



# Epicor University

## **Informance Manufacturing Intelligence User Guide**

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Epicor Informance version 8.0

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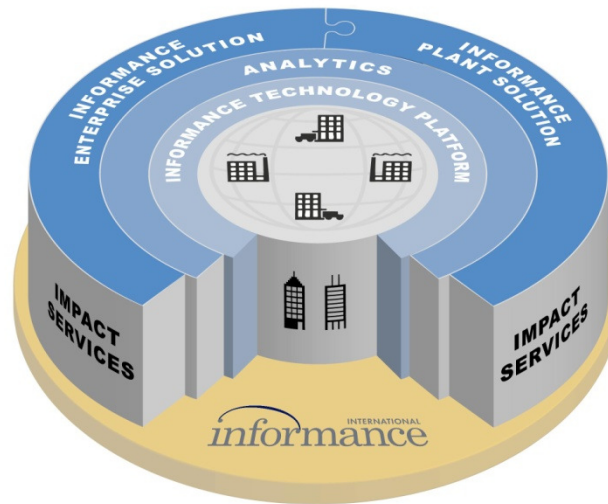
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## Informance System Overview

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The Informance Plant Solution – Discrete Edition is a suite of products focusing on performance tracking of discrete applications within a plant. Plant Reporting is one of several modules that make up the overall solution. It includes more than 300 pre-configured charts and reports covering OEE, Production Volume, Defect ratios, Speed/Rate Analysis, and Downtime Analysis.



The reporting suite is web-based allowing visibility of the Informance data throughout the plant and the enterprise. It includes a standard user / role / privilege scheme that provides not only security but also facilitates a customizable reporting experience that allows each user quick access to the specific metrics that are of interest.

### What is in this User Guide?

This guide begins by covering the basics of Plant Reporting – Logging in, Dashboards and the Reporting Environment. It introduces you to the core concepts of Plant Reporting and the basic navigation of the application.

The second chapter provides details on the Informance Data Selection screen, a powerful tool for structuring precise queries of the Informance data. You will discover how to specify not only the machines and timeframe for your reports, but also any desired exclusion of data based on the event tags.

After presenting these fundamentals, the third chapter takes you into the eleven core areas of analysis. Every reporting option for Cycletime and Downtime Analysis, OEE and Defect tracking and financial analysis is described in detail. This is followed by focused chapters on the Additional Reports tab and Event Management which provides visibility of the raw Informance data.

With an understanding of each area of analysis, the final chapter will show you how to organize your most critical reports into Dashboards.

# The Basics of Plant Reporting

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## Logging In

The first step in accessing Plant Reporting is logging in to your Plant Reporting Web Site. To log in, you must first obtain the following information from your Informance system administrator.

- The URL or web address for your Informance Log In screen
- The unique username that has been setup for you in the system
- The password that has been setup for you in the system

If your site has implemented the web Single Sign On feature of Plant Reporting, then logging in will be handled automatically. Single Sign on passes your credentials from the Windows Domain to Informance and authenticates your access with that information. Therefore, you will bypass the login screen and be taken directly to your Dashboard.

Once you have this information, open Internet Explorer and navigate to the address you were provided for logging in. The following screen will appear:

