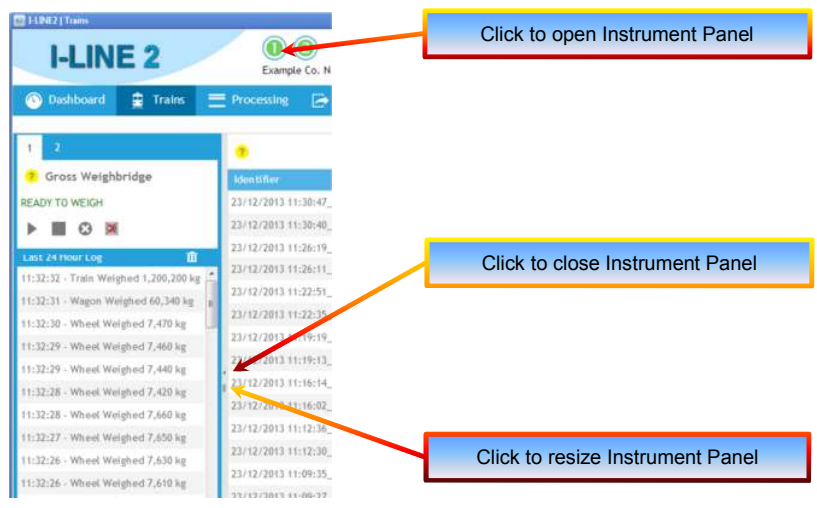
Details are shown here of the Operating Company and the specific site, if applicable. To change these details please speak to a Railweight service technician.

### 4.3.3 Screen Selection Tab

Click on the selection tab to switch screens. Details of the functionality of each screen are given in the relevant section of the manual.

### 4.3.4 Instrument Panel

The instrument panel window can be opened by clicking on the instrument status icon at the top of the screen, and it is usually configured by default to open on the 'Trains' screen. Detailed information on the Instrument Panel is given in section 4.6.



### 4.3.5 Main Window

The main window displays the screen selected by the Screen Selection Tab. The options are:

- Dashboard – see section 4.4
- Trains – see section 4.5
- Processing – see section 4.7
- Reports – see section 4.8
- Help – see section 2
- Information – Provides the version and copyright information
- Settings - see section 4.10
- Log Out – Exit the system



## 4.4 Dashboard

The dashboard is the default loading page for I-LINE2 and displays a range of graphical and textual information at a glance. The standard screens show a graph of the individual Trains, Processed Trains, the Processed Trains Totals and the details of the Last Processed Train. Each of the dashboard screens can be filtered by a number of predefined date periods or a configurable start and end date. Some screens have additional filters such as Direction and Instrument allowing for very specific reporting. Screens may have been added to show additional information.

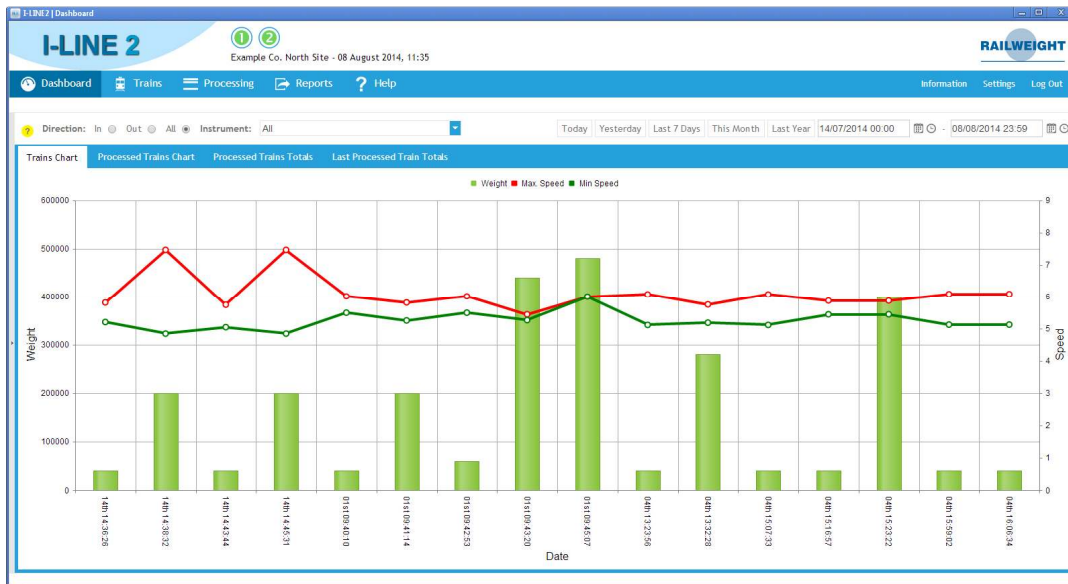


Figure 4: Trains Chart

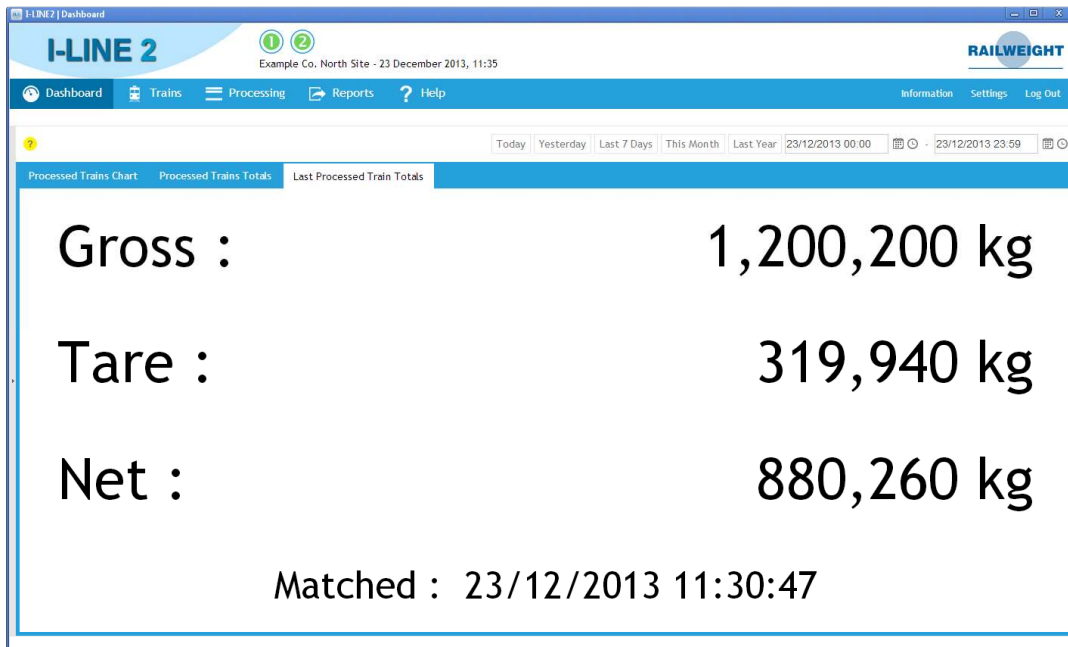


Figure 5: Last Processed Train Totals

## 4.5 Trains

The trains tab details all the trains that have passed through the weighing system. Key information about each train is shown and updated in real time as trains are weighed and processed.

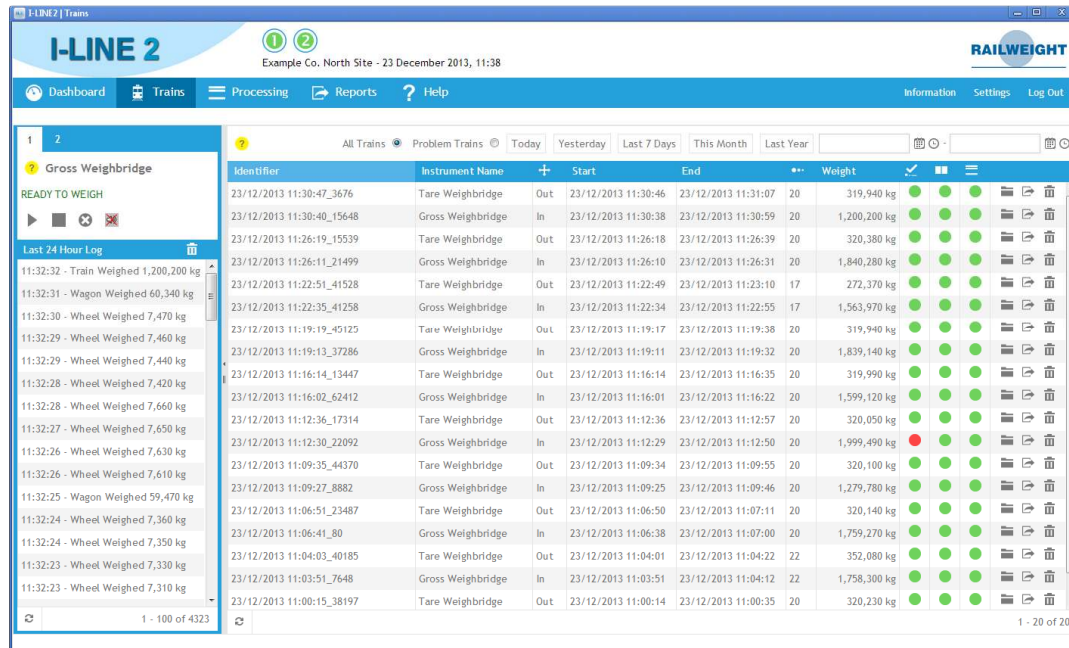


Figure 6: Trains Screen

The trains table contains the following information:

Column Heading or Symbol	Description
Identifier	The unique ID assigned to the train. The ID is a combination of the time and date that the train was recorded by I-LINE2 and the serial number from the weighing instrument.
Instrument Name	The name of the instrument that provided the weight information.
+	The direction of the train provided by the instrument.
Start	The train weighing start time.
End	The train weighing end time.
...	The number of wagons weighed by the instrument.
Weight	The train weight.
✓	The completion and error status of the train.
■	The matched wagon status.
≡	The processed wagon status.

The information in the table can be filtered by selecting from the options at the top of the page. The options allow the selection of the following information:

- All Trains** Default. No filtering, all trains will be shown
- Problem Trains** Select trains that are either incomplete or where an error has been recorded
- Fast Filter Date** Select from pre-set ranges - Today, Yesterday, Last 7 Days, This Month or Last Year
- Precise Date** Enter a date and time range directly or select the calendar or clock icons to further refine a selection.

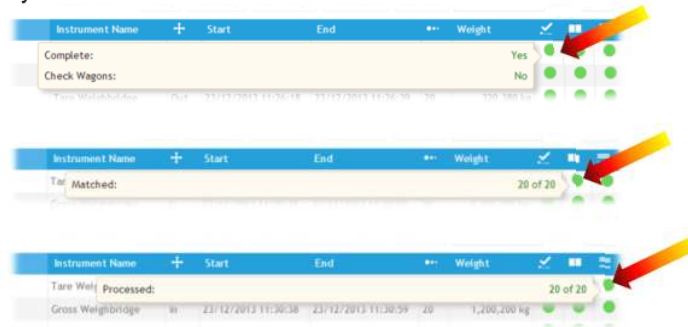
Any of the columns can be sorted by clicking on the column header. The direction of the sorting will be shown by an arrow that will appear next to the title, for example **Identifier** or **Identifier**. Each additional click will first change the sort direction then remove the sort.

The train identifier can be changed to something more meaningful. To edit this value simply click on the identifier you wish to change and enter your text. Press Enter or click on another screen location to save the value.

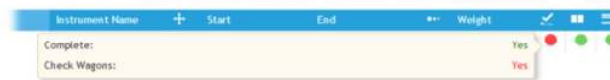
The three status columns will show either a red, amber or green spot. The colour of the spot gives a quick visual indication of the status and should be interpreted as follows:

Status Column	Colour	Description
Completion and Error	<span style="color: red;">●</span>	Incomplete train or error detected (red)
	<span style="color: green;">●</span>	Train completed with no errors (green)
Wagons Matched	<span style="color: red;">●</span>	No wagon found that fulfills the matching rules (red)
	<span style="color: orange;">●</span>	Some wagons matched (amber)
	<span style="color: green;">●</span>	All wagons have been matched (green)
Wagons Processed	<span style="color: red;">●</span>	No wagons processed (red)
	<span style="color: orange;">●</span>	Some wagons processed (amber)
	<span style="color: green;">●</span>	All wagons processed (green)

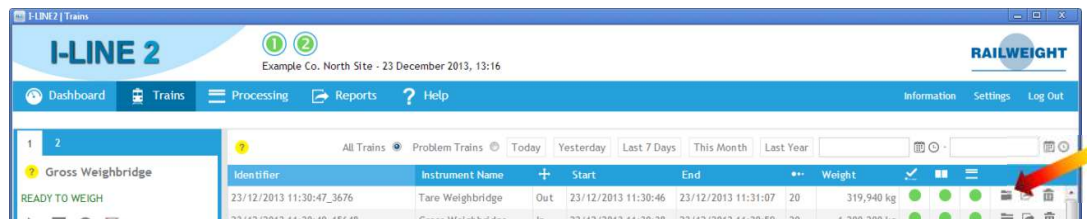
To obtain further details on any of the status columns, hover the mouse over the status spot. A pop-up box will display the full status details.



