

Bearing Press Recorder

Version 6.6.3

A component of the Wheel Shop Management Suite (WSMS)

User Guide



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Introduction

Overview

Bearing Press Recorder is a component of the Wheel Shop Management Suite. It is intended to be used at the bearing press or torque station to collect data about the bearings being mounted. Unlike its predecessor Bearing Tracking, Bearing Press Recorder can record mounting charts for the bearings in addition to recording component data

Layout

Bearing Press Recorder contains three main screen areas. The menu bar located across the top of the screen, the status bar located across the bottom of the screen, and the client area in between the menu bar and status bar. The menu bar is used for navigation between different functions. For more details see the topic on the Menu Bar. The status bar indicates the copyright information and version number. The client area is where the data collection and display screens are displayed.

System Requirements

This application has minimum system requirements as described below. These requirements must be met for the application to operate as designed.

This application supports the following Microsoft Windows operating systems.

- Windows 8.1 (x86 and x64)¹
- Windows 10 (x86 and x64)¹

The application requires the Microsoft .Net Framework (4.6.2 or later) which can be obtained from <https://dotnet.microsoft.com/download>

The application requires the following hardware at a minimum.

- 2.0 GHz Processor
- 1 GB installed RAM
- 100 MB available disk space
- Ethernet Card

¹ When installed on a 64 bit operating system, the application will run in a subsystem of Windows called WOW64 (Windows-on-Windows 64 bit). WOW64 is included on all 64 bit versions of Windows and is designed to make differences between the operating systems transparent to the user.

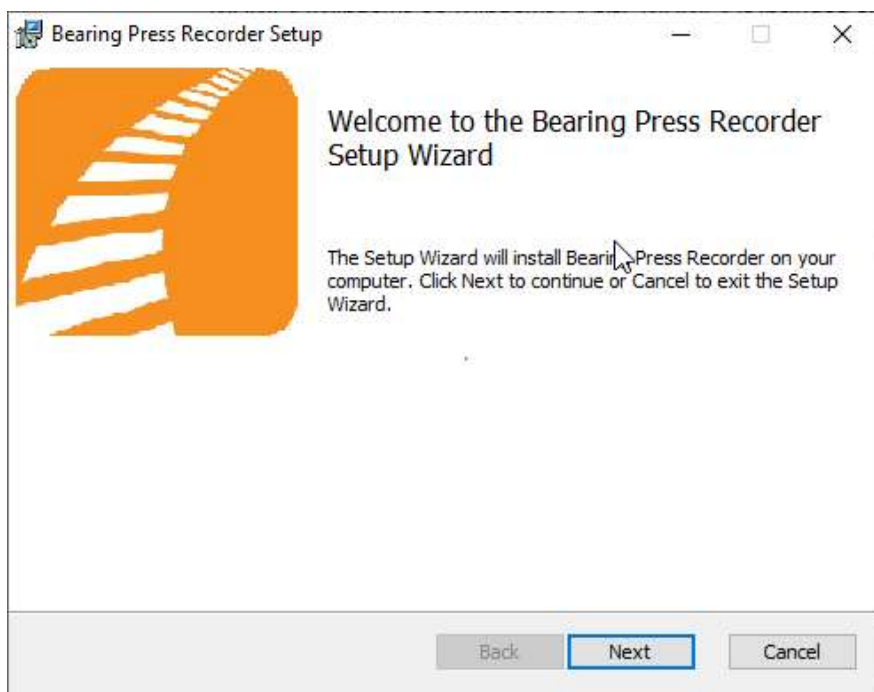
Getting Started

Installing Bearing Press Recorder

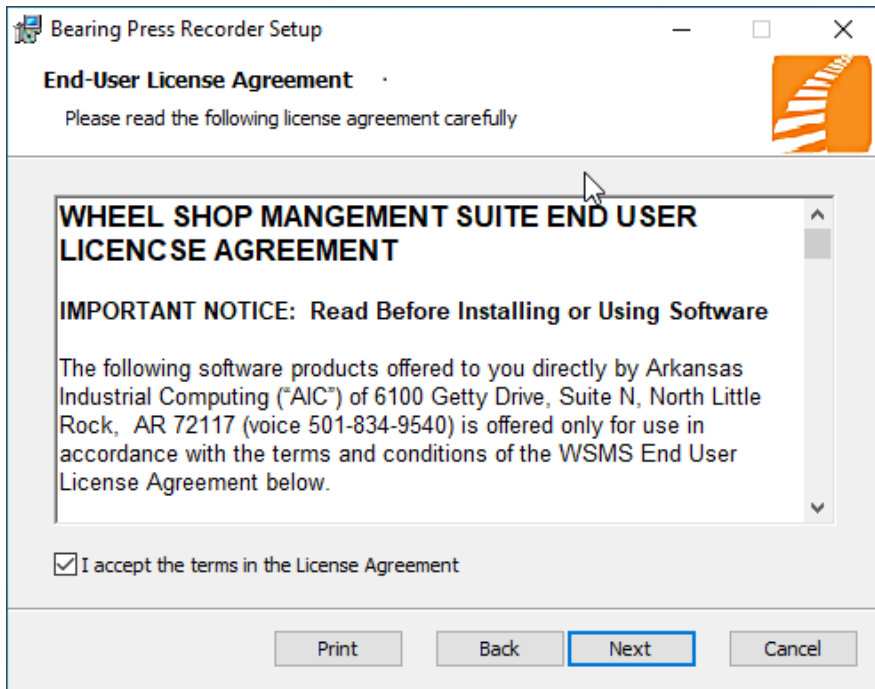
You will need Administrator rights to install Bearing Press Recorder.

Make sure you have the latest version of Bearing Press Recorder Setup program. [Contact](#) our support team for assistance. To install Bearing Press Recorder, run the setup program and follow the on screen prompts as described below:

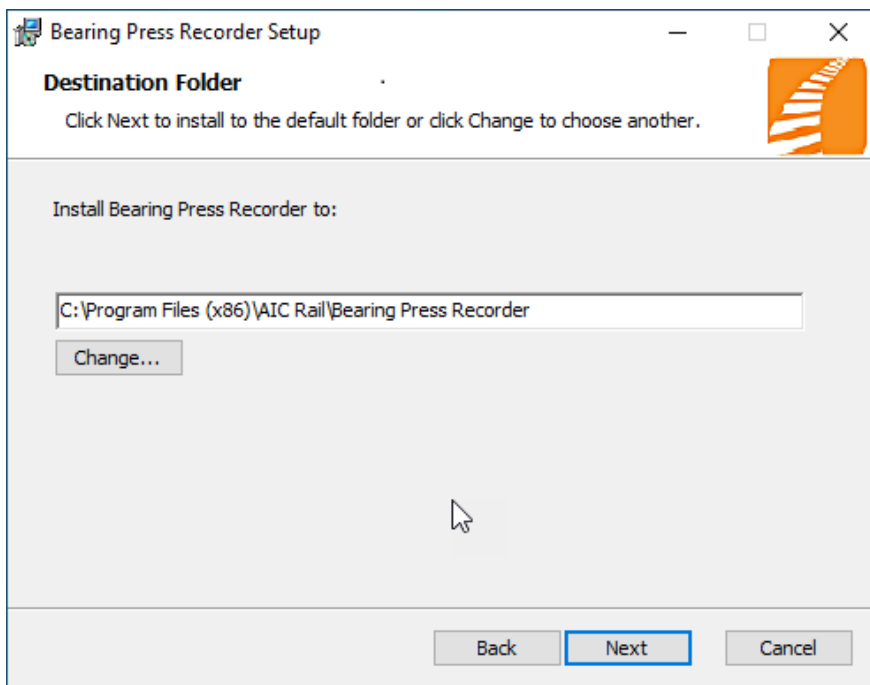
Click NEXT to continue.



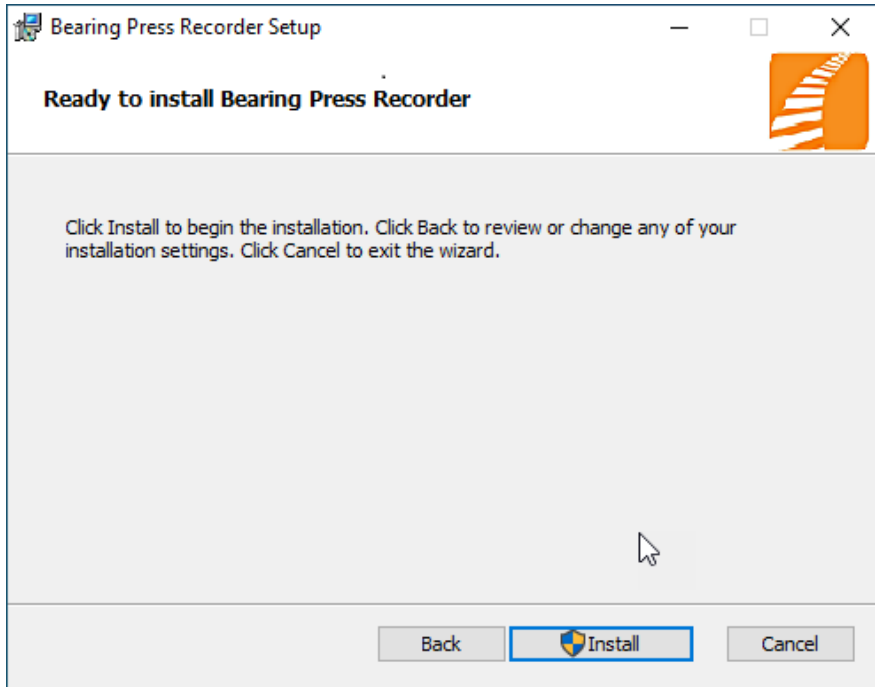
Accept the license agreement and click NEXT.



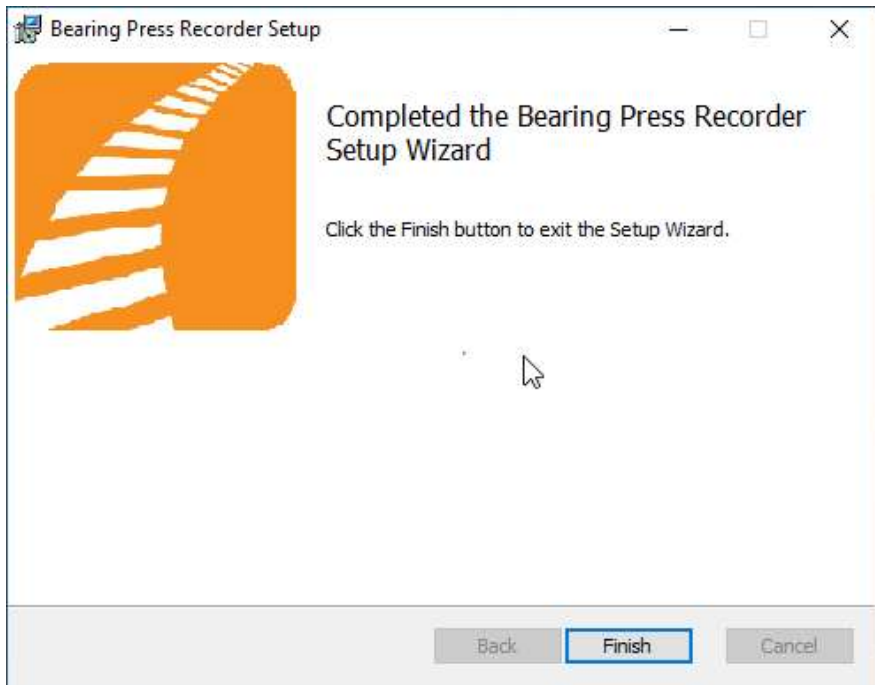
Select the location where you would like to install Bearing Press Recorder and click NEXT.



