# LOAD ENTRY 3

# OPERATIONS MANUAL

**Super Systems Inc.**
7205 Edington Drive
Cincinnati, OH 45249
513-772-0060
Fax: 513-772-9466
**www.supersystems.com**

**Super Systems Inc.**
USA Office
*Corporate Headquarters:*
7205 Edington Drive
*Shipping Address:*
7245 Edington Drive
Cincinnati, OH 45249
Phone: (513) 772-0060
http://www.supersystems.com

**Super Systems Europe**
Unit E, Tyburn Trading Estate,
Ashold Farm Road, Birmingham
B24 9QG
UNITED KINGDOM
Phone: +44 (0) 121 306 5180
http://www.supersystemseurope.com

**Super Systems México**
Sistemas Superiores Integrales S de RL de CV
Acceso IV No. 31 Int. H Parque Industrial
Benito Juarez
C.P. 76120 Queretaro, Qro.
Phone: +52 442 210 2459
http://www.supersystems.com.mx

**Super Systems China**
No. 369 XianXia Road
Room 703
Shanghai, CHINA
200336
Phone: +86 21 5206 5701/2
http://www.supersystems.cn

**Super Systems India Pvt. Ltd.**
A-26 Mezzanine Floor, FIEE Complex,
Okhla Indl. Area, Phase – 2
New Delhi, India 110 020
Phone: +91 11 41050097
http://www.supersystemsindia.com

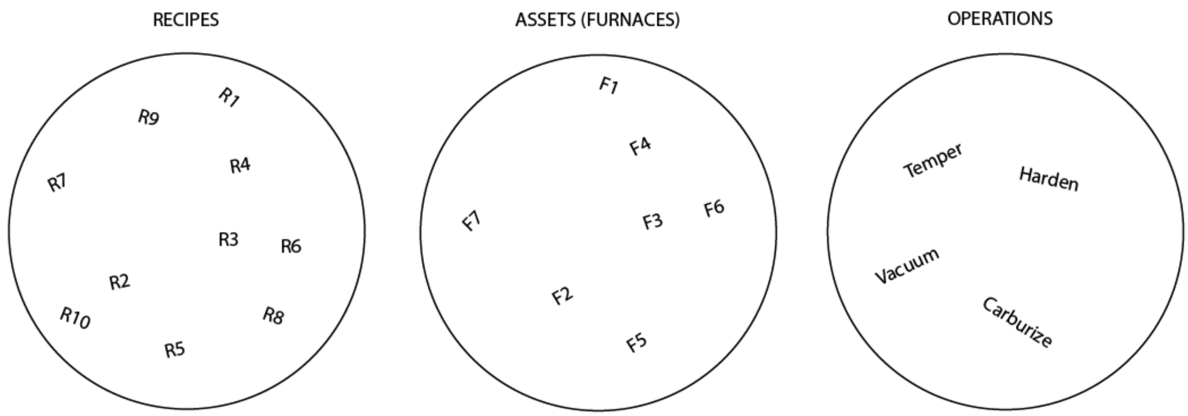
## Table of Contents

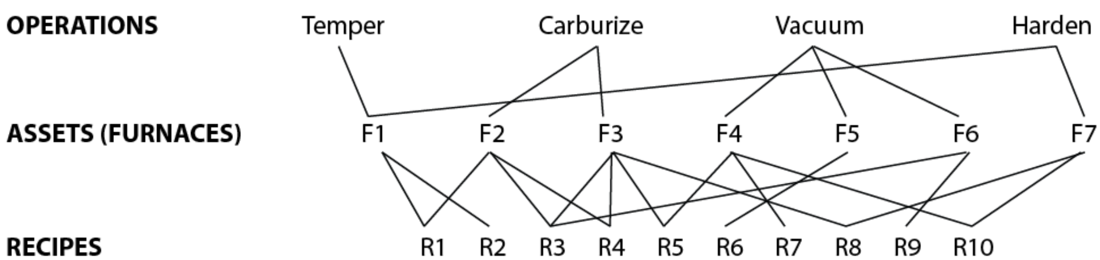
## Introduction

SSi's Load Entry 3 software is part of the SSi SuperDATA suite of programs. Load Entry assists with recipe management and tracking by providing a single, PC-based interface to control all activities for a heat treat facility. Load Entry is accessible from any computer setup as a SuperDATA workstation, allowing multiple access terminals throughout a facility. Load Entry seamlessly integrates with existing SSi and Honeywell HC900 controllers for creating recipes and starting and stopping recipes.  Load Entry works with the SSI Configurator program to import recipes that have already been created.

Load Entry allows you to enter various operations, furnaces, recipes, parts, and users, but also enables you to "apply" these items to one another as required by your facility.  This allows for easy tracking, management, and information retrieval, saving you time and money.

Put another way, Load Entry manages the often complicated relationships and connections between your facility's recipes, furnaces, and operations:




With this complex web under control, you are free to more efficiently manage your resources using the other tools included in LE3 software, for example, combining Recipes, Assets, and Operations to create Sequences that automate your most common processes.

If required, Load Entry allows controllers to extend past the previous limit of 300 recipes since all recipes are stored in a database as part of the system.

Load Entry's built-in Recipe Management features allow administrators to "lock" specific recipes, preventing operators from making temporary changes, while providing flexibility by allowing other recipes to remain "unlocked." Recipe revisions are tracked, providing complete visibility for actual recipes run in the equipment.

Load Entry also maintains historical data marking the beginning time, end time, and Operator ID for each charged load. This data helps improve load traceability and increase operator accountability. Historical data can be quickly accessed to generate reports and trend charts (using SDRecorder II). Each report can store detailed part information (part number, quantity, material, etc.) as well associate part images for a specific load.

We are constantly improving and updating this software. If you have questions about a feature or functionality not covered in this manual, please contact SSi at 513-772-0060 for technical support.

IMPORTANT!

Standard Load Entry will serve as a recipe manager as well as a load management system. It is intended to replace your existing recipe management software. Attempting to use another recipe manager in addition to Standard Load Entry on the same equipment is likely to result in operational errors and should be avoided.

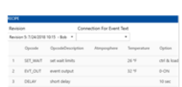
## Prerequisites

▶ .NET Framework 4.6.2+
Standard Load Entry requires **Microsoft .NET Framework 4.6.2 or higher**.

▶ Super Systems API
Standard Load Entry requires access to the Super Systems Application Program Interface (API) running on the server, which communicates to either SDIO or DataCenter (the SuperDATA Communications engines), as well as SQL Server.

The Setup Flowchart below illustrates the recommended steps to follow when setting up and installing Standard Load Entry, especially for the first time. These features will be used after the initial setup as new loads are added, process requirements change, etc.

## Setup Flowchart

| Step | Result | | See Page… |
|---|---|---|---|
| Install and Configure SQL |  | SQL Database now exists and can be used by SSi Load Entry software | 8 |
| Install LE3 |  | LE3 is installed. Load Entry database is created. | 8 |
| Set Up Users |  | Users are created with passwords and needed access levels | 12 |
| Set Up Options |  | Program options are set | 13 |
| Set Up Operations |  | Operations are defined | 15 |
| Set Up Furnaces |  | Furnaces and instrumentation are defined | 16 |
| Set Up Recipes |  | Recipes are defined and associated with Operations | 18 |
| Set Up Parts (if applicable) |  | *If Parts Database is used:* Parts are defined and associated with recipes and Operations | 21 |

Ready for Operation. Refer to page 30.

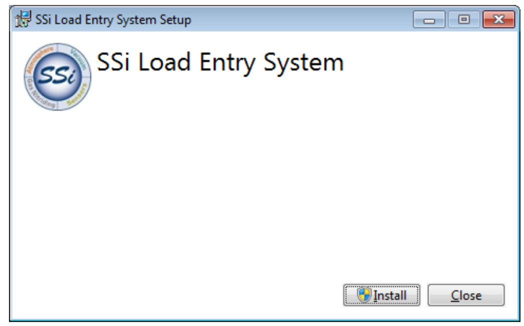
## SQL Setup

Please refer to the *SQL Server Setup Guidelines for SSi Software Installations Reference Guide* found on the Manuals page of the Super Systems website: www.supersystems.com. In addition, prior to installation, the Super Systems API must be installed and set up for SDIO or DataCenter. If you have questions about your specific installation, please consult your IT administrator or contact SSi at (513) 772-0060.

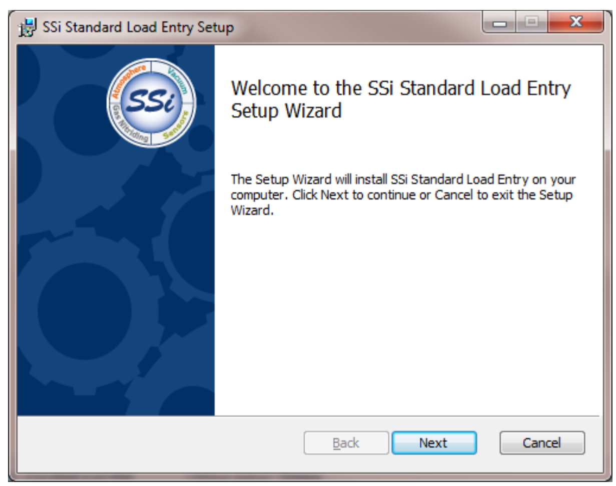
## Installation

To install Standard Load Entry, first double-click on the *03_LoadEntry3_Client.msi* file provided with the installation disc or installation files you received. A screen similar to the one at right will be shown.

Click the **Install** button to proceed.

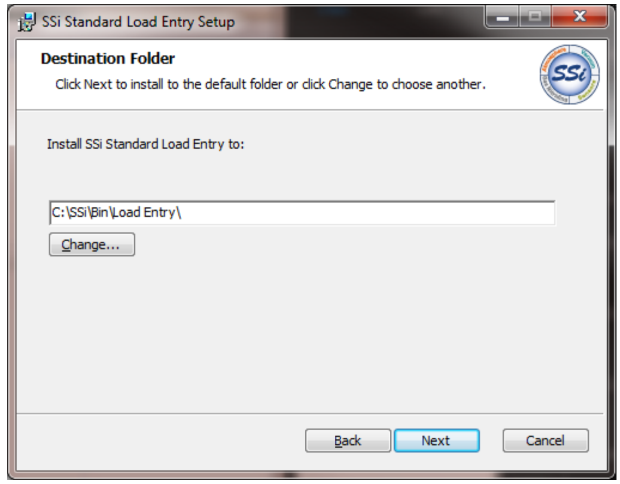



When the Setup welcome screen appears, click **Next** when ready to proceed.



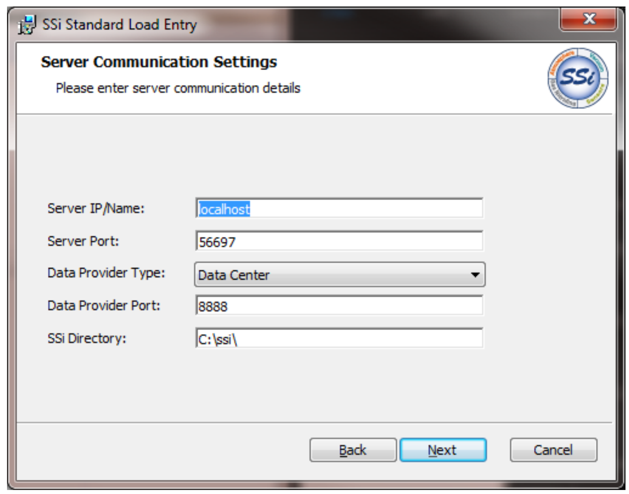
In the next window that appears, enter the name of the folder where Load Entry should be installed. The default will typically be “C:\SSi\Bin\SSi Load Entry\”. If you want to change the default, click the **Change** button.

When ready to proceed, click **Next.**

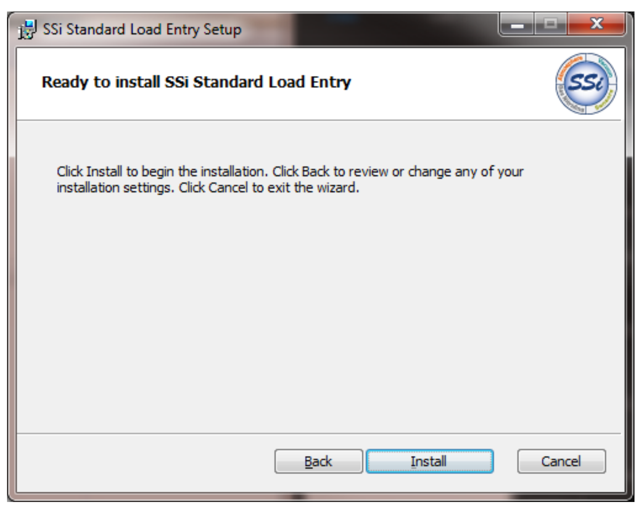



Load Entry will then ask for Server Communication Settings.