A red spot in the Completion and Error column means that an error has been detected within the train information.



Details about this error and further information about the wagons that make up the train, can be viewed by pressing the folder icon



This will open up a new window with tabs for Wagons, Bogies, Axles and Wheels, see section 4.5.1 for more details.

If the system is configured for train level reporting, then the report icon will appear near the end of each row. Click on the report icon to view the selection of train reports available for the selected train, see section 4.8 for more details about the reports available.

If the system is configured to allow the deletion of trains then the delete icon will appear at the end of each row. Click on the delete icon to delete the train. A confirmation message will be shown before the wagon is deleted.

**⚠ CAUTION:** The train and all associated wagons will be permanently deleted and cannot be retrieved. Any trains / wagons matched to the deleted train / wagons will be unmatched.

### 4.5.1 Train Details

The train details view can be displayed by pressing the folder icon next to any of the trains shown in the Trains screen. This view contains all the details about the wagons that make up the selected train. The train details screen has tabs for Wagons, Bogies, Axles and Wheels.

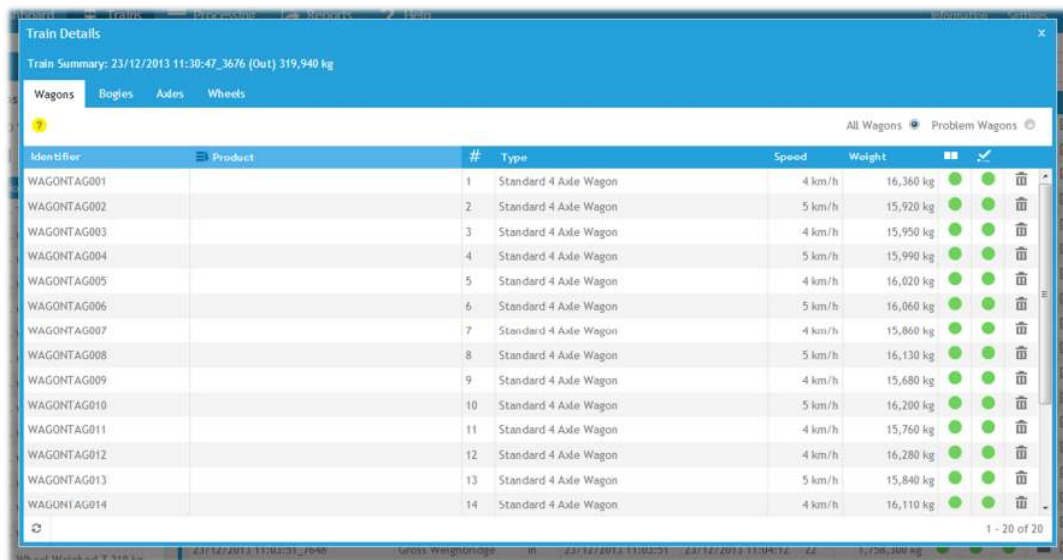


Figure 7: Train Details, Wagons Screen

#### 4.5.1.1 WAGONS

Select the 'Wagons' tab to display the list of all wagons associated with the selected train. The wagons view is the default tab and contains the following information:

Column Heading or Symbol	Description
Identifier	If the system is set to 'autonumber' then the wagon ID will be equal to the sequence number. If the system uses RFID tags, and the weighing instrument has successfully read and assigned the tag, this will be the ID. Otherwise it will be blank.
UDF Name 1	The User Defined Field (UDF) name (if configured) - Product in this example. Up to 5 fields can be defined.
#	Wagon sequence number.
Type	The wagon type assigned by the weighing instrument.
Speed	The wagon speed.
Weight	The wagon weight.
	The matched wagon status.
	The alarm status of the wagon.

The information in the table can be filtered by selecting from the options at the top of the page. The options allow the selection of the following information:

- All Wagons** Default. No filtering, all wagons assigned to the train will be shown.
- Problem Wagons** Select wagons where an alarm has been recorded.

Any of the columns can be sorted by clicking on the column header. The direction of the sorting will be shown by an arrow that will appear next to the title, for example **Identifier** or **Identifier**. Each additional click will first change the sort direction then remove the sort.

The wagon identifier can be changed to something more meaningful. To edit this value simply click on the identifier you wish to change and enter your text.

If User Defined Fields (UDFs) have been configured then these will appear as columns on the wagon details page. To enter a value, click in the selected field and select a value from the drop down box. The values that appear in the drop down box are entered in the UDF settings page, see section 4.10.1.



The icon next to the UDF name shows whether the selected value will apply to a single wagon or all wagons.

Icon	Description
	(Default) The entered value will apply to all wagons. Press Enter when value has been selected, to fill in selection for all wagons.
	The selected value will apply to a single wagon. Press Enter when value has been selected, to fill in selection for the single wagon.

Click the icon to toggle between the two options.

The two status columns will show either a red or green spot. The colour of the spot gives a quick visual indication of the status and should be interpreted as follows:

Status Column	Colour	Description
Wagon Matched		Wagon not matched (red)
		Wagon fulfils one or more matching rules (green)
Alarm		Error detected at wagon level or lower (red)
		No errors (green)

To obtain a full report on the alarm status of the wagon, use the mouse to hover over the alarm status spot.



The alarm status report pop up contains all the limits set for the wagon, the value of the limit and whether the wagon is inside or outside each limit. The list also indicates if there is a problem at the bogie level or lower.

If the system is configured to allow the deletion of wagons then the delete icon will appear at the end of each row. Click on the delete icon to delete the wagon. A confirmation message will be shown before the wagon is deleted.

**⚠ CAUTION:** *The wagon will be permanently deleted and cannot be retrieved. Any wagons matched to the deleted wagon will be unmatched.*

**4.5.1.2 BOGIES**

Select the 'Bogies' tab to display the list of all bogies associated with the selected train.



Figure 8: Train Detail, Bogies Screen

The bogies table contains the following information:

Column Heading or Symbol	Description
Wagon Identifier	The wagon ID that the bogie is part of.
#	Bogie sequence number.
Wheel Count	The number of wheels on the bogie.
Odd Side Weight	The weight of the bogie side containing odd numbered wheels.
Even Side Weight	The weight of the bogie side containing even numbered wheels.
Weight	The total weight of the bogie.
	The alarm status of the bogie.



The information in the table can be filtered by selecting from the options at the top of the page. The options allow the selection of the following information:

- All Bogies** Default. No filtering, all bogies assigned to the train will be shown.
- Problem Bogies** Select bogies where an alarm has been recorded.

The table information can also be filtered by wagon identifier. Select the icon on the column header to show the filter menu. The filter menu allows the selection of records by a single wagon identifier or a combination of wagon identifiers.

Any of the columns can be sorted by clicking on the column header. The direction of the sorting will be shown by an arrow that will appear next to the title, for example or . Each additional click will first change the sort direction then remove the sort.

The status column will show either a red or green spot. The colour of the spot gives a quick visual indication of the status and should be interpreted as follows:

Status Column	Colour	Description
Alarm		Error detected at bogie level or lower (red)
		No errors (green)

To obtain a report on the alarm status of the bogie, use the mouse to hover over the status spot.



The alarm status report pop-up contains all the limits set for the bogie, the value of the limit and whether the bogie is inside or outside each limit. The list also indicates if there is a problem at the axle level or lower.

**4.5.1.3 AXLES**

Select the 'Axles' tab to display the list of all axles associated with the selected train.

Wagon Identifier	#	Odd Side Weight	Even Side Weight	Weight	Status
WAGONTAG001	1	2,090 kg	1,970 kg	4,060 kg	
WAGONTAG001	2	2,100 kg	1,980 kg	4,080 kg	
WAGONTAG001	3	2,110 kg	1,990 kg	4,100 kg	
WAGONTAG001	4	2,120 kg	2,000 kg	4,120 kg	
WAGONTAG002	1	1,910 kg	2,040 kg	3,950 kg	
WAGONTAG002	2	1,920 kg	2,050 kg	3,970 kg	
WAGONTAG002	3	1,930 kg	2,060 kg	3,990 kg	
WAGONTAG002	4	1,940 kg	2,070 kg	4,010 kg	
WAGONTAG003	1	1,980 kg	2,100 kg	4,080 kg	
WAGONTAG003	2	1,980 kg	2,110 kg	4,090 kg	
WAGONTAG003	3	2,000 kg	1,880 kg	3,880 kg	
WAGONTAG003	4	2,010 kg	1,890 kg	3,900 kg	
WAGONTAG004	1	2,040 kg	1,920 kg	3,960 kg	
WAGONTAG004	2	2,050 kg	1,940 kg	3,990 kg	

Figure 9: Train Detail, Axles Screen

The axles table contains the following information:

Column Heading or Symbol	Description
Wagon Identifier	The wagon ID that the axle is part of.
#	Axle sequence number.
Odd Side Weight	The weight of the axle side containing the odd numbered wheel.
Even Side Weight	The weight of the bogie side containing the even numbered wheel.
Weight	The total weight of the axle.
✓	The alarm status of the axle.

The information in the table can be filtered by selecting from the options at the top of the page. The options allow the selection of the following information:

- All Axles** Default. No filtering, all axles assigned to the train will be shown.
- Problem Axles** Select axles where an alarm has been recorded.

The table information can also be filtered by wagon identifier. Select the icon on the column header to show the filter menu. The filter menu allows the selection of records by a single wagon identifier or a combination of wagon identifiers.

Any of the columns can be sorted by clicking on the column header. The direction of the sorting will be shown by an arrow that will appear next to the title, for example or . Each additional click will first change the sort direction then remove the sort.

The status column will show either a red or green spot. The colour of the spot gives a quick visual indication of the status and should be interpreted as follows:

Status Column	Colour	Description
Alarm		Error detected at axle level or lower (red)
		No errors (green)

To obtain a report on the alarm status of the axle, use the mouse to hover over the status spot.



The alarm status report pop-up contains all the limits set for the axle, the value of the limit and whether the axle is inside or outside each limit. The list also indicates if there is a problem at the wheel level.



**4.5.1.4 WHEELS**

Select the 'Wheels' tab to display the list of all wheels associated with the selected train.

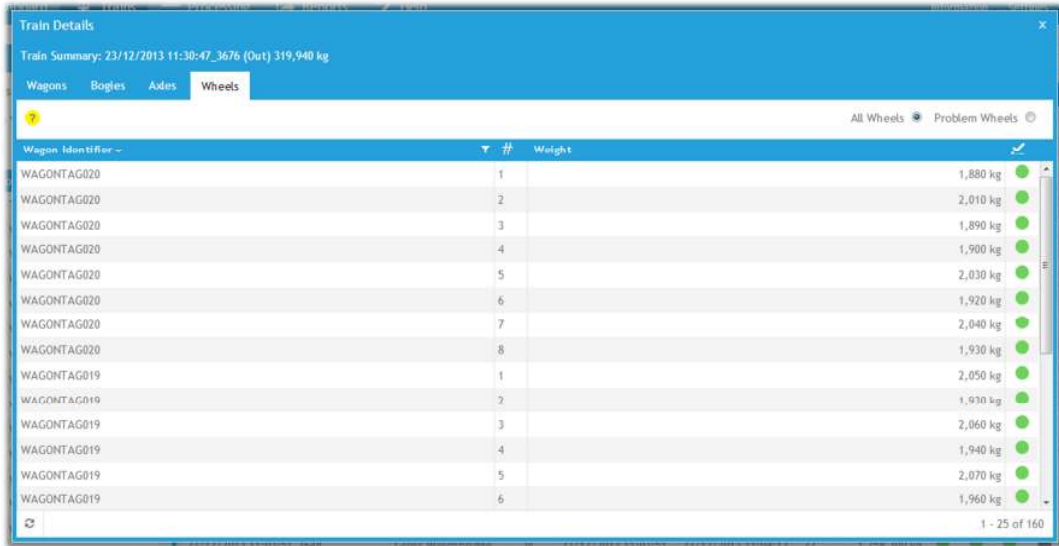


Figure 10: Train Detail, Wheels Screen

The wheels table contains the following information:

Column Heading or Symbol	Description
Wagon Identifier	The wagon ID that the wheel is part of.
#	Wheel sequence number.
Weight	The weight of the wheel.
✓	The alarm status of the wheel.

The information in the table can be filtered by selecting from the options at the top of the page. The options allow the selection of the following information:

- All Wheels** Default. No filtering, all wheels assigned to the train will be shown.
- Problem Wheels** Select wheels where an alarm has been recorded.

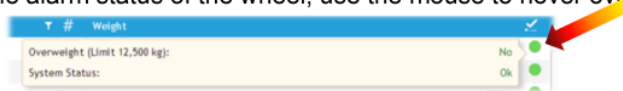
The table information can also be filtered by wagon identifier. Select the icon on the column header to show the filter menu. The filter menu allows the selection of records by a single wagon identifier or a combination of wagon identifiers.