Click INSTALL to begin the installation.



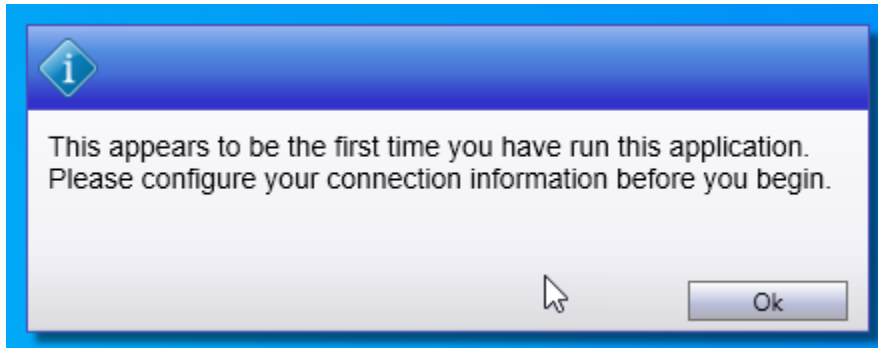
When the installation has completed, click FINISH to close the setup application.



Initial Setup

Once you have installed Wheel Press Recorder you can double click the desktop shortcut to start the application.

Bearing Press Recorder requires access to an instance of the WSMS database which can be installed on the same computer or any computer with network access and the required permissions. The first time you run Wheel Press Recorder you will be prompted to enter your database connection information.



Refer to the section on [Connection Settings](#) for more information on configuring the database connection.

Login

Each user is given a unique username and password for the WSMS system authentication and accountability. You must provide your shift, username and password each time the application starts before you can begin using it. Your login also determines what functions you have permissions to perform. If you do not have this information, contact your manager or a system administrator.



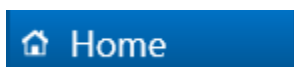
Menu Bar

The menu bar is used to access the home screen, as well as important tools like Documents, Chat, and Get Support.



Home

Navigate to the Home screen. For more information refer to the section on [Home](#).



Documents

Opens the Document Viewer portal for viewing electronic documents. For more information refer to the section on [Document Viewer](#).



Chat

Opens the Chat feature for communicating with other WSMS users or stations. For more information refer to the section on [Chat](#).



Get Log Files

Used to retrieve the diagnostic log files so they can be sent to AIC Support team. After clicking Get Log Files you will be prompted for a folder and file name to save the information to a ZIP file. After saving this file, you can send it to AIC Support for help troubleshooting. For more information contact [AIC Support](#).



Get Support

Used to submit a support ticket for the current station. Refer to the [Get Support](#) section for more information.



Clock

Displays the current time of day based on the computer date and time settings.

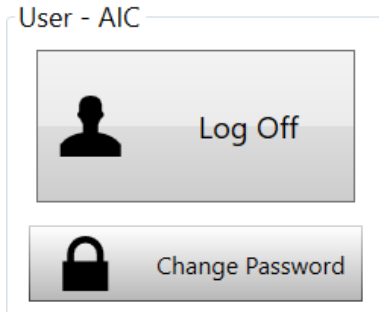


Home

The Home screen provides access to the important settings and features of Bearing Press Recorder. Features are grouped together based on their purpose.

User

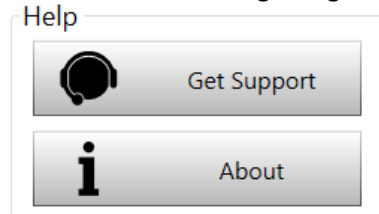
Displays the currently logged in user.



- Log Off - logs out the current user.
- Change Password – Opens the change password dialog to let the currently logged in user change their password.

Help

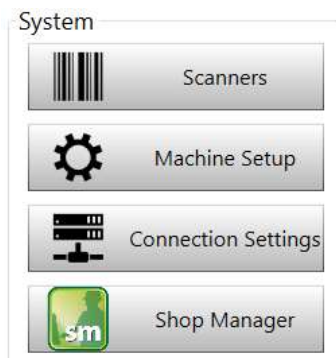
Provides information for getting help with the current application.



- Get Support - Opens the AIC Support website in the default web browser. This requires internet access be available at the station.
- About - Opens the About dialog that displays information about the current version of the application.

System

Provides access to configuration and setup for the current station.



- Scanners - Opens the scanners dialog to troubleshoot problems with your barcode scanner, or to configure a new scanner or barcode label. Refer to the section on [Scanners](#) for more information.
- Machine Setup – Opens the settings dialog to configure settings for this machine. For more information refer to the section on [Settings](#).
- Connection Settings – Opens the Connection Settings dialog to configure the database connection information for the WSMS database. For more information refer to the section on [Database Connection Settings](#).
- Exit – Closes the application and returns to the Windows desktop. The user must have 'ExitApplication' permission to be able to exit the application.

Production

These are the most common functions and will be available to all users that have access to log in to the application.



- Press – Navigate to the press screen to record data and mounting charts for the current wheelset. Refer to the section on the [Press](#) screen for more information.
- History – Navigate to the History screen to review data for the wheelsets that have been mounted from this machine. Refer to the section on [History](#) screen for more information.

Maintenance

Provides access to the Downtime feature, sensor calibration, and for exiting the application.



- Downtime – Navigates to the Downtime screen for managing the current machine status. Refer to the section on [Downtime](#) for more information.
- Calibrate Sensors – Navigate to the Calibration screen for calibrating the force and distance sensors that are used to record the mounting charts. For more information refer to the [Calibration](#) section.

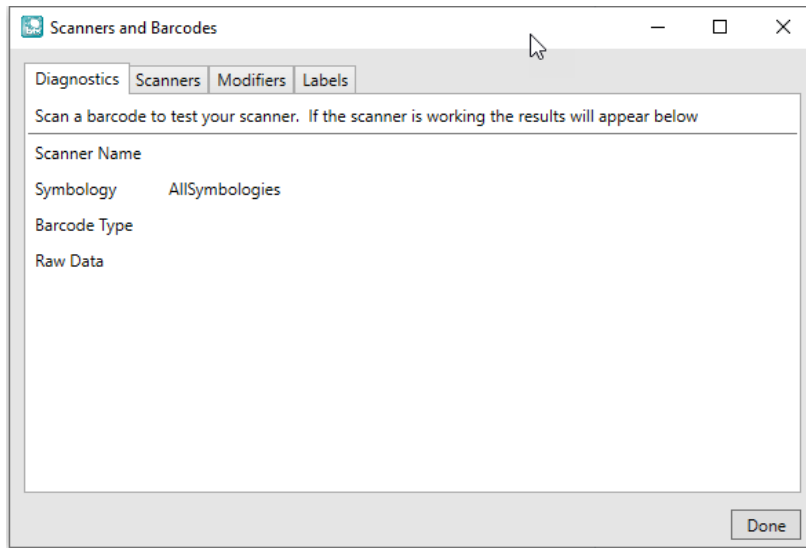
Machine Inspections

Provides access to the Machine Inspections feature for recording periodic setup, maintenance, and validation inspections. Machine Inspections let you record electronically what you previously had to keep up with on paper. For more information on Machine Inspections refer to the sections on [setting up Machine Inspections](#) and performing Machine Inspections

Barcode Scanner and Labels

Diagnostics

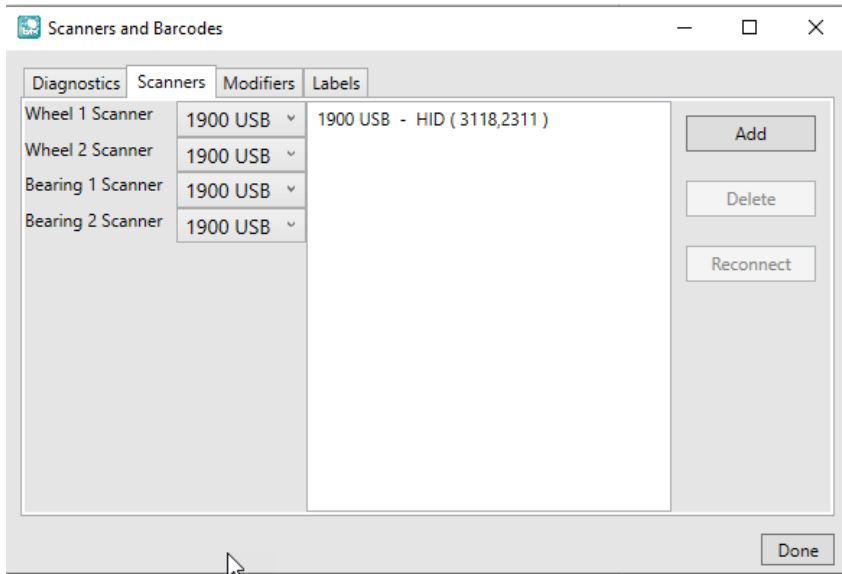
Test and diagnose issues with barcode scanners. While on this tab, scan a barcode with one of the barcode scanners connected to the machine. If the scanner is set up properly, you should see the barcode and scanner information populate.



- Scanner Name – The name assigned to the scanner that read the barcode. If more than one scanner is configured this name should be unique to help you identify the scanner.
- Symbology – The Symbology of the barcode that was scanned. It will either show the symbology like **DataMatrix, Code128, PDF417, etc.** or it will show **Unknown** if the symbology cannot be detected. When the symbology cannot be detected the scanner most likely is not configured to transmit the AIM ID prefix that identifies the barcode symbology. This may cause the barcode to be misidentified or not identified at all.
- Barcode Type – The label definition type that was matched to the barcode being scanned. If the Barcode Type is Unknown, it means the barcode that was scanned is not matching any of the known label definitions, either because the data is in the wrong format or the symbology does not match. Refer to the section on [Labels](#) for more information.
- Raw Data – The character string that was read from the barcode, not including the symbology AIM ID prefix if it exists.