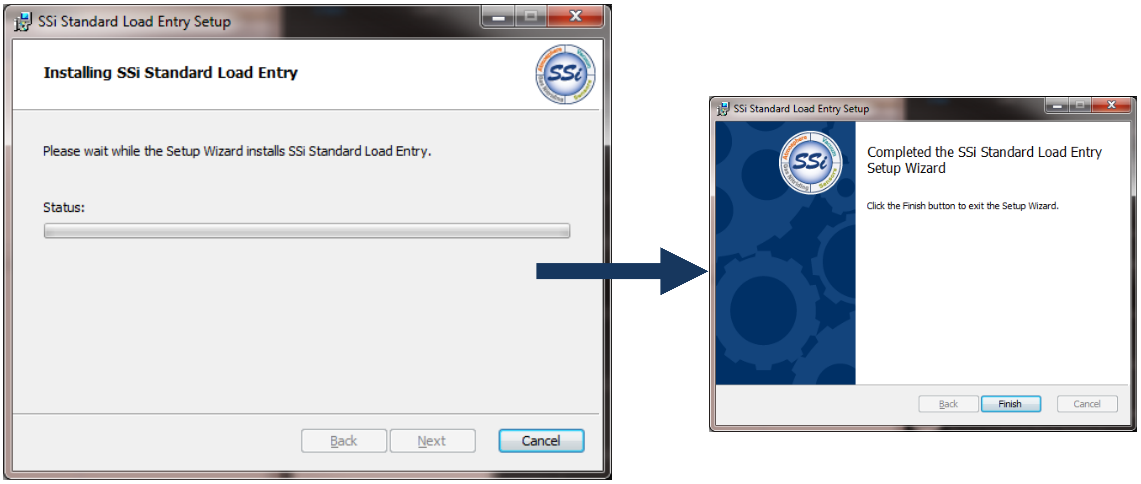
If you are unsure of the correct settings and information, please consult your IT professional or contact SSi for assistance.




Click the **Install** button to proceed.



The software will install. The remaining screens will confirm the installation.



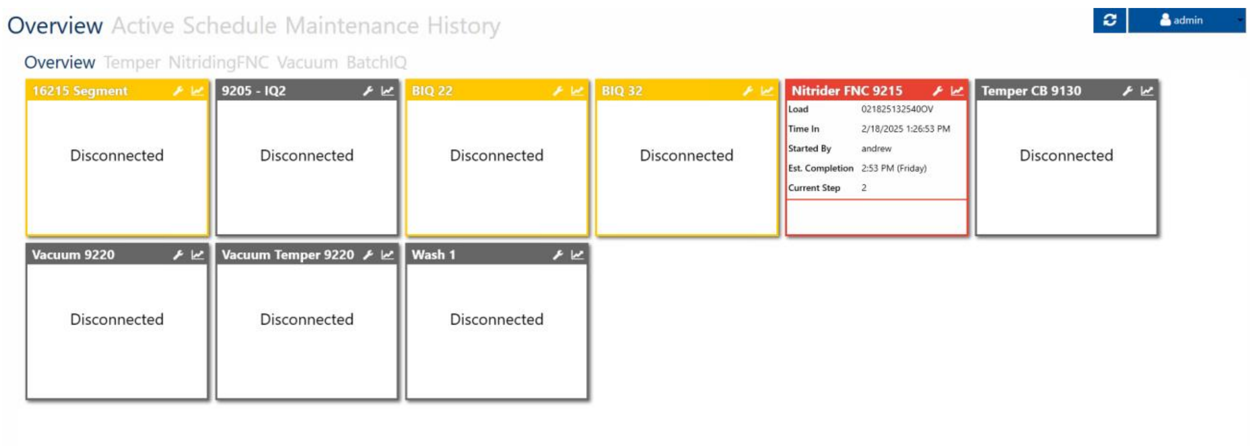

## Setup

When run for the first time, Load Entry users, furnaces, operations, recipes, and parts (if applicable) must be created. Depending on your situation, SSi technicians may have assisted you in populating this information.

This manual is written with a suggested order of setting up items. SSi suggests this order based on the most logical progression of steps for configuring LE3. The sections below detail setup of the following components, in this order: users, options, operations, furnaces, recipes, and parts.

To start Load Entry, open the **LoadEntry.Windows** program from the Start Menu. By default, this program shortcut is located in the **SuperSystems** program group.

When first opened, the Overview screen will be displayed:




This screen will be explained in more detail on page 30. Once logged in with administrator access (by using the Login button at top right), you may continue with the setup.

## Management Window

Clicking the SSi button will bring up the Management Window which includes the following options:

Operations
Furnaces
Recipes
Sequences
Parts
Maintenance
Fields
Gaps
Shifts
Users
Options
About

These options will allow you to input the information that Load Entry will use to control the activity in your facility. Think of this as setting up the background processes that will allow you to manage day-to-day operations elsewhere in the application. This manual is written with a suggested order of setting up items. SSi suggests this order based on the most logical progression of steps for configuring LE3. The sections below detail setup of the following components, in this order: Users, Options, Operations, Furnaces, Recipes, Parts, Fields, Gaps, Shifts, Sequences, Maintenance, About.

## User Editor

The User Editor allows you to add user information and set passwords and "Claims" for each user, as well as assign which Furnaces a user can access via LE3. If any users have been created, you can click on the user's name to view and change their assigned claims. You can also use the "Filter" box to search for specific users.

"Claims" are simply permissions and determine what options the user will be able to access. To change claims for an existing user, simply check or uncheck the desired boxes.

You can also change the User Name, Name, and update the user's password information.

Click "Apply" to save the changes. To leave without saving changes, click "Cancel."

To add a new user, click the "New" button. Enter the desired information in the boxes for "User Name" and "Name" and then select desired Claims. Use the "Update Password" button to enter password information for this user.

Available Claims are divided into categories: Management, Work Orders, Load Tracking, Recipes, Maintenance, and Schedule. Click the box of the overall category to enable all Claims in that group, or click individual boxes to customize. You can also use the "Check All" and "Uncheck All" buttons to select or de-select all options at once.

NOTE: The "Admin" Claim gives a user access to all options.

You will note that your new user appears in ***bold italics*** in the user list. This means that the user has not been saved.

When completed, click "Apply" to save the User information. This user will now be added to your list.

To close without saving, click "Cancel."

To set or update a User's password, click "Update Password." You must set a password in order to save a new User.

By right-clicking on a user name in the list, you can "Copy" and "Paste" a user (useful in creating a new user with identical claims to an existing one). You can also "Delete" a user. The option to set password information is also available via the right-click menu.

Click the "Furnaces" tag to assign Furnaces permissions using the same functionality (note that the Furnace categories are based on the overview page setup, discussed elsewhere in the manual.

Click to close the User Editor.

## Options Editor

The Options Editor window allows you to view and edit information about Workstation Options, Defaults, Units, Logins, Visual Shop, Work Orders, and other optional features. This will allow you to set up LE3 in the way that best fits the needs of your facility.

*WORKSTATION OPTIONS:*

**Language:** Select the language for LE3.

**Time Format:** Select a 12 or 24-hour format.

**DataProvider Hostname** : Enter the hostname name of the Data Provider.

The remaining options in this section allow you to set the local file locations of the server, SDIO, SD Recorder, Recipe Imports, and Custom Reports.

*UNITS:*

**Temperature**: Select the desired temperature display unit.

**Weight**: Select the desired weight display unit.

*LOGINS:*

**Login Limit Enabled**: When checked, LE3 will log out users after a period of inactivity.

**Login Limit Minutes**: How long a user can remain inactive before being logged out by LE3.

*WORK ORDERS:*

**Custom Designation:** Allows you to select a custom name for Work Orders. When this box contains an entry, you can also choose a "Plural" designation.

**Generate Work Order Names:** Select whether LE3 will generate work order names

**Use Part Serial Numbers:** Select whether LE3 will use Part Serial Numbers for identification.

*DEFAULTS:*

**Pick List Limit**: Defines how far back the Pick List feature will go when creating a load

*VISUAL SHOP:*

**Connection String:** This information is required to pull data from your Visual Shop database. This feature can be set up from the Furnace Editor (see p. 14)

**Custom Field:** A label for a single piece of data that can be tracked with a Visual load.

*OPTIONAL FEATURES:*

**Use Parts Database**: When checked, the Parts database options will be available.

**Use Gap Time**: When checked, the Gap options will be available.

**Use Work Order Approval:** When checked, LE3 will require approval of work orders.

**Apply Default Offset to Trend**: When checked, the report default offset will be applied to load end and start after clicking "View Trend."

**Use Register Definitions:** When checked, Register and Definition options will be available for furnaces and recipes that use an HC900 controller.

**Disable Weight**: When checked, Weight options will *not* be available.

**Display Furnace Run ID**: When checked, a furnace ID will be displayed, based on the prefix defined in the furnace and the number of loads that have been run in that furnace

**Display Work Order Completed Steps**: Displays the time in and time out of each completed step on the Work Order Editor

**Show Recipe Profile View:** Allows the option to view recipes in graph form.

**Run 9xxx Recipes on Matrix:** When checked, recipes from a 9000 Series controller will be available on the corresponding Matrix controller.

**Use External Database**: When checked, allows you to connect to an external database to pull data for custom fields. Use the "Edit Mappings" button to enter the desired settings.

**Display status color**: When checked, furnace status will be displayed by color in the Overview screen. Use the "Edit Status Colors" button to customize the colors used for each status.

**Use Schedule:** When checked, Schedule functionality will be available (via the Schedule tab in the Overview screen).

**Use Maintenance:** When checked, Maintenance functionality will be available (via the Maintenance tab in the Overview screen).

**Maintenance Menu Label:** Changes the name of the "Maintenance" tab and screen

*REPORT DEFAULTS:*

**Start Offset**: Enter a starting offset value. This defines the amount of time to wait before a load begins when opening SDRecorder and running load reports.

**End Offset**: Enter an ending offset value. This defines the amount of time to wait after a load ends when opening SDRecorder and running load reports.

**Export to XML:** When selected, reports will export to XML rather than the SSi default format.

**SSRS Reports:** Allows you to generate reports with SQL Server Report Services. If selected, click "Manage Reports" to customize SSRS reports to suit your needs.

**Report Server:** Sets the path for the report server

**User Server:** Sets the path for the user server

**Custom Logo**: Use to add your own custom logo to a Load Report Click the "…" button to browse your computer for the desired file.

Click "Save" to save your Option settings.

## Operations Editor:

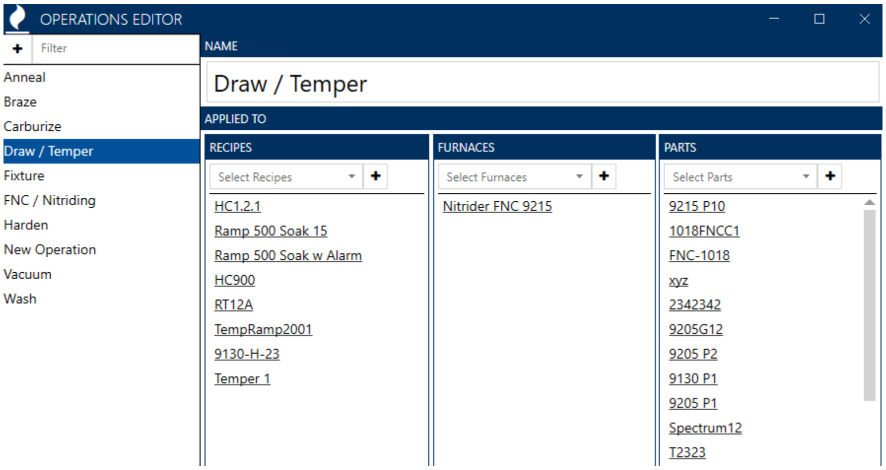
The Operations Editor Window allows you to enter information about the operations in your facility that Load Entry will control. Specifically, you can choose to "Apply" an operation to any Recipes, Furnaces, or Parts that you have already inputted into the software or imported from a database.

On the left of the window you will see a list of Operations (empty if none have been created) and a "Filter…" input box which will allow you to filter/search the displayed Operations.

The main view area of the Operation Editor Window is where you will enter your Operations information.