Any of the columns can be sorted by clicking on the column header. The direction of the sorting will be shown by an arrow that will appear next to the title, for example or . Each additional click will first change the sort direction then remove the sort.

The status column will show either a red or green spot. The colour of the spot gives a quick visual indication of the status and should be interpreted as follows:

Status Column	Colour	Description
Alarm		Error detected at wheel level (red)
		No errors (green)

To obtain a report on the alarm status of the wheel, use the mouse to hover over the status spot.



The alarm status report pop-up contains all the limits set for the wheel, the value of the limit and whether the wheel is inside or outside each limit.

## 4.6 Instrument Window

The instrument window shows the current status of each instrument within the system, and a 24 hour log of all significant events and alarms.

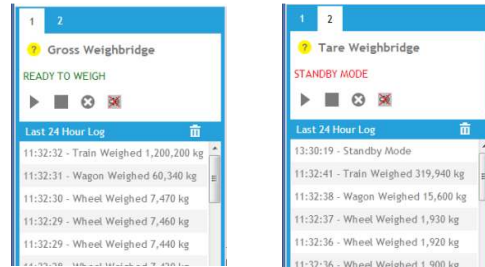


Figure 11: Instrument Window

The instrument window can be accessed by clicking on the instrument status icon at the top of the screen, and it is usually configured by default to open on the 'Trains' screen. It will automatically update to show the most recent status and activity. The window also has capability to display remote controls for each weighing instrument, and an optional view from a network accessible web or IP camera.

At the top of the window is a tab for each configured instrument. Click on a numbered tab to display the information related to that instrument. The current instrument display can also be changed by selecting the numbered instrument status icon at the top of the screen.

### 4.6.1 Remote Control

The system can be configured to display a selection of buttons to remotely control the weighing instrument. The buttons available are:

Icon	Function
	Send start weighing command. This command will instruct the weighing instrument to go to 'Ready To Weigh'. The weighing instrument must be in 'Standby' mode and at the main menu.
	Send stop weighing command. This command will instruct the weighing instrument to go to 'Standby'. The weighing instrument must be in 'Ready To Weigh' mode with no train present.
	Send abort weighing command. This command will instruct the weighing instrument to go to 'Standby'. The weighing instrument must be in 'Ready To Weigh' mode. Any train being weighed will be aborted immediately.
	Send cancel alarm command. If the weighing instrument has an alarm configured, and the alarm is currently on, then the cancel alarm command will turn off the alarm.

*NOTE: The buttons available on a system will depend on the options configured for that system.*

### 4.6.2 IP Camera Feed



The system can be configured to display a feed from an IP Camera, within the instrument window.

Each instrument is capable of displaying its own dedicated camera feed, or a feed can be shared across multiple instruments. For details on how to set up a camera feed to an instrument please see section 4.10.7.

Figure 12: IP Camera Display

### 4.6.3 Last 24 Hour Log



The system will record events and alarms from the weighing instrument and display these for 24 hours. Alarm entries will appear in red text in the window, and will be shown each time a measured value is outside the system limits, as defined in the settings - section 4.10.2. Alarm entries may also be generated from other features, and will depend on the specific configuration of the system.

The window will update periodically to show new events. To refresh the window click the icon, at the bottom of the window.

To delete the contents of the log for a single instrument click the icon. A confirmation message will be shown before the log is deleted.

**CAUTION:** The log will be permanently deleted and cannot be retrieved

Figure 13: Last 24 Hour Log

## 4.7 Processing

Processing is the procedure where the train or wagon weighed the second time is matched to the train or wagon weighed the first time to produce a net weight. When all the wagons in a train are matched and confirmed, then the train is processed to lock the information. Some systems are configured to automatically match and process trains, so manual processing is not always necessary.

To show the processing screen, select the 'Processing' tab.

The first step is to select the train to process from the list of unprocessed trains. The screen defaults to show the latest unprocessed train. Use the drop down list (arrowed) to select the train to process.

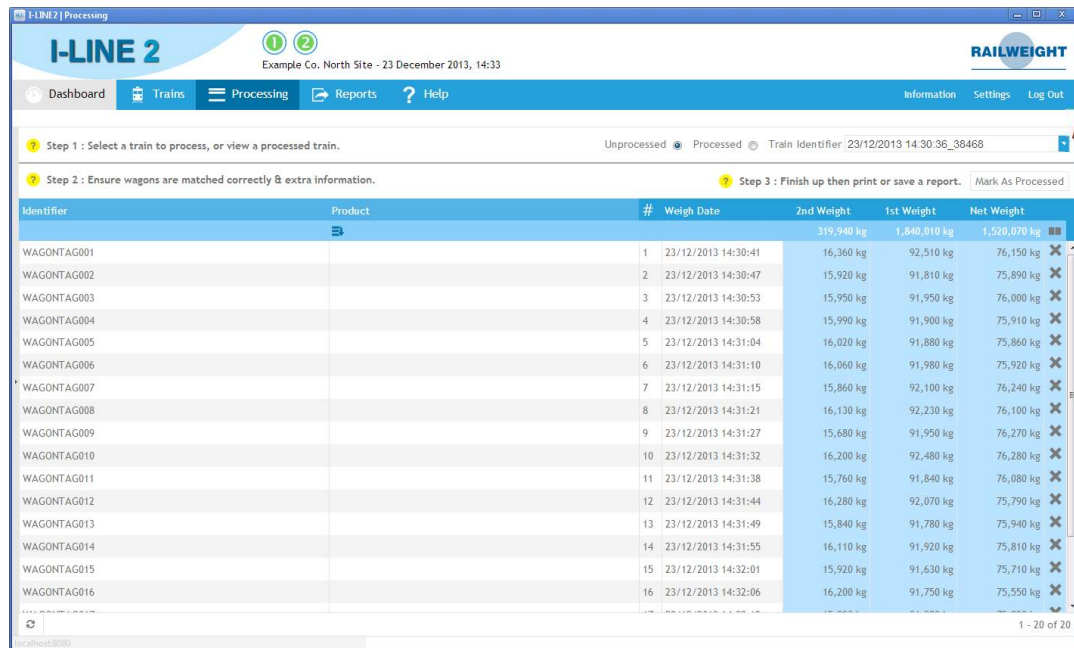
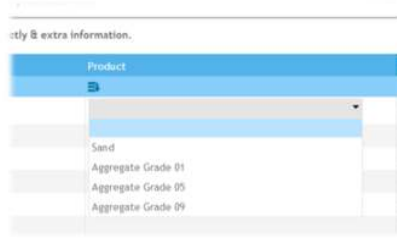


Figure 14: Processing Screen, Unprocessed Trains

The wagons from the selected train are shown in the processing table which contains the following information:

Column Heading or Symbol	Description
Identifier	The wagon ID. The ID will be blank unless the system has successfully read and assigned a tag to the wagon, or the wagon ID has been added manually.
UDF Name 1	The User Defined Field (UDF) name (if configured) - Product in this example. Up to 5 fields can be defined.
#	Wagon sequence number.
Weigh Date	The date and time that the wagon was weighed.
2 <sup>nd</sup> Weight	The weight the second time the wagon was weighed
1 <sup>st</sup> Weight	The weight the first time the wagon was weighed
Net Weight	The difference between the weights of the first and second weighing

If User Defined Fields (UDFs) have been configured then these will appear as columns on the processing page. To enter a value, click in the selected field and select a value from the drop down box. The values that appear in the drop down box are entered in the UDF settings page, see section 4.10.1.



The icon below the UDF name shows whether the selected value will apply to a single wagon or all wagons.

Icon	Description
	(Default) The entered value will apply to all wagons. Press Enter when value has been selected, to fill in selection for all wagons.
	The selected value will apply to a single wagon. Press Enter when value has been selected, to fill in selection for the single wagon.

Click the icon to toggle between the two options.

When a value has been changed, the corner will turn orange to show it has been altered but not saved. To save all the changed values, click in any edit field and hit enter.

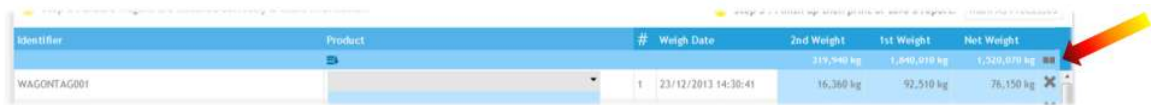


### 4.7.1 Wagon Matching

Each wagon in the train can be matched to another wagon according to certain matching rules which have been configured for the system.

The matching rules define how many instruments are in the system, the direction of train travel past the instruments and whether the system is loading, unloading or a mixture of both. If the system finds one or more wagons in the database which fulfil one of the matching rules then the system suggests a wagon match.

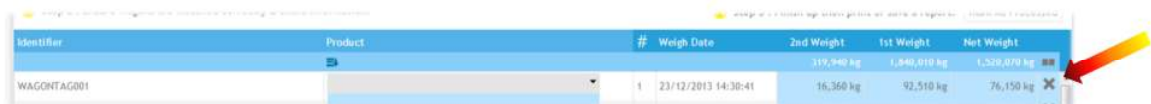
If the system has suggested a match then a first weight and net weight will be shown in the processing table. To view the matched wagons, select the icon (arrowed)...



... and the table will expand to show both the wagons in the match.



To reject a suggested match click on the icon and the match for the wagon will be dropped.



The icon will be replaced with a icon to show the wagon is unmatched.



To select a match for an unmatched wagon, select the icon at the end of a wagon record to open the wagon search screen.

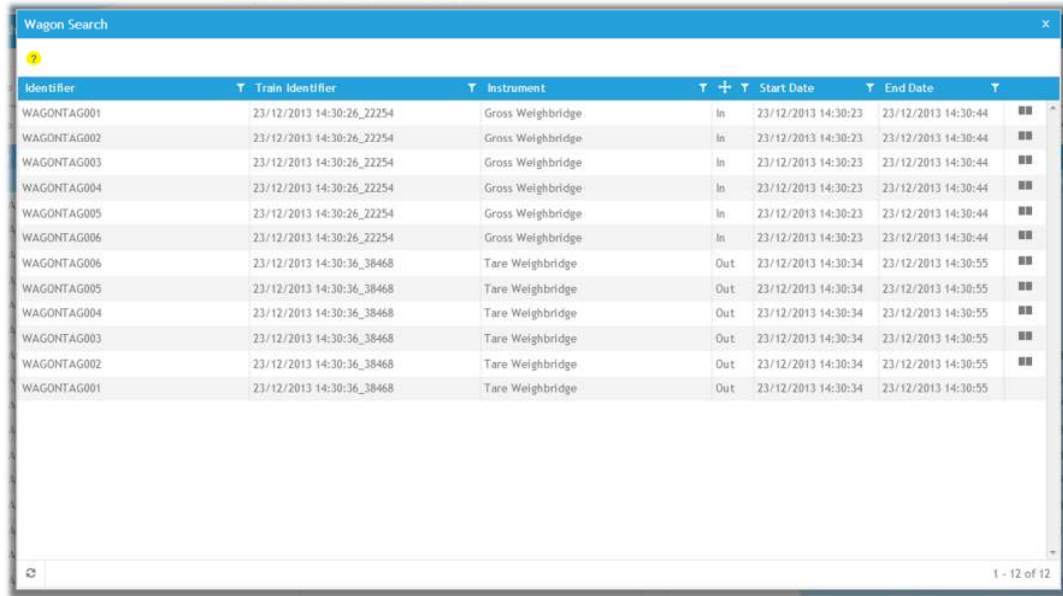


Figure 15: Wagon Search Screen

The wagon search table contains the following information:

Column Heading or Symbol	Description
Identifier	The wagon ID.
Train Identifier	The unique ID assigned to the train.
Instrument	The name of the instrument that provided the weight information.
	The direction of the train provided by the instrument.
Start Date	The train start date and time.
End Date	The train end time.

The table information can be filtered by column data. Select the icon on the column header to show the filter menu. The filter menu allows the selection of one or more criteria to help narrow down the number of records for a potential match.

If a record in the table is available for matching it will display the icon at the end of the row. Click on this icon to attempt to match the selected wagon.

In a system using stored tares, each wagon weighed will be assigned a 'tare wagon' containing the tare weight so it can be matched. The 'tare wagon' will be listed in the wagon table as XXX Tare WWWW where XXX is the sequential wagon number and WWWW is the tare weight assigned.



The tare weight will depend on the match from the Wagon Detail table (if RFID tags are being used), the wagon type table (if the wagon matches a listed type), a default tare weight (if there is no type match and a default is listed) or zero if none of the above apply.

If the system permits it, the tare weight can be adjusted by clicking in the '1<sup>st</sup> Weight' column on the processing screen and entering a new value, or using the up and down arrows.



### 4.7.2 Train Matching

If none of the wagons in a train are matched to other wagons, it is possible to perform whole train matching. If some, or all, of the wagons are matched, then each match must be dropped before train matching can take place. A train search is available if the icon is shown at the top of the processing table.



Click on this icon to show the train search table.