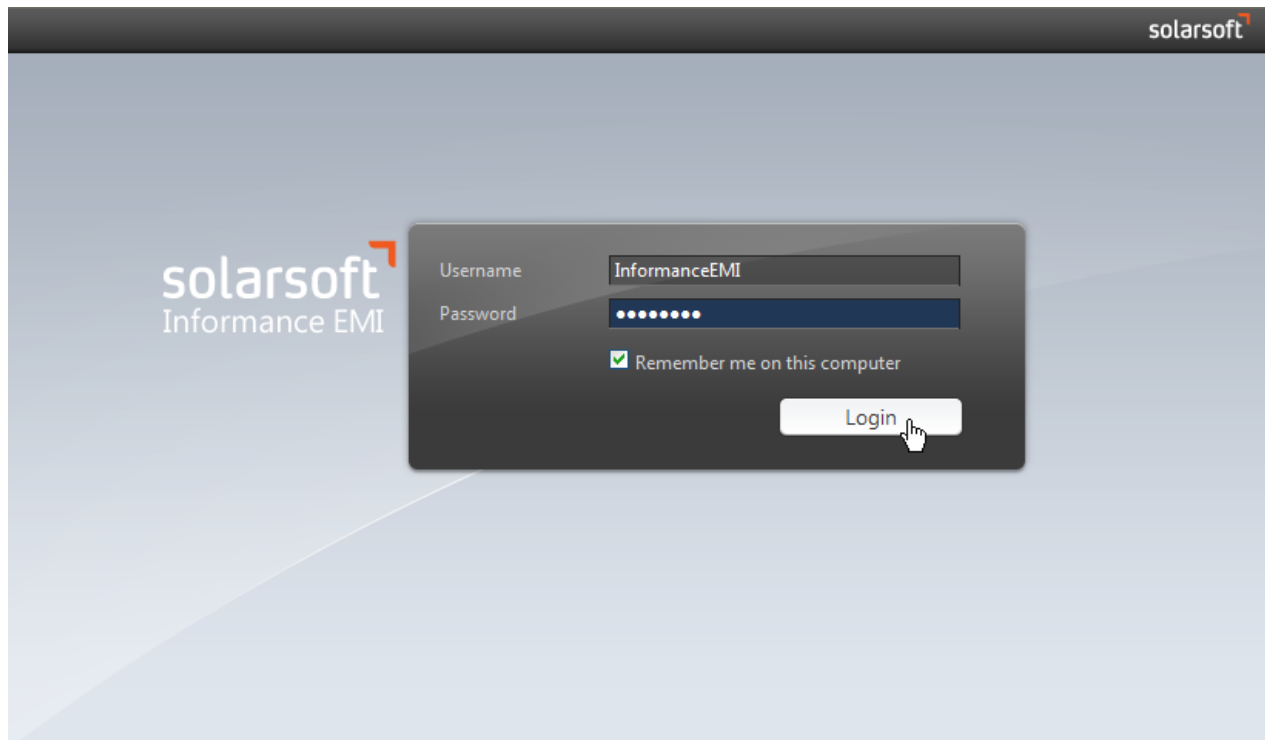


Figure 1: Informance Logon Window

Enter your Username and Password in the boxes provided and click the **Login** button. If your entries match a valid user profile in the system, you will be taken to Informance Plant Reporting and your Dashboard will be loaded.

If you are the only Informance user that will access Plant Reporting from a specific computer, you can check the box labeled **Remember Me on this Computer**. If this box is checked and your username and password are approved, they will be saved as the default profile for this computer and you will bypass this screen in the future and be taken directly to your Dashboard.

If you wish to 'undo' the **Remember Me on this Computer** setting to allow the log in screen to appear, you must delete the cookie for this site. Within Internet Explorer, cookies can be deleted by selecting 'Internet Options' from the 'Tools' drop-down menu. Under the 'General' tab of 'Internet Options' you will find a button labeled 'Delete Cookies'.

If there are multiple plants defined in your Informance system and your login has been granted access to more than one plant, then you will first be prompted to select a plant before your Dashboard is loaded. Select the plant from the drop-down list and click the **Go** button.

If your Informance system has only one plant defined or you have access to only one plant, the screen below will not appear.