To begin, click the + button. Enter a name for your new Operation. You will note that your new operation appears in *italics* in the operation list. This means that the operation has not been saved.

If no Recipes, Furnaces, or Parts have been created in the system, naming the Operation will be your only option. Otherwise, you will have the option to apply your new operation to those items:




Click "Apply" to save the current Operation. It will now be displayed on the list to the left without italics.

To edit an existing Operation, simply select it in the list on the left and its information will appear in the main view area.

By right-clicking on an operation in the list, you can "Copy" and "Paste" an operation (useful in creating a new operation with applications to an existing one). You can also "Delete" an operation.

Use the dropdown menus to add applications (Recipes, Furnaces, and Parts) to the selected Operation.

Click  to close the Operations Editor.

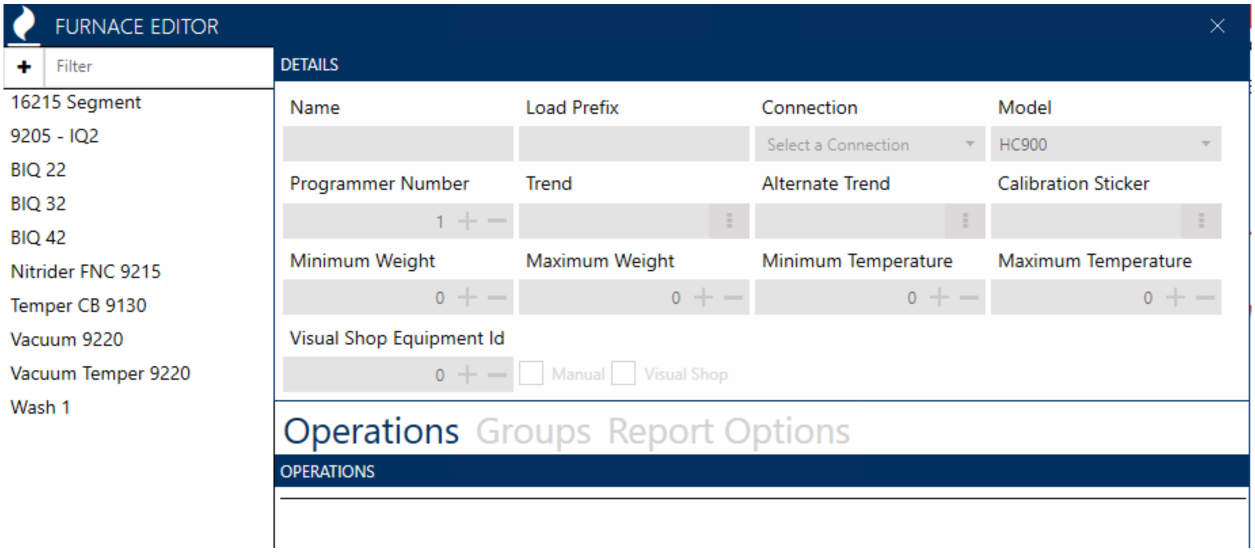
Click "Apply" to save the changes. To leave without saving changes, click "Cancel."

## Furnace Editor

The Furnace Editor Window allows you to enter information about the Furnaces and other equipment in your facility that Load Entry will control or keep track of. You can then assign the furnace to the desired Operations, Groups , and set Report Options.

### *Furnace Details Panel*

The Details Panel allows you to assign various fields to your furnace information. The available options will vary based on what you have selected in the Options Editor, but in general will include Name, Load Prefix, Connection, Model, Programmer Number, Trend, Alternate Trend, Calibration Sticker, Min and Max Weight and Temps, and and Visual Shop integration information.




NOTE: If the furnace is Visual Shop integrated, the Visual Shop Equipment Id must match the asset's id in Visual Shop in order to use the tracking feature.

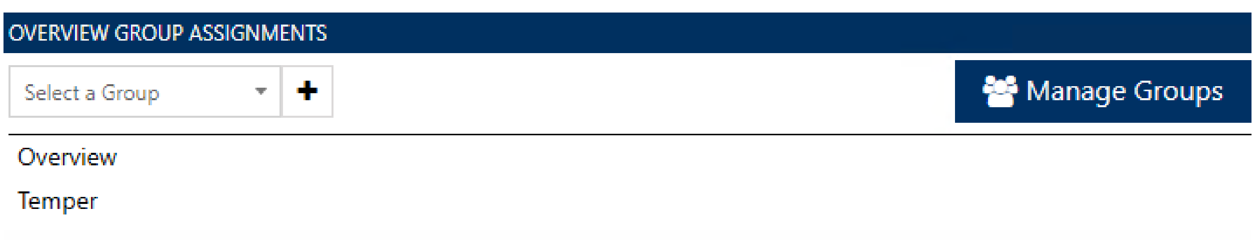
## Operations Tab

To assign a furnace to an existing operation, select the desired operation from the dropdown menu, and then click ✚ .

The operation will now be added to the operations list below the dropdown menu. The operations list is clickable – clicking on an item in the list will bring up that operation's information.

To delete an operation from the list, right-click on it and select "Delete."

## Groups Tab




Clicking the "Groups" tab will bring up options for Overview Groups Assignments. This will assigns your furnaces to various groups for easy viewing in your overview screen.

The functionality of the Groups menu is identical to that of the "Operations" tab.

The "Groups" ⊕ button allows you to organize the Furnaces displayed on the Overview window into groups.

On the Overview Groups Editor window, simply click the New + button and enter a group name in order to create a new group.

Or, use the dropdown menu to select an existing group.

"Manage Groups" allows you to adjust the order the groups will be displayed in on the Overview Page.

When completed, click "Save." You will now have the option to assign furnaces to your new group by using the "Overview Group Assignments" panel on the Furnace Editor Window.

When you are finished assigning furnaces to groups, the Overview Window will display your Furnaces by groups. (NOTE: You may need to restart the application for the new group to appear in the Overview screen.)

### Report Options Tab

The Report Options Tab allows you to create One Time Reads and Time Stamps for your furnaces. Use the drop-downs to assign the relevant information.

When finished with the Furnace Editor, click "Apply" save changes.

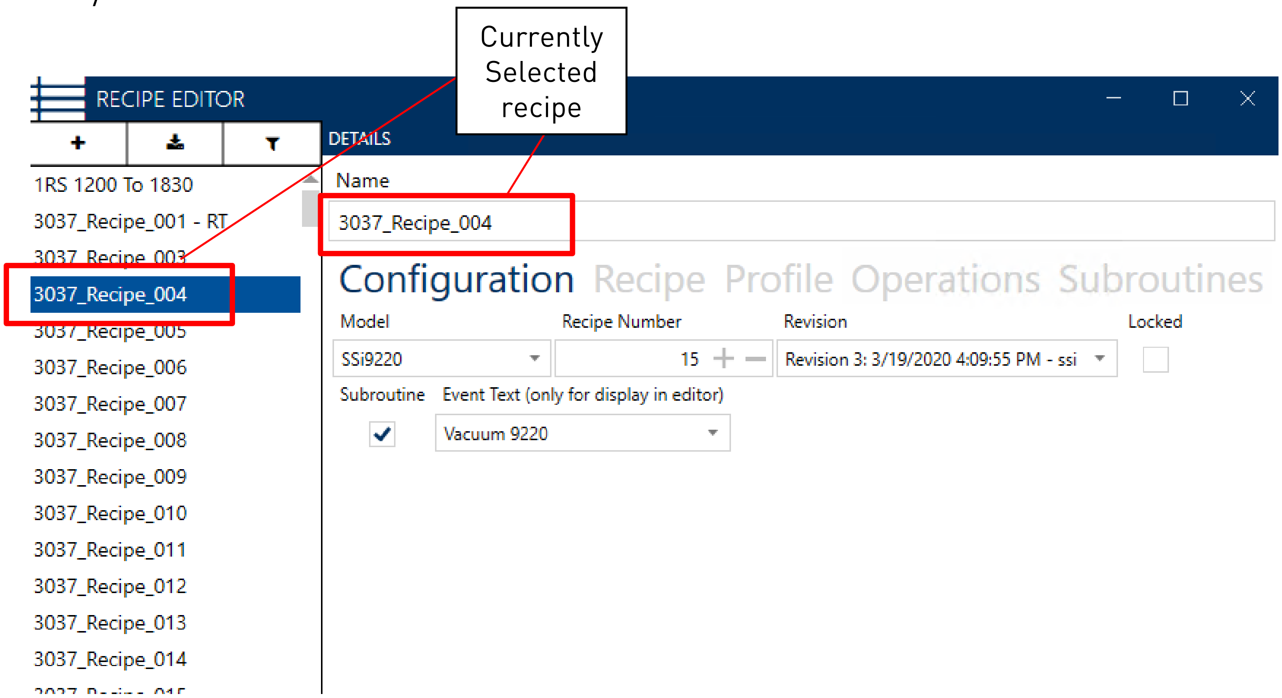
> **NOTE**: If an Overview Group is displayed *in **bold italics*** within the list view, this indicates that it contains unsaved changes.

## Recipe Editor

The Recipe Editor Window allows you to manage information about the Recipes in your facility that Load Entry will control.The basic functionality of the Recipe Editor is the same as the Operations Editor. The left panel will display all saved recipes.

Click + to add a new recipe, click to import a recipe, and click to filter the list using search terms.

*Recipe Details Panel*




The Details Panel includes the Configuration, Recipe, Profile, Operations, and Subroutines Tabs.

### Configuration Tab

The Configuration Tab allows you to select the Controller Model, Recipe Number, Revision, and, if desired, to lock that selection (preventing it from being changed once the recipe is running) or enable the current recipe to be used as a subroutine in another recipe for the GOSUB and JUMP opcodes . Depending on the selected recipe, you can also designate this recipe as a Subroutine, and enter Event Text to be displayed in the Editor

### Recipe Tab

The Recipe tab displays the steps (or segments) of the selected recipe.

| |
|---|
| NOTE: Examples shown below are for recipes created using the Step programmer. Depending on your controller, you may also have the option to use the Segment Programmer. For explanations of recipe programming (including Opcodes) refer to the manual for your controller – or a manual for segment programming. |

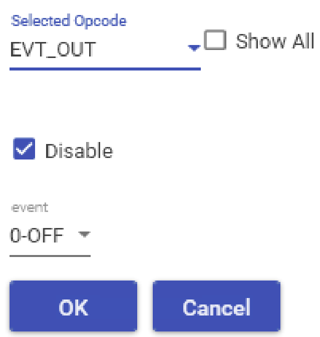
Name

3037_Recipe_004

Configuration Recipe Profile Operations Subroutines

| | Opcode | OpcodeDescription | Temperature | Atmosphere | Option |
|---|---|---|---|---|---|
| 1 | EVT_OUT | event output | 32 °F | | 0-ON |
| 2 | DELAY | short delay | | | 10 sec |
| 3 | EVT_OUT | event output | | | 0-OFF |
| 4 | EVT_IN | wait for event input | | | 0-ON |
| 5 | SOAK | soak | | | 0:03 |
| 6 | RAMPR | ramp at rate (temp) | 1200 °F | | 30 °/min |
| 7 | TC_INQ | temperature inquiry | 1200 °F | Control T/C | wait |
| 8 | SOAK | soak | | | 1:00 |

To edit a recipe, double-click on an Step to bring up the step editor.




Use the Selected Opcode dropdown menu to select an Opcode for this step and set all necessary parameters. When finished, click "OK." Your new recipe step will be displayed in the recipe editor (depending on the Opcode you entered, you may need to scroll up and down or use the sorting tabs in order to view the newly-entered step).

For more detailed instructions on building recipes, consult your programmer/controller manual.

### Profile Tab

The Profile Tab will display the recipe in graph form. Note that this functionality must be selected in the Options Editor in order to be enabled.

### Operations Tab

The Operations Tab allows you to assign your facility's operations (created in the Operations Editor) to the selected recipe. Select an operation from the dropdown menu, and click + to add it to the list of available Operations. Clicking on an operation in the list will bring up information in the Operation Viewer.

### Subroutines Tab

The Subroutines Tab allows you to assign this recipe as a subroutine of another recipe (using the GOSUB and JUMP opcodes). Select a recipe from the dropdown menu, and click + to add it to the list of available recipes. Note that in order to enable this function, the “Subroutine” box in the Recipe panel must be checked.

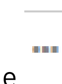
## Parts Editor

Note that this functionality must be selected in the Options Editor in order to be enabled.

