

PlantStar 4.0

Administrator's Manual

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1. Introduction to PlantStar 4.0

1.1 Overview

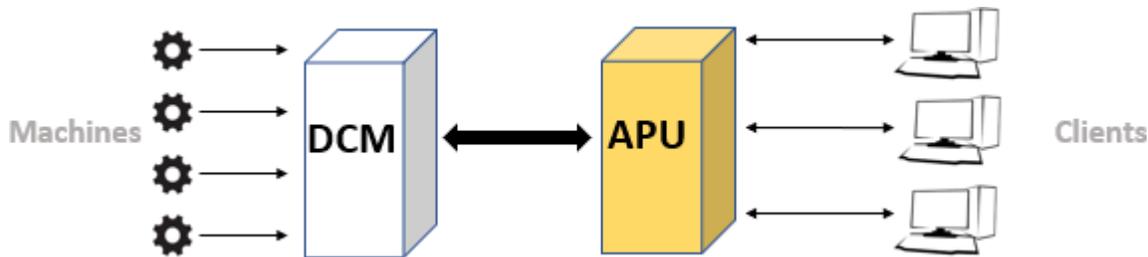
The primary benefit of PlantStar 4.0 is the ability to schedule and manage every aspect of every production or manufacturing Job. Using all the available Configuration Managers (e.g., Machines, Tools, Materials, etc.) allows administrators and plant managers to have real-time data at their fingertips and avoid interruptions to product out the door.

Some of the Managers are optional; for example, you don't have to enter Tool or Materials data to use the Job Manager and generate productivity reports. But the more data you enter and allow the system to use for analysis, the closer you will be to your OEE and production goals and to maximizing the productivity of each of your machines.

Data is power. Our software gives YOU the power to take control of your production schedules and maximize the assets in your plant by using the data you input to analyze what's happening on your plant floor. The more data you collect, the more you'll know, and the more efficient you can be.

Please don't hesitate to contact us (574.232.3900) if you need help with your initial data input or configuration. We have the personnel and the resources to get you up and running, fast.

1.2 Application Process Unit (APU)



The main PlantStar 4.0 computer is referred to as the **Application Processing Unit** or **APU**. The APU contains all the configuration files, data files, PlantStar 4.0 software, and the master database. The APU runs on Debian Linux which SYSCON will provide to the customer pre-configured with the PlantStar software.

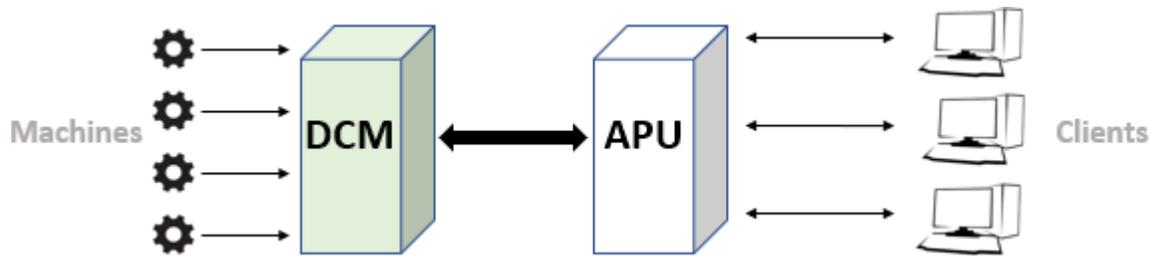
The PostgreSQL-11 database comes with the Debian installation and cannot be changed. Customers will not be able to write directly to this database but will be able to read from the database if needed.

All data collection modules (DCMs) connect to the APU computer. If DCMs are enabled (connected to the APU), then all data from the DCMs is automatically stored on the APU and can be viewed from other computers in real-time.

Primarily, the APU will be accessed by system administrators with proper credentials.

SYSCON International may retain APU access via a Virtual Private Network (VPN) for purposes of trouble shooting and system monitoring. Control-level access rights will be agreed upon between the customer and SYSCON.

1.3 Data Collection Module (DCM)



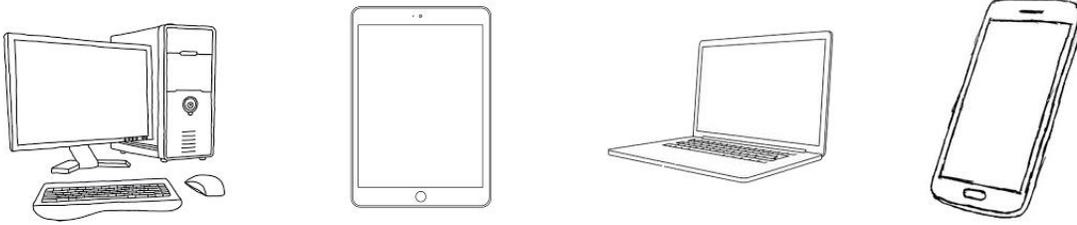
The **Data Collection Module** or **DCM** is an industrial-grade device used to collect production and process information from manufacturing machine/s and to transmit that data to the APU. When enabled, each DCM also receives communications from the APU and can send that information to the machine/s.

The DCMs are accessed in-house or remotely via Internet browser through a human-machine interface (HMI), allowing machine operators to view data about the current machine processes and to input relevant information (e.g., force the machine into down status).

The DCMs provide shop floor redundancy in case there is ever a power outage or network failure for any reason. Even with no available power or network connection, the DCM can retain 40 days' worth of data that will immediately be updated to the APU once network connectivity is restored. This is an enormous assurance against data loss!

An HMI can be any device that is browser-enabled: a computer, laptop, tablet, or smartphone. Customers can provide their own HMIs to access the DCMs, or SYSCON can provide custom hardwired or wireless HMIs. The number of HMIs is dependent on customer need and preference.

1.4 Browser based User Interface

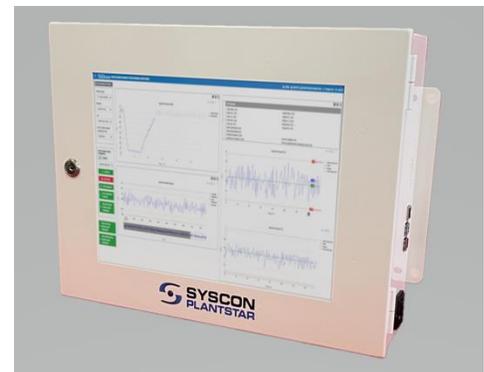


The PlantStar 4.0 user interface is a browser-based system. This means that the software runs on the APU, which interacts, via built-in web server software, with any client device you choose. The only requirement for a client is a compatible web browser and an internet connection.

With a client interface (and appropriate user rights) you can configure your system, schedule jobs, view machine statuses in real-time, create reports, etc.

1.5 Human-Machine Interface (HMI)

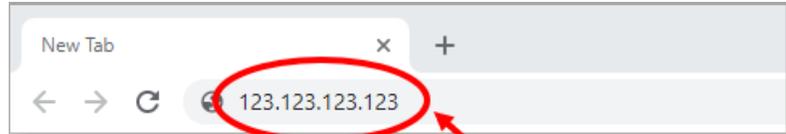
A PlantStar HMI is a special client interface computer, designed and built by SYSCON to allow factory floor users to access the PlantStar system. It features an industrial grade construction and a built-in touch-sensitive screen. HMIs are most typically used for scheduling and updating the statuses of jobs.



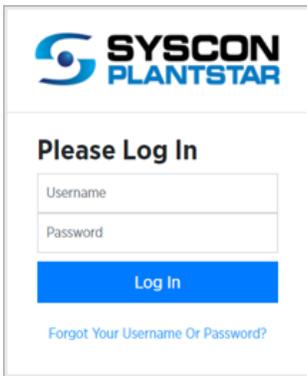
2. Accessing the APU

2.1 Logging In

Your APU will have a unique IP address. Open your browser and enter the IP address to connect to the APU.

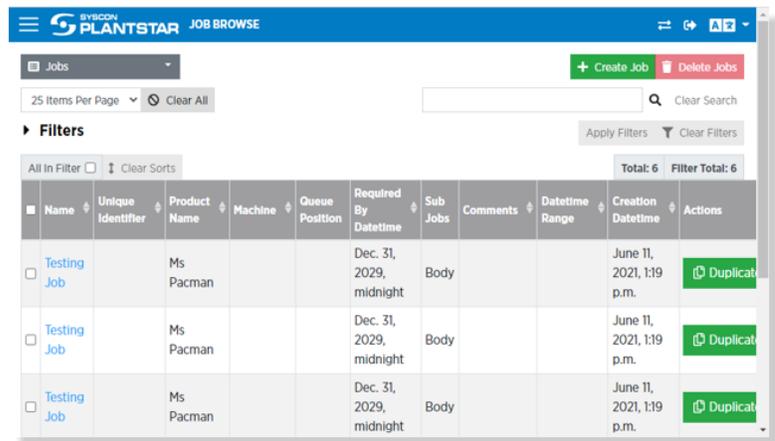


Enter your PlantStar APU IP number



Enter your login credentials and click on the **Log In** button.

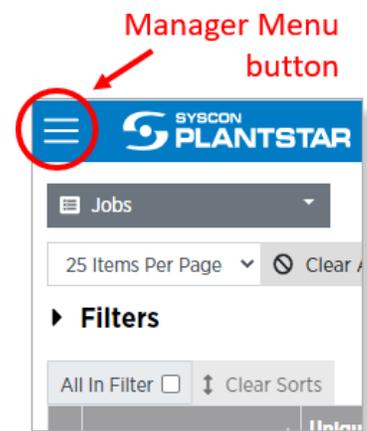
will bring up the **Job Browse** screen.



This

2.2 Accessing the Manager Dashboard

Click on the **Manager Menu** button in the upper-left corner of the Job Browse screen access the Manager Dashboard menu.



Manager Menu button

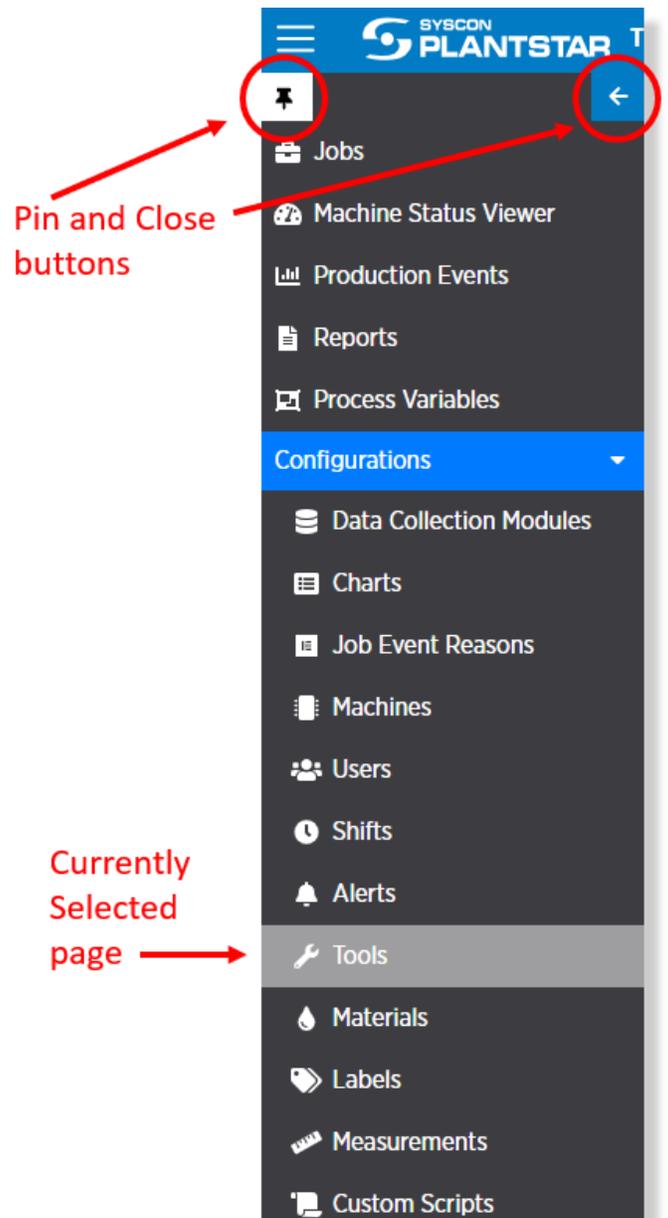
2.3 Manager Dashboard Overview

The panel that appears is your menu or Manager Dashboard. To keep this panel open, click the Pin button at the top left of the dashboard. Click on Pin again to close it.

If the menu is not pinned open, the Close button, will hide the menu.

Each of the items listed in this panel is a “Manager”, which is a hub for all the data relating to that part of the system’s functionality or process.

Clicking on any item in the menu opens that Manager’s “browse page”, which gives access to all existing settings and allows new settings to be defined. The currently selected manager will be highlighted in gray (“Tools” is selected in the example to the right).



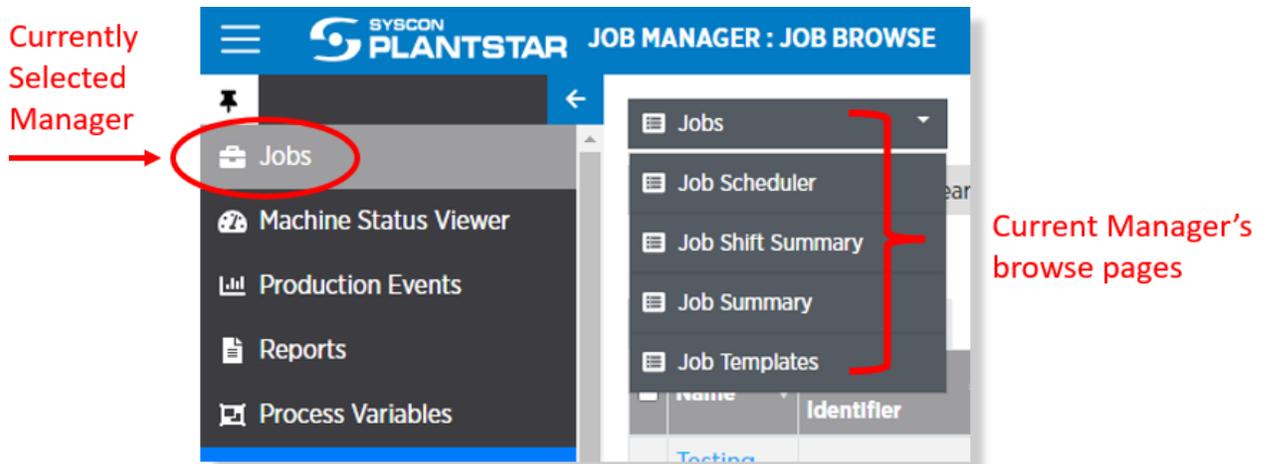
2.4 Manager Browse Pages

Each Manager has one or more “browse” pages where you can view, add, modify, and delete settings pertaining to that Manager.