Scanners

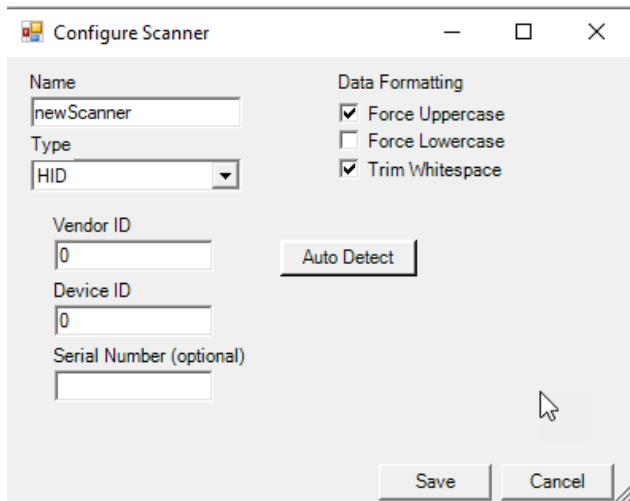
View and configure barcode scanners.



- Add – Configure a new barcode scanner for use with the application.
- Delete – Remove the selected barcode scanner from use.
- Reconnect – Disconnect the selected barcode scanner and attempt to reconnect.
- Component scanner settings – If more than one scanner is configured, you can specify to only scan certain components with a specific scanner. Select the scanner name next to each component. If you only have one scanner, you can select that scanner for all components, or leave it blank.

Adding a Scanner

To add a new scanner, Click Add. In the popup dialog, enter a name to identify the scanner and select the scanner interface type (HID, RS232, etc).



Specify any data formatting you want to apply to the raw barcode data using the checkboxes in the top right corner. By default, all barcodes will be UPPER CASED and whitespace will be removed from the beginning and end of each barcode and each value that is parsed out.

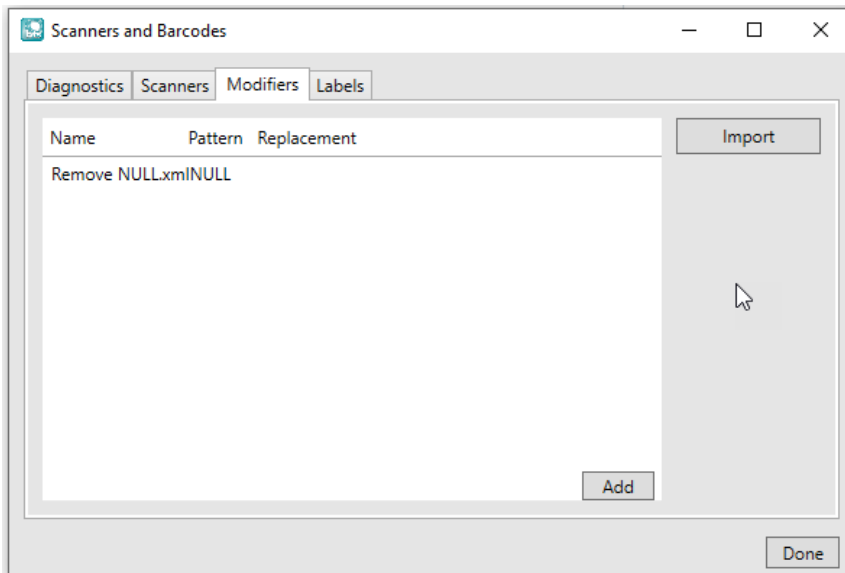
Depending on the Type selected, you will need to enter some parameters that are required to connect to the scanner. In most cases you can use the Auto Detect feature to automatically detect these parameters.

- Click Auto Detect button
- Scan a barcode (other than a programming barcode) with 15 seconds.
- A message will appear below the Auto Detect button to indicate if the auto detection was successful. The parameters should populate automatically.

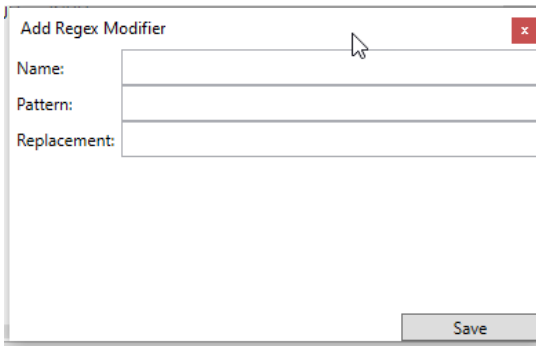
Note: For USB barcode scanners, the Serial Number parameter is optional if you are only using one scanner at the station. Leaving it blank will allow you to replace a scanner without having to reconfigure it, as long as the make and model are the same. If using more than one scanner (example: Wheel A and Wheel B or Left and Right) the serial number is required to distinguish between the scanners.

Modifiers

Sometimes component manufacturers make mistakes with their barcodes, or fail to follow the AAR S-920 specification. You should always report issues to the manufacturer so they can correct the issues immediately. Depending on the error, we may be able to modify the barcode data so it meets the correct format using a Regular Expression find/replace on the barcode data.



Advanced users may be able to create these Modifier themselves by click Add to create a new Modifier.



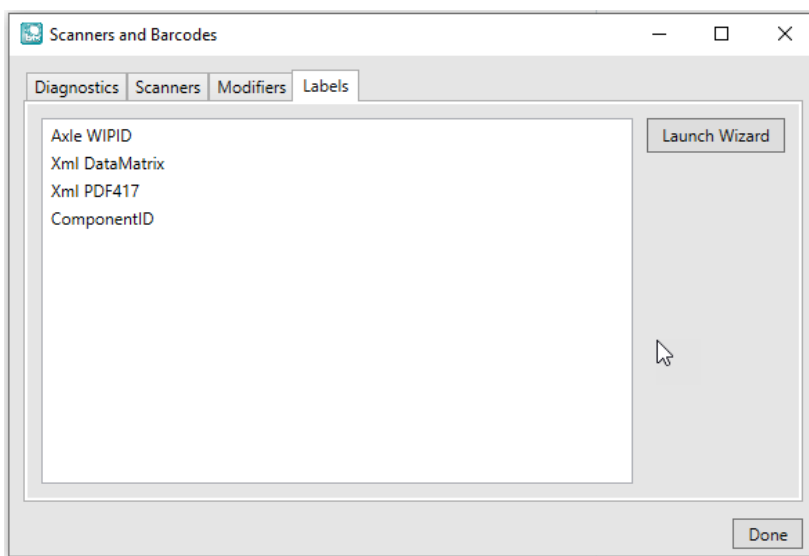
- Name - A descriptive name that helps identify the problem this Modifier is trying to address.
- Pattern – The Regular Expression pattern used to find the problems in the barcode data that need to be fixed.
- Replacement – An expression or text that you want to use to replace the data that matches the Pattern.

After you save your changes, this information will be saved to a file on the local machine only. You will have to repeat this process at each machine that requires it, or you can copy the file and use the Import option.

Import lets you add a Modifier to the system using a Modifier file that was already generated, either by another user, or more likely by AIC Rail.

Labels

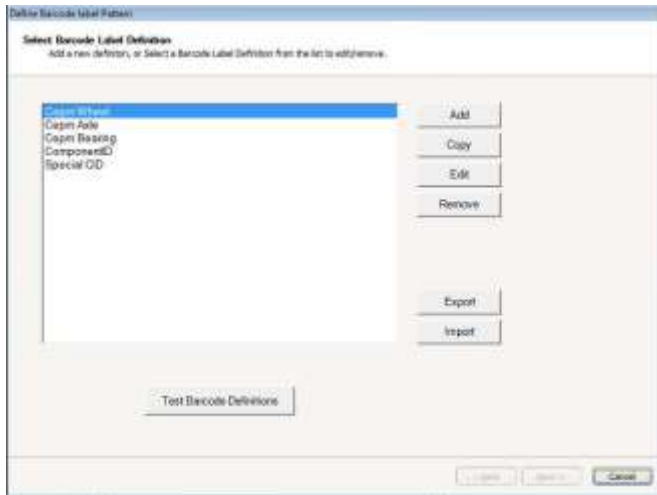
View and configure barcode label definitions. Label definitions help the system to identify different types of barcode labels. For example WIP ID labels vs 1D Component ID labels vs 2D Component labels (Wheels, axles, etc).



- **Launch Wizard** – The only way to configure a label definition is with the Label Definition Wizard. Click Launch Wizard to start the label definition wizard.

Label Definition Wizard

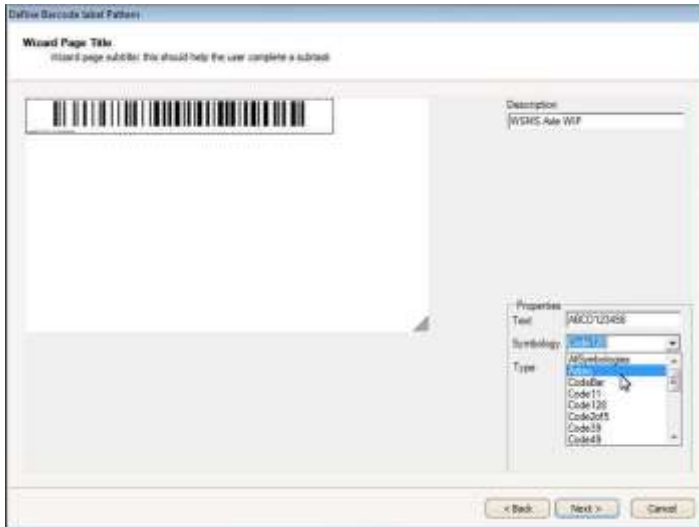
The first page of the Label Definition Wizard lists all of the current definitions and provides controls to add, edit, remove, etc.



- Add – create a new label definition
- Copy – create a new label definition by copying the selected label definition
- Edit – Modify the selected label definition
- Remove – delete the selected label definition
- Export – save the current label definitions to a file so it can be imported to another system
- Import – select a file that was exported from another system to import into your system
- Test Barcode Definition – go to the Test Label Definition screen to scan a label and verify it is properly detected.

Add Label Definition

To add a new barcode label definition, click ADD. You will then add the label definition description and properties such as the Symbology and Barcode type. Click NEXT, to configure the barcode label.