In the Parts Editor, you can associate parts wtih the sequences and recipes that Load Entry will control, allowing for quick selection of processes later. If you do not assign a part to a recipe in the Parts Editor, it can only be run on manual loads or will require an override. The basic functionality of the Parts Editor is the same as the Operations Editor (see p.12), but with the following additional option:

### *Details Panel*

The Details Panel allows you to enter the weight of a part, along with information for any custom fields that have been created.

In addition, an image of the part can be assigned by clicking the  button next to the part Name and selecting a file from your computer.

**NOTE**: If a Part is displayed *in **bold italics*** within the list view, this indicates that it contains unsaved changes.

## Fields Editor

The Fields Editor allows you to add additional field input options to the Details Panels of Furnaces, Parts, Recipes, and Work Orders. The basic functionality of the Fields Editor is the same as the Operations Editor (see p.12).

### *Fields Details Panel*

The Details Panel will allow you to set a standard format for entries into the new Fields you will create.

If “Normalized List” is checked, you may create a custom set of list items based on your own needs. This can be useful to assign specific customers, priority levels, or other existing terminology specific to your facility.

To add selections to your normalized list, click the Add button and enter the name of a list selection. Repeat this process until you have created all the desired items in your list. These items will appear as a dropdown menu for every Furnace, Part, Recipe, etc. that you apply it to.

If “Normalized List” is unchecked, you will see options that allow you to assign specific formatting to fields. This is useful when using this feature for standard codes and numbering systems in your facility.

The “Format” box allows you to set this format, as follows:

- A = any alphabetical character
- 1 = any numerical character
- Any other characters represent themselves literally.

Example 1:

You are creating a “Customer” field and your company uses a code of three numbers and three letters to identify each customer (e.g.“FES027” or “MPS019”).

You would enter “AAA111” into the “Format” box to indicate three letters and three numbers.

Example 2:

You are creating a “Customer” field and your company uses a five-digit code followed by the letter C to identify each customer (e.g.“45230C” or “18235C”).

You would enter “11111C” into the “Format” box to indicate five numbers followed by a “C.”

Example 3:

You are creating a “Part Code” field and your company numbers parts using a numerical prefix “007,” and a four-number numerical code, separated by a hyphen (e.g. “007-4129” or “007-8173”).

You would enter “007-1111” into the “Format” box to indicate the numerals “007,” a hyphen, and a four-digit number.

If a specific format is not required for the current field, simply leave the “Format” box blank.

If the "Format" box is not used, you can instead set a required length for entries into this field. For example, if you have no standard format, but all entries must be exactly seven characters long, you would enter "7" into the "Required Length" box.

NOTE: If using the "Format" box, you must enter "0" into the "Required Length" box.

Clicking the "Required" box will force all future users to match the indicated format before saving entered information:


Clicking the "Export" box will cause this field to be included when using the export feature on the History Tab (see p. 27).

Under the "Applied To" bar, select which Furnace, Part, Recipe, and Work Order you would like to apply the selected Field to.

NOTE: If a Field is displayed ***in bold italics*** within the list view, this indicates that it contains unsaved changes.

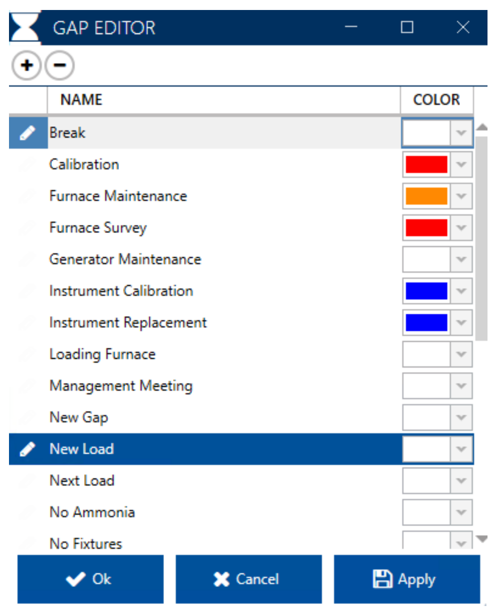
## Gaps Editor

Note that this functionality must be selected in the Options Editor in order to be enabled.

The Gap Editor allows you to create names for gaps that exist in your facility's processes. This can be very useful in tracking downtime and improving efficiency in your facility.

On the Gap Editor window, simply click the + button and enter a Gap name in order to create a new Gap. You can then assign a color to the selected gap if desired.

When completed, click "Save."



## Shift Editor

The Shift Editor allows you to create and name shifts and set shift begin and end times. The basic functionality of the Shift Editor is the same as the Operations Editor (see p.12). To set shift start and shift end, either enter the time in the input box, or click the clock icon to set a time using dropdowns.

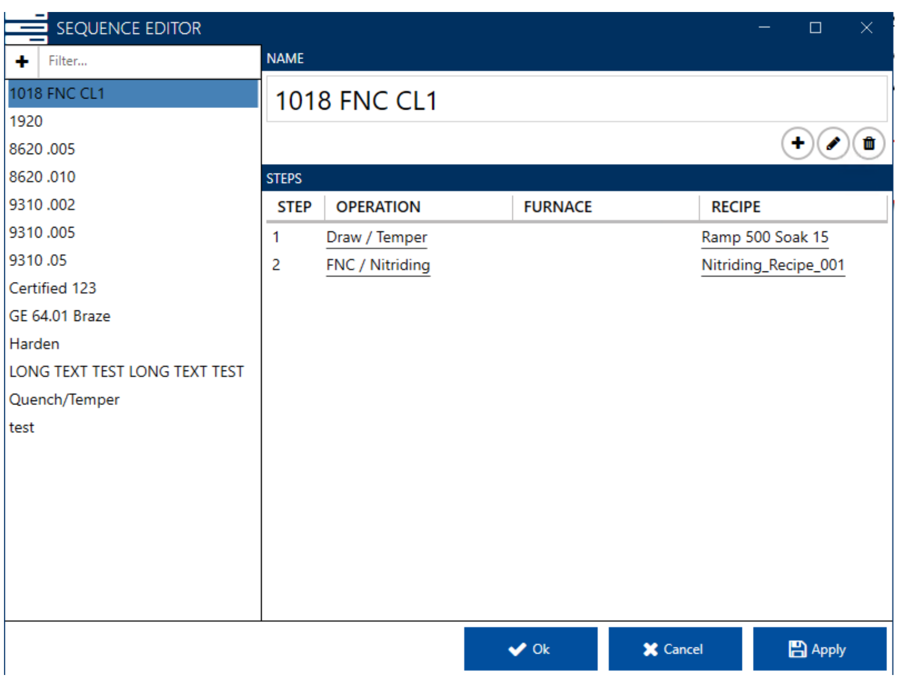
NOTE: All shifts combined must add up to 24 hours with no overlap.

NOTE: If a Shift is displayed *in **bold italics*** within the list view, this indicates that it contains unsaved changes.

## Sequence Editor

The Sequence Editor window allows you to create a series of steps (called a Sequence) that can control how a part or work order is processed through multiple operations, furnaces and recipes. The basic functionality of the Sequence Editor is the same as the Operations Editor (see p.12). The purpose of the sequence is to create consistency on the flow of a work order or part through the heat treat operations. The interface makes it very easy to apply the steps to achieve all operations. For example, if part xyz will always go through a wash, harden and temper process, it would be beneficial to create a sequence that would follow these steps. This does not have to be part specific, it can just be a consistent process used for a work order.

Once a new Sequence is created and named, use the New button to add steps to the Sequence. Steps consist of Operation, Furnace, and Recipe assignments. Click "Save" to add the step to the sequence.



In the example above, the 1018 FNC CL1 sequence can be applied to a part or a work order to ensure that these 2 steps are completed. The sequence can optionally assign the furnace and recipe.

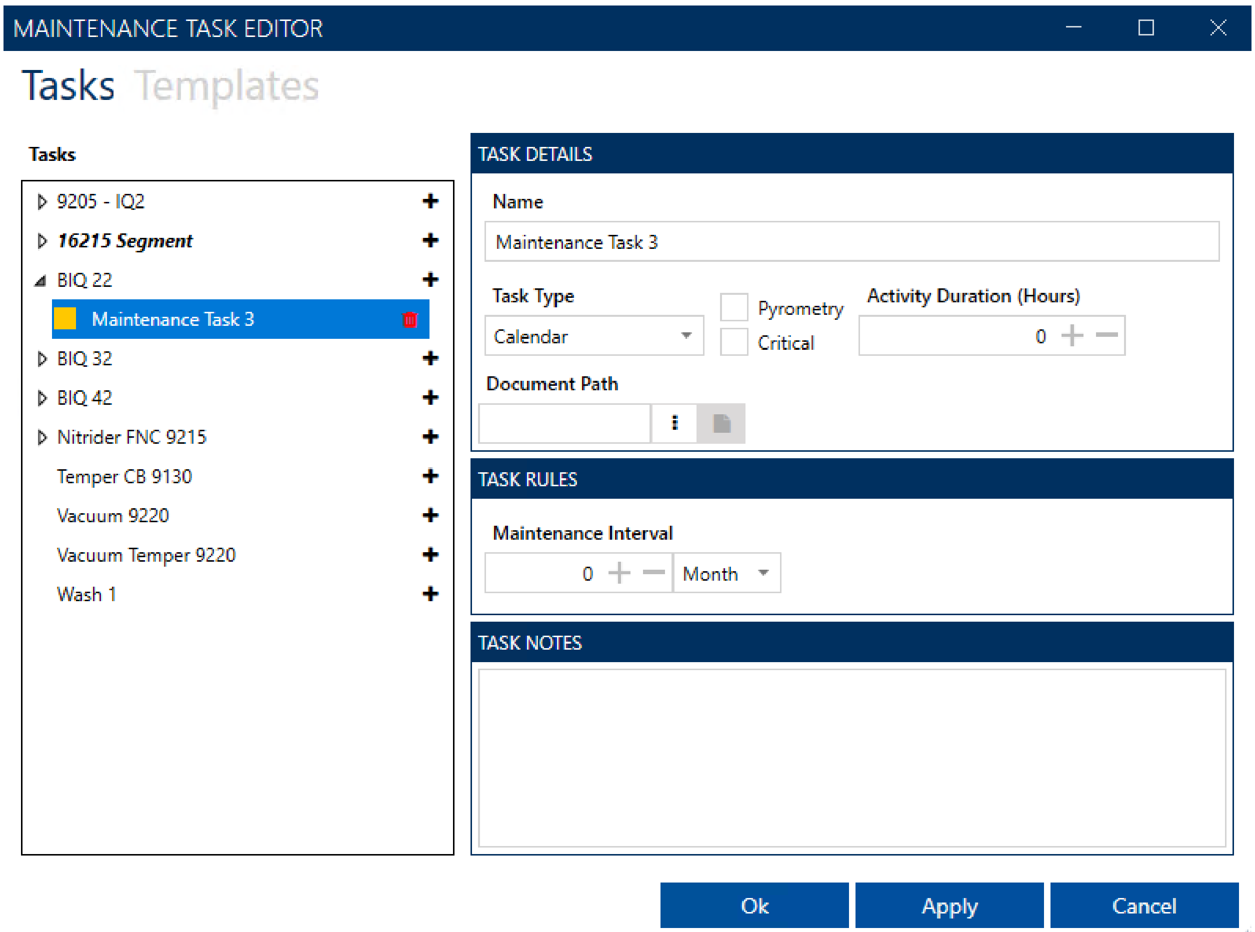
To edit a step, click the Edit button or double-click on the step in the Steps display area.

NOTE: If a Sequence is displayed *in* ***bold italics*** within the list view, this indicates that it contains unsaved changes.

## Maintenance Editor

Note that this functionality must be selected in the Options Editor in order to be enabled. Also note that if the name for this function was changed in the Options Editor, it will appear under the new name rather than "Maintenance."

The Maintenance Editor allows you to create, save, and organize maintenance tasks and templates based on various rules and inputs. This makes organization of required maintenance and surveys much easier to manage.




The Task list on the left-hand side is organized by furnace. If a furnace has any associated tasks, click the icon to its left to expand the list.

To create a new task for a furnace, click the + button. A new line will be populated in the list, and the Task Details pane will present options.