The screenshot shows the SYSCON PLANTSTAR JOB BROWSE interface. At the top, there is a blue header with the SYSCON PLANTSTAR logo and the text 'JOB BROWSE'. Below the header, there is a navigation bar with a 'Jobs' dropdown menu, a '+ Create Job' button, and a 'Delete Jobs' button. A search bar with 'Clear Search' and 'Apply Filters' buttons is also present. The main content area displays a table of jobs with the following columns: Name, Unique Identifier, Product Name, Machine, Queue Position, Required By Datetime, Sub Jobs, Comments, Datetime Range, Creation Datetime, and Actions. The table contains three rows of 'Testing Job' entries, each with a 'Duplicate' button in the Actions column. The table indicates a total of 6 items and 6 filtered items.

Name	Unique Identifier	Product Name	Machine	Queue Position	Required By Datetime	Sub Jobs	Comments	Datetime Range	Creation Datetime	Actions
Testing Job		Ms Pacman			Dec. 31, 2029, midnight	Body			June 11, 2021, 1:19 p.m.	Duplicate
Testing Job		Ms Pacman			Dec. 31, 2029, midnight	Body			June 11, 2021, 1:19 p.m.	Duplicate
Testing Job		Ms Pacman			Dec. 31, 2029, midnight	Body			June 11, 2021, 1:19 p.m.	Duplicate

Use the drop-down list in the upper-left corner of the browse screen to switch between Browse pages. The Jobs Manager, for example, has five different browse pages available.



2.5 Browse Page Controls

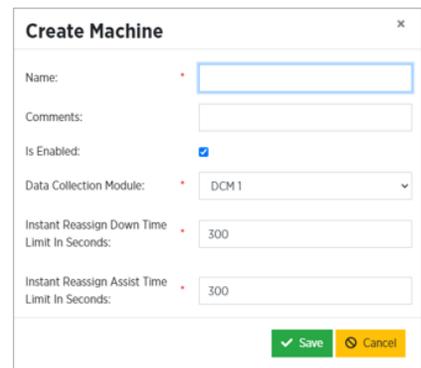
The screenshot shows the 'Machines' browse page. At the top left, there is a 'Machines' breadcrumb. Below it, a dropdown menu is set to '25 Items Per Page' with a 'Clear All' button next to it. To the right, there are two buttons: a green '+ Create Machine' button and a red 'Delete Machines' button. Below these is a search bar with a magnifying glass icon and a 'Clear Search' button. Underneath the search bar is a 'Filters' section with an 'Apply Filters' button and a 'Clear Filters' button. The main table has a header row with columns: Name, Data Collection Module, Is Enabled, Highest Priority Status, Current Running Job, Machine Groups, Signal Input Functions, and Comments. The first two rows of data are visible: one with ID 1000 and another with ID 18000. At the bottom right of the table, there is a summary box showing 'Total: 36' and 'Filter Total: 36'. Red callouts 1 through 7 point to specific elements: 1 points to the '25 Items Per Page' dropdown; 2 points to the 'Clear All' button; 3 points to the 'All In Filter' checkbox; 4 points to the '+ Create Machine' button; 5 points to the 'Delete Machines' button; 6 points to the summary box; and 7 points to the 'Name' column header.

Most Manager browse page use the same header, which contains powerful controls for accessing your configuration. Note: Filters and Searches will be covered later in this chapter.

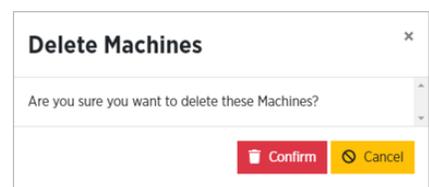
1. **Items Per Page** – This dropdown defines the number of rows displayed in the page’s main table. The options here are 25, 50 and 100.
2. **Clear All** – This button clears all selections, sorts, filters, and searches.
3. **Row Selector Checkboxes** - give you the opportunity to select one or more table rows to perform administrative operations on. *Usually*, the only multi-row operation available is Delete. There are, however, exceptions to this. For instance, the DCM page allows multiple DCMs to be simultaneously cold-booted, and the Reports page allows multiple reports to be run at the same time.

The checkbox in the top row selects all rows on the current pages. It will not select rows on subsequent pages. The **All in Filter** checkbox selects all rows that match a currently active filter, **including** the rows on subsequent pages.

- Create** – The **Create {item}** button opens a dialog box with all controls necessary to create a new item of whatever object the current browse page pertains to. In the example above, the current page is Machines so the button reads "Create Machine" and it opens the **Create Machine** dialog.

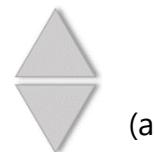


- Delete** – The **Delete {item}** button deletes the selected items from your database. A confirmation dialog will appear before the rows are removed.



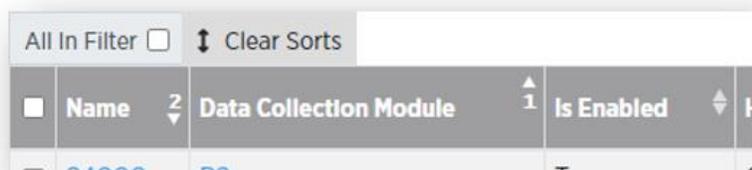
- Row Counters** – **Total** shows the total number of rows (including all pages) in the browse screen table. **Filter Total** shows the number of rows that match any applied filter or search.

- Sorting** – Some column headers will have a symbol like the one pictured here. This is the **Sort** button. Clicking on it will sort the table's rows in the order of the value in the column. The Sort button has three possible states: **Sort Ascending** (an upward-pointing triangle), **Sort Descending** (a downward triangle) and **No Sort** (as pictured here).



Sorts can be defined for multiple columns at the same time. For the system to do this correctly a Sort Order must be established. This is determined by the order in which the user defines the column sorts.

For example, in the image below, the user chose to do an ascending (indicated by the up arrow) sort by DCM first (indicated by the "1"), then added a second (indicated by the "2") sort, which is by Name in descending (down arrow) order.



2.6 Filters

Most of the Browse pages offer the ability to define **Filters**. Filters let you define *which* rows are displayed in the page's table.

The screenshot shows the 'Machines' browse page. At the top, there are buttons for '+ Create Machine' and 'Delete Machines'. Below that, there's a search bar with a magnifying glass icon and a 'Clear Search' button. A 'Filters' button is highlighted with a red box and the number 1. To the right, there's a search input field with a red number 3 above it. Below the search bar, there are three filter fields: 'Is Enabled' (with 'True' and 'False' options), 'Data Collection Module ...' (with 'P1', 'P2', and 'P3' options, where 'P2' is highlighted with a red box and the number 2), and another 'Data Collection Module ...' field (with 'True' and 'False' options). An 'Apply Filters' button is highlighted with a red box and the number 4. At the bottom right, there are two summary boxes: 'Total: 36' and 'Filter Total: 8', both highlighted with red boxes. Below the filters, there's a table with columns: Name, Data Collection Module, Is Enabled, Highest Priority Status, Signal Input Functions, and Comments. The first row shows a machine with ID 10000, DCM P2, Is Enabled True, and Highest Priority Status Offline.

In the example above shows how to apply a filter to the Machines browse page. The steps are as follows:

1. Click on the **Filters** button. This opens a pane on the browse page showing all possible fields that this table can be filtered on. In the case of Machines, three filter fields are available: Is Enabled, DCM, and DCM is Deleted. The available fields are different for each browse page. For instance, the Jobs page has a dozen different filter fields.
2. Select at least one value from at least one of the fields. You can select multiple values for a single field and/or values from multiple fields. In this example we have only chosen to select machines connected to the DCM name "P2".
3. Click on the **Apply Filters** button.
4. Once the filter has been applied, notice the Total and Filter Total fields. The **Total** field shows that the total number of Machines is 36 (as it was before the filter was applied) and the **Filter Total** field shows that the eight records matched the criteria defined by the filter. Only those eight records will now be listed in the table.

3. Configuring DCMs

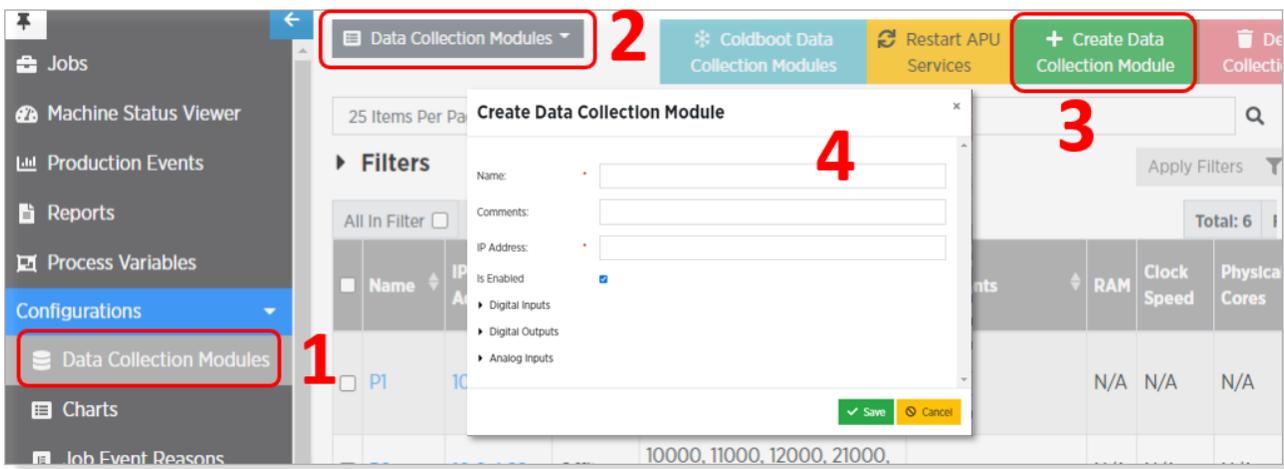
3.1 Accessing the Create DCM Dialog

To Access the Create DCM dialog:

1. Open the Data Collection Modules manager.
2. Select **Data Collection Modules** from the DCM Manager drop-down list.
3. Click on the Create Data Collection Module button.

You should see the following Create DCM dialog, with all fields empty.

3.2 Create DCM Dialog Fields



1. **Name** – This required field defines how the DCM will be referenced throughout the PlantStar system.
2. **Comment** – This optional field is free-form text that you can use for any purpose. For instance, you might use it to describe the location of the DCM on the factory floor.
3. **IP Address** – This required field must be set to the static IP address defined on your network when the DCM was initially installed.
4. **Enabled** - This checkbox determines whether this DCM is usable by the PlantStar system. A DCM that is not enabled does not collect data sent by machines.

3.3 Digital Inputs

Click on the **Digital Inputs** button in the Create DCM dialog to open the Digital Inputs panel.

Each standard DCM supports a maximum of 16 digital inputs from machines on the shop floor. When you open this dialog all 16 inputs will appear. The **Number of Inputs** field is display-only. To change this number, use the **Remove Digital Input** and **Add Digital Input** buttons.

Use the **Is Enabled** checkboxes to specify whether each input is turned on or off. Choose whether each input is enabled by checking or unchecking the appropriate box. If an input is turned off, no data from that input will be collected.

A **Debounce** value can optionally be set for each digital input. Debounce is the length of time to wait after a switch is thrown to ensure a steady signal.

Create Data Collection Module

Name:

Comments:

IP Address:

Is Enabled

▼ Digital Inputs

Number of Inputs:

Input Number	Is Enabled	Debounce Time In Milliseconds
Digital Input - 1:	<input checked="" type="checkbox"/>	30
Digital Input - 2:	<input checked="" type="checkbox"/>	30
Digital Input - 3:	<input checked="" type="checkbox"/>	30
Digital Input - 4:	<input checked="" type="checkbox"/>	30
Digital Input - 5:	<input checked="" type="checkbox"/>	30
Digital Input - 6:	<input checked="" type="checkbox"/>	30
Digital Input - 7:	<input checked="" type="checkbox"/>	30
Digital Input - 8:	<input checked="" type="checkbox"/>	30
Digital Input - 9:	<input checked="" type="checkbox"/>	30
Digital Input - 10:	<input checked="" type="checkbox"/>	30
Digital Input - 11:	<input checked="" type="checkbox"/>	30
Digital Input - 12:	<input checked="" type="checkbox"/>	30
Digital Input - 13:	<input checked="" type="checkbox"/>	30
Digital Input - 14:	<input checked="" type="checkbox"/>	30
Digital Input - 15:	<input checked="" type="checkbox"/>	30
Digital Input - 16:	<input checked="" type="checkbox"/>	30

▶ Digital Outputs

▶ Analog Inputs

3.4 Analog Inputs

Click on the **Analog Inputs** button in the Create DCM dialog to open the Analog Inputs panel.

Input Number	Is Enabled	Analog Input Type	Scale	Bias	Filter	Gain
Analog Input - 1:	<input checked="" type="checkbox"/>	Normal	1.0	0.0	5: 50.0hz	0: 0.0v - 0.038v (Low)

Each DCM supports a maximum of 24 analog inputs from machines. By default, no analog inputs are set up, so all inputs must be added via the **Add Analog Input** button.

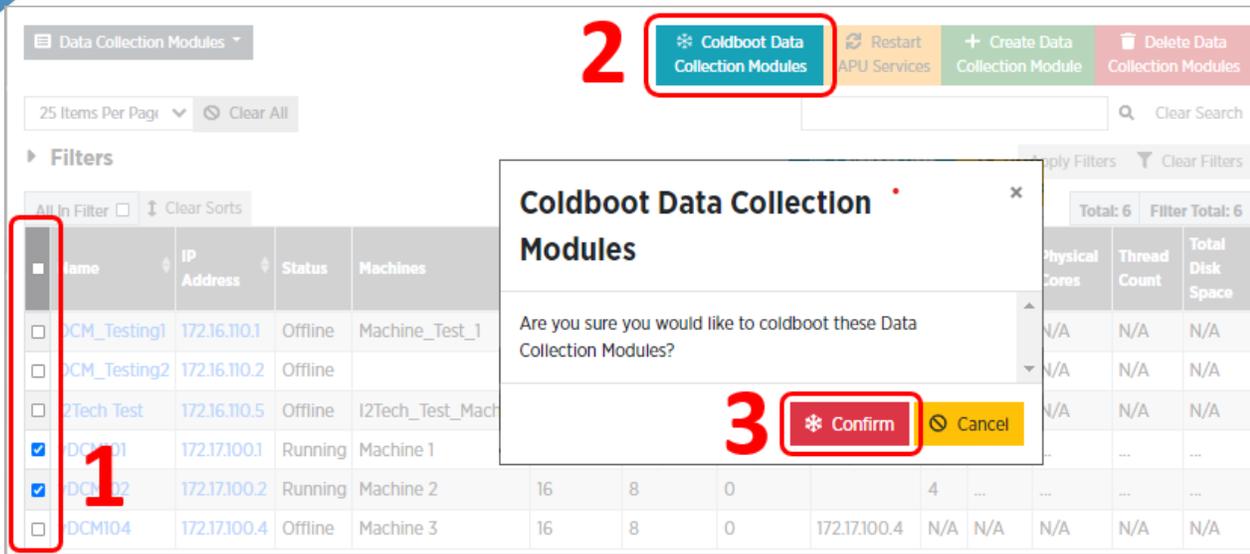
NOTE: Once you have set everything necessary to define your new DCM, be sure to click on Save to store the changes to the PlantStar database.

3.5 Coldboot the DCM

Coldboot is a program that must be run on each new DCM before it can begin collecting data.