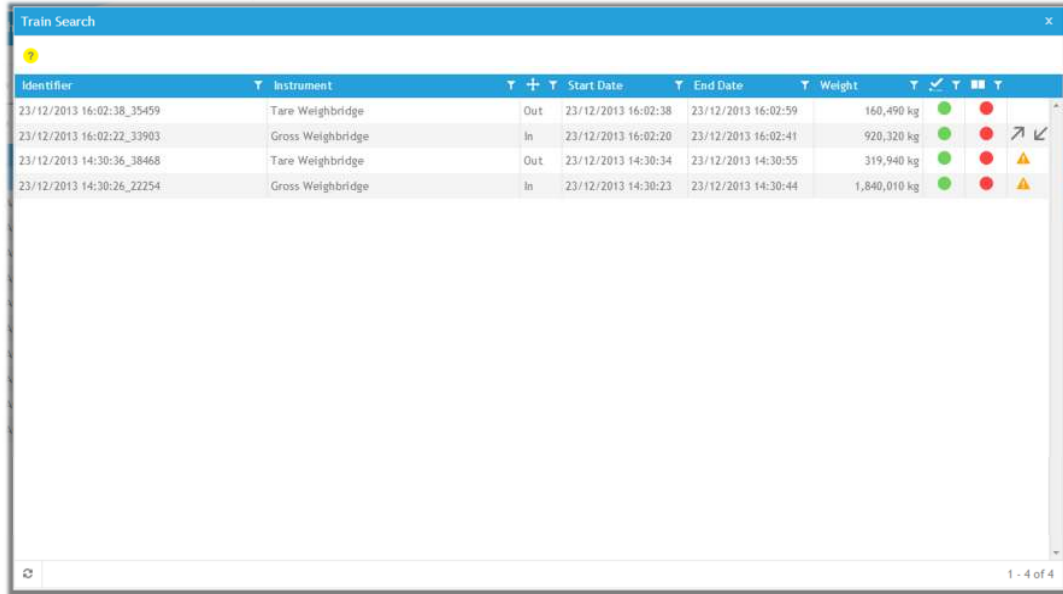


Figure 16: Train Search Screen

The train search table contains the following information:

Column Heading or Symbol	Description
Identifier	The unique ID assigned to the train. The ID is a combination of the time and date that the train was recorded by I-LINE2 and the serial number from the weighing instrument.
Instrument	The name of the instrument that provided the weight information.
	The direction of the train provided by the instrument.
Start Date	The train start time.
End Date	The train end time.
Weight	The train weight.
	The completion and error status of the train.
	The matched wagon status.

The table information can be filtered by column data. Select the icon on the column header to show the filter menu. The filter menu allows the selection of one or more criteria to help narrow down the number of records for a potential match.

If a record in the table is available for matching it will display the icon at the end of the row. Click on the icon to attempt to match the wagons in the train in sequence. Click on the icon to attempt to match the wagons in the train in reverse sequence. The icon indicates a match is not possible.

When all the wagons in a train have been matched successfully and confirmed as correct, then click the 'Mark As Processed' button to commit the match. The train is removed from the 'Unprocessed' list and placed in the 'Processed' list

**⚠ CAUTION:** Once a pair of trains have been matched, the process cannot be undone, and the train or wagon details cannot be changed.

**4.7.2.1 VIEWING PROCESSED TRAINS**

To view which wagons have been matched with other wagons on processed trains, select an entry from the 'Processed' train list.

The processing table will update to show how the wagons have been matched. The 'Report' button shows the selection of Net Train Reports available for the selected train.

Identifier	Product	#	Weigh Date	2nd Weight	1st Weight	Net Weight
WAGONTAG001		1	23/12/2013 11:30:53	16,360 kg	60,210 kg	43,850 kg
WAGONTAG002		2	23/12/2013 11:30:58	15,920 kg	59,960 kg	44,040 kg
WAGONTAG003		3	23/12/2013 11:31:02	15,950 kg	60,020 kg	44,070 kg
WAGONTAG004		4	23/12/2013 11:31:07	15,990 kg	60,080 kg	44,090 kg
WAGONTAG005		5	23/12/2013 11:31:13	16,020 kg	60,160 kg	44,140 kg
WAGONTAG006		6	23/12/2013 11:31:18	16,060 kg	59,480 kg	43,420 kg
WAGONTAG007		7	23/12/2013 11:31:24	15,860 kg	60,340 kg	44,480 kg
WAGONTAG008		8	23/12/2013 11:31:30	16,130 kg	59,590 kg	43,460 kg
WAGONTAG009		9	23/12/2013 11:31:35	15,680 kg	60,460 kg	44,780 kg
WAGONTAG010		10	23/12/2013 11:31:41	16,200 kg	59,720 kg	43,520 kg
WAGONTAG011		11	23/12/2013 11:31:47	15,760 kg	60,190 kg	44,430 kg
WAGONTAG012		12	23/12/2013 11:31:52	16,280 kg	59,840 kg	43,560 kg
WAGONTAG013		13	23/12/2013 11:31:58	15,840 kg	60,310 kg	44,470 kg
WAGONTAG014		14	23/12/2013 11:32:04	16,110 kg	59,960 kg	43,850 kg
WAGONTAG015		15	23/12/2013 11:32:09	15,920 kg	60,030 kg	44,110 kg
WAGONTAG016		16	23/12/2013 11:32:15	16,200 kg	60,090 kg	43,890 kg

Figure 17: Processing Screen, Processed Trains

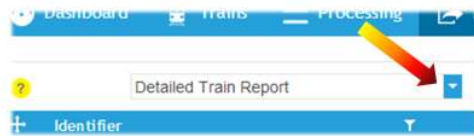
To view the matched wagons, select the icon, and the table will expand to show both the wagons in the match.

Identifier	Product	#	Weigh Date	2nd Weight	1st Weight	Net Weight	Identifier	#	Speed	Weigh Date
WAGONTAG001		1	23/12/2013 11:30:53	16,360 kg	60,210 kg	43,850 kg	WAGONTAG001	1	4 km/h	23/12/2013 11:30:45



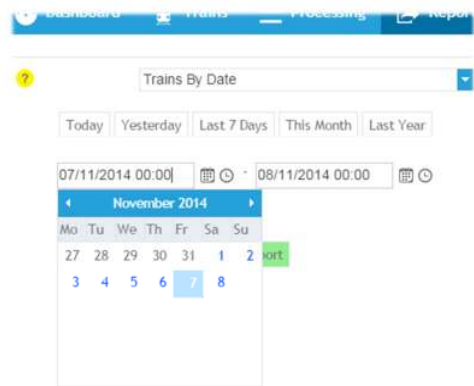
## 4.8 Reports

Select the report tab to show the report preview screen.



To view a report, first select a report type from the drop down box.


The selection panel will display either a list view, or a date and time selection view, depending on the type of report chosen.



For date based reports, a date and time selection panel will be shown. The panel shows a number of date shortcut buttons, or select a precise date/time using the calendar and clock icons.

When the correct report and criteria have been selected, press the 'Show Report' button.

For reports by Train, a list of the trains available for the particular type of report will be shown.

Click on the report icon  next to the selected entry to open the report for the selected train, which can then be viewed, saved or printed.







Seq. No	Wagon ID	Axle kg	Wheel kg	Wheel Side kg (%)	Axle Imbal. Side kg (%)	Bogie kg	Vehicle Imbal. End-End kg (%)	Side-Side kg (%)	Weight kg	Speed kph	Status
001	WAGONTAG001						80 (0.49)	480 (2.93)	16,360	3.37	Ok
		4,060	2,090	1,970 (-120 (2.96))							
		4,080	2,100	1,980 (-120 (2.94))	8,140						
		4,100	2,110	1,990 (-120 (2.93))							
		4,120	2,120	2,000 (-120 (2.91))	8,220						
002	WAGONTAG002						80 (0.50)	520 (3.27)	15,920	3.58	Ok
		3,950	1,910	2,040 (130 (3.29))							
		3,970	1,920	2,050 (130 (3.27))	7,920						
		3,990	1,930	2,060 (130 (3.26))							
		4,010	1,940	2,070 (130 (3.24))	8,000						
003	WAGONTAG003						390 (2.45)	10 (0.06)	15,950	3.39	Ok
		4,080	1,980	2,100 (120 (2.94))							
		4,090	1,980	2,110 (130 (3.18))	8,170						
		3,880	2,000	1,880 (-120 (3.09))							
		3,900	2,010	1,890 (-120 (3.08))	7,780						
004	WAGONTAG004						90 (0.56)	450 (2.81)	15,990	3.60	Ok
		3,960	2,040	1,920 (-120 (3.03))							
		3,990	2,050	1,940 (-110 (2.76))	7,950						
		4,010	2,060	1,950 (-110 (2.74))							
		4,030	2,070	1,960 (-110 (2.73))	8,040						
005	WAGONTAG005						400 (2.50)	20 (0.12)	16,020	3.41	Ok
		4,090	2,100	1,990 (-110 (2.69))							
		4,120	2,120	2,000 (-120 (2.91))	8,210						
		3,890	1,880	2,010 (130 (3.34))							
		3,920	1,900	2,020 (120 (3.06))	7,810						

Figure 18: Reports Screen

Hover the mouse in the lower right corner of the report to show the following menu:



The options are:

Icon	Description
	Resize to show full page
	Resize to show full width
	Zoom out
	Zoom in
	Save copy of the report in .pdf format
	Print copy of the report to local or networked printer

The system can be configured to print or create and save a report when a specified event has occurred. The events available are:

**Train Started, Train Weighed, Wagon Weighed and Train Matched.**

The report can be printed on one or more local or networked printers or saved as a pdf in a specified directory, which can be local to the machine or on a networked drive.

Reports can also be selected and then viewed, printed or saved from the Trains and Processing screens within I-LINE2.

### 4.8.1 In/Out Trains

An example of a train report is shown below:

Train Report											
RAILWEIGHT											
Train Identifier: 23/12/2013 16:02:22_33903 (Serial: 33903)											
Arrival Date: 23/12/2013 16:02:20											
Departure: 23/12/2013 16:02:41											
Direction:		In		Instrument:		Gross Weighbridge					
Seq. No	Wagon ID	Axle kg	Wheel kg	Wheel kg	Axle Imbal. Side kg (%)	Bogie kg	Vehicle Imbal. End - End	kg (%) Side - Side	Weight kg	Speed kph	Status
001	WAGONTAG001						240 (0.26)	360 (0.39)	91,720	5.66	Ok
		23,170	11,480	11,690	210 (0.91)						
		22,810	11,500	11,310	-190 (0.83)	45,980					
		22,850	11,520	11,330	-190 (0.83)						
		22,890	11,540	11,350	-190 (0.83)	45,740					
002	WAGONTAG002						140 (0.15)	760 (0.82)	92,180	5.47	Ok
		22,990	11,590	11,400	-190 (0.83)						
		23,030	11,610	11,420	-190 (0.83)	46,020					
		23,070	11,630	11,440	-190 (0.82)						
		23,090	11,640	11,450	-190 (0.82)	46,160					
003	WAGONTAG003						270 (0.29)	430 (0.47)	91,830	5.68	Ok
		23,210	11,700	11,510	-190 (0.82)						
		22,840	11,320	11,520	200 (0.88)	46,050					
		22,870	11,330	11,540	210 (0.92)						
		22,910	11,350	11,560	210 (0.92)	45,780					
004	WAGONTAG004						140 (0.15)	840 (0.91)	92,300	5.48	Ok
		23,030	11,410	11,620	210 (0.91)						
		23,050	11,420	11,630	210 (0.91)	46,080					
		23,090	11,440	11,650	210 (0.91)						
		23,130	11,460	11,670	210 (0.91)	46,220					
005	WAGONTAG005						160 (0.17)	760 (0.83)	91,560	5.69	Ok
		22,830	11,510	11,320	-190 (0.83)						
		22,870	11,530	11,340	-190 (0.83)	45,700					
		22,910	11,550	11,360	-190 (0.83)						
		22,950	11,570	11,380	-190 (0.83)	45,860					
006	WAGONTAG006						150 (0.16)	770 (0.83)	92,430	5.49	Ok
		23,050	11,620	11,430	-190 (0.82)						
		23,090	11,640	11,450	-190 (0.82)	46,140					
		23,130	11,660	11,470	-190 (0.82)						
		23,160	11,680	11,480	-200 (0.86)	46,290					
007	WAGONTAG007						120 (0.13)	840 (0.92)	91,680	5.31	Ok
		22,870	11,330	11,540	210 (0.92)						
		22,910	11,350	11,560	210 (0.92)	45,780					
		22,930	11,360	11,570	210 (0.92)						
		22,970	11,380	11,590	210 (0.91)	45,900					
008	WAGONTAG008						130 (0.14)	830 (0.90)	92,550	5.52	Ok
		23,090	11,440	11,650	210 (0.91)						
		23,120	11,460	11,660	200 (0.87)	46,210					
		23,150	11,470	11,680	210 (0.91)						
		23,190	11,490	11,700	210 (0.91)	46,340					
009	WAGONTAG009						160 (0.17)	760 (0.83)	91,800	5.33	Ok
		22,890	11,540	11,350	-190 (0.83)						
		22,930	11,560	11,370	-190 (0.83)	45,820					
		22,970	11,580	11,390	-190 (0.83)						
		23,010	11,600	11,410	-190 (0.83)	45,980					
010	WAGONTAG010						250 (0.27)	350 (0.38)	92,270	5.54	Ok
		23,110	11,650	11,460	-190 (0.82)						
		23,150	11,670	11,480	-190 (0.82)	46,260					
		23,190	11,690	11,500	-190 (0.82)						
		22,820	11,300	11,520	220 (0.96)	46,010					
<b>Total Train Weight:</b>									<b>920,320 kg</b>		
Maximum Train Speed:		5.69 kph									
Minimum Train Speed:		5.31 kph									
<small>Installation approved for total train accuracy. Individual wagon weights not to be used for transaction purposes</small>											
RAILWEIGHT		Page 1 of 1				Printed: 23/12/2013 16:18:23					