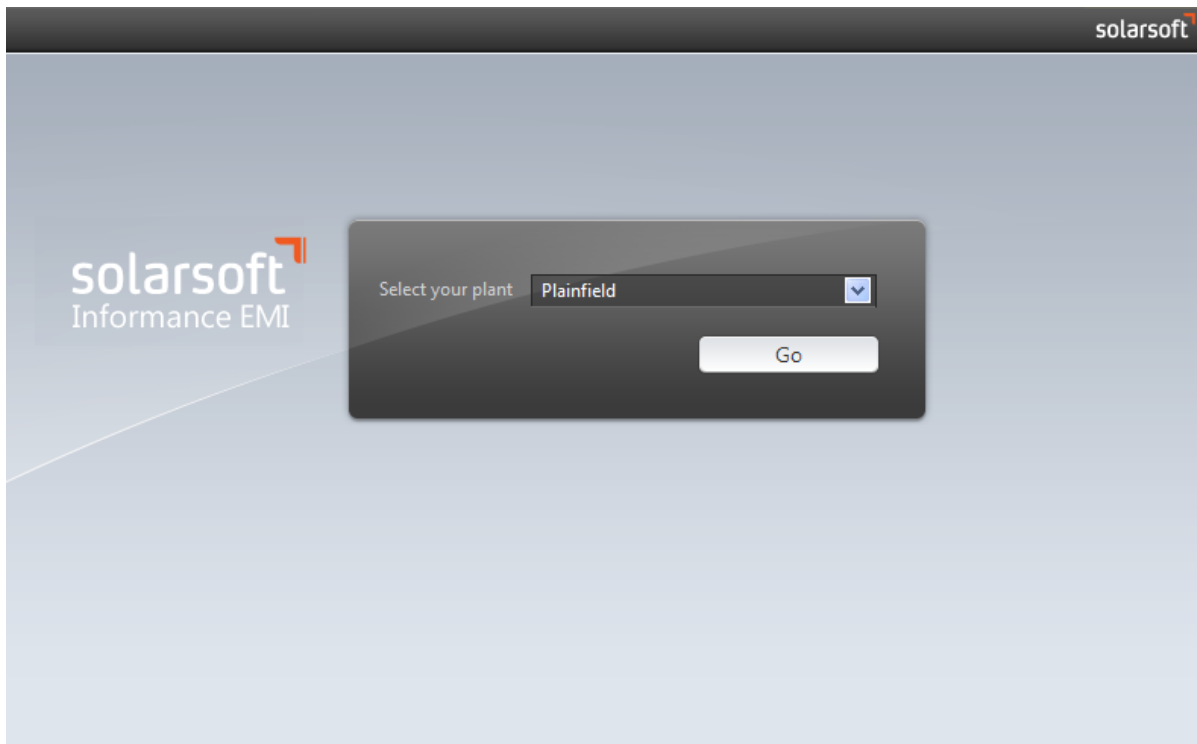


Figure 2: Plant Selection Screen

After you have successfully logged in to the Informance Plant Reporting, keep in mind that the data collected for each asset in your system is common to all users. Only the look and feel of specific features and reports can be customized by user. This includes:

- All Smart Dashboards that you create at the 'User' level.
- New user-level Smart Settings that you create within each Analysis Section. (The default set of smart settings are common to all users).
- New user-level Smart Queries that you create within the Data Selection screen.

You will learn more about each of these concepts later in this guide.

## Dashboards

A Dashboard is a set of user-configured charts that are loaded immediately upon log in, allowing each user to see the data most important to them without any additional steps. Because dashboards can be uniquely configured for each system login, the Dashboard is of the most powerful analytical features of the Plant Solution.

New users will see a blank dashboard when first logging in as shown below.