Select a Task Type from the dropdown list:

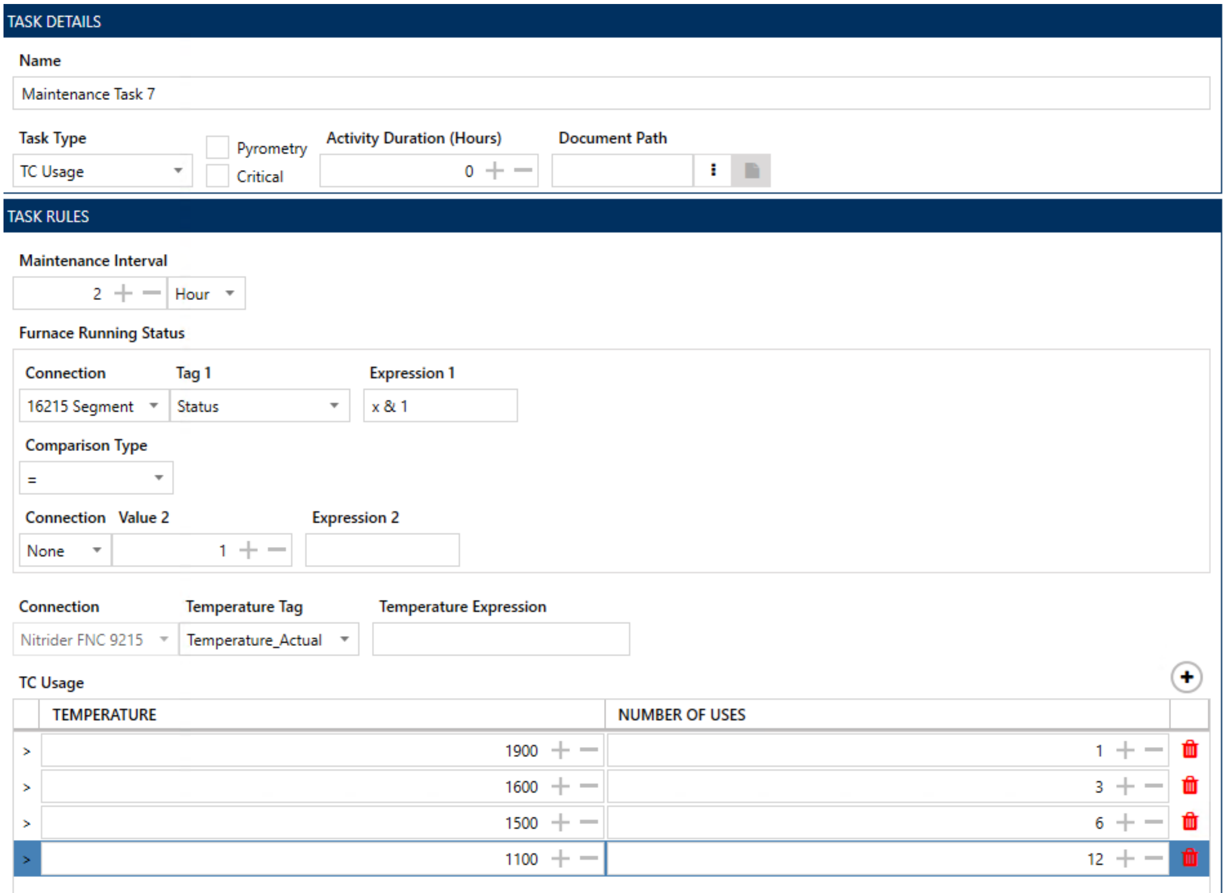
**Calendar** tasks only require a Maintenance Interval - how often the task should take place.

**Timer** tasks require comparisons between Tags – if a certain condition is met for the set amount of time (the Maintenance Interval), the task becomes necessary.

**Counter** tasks require comparisons between Tags – if a certain condition is met a certain amount of times (the Counter Target), the task becomes necessary.

**Input** tasks require comparisons between Tags – if a certain condition is met, the task immediately becomes necessary.

**TC Usage** tasks comprise four parts: *Maintenance Interval, Furnace Running Status, Connection,* and *TC Usage.* These settings allow you to create a task based on either elapsed time, or the number of times a TC is used based on a set temperature during loads.




TC Usage tasks will become due if either the *Maintenance Interval* settings or the *TC Usage* settings are reached.

*Maintenance Interval* settings function just like a Calendar Task – after the set amount of time, the task will become due, regardless of the remaining sections.

In the example above, if the assigned TC reaches one of the target temperatures in the *TC Usage* section, LE3 will begin to track the number of uses – and the maintenance task will become due when the set *Number of Uses* has been reached.

Example: If a recipe reaches 1150°, then a recipe can be run a maximum of 11 more times (the *Number of Uses* is set to 12, and the current recipe has now become the first of those 12).

Once this "countdown" has been triggered, each recipe run counts as a "Use" even if the target temperature is not reached. Therefore, even if the next four recipes do not reach the lowest target of 1100°, the maximum number of uses will still have been reduced to 7.

However, if a higher temperature setting is reached, that target's assigned *Number of Uses* will supersede the previous "countdown."

Example: A recipe reaches 1150°, beginning the "countdown" to 12 uses. The next two recipes do not exceed 1000°, leaving the Number of Uses remaining at 9. However, the next recipe reaches 1650°. This triggers the 1600° setting above, and now a recipe can only be run a maximum of two more times (the *Number of Uses* is set to 3, and the current recipe has now become the first of those 3).

The *Furnace Running Status* determines when a recipe has started. The example above is the most likely use case: it states that if the first bit (denoted by the expression "x & 1") of the status tag is equal to 1, the recipe has started. If this setting turns from false to true, the number of uses tracked in the *TC Usage* section increases by 1.

and *Temperature* section determines what input LE3 will use to compare the measured temperature to the trigger temperatures set in the *TC Usage* section.

Set the Activity Duration, the location of any associated documents (e.g. detailed instructions stored in a separate file), as well as any notes.

For Timer, Counter, Input, and TC Usage tasks, use the Task Rules to set the conditions and frequency that will trigger the Maintenance Task.

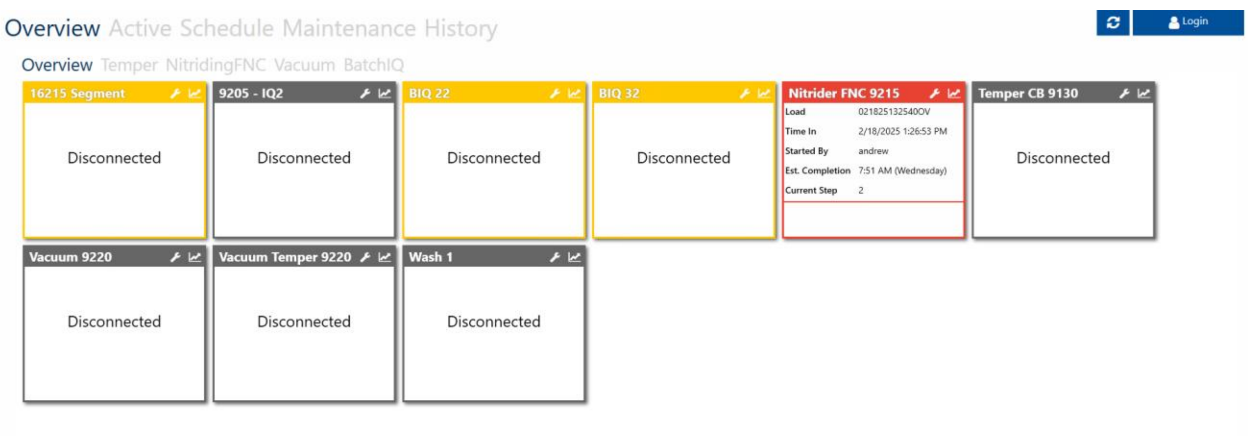
## About

The About panel displays release notes.

## Overview Screen

The Overview Screen displays all current furnace information in groups as assigned by the user. You can also assign gaps (if enabled), begin new loads and, if necessary, enter historical loads.

NOTE: Instructions below assume that Gaps are enabled. If you are not using Gap options, some functionality will differ slightly.




Click on a group to display the furnaces in that group. "Overview" will display all furnaces regardless of group.

Red indicates that a furnace has a critical Maintenance Task due, and thus is locked out. Yellow indicates that a non-critical Maintenance Task is due.

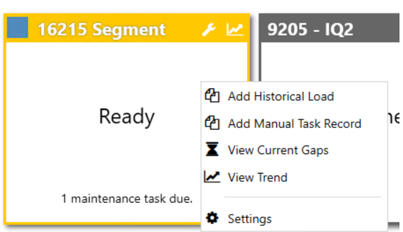
Click on a furnace to display information on its current status.

Click on the wrench icon to view (and start) any due Maintenance Tasks.

Click on the chart icon to bring up trend information from SDRecorder Pro. See the associated manual for additional information on this functionality.

### Right-Click Options

Right-clicking on furnaces brings up additional functionality:




Click "Add Historical Load" to open the NEW LOAD window. See "Load Creation" below for an explanation of this window's features.

Click "Add Manual Task Record" to add an entry for a current or historical Maintenance Task, including start and end date/time, notes, attachments, and whether the task was Maintenance and/or Pyrometry related.

Click "View Current Gaps" to view the gaps that are currently in effect for the furnace.

Clicking "View Trend" will bring up trend information from SDRecorder Pro.  See the associated manual for additional information on this functionality.

Right-clicking on an active furnace will also provide the option to "Force Load Out."  Doing so will return the furnace to a Gap state.

Right-clicking will also bring up the Settings option,  From here, you can customize the display information, color, etc. for the selected furnace that will be displayed on the overview page.

## Furnaces in Gap State

Clicking on a furnace which is in a Gap state (assigned and defined in the Gap Editor) will bring up a screen like this:


From this screen, you can add notes to explain any changes in status.  The purpose of the Gap screen is to provide an interface for the user to assign a reason code of why the furnace was not running a load.  The Gap Reasons are user defined in the Gap Editor in the setup.  If the furnace is in the READY state, the time of the gap is from the time the gap went to ready to the current time.  If the Gap Reason is already assigned, then the time associated to this Gap continues until another load is run or a new Gap is added using the New Gap button.

In the example above, "Break" is the name of the Gap (set up using the Gap Editor).  From here you can add notes to the Gap information – these will be visible when looking at the History and in any generated reports.

If only entering notes, click "Save" to close the window and continue the current gap state.

To close the gap window without saving, click "Cancel."

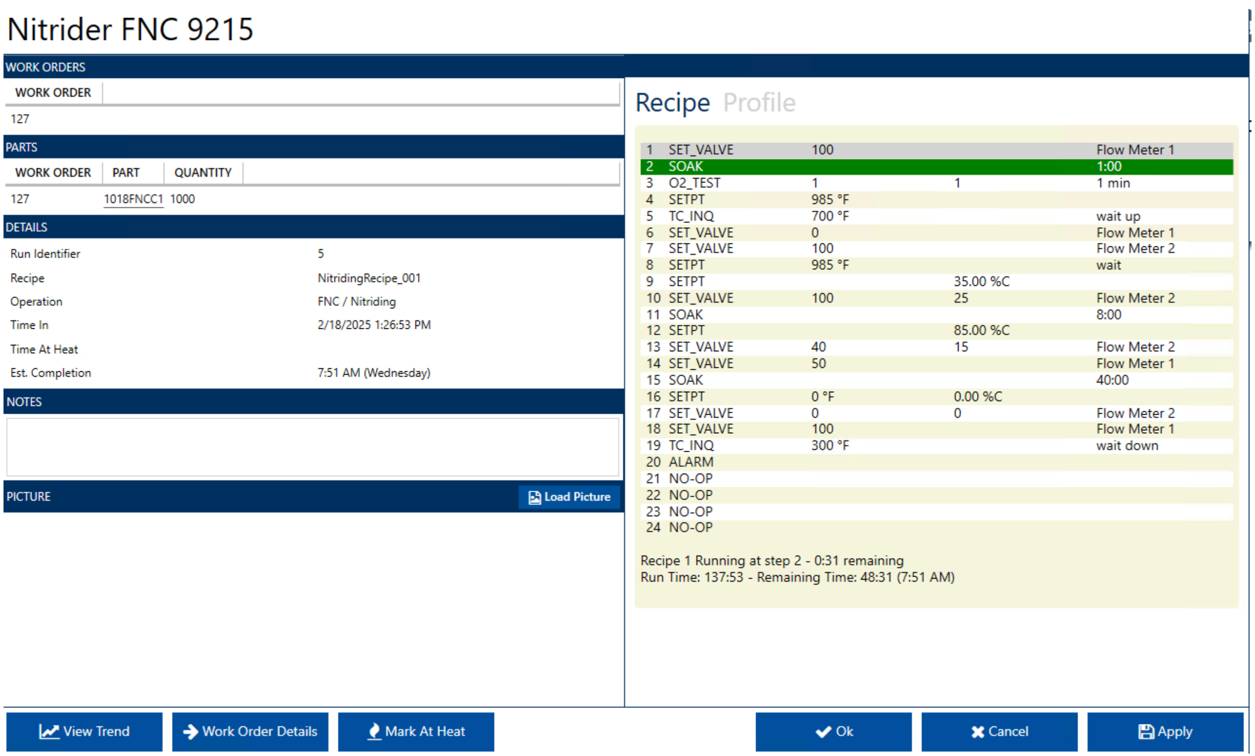
To close this gap and begin a new gap, click "New Gap." Select a Gap from the dropdown menu, enter Notes if desired, and click "Save." The furnace should now display the new Gap name.