Figure 19: Detailed Train Report

### 4.8.2 Wagon List

An example of a Train Wagon List report is shown below:


Train List			
Train Identifier: 23/12/2013 14:30:36_38468 (Serial: 38468)			
Arrival Date: 23/12/2013 14:30:34			
Departure: 23/12/2013 14:30:55			
Direction: Out		Instrument:	Tare Weighbridge
Seq. No	Wagon ID	Weight kg	Status
001	WAGONTAG001	16,360	Ok
002	WAGONTAG002	15,920	Ok
003	WAGONTAG003	15,950	Ok
004	WAGONTAG004	15,990	Ok
005	WAGONTAG005	16,020	Ok
006	WAGONTAG006	16,060	Ok
007	WAGONTAG007	15,860	Ok
008	WAGONTAG008	16,130	Ok
009	WAGONTAG009	15,680	Ok
010	WAGONTAG010	16,200	Ok
011	WAGONTAG011	15,760	Ok
012	WAGONTAG012	16,280	Ok
013	WAGONTAG013	15,840	Ok
014	WAGONTAG014	16,110	Ok
015	WAGONTAG015	15,920	Ok
016	WAGONTAG016	16,200	Ok
017	WAGONTAG017	15,990	Ok
018	WAGONTAG018	16,010	Ok
019	WAGONTAG019	16,060	Ok
020	WAGONTAG020	15,600	Ok
<b>Total Train Weight:</b>		<b>319,940 kg</b>	
<small>Installation approved for total train accuracy. Individual wagon weights not to be used for transaction purposes</small>			
		Page 1 of 1	Printed: 23/12/2013 16:35:29

Figure 20: Wagon List Report

### 4.8.3 Net Trains

An example of a Net Train report is shown below:

Net Train Report										
Train Identifier: 23/12/2013 16:02:38_35459 (Serial: 35459)										
Arrival Date: 23/12/2013 16:02:38										
Departure Date: 23/12/2013 16:02:59										
Direction: Out										
Seq. No	Wagon ID	Wagon Weigh Dates		Wagon Weights (kg)			Speed (kph)	Status	Initial Train Identifier	
		Initial	Final	Initial	Final	Net				
001	WAGONTAG001	23/12 16:02:27	23/12 16:02:43	91,720	16,000	75,720	5.50	Ok	23/12/2013 16:02:22_33903	
002	WAGONTAG002	23/12 16:02:33	23/12 16:02:49	92,180	16,030	76,150	5.50	Ok	23/12/2013 16:02:22_33903	
003	WAGONTAG003	23/12 16:02:39	23/12 16:02:55	91,830	15,840	75,990	5.50	Ok	23/12/2013 16:02:22_33903	
004	WAGONTAG004	23/12 16:02:44	23/12 16:03:00	92,300	16,120	76,180	5.50	Ok	23/12/2013 16:02:22_33903	
005	WAGONTAG005	23/12 16:02:50	23/12 16:03:06	91,560	15,910	75,650	5.50	Ok	23/12/2013 16:02:22_33903	
006	WAGONTAG006	23/12 16:02:55	23/12 16:03:11	92,430	16,170	76,260	5.50	Ok	23/12/2013 16:02:22_33903	
007	WAGONTAG007	23/12 16:03:01	23/12 16:03:17	91,680	15,900	75,780	5.50	Ok	23/12/2013 16:02:22_33903	
008	WAGONTAG008	23/12 16:03:06	23/12 16:03:23	92,550	16,310	76,240	5.50	Ok	23/12/2013 16:02:22_33903	
009	WAGONTAG009	23/12 16:03:12	23/12 16:03:28	91,800	15,850	75,950	5.50	Ok	23/12/2013 16:02:22_33903	
010	WAGONTAG010	23/12 16:03:18	23/12 16:03:34	92,270	16,360	75,910	5.50	Ok	23/12/2013 16:02:22_33903	
<b>Total Train Weights (kg):</b>				<b>920,320</b>	<b>160,490</b>	<b>759,830</b>				
Maximum Train Speed:		5.50 kph								
Minimum Train Speed:		5.50 kph								

Installation approved for total train accuracy. Individual wagon weights not to be used for transaction purposes

## 4.9 Export Files

The system can be configured to provide a data file when a specified event has occurred. The events available are:

### Train Started, Train Weighed, Wagon Weighed and Train Matched.

The data file will be created in a specified directory, which can be local to the machine or on a networked drive. The system has a number of preconfigured XML and CSV formats, which are detailed below. If required the data output can be modified using an XSL transform file to specify the style, the format and the file extension (html, csv, txt, etc.)

#### 4.9.1 Train Started XML file

If configured, a file with the following format can be created at the start of each train.

**File Name: TrainID\_TrainSerialNo.xml**

**e.g. 47\_35084.xml**

```
<?xml version="1.0" encoding="utf-16"?>
<Train xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <TrainID>47</TrainID>
  <InstrumentID>3</InstrumentID>
  <StartDate>2013-04-19T11:40:22</StartDate>
  <Identifier>19/04/2013 11:42:49_35084</Identifier>
  <SerialNumber>35084</SerialNumber>
  <EndDate>2013-04-19T11:42:49.1607722+01:00</EndDate>
  <MinimumSpeed>0</MinimumSpeed>
  <MaximumSpeed>0</MaximumSpeed>
  <Direction>true</Direction>
  <Completed>false</Completed>
  <Matched>true</Matched>
  <Weight>0</Weight>
  <SystemStatus>StatusOk</SystemStatus>
  <LowestTrainSpeedBelowMinimumLimit>false</LowestTrainSpeedBelowMinimumLimit>
  <HighestTrainSpeedExceededMarginalLimit>false</HighestTrainSpeedExceededMarginalLimit>
  <HighestTrainSpeedExceededMaximumLimit>false</HighestTrainSpeedExceededMaximumLimit>
  <TrackSwitchMalfunction>false</TrackSwitchMalfunction>
  <TrainEndedInRollbackState>false</TrainEndedInRollbackState>
  <TrainLengthExceededWagonWeighingLimit>false</TrainLengthExceededWagonWeighingLimit>
  <WeighingMode>IndividualWagon</WeighingMode>
  <TrainWeighingAborted>false</TrainWeighingAborted>
  <MaximumTrainLengthExceeded>false</MaximumTrainLengthExceeded>
  <AnalysisStatus>NoProblemDetected</AnalysisStatus>
  <TrackSwitchTimeout>false</TrackSwitchTimeout>
  <SubProblem>true</SubProblem>
  <SystemStatusText>Ok</SystemStatusText>
  <WeighingModeText>Individual wagon</WeighingModeText>
  <AnalysisStatusText>No Problem Detected</AnalysisStatusText>
  <DirectionText>In</DirectionText>
  <WagonCount>0</WagonCount>
  <WagonsMatched>0</WagonsMatched>
  <Processed>0</Processed>
  <InstrumentName>Track 1</InstrumentName>
  <Wagons />
</Train>
```

## 4.9.2 Train Weighed XML file

If configured, a file with the following format can be created after each train has been weighed.

**File Name: TrainID\_TrainSerialNo.xml**

**e.g. 47\_35084.xml**

```
<?xml version="1.0" encoding="utf-16"?>
<Train xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  Train data as per Train Started XML File...
  then
  <wagons>
    <wagon>
      <wagonID>320</wagonID>
      <TrainID>51</TrainID>
      <SequenceNumber>1</SequenceNumber>
      <Identifier>0000001_AVI_AUTO_NUM</Identifier>
      <Speed>5.6</Speed>
      <wagonType>1</wagonType>
      <weighedDate>2013-04-19T12:18:40.4538753+01:00</weighedDate>
      <weighStatus>VehicleWeighed</weighStatus>
      <SpeedStatus>SpeedOk</SpeedStatus>
      <SystemStatus>StatusOk</SystemStatus>
      <TagCount>1</TagCount>
      <AxleCount>4</AxleCount>
      <udf1 />
      <udf2 />
      <udf3 />
      <udf4 />
      <udf5 />
      <weight>15980</weight>
      <ManualWeight>15980</ManualWeight>
      <Matched>false</Matched>
      <FrontWeight>7980</FrontWeight>
      <BackWeight>8000</BackWeight>
      <OddSideWeight>8030</OddSideWeight>
      <EvenSideWeight>7950</EvenSideWeight>
      <wheelCount>8</wheelCount>
      <SubProblem>false</SubProblem>
      <IsTare>false</IsTare>
      <HasProblem>false</HasProblem>
      <weighStatusText>Vehicle Weighed</weighStatusText>
      <SpeedStatusText>Speed Ok</SpeedStatusText>
      <SystemStatusText>Ok</SystemStatusText>
      <MaximumTareLimit>40000</MaximumTareLimit>
      <IsOverMaximumTareLimit>false</IsOverMaximumTareLimit>
      <MinimumTareLimit>20000</MinimumTareLimit>
      <IsUnderMinimumTareLimit>true</IsUnderMinimumTareLimit>
      <OverSpeedLimit>10</OverSpeedLimit>
      <IsOverSpeedLimit>false</IsOverSpeedLimit>
      <OverWeightLimit>100000</OverWeightLimit>
      <IsOverWeightLimit>false</IsOverWeightLimit>
      <OverSideToSideImbalanceLimit>10</OverSideToSideImbalanceLimit>
      <IsOverSideToSideImbalanceAmountLimit>false</IsOverSideToSideImbalanceAmountLimit>
      <IsOverEndToEndImbalanceLimit>10</IsOverEndToEndImbalanceLimit>
      <IsOverEndToEndImbalanceAmountLimit>false</IsOverEndToEndImbalanceAmountLimit>
      <SideToSideImbalanceAmount>80</SideToSideImbalanceAmount>
      <SideToSideImbalancePercentage>0.99626400996264008</SideToSideImbalancePercentage>
      <EndToEndImbalanceAmount>20</EndToEndImbalanceAmount>
      <EndToEndImbalancePercentage>0.25</EndToEndImbalancePercentage>
    </Bogies>
    <Bogie>
      <BogieID>639</BogieID>
      <WagonID>320</WagonID>
      <TrainID>51</TrainID>
      <SequenceNumber>1</SequenceNumber>
      <Weight>7980</Weight>
      <OddSideWeight>4010</OddSideWeight>
      <EvenSideWeight>3970</EvenSideWeight>
      <WheelCount>4</WheelCount>
      <SubProblem>false</SubProblem>
      <HasProblem>false</HasProblem>
      <OverWeightLimit>50000</OverWeightLimit>
      <IsOverWeightLimit>false</IsOverWeightLimit>
      <Axles>
        <Axle>
          <AxleID>1277</AxleID>
          <BogieID>639</BogieID>
          <WagonID>320</WagonID>
          <TrainID>51</TrainID>
          <SequenceNumber>1</SequenceNumber>
          <OddSideWeight>2000</OddSideWeight>
          <EvenSideWeight>1980</EvenSideWeight>
          <Weight>3980</Weight>
          <SubProblem>false</SubProblem>
          <HasProblem>false</HasProblem>
          <OverWeightLimit>25000</OverWeightLimit>
          <IsOverWeightLimit>false</IsOverWeightLimit>
          <Wheel1>
            <WheelID>2553</WheelID>
            <AxleID>1277</AxleID>
            <BogieID>639</BogieID>
            <WagonID>320</WagonID>
            <TrainID>51</TrainID>
            <SequenceNumber>1</SequenceNumber>
            <Weight>2000</Weight>
            <SystemStatus>StatusOk</SystemStatus>
            <HasProblem>false</HasProblem>
            <SystemStatusText>Ok</SystemStatusText>
            <OverWeightLimit>12500</OverWeightLimit>
            <IsOverWeightLimit>false</IsOverWeightLimit>
          </Wheel1>
          <Wheel2>
            ...
          </Wheel2>
        </Axle>
        ...
      </Axles>
    </Bogie>
  </wagons>
  sequence repeats for each Axle, Bogie and Wagon...

```



### 4.9.3 Wagon Weighed XML file

If configured, a file with the following format can be created after each wagon has been weighed.