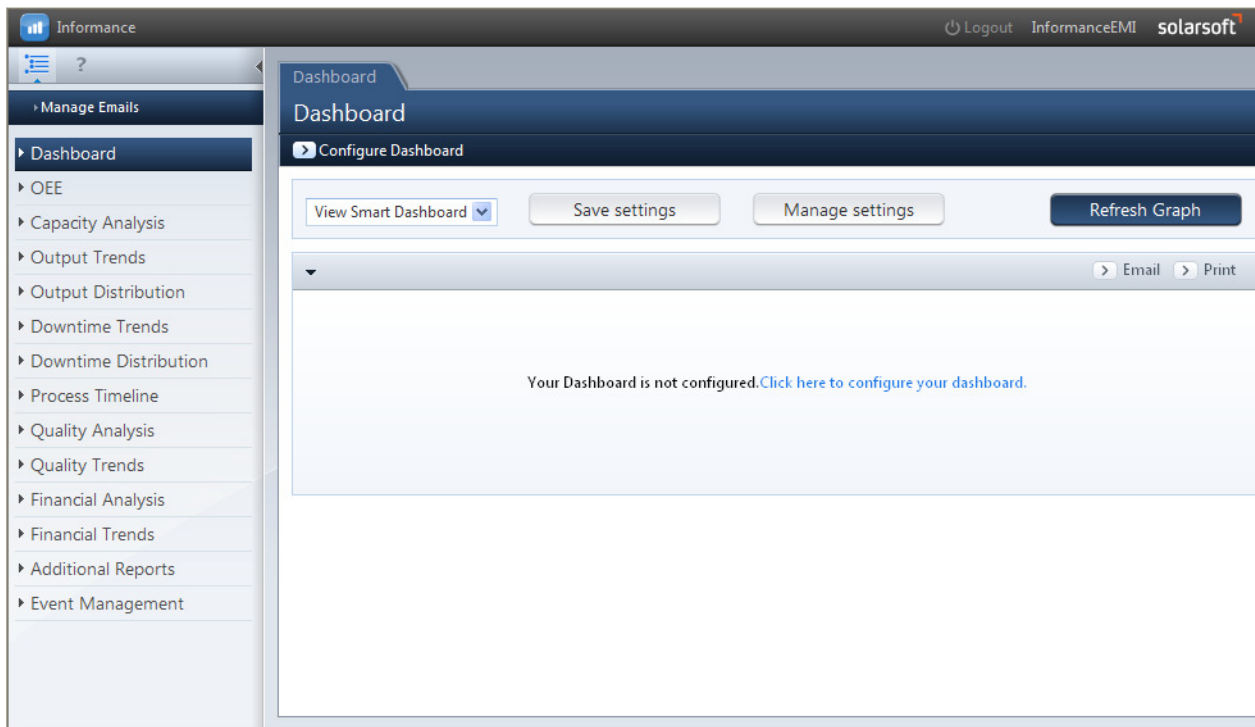


Figure 3: Blank Dashboard Tab

Each user can configure multiple dashboards with up to 10 unique charts on each. The charts are displayed in 2 columns of up to 5 rows. Some reporting users will also have the ability to publish *plant* dashboards which can be shared among all users within a plant.

Below is an example of a dashboard configured with 4 charts.

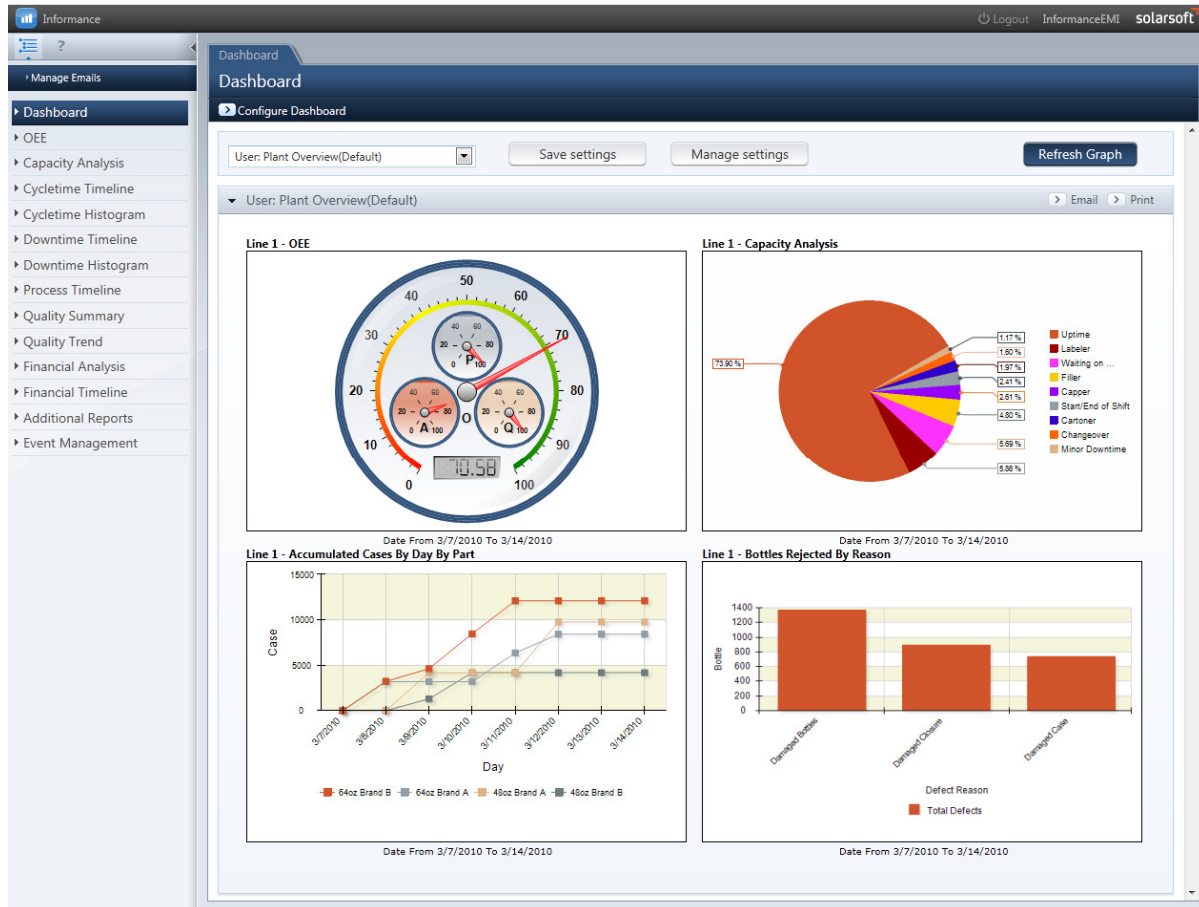


Figure 4: Dashboard Tab

Although the dashboard is the first element of the Plant Solution that a user encounters, you must have an understanding of the different analytical sections in order to configure it. For this reason, Dashboard configuration is discussed near the end of this guide.