Coldbooting performs the following three tasks:

1. Reboot the DCM
2. Reinitialize and Reload the DCM's internal database
3. Download and install the current PlantStar software from the APU



To coldboot one or more DCMs:

1. Select one or more DCMs from the Data Collection Modules browse page.
2. Click on the Coldboot Data Collection Modules button.
3. Double-check that you have selected the correct DCM(s) and Click on the **Confirm** button.

DCM status (i.e. initializing, coldbooting, offline, disabled, and running) can be viewed in the **Status** table column on the DCM browse page. While the status is being determined, it shows "Detecting". When a DCM finished coldbooting, the status will be "Running".

3.6 Restart APU Services

Once all DCMs are finished coldbooting, click on the **Restart APU Services** button and then click the **Confirm** button in the Confirmation dialog. This will stop and restart the PlantStar software on the APU. When it restarts, it will recognize the new DCMs and begin collecting data from them.



4. Machines

4.1 Accessing the Create Machine Dialog

To open the Create Machine Dialog:

1. Open the **Machines** manager.
2. Make sure that **Machines** is selected on the browse page drop-down list.
3. Click on the **Create Machine** button.
4. You should see the **Create Machine** dialog.

The screenshot displays the SYSCON PLANTSTAR interface. On the left, a navigation sidebar has 'Machines' highlighted with a red box and the number '1'. At the top, a dropdown menu shows 'Machines' selected with a red box and the number '2'. To the right, a '+ Create Machine' button is highlighted with a red box and the number '3'. In the center, a 'Create Machine' dialog box is open, with its 'Name' input field highlighted by a red box and the number '4'. The dialog contains various configuration options such as 'Comments', 'Is Enabled', 'Data Collection Module', and time limits. In the background, a table lists existing machines with columns for 'Name', 'Data Co Module', 'Running', 'Signal Input Functions', and 'Comments'.

4.2 Adding a New Machine

Name is required for each machine.

Is Enabled - Checking this box means that signals from this machine will be recorded and data collected at the DCM and APU levels.

Unchecking this box means that the Machine will not appear on the Machine Status Viewer page, or in the Machine/Machine Group select dropdowns on the DCM and APU, or on the Job Schedule/Job Scheduler pages.

Assign this Machine to an existing **DCM** by selecting from the drop-down list.

NOTE: Once a Machine has been assigned to a DCM, that assignment cannot be changed. If a Machine needs to be assigned to another DCM, you will need to create/configure a new Machine and connect it to the desired DCM. Data from the previous Machine will not carry over to the new Machine.

Instant Reassign for down-time or assist allows the operator to change the most recent down-time/assist reason to another reason, within the specified time limit after the Machine has come out of down.

Configure your **Signal input Functions** from the drop-down list.

When all necessary field have been defined, Click **Save** to store your machine definition in the PlantStar database.

4.3 Machine Groups

Machine Groups provide a way to group similar machines together for display and reporting purposes. Machines can be grouped by any characteristic (e.g. function, product type, floor location) that you choose.

The screenshot shows a 'Create Machine' dialog box with the following fields and options:

- Name:** A required text input field.
- Comments:** A text input field.
- Is Enabled:** A checked checkbox.
- Data Collection Module:** A dropdown menu currently showing 'DCM_Testing1'.
- Instant Reassign Down Time Limit In Seconds:** A text input field with the value '300'.
- Instant Reassign Assist Time Limit In Seconds:** A required text input field with the value '300'.
- Should Auto Checkout Operators At Shift End:** An unchecked checkbox.
- Machine To Import Shifts From:** A dropdown menu currently showing 'Don't Import Shifts'.
- View/Edit Signal Input Functions:** An unchecked checkbox.
- Printer Identifier:** A text input field.

At the bottom right of the dialog, there are two buttons: a green 'Save' button with a checkmark icon and a yellow 'Cancel' button with a close icon.

To access the Select **Machine Groups** from the Machine Manager drop-down list and click on the **Create Machine Group** button.

Name is required for each Machine Group. We suggest you use a descriptive name.

The **Comment** field is optional.

There are two ways to add machines to a machine group:

Select any number of Machines from the **Available Machines** column on the left and click the green Add **Selected Machines** button.

Drag and drop a machine from the **Available Machines** column to the **Current Machines** column.

Once you have all fields defined and the Current Machine list correct, Click **Save** to store your Machine Group definition in the PlantStar database.

NOTE: Machine Groups can be modified at any time. You can change which Machines belong to any group, add, or delete as needed.

5. Shifts

5.1 Shifts Overview

In the PlantStar system, a **Shift** is a distinct period of time which can be used for scheduling and reporting purposes. Each shift consists of a date, a time range, and a Machine.

The process of setting up shifts consists of three steps:

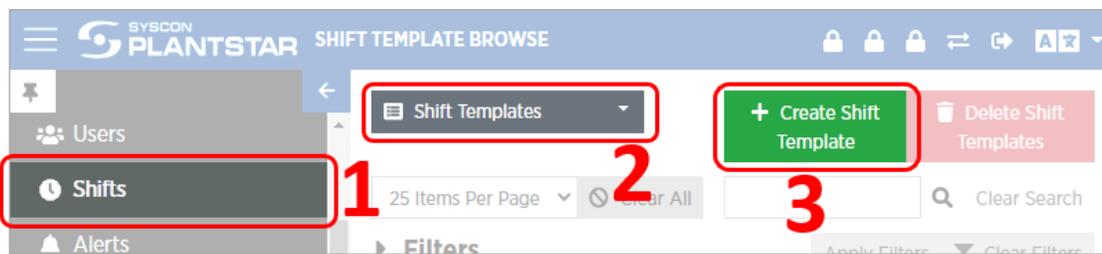
1. Create any necessary **Shift Templates**.
2. Gather appropriate Shift Templates together to create a **Shift Template Group**.
3. Combine Shift Template Groups and Machines to create **Shifts**.

5.2 Create Shift Templates

A **Shift Template** is a special record with most of the fields already defined. When you create a new Shift, PlantStar copies the Shift Template and allows you to fill in the remaining fields.

To access the Shift Templates dialog:

1. Open the **Shifts** manager.
2. Select **Shift Templates** from the browse page drop-down list.
3. Click on the Create Shift Templates button.



The **Create Shift Template** Dialog only has three required fields.

Name allows you to put in a descriptive name for the shift. If your plant has different work hours on different days of the week, you could create separate shifts for each day. If so, be sure to indicate this in the Name field. For example, if your hours were the same on Monday through Friday, but different on Saturday, you could create templates names "Shift 1 M-F" and "Shift 1 Saturday".

Use the **Start Time** and **End Time** fields to define the when the shift starts and ends. You can key in each of these fields or click on the clock symbols to set them with a graphical dialog.

Click on the **Add Shift Idle Period** to define a regularly scheduled stoppage of work. In the example shown to the right, a Shift Idle Period has been added for the daily lunch break.

The screenshot shows a 'Create Shift Template' dialog box with the following fields and controls:

- Name:** Shift 1
- Start Time:** 8:00 a.m. (with a clock icon)
- End Time:** 4:00 p.m. (with a clock icon)
- Shift Idle Period:**
 - Start Time:** 12:00 p.m. (with a clock icon)
 - End Time:** 12:30 p.m. (with a clock icon)
- Buttons: Remove Shift Idle Period (red), Add Shift Idle Period (green)
- Bottom Buttons: Save (green), Cancel (yellow)

When a shift has reached the start of a Shift Idle Period the machine automatically goes into Idle Status, and when the shift has reached the end of the Idle Period the machine automatically comes out of Idle status.

You can add as many Shift Idle Periods as necessary.

Once all fields have been defined, click on Save to store the new shift in the PlantStar database

NOTE: Shift Idle Periods are optional, but they are critical for accurately reporting operational efficiency and estimating job times.

5.3 Create a Shift Template Group

A Shift Template Group is a collection of Shift Templates that represents a week's worth of schedule.

For example, let's say a plant has three eight-hour shifts from Monday through Friday, then one four-hour shift on Saturday. The eight-hour shifts each include a half-hour break. The first step is to create all necessary Shift Templates, which would result in a list, like the one shown here.

Name	Start Time	End Time	Shift Idle Periods
Shift 1 M-F	8 a.m.	4 p.m.	noon - 12:30 p.m.
Shift 1 Saturday	9 a.m.	1 p.m.	
Shift 2 M-F	4 p.m.	12 a.m.	8 p.m. - 8:30 p.m.
Shift 3 M-F	12 a.m.	8 a.m.	4 a.m. - 4:30 a.m.

The next step is to create a Shift Template Group that uses these Shift Templates to define a weekly schedule.

To access the Create Shift Template Group dialog, Select **Shift Template Groups** from the browse page drop-down list and click on the **Create Shift Template Groups** button.

The Create Shift Template Group dialog is not complex as it may seem at first glance. The dialog consists of four areas:

1. Name and Comments
2. A list all existing **Shift Templates**
3. A screen section for each **day of the week**
4. A read-only calendar display

Create Shift Template Group

Name: Standard Work Week

Comments: Three 8 hr shifts M-F, and one 4 hr shift on Saturday.

Shift Templates

- Shift 1 M-F 8 a.m. - 4 p.m.
- Shift 1 Saturday 9 a.m. - 1 p.m.
- Shift 2 M-F 4 p.m. - midn...

Monday

- Shift 3 M-F midnight - 8 ...
- Shift 1 M-F 8 a.m. - 4 p.m.
- Shift 2 M-F 4 p.m. - midn...

Thursday

Friday

Day

Day	12a.m	1a.m	2a.m	3a.m	4a.m	5a.m	6a.m	7a.m	8a.m	9a.m	10a.m	11a.m	12p.m	1p.m.	2p.m.	3p.m.	4p.m.	5p.m.	6p.m.	7p.m.	8p.m.	9p.m.	10p.m	11p.m.
Monday									Shift 3 M-F midnight - 8 a.m.				Shift 1 M-F 8 a.m. - 4 p.m.											
Tuesday																								
Wednesday																								

Save Cancel

To create new Shift Template Group:

1. Give the template a descriptive **Name**.
2. Optionally add additional descriptive detail in the **Comments** field
3. Drag-and-drop shifts from the **Shift Template list** onto the applicable days of the week.
4. Check your work in the **Calendar Display** at the bottom of the screen.
5. Once everything looks correct, click on the **Save** button.

Here is what the Shift template group from our example looks like when completed:

Create Shift Template Group ✕

Name:

Comments:

Shift Templates

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 1 Saturday 9 a.m. - 1... ✚

Monday

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 2 M-F 4 p.m. - midn... ✚

Tuesday

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 2 M-F 4 p.m. - midn... ✚

Wednesday

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 2 M-F 4 p.m. - midn... ✚

Thursday

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 2 M-F 4 p.m. - midn... ✚

Friday

- Shift 3 M-F midnight - 8 ... ✚
- Shift 1 M-F 8 a.m. - 4 p.m. ✚
- Shift 2 M-F 4 p.m. - midn... ✚

Saturday

- Shift 1 Saturday 9 a.m. - 1... ✚

Sunday

Day	12a.m	1a.m	2a.m	3a.m	4a.m	5a.m	6a.m	7a.m	8a.m	9a.m	10a.m	11a.m	12p.m	1p.m.	2p.m.	3p.m.	4p.m.	5p.m.	6p.m.	7p.m.	8p.m.	9p.m.	10p.m	11p.m.
Monday	Shift 3 M-F midnight - 8 a.m.								Shift 1 M-F 8 a.m. - 4 p.m.						Shift 2 M-F 4 p.m. - midnight									
Tuesday	Shift 3 M-F midnight - 8 a.m.								Shift 1 M-F 8 a.m. - 4 p.m.						Shift 2 M-F 4 p.m. - midnight									
Wednesday	Shift 3 M-F midnight - 8 a.m.								Shift 1 M-F 8 a.m. - 4 p.m.						Shift 2 M-F 4 p.m. - midnight									

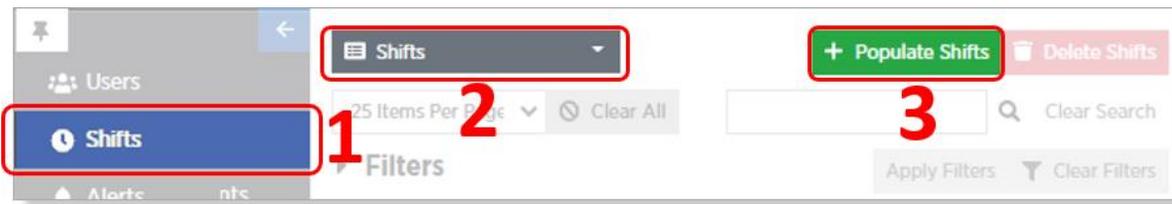
✓ Save
⊗ Cancel

5.4 Populating Shifts

In creating the Shift Templates and Template Groups we defined what the work week should look like. Once this is done, we are ready to create or populate the shift records.

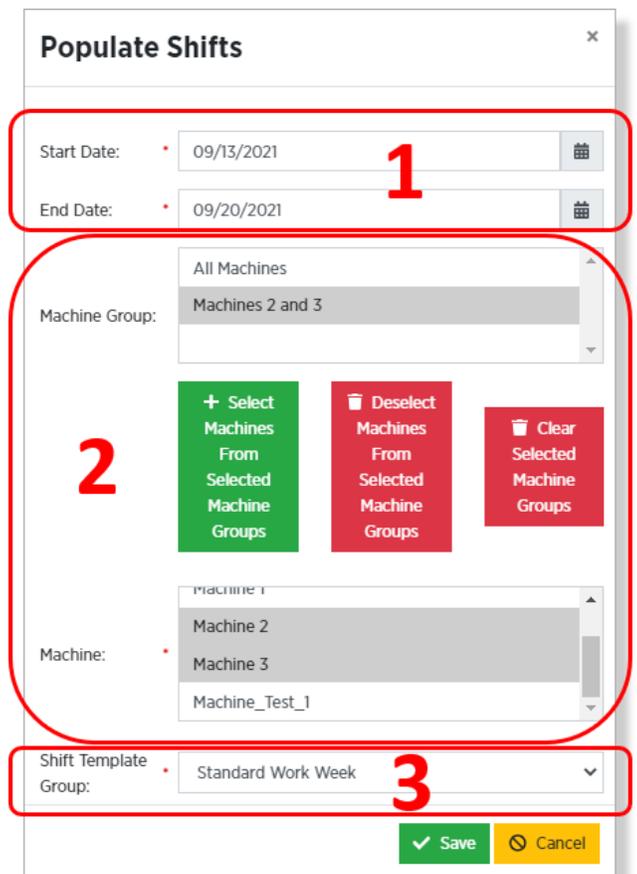
To access the Populate Shifts dialog:

1. Open the **Shifts** manager.
2. Select **Shift** from the browse page drop-down list.
3. Click on the **Populate Shifts** button.



The Populate Shifts dialog is laid out as simply as three steps you will take:

1. Define the **Start Date** and **End Date** of the period for the shifts that you want to define.
2. Define the machines to which these shifts will apply. One way to do this is by selecting individual machines from the **Machine** selection box. A quicker way is to select one or more **Machine Groups**, then click on the **Select Machines from Selected Machine Groups** button.
3. Choose which **Shift Template Group** should be applied to the dates selected in Step 1.