To close this gap and run a recipe, click "Save + Start." This will bring up the Load Creation window (see below for details on this feature).

## Disconnected Furnaces

If a furnace is listed as disconncted, you may have the option to add a manual load to the furnace.

## Furnaces with Active Loads




Within active loads, you will have the ability to add Notes, access Work Order Details, and mark times for "At Heat."

Notes can be added in the text box, and an image for reference can be attached from a drive or network location.

In addition, Recipe information will be displayed. Depending on the recipe and its current status, you will be able to control the steps in the recipe if you have the right user privileges (see user claims setup) using the "Hold," "Cont," "Stop," "Adv," and "Ack" buttons. For more detailed information on recipes, see your controller manual.

## Furnaces Running Loads Started Outside of LE3

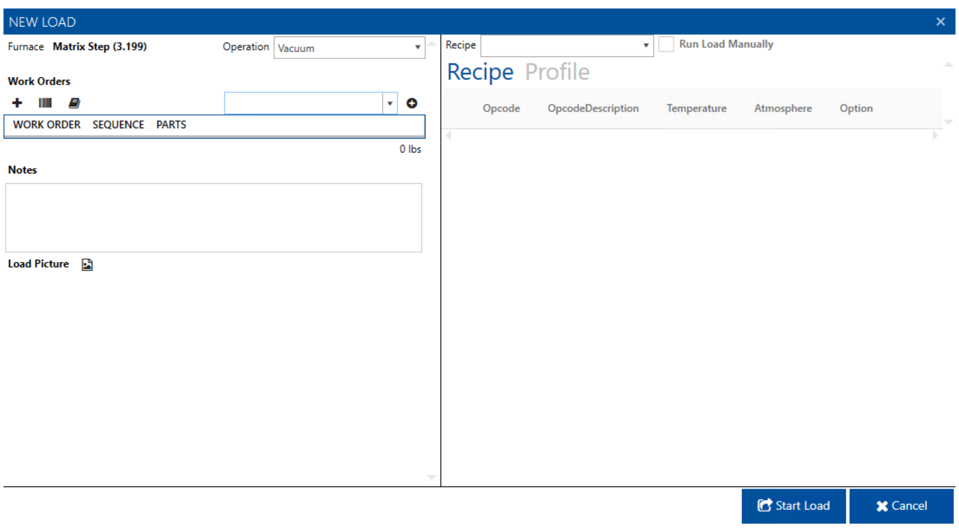
If you click on a furnace running a load that was not begun in LE3, you will receive a message explaining this. External loads can not be controlled via LE3 and must be accessed through the controller or platform that began the load.

## Furnaces in a Ready State

Clicking on a furnace in a Ready State will bring up the New Load menu (see Load Creation section below for details.

## Load Creation

The Load Creation Editor can be accessed by clicking on a furnace in a ready state, or by clicking on a furnace in a gap state then clicking "Save + Start."




Use the "Operation" dropdown menu to select from the available Operations for this furnace.

Under "Work Orders" are the following buttons:

Clicking will bring up the Work Order Editor.

Clicking will bring up the Traveler Selector window. From here you can scan work orders to add to the traveler. Click "Okay" to save changes, or "Close" to continue without saving.

Clicking will bring up the Pick List. Use the text box to search for existing work orders. Click the box next to "Rework" if appropriate.

Once a work order has been selected and any changes made, click to add it to the Load list.

The current load can be sorted (ascending or descending) by Work Order, Sequence, and Parts by clicking the desired heading.

WORK ORDER SEQUENCE PARTS

To Delete a Work Order, click it in the list to highlight, then click Delete .

Under the "Recipe" bar, use the dropdown menu to select from the recipes currently associated with this Load. You can also choose to run the load manually using the corresponding checkbox.

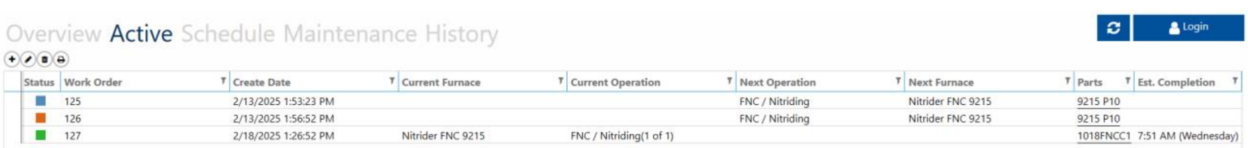
Notes can be added to the load as well.

Click "Start Load" to begin the load, and "Cancel" to exit without saving.

## Active Screen

There are two ways to create data in the Active Screen. 1) creating a load in the furnace from the overview screen, 2) creating future work using the button.

The Active Screen displays all active Work Orders along with their associated Furnace, Current Operation, Next Operation, and Estimated Completion. A color box is also displayed to indicate if the Work Order is Ready, In Sequence, or In Process.




To create a new Work Order in the Work Order Editor, click Add . (See Work Order Editor for explanation of this feature.)

To Edit a Work Order in the Work Order Editor, click it in the list to highlight, then click Edit . (See Work Order Editor for explanation of this feature.)

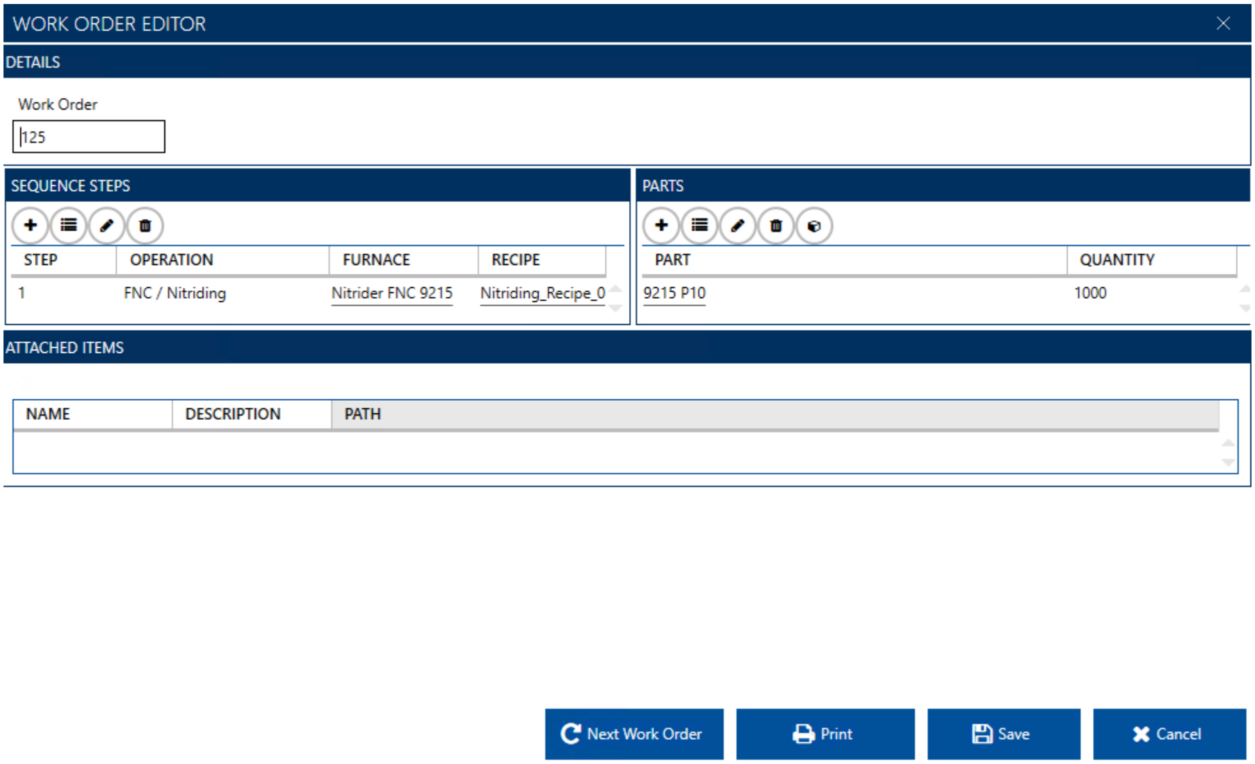
To Delete a Work Order, click it in the list to highlight, then click Delete .

To print the active information, click .

To Refresh the display, click Refresh.

The various display columns are clickable to sort the list by that column, and parts are clickable to view part data.

## Work Order Editor




The Work Order Editor allows you to create and edit new work orders and assign the appropriate details, operations, and parts. Other fields can be added for capture with the work orders (fields are set up in the Fields setup window).

To assign Sequence steps to a work order, click Add and select the desired Operation from the dropdown menu. Once selected, available options (Furnace, Recipe, etc.) will auto-populate. Click "Save" to add the Operation to the work order.

You can also assign entire Sequences directly, using the Sequence button.

To edit an existing Step, click on that row and click the Edit button (or, double click on the Step in the list).

To delete a Step, click on that row and click the Delete button.

To assign Parts to a work order, click Add and select the desired Part from the dropdown menu. Once selected, available options will auto-populate. Click "Save" to add the Part to the work order.

To assign a Sequenced Part to a work order, click in the Parts panel, and select the desired part number, quantity, and sequence.

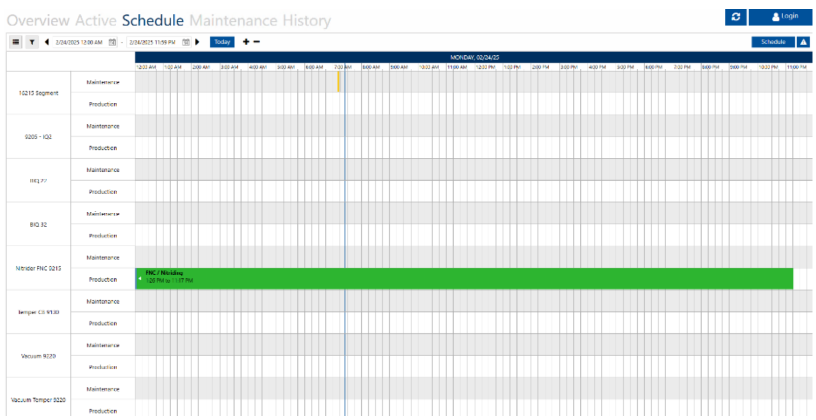
To edit an existing Part, click on that row and click the Edit button (or, double click on the part in the list).

To delete a Part, click on that row and click the Delete button.

You can also access the Parts Database from this screen by using the Manage Parts button.

## Schedule Screen

The Schedule screen shows a calendar view of furnace usage. This view can be toggled to a list view using the icon at top left.




The Filter button allows you to customize what funaces are displayed, and to limit display to Maintenance and Production tasks (if Maintenance is enabled).

Use the date and time boxes to set the range visible on screen.

The forward and backward arrows will move the entire view back or forward one day.

Click "Today" to set the view for the current day.

Clicking the + and – buttons will increase or decrease the size of each individual furnace in the display. As the display size increases, scroll up or down to view all the furnace information.

Holding Shift while using the mouse scroll wheel will scroll the display forward and backward in time. Holding Ctrl while using the mouse scroll wheel will increase/decrease the visible time range (i.e. zoom in and out of the timeline).

Clicking will display any tasks that are past due.

## Scheduled Load Editor

Clicking "Schedule" will bring up the Scheduled Load Editor. This window allows you to schedule a block of time for a furnace.

First, select the desired furnace from the dropdown menu. Then select whether this is a Load, a Non-Production event, or a Maintenance task.

For Loads, select an Operation and enter an optional Alias name to display all created work orders waiting to be scheduled. You can also filter the display using the corresponding text box.

Clicking on the Work Order number, Sequence, or Parts columns will bring up the viewer for that information. Double-clicking on a Work Order line (or highlighting it and clicking ) will move it to the Scheduled Work Order section below.