**File Name: WagonID\_WagonIdentifier.xml**

**e.g. 323\_000001\_AVI\_AUTO\_NUM.xml**

```
<?xml version="1.0" encoding="utf-16"?>
<wagon xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <wagonID>323</wagonID>
  <TrainID>53</TrainID>
  <SequenceNumber>1</SequenceNumber>
  <Identifier>000001_AVI_AUTO_NUM</Identifier>
  <Speed>6.6</Speed>
  <WagonType>1</WagonType>
  <WeighedDate>2013-04-19T12:53:39.8117901+01:00</WeighedDate>
  <WeighStatus>VehicleWeighed</WeighStatus>
  <SpeedStatus>SpeedOk</SpeedStatus>
  <SystemStatus>StatusOk</SystemStatus>
  <TagCount>1</TagCount>
  <AxleCount>4</AxleCount>
  <Udf1 />
  <Udf2 />
  <Udf3 />
  <Udf4 />
  <Udf5 />
  <Weight>48000</Weight>
  <ManualWeight>48000</ManualWeight>
  <Matched>false</Matched>
  <FrontWeight>24000</FrontWeight>
  <BackWeight>24000</BackWeight>
  <OddSideWeight>23960</OddSideWeight>
  <EvenSideWeight>24040</EvenSideWeight>
  <WheelCount>8</WheelCount>
  <SubProblem>false</SubProblem>
  <IsTare>false</IsTare>
  <HasProblem>false</HasProblem>
  <WeighStatusText>Vehicle weighed</WeighStatusText>
  <SpeedStatusText>Speed Ok</SpeedStatusText>
  <SystemStatusText>Ok</SystemStatusText>
  <MaximumTareLimit>40000</MaximumTareLimit>
  <IsOverMaximumTareLimit>true</IsOverMaximumTareLimit>
  <MinimumTareLimit>20000</MinimumTareLimit>
  <IsUnderMinimumTareLimit>false</IsUnderMinimumTareLimit>
  <OverSpeedLimit>10</OverSpeedLimit>
  <IsOverSpeedLimit>false</IsOverSpeedLimit>
  <OverWeightLimit>100000</OverWeightLimit>
  <IsOverWeightLimit>false</IsOverWeightLimit>
  <OverSideToSideImbalanceLimit>10</OverSideToSideImbalanceLimit>
  <IsOverSideToSideImbalanceAmountLimit>false</IsOverSideToSideImbalanceAmountLimit>
  <OverEndToEndImbalanceLimit>10</OverEndToEndImbalanceLimit>
  <IsOverEndToEndImbalanceAmountLimit>false</IsOverEndToEndImbalanceAmountLimit>
  <SideToSideImbalanceAmount>80</SideToSideImbalanceAmount>
  <SideToSideImbalancePercentage>0.33277870216306155</SideToSideImbalancePercentage>
  <EndToEndImbalanceAmount>0</EndToEndImbalanceAmount>
  <EndToEndImbalancePercentage>0</EndToEndImbalancePercentage>
  <Bogie>
    <BogieID>645</BogieID>
    <wagonID>323</wagonID>
    <TrainID>53</TrainID>
    <SequenceNumber>1</SequenceNumber>
    <Weight>24000</Weight>
    <OddSideWeight>11980</OddSideWeight>
    <EvenSideWeight>12020</EvenSideWeight>
    <WheelCount>4</WheelCount>
    <SubProblem>false</SubProblem>
    <HasProblem>false</HasProblem>
    <OverWeightLimit>50000</OverWeightLimit>
    <IsOverWeightLimit>false</IsOverWeightLimit>
    <Axles>
      <AxleID>1289</AxleID>
      <BogieID>645</BogieID>
      <wagonID>323</wagonID>
      <TrainID>53</TrainID>
      <SequenceNumber>1</SequenceNumber>
      <OddSideWeight>5990</OddSideWeight>
      <EvenSideWeight>6010</EvenSideWeight>
      <Weight>12000</Weight>
      <SubProblem>false</SubProblem>
      <HasProblem>false</HasProblem>
      <OverWeightLimit>25000</OverWeightLimit>
      <IsOverWeightLimit>false</IsOverWeightLimit>
      <Wheel1>
        <WheelID>2577</WheelID>
        <AxleID>1289</AxleID>
        <BogieID>645</BogieID>
        <wagonID>323</wagonID>
        <TrainID>53</TrainID>
        <SequenceNumber>1</SequenceNumber>
        <Weight>5990</Weight>
        <SystemStatus>StatusOk</SystemStatus>
        <HasProblem>false</HasProblem>
        <SystemStatusText>Ok</SystemStatusText>
        <OverWeightLimit>12500</OverWeightLimit>
        <IsOverWeightLimit>false</IsOverWeightLimit>
      </Wheel1>
      <Wheel2>
        ...
      </Wheel2>
    </Axle>
  </Bogie>
  <Sequence repeats for each Axle, Bogie and Wagon...>
```



#### 4.9.4 Train Matched XML file

If configured, a file with the following format can be created after a train has been matched.

**File Name: MatchID\_FirstTrainID\_SecondTrainID.xml**

**e.g. 45\_46\_47.xml**

```
<?xml version="1.0" encoding="utf-16"?>
<MatchedTrainSet xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <ID>45</ID>
  <MatchDate>2013-04-19T10:38:01.81</MatchDate>
  <SourceTrainID>46</SourceTrainID>
  <MatchedTrainID>47</MatchedTrainID>
  <LoadingType>3</LoadingType>
  <Processed>false</Processed>
  <SourceTrainStartDate>2013-04-19T10:38:00</SourceTrainStartDate>
  <SourceTrainEndDate>2013-04-19T10:38:21</SourceTrainEndDate>
  <SourceTrainIdentifier>19/04/2013 10:38:01_25580</SourceTrainIdentifier>
  <SourceTrainMinimumSpeed>6.4</SourceTrainMinimumSpeed>
  <SourceTrainMaximumSpeed>6.8</SourceTrainMaximumSpeed>
  <SourceTrainDirection>false</SourceTrainDirection>
  <SourceTrainCompleted>true</SourceTrainCompleted>
  <SourceTrainMatched>true</SourceTrainMatched>
  <SourceTrainInstrumentID>3</SourceTrainInstrumentID>
  <SourceTrainInstrumentName>Track 1</SourceTrainInstrumentName>
  <SourceTrainSerialNumber>25580</SourceTrainSerialNumber>
  <SourceTrainWeight>639990</SourceTrainWeight>
  <MatchedTrainStartDate>2013-04-19T10:40:00</MatchedTrainStartDate>
  <MatchedTrainEndDate>2013-04-19T10:42:00</MatchedTrainEndDate>
  <MatchedTrainMinimumSpeed>6.5</MatchedTrainMinimumSpeed>
  <MatchedTrainMaximumSpeed>6.7</MatchedTrainMaximumSpeed>
  <MatchedTrainDirection>false</MatchedTrainDirection>
  <MatchedTrainCompleted>true</MatchedTrainCompleted>
  <MatchedTrainMatched>true</MatchedTrainMatched>
  <MatchedTrainInstrumentID>3</MatchedTrainInstrumentID>
  <MatchedTrainSerialNumber>25581</MatchedTrainSerialNumber>
  <MatchedTrainWeight>100000</MatchedTrainWeight>
  <SourceTrainDirectionText>out</SourceTrainDirectionText>
  <MatchedTrainDirectionText>Out</MatchedTrainDirectionText>
  <GrossWeight>639990</GrossWeight>
  <TareWeight>100000</TareWeight>
  <NetWeight>539990</NetWeight>
  <MatchedWagons>
    <MatchedWagonSet>
      <ID>282</ID>
      <MatchID>45</MatchID>
      <MatchDate>2013-04-19T10:38:01.81</MatchDate>
      <SourceTrainID>46</SourceTrainID>
      <MatchedTrainID>47</MatchedTrainID>
      <LoadingType>3</LoadingType>
      <Processed>false</Processed>
      <WagonMatchID>45</WagonMatchID>
      <SourceWagonID>287</SourceWagonID>
      <MatchedWagonID>358</MatchedWagonID>
      <SourceWagonSequenceNumber>1</SourceWagonSequenceNumber>
      <SourceWagonIdentifier>000001_AVI_AUTO_NUM</SourceWagonIdentifier>
      <SourceWagonWeight>64020</SourceWagonWeight>
      <SourceWagonSpeed>6.6</SourceWagonSpeed>
      <SourceWagonWeighedDate>2013-04-19T10:38:07.317</SourceWagonWeighedDate>
      <SourceWagonWagonType>1</SourceWagonWagonType>
      <SourceWagonWeighStatus>1</SourceWagonWeighStatus>
      <SourceWagonSpeedStatus>1</SourceWagonSpeedStatus>
      <SourceWagonSystemStatus>1</SourceWagonSystemStatus>
      <SourceWagonTagCount>1</SourceWagonTagCount>
      <SourceWagonAxleCount>4</SourceWagonAxleCount>
      <SourceWagonUdf1 />
      <SourceWagonUdf2 />
      <SourceWagonUdf3 />
      <SourceWagonUdf4 />
      <SourceWagonUdf5 />
      <SourceWagonMatched>true</SourceWagonMatched>
      <MatchedWagonSequenceNumber>1</MatchedWagonSequenceNumber>
      <MatchedWagonWeight>10020</MatchedWagonWeight>
      <MatchedWagonSpeed>6.5</MatchedWagonSpeed>
      <MatchedWagonWeighedDate>2013-04-19T10:40:00</MatchedWagonWeighedDate>
      <MatchedWagonWeighStatus>1</MatchedWagonWeighStatus>
      <MatchedWagonSpeedStatus>1</MatchedWagonSpeedStatus>
      <MatchedWagonSystemStatus>1</MatchedWagonSystemStatus>
      <MatchedWagonTagCount>1</MatchedWagonTagCount>
      <MatchedWagonAxleCount>4</MatchedWagonAxleCount>
      <MatchedWagonMatched>true</MatchedWagonMatched>
      <TareWeight>10020</TareWeight>
      <GrossWeight>64020</GrossWeight>
      <NetWeight>54020</NetWeight>
    </MatchedWagonSet>
    <MatchedWagonSet>
      <ID>282</ID>
      <MatchID>45</MatchID>
      <MatchDate>2013-04-19T10:38:01.81</MatchDate>
      <SourceTrainID>46</SourceTrainID>
      <MatchedTrainID>47</MatchedTrainID>
      <LoadingType>3</LoadingType>
      <Processed>false</Processed>
      <WagonMatchID>45</WagonMatchID>
      <SourceWagonID>287</SourceWagonID>
      <MatchedWagonID>358</MatchedWagonID>
      <SourceWagonSequenceNumber>1</SourceWagonSequenceNumber>
      <SourceWagonIdentifier>000001_AVI_AUTO_NUM</SourceWagonIdentifier>
      <SourceWagonWeight>64020</SourceWagonWeight>
      <SourceWagonSpeed>6.6</SourceWagonSpeed>
      <SourceWagonWeighedDate>2013-04-19T10:38:07.317</SourceWagonWeighedDate>
      <SourceWagonWagonType>1</SourceWagonWagonType>
      <SourceWagonWeighStatus>1</SourceWagonWeighStatus>
      <SourceWagonSpeedStatus>1</SourceWagonSpeedStatus>
      <SourceWagonSystemStatus>1</SourceWagonSystemStatus>
      <SourceWagonTagCount>1</SourceWagonTagCount>
      <SourceWagonAxleCount>4</SourceWagonAxleCount>
      <SourceWagonUdf1 />
      <SourceWagonUdf2 />
      <SourceWagonUdf3 />
      <SourceWagonUdf4 />
      <SourceWagonUdf5 />
      <SourceWagonMatched>true</SourceWagonMatched>
      <MatchedWagonSequenceNumber>1</MatchedWagonSequenceNumber>
      <MatchedWagonWeight>10020</MatchedWagonWeight>
      <MatchedWagonSpeed>6.5</MatchedWagonSpeed>
      <MatchedWagonWeighedDate>2013-04-19T10:40:00</MatchedWagonWeighedDate>
      <MatchedWagonWeighStatus>1</MatchedWagonWeighStatus>
      <MatchedWagonSpeedStatus>1</MatchedWagonSpeedStatus>
      <MatchedWagonSystemStatus>1</MatchedWagonSystemStatus>
      <MatchedWagonTagCount>1</MatchedWagonTagCount>
      <MatchedWagonAxleCount>4</MatchedWagonAxleCount>
      <MatchedWagonMatched>true</MatchedWagonMatched>
      <TareWeight>10020</TareWeight>
      <GrossWeight>64020</GrossWeight>
      <NetWeight>54020</NetWeight>
    </MatchedWagonSet>
    <MatchedWagonSet>
      <ID>282</ID>
      <MatchID>45</MatchID>
      <MatchDate>2013-04-19T10:38:01.81</MatchDate>
      <SourceTrainID>46</SourceTrainID>
      <MatchedTrainID>47</MatchedTrainID>
      <LoadingType>3</LoadingType>
      <Processed>false</Processed>
      <WagonMatchID>45</WagonMatchID>
      <SourceWagonID>287</SourceWagonID>
      <MatchedWagonID>358</MatchedWagonID>
      <SourceWagonSequenceNumber>1</SourceWagonSequenceNumber>
      <SourceWagonIdentifier>000001_AVI_AUTO_NUM</SourceWagonIdentifier>
      <SourceWagonWeight>64020</SourceWagonWeight>
      <SourceWagonSpeed>6.6</SourceWagonSpeed>
      <SourceWagonWeighedDate>2013-04-19T10:38:07.317</SourceWagonWeighedDate>
      <SourceWagonWagonType>1</SourceWagonWagonType>
      <SourceWagonWeighStatus>1</SourceWagonWeighStatus>
      <SourceWagonSpeedStatus>1</SourceWagonSpeedStatus>
      <SourceWagonSystemStatus>1</SourceWagonSystemStatus>
      <SourceWagonTagCount>1</SourceWagonTagCount>
      <SourceWagonAxleCount>4</SourceWagonAxleCount>
      <SourceWagonUdf1 />
      <SourceWagonUdf2 />
      <SourceWagonUdf3 />
      <SourceWagonUdf4 />
      <SourceWagonUdf5 />
      <SourceWagonMatched>true</SourceWagonMatched>
      <MatchedWagonSequenceNumber>1</MatchedWagonSequenceNumber>
      <MatchedWagonWeight>10020</MatchedWagonWeight>
      <MatchedWagonSpeed>6.5</MatchedWagonSpeed>
      <MatchedWagonWeighedDate>2013-04-19T10:40:00</MatchedWagonWeighedDate>
      <MatchedWagonWeighStatus>1</MatchedWagonWeighStatus>
      <MatchedWagonSpeedStatus>1</MatchedWagonSpeedStatus>
      <MatchedWagonSystemStatus>1</MatchedWagonSystemStatus>
      <MatchedWagonTagCount>1</MatchedWagonTagCount>
      <MatchedWagonAxleCount>4</MatchedWagonAxleCount>
      <MatchedWagonMatched>true</MatchedWagonMatched>
      <TareWeight>10020</TareWeight>
      <GrossWeight>64020</GrossWeight>
      <NetWeight>54020</NetWeight>
    </MatchedWagonSet>
  </MatchedWagons>
</MatchedTrainSet>
```