Dashboard positions cannot be configured until the user creates at least one Smart Query or a shared plant Smart Query exists. Smart Queries are discussed in the next chapter covering Data Selection.



## The Reporting Environment

### Navigation

Navigation within the Plant Solution is provided by menu options along the left side of the user interface. The selected option is highlighted dark blue, just as the **Dashboard** tab is in the illustration below.

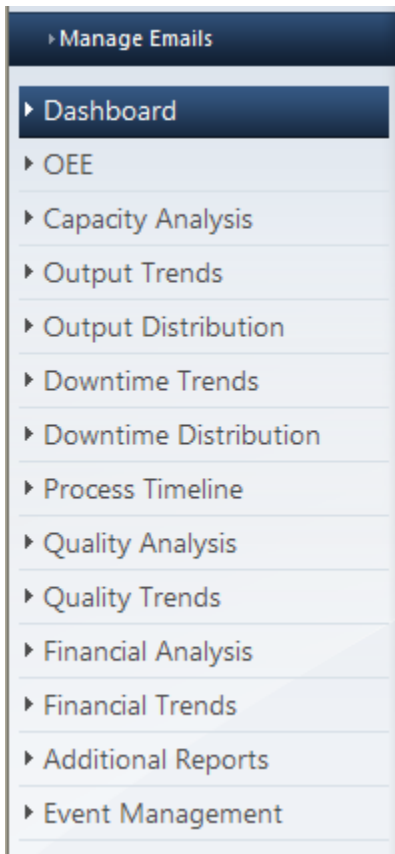


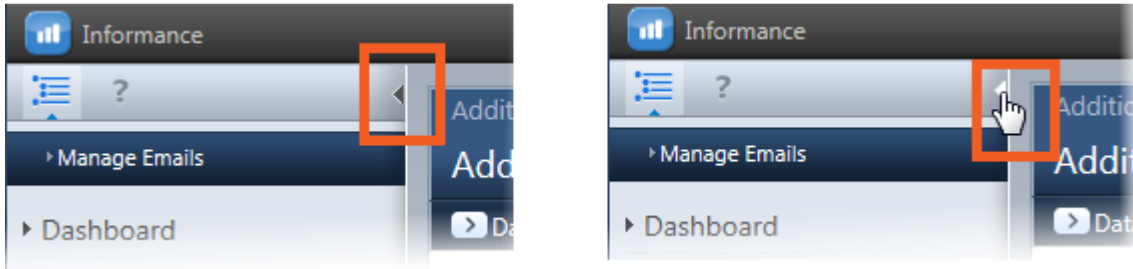
Figure 5: Informance Navigation Panel

The Plant Dashboard has a unique environment that is highly configurable for each user. The specifics of Dashboard configuration are discussed in the final chapter of this guide.

Starting with the second tab, OEE, through Quality Trend, these eleven tabs are called the **Analysis Sections** and although they focus on different metrics and analytical areas, they conform to a common layout. The final two tabs – Additional Reports and Event Management – offer distinct features and are discussed in separate chapters of this user guide.

The Navigation panel can be minimized to the left side of the window to maximize available viewing space.

To minimize the navigation panel, click the Minimize Panel icon at the top of the panel. It appears as a black triangle that turns white when the mouse cursor hovers over it.



When the panel is minimized, the triangle reverses orientation and points to the left instead of the right. Again, the black triangle turns white when a mouse cursor over it.

To expand the navigation panel, click the black triangle.



## Report Layout

Each report generated within an Analysis Section will yield a graphical representation in the top window and a corresponding data table below. Above each graph you will find the *Advanced Toolbar* which contains a set of controls to alter units, axes, data separation and other graph properties. The options within the Advanced Toolbar will vary based on the analysis section. Between the Advanced Toolbar and the graphical Report you will find a table of the current data selection. This serves as a visual reminder of the data you've chosen for analysis.

Below the chart is the supporting data table. Tables with multiple rows will include a 'Total' row at the bottom. Similarly, tables with multiple columns will include a total column at the far right.