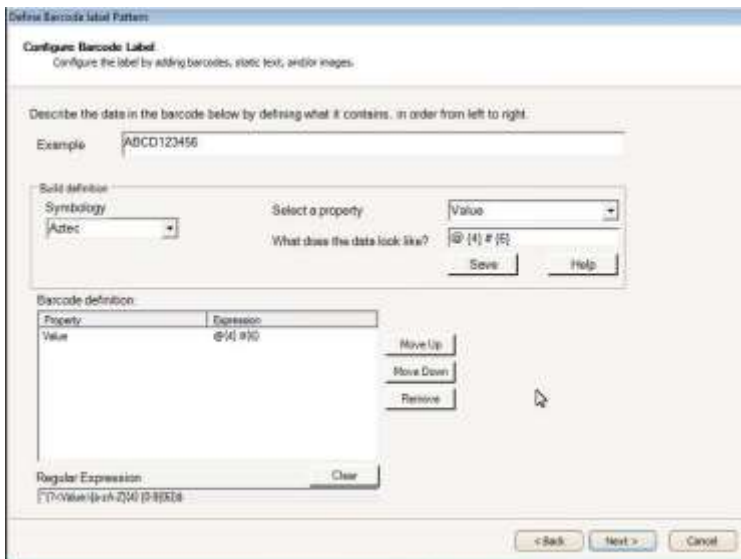


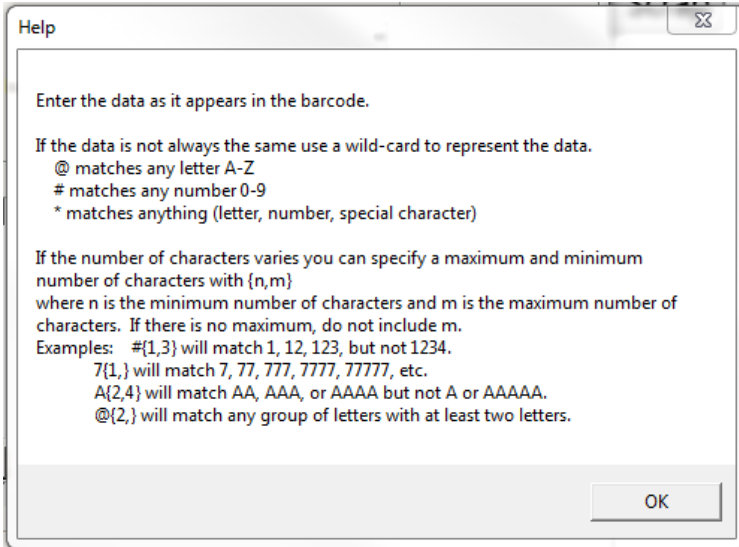
Configure Barcode Label

Add a new label definition or select an existing label definition and click Copy or Edit.

Configuring the barcode label requires describing the data that will be in the barcode. Define what data elements are contained in the barcode in order from left to right of the barcode raw data. Define individual properties of the data and what the data looks like in the “What does the data look like?” box. Use the Help button to guide you through the correct syntax.

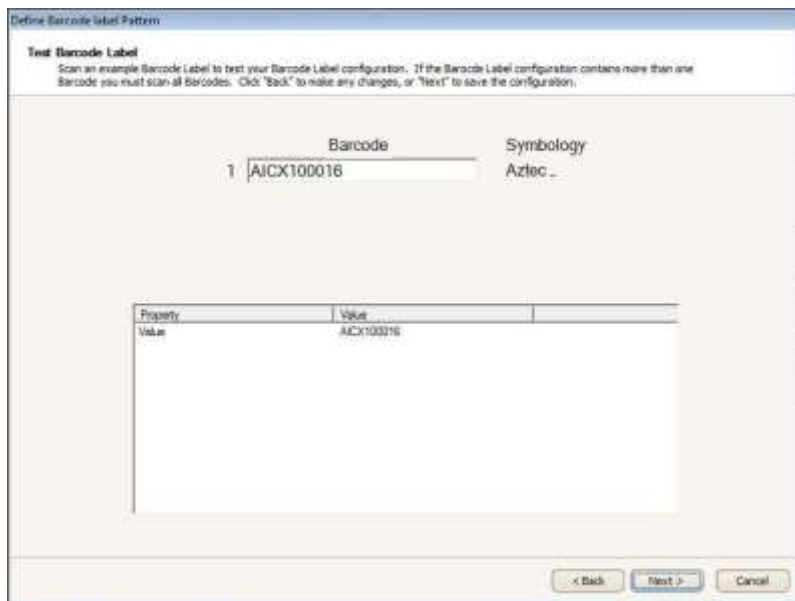
Select the correct barcode symbology.





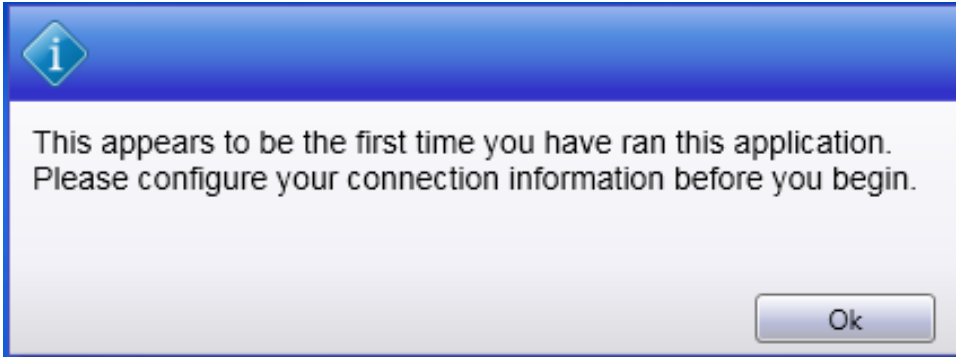
Test Barcode Label

Once you have configured your barcode label you can test the definition. Scan an example barcode label. If the barcode label configuration contains more than one barcode you must scan all barcodes. Click “Back” to make any changes, or “Next” to save the configuration.



Database Connection Settings

Access to an instance of the WSMS database is going to be required, which can be installed on the same computer or any computer with network access and the required permissions. The first time you run the application you will be prompted to enter database connection settings.

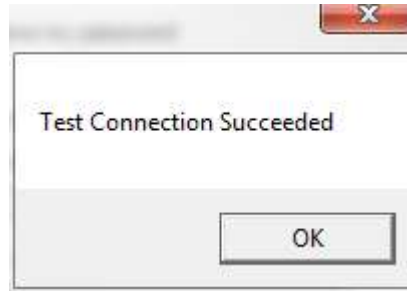


Click **OK** to display the Connection Settings dialog. Enter Server Name, User, password.

The "Connection Settings" dialog box is shown. It has a title bar with a close button (X) and a small icon. The dialog is divided into two main sections: "Database" and "Machine Settings".
In the "Database" section:
- There is a "Server Name" text input field.
- Below it is a "Log on to the server" section with two radio buttons: "Use Windows Authentication" (unselected) and "Use SQL Server Authentication" (selected).
- Below the radio buttons are "User" and "Password:" text input fields.
- Below these is a "Select or enter database name" dropdown menu.
- At the bottom of this section is a "Test Connection" button.
In the "Machine Settings" section:
- There are two dropdown menus: "Shop Name" and "Machine Name".
At the bottom of the dialog are "Save" and "Cancel" buttons.

A list of available databases will appear after typing the security information. Select the desire database. If you are unsure about the Server Name, User or password, contact your IT Department or our [support team](#).

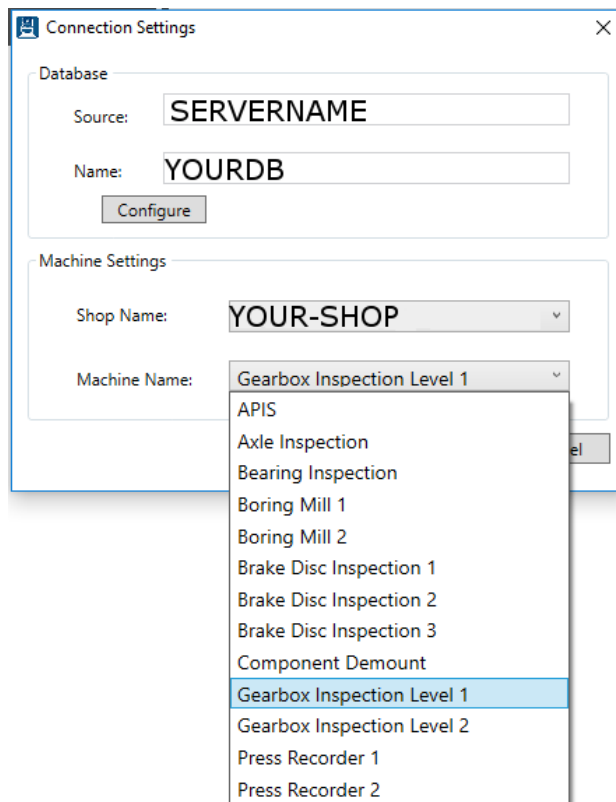
Click **TEST CONNECTION** to verify your settings. If the information you enter is correct, you will see the following dialog, click **OK** to continue.



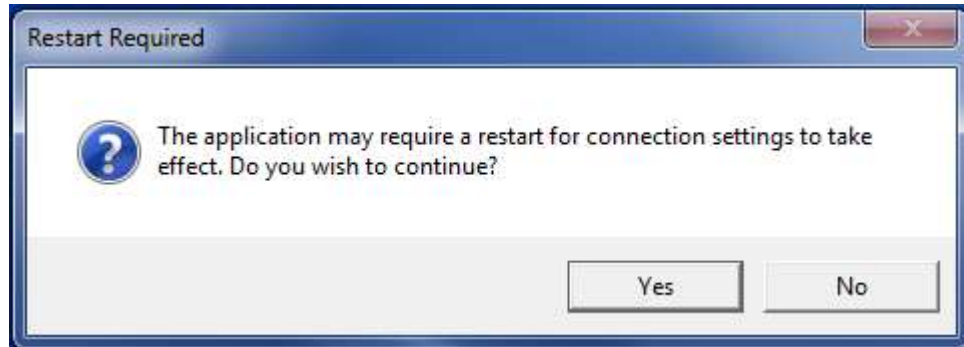
Once you have configured the Database Connection information click the **Shop Name** drop down to select the location for which you want to configure this installation. WSMS can support multiple locations or 'shops' hosted in one database. To isolate the data and settings to your location you must provide this information.

After you have selected the Shop Name click on **Machine Name** and select the machine you are installing on. Some settings are stored per machine so this setting will be used to differentiate each installation.

Click **OK** to save your changes.



Once you have entered your database settings the application may require a restart for the connection settings to take effect. Click **YES** to restart.



You will then be taken to the Log On screen. After configuring the database connection, the Log On screen will be the first screen you see each time you run the application.

Machine Setup

The Options dialog is used to configure certain aspects of the application, as described in the following sections.

General

Options

General Search/History Queues Machine Inspections Registration Reporting Data Elements Charts Data Acquisition Torque Tool Plugins

User Interface Recorder Settings Tag Settings

Display Settings

Language: English - US

Show on-screen keyboard: Yes

Make chart big while recording: No

Wait: 0 before resetting for next wheel set.