You can also create a new work order by:

- clicking and filling out the information in the Work Order Editor
- clicking and scanning a traveller, or
- clicking to assign rework of an existing Work Order

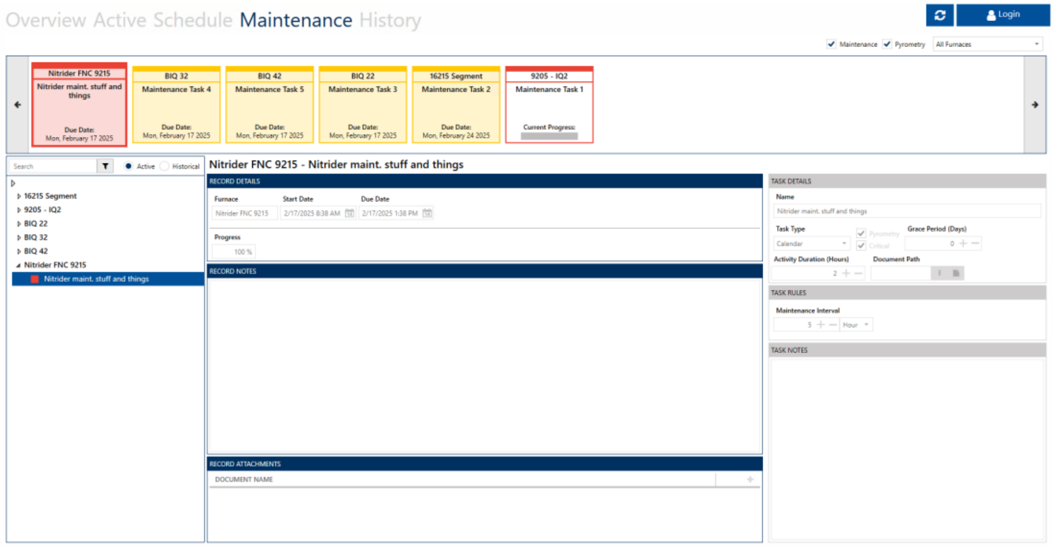
Once a Work Order (or multiple work orders) is moved to the bottom section, a recipe can be selected from the dropdown menu. From here you can set the desired Time In/Time Out manually, or you can select pre-populated durations based on the Shortest, Average, Longest, and most Recent runs of this recipe.

When finished, click Save to add the Load to the schedule.

For Non-Production events, simply enter a reason for the event, either using the dropdown menu or the text box, set the Time In and Time Out, and click Save.

For Maintenance Tasks, select the Task Record from the dropdown menu, set the Time in and Time Out, and click Save.

## Maintenance Overview




The top of the Maintenance Overview shows the active tasks. Use the check boxes and drop down at top right to filter the view if necessary. Use the arrows on either side of the active task display to scroll right or left if needed. You can also use the search pane on the left to find a specific active or historical task.

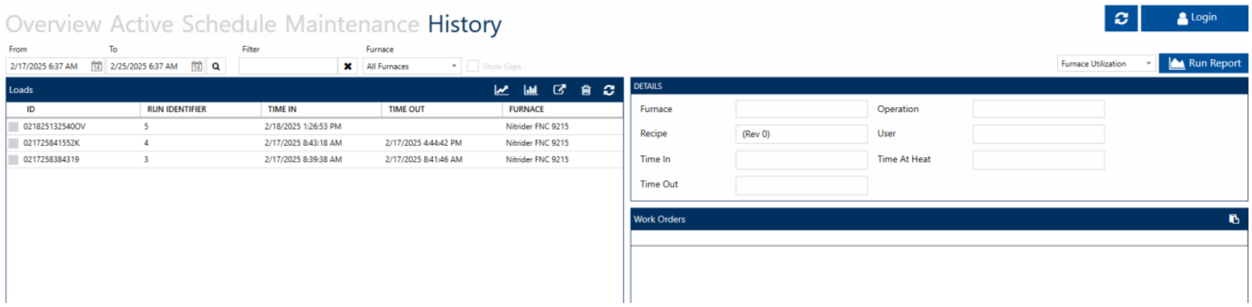
Red indicates a Critical task. Shaded red indicates a past-due Critical task. Past-due critical tasks will lock out the furnace. (If there is a grace period assigned to the task, it will become shaded after the grace period.)

Yellow indicates a non-Critical task. Yellow tasks will also be shaded if past due but the furnace will not be locked out.

Clicking on a task will bring up information on it, including record details, notes, and attachments. This information is for display only and is not editable from this screen.

## History Screen

The History Screen displays all completed loads, searchable by various timeframes and other parameters.



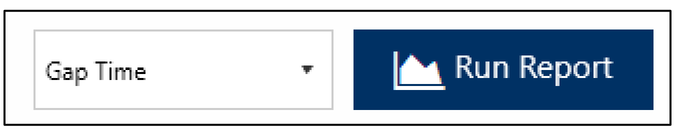

Use the From/To Boxes and the filter input box to select a time range and/or text to search for in the completed loads database.

The Filter field is a dynamic filter and will search all fields associated to the work orders between the From and To date.

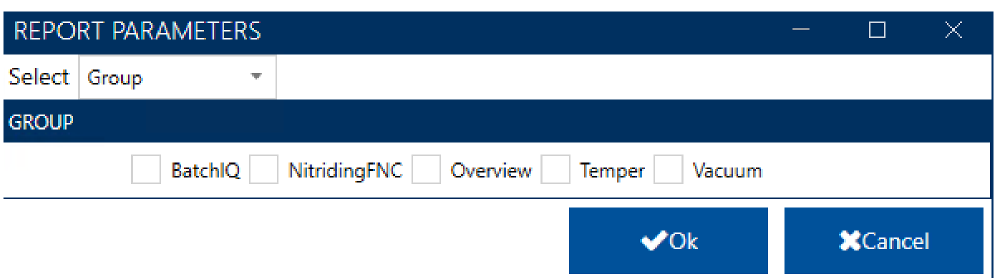
Use the Furnace dropdown menu to select which furnaces are currently visible.

Click the “Show Gaps” box to show display gaps in the load history.

Use the “Run Report” button to generate reports based on desired parameters.



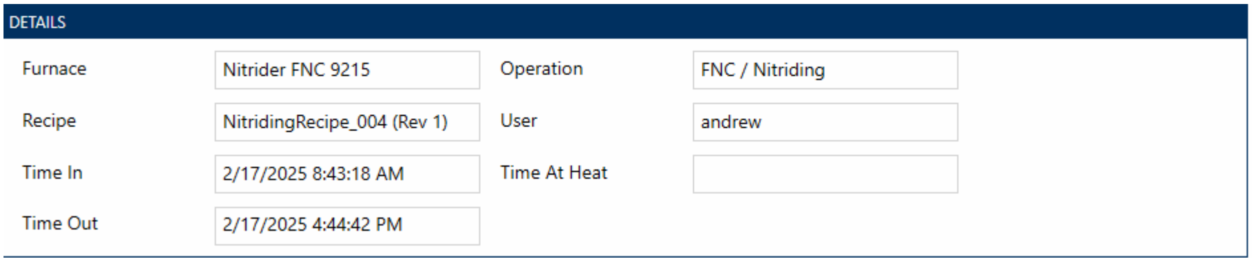

Use the report drop down menu to select a report on Furnace Utilization, Gap Time, Load Tracking, or Work Order Tracking, then click “Run Report” to set parameters for the report.




NOTE: Depending on the type of report being run, the above screen may look different.

Click “OK” to generate the report.

Clicking a load will bring up details about the hightlighted load:




This information is display-only and not editable.

The lower half of the History screen displays Work Orders associated with the highlighted load.

To delete a Load, highlight the load in the History list and then click

Clicking will bring up trend information from SDRecorder Pro. See the manual for SDRecorder Pro for additional information on this functionality.

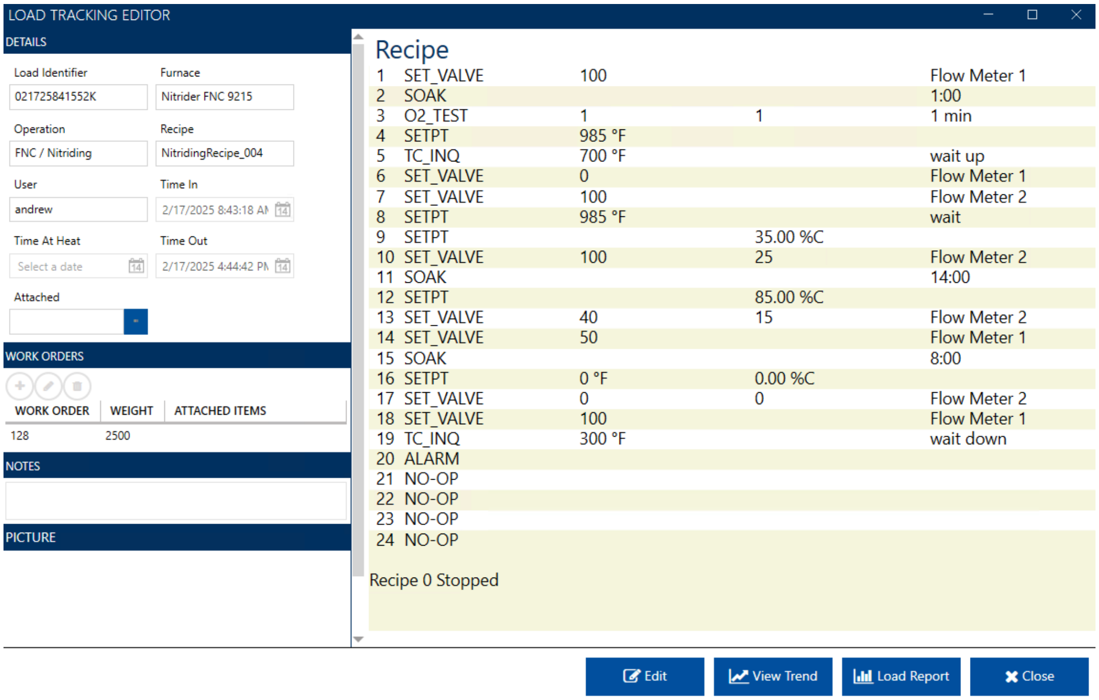
Clicking will generate a Load Report based on desired parameters and information (see functionality above).

Clicking allows you to export information in various file formats to the desired location.

Clicking will refresh the list.

## Load Tracking Editor

Double click on a highlighted load to open the Load Tracking Editor for that load.




The Load Tracking Editor will display a unique load identifier, along with details about the completed load; including Furnace, Operation, Recipe, User, Time In/Out, Time at Heat, and any attachments. Any Work Orders associated with the load will be displayed as well, along with the recipe used during the load. Notes can be added if desired.

Clicking "Edit" will make the information editable. Make any necessary changes, then click "Save" to save those changes.

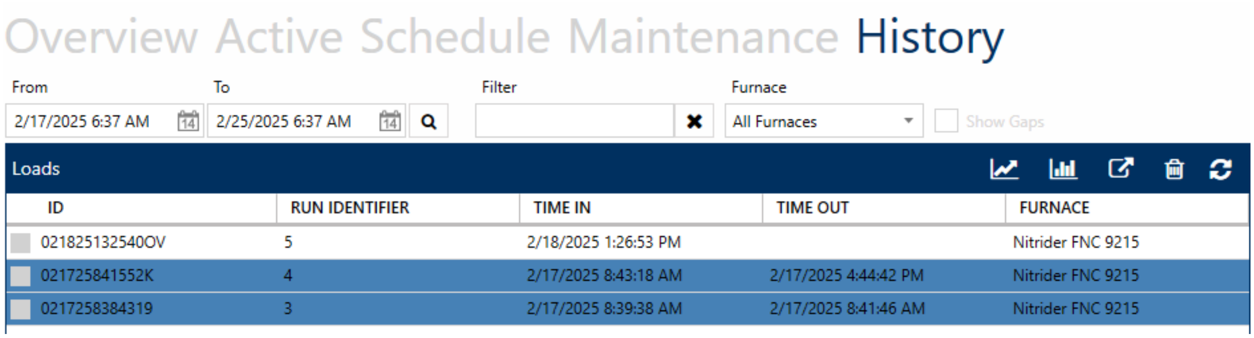
Clicking "View Trend" will bring up trend information from SDRecorder Pro. See the manual for SDRecorder Pro for additional information on this functionality.

Clicking "Load Report" will generate a Load Report based on desired parameters and information (see functionality above).

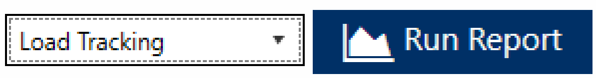
Clicking "Close" returns you to the History screen.