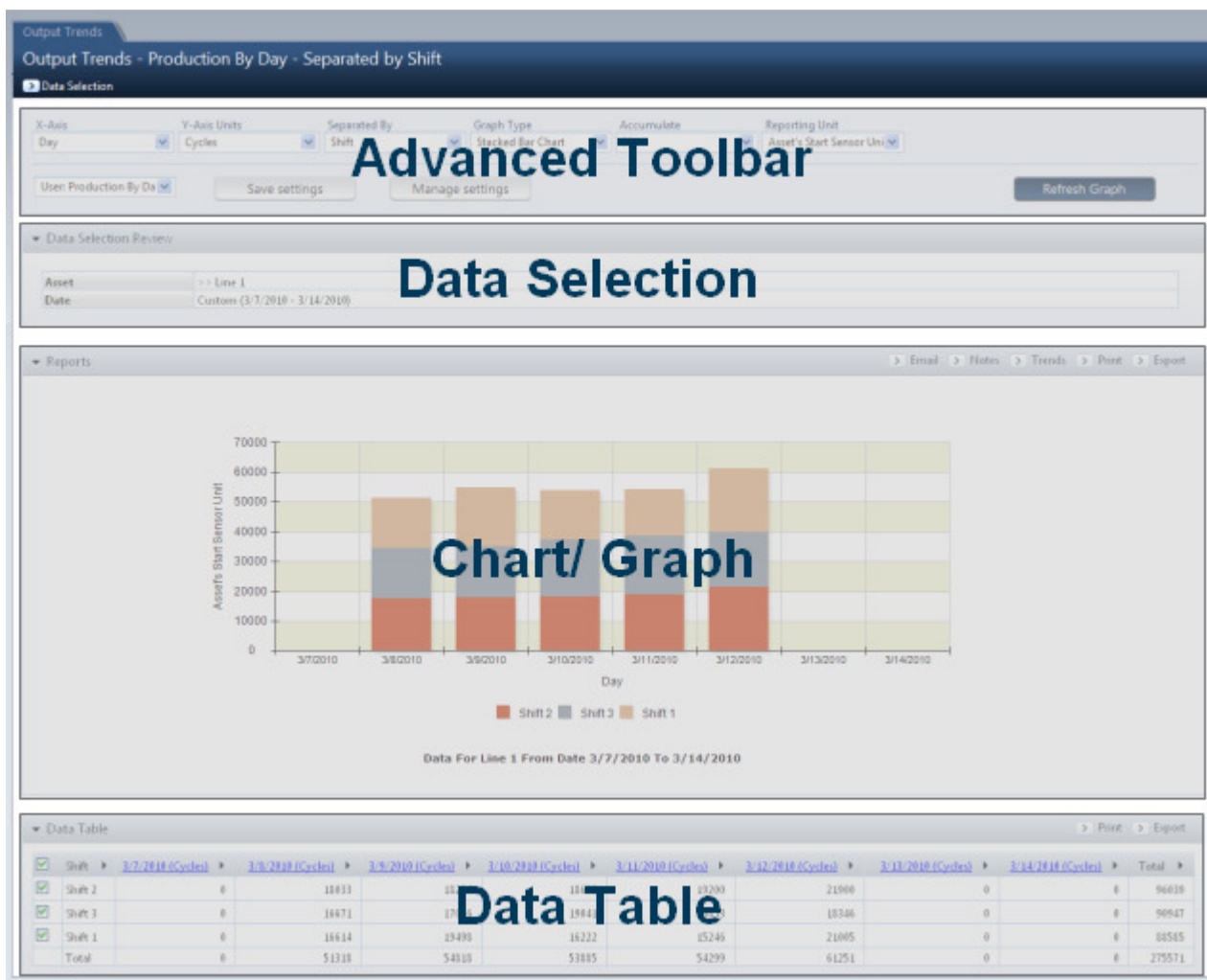


Figure 6: Report Layout

The Data Selection fields, graphical Report and data table can each be hidden or revealed using the expand buttons above each section. Each component also has its own **Print** and **Export** buttons, allowing them to be printed individually or exported to a different file format as needed.