Automatically log out user if idle for more than 60 mins (0 disables)

Custom Views and Inspections

Press View: Bearing Tracking Backup

Inspection: Bearing Tracking MPI/UT

Sequence Number

Reset Sequence Number On: Time of day 07:00:00

Back to Back

Prompt for Back to Back every 0 wheel sets (0 disables)

Misfits

Misfits must be acknowledged

Recalls

Check for recalled components

Unattended Mode

Run application Unattended User Name assigned to this mode:

Update assembly Timestamp on Save

Auto Save after bearings are scanned

Require components to be demounted before they can be remounted

Save Cancel

- Language – Select the preferred language for the application content.
- Show on-screen keyboard – When checked, the application will display an on-screen keyboard any time data entry is desired. This is useful for touchscreen interfaces.
- Big Chart – When recording show a full screen chart.
- Reset next wheelset – Set time before resetting screen for next assembly
- Press View – Select the preconfigured view when pressing
- Inspection View – Select the inspection performed at this station.
- Sequence Number – Select when to reset the sequence, by time of day or number of assemblies.
- Back-to-back check – Select when to perform a back-to-back check.
- Misfits – Require that misfits need to be acknowledged on saving.
- Check Recalls – When enabled, will check that the components are not in the list of recalls.

- Unattended Mode – Select the preferred user to run in unattended mode, it will wait for press or components changes and continue with the process automatically.
- Auto Save after bearings are scanned – When enabled, data will be automatically saved upon scanning a valid bearing barcode for all bearings.

Recorder Settings

Options

General Search/History Queues Machine Inspections Registration Reporting Data Elements Charts Data Acquisition Torque Tool Plugins

User Interface Recorder Settings Tag Settings

Components available for this application:

Component Type:	Search:	Mountable:	Record Charts:
AXLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BEARING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BEARINGCORE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WHEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

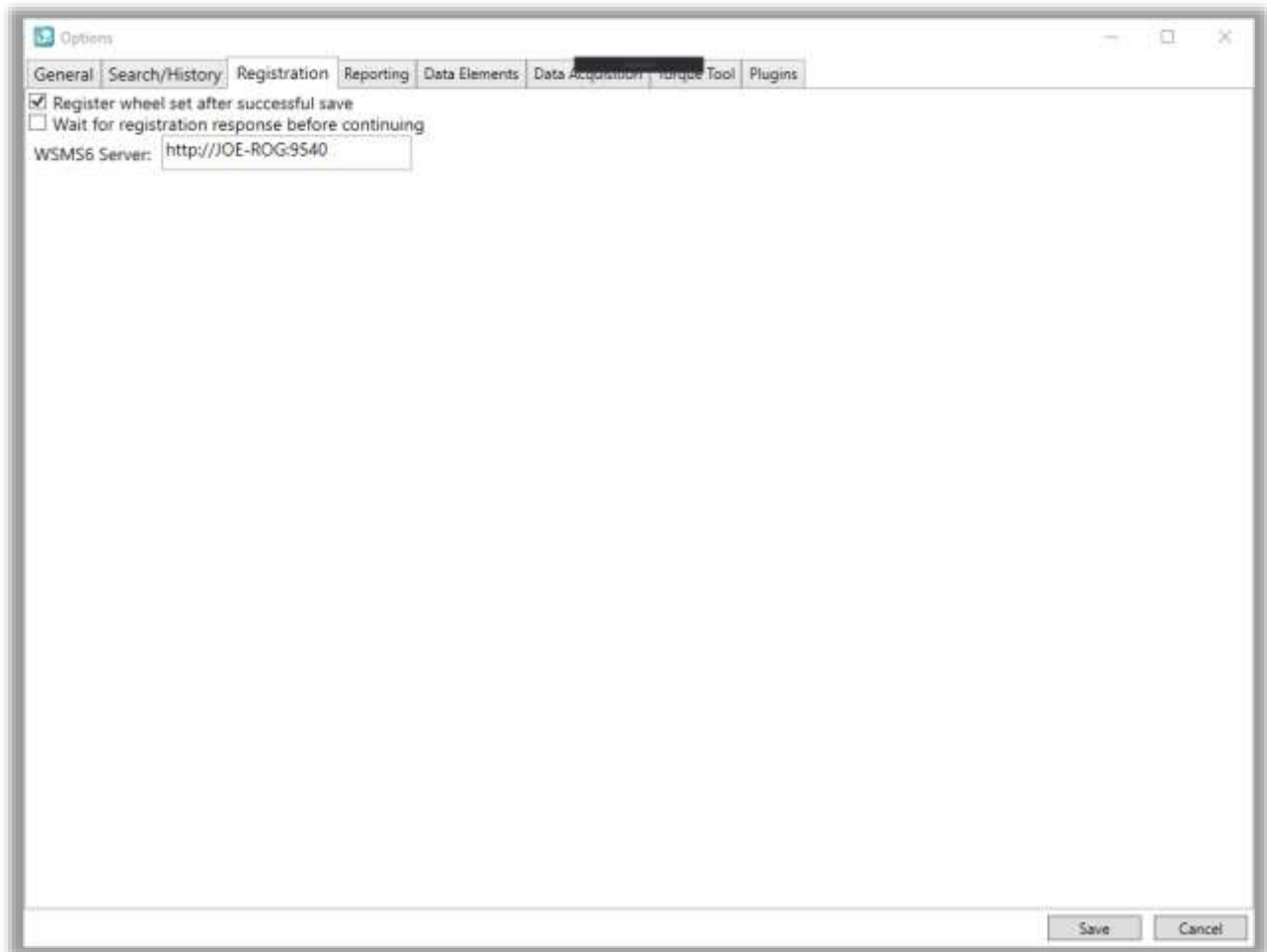
Prevent saving without charts:

Components Recorder Settings:

Save Cancel

Select components to search for, mount into assemblies or record charts of. You can also prevent saving if the charts are not recorded.

Registration



- Register wheel set after successful save – When enabled, will attempt to submit the assembly data to RailInc via the WSMS6 Service
- Wait for registration response before continuing – When enabled, will halt execution of the application until receiving a response from the WSMS6 Service with the registration result. If there is a registration error, the user will be notified.
- WSMS6 Server – The network address of the computer on which the WSMS6 Service is running.

Data Elements – Component Settings

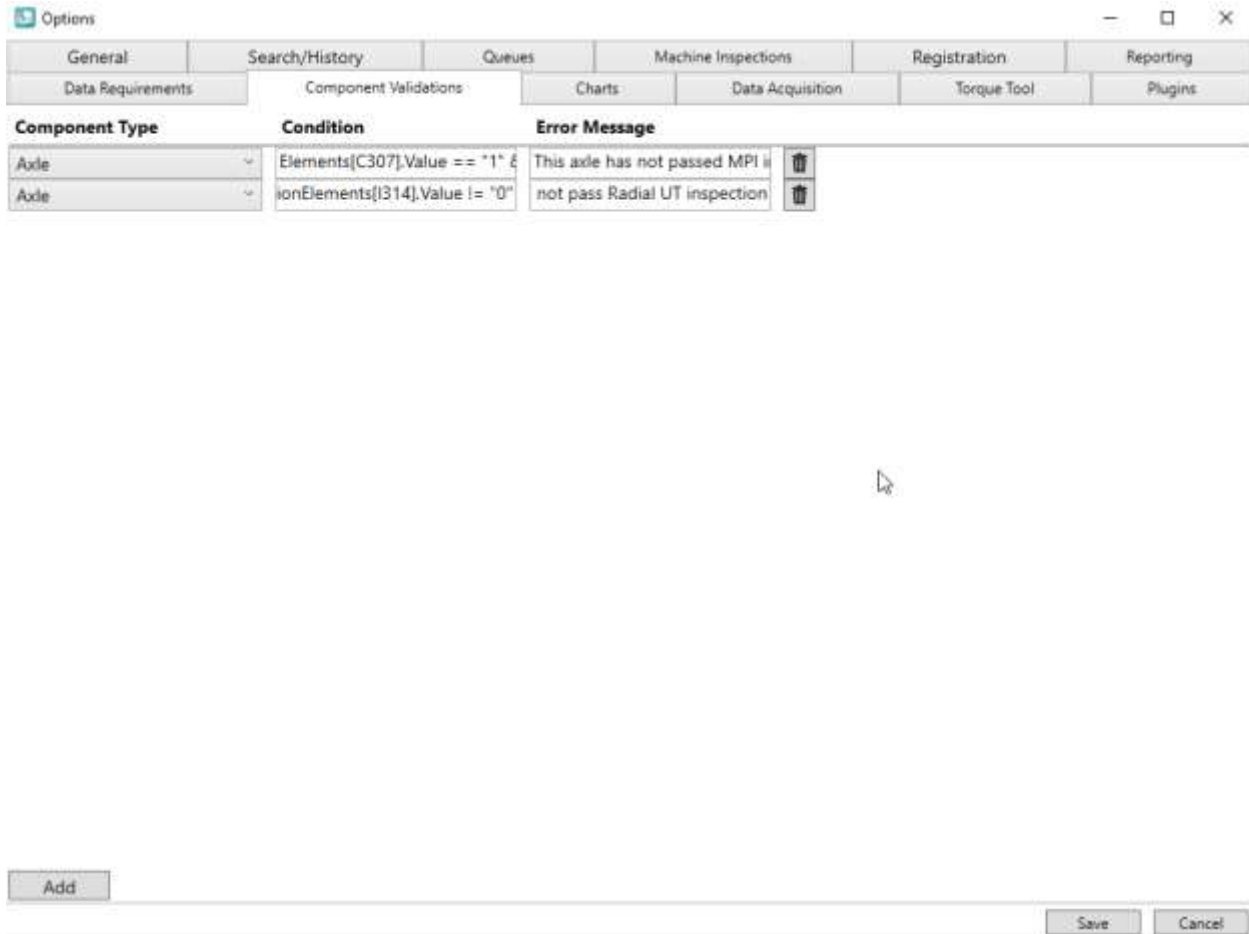
Use the Elements options to configure what data is required and if it should have a default value for new components. Data Elements marked as required must have a value before the component will save. To set a Default Value enter the value of “=lastvalue” to have the data from the last component populated.

You also have the option to type certain conditions as to when this element value is required.

Required	Element Id	Display name	Default Value
▲ WHEELSET			
<input type="checkbox"/>		Condition Field	▼
<input checked="" type="checkbox"/>		CID	▼ <input type="checkbox"/> Hidden
<input type="checkbox"/>		Customer	▼
<input type="checkbox"/>		Work in progress Id	▼ <input type="checkbox"/> Hidden
<input type="checkbox"/>		Location	▼
<input type="checkbox"/>		Disposition	▼
<input checked="" type="checkbox"/>	AIC004	Back-to-Back	▼
<input checked="" type="checkbox"/>	AIC010	BM Operator	▼
<input checked="" type="checkbox"/>	AIC020	Mount Shop	▼
<input checked="" type="checkbox"/>	AIC021	Mount Month	▼
<input checked="" type="checkbox"/>	AIC022	Mount Year	▼
<input checked="" type="checkbox"/>	AIC006	OK	▼
<input type="checkbox"/>	C011	Purchased Core	▼
▶ WHEEL			
▶ AXLE			

Component Validation

Component Validations are similar to Business Rules, but they only apply to the station where they are created. Create custom validation rules to require specific requirements related to the component properties or inspections. For example, you can create rules that require an axle Pass MPI and UT inspections, but only for secondhand axles.