5.5 Check Your Results

When all required fields have been defined and the Save button is clicked, the system will create as many shift records as necessary to fill the specified date range.

Name	Machine	Datetime Range	Shift Idle Period Datetime Ranges
Shift 3 M-F	Machine 3	Tuesday Sept. 14, 2021, midnight - Tuesday Sept. 14, 2021, 8 a.m.	Sept. 14, 2021, 4 a.m. - Sept. 14, 2021, 4:30 a.m.
Shift 3 M-F	Machine 2	Monday Sept. 13, 2021, midnight - Monday Sept. 13, 2021, 8 a.m.	Sept. 13, 2021, 4 a.m. - Sept. 13, 2021, 4:30 a.m.
Shift 3 M-F	Machine 2	Tuesday Sept. 14, 2021, midnight - Tuesday Sept. 14, 2021, 8 a.m.	Sept. 14, 2021, 4 a.m. - Sept. 14, 2021, 4:30 a.m.
Shift 3 M-F	Machine 2	Thursday Sept. 16, 2021, midnight - Thursday Sept. 16, 2021, 8 a.m.	Sept. 16, 2021, 4 a.m. - Sept. 16, 2021, 4:30 a.m.
Shift 3 M-F	Machine 2	Friday Sept. 17, 2021, midnight - Friday Sept. 17, 2021, 8 a.m.	Sept. 17, 2021, 4 a.m. - Sept. 17, 2021, 4:30 a.m.
Shift 1 M-F	Machine 3	Thursday Sept. 16, 2021, 8 a.m. - Thursday Sept. 16, 2021, 4 p.m.	Sept. 16, 2021, noon - Sept. 16, 2021, 12:30 p.m.
Shift 1 Saturday	Machine 3	Saturday Sept. 18, 2021, 9 a.m. - Saturday Sept. 18, 2021, 1 p.m.	
Shift 2 M-F	Machine 2	Thursday Sept. 16, 2021, 4 p.m. - Friday Sept. 17, 2021, midnight	Sept. 16, 2021, 8 p.m. - Sept. 16, 2021, 8:30 p.m.
Shift 3 M-F	Machine 3	Monday Sept. 20, 2021, midnight - Monday Sept. 20, 2021, 8 a.m.	Sept. 20, 2021, 4 a.m. - Sept. 20, 2021, 4:30 a.m.
Shift 1 M-F	Machine 3	Monday Sept. 20, 2021, 8 a.m. - Monday Sept. 20, 2021, 4 p.m.	Sept. 20, 2021, noon - Sept. 20, 2021, 12:30 p.m.
Shift 1 M-F	Machine 2	Thursday Sept. 16, 2021, 8 a.m. - Thursday Sept. 16, 2021, 4 p.m.	Sept. 16, 2021, noon - Sept. 16, 2021, 12:30 p.m.
Shift 1 M-F	Machine 3	Friday Sept. 17, 2021, 8 a.m. - Friday Sept. 17, 2021, 4 p.m.	Sept. 17, 2021, noon - Sept. 17, 2021, 12:30 p.m.

6. Tools

6.1 Overview

Tools are an optional feature of the PlantStar system. This module offers many benefits. With the tools module you can:

1. Schedule and/or identify which tools are available for a particular Job.
1. Anticipate when tools will need to be replaced and/or serviced.
2. Evaluate tools based on the number of maintenances or duration of maintenance times.
3. Receive alerts when tools need maintenance.

6.2 Tool Types

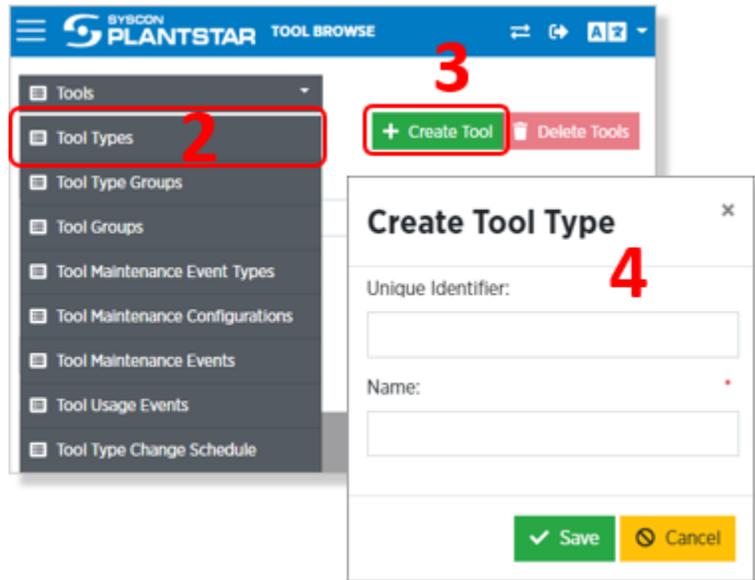
The first step in setting up a Tool configuration is defining **Tool Types**. **Tool Types** are categories for grouping similar tools. Each tool used on any machine will belong to a certain Tool Type. Before you can create a tool, you must create its type.

To access the Tool Types dialog:

1. Go to the Tools Manager.
2. Select the Tool Types page from the dropdown list.
3. Click on the Create Tool button.
4. You should see the dialog.

When creating a Tool Type, the only required field is **Name**.

Click on **Save** to store the new Tool Type to the PlantStar database.



6.3 Tool Type Groups

A **Tool Type Group** is a collection of Tool Types that can be used to associate tools with **Jobs**. A Tool Type Group does not necessarily need to include more than one Tool Type. The point of the group is to find which tools of a particular Tool Type are available to be used once Jobs start on Machines. Tool Type Groups are defined by Job function/needs.

Select Tool Type Groups from the Tool Manager drop-down list and click **Create Tool Type Group**.

Name is a required field.

Select one or more **Tool Types** from the list.

Click **Save** to write the new Tool Type Group to the PlantStar database.

Note: Unique Identifier is a way for you to import the name or configuration of a tool type group you were using in a previous system without losing that system data. Entering this information is helpful for reference or cataloging but not necessary to generate PlantStar 4.0 analysis.

Note: Selecting a Tool Type as a component of one Tool Type Group does not prevent that Tool Type from also being used in a different Tool Type Group. Use whatever combinations make sense for your needs.

The screenshot shows a dialog box titled "Create Tool Type Group" with a close button (X) in the top right corner. It contains the following fields and controls:

- Unique Identifier:** An empty text input field.
- Name:** A text input field containing "Regrind Tools", marked as required with a red asterisk.
- Tool Type:** A dropdown menu marked as required with a red asterisk. The menu is open, showing a list of options: "Blenders", "Molds", "Conveyors", and "Dryers".
- Buttons:** A green "Save" button with a checkmark icon and a yellow "Cancel" button with a close icon.

6.4 Tool Groups

Select Tool Groups from the Tool Manager drop-down list and click **Create Tool Group**.

Give the Tool Group a name.

Tool Groups can have one or more Tools, including one or more Tools of the same Tool Type.

Creating and configuring Tool Groups is not necessary for configuring a Job. Tool Groups are helpful when starting a Job or changing tools, so you don't have to search through every individual Tool in the drop-down list.

Some customers use Tool Groups to identify Tools that are packaged, shipped, and/or used together.

The only required field when creating a new Tool Group is **Name**.

Click on the **Save** button to store your changes to the PlantStar Database.

6.5 Tools

To create a new **Tool**:

1. Select **Tools** from the Tool Manager drop-down list.
2. Click **Create Tool**.
3. Give the Tool a name.
4. Select a **Tool Type** from the drop-down list.
5. Click on the **Save** button to store your changes to the PlantStar Database.

You can also enter optional information such as **Serial Number** and **Tool Group**.

Lifetime Information is used to establish predictive maintenance

6.5 Tool Maintenance Event Types

Select Tool Maintenance Event Types from the Tool Manager drop-down list and click on the Create Tool Maintenance Event Type button.

- Give the Tool Maintenance Event Type a **Name**.
- Click on the **Save** button to store your changes to the PlantStar Database.

6.6 Tool Maintenance Configurations

Tool Maintenance Configurations are used to configure the expected time between Maintenance Events. An Alert can be sent when Tool maintenance is needed (in a future release).

- Select Tool Maintenance Configurations from the Tool Manager drop-down list and click on the Create Tool Maintenance Configurations button.
- Select the Tool Maintenance Event Type from the drop-down list.
- Select the Tool from the drop-down list.
- Enter maintenance time data.
- Click on the Save button to store your changes to the PlantStar Database.

6.7 Tool Maintenance Events

The Tool Maintenance Event screen displays a read-only log detailing each time a routinely scheduled or anticipated maintenance event is added from a DCM.

Tool Maintenance Events are added from the DCM. You cannot add them from the APU.

The Tool Maintenance Event log is a real-time, comprehensive record of every event relating to Tool Maintenance, and may be aggregated for reports, charts, and calculations in the system.

If the DCM is not connected, then the APU will not display Tool Maintenance Events that were created while disconnected. When reconnected, the DCM will save the Tool Maintenance Events to the APU's database.

6.8 Tool Usage Events

Like Tool Maintenance Events, Tool Usage Events cannot be created but are auto generated and displayed in a read-only log for information purposes.

7. Configuring Materials

It is not necessary to enter or configure Materials to configure Jobs. The benefits of entering data in this manager include:

- Tracking material usage
- Budgeting for standing orders or special materials needs by comparing materials usage of various time frames

7.1 Material Types

Select Material Types from the Material Manager and click Create Material Type.

- Unique Identifier can be used to associate a material type with an external system. Entering this information is helpful for reference but not required.
- Give the Material Type a name and click Save.

7.2 Material Component Template Groups

Select Material Component Template Groups from the Material Manager and click **Create Material Component Template Group**.

- **Unique Identifier** can be used to associate the name or configuration of a material component group with an external system. Entering this information is helpful for reference but not required.
- Give the Material Component Template Group a **name**.

If the group is made up of more than one type of material component, click the green **Add Material Component Template** button to activate the drop-down configuration.

- Choose each **Material Type** from the drop-down list and assign it a percentage. The combined total of your materials type percentages does NOT have to equal 100%. It could be greater or less than 100%. This allows for materials components of runners and other consumables to be added.
- Continue adding **Material Types** and assigning percentages until your Group is complete.
- If the group is not made up of more than one type of material component, click Save.

7.3 Material Usage Chart

The Material Usage Chart shows material usage statistics for machines over a defined period. It can show the usage for:

- A single Machine
- Cumulative usage for all Machines in a single Machine Group
- Cumulative usage for all Machines in all Machines in your system.

Material Type	Runner Weight	Good Parts Weight	Unconfirmed Parts Weight	Reject Parts Weight	Total Weight
Thermoplastic	0.0 Pounds	12792.0 Pounds	0.0 Pounds	3326.4 Pounds	16118.4 Pounds
Nylon	0.0 Pounds	19188.0 Pounds	0.0 Pounds	4989.6 Pounds	24177.6 Pounds
Polycarbonate	0.0 Pounds	15990.0 Pounds	0.0 Pounds	4158.0 Pounds	20148.0 Pounds
Polyimide	0.0 Pounds	22386.0 Pounds	0.0 Pounds	5821.2 Pounds	28207.2 Pounds
Filler	0.0 Pounds	14313.6 Pounds	0.0 Pounds	4569.6 Pounds	18883.2 Pounds
Polyurethane	0.0 Pounds	21470.4 Pounds	0.0 Pounds	6854.4 Pounds	28324.8 Pounds
Phenol-Formaldehyde		75784.0		11424.0	47208.0

To create a Material Usage Chart:

1. Select **Material Usage** from the Material Manager drop-down list.
2. Select either a single machine group or “All Machines” from the **Machine Groups** drop-down.
3. Select either a single machine group or “All Machines In Group” from the **Machine** drop-down.
4. Optionally define a **Start** and/or **End of Time Frame** to establish a time range.
5. Click on **Get Material Usage**.

8. Job Event Reasons

8.1 Job Event Reason Templates

Select Job Event Reason Templates from the Job Event Reason Manager and click Create Job Event Reason Template.

- Give the Job Event Reason a name.
- Select from one of the reason types: Down, Assist, or Reject.

Down means that the machine is not continuing with the process/production.

Down and Assist are status values that will show up on a Machine's card on the [Machine Status Viewer](#). You can create reasons why a Machine might go into Down status and reasons why a Machine might go into Assist status.

Reject is not a status, but you can create reasons why parts might be rejected.

- Give the Down, Assist, or Reject Reason a name.
- Optionally, indicate whether the reason Should Force a Down by checking the box.
- Optionally, indicate whether the reason Should Ignore Cycles by checking the box. If Ignore Cycles is selected, you cannot also configure the machine for Auto Up or Auto Scrap.
- Optionally, choose an Auto Scrap Reject Reason from the drop-down list, if needed.

If the machine is in down status for a Down Reason that has an Auto Scrap Reject Reason, then the current Reject Reason is automatically changed to that reason and all parts made will be rejected for that reason.

- Optionally, indicate whether the Down Reason includes an Auto Up by checking the box.

There are three types of Auto Ups:

- Consecutive – will cancel the down after the specified number of cycles is completed within tolerance parameters
- Nonconsecutive – will cancel the down after the specified number of cycles is completed within tolerance parameters, even if those cycles are not consecutive
- Percent – will cancel the down status if the specified percentage of a specified number of cycles is completed within tolerance parameters

Cycles cannot be ignored if a Down Reason includes an Auto Up. If cycles should be ignored, a Down Reason cannot have an Auto Up.

- Click **Save**.

Repeat these steps for as many Job Event Reasons as have been licensed through purchase.

Assist means that a machine operator has requested help, or that some action is required to continue production. Being in "assist" status will never force the machine into down or cause cycles to be ignored.

Reject means that a part or parts created in one or more cycles (as defined by cycle tolerance parameters) has fallen outside the tolerance definitions. That part or parts will be counted as reject and not toward production totals.

8.2 Job Event Reason Template Groups

Select Job Event Reason Template Groups from the Job Event Reason Manager and click **Create Job Event Reason Template Group**.

Unique Identifier is a way for you to import the name or configuration of a job event reason you may have used in a previous system without losing that system data. Entering this information is helpful for reference or cataloging but not necessary to generate PlantStar 4.0 analysis.

Give the Job Event Reason Template Group a name.

If appropriate, select any number of the templates in any of the reasons (Down, Assist, or Reject) and click Add. When a Job is created/edited and the Job Reason Group is created using the Job Event Reason Template Group, there is also a default reason if you choose not to select any of the templates in any of the categories. Drag and drop reasons between available and selected templates, and reorder within selected templates.

If you select a Down Reason Template that has an Auto Scrap Reject Reason, that Reject Reason Template will automatically be selected in the Reject section and you will not be able to remove it until the Down Reason Template is removed.

Click **Save**.

If you accidentally added a reason template, you can click on it and use the red **Remove Down Reason Template** button for that group of Reason templates (or just select and drag them back to the Available side).

9. Configuring Users

9.1 Permissions

Permissions allow you to control exactly what each user can see and modify within the PlantStar System. There are currently over 50 Permissions in the system, each of which allows multiple types of access.