#### 4.9.5 Wagon Weighed CSV file

Many existing systems produce a csv format output file. I-LINE2 can produce similar files, examples of which are given below.

If configured, a file with the following format can be created after each wagon has been weighed.

**File Name:** TrainSerialNo\_VehicleSeqNo\_Direction\_DDMMYYYY\_HHMMSS.csv  
**e.g.** 00001\_01\_In\_01012014\_115959.csv

The file is produced with the following data:

A single line for the wagon as follows  
**V, Sequence No, Weight<sup>1</sup>, Type, Speed<sup>2</sup>,**  
 A file checksum (for backwards compatibility only, the CRC value will always be '0000')  
**CRC, XXXX**

e.g.  
 V,001,007970,01,000540,  
 CRC,0000

#### 4.9.6 Train Matched CSV file

If configured, a file with the following format can be created after a train has been matched.

**File Name:** TrainSerialNo\_DDMMYYYY\_HHMMSS.csv  
**e.g.** 00002\_01012014\_115959.csv

The file is produced with the following data:

Single line Train Header  
**H, InTrainSerialNo, InStartDate, InStartTime,**  
 Then a line for each vehicle in the train as follows  
**V, Sequence No, InWeight<sup>1</sup>, OutWeight<sup>1</sup>, NetWeight<sup>1</sup>, Type, InSpeed<sup>2</sup>, OutSpeed<sup>2</sup>,**  
 Then a single line train footer  
**F, OutTrainSerialNo, OutEndDate, OutEndTime, TrainInWt<sup>1</sup>, TrainOutWt<sup>1</sup>,**  
**TrainNetWt<sup>1</sup>, OutMaxSpeed<sup>2</sup>, OutMinSpeed<sup>2</sup>, OutVehicleCount,**  
 A file checksum (for backwards compatibility only, the CRC value will always be '0000')  
**CRC, XXXX**

e.g.  
 H,00001,01012014,110101,  
 V,001,100030,007970,092060,01,000540,000560,  
 V,002,099940,008030,091910,01,000540,000560,  
 .  
 .  
 V,020,100040,007960,092080,01,000540,000560,  
 F,00002,01012014,115959,01000090,00079990,00920100,000560,000540,020,  
 CRC,0000

Notes:

- 1) Values given are in kg or Pounds depending on system configuration
- 2) Values given are in kph x 100 or mph x 100 depending on system configuration

## 4.10 System Settings

The system settings cover the management of User Defined Fields, Alarm Limits, Languages, Users and Advanced Settings. Access to some settings are restricted dependent on the user privileges, see section 4.10.5.

### 4.10.1 User Defined Fields

This section is only relevant if 'User Defined Fields' (UDFs) have been set up for your system. UDFs allow the entry of additional information into the Train Information Database, which can then be shown in the trains grid or printed on reports. The additional information could include Product, Customer or other user definable text. The 'User Defined Fields' tab allows the entry of values to add to a list for each pre-configured field, so that they can be selected at entry time. By selecting entries from a list the integrity of the information is improved by preventing misspelled or mistyped entries.

Up to five separate UDFs can be configured for a system, and an unlimited number of values can be entered for each field.

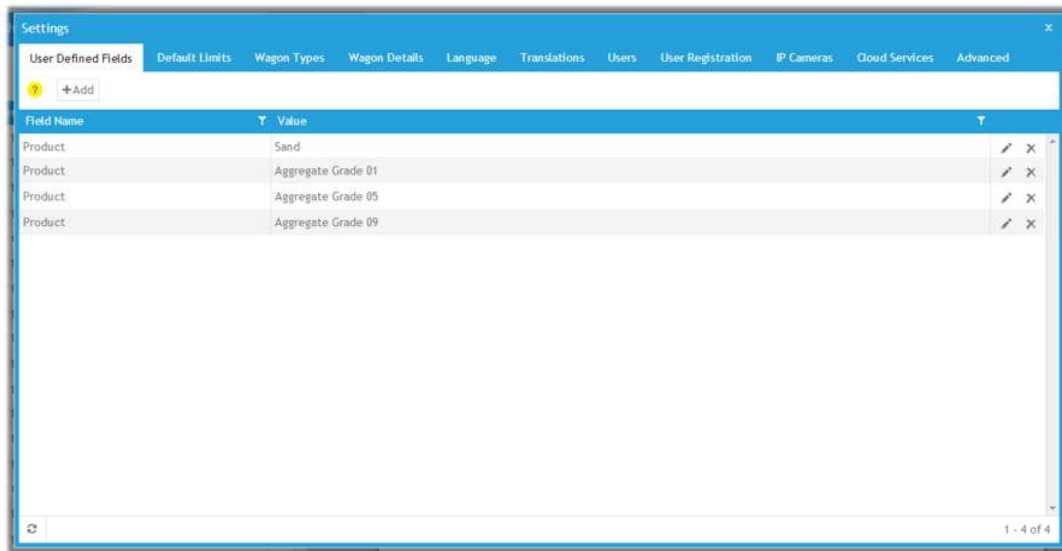


Figure 21: User Defined Fields

#### Adding a value to a preconfigured UDF

To add a new value to a UDF, click on the **+Add** icon in the upper left corner of the window. A new line in the UDF table will appear with entries for Field Name, and Value. The 'Field Name' is a selectable option from one of the configured UDFs on the system. Once the details have been entered, click on the **✓** icon to save the new values. To discard the changes without saving, click on the **✕** icon.

Each value assigned to a UDF will be available for selection when entering the train details.

#### Changing UDF Value details

To edit the details for a UDF Value, click on the **✎** icon at the end of the row. When the changes have been made, click on the **✓** icon to save the new values. To discard the changes without saving, click on the **✕** icon.

#### Deleting UDF Value details

To delete a UDF Value and the associated details, click on the **✕** icon at the end of the row. A confirmation message will be shown before the details are deleted.

### 4.10.2 Wagon Limits

The system has three levels of limit or threshold within which the trains and wagons must be measured or an alarm will be raised. The limits can be defined for a particular wagon, a wagon type or globally. The default limits apply globally. If a particular wagon doesn't have an entry in the Wagon Details Table, and the Wagon Type is not listed in the Wagon Type Table, then the global limits will apply. The limits are applied as each wagon is weighed, in order to raise alarms, so only wagons using an Automatic Vehicle Identification (AVI) scheme such as Radio Frequency Identification (RFID) tags can utilise the wagon detail limits. The limits applied to a wagon are saved with the wagon details so changes made to the limits after a weight has been taken will not be applied retrospectively.

The following limits can be set:

Limit Type	Description
Max. Speed	Wagon speed must be below this value.
Min. Tare	Where a tare instrument / direction is specified, the tare value must be above this value.
Max. Tare	Where a tare instrument / direction is specified, the tare value must be below this value.
Overload Warning (%)	A percentage value below the Wagon Overload. Wagon weights within the overload warning limits will not generate an alarm, but the value may be used internally to generate specific reports.
Wagon Overload	The wagon weight must be below this value.
Bogie Overload	The bogie weight must be below this value.
Axle Overload	The axle weight must be below this value.
Wheel Overload	The wheel weight must be below this value.
Side Imbal. (%)	The percentage difference in weight between the odd and even sides of each wagon must be below this value.
End Imbal. (%)	The percentage difference in weight between the front and rear of each wagon must be below this value.

#### 4.10.2.1 DEFAULT LIMITS

To change the global or default limits, select the 'Default Limits' tab from the 'Settings' window. Click on the icon to edit any of the values. When the changes have been made, click on the icon to save the new values. To discard the changes without saving, click on the icon.



### 4.10.2.2 WAGON TYPES

To make changes to the wagon types, select the 'Wagon Types' tab from the 'Settings' window.

Type	Description	Axles per Bogie	Tare Weight	Tare Updated
-1	Default Tare Value	2	6,000 kg	07/11/2014 11:31:48
1	Standard 2 Axle Wagon	1	5,580 kg	07/11/2014 11:32:21
2	Standard 4 Axle Wagon	2	6,420 kg	07/11/2014 11:32:55

#### Adding Wagon Types

To add a new wagon type to the system, click on the icon in the upper left corner of the window. A new line in the wagon type table will appear with values for Type, Description, Axles per Bogie, Tare Weight and Tare Updated date. 'Type' is the value from the weighing instrument vehicle lookup table. 'Description' is the field that will be displayed in the Wagons page in the Train Details window. If the system uses stored tares which are selected by wagon type then enter a tare value to use. To declare a default tare value for wagons which are not found in the wagon type table enter a wagon with a type of -1.

Once the details have been entered, click on the icon to save the new values. To discard the changes without saving, click on the icon.

#### Changing Wagon Type Limits

To edit the limits for a wagon type, click on the icon at the beginning of the row you wish to edit. The row will expand to show the limits, click on the icon to edit any of the values. When the changes have been made, click on the icon to save the new values. To discard the changes without saving, click on the icon.

Note: Only the tare value will apply to a default tare wagon (if used) - not the limits.

Type	Description	Axles per Bogie	Tare Weight	Tare Updated																					
-1	Default Tare Value	2	6,000 kg	07/11/2014 11:31:48																					
1	Standard 2 Axle Wagon	1	5,580 kg	07/11/2014 11:32:21																					
2	Standard 4 Axle Wagon	2	6,420 kg	07/11/2014 11:32:55																					
<table border="1"> <thead> <tr> <th>Max. Speed</th> <th>Min. Tare</th> <th>Max. Tare</th> <th>Overload Warning</th> <th>Wagon Overload</th> <th>Bogie Overload</th> <th>Axle Overload</th> <th>Wheel Overload</th> <th>Side Imbal.</th> <th>End Imbal.</th> </tr> </thead> <tbody> <tr> <td>10.00 km/h</td> <td>20,000 kg</td> <td>40,000 kg</td> <td>0.0000 % </td> <td>Overload</td> <td>100,000 kg</td> <td>50,000 kg</td> <td>25,000 kg</td> <td>12,500 kg</td> <td>10,0000 %</td> <td>10,0000 %</td> </tr> </tbody> </table>					Max. Speed	Min. Tare	Max. Tare	Overload Warning	Wagon Overload	Bogie Overload	Axle Overload	Wheel Overload	Side Imbal.	End Imbal.	10.00 km/h	20,000 kg	40,000 kg	0.0000 %	Overload	100,000 kg	50,000 kg	25,000 kg	12,500 kg	10,0000 %	10,0000 %
Max. Speed	Min. Tare	Max. Tare	Overload Warning	Wagon Overload	Bogie Overload	Axle Overload	Wheel Overload	Side Imbal.	End Imbal.																
10.00 km/h	20,000 kg	40,000 kg	0.0000 %	Overload	100,000 kg	50,000 kg	25,000 kg	12,500 kg	10,0000 %	10,0000 %															

#### Deleting Wagon Types

To delete a wagon type and the associated limits, click on the icon at the end of the row. A confirmation message will be shown before the wagon type is deleted.

### 4.10.2.3 WAGON DETAILS

To make changes to a specific wagon, select the 'Wagon Details' tab from the 'Settings' window.