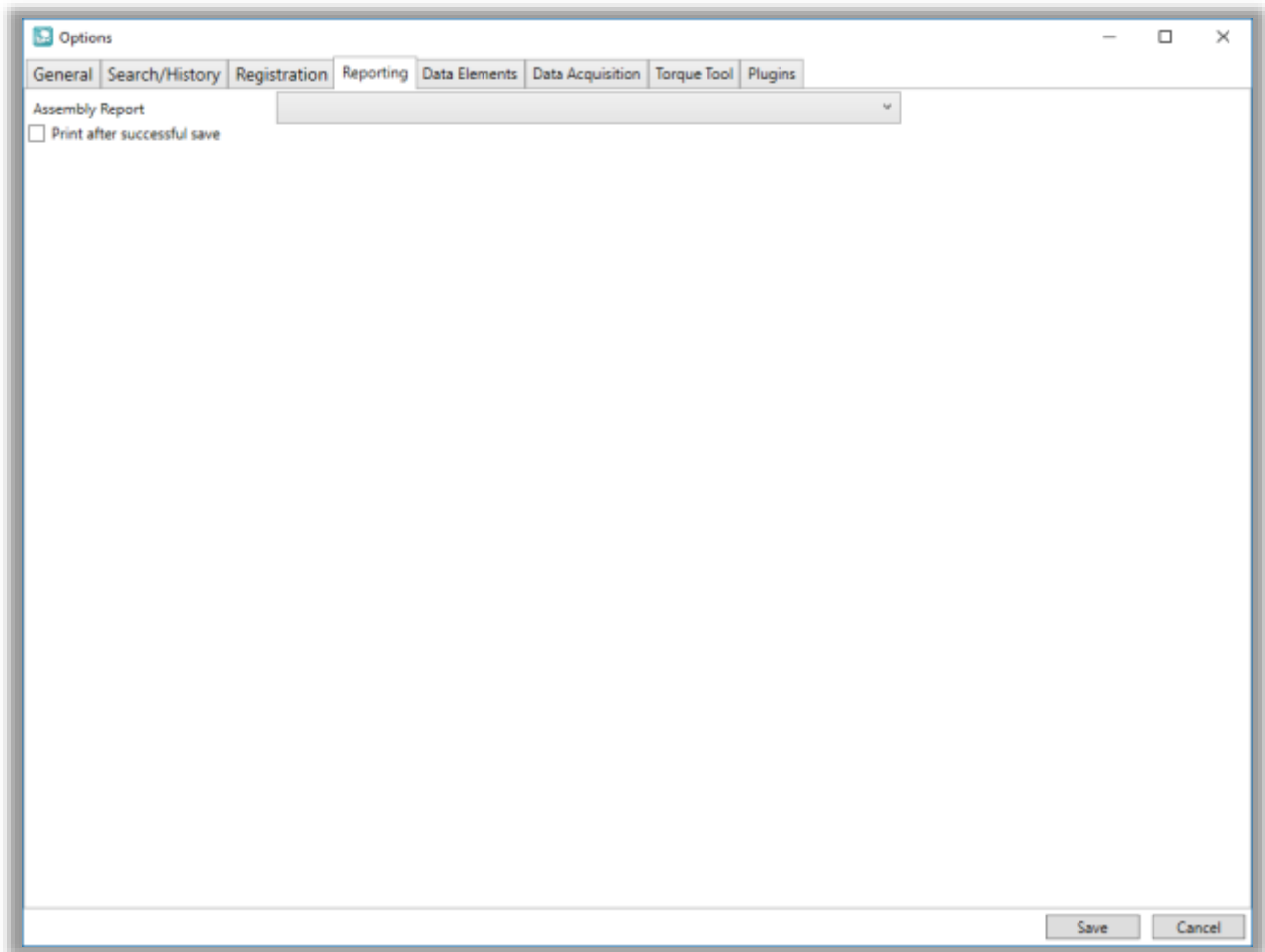
Click Add in the bottom left corner to create a blank Validation, and then specify the Component Type, Condition expression, and the Error Message to display when the validation rule is violated.

Click the Delete icon to the right of the Validation rule to remove a rule.

For help writing the Condition expression, contact AIC Support.

Reporting

Bearing Press Recorder can be configured to print a report after all data is successfully saved. You can enable this option by checking the box and specifying the report to print. The list of available reports is managed through Shop Manager. Refer to the Shop Manager User Guide for more information on reports.



Torque Tool

The Torque Tool tab allows the user to assign Data Acquisition tags to a torque tool that uses one or more spindles. The status tags can be used to disregard data based on status flags sent by the torque tool. When the tag value matches the Status Value, the data will be used.

Options

General Search/History Registration Reporting Data Elements Data Acquisition **Torque Tool** Plugins

Use Torque Tool to capture bearing torques

Three Spindle Single Spindle

	Tag Name	Element
Bolt 1:	Torque1	Bolt 1 Torque
Bolt 2:	Torque1	Bolt 2 Torque
Bolt 3:	Torque1	Bolt 3 Torque

Data Ready Trigger: TDataReady_trigger

	Status Tag	Status Value
Torque:	TorqueStatus	True
Tightening:	TighteningStatus	True
Angle:	AngleStatus	True

Parameter Set Tag	Values to Ignore

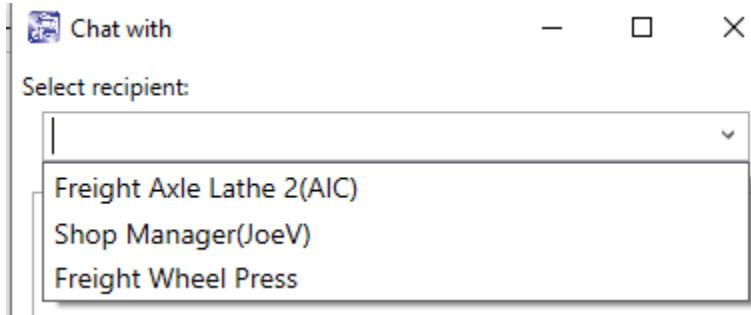
Save Cancel

Chat

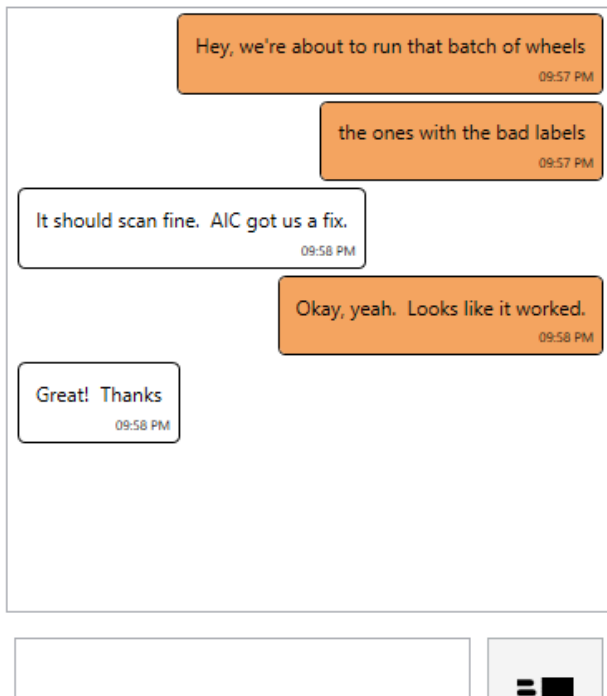
The Chat button can be used to communicate with other WSMS applications in your system.



Clicking it will open the Chat dialog. You can select a recipient from the dropdown based on the stations set up in your system.



The name of each station is listed, and if a user is currently logged in, their name will appear in parentheses next to the station. You can send a message to a station even if no one is logged in, and it will display the next time someone is at the station. Messages you send will be shown in orange, and messages you receive will be shown in white.



Get Support

The Get Support feature will collect relevant information about your problem and attempt to submit a support ticket online (**ticket submission requires the WSMS6 Service to be running and have internet**

Contact AIC Rail Support

Please provide the following information to open a support ticket.

Tell us who you are

Name*

Email*

Phone Number (optional)

Can we notify anyone else?

Emails (separate multiple email addresses using commas)

Tell us about your issue

Description*

We'll grab your logs and settings. Are there any other files you think we need?

Browse...

Send Cancel

access). Clicking the button will open the support dialog as shown below:

Name (Required): Your name, or the name of the relevant contact person.

Email (Required): The best email address to which we should respond with updates about your issue.

Phone Number: The best phone number in case urgent action is required.

Can we notify anyone else?: Include email addresses for any additional people who might need to be included on the conversation. You can enter multiple email addresses, separated with commas (,).

Description: Please include as much detail about the problem as possible. Information such as what you were attempting to do, which screen you were on, and any error messages that you received will help us resolve the issue more quickly.

We'll grab your logs and settings. Are there any other files you think we need?: We'll automatically package your logs, application settings, and take a screenshot. Use this dialog to include any additional files that we might need (ie. A document you're trying to import).

Clicking the Send button will attempt to submit the ticket to our support site. If your system is unable to submit the ticket, you'll get an error message prompting you to save the files locally. Once you select a location and file name, we'll create a .zip file containing the information you submitted and any files that would have been attached to your ticket. You can contact AIC Rail Support via email at support@aicrail.com and attach the .zip file or call us at 501-834-9540, and we'll give you more instructions on how to get use these files.

Document Viewer

Under this section you can find all the documents sorted by category that were added on **Shop Manager™**.

Buttons on top (Top Menu, Back) are to navigate through the folders and 'Close' button on bottom is to exit Documents



Downtime

Use the Downtime feature to track equipment efficiency. If the station is not able to be used because of machine repair, operator staffing issues, material shortage, or some other reason you can enter these downtime events to track the frequency and duration of issues.