Machine	<input checked="" type="checkbox"/> <input type="checkbox"/>
View Any:	<input checked="" type="checkbox"/>
Edit Any:	<input type="checkbox"/>
Create Any:	<input checked="" type="checkbox"/>
Delete Any:	<input type="checkbox"/>

9.2 Permission Groups

Permission Groups allow you to predefine an entire set of Permissions, which can then be applied to multiple users with similar roles within PlantStar. This significantly reduces the amount of time you will spend creating Users.

The screenshot shows the PlantStar configuration interface. On the left is a navigation menu with items: Configurations, Data Collection Modules, Charts, Job Event Reasons, Machines, **Users** (highlighted with a red box and number 1), and Shifts. The main content area shows the 'Permission Groups' section. At the top, there is a dropdown menu for 'Permission Groups' (highlighted with a red box and number 2), a green '+ Create Permission Group' button (highlighted with a red box and number 3), and a red 'Delete Permission Groups' button. Below these are controls for '25 Items Per Page', 'Clear All', and a search bar. At the bottom, there is a table header with columns: Name, Permissions, and Comments. The table currently shows 'Total: 0' and 'Filter Total: 0'.

To add a permission Group:

1. Click on **Users** to access the User Manager.
2. Select **Permission Groups** from the drop-down.
3. Click on the **Create Permission Group** button.

This will open the **Create Permission Group** dialog.

The first thing you need to do when creating a new Permission Group is to give it a unique and descriptive **Name**.

You can also use the optional **Comments** to provide a more detailed description.

Once the Permission Group is named, scroll through to select/deselect the appropriate **permissions** for this group.

You can save time by clicking **Add All Permissions** and then deselecting the permissions that are not needed. When modifying an existing Permission Group, you might find it useful to click on the **Remove All Permissions** button, then add back only those needed.

Each permission has multiple options, each with its own checkbox. Which options are available varies by Permission.

Each Permission also has buttons to Select All and Clear All options *within that permission*.

Once you have everything defined as you would like, be sure to click on the **Save** button to write your new or modified Permission Group to the PlantStar database.

Note: See Appendix A for a description of each Permission.

Create Permission Group

Name: *

Comments:

Permissions

+ Add All Permissions Remove All Permissions

<p>Alert <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>Send Public Address Message: <input type="checkbox"/></p> <p>Listen To Public Address Message: <input type="checkbox"/></p>	<p>Alert Configuration <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p> <p>Create Any: <input type="checkbox"/></p> <p>Delete Any: <input type="checkbox"/></p>	<p>Alert Configuration Template <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p> <p>Create Any: <input type="checkbox"/></p> <p>Delete Any: <input type="checkbox"/></p>
<p>Chart Configuration <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p> <p>Create Any: <input type="checkbox"/></p> <p>Delete Any: <input type="checkbox"/></p> <p>Generate: <input type="checkbox"/></p>	<p>Chart Selection <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>Edit Any Users: <input type="checkbox"/></p> <p>Edit Own: <input type="checkbox"/></p>	<p>Data Collection Module <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p> <p>Create Any: <input type="checkbox"/></p> <p>Delete Any: <input type="checkbox"/></p>
<p>Job <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p> <p>Create Any: <input type="checkbox"/></p>	<p>Job Event Reason Template <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p> <p>Edit Any: <input type="checkbox"/></p>	<p>Job Event Reason Template Group <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>View Any: <input type="checkbox"/></p>

Save Cancel

9.2 Users`

To add a new User:

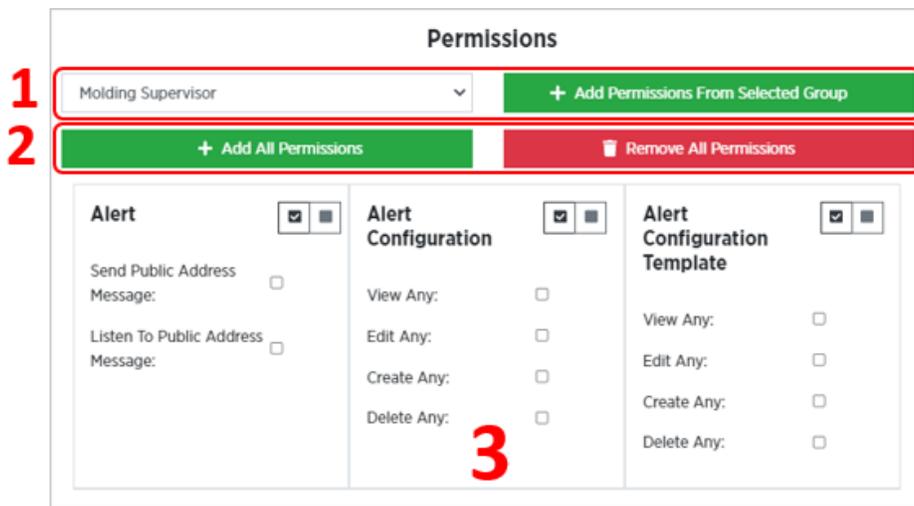
1. Select the **Users** page from the Users Manager's page selection drop-down.
2. Click on the **Create User** button.
3. Fill in the required fields:
 - a. **Username** is necessary for situation where you want the access method to be "Username/Password". You can use any format you like for the Username field, but we advise that you be consistent.
 - b. First Name and Last Name are self-explanatory.
4. Fill in the optional fields:
 - a. **Email address** is not required, but is necessary for the user to retrieve a lost password.
 - b. **Employee ID** is another form of identification, easier to type than a username. This required for any instances where you require an Access Code.
 - c. and change specify the user's preferred **Language** if not the default (English).

5. Specify the User Type:
 - a. A **Standard User** has limited access to the system. You will need to define this user's permissions.
 - b. An **Admin User** has full access, and hence does not need permission defined.

6. The **Is Active** checkbox determines whether the user will be able to log into the DCM and APU from a web-enabled device (e.g., an HMI). Checking **Is Active** makes that user count toward the limits of the Standard User License.

The **Is Operator** checkbox

The next step is to grant **Permissions** to the new User.



The Permissions section of the Add User dialog consists of three sections:

1. The **Permission Group controls** let you select a predefined set of Permissions to add all at once. After selecting a Permission Group from the drop-down, you must click on the Add Permissions from Selected Group button for the Permissions to be set.
2. The **Add / Remove All Permissions buttons** set or clear all permissions at once. This lets you start with all Permissions, then remove those unneeded, or start with no permissions, then add only those needed.
3. The individual Permissions.

Be sure to click on the **Save** button at the bottom of the screen to write your changes to the database.

9.3 User Action Events

The **User Action Event** screen displays a read-only log that auto-generates a new line each time any action is taken on the APU or a DCM.

Customers are not able to add information to User Action Events.

This log can be helpful for track-and-trace to find out who/what/when/where in relation to any process and production events.

The screenshot shows the 'User Action Events' interface. At the top, there is a search bar and a 'Clear Search' button. Below that, there are 'Filters' and 'Clear Filters' buttons. A table displays the event log with the following data:

User Action Event Type	Device	User	Content Type	ID	Name	Creation Datetime	Event Datetime	Changes JSON
<input type="checkbox"/> Login	Server	Syscon: Syscon Superuser	User	469fb222-e925-4eae-89fb-7c1d3f71bfcf	Syscon: Syscon Superuser	Oct. 18, 2021, 1:10 p.m.	Oct. 18, 2021, 1:10 p.m.	{}
<input type="checkbox"/> Login	Server	Syscon: Syscon Superuser	User	469fb222-e925-4eae-89fb-7c1d3f71bfcf	Syscon: Syscon Superuser	Oct. 15, 2021, 10:38 a.m.	Oct. 15, 2021, 10:38 a.m.	{}
<input type="checkbox"/> Logout	Server	Demo: Demo User	User	2c136b3e-2597-48b4-a854-0b7f9bb28519	Demo: Demo User	Oct. 15, 2021, 10:38 a.m.	Oct. 15, 2021, 10:38 a.m.	{}
<input type="checkbox"/> Login	Server	Demo: Demo User	User	2c136b3e-2597-48b4-a854-0b7f9bb28519	Demo: Demo User	Oct. 15, 2021, 10:37 a.m.	Oct. 15, 2021, 10:37 a.m.	{}

Summary statistics: Total: 313, Filter Total: 313

10. Operator Checkin Event Periods

10.1 Overview

10.2 Operator Action Events

Select Operator Action Events from the Operator Manager drop-down list.

The Operator Action Event screen displays a read-only log that auto-generates a new line each time an operator logs in or logs out through the Operator Login tab on the DCM.

An Operator can log in to the APU or DCM with the Log In button in the navbar by using their associated User account's username and password. This will create a User Action Event but not an Operator Action Event. Operator Action Events are created **ONLY** when an Operator checks in or out using the Operator check-in on the DCM.

Customers are not able manually to add information to Operator Action Events.

This log can be helpful for track-and-trace to find out who was checked in at the time an action was taken.

11. Alerts

11.1 Overview

Private Alerts are a way for PlantStar to inform the appropriate person or people, via text or email, when critical events occur within the system. For instance, if a machine’s status goes to Down, PlantStar could be set up to send a text, alerting the appropriate operator(s) and/or supervisor and an email to the quality department.

Public Alerts are an optional feature of PlantStar that allow a message to be broadcast over your plant’s public address system.

11.2 Private Alert Recipients

The first step in setting up Alerts is building a list of people who can *receive* the alerts. To do this, go to the Private Alert Recipients page on in the Alerts manager and click on the **Create Private Alert Recipient** button.

First Name and **Last Name** are required.

Title and **Department** are optional.

Email Address is required if you will want to alert this recipient via email. Note that a Private Alert Recipient is not the same as a user. A recipient may not even be set up as a PlantStar user. A recipient could be an entire department, or a distribution list defined in your email system.

Phone Number as Email Address is only necessary if you want PlantStar to send texts to the recent. This field needs to be formatted appropriately for the recipient’s mobile service provider. In the example shown, Walter gets his service from Verizon.

Make sure to click **Save** to write your changes to the database, then repeat these steps for as many Private Alert Recipients as are needed.

Create Private Alert Recipient ✕

First Name: * Walter

Last Name: * Sobchak

Title: Molding Supervisor

Department: Molding

Email Address: wsobchak@mold-o-matics.com

Phone Number As Email Address: 2223334444@vtext.com

Save Cancel

11.3 Alert Configurations

Alerts are defined by **Alert Configurations**. There are three components that must be defined for every Alert Configuration:

1. What condition must be met to trigger the alert,
2. Which DCMs and Machines the Alert pertains to, and
3. Who receives the Alert once it is triggered.

To create a new Alert Configuration, open the Alert Configurations page and click on the **Create Alert Configuration** button.

Give this Alert Configuration a descriptive **Name**. This should reflect what condition and which machines this Alert will respond to.

The **Number of Repeats** field specifies how many times a condition must be within the **Time Between Repeats** for this alert to be triggered.

For instance, you might not be concerned by an occasional field threshold breach, but if it happens three times in a two minute span, that might indicate a likely problem. To set this up, set Number of Repeats to "3", and Time Between Repeats to "120".

Alert Type defines what kind of condition PlantStar should look for to determine if an Alert is necessary. There are several options to choose from, and each option requires different types of additional information:

A **Field Threshold Breach** occurs when a value falls outside of a specified range. The complete list of available fields is shown in the example to the right. The Minimum and/or Maximum fields are used to define the threshold(s).

The screenshot shows the 'Create Alert Configuration' dialog box with the following details:

- Alert Configuration Templates:** A dropdown menu with a '+ Fill From Template' button.
- Name:** An empty text input field.
- Number Of Repeats:** A text input field containing the value '1'.
- Time Between Repeats In Seconds:** A text input field containing the value '60'.
- Alert Type:** A dropdown menu showing a list of options: Field Threshold Breach (selected), Job Completion, Machine Status Change, Process Variable Critical Max Breach, Process Variable Critical Min Breach, Process Variable Warning Max Breach, and Process Variable Warning Min Breach.
- Field:** A dropdown menu showing a list of options: Estimated Number Of Seconds Remaining (selected), Number Of Parts Remaining, Number Of Good Parts Made, Number Of Rejected Parts Made, Number Of Parts Made, Average Cycle Time In Seconds, OEE, Availability, Performance, Quality, Run Time In Seconds, Down Time In Seconds, and Idle Time In Seconds.
- Minimum:** An empty text input field.
- Maximum:** An empty text input field.
- Is Enabled:** A checked checkbox.

The **Job Completion** Alert Type is triggered if a job takes too long to run. For this Alert Type you need to define the **Time Before Job Completion**.

Alert Type: Job Completion

Time Before Job Completion: Days: 0 Hours: 0 Minutes: 0

The **Machine Status Change** Alert Type...

Select which machine status and what time in that status will trigger an alert for the machine.

Specify a length of time in the **Duration in Status Before Alert** fields to ignore short intervals in your selected Status. This is useful if you only want to be notified when something may have been ignored (like if a Machine has been Down for an hour and no one has fixed it).

Leave **Duration in Status Before Alert** at all zeroes if you want the Alert triggered as soon as the machine enters the designated status.

Alert Type: Machine Status Change

Duration In Status Before Alert: Days: 0 Hours: 0 Minutes: 0

Machine Status: Offline

- Offline
- Idle
- Down
- Process Exception
- Assist
- Process Warning
- Overrun
- High Rejects
- Slow
- Fast

The **Process Variable Min/Max Critical/Warning** Alert Type.....

The **Is Enabled** checkbox to turns this Alert on or off. Leave the box unchecked if you don't want this alert to be triggered at this time.

Alert Type: Process Variable Warning Max Breach

Should Apply To All Process Variables

Available Process Variables: Injection Pressure 1, Injection Position 1, Injection Position 2, Injection Pressure 7

Current Process Variables: Injection Pressure 2, Injection Position 5

+ Add Selected Process Variables

Remove Selected Process Variables

11.4 Applicable DCMs and Machines

When setting up an Alert you can specify which DCMs and/or Machines it should apply to. By default, the **Should Apply to All Data Collection Modules** box will be checked, meaning the new Alert will apply to all machines on all DCMs. If you uncheck this box, you will be given controls to select which DCMs to include.

Once you have selected at least one DCM (by moving it into the box on the right), you will be given the option to specify whether this **Alert Should Apply to All Machines**. If you check this box, you will be given controls to select the Machines you want to apply it to.

The screenshot shows a configuration window for an alert. At the top, there is a checkbox labeled "Should Apply To All Data Collection Modules" which is currently unchecked and circled in red. Below this are two columns: "Available Data Collection Modules" and "Current Data Collection Modules". The available list contains "vDCM104 (disabled)" and "I2Tech Test (disabled)", with a green "+ Add Selected Data Collection Modules" button below. The current list contains "vDCM102" with a red "- Remove Selected Data Collection Modules" button below. A section titled "Machine selection for vDCM102" is expanded, showing another "Should Apply To All Machines" checkbox, also unchecked and circled in red. Below this are "Available Machines" (containing "Machine 2") and "Current Machines" (empty), with corresponding "+ Add Selected Machines" and "- Remove Selected Machines" buttons.

11.5 Alert Recipients

The final step in setting up an alert is defining *who* should be alerted.