Wagon Identifier	Tare Weight	Tare Updated	RFID Lookup1	RFID Lookup2
ABC001DEF	3,000 kg	12/09/2014 11:50:33		
ABC002DEF	3,100 kg	12/09/2014 11:51:03		

#### Adding Wagon Details

To add a new wagon to the system, click on the icon in the upper left corner of the window. A new line in the wagon details table will appear with values for Wagon Identifier, Tare Weight, Tare Updated date, and lookup values for Automatic Vehicle Identification/RFID Tags. The system can identify wagons by comparing the ID from the AVI reader with the value in Wagon

Identifier or values in either RFID Lookup1 or 2. For the system to recognise the wagon, the identifier must be in the same format as that received from the AVI System. The tare weight and lookup values are optional.

Once the details have been entered, click on the ✓ icon to save the new values. To discard the changes without saving, click on the ✕ icon.

**Changing Wagon Limits**

To edit the limits for a specific wagon, click on the ▶ icon at the beginning of the row you wish to edit. The row will expand to show the limits, click on the ✎ icon to edit any of the values. When the changes have been made, click on the ✓ icon to save the new values. To discard the changes without saving, click on the ✕ icon.



Settings											
User Defined Fields    Default Limits    Wagon Types <b>Wagon Details</b> Language    Translations    Users    User Registration    IP Cameras    Cloud Services    Advanced											
+Add											
Wagon Identifier	Tare Weight	Tare Updated		RFID Lookup1		RFID Lookup2					
▶ ABC001DEF	3,000 kg	07/11/2014 11:38:51									✎ ✕
▶ ABC002DEF	3,010 kg	07/11/2014 11:39:04									✎ ✕
Max. Speed	Min. Tare	Max. Tare	Overload Warning	Wagon Overload	Dogie Overload	Axle Overload	Wheel Overload	Slide Inhibit	Crd. Inhibit		
10.00 km/h	20,000 kg	-40,000 kg	0.0000 % ↓ Overload	100,000 kg	50,000 kg	25,000 kg	12,500 kg	10.0000 %	10.0000 %		✎


**Deleting Wagons**



To delete a wagon and the associated limits, click on the ✕ icon at the end of the row. A confirmation message will be shown before the wagon is deleted.

### 4.10.3 Language

The software is capable of displaying in any language supported by the operating system and browser. If the system is requested with an alternative language this can be pre-configured, although it is possible to add additional languages at a later date.




#### Adding a Language

To add a new language to the system, select the 'Languages' tab from the settings window, and click on the  icon in the upper left corner of the window. A new line in the language table will appear with a field for Name. Enter the name of the language, in the language in which you want it to appear.

Once the details have been entered, click on the  icon to save the new values. To discard the changes without saving, click on the  icon. When a new language is added a new set of translations will be generated, which may take a short while. **Please ensure the icon is only clicked once to prevent the generation of multiple language files.**

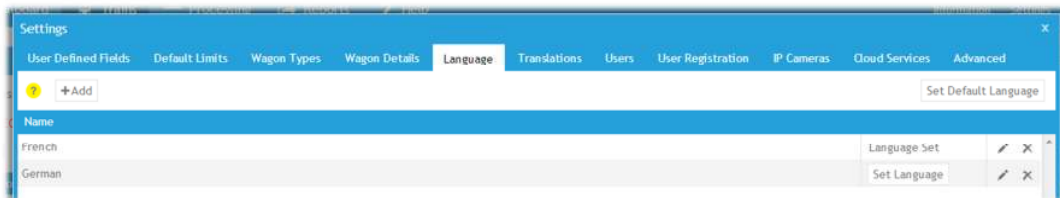


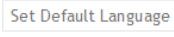
#### Changing the Language Name

To edit the language name, click on the  icon. When the change has been made, click on the  icon to save the new value. To discard the change without saving, click on the  icon.


#### Selecting a Language


To select a language, click **Set Language** for the language you wish to display. The screen will reload in the new language.



To return to the default English text select 

#### Deleting Languages

To delete a language and the associated translations, click on the  icon at the end of the row. A confirmation message will be shown before the language is deleted.

 **CAUTION:** All of the language translations will be permanently deleted and cannot be retrieved.



#### 4.10.4 Translations

The application text can be customised to show different text to the default. This allows for different languages to be displayed but can also be used to customise text to help users understand the system better or use company / industry specific terms.




To modify the displayed text, it is necessary to first add a new language, see 'Adding a Language'.

Once at least one language has been added, select the 'Translations' tab, and then select the name of the language for which you wish to modify the translation text.

Each segment of text in the application has a line in the translations table. The default translation is generated in English. The column labelled 'Text' is the text displayed on screen in the default English language. The 'Translation Text' is the text that will appear on screen when the language is selected.



#### Changing the Translations

To edit a translation, click on the  icon. When the change has been made, click on the  icon to save the new value. To discard the change without saving, click on the  icon.



### 4.10.5 Users

The 'Users' tab provides an overview of the users registered on the system.



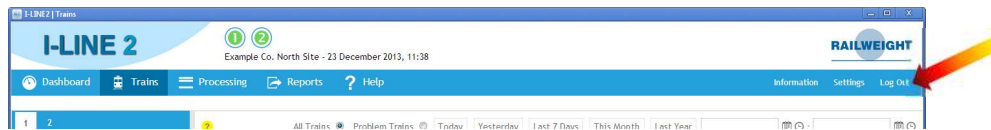
The users table has the following information:

Column Name	Description
Username	Unique name used to login to the system
Last Login	Last time the user logged in
Last Activity	Last time the user changed a setting
Is Online?	Whether or not the user is currently logged in
Role	User, Super User or Administrator

The 'User' level is the lowest level and allows access to the main operating functions of the software. The highest level is 'Administrator' which gives access to the advanced settings. The full access rights are shown in the table below:

Function	Role		
	User	Super User	Administrator
View data	✓	✓	✓
Print reports	✓	✓	✓
Edit train id and wagon id	✓	✓	✓
Select UDF from drop down lists	✓	✓	✓
Delete train and delete wagon	✓	✓	✓
Add, remove or edit UDF lists		✓	✓
Select language and edit translations		✓	✓
Add, remove or edit user			✓
Add, remove or edit IP camera			✓
Add, remove edit advanced settings			✓

To change to a different user whilst I-LINE2 is running, it is necessary to select 'Log Out' from the menu bar.



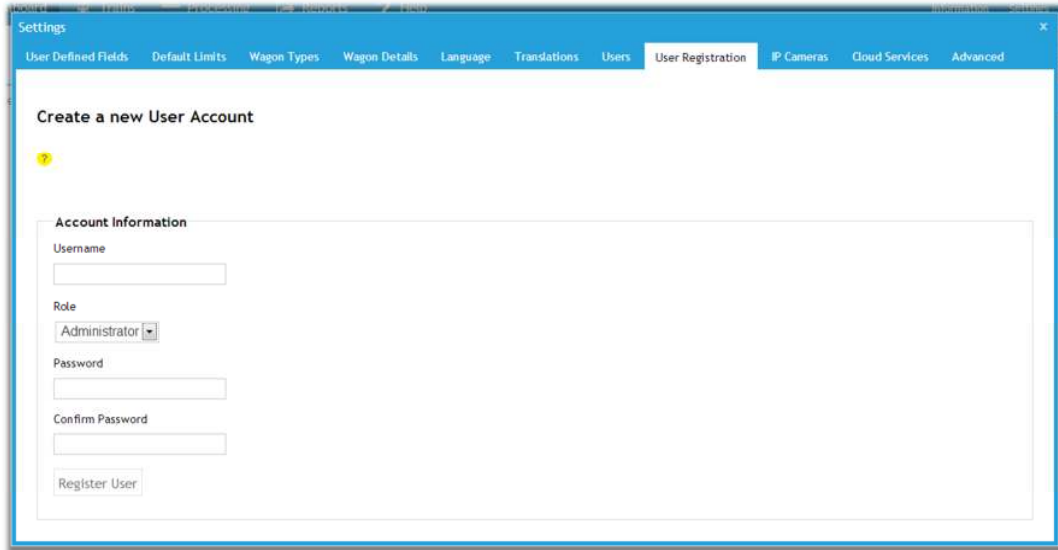
The Login screen will be shown and you will be able to login with the credentials for the authority level required. The system will continue to collect and process data whether a user is logged in or not.

After making changes at a higher authority level, the 'Log Out' function should be used to prevent unauthorised changes at the higher level functionality.

### 4.10.6 User Registration

The 'User Registration' tab allows the creation of users with different levels of authority. Each user can choose a user name which must be unique, and a password. There is no limit to the number of users which can be allocated to each authority level.

The user name and password are encrypted and stored in a separate database to the main system data.



The screenshot shows a web application window titled 'Settings' with a navigation menu at the top. The 'User Registration' tab is selected. The main content area is titled 'Create a new User Account' and contains a form with the following fields:

- Account Information** (Section Header)
- Username**: A text input field.
- Role**: A dropdown menu with 'Administrator' selected.
- Password**: A text input field.
- Confirm Password**: A text input field.
- Register User**: A button at the bottom of the form.

#### Creating a New User Account

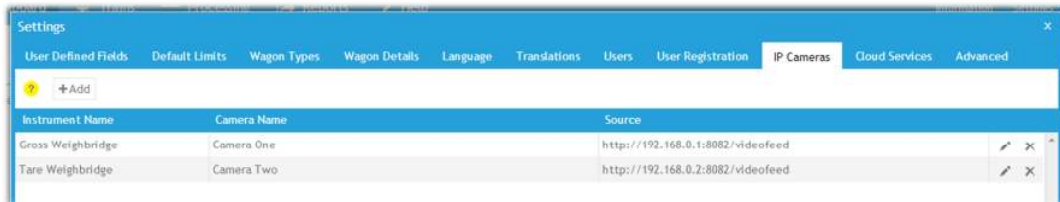
Enter a unique name in the Username field. Select a role from the drop down list. Enter and then confirm a password of 6 characters or more. Complete the account creation by clicking the 'Register User' button.

### 4.10.7 IP Cameras




If the site has a CCTV camera which operates on a connected IP network it may be possible to view this from within the application.

Each instrument is capable of displaying its own dedicated camera feed from within the Instrument window, or a feed can be shared across multiple instruments.




To make changes to a camera arrangement, select the 'IP Cameras' tab from the 'Settings' window.




#### Adding an IP Camera Feed

To add a camera feed to the system, click on the  icon in the upper left corner of the window. A new line in the camera table will appear with values for Instrument Name, Camera Name and Source. The 'Instrument Name' is a selectable option from one of the configured instruments on the system. Each camera must appear in at least one instrument window. 'Camera Name' is for a descriptive name to identify the camera. The 'Source' is the web address or IP address of the camera video feed. It is recommended to consult the camera documentation for these details, as manufacturers use many different methods to transmit the video images. The PC must be directly connected to the camera, or to the network on which the camera is transmitting images, and the appropriate permissions must be in place to allow the PC to access the video feed. Once the details have been entered, click on the  icon to save the new values. To discard the changes without saving, click on the  icon.


#### Changing IP Camera details

To edit the details for an IP Camera, click on the  icon at the end of the row. When the changes have been made, click on the  icon to save the new values. To discard the changes without saving, click on the  icon.

#### Deleting IP Camera details

To delete an IP Camera and the associated details, click on the  icon at the end of the row. A confirmation message will be shown before the details are deleted.

### 4.10.8 Advanced

 **CAUTION:** Changes to these settings should only be attempted following advice from qualified Railweight personnel. Changes to these settings may adversely affect the operation of the system.

### 4.10.9 Regional Settings

The date, time and numerical field format settings will be taken from the regional settings of the computer although this can be overridden if desired. The weight and speed units are configurable but will only display correctly if matched to the units being used in the weighing instrument.

## 5 SYSTEM MAINTENANCE

The SQL Server 2008 R2 database should be backed up regularly to protect against data loss and archiving may be necessary to increase response times. The maximum database size is 10GB. It is the customer's responsibility to maintain the database.

## 6 TROUBLESHOOTING


In the event of a problem with I-Line2 please take a few minutes to carry out the following steps which in the majority of cases will get the system back up and running.

- 1) Close the browser window in which I-Line2 is running



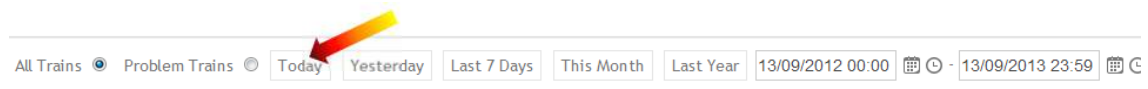
- 2) When I-Line2 has been closed down, locate the icon on the desktop



- 3) Double click "Restart I-Line2". A window will open which will display the progress of the restart operation. When this has completed it will show 'PRESS ANY KEY TO CONTINUE'. Press any key on the keyboard and the box will close.
- 4) I-Line 2 has now been restarted. Re-open the browser window by double clicking the icon . Log back in, and the system should be back up and running as normal.
- 5) If problems persist, check that the TSR4000 weighing instrument is in the correct operating state and on line.



- 6) If the train detail expected is not shown on the 'Trains' screen, ensure that the correct data range has been selected. Press a date range button to change the data shown.



- 7) If you still experience problems please contact:  
**Railweight Technical support (+44 (0) 845 246 6714)** who will provide you with further support as required.