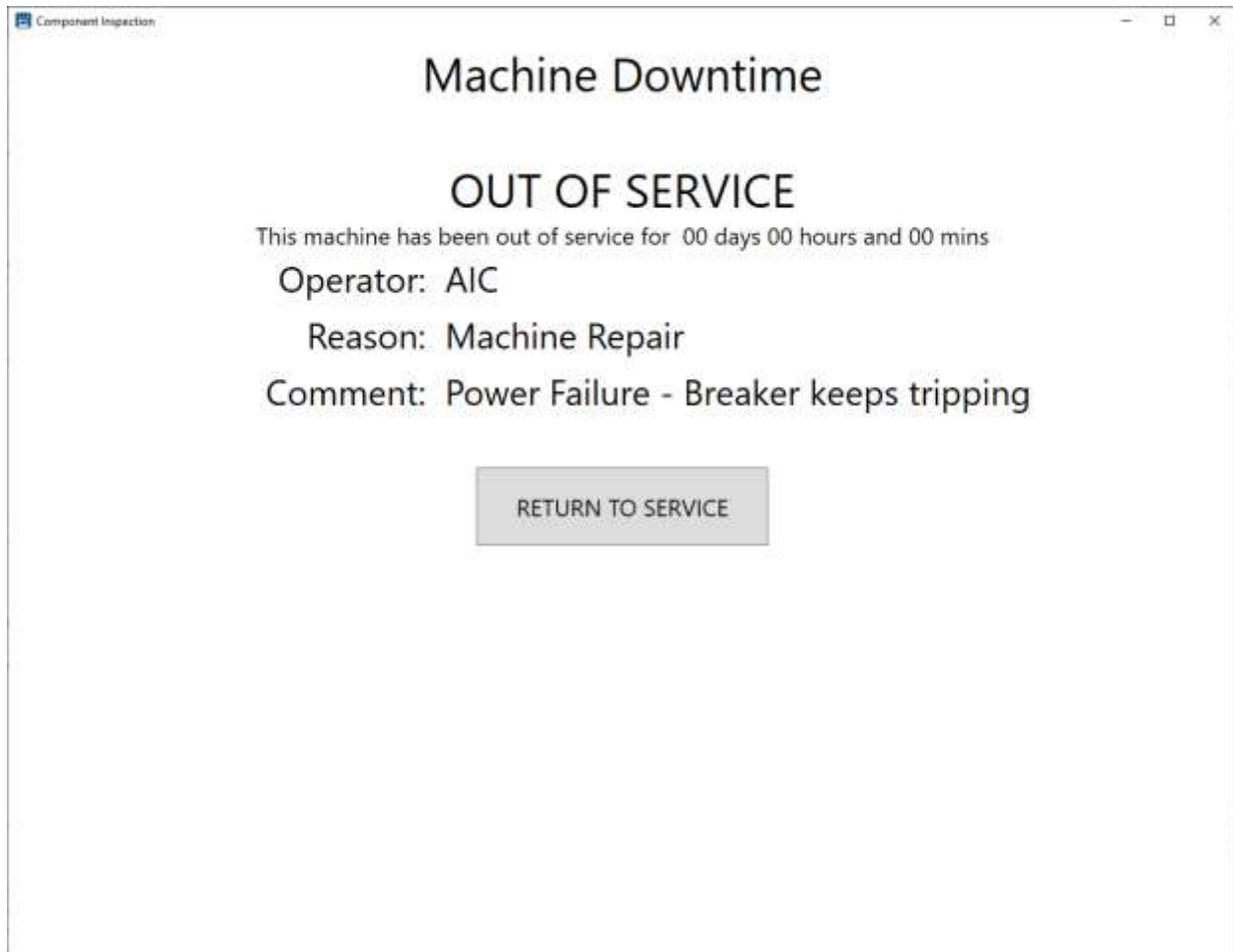
Set out of service



The screenshot shows a software window titled "Component Inspection" with a "Machine Downtime" form. The form includes a status indicator "This machine was last out of service on NEVER", a "Reason:" dropdown menu, a "Comment:" text input field, and a "SET OUT OF SERVICE" button.

To start a downtime event, you must first select a reason from the list of Downtime Reasons (configurable in Shop Manager). The operator can optionally enter a comment to explain in further detail why the station is down. Then click 'SET OUT OF SERVICE' to start the downtime event. The date and time the downtime event was started will be recorded along with the operator that initiated it and the reason selected.

Return to service

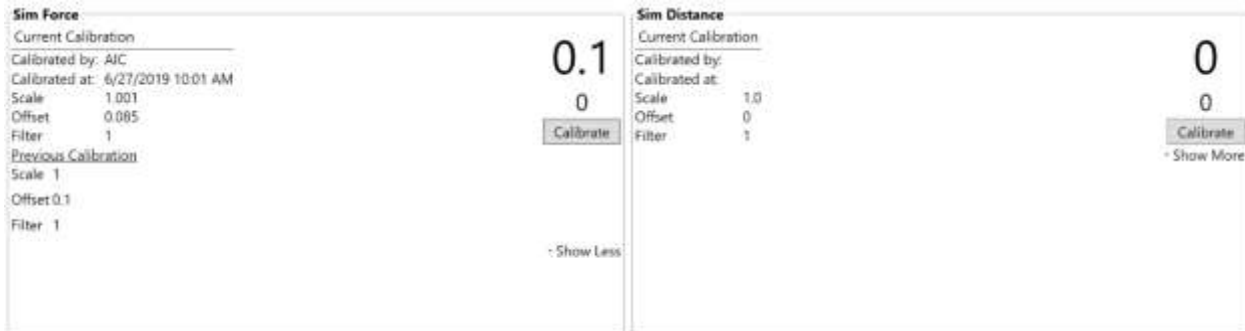


To end the downtime event and return the station to service simply click 'RETURN TO SERVICE'. The date and time the machine returned to service will be recorded and the total time the machine was down can be calculated for the event

Calibrate Sensors

The calibrate menu item will take you to the Calibration screen. The currently logged on user must have permissions to calibrate, or this menu item will be disabled.

The calibration screen allows you to calibrate the force and distance transducers. It also shows you the current value based on the most recent calibration. To calibrate the force or distance transducer, press the corresponding button and follow the steps in the calibration wizard.



Distance Calibration

Step 1

Fully retract the hydraulic cylinder. Measure the amount of cable that extends from the base of the transducer.

Enter the length of the cable that extends from base of the cylinder and click "Read"

Current transducer value : 1605.0

Enter a value when the ram is fully retracted and then select the Read Button

Step 2

Extend the hydraulic cylinder to the furthest distance it would be extended during a typical mount.

For example, if the cylinder typically has to extend 12 inches to mount the first wheel but it would extend 18 inches to mount the second wheel, Extend the cylinder approximately 18 inches.

Enter the length of the cable that extends from base of the cylinder and click "Read"

Current transducer value : 1605.0

Enter a value when the ram is extended and then select the Read Button

Step 3

If the transducer value fluctuates rapidly this will cause your calibrated value to also fluctuate which could make your mounting charts look 'noisy'. You can adjust a software filter to try and smooth out the transducer signal.

Adjust the Filter value between 0 and 50 % and then click Update to see the affect.

Filter value: %

Calibrated value: 9.01

Enter a filter value and then select the Update Button

Once you have adjusted the signal to reduce the fluctuations in the calibrated value, click Next.

Note - for systems with encoder distance transducers this value should always be "1". The higher the value applies more filtering of the signal value.

Step 4

Verify your calibration by extending or retracting the hydraulic cylinder and compare the measured amount of cable extending from the base of the transducer with the value below.

Transducer value: 1605

Calibrated value: 9.01

When you are done reviewing your calibration, click Finished to save and exit or Start Over to restart the calibration wizard.

Force Calibration

Step 1

Isolate the master gauge and pressure transducer by closing the shut-off valve.

Step 2

Connect a hand pump or portable hydraulic unit that will be used to pressurize the transducer and Master Gauge for calibration and testing.

Step 3

Apply hydraulic pressure until the master gauge reaches the first or second divisional mark (typically 10 or 20 Tons).

Using the "dead zone" area near zero is not recommended because most gauges are not accurate in this range.

Enter the value that appears on your Master Gauge and click "Read"



0

Current transducer value : 7640.0

Read

Enter a low-end force value and then select the Read Button

Step 4

Increase the hydraulic pressure until the master gauge reaches a divisional mark near the maximum force you typically press.

For example, if the average mounting force of your wheels is 150 Tons, you should use 160 or 180 Tons as your second value.

Enter the value that appears on your Master Gauge and click "Read"



180

Current transducer value : 13568.0


Read

Enter a high-end force value and then select the Read Button

Step 5

If the transducer value fluctuates rapidly this will cause your calibrated value to also fluctuate which could make your mounting charts look 'noisy'. You can adjust a software filter to try and smooth out the transducer signal.

Adjust the Filter value between 0 and 50 % and then click Update to see the affect.



Filter value: 5 % Update

Calibrated value: 176.52

Enter a filter value and then select the Update Button

Once you have adjusted the signal to reduce the fluctuations in the calibrated value, click Next.

Step 6

Verify your calibration by increasing or decreasing the hydraulic pressure and compare the value shown on your master gauge with the value below.

Some hydraulic gauges are mechanically dampened to prevent rapid changes from damaging the gauge. The electronic transducer however, may respond much more quickly. Make sure you maintain a constant pressure for several seconds to allow the Master Gauge time to settle out before comparing it to the recorder's value below.

Transducer value: **13448** Calibrated value: **175.22**

When you are done reviewing your calibration, click Finished to save and exit or Start Over to restart the calibration wizard.

Machine Inspections

Machine Inspections are like our Component Inspections except they apply to the machines in your shop. Once you choose to inspect a machine you will see the data entry screen. From here you can enter any information used to document maintenance to the AAR and QA rules. You will also enter inspection data such as measurements, visual inspection indications, or confirmation of steps performed. The data that is collected is customized for each station and may vary based on the type of machine being inspected. Each station can also have multiple inspections (i.e., monthly and weekly maintenance). Product changeover check list and QA data requirements (calibration readings and inspection requirements).

There are multiple reports for the Machine Inspections to assist in verify that inspection was completed and when.

For more information about creating or modifying data collection screens please [contact us](#).

Mandatory Inspection of Magnetic Particle Testing Equipment Rule 1.7.2

1.- Date of preparation of bath solution, bath container cleaned, agitation, and circulation system flushed and filtering screens cleaned:

2.- Suspensoid amount: Powder in bath solution:

3.- Concentration and contamination of bath solution

Amount of magnetic powder: ml Amount of contamination-dirt, chip, or other foreign matter and magnetic powder: ml

4.- Test for ultraviolet light

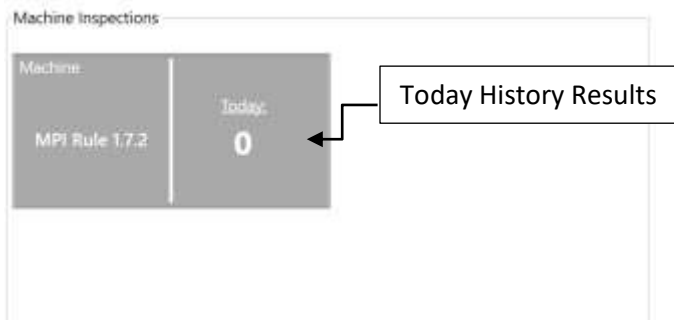
Light meeter having a 75-footcandle scale with 10x multiplying disc or equivalent: mW/cm2 Direct reading meter: mW/cm2

Gauge No: Expiration Date:

Inspector:

Inspection History

To review the inspections performed at the current station for the day you can click on the “Today” section and it will take you to the History tab. You can specify any filters for operator, shift or a different date, and then click ‘Get History’. The current date is selected by default.