Public Alerts go to everyone. The only current option for Public Alerts is to broadcast a message over your plants public address system.

Private alerts go only to the specific users assigned here.

In section 11.2 we created Private Alert Recipients. This portion of the Alert Configuration is where these Alert Recipients are associated with actual Alerts. Use the controls to move the desired recipients from the full list of Alert Recipients (the left column) to the recipients associated with this alert (right column). There are separate controls for emails and texts.

Public Alerts

Private Emails

Private Texts

The screenshot displays three sections for configuring alert recipients. Each section has an "Available" list on the left and a "Current" list on the right, with green "+ Add Selected" and red "- Remove Selected" buttons.

- Public Alerts:** The available list has a "Public Address" field. The current list is empty.
- Private Emails:** The available list contains "Donnie Kerabatsos (dkerb@mold-o-matics.com)" and "Jesus Quintana (jqin@consult-o-matics.com)". The current list contains "Knox Harrington (kharr@mold-o-matics.com)" and "Larry Sellers (lsell@mold-o-matics.com)".
- Private Texts:** The available list contains "Walter Sobchak (2223334444@vtext.com)" and "Knox Harrington (2223334445@tmomail.net)". The current list contains "Donnie Kerabatsos (2213314441@vtext.com)" and "Jesus Quintana (2223334443@tmomail.net)".

11.6 Alert Configuration Templates

An **Alert Configuration Template** is a set of values used to pre-fill many of the fields when creating new Alert Configurations. This both speeds up the process and improves accuracy when creating Alert Configurations.

You can predefine which DCMs/Machines apply to the alert and the lists of who will be alerted and how.

Name:

Should Apply To All Data Collection Modules

Available Data Collection Modules:

vDCM104 (disabled)
 I2Tech Test (disabled)
 DCM_Testing? (disabled)

+ Add Selected Data Collection Modules

Current Data Collection Modules:

vDCM102

Remove Selected Data Collection Modules

Machine selection for vDCM102

Should Apply To All Machines

Available Public Alert Recipients:

Public Address

+ Add Selected Public Alert Recipients

Current Public Alert Recipients:

(Empty)

Remove Selected Public Alert Recipients

Available Email Alert Recipients:

Donnie Kerabatsos (dkerb@mold-o-matics.cc)

+ Add Selected Email Alert Recipients

Current Email Alert Recipients:

Walter Sobchak (wsobchak@mold-o-matics.cc)
 Jesus Quintana (jquin@consult-o-matics.com)
 Ken Harrison (kharr@mold-o-matics.cc)

Remove Selected Email Alert Recipients

Available Text Alert Recipients:

Donnie Kerabatsos (2213314441@vtext.com)
 Jesus Quintana (2223334443@tmomail.net)
 Ken Harrison (223334444@tmomail.net)

+ Add Selected Text Alert Recipients

Current Text Alert Recipients:

Larry Sellers (3334445555@att.net)
 Walter Sobchak (2223334444@vtext.com)

Remove Selected Text Alert Recipients

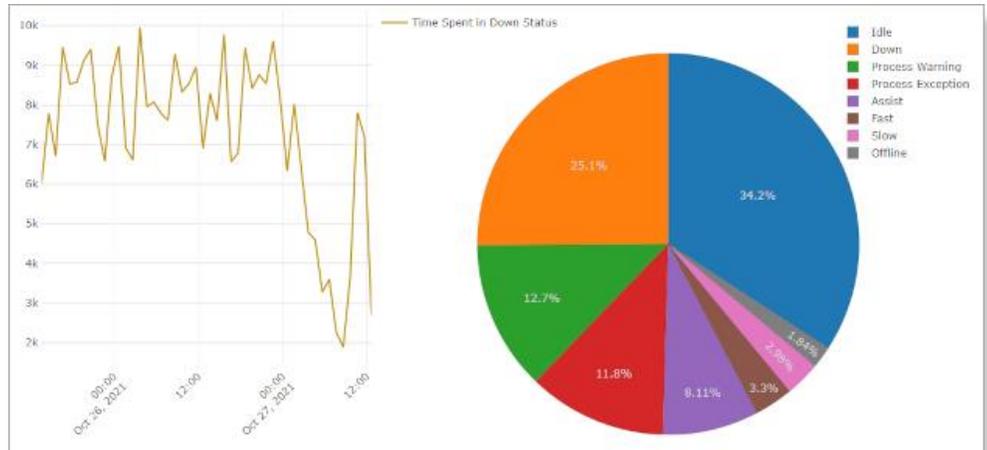
Save

Cancel

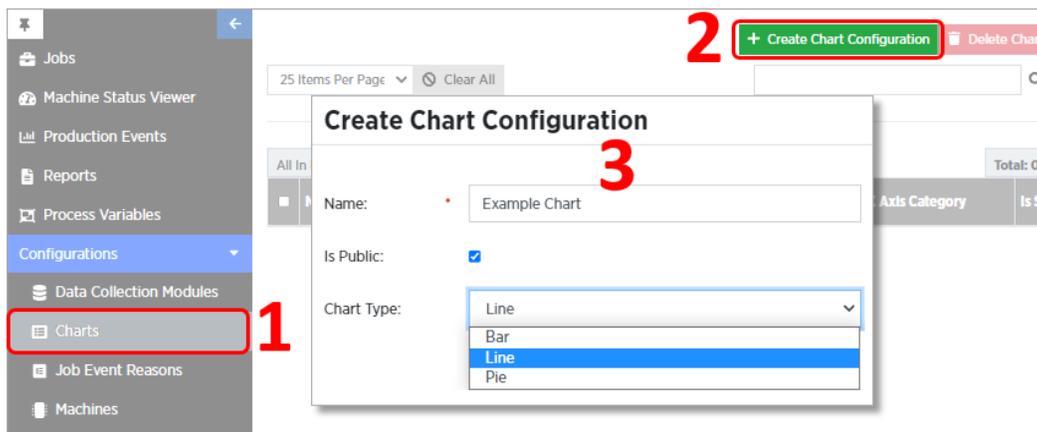
12. Configuring Charts

12.1 Overview

PlantStar Reports can include charts to display virtually any production data your system collects. These charts are created and maintained in the Chart Manager.



12.2 Chart Configuration - General



To configure a new chart, start by opening the Create Chart Configuration dialog:

1. Open the **Charts Manager**
2. Click on the **Create Chart Configuration** button. Note that there is only one page in the Charts Manager, hence no drop-down page selector.
3. Give the new chart a **Name**, specify whether it **Is Public** (available for other users to access), select a **Chart Type**.

12.3 Chart Configuration – Define the X Axis

The next step in setting up a chart is defining what the X (horizontal) axis will be based on. There are two options for Type of **X Axis Point**: Time Interval and X Axis Category

Type of X Axis Point: Time Interval X Axis Category

Time Interval: Weeks Days Hours Minutes Seconds

Time Interval lets you display data as it changes over time. This options requires you to specify the selection frequency to be used when selecting the data points. At least one of the five **Time Interval** boxes must be set to a number greater than zero.

The examples shown here illustrate how Time Interval works. On the right are two bar charts showing the same data (Time Spent in Down Status) over the same period. The chart on top shows the data with the Time Interval set to one hour. The chart on the bottom shows the Time Interval set to three hours (as shown in the example above).

Note that the x-axis labels at the bottom of each chart are identical. The difference is the number of sample points. Each point on the top chart shows the number of downtime seconds in the previous hour. Each point in the bottom chart shows the number of downtime seconds in the previous three hours.

You might also notice that the numbers in y-axis labels on the three-hour chart are roughly three times as large as high as those on the one-hour chart.



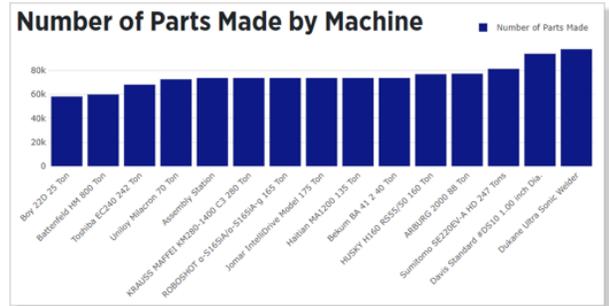
Select **X Axis Category** for **Type of X Axis Point**, to have your chart to be delimited by something other than time. The graphic to the right shows all available X Axis options.

For instance, you could have a bar chart, with each bar representing the number of parts made for a different machine.

When you select **X Axis Category** as the **Type of X Axis Point**, you need to specify which category to use. The expanded dropdown shown here shows all available options.

The image below has three barcharts, all displaying the same data (number of good parts vs. number of bad parts, by machine):

1. This is a **Stacked** bar chart. The two different data types (good and rejected) are stacked in a single bar.
2. This chart is *not* stacked, meaning there are separate columns for each data type.
3. The rightmost column shows the unstacked chart with the **Number of Data Points** set to "5", causing only data from the first five machines to be shown on the chart.



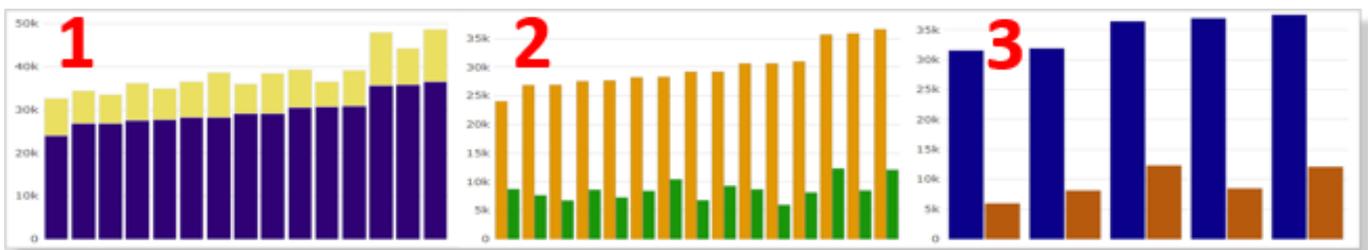
Type of X Axis Point: Time Interval X Axis Category

X Axis Category:

- Data Collection Module
- Machine Group
- Machine**
- Shift
- Job
- Sub Job
- Job Product
- Sub Job Product
- Time Spent In Status

Number Of Data Points:

Is Stacked:



12.4 Define the Data

Now that we have defined what the chart should look like, we need to define what *data* will be displayed on the chart.

The Data Categories selector boxes let you choose one or more type of data pertinent to the selected X Axis Category. In the example shown above, the data being shown is the Number of Parts Made.

To select a Data Category, click on the category in the **Available Data Categories** box, then click on **Add Selected Data Categories**.

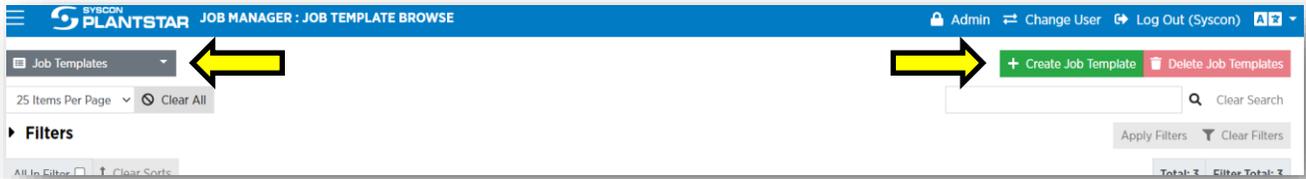
The screenshot shows a window titled "Data Categories". It is divided into two main sections: "Available Data Categories" on the left and "Current Data Categories" on the right. The "Available Data Categories" section contains a list with four items: "Time Spent in Offline Status", "Time Spent in Idle Status", "Time Spent in Down Status", and "Time Spent in Process Exception Status". Below this list is a green button with a plus sign and the text "+ Add Selected Data Categories". The "Current Data Categories" section contains a list with one item: "Number of Parts Made". Below this list is a red button with a trash icon and the text "Remove Selected Data Categories". At the bottom right of the window, there are two buttons: a green "Save" button with a checkmark icon and a yellow "Cancel" button with a circular arrow icon.

To see your chart in action, you'll need to add it to a Report. See **Chapter 16: Reports** for more information.

13. Adding Jobs

13.1 Job Template

Select Job Templates from the Job Manager and click Create Job Template.



You can select a Job Event Reason Template Group from the drop-down list if necessary/desired.

- Unique Identifier can be used to associate the name of a job template you may have used in an external system. Entering this information is helpful for reference but not required.

Name: *

Product Name: *

Comments:

- Give the Job Template a name.
- Assign a name to the product that will be associated with this Job Template.
- Specify the expected setup time, cycle time, and tolerance parameters.

Edit Job Template

Standard Cycle Time In Seconds: * 0.001

Cycle Time Tolerance Percent: * 50.00

Number Of Cycles Used For Tolerance Calculation: * 0

Auto End Idle:

Down Threshold In Seconds: * 0.000

If you check Auto End Idle, the Machine will automatically come out of the Idle status after the specified number of cycles.

The Down Threshold time MUST BE greater than the Standard Cycle time, otherwise the system will not allow you to save the Job Template.

- Select the desired unit of measure from the Cycle Weight Measurement drop-down list on the right, and then enter the cycle weight.
- Select the unit of measure prior to entering the Cycle Weight Measurement! This will help you to avoid an unintentional conversion of the number for cycle weight.

Cycle Weight Measurement:	0.001	Grams
Total Sub Job Part Weight:	0 Grams	
Calculated Runner Weight:	0 Grams	
Material Component Template Group:	Generic Material CTG	
Material Component Templates:		
<ul style="list-style-type: none"> Regular Plastic (50.0%) Hard Plastic (33.0%) Soft Plastic (17.0%) 		
Is Refeeding Runner	<input type="checkbox"/>	
Parts Must Be Confirmed	<input type="checkbox"/>	

- The Total Sub Job Part Weight and the Calculated Runner Weight fields will be automatically populated after you enter data for at least one Sub Job below.
- Select a Material Component Template Group from the drop-down list, if desired.
- **Is Refeeding Runner** - check this box if the runner will be removed after cycle completion and the material can be fed through to be reused.

This option is only available if you have selected a Material Component Template Group. If this is selected, the runner Will Not be included in the material usage calculation.

- If Parts Must Be Confirmed is selected, you need to enter the Number of Good Parts to Confirm (on the Sub-job Template.) This value will be used when a Good Parts Entry signal comes in that does not specify the number of good parts.
Parts Must be Confirmed means that every part will be Unconfirmed until it is confirmed as Good or Reject.
- Setup Sheet Text - This is a place to add additional instructions about the job. You can enter text or HTML directly; insert a clickable link to internal or external content.
- Product image - You can upload one product image using Upload a Product Image. Additional images may be uploaded using Setup Sheet Text.

- Select the Tool Type Group from the drop-down list, if desired.
Any Tool Types in that Group will be listed for you in the box. Tool Type Group can be edited on a running Job.
- Required by Datetime - Enter the date and time by which the job must be completed.
- Optionally, add Custom Fields to the Job. This information will appear on the Job Summary page of the DCM.

13.2 Sub Job Template

Every Job Template MUST have at least one Sub Job Template.