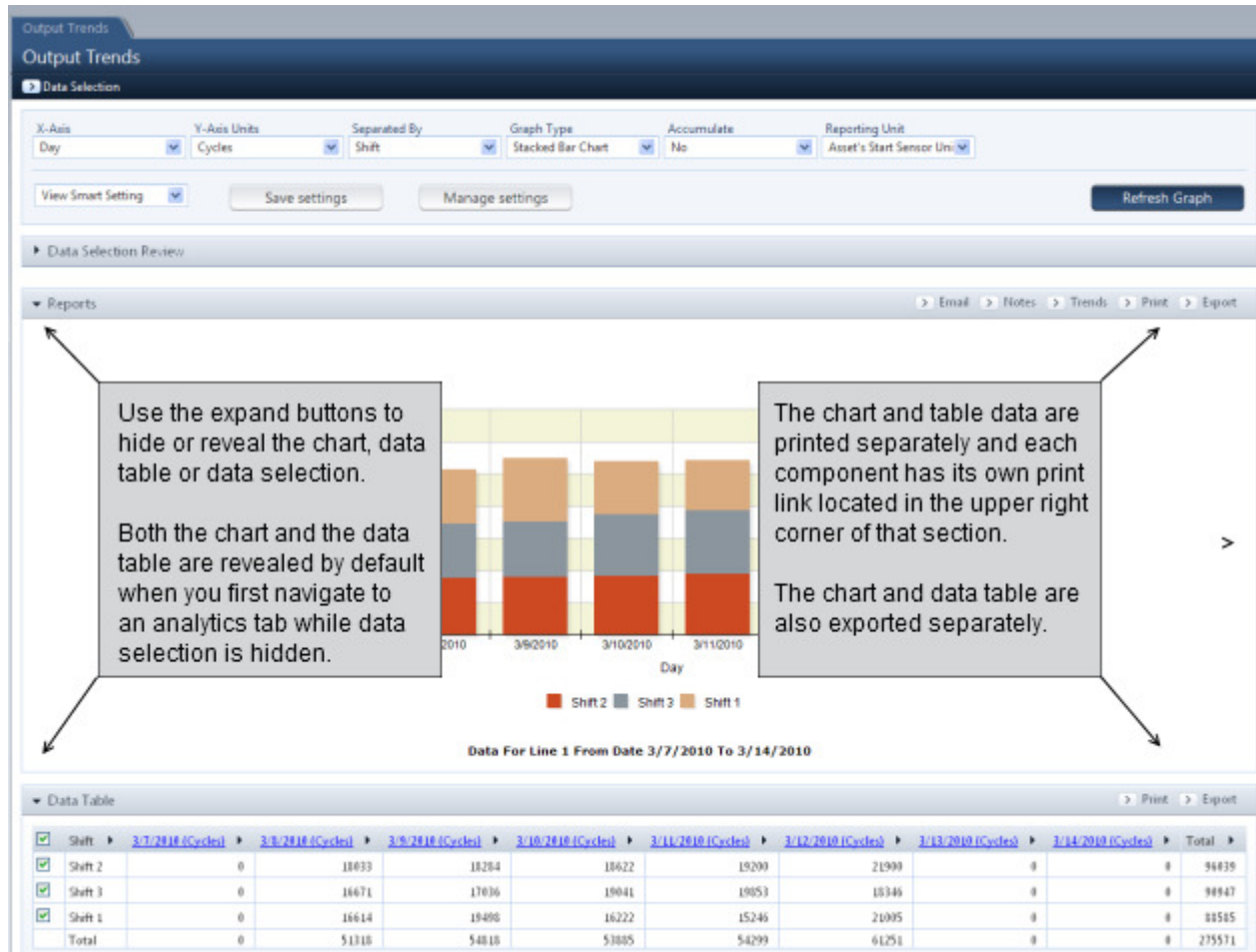


Figure 7: Data Selection Expand, Print and Export buttons

## Drill-In / Drill-Out

Most informance data is hierarchical in nature and the user can *drill-in* to more detailed information when available. When a drill-in is possible, each section of a chart will be clickable and the corresponding values or headings within the data table will appear as hyperlinks.

If multiple levels of drill-in are possible, the user may continue to click on the chart or data links to view more detail. When the lowest level is reached, which is four, a click on the chart or data will take the user back to the top level. A user may also go back to the top level at any point of drilling-in by selecting the "Refresh Graph" button on the right side of the Advanced Toolbar.

Also be aware of *Drill-In* options that may appear with in the advanced toolbar. Some analysis sections will give you alternatives of drilling in by downtime reason, time interval or other parameters.

## Smart Settings

Every analysis section has a list of Smart Settings that are specific to the type of data contained within that section. For instance, smart Settings within the Process Timeline section offer timeline views of Part Number or User Field in the form of a Gantt Chart. This list is a set of pre-configured advanced toolbar settings. The software ships with a standard set of these settings. The user can create their own smart settings and add to the standard list.