## Bulk Load Reports

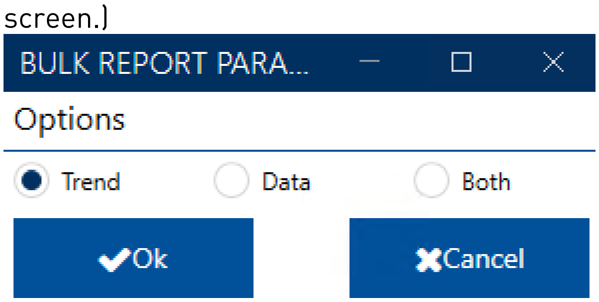
You can also generate multiple Load Reports at once from Load Entry 3. Multi-select load histories (using Shift-click and Ctrl-click to select as you would in Windows) and click the Load Report button to launch a process to produce Load Reports directly to PDF format.




Alternately, multi-select the desired load histories and click the Run Report button after selecting Load Tracking from the accompanying dropdown.




The Bulk Report Parameters screen will then appear. Here you can choose for the reports to include the trend image, the tabular data, or both. (This can be changed per report on a later screen.)




Next, on the Selected Historical Load Tracking screen, you will see the loads you selected, the Run ID of that load, how many work orders that are associated with the load (and are auto selected to run with the report) and an option to edit the load reports.

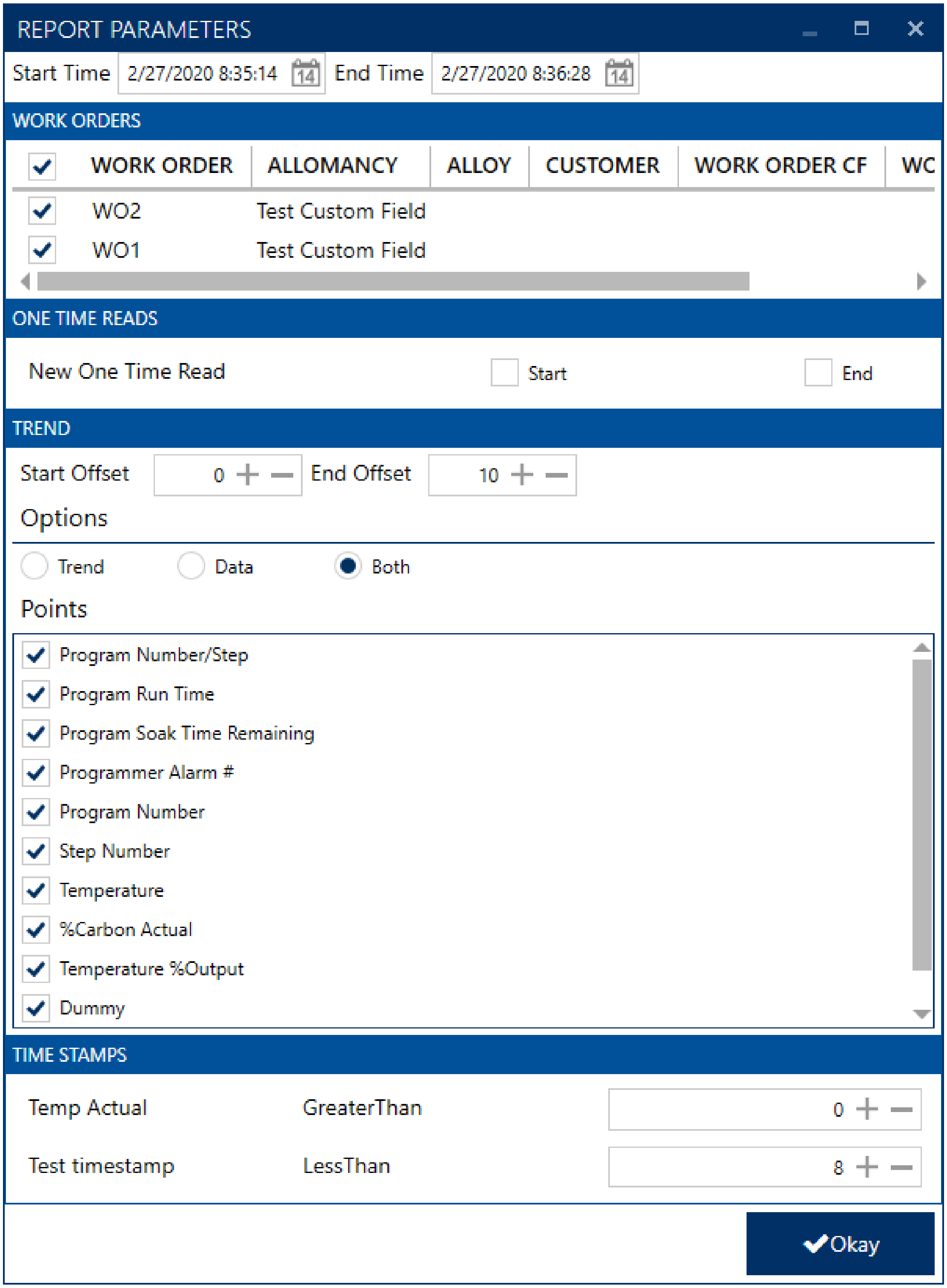
SELECTED HISTORICAL LOAD TRACKING

| LOADS | RUN ID | WORK ORDERS | EDIT |
|---|---|---|---|
| 02272083411FQ | 327 | 2 | |
| 01312082059AM | 35 | 1 | |
| 01312081747EP | 34 | 1 | |
| 013020165228N | 33 | 1 | |
| 013020155432G1 | 32 | 1 | |
| 01320134536WJ | 71 | 1 | |

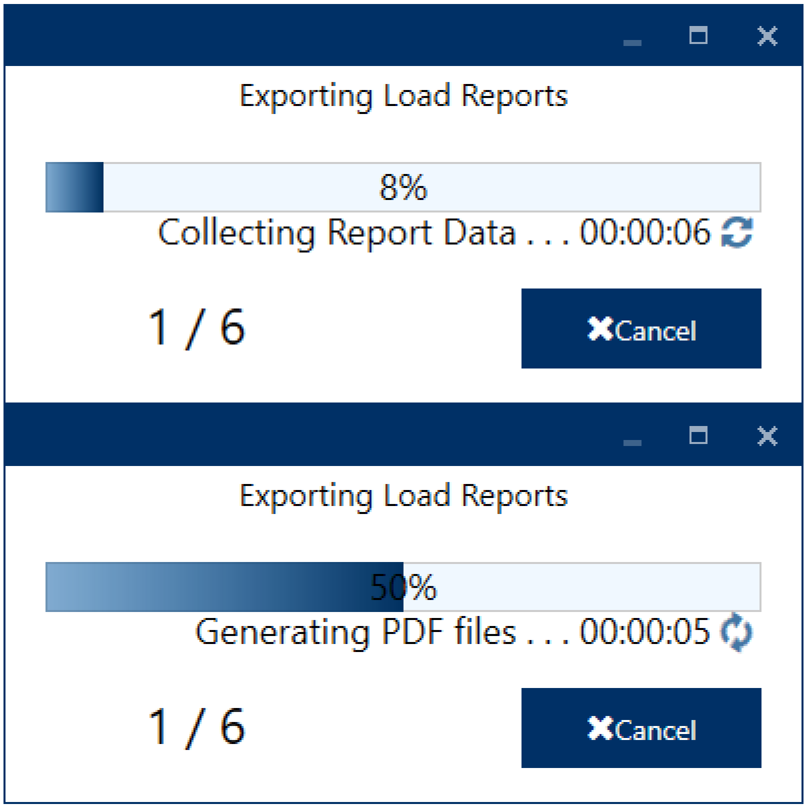
Export   Cancel

The Edit buttons will bring up the Report Parameters screen which allows you to deselect Work Orders. Also, here you can set Trend, Data, or Both for each specific report.

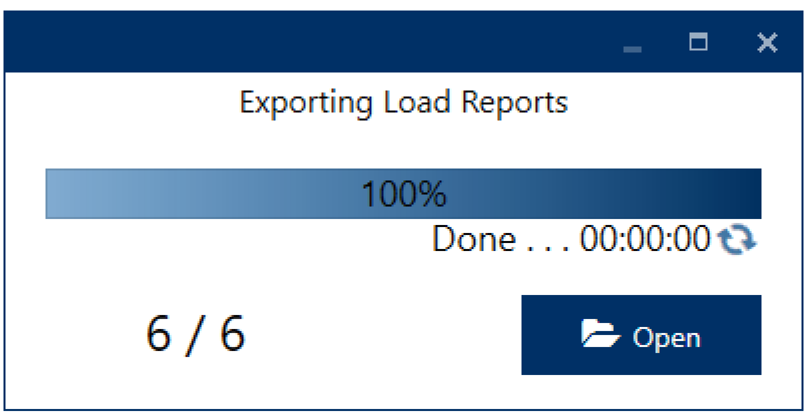
Once everything is set as desired, click Export to begin the report generation process.



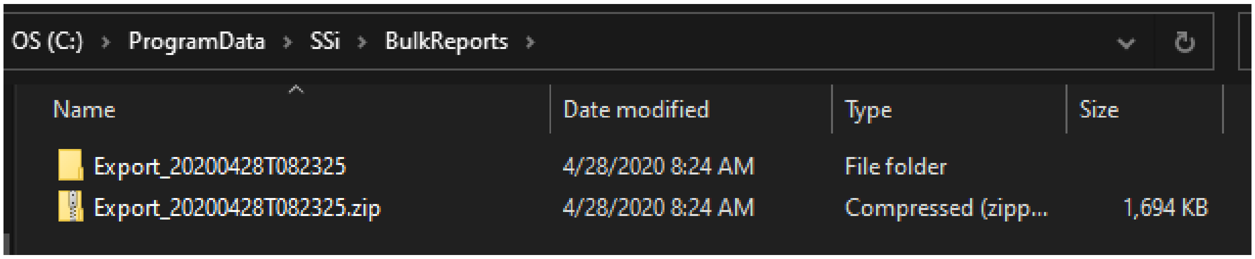

The generation process goes through two main phases: Collecting Report Data and Generating PDF Files.



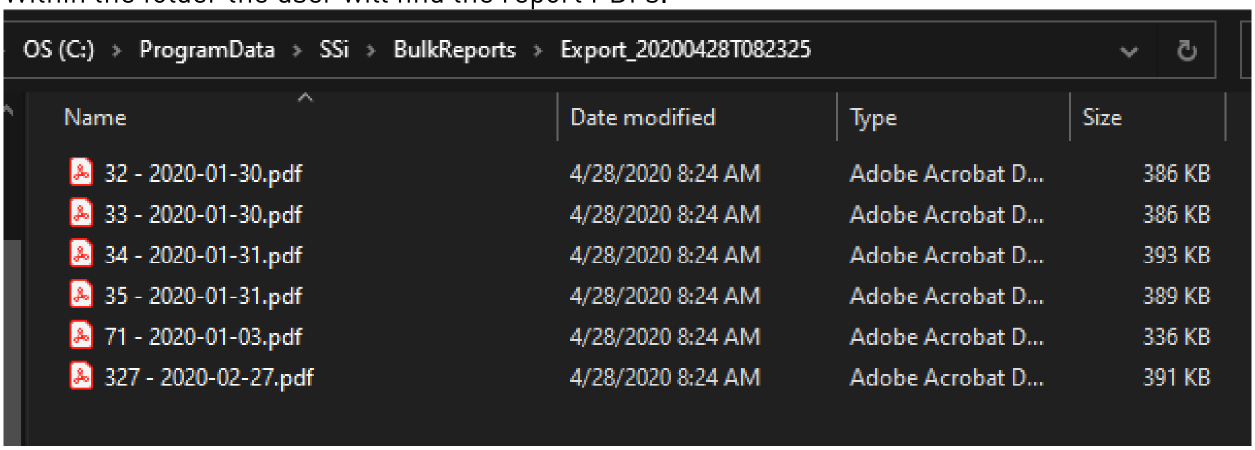

Once complete, you can click Open to view the file location of the reports.



Windows Explorer will open to the BulkReports directory where you can find the export folder and also a zip of that folder. The export folder is named with the full data and time of when the reports were generated.




Within the folder the user will find the report PDFs.



# Revision History

| Rev. | Description | Date | MCO # |
|---|---|---|---|
| - | Initial Release | 2/28/2019 | 2259 |
| A | Various interface and feature updates | 11/23/2020 | 2303 |
| B | Complete overhaul of screenshots and updated functionality | 4/24/2025 | 2369 |