Edit Job Template

▼ **Sub Job Template** Remove Sub Job Template

Unique Identifier:

Name: *

Product Name: *

Comments:

Number Of Parts Required: *

Number Of Good Parts To Confirm:

Standard Good Parts Percent: *

Standard Number Of Parts Per Cycle: *

Part Weight Measurement:

- Unique Identifier can be used to associate name of a sub job template with an external system. Entering this information can be helpful for reference but is not required.
- Assign a name to the product that will be associated with this Sub Job Template.
- Enter the number of parts required.
- Specify the standard Good Parts percent.
- Enter the standard number of parts per cycle.
- Select the desired unit of measure from the drop-down list and THEN enter the part weight.
- At this point, the fields for Total Part Weight (under Sub Job) AND Total Sub Job Part Weight/Calculated Runner Weight (for the whole Job) will automatically populate.

- Specify the reject threshold percent.
- Is Refeeding Scrap - Check this box if scrap from Reject parts will be re-fed into the machine.

This option is only available if you have selected a Material Component Template Group.

- You can add custom fields not offered in the default user interface by clicking the green **Add Custom Field** button and entering data that will be useful for your Job.
- Add other Sub Job Templates if needed.
- Click **Save**.

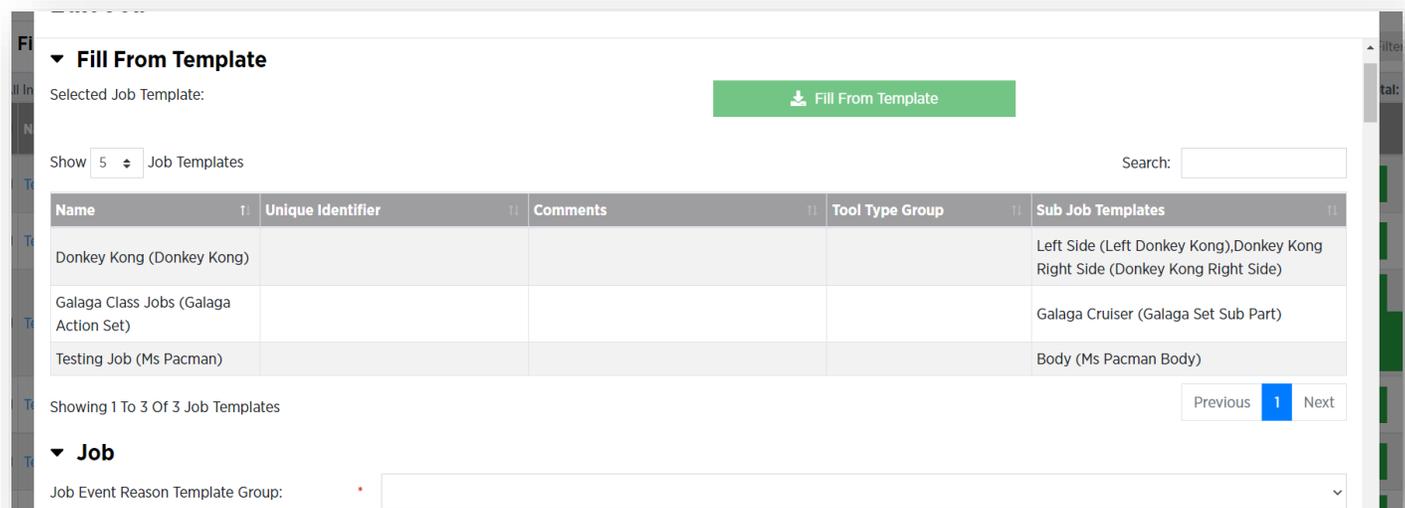
Repeat these steps as many times as necessary.

13.3 Jobs

Select Jobs from the Job Manager drop-down list and click **Create Job**.



Use the **Fill from Template** table to quickly populate much of the data for your Job configuration. Choose from the available templates and click the green **Fill from Template** button to make Job configuration go faster.



- Select a Job Event Reason Template Group from the drop-down list. This is required by the system.
- **Unique Identifier** can be used to associate the name of a sub job template with an external system. Entering this information is helpful for reference but is not required.

The screenshot shows a web-based form with the following fields and values:

- Unique Identifier: [Empty text box]
- Name: [Empty text box]
- Product Name: [Empty text box]
- Comments: [Empty text box]
- Standard Setup Time In Seconds: 0.000
- Standard Cycle Time In Seconds: 0.001
- Cycle Time Tolerance Percent: 50.00
- Number Of Cycles Used For Tolerance Calculation: 0
- Auto End Idle:

- Give the Job a name.
- Assign a name to the product that will be associated with this Job.
- Specify the expected setup time, cycle time, and tolerance parameters. If you check Auto End Idle, the Machine will automatically come out of the Idle status after the specified number of cycles.
- Select the desired unit of measure from the Cycle Weight Measurement drop-down list on the right, and then enter the cycle weight.

Note the instruction to select the unit of measure prior to entering the Cycle Weight Measurement! This will help you to avoid an unintentional conversion of the number for cycle weight.

- Select a Material Component Group from the drop-down list, if desired.
- Parts Must be Confirmed - means that every part will be **Unconfirmed** until it is confirmed as **Good** or **Reject**.

If Parts Must Be Confirmed is selected, you need to enter the Number of Good Parts to Confirm (on the Sub-job Template.) This value will be used when a Good Parts Entry signal comes in that does not specify the number of good parts.

- Setup Sheet Text - this is a place to add additional instructions about the job. You can enter text or HTML directly; insert a clickable link to internal or external content.
- Product image - you can upload one product image using **Upload a Product Image**. Additional images may be uploaded using Setup Sheet Text.
- Select the Tool Type Group from the drop-down list, if desired. Any Tool Types in that Group will be listed for you in the box. Tool Type Group can be edited on a running Job
- Required by Datetime - enter the date and time by which the job must be completed.

When the system is initially configured there is a buffer value set which is used to calculate when a job might not complete by the required by date/time. That buffer value is a percent of the job's expected length. If the amount of time between the job's expected end date/time and the required by date/time is within X% of the job's expected length, then the job might not make its required by date/time.

This buffer value percentage can be adjusted via system configuration.

- Is Refeeding Runner – check this box if the runner will be removed after cycle completion and the material will be fed through to be reused.

This option is only available if you have selected a Material Component Template Group.

The runner **Will Not** be included in the material usage calculation.

- Optionally, add Custom Fields to the Job. This information will appear on the Job Summary page of the DCM.

13.4 Sub Jobs

Every Job MUST have at least one Sub-Job.

- **Unique Identifier** can be used to associate the name of a sub job with an external system. Entering this information is helpful for reference but is not required.
- **Assign a name** to the product that will be associated with this Sub Job Template.
- Enter the number of parts required.
- Specify the standard Good Parts percent.
- Enter the standard number of parts per cycle.
- Select the desired unit of measure from the drop-down list and THEN enter the part weight.

At this point, the fields for Total Part Weight (under Sub Job) AND Total Sub Job Part Weight/Calculated Runner Weight (for the whole Job) will automatically populate.

- Specify the reject threshold percent.
- Is Refeeding Scrap - check this box if scrap from Reject parts will be refed into the machine.

This option is only available if you have selected a Material Component Template Group.

- You can add custom fields not offered in the default user interface by clicking the green **Add Custom Field** button and entering data that will be useful for your Job.

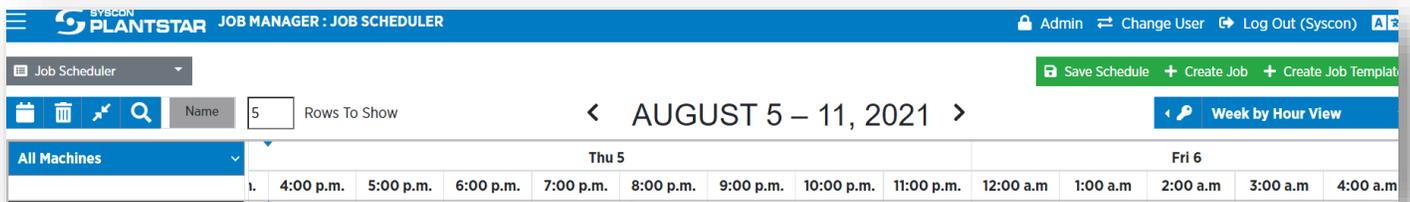
Add other Sub Jobs if needed.

- Click **Save**.

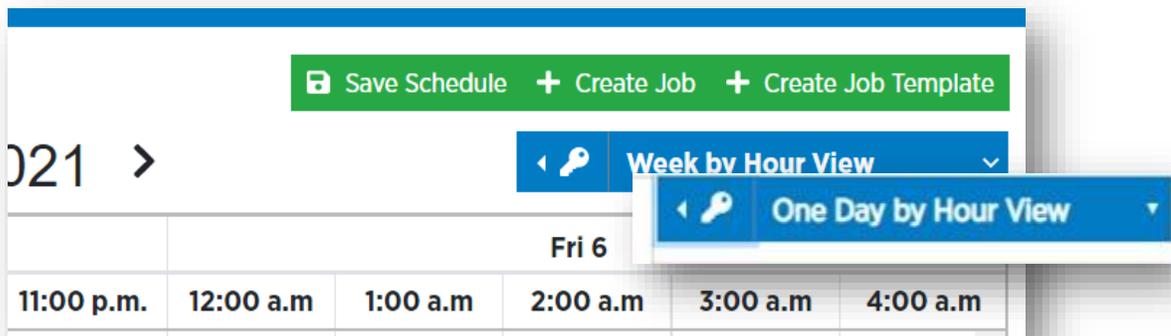
Repeat these steps as many times as necessary.

13.5 Job Scheduler

Select Job Scheduler from the Job Manager drop-down list.



Define the interval of time you'd like to see using the blue View drop-down list at the top-right of the screen.

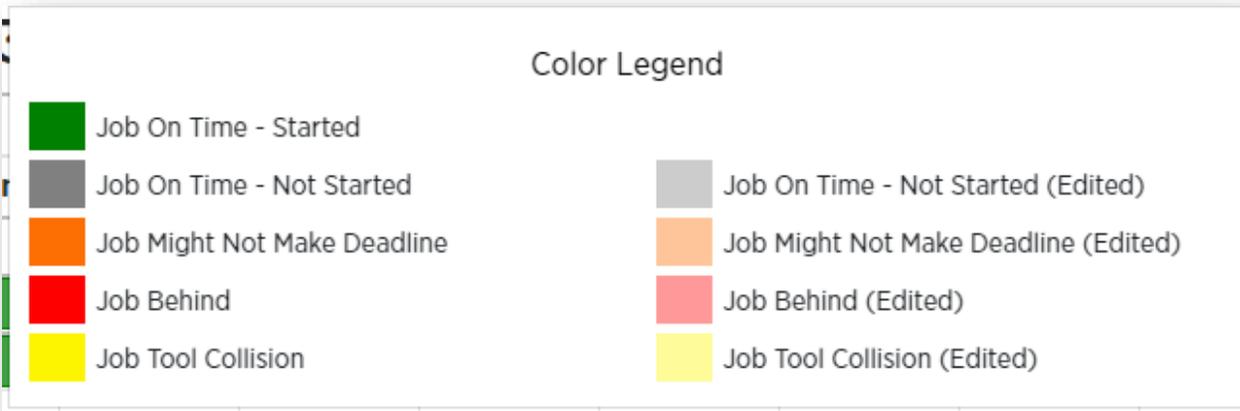


Drag-and-drop a Job onto the scheduler by clicking anywhere on the Job line and placing it in the desired time frame on the scheduler.

The screenshot shows the SYSCON PLANTSTAR Job Scheduler interface. At the top, there's a navigation bar with 'Admin', 'Change User', and 'Log Out (Syscon)'. Below that, a dropdown menu shows 'All Machines'. The main area is a scheduler grid for 'Thu 5' and 'Fri 6', with time slots from 4:00 p.m. to 4:00 a.m. A list of machines is on the left: I2Tech_Test_Machine, Machine 1, Machine 2, Machine 3, and Machine_Test_1. A red circle highlights the 'Galaga Job' in the job list below the grid, with a yellow box containing the number '1' next to it. A red arrow points from this job to a yellow box containing the number '2' on the scheduler grid.

This is a close-up of the scheduler grid. The time slots shown are 4:00 p.m., 5:00 p.m., 6:00 p.m., 7:00 p.m., and 8:00 p.m. The machine list on the left includes I2Tech_Test_Machine, Machine 1, Machine 2, Machine 3, and Machine_Test_1. A red bar representing the 'Galaga Job' is scheduled on Machine 3, spanning from 4:00 p.m. to 8:00 p.m. The text 'Galaga Job 8 hours 27 minutes 5 seconds' is visible within the bar. Below the grid, there are buttons for 'Unscheduled Jobs' and 'Unsaved Changes'.

The Job will show up in one of several colors. Use the Color Legend (under the key icon) to understand how the scheduling of this Job relates to other Jobs, and whether you ought to schedule it for a different day/time.



This is where having taken the time to configure your Tools becomes a powerful asset: the scheduler will tell you if there is a conflict (Job Tool Collision) with the Tools needed for this Job if they are already being used on another machine for another Job at the same time, or if there are not enough available Tools.

Once started, if the Job doesn't look like it will end before the Required By Date/Time (with 10% buffer), the Job will be color-coded as Job Might Not Make Deadline.

All changes to the scheduler will remain local (only visible to you) until you click the green **Save Schedule** button. Local changes show up as slightly faded or transparent colors on the scheduler (see "Edited" in the legend above) until you save the schedule you have created.

Once you've made changes or edits to the scheduler, you can click the blue **merger** button (Update Scheduler and Merge Changes) on the top left of the screen to see what else may have happened (a Job started and now you can't move it, or another User moved a job to a different day), and what schedule adjustments you might need to make.

Updating and merging preserves your proposed edits and lets you know if they will be possible given the latest system data from the database.

If no conflicts exist, you can finalize with the Save Schedule button.

You can scrap all your potential changes at once by clicking the blue trash can (Reset the Job Schedule) on the top left of the screen.

To remove a Job from the scheduler, you can drag-and-drop it into the "Drop Job Here to Remove" box that appears – OR – click on the Job in the scheduler and then click **Remove Job**.

The drag-and-drop method works only if the **Unscheduled Jobs** tabs is open; if the **Edit** tab is open, you won't be able to drag-and-drop.

Removed Jobs will appear under the **Edited Jobs** tab rather than the **Unscheduled Jobs** tab. You can drag-and-drop them from **Edited Jobs** back into the scheduler.

There are many options for configuring the information on the **Job Scheduler**.

Use the blue **Machine** drop-down list at the top left of the scheduler to show **All Machines** or just a certain **Machine Group**.

Unscheduled Jobs are sorted by **Required By Datetime** by default. Use the sort feature by clicking in the column headings to arrange your **unscheduled Jobs** according to different priorities.

In the example below, **Jobs** are sorted in descending order according to **Required By Datetime**. You can add as many sort layers as you'd like to force the data into the hierarchy desired. Remove all sort parameters by clicking **Clear Sorts** at the top left of the list of **unscheduled Jobs**.