MPI Rule 1.7.2

History

Date	From	To	Operator	Shift
Today	8/5/2021	8/5/2021	All Users	All

Result(s) From: 8/5/2021 12:00 AM To: 8/6/2021 12:00 AM

Components: 1

#	Shop Code	Machine #	Name	Application Type
1	WRXI	41	Demount Press	Component Demount

+ New Inspection Edit Selected

Demount Press - MPI Rule 1.7.2

Inspected by: AIC Shift: 1
Inspection date: 8/5/2021 2:18 PM Status: Good

Inspection Elements

██████████	██████████
██████████	██████████
██████████	██████████
██████████	██████████

Get History will return a list of all inspections on the specified date that match the filters for operator and shift. You can use the predefined options to do a date or select a custom date range. You must click the “Refresh” button to see the results.

A summary of the inspection totals will appear at the top of the list, with the total number unique inspections.

You can select a result by clicking on a row from the results list. The details for that inspection will appear at the right side. It will show who performed the inspection, shift, date and status.

Data Entry

In order to add data, a wheelset must be selected from either the [History](#) or [Search](#) screens. After the wheelset has been selected, the user can now edit/add data for each of the components, including the bearings.

The screenshot displays a software interface for data entry, titled "File Tools History Search Help" with a timestamp of "12:15 PM". The interface is divided into several sections for different components:

- Bearing A:** Fields include Condition (New), Facility Code (DVA), Manufacturing/Processing (1/2/2014), Nominal Diameter (6.5), Nominal Length (12), Cap Seal Number (MM), and Flange (F). It also lists material types: Brecco (POLY E.F.), BRECCO DDL, Brecco (E.F.G), and Shell EPD.
- Bearing B:** Similar fields to Bearing A, with Condition (New), Facility Code (DVA), Manufacturing/Processing (1/2/2014), Nominal Diameter (6.5), and Nominal Length (12).
- Wheel A:** Fields include Nominal Dia. Code (E108), Serial Number (4), and Condition (New).
- Wheel B:** Fields include Nominal Dia. Code (E108), Serial Number (4), and Condition (New).
- Axle:** Fields include Serial Number (M1412), Manufacturing/Processing (1/2/17), and Condition (New).
- Work Order:** Shows Project (Customer 2) and Order (0 of 10).

At the bottom, there are "Save" and "Cancel" buttons, and a footer indicating "Connected to: server/customer" and "© 2014 AIC, Inc." with "Version: 4.10.3".

The data collected at Bearing Press Recorder can be customized for each shop and each station. In general, it is broken up into two types of data.

First is the component information which typically includes manufacturing information like size/class, serial number, manufacturer code and date, condition, etc. This information should only have to be entered once even if the axle is inspected multiple times.

If the manufacturer or re-conditioner of the axle provides a barcode that contains any of the above information, a barcode scanner can be used to read this data from the barcode and populate the data entry fields automatically, saving the operator time and eliminating data entry errors. For more information on this see the section on [Barcodes](#).

In addition to the component information, you can configure 'Inspection' data such as pass/fail inspections, measurements, etc. Inspection data is used to record measurements and inspections that could be performed multiple times. This way if an axle is inspected multiple times, or at more than one station the value of each inspection is saved and can be compared to other inspections.

The work order information section provides information about what project a wheelset is tied to, the customer, and number of wheelsets to be included in the shipment. Clicking the drop down menu gives a list of active projects to choose from. Projects can be managed using Shop Manager.

For more on Customizing component and inspection data [contact our support team](#).

Click SAVE to save the current data to the database and clear the form for the next wheelset.

Click CANCEL to clear the form without saving the data. **All changes will be lost.**

After Saving or Canceling the user is automatically directed to the Search screen to search for the next wheelset.

Search and History

The History tab will display a list of items completed at the current station for the specified day.

The screenshot shows the 'History' tab interface. At the top, there are two tabs: 'Search' and 'History'. Below the tabs, there are several filters: 'Date' with a calendar icon and a date field set to '10/29/2020', 'Operator' with a dropdown menu set to 'All Users', and 'Shift' with a dropdown menu set to 'All'. There are also navigation arrows, a refresh button, and a 'Print' button. Below the filters, the text reads: 'Result(s) From: 10/28/2020 11:00 PM To: 10/29/2020 11:00 PM' and 'Axle(s): 106 Rework(s): 1'. A table with the following columns is displayed: '#', 'WIP ID', 'Timestamp', 'Inspected By', 'Inspected At', and 'Inspection'. The first row of data is: '1', 'RNSE228101', '10/30/2020 12:49 AM', 'R307109', 'Freight Loss Axle MAG', 'Loss Axle MPI'.

You can filter the history view further by using the parameters at the top of the screen. The Date field will let you select a specific date for which to search, and the arrow buttons on either side of the field will allow you to scroll forward or backward by one day at a time. The Operator button will toggle your results between showing history items for all users or only for you, based on your current login credentials. The Shift dropdown will filter the results to the specific shift selected or allow you to see work done for all shifts on the selected date. The refresh button will rerun the current history search; this is most useful when looking at data for the current day, as older data is unlikely to be changing in real time. Finally, the Print button will allow you to print a report based on the selected history item; to print, a report must be set up in the application settings (see individual application guides for instructions on setting up a report to print).

The Search tab allows you to search for assemblies by Cid, WIP ID, or component serial number.

The screenshot shows the 'Search' tab interface. At the top, there is a 'Search' button. Below it, there is a dropdown menu for search methods. The dropdown menu is open, showing three options: 'CID', 'WIP ID', and 'Axle Serial/Heat'. The 'Axle Serial/Heat' option is currently selected and highlighted. To the right of the dropdown menu, there are two input fields: 'Position' and 'Last Insp'.

Once you have selected a search method, type all or part of the relevant field into the search box and click "Search". For example, if you are using our Inbound application, items will receive WIP IDs prefixed with the load number followed by a dash and an indexer. On the search screen, typing in that load

number for a WIP ID search would return all the items from that load; typing in the load number with the dash and indexer would only return that one component.

Search History

WIP ID 1234 Search

WHEELSET (s): 276

#	CID	Last Inspected	Last Inspection	Last Inspected At	Last Inspected By	Disposition
1	0101099731					Good
2	0101095292	4/23/2021 2:00 PM	Bearing Tracking MPI/UT	Freight Bearing Press	b173290	Good
3	0101073234	3/16/2021 11:57 PM	Bearing Tracking MPI/UT	Freight Bearing Press	b112893	Good
4	0101047881					Good
5	0101073099	3/11/2021 10:27 AM	Turned Tread Tracking	Wheel Lathe 1	b003275	Scrap
6	0101047636					Good
7	0101068892	2/22/2021 10:17 PM	Bearing Tracking MPI/UT	Freight Bearing Press	B307804	Good
8	0101033365	12/28/2020 8:21 AM	Bearing Tracking MPI/UT	Freight Bearing Press	b175506	Good

Once your search is complete, the results will be displayed in the area below the search bar. The fields displayed in the results list can be configured in the settings menu (instructions for selecting search result fields can be found in the user guides for individual applications).

After selecting one of the search results, the details for your item will appear in the right-hand pane.

Details Charts Inspection History

WHEELSET - Good CID 0101099731

Configuration: 6X 11 - 33 Last Modified: 8/5/2021 10:40 AM

Location: Time In

Registration Status: **Success**

Notes

Note	Added By	Added On
Back-to-Back	BM Operator	
Back to Back 1	Back to Back 2	
Back to Back 3	Mount Shop	
Mount Month	Mount Year	
Purchased Core Wheel Set		

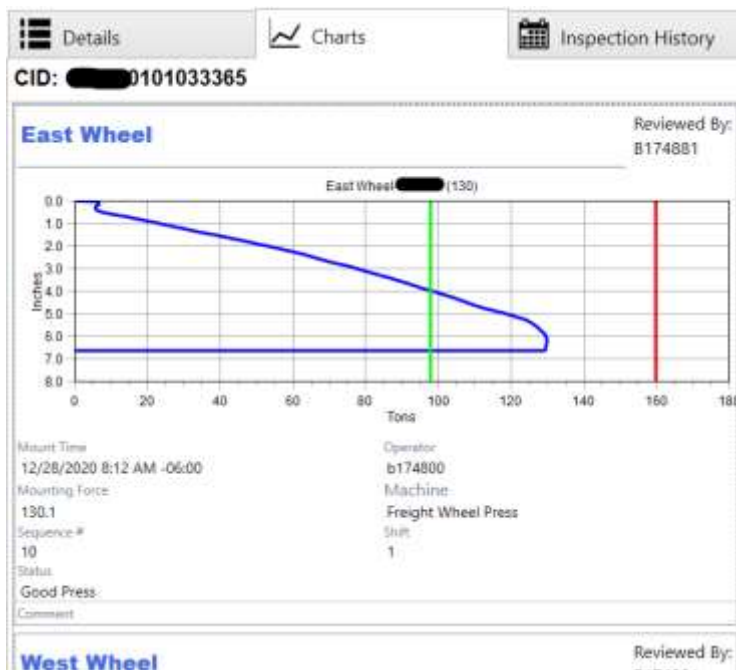
Axle - Good Wip Id 01234

Serial/Heat: Plating

The Details tab will include any data fields recorded for the component or assembly. In the case of an assembly, similar data will be shown below the assembly information for each of its subcomponents. If an attempt to register has been made, clicking on the Registration Status will bring up a prompt with details of the attempt and any errors that were returned.

Details		Inspection History	
Inbound Line	3/11/2021 7:22 AM	Freight Swing Station	B004600
Turned Tread Tracking	3/11/2021 10:27 AM	Wheel Lathe 1	b003275
WHEEL 1			
Ungrouped			
I107_DisplayName (I107)		225	
I108_DisplayName (I108)		23	
I109_DisplayName (I109)		0	
WHEEL 2			
Axle Lathe	3/11/2021 1:18 PM	Freight Axle Lathe 3	B118253
Loose Axle MPI	3/11/2021 3:40 PM	Loco Mag Booth	B308272

The Inspection History tab will list any inspections performed on the component, assembly, and/or the assembly's subcomponents. Expanding the inspection name will display the inspection elements that are recorded and their corresponding values.



If you are reviewing an assembly with mount data, a Charts tab will be displayed. Here you can review the mounting charts and information for any subcomponents that were mounted using the WSMS.

Appendix A: License

WHEEL SHOP MANGEMENT SUITE END USER LICENCSE AGREEMENT

IMPORTANT NOTICE: Read Before Installing or Using Software

The following software products offered to you directly by Arkansas Industrial Computing (“AIC”) of 6100 Getty Drive, Suite N, North Little Rock, AR 72117 (voice 501-834-9540) is offered only for use in accordance with the terms and conditions of the WSMS End User License Agreement below.

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Appendix B: Contact Information

AIC Rail
6100 Getty Drive
Suite N
Sherwood, AR 72117

Online Support

Visit our website at www.aicRail.com/WSMS for 24/7 technical information and available downloads
Email us at support@aicRail.com

Phone Support (Existing support contract or credit card required)

Call 1-501-834-9540 or 1-877-834-9540 (toll free)