Name	Product Name	Comments	Required By Datetime	Sub Jobs	Material Components
Job 199	Product 199		Feb. 5, 2019, 9:13 a.m.	Sub Job 1, Sub Job 2, Sub Job 3,	Material Type 1, Material Type 2, Material Type 3, Material Type 4,
Job 198	Product 198		Feb. 5, 2019, 9:13 a.m.	Sub Job 1, Sub Job 2, Sub Job 3, Sub Job 4, Sub Job 5,	Material Type 1, Material Type 2, Material Type 3, Material Type 4,

You can apply **Filters** to your sorted data, and vice versa.

Filters

Product Name: Product 1, Product 10, Product 100

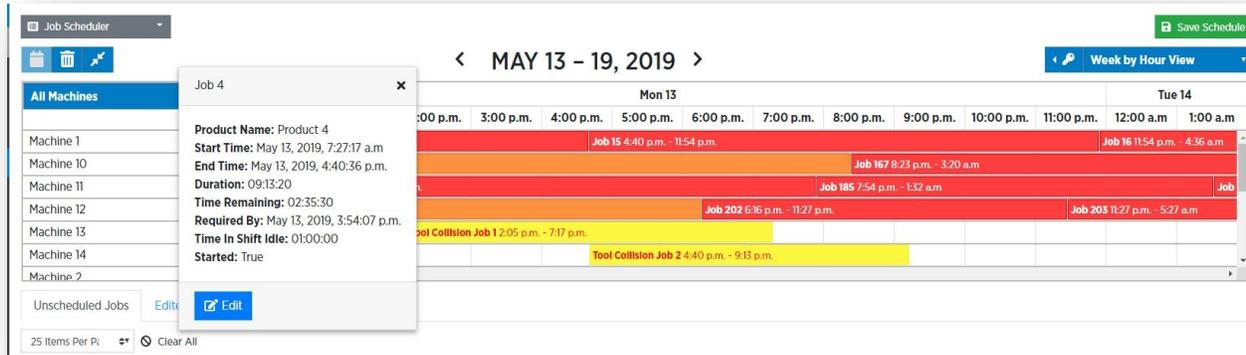
Required By Datetime: mm/dd/yyyy

Good Parts Are Post Cycle S...: True, False

Standard Setup Time In Sec...: [Empty]

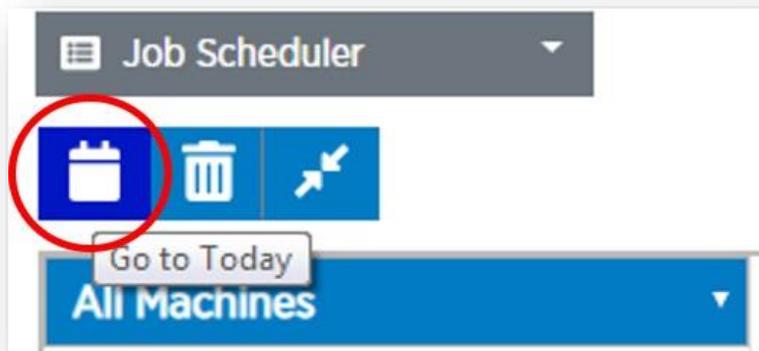
Standard Cycle Time In Sec...: [Empty]

You can edit the data of any Job right from the Job Scheduler without having to go back to the Jobs page. Click on the name of a Job in the **Unscheduled** tab to edit specific information about that Job or use the **Edit** button in the tool tip.

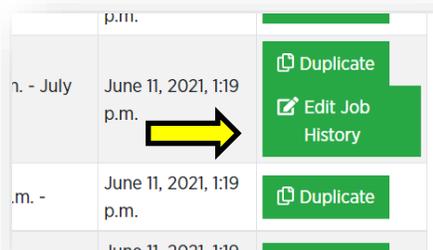


You may notice your Job Scheduler screen blinking or flashing every so often. This screen refreshes automatically to maintain the most current data from the APU and the DCMs, and to run the merge check.

If you have scrolled through the scheduler in either direction (past or future), you can quickly return to the current day by clicking the **Go to Today** button at the top left of the schedule.



On the **Jobs Browse** page, for Jobs that have finished you can use the **Edit Job History** button to edit part counts, down time, and assist time.



14. Machine Status Viewer

14.1 Overview

Here you can get a complete picture of the status of every machine in your shop. Each Machine has a "card" that shows production status, which Job is running/which product is being created, and other immediately relevant info about that Machine and its process.



You can use the drop-down list at the top left to select which Machine Groups you want to display cards for, or to show All Machines.

If a Machine is in Down or Assist, the card will flash.

The gauge wheel on each card shows the current OEE for that Machine. Clicking on the wheel opens a modal that gives you the variables that are contributing to the OEE.

Availability * Performance * Quality = OEE

15. Production Events

15.1 Overview

Select Production Events from the Production Events Logger. The Production Events page displays read-only data indicating every time a Production Event occurs.

Events can be filtered by Type, by Machine, by Job Event Reason, etc.

- Click the carat next to the Filters header to display the Filter options.
- Click **Apply Filters** to change the data displayed in the table.
- Click **Clear Filters** to restore all Production Event items to the table.

15.2 Production Event Chart Configuration Select

Use the Charts you configured in the Chart Manager to populate the Production Event Dashboard.

Users can be given permission to configure Production Event Dashboard Charts for other users under the Chart Selection permission (see 9.1 and/or 9.2.8.).

If Charts were set to Is Public, they will appear by default in the Public Chart Configurations list.

Your own charts will appear in the Private Chart Configurations list if you did not check the box for Is Public when you configured your charts.

Select Chart Configurations from the public and/or private lists on the left, and click the green **Add Chart Configurations** buttons.

Define the number of days that you want to use for populating data in your Charts, and click the green **Apply to Selected Chart Configurations** button.

Click the green **Save Production Event Chart Configurations** button at the top right of the screen. You are now ready to generate data for the Production Event Dashboard.

Charts can be added to Reports or viewed on the Production Event Dashboard page. Reports can be downloaded, printed, or saved.

15.3 Production Event Dashboard

Current Chart Configurations:

- (14) Percent Up Time Per Hour
- (14) Down, Idle, and Offline Time Per Hour
- (14) Time Spent In Status

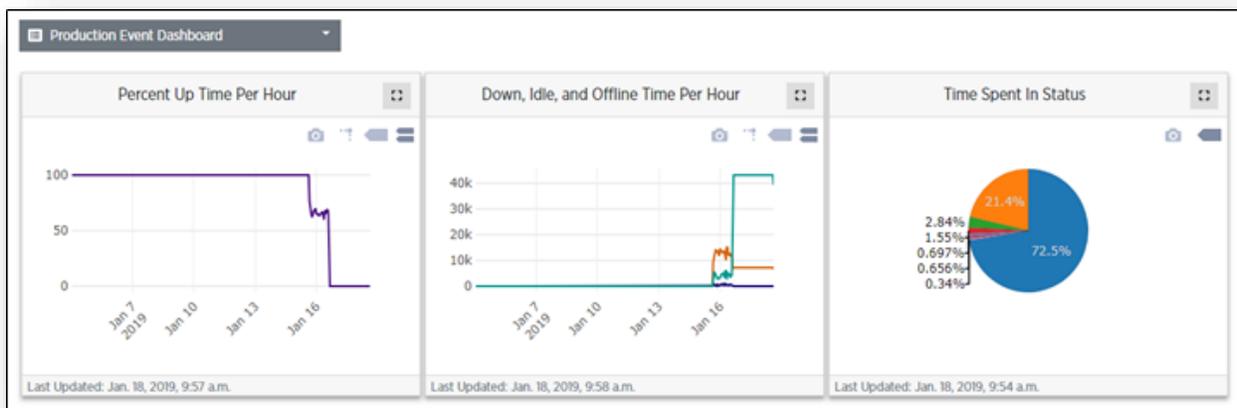
Currently Selected Chart Configuration Settings:

Number Of Days:

14

✓ Apply To Selected Chart Configurations

The Production Event Dashboard shows the data from the Configuration Select page. The Chart Configurations you choose, for the specified number of days, populate the Production Event Dashboard.



If no Chart Configurations are selected, then nothing will appear on the Dashboard. You can change what appears on the Dashboard by selecting different Chart Configurations and/or a different number of days from the Configuration Select page.

16. Reports

16.1 Spreadsheet Configurations

Select Spreadsheet Configurations from the Report Manager drop-down list and click Create Spreadsheet Configuration.

- Give the Spreadsheet Configuration a name.
- Choose any number or combination of Models and/or Data Categories.
- Click **Save**.

Repeat these steps for as many Spreadsheet Configurations as are needed.

Click **Generate Spreadsheet** to set date/time parameters for a selected Spreadsheet. You can preview by clicking **Preview CSV**; the Spreadsheet preview appears just below that button on the modal.

Click the green **Export to CSV** button to download your Spreadsheet as a document that you can save externally.

You can add Spreadsheets when you generate a Report.

16.2 Report Configurations

Select Report Configurations from the Report Manager drop-down list and **click Create Report Configuration**.

Give the Report Configuration a name.

Option 1 – Add a Header.

Click the **Add a Header** tab and enter the text for your Header.

This is the title for your Report.

Click the green **Add** button.

Your Header will appear as HTML in the Report Template Text Area.

Option 2 – Add a paragraph.

Click the **Add a Paragraph** tab and enter the text for your Paragraph. This can be any amount of text describing your Report, giving rationale, etc.

Click the green **Add** button.

Your Paragraph will appear as HTML in the Report Template Text Area.

Option 3 – Add a Spreadsheet.

Click the **Add a Spreadsheet** tab and choose a spreadsheet from the drop-down list.

Spreadsheets may be added and configured from the Spreadsheet Configurations drop-down list, also in this Report Manager (16.1).

Click the green **Add** button.

A placeholder for your Spreadsheet will appear in the Report Template Text Area.

Option 4 – Add a Chart.

Click the **Add a Chart** tab and enter choose a Chart from the drop-down list. You can give the Chart a title.

Click the green **Add** button.

A placeholder for your Chart will appear in the Report Template Text Area.

Headers, paragraphs, spreadsheets, and charts are all optional, for convenience. You don't have to add any of them. You can add more than one of each, in any order or combination. You can also add text or HTML directly into the Report Template Text Area.

You can rearrange the order of the added items by cutting and pasting whole lines of HTML in the Template Text area. The report will generate in the order that you enter the data commands.

Click **Save**.

Repeat these steps for as many Report Configurations as are needed.

Generate Report

Click on the green **Generate Report** button to set date/time parameters for your Report.

Use the drop-down list to select which Report to generate using the desired date/time parameters.

Click **Generate Report**. You will see this screen (below) while your Report is being generated.

Generating Your Report



**This could take a few
minutes. Please stand by.**

Your Report will open as a new tab in your browser. Reports can be printed and/or saved through the browser.

17. Conclusion

Thank you for using PlantStar 4.0! We hope you will see impressive results as your production and processes become more efficient. Let us know if you have any questions, concerns, or other feedback.

Appendix A – Permissions

Permission	View	Edit	Create	Delete	Schedule	Generate	Edit Hist	Description
Alert Send Public Address Message	X		X					Determines whether a user can send Public Address Messages.
Alert – Listen to Public Address Message								Determines whether a user can receive Public Address Messages.
Alert Configuration	X	X	X	X				Controls access to the Alert Manager’s Alert Configuration page.
Alert Configuration Template	X	X	X	X				Controls access to the Alert Manager’s Alert Configuration Templates page.
Private Alert Recipient	X	X	X	X				
Public Alert Recipient	X	X	X	X				
Chart Configuration	X	X	X	X		X		Controls access to the Chart Manager.
Chart selection		X						- Edit Any Users’ - Edit Own
Data Collection Module	X	X	X	X				Controls access to the Data Collection Module Manager.
Job	X	X	X	X	X		X	Controls access to the Jobs page in the Jobs Manager.
Job Event Reason Template	X	X	X	X				Controls access to the Job Event Reasons Manager’s Job Event Reason Templates page.
Job Event Reason Template Group	X	X	X	X				Controls access to the Job Event Reasons Manager’s Job Event Reason Template Groups page.
Job Template	X	X	X	X				Controls access to the Jobs Manager’s Job Template page.
Machine	X	X	X	X				Controls access to the Machine Manager’s Machine page.
Machine Interface	X	X	X	X				This permission is not currently used.
Machine Group	X	X	X	X				Controls access to the Machine Manager’s Machine Group page.

Permission	View	Edit	Create	Delete	Schedule	Generate	Edit Hist	Description
Material Component Template Group	X	X	X	X				Controls Access to the Materials Manger's Material Component Template Group Page.
Material Type	X	X	X	X				Controls Access to the Materials Manger's Material Type Page.
Operator Check-In Event Period	X							View Any
Permission Group	X	X	X	X				Users Manager
Production Event	X							
Report Configuration	X	X	X	X		X		Controls Access to the Reports Manger's Report Configuration page.
Shift Template	X	X	X	X				Controls Access to the Shifts Manger's Shift Templates page.
Shift Template Group	X	X	X	X				Controls Access to the Shifts Manger's Shift Template Groups page.
Spreadsheet Configuration	X	X	X	X		X		Controls Access to the Shifts Manger's Spreadsheet Configuration page.
Tool	X	X	X	X				Controls Access to the Tools Manger's Tools page.
Tool Group	X	X	X	X				Controls Access to the Tools Manger's Tool Groups page.
Tool Maintenance Configuration	X	X	X	X				Controls Access to the Tools Manger's Tool Maintenance Configurations page.
Tool Maintenance Event	X							Controls Access to the Tools Manger's Tool Maintenance Events page.
Tool Maintenance Event Type	X	X	X	X				Controls Access to the Tools Manger's Tool Maintenance Event Types page.
Tool Type	X	X	X	X				Controls Access to the Tools Manger's Tool Types page.
Tool Type Group	X	X	X	X				Controls Access to the Tools Manger's Tool Type Groups page.
Tool Usage Event	X			X				Controls Access to the Tools Manger's Tool Usage Events page.
User	X	X	X	X				This permission controls what a user can do within the User Manager's page. It has the following suboptions: <ul style="list-style-type: none"> - View Any - Edit Any Except Admin - Create Any Except Admin - Delete Any Except Admin
User Action Event	X							Controls Access to view the User Manger's User Action Events page.
Production Event	X							Controls Access to the Production Events Manger's Production

Permission	View	Edit	Create	Delete	Schedule	Generate	Edit Hist	Description
Period								Event Period Browse page.
Live Report Configuration	X	X	X	X				Controls Access to the Reports Manger's Report Configurations page.
Label Configuration Templates	X	X	X	X				Controls Access to the Labels Manger's Label Configuration Templates page.
Label Print Event	X							Controls Access to the Labels Manger's Label Print Events page.
Process Variables	X	X	X	X				
Process Variable Analysis Configuration	X	X	X	X				
Process Variable Override	X	X	X	X				This permission is not currently used.
Process Variable Override Template	X	X	X	X				This permission is not currently used.
Digital Input Trigger	X	X	X	X				
Complex Measurement Unit Template	X	X	X	X				Controls access to Complex Measurement Templates in the Measurements Manager.
State Machine Action Event	X							?
Scheduled Item	X	X	X	X				?
Custom Script Execution Event	X	X	X	X				Custom Scripts Manager
Setting	X							Huh?