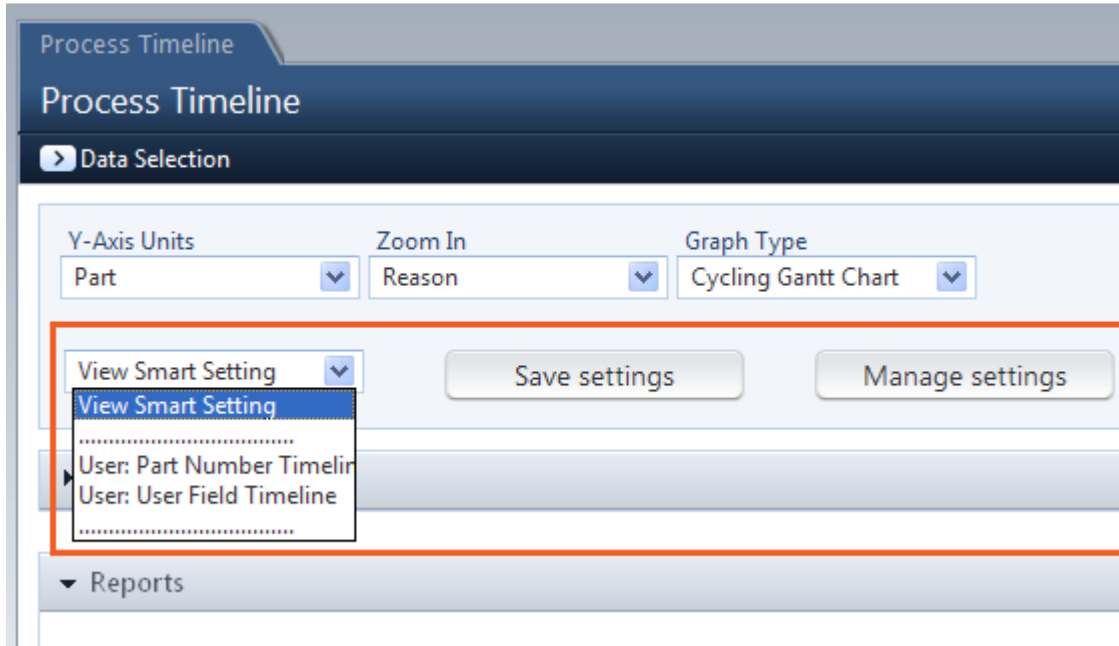


Figure 8: Smart Settings

Adding Smart Settings is simple. When you have changed toolbar settings in the Advanced Toolbar section such as the graph type or data to zoom in, click **Save settings**. The configuration window appears:

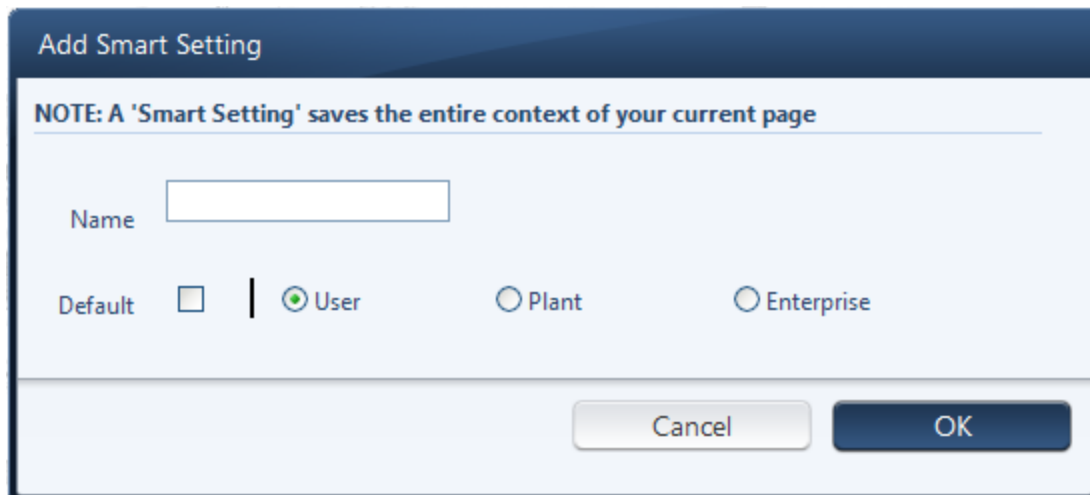


Figure 9: Add Smart Setting Window

The current setting is retrieved from each item in the Advanced Toolbar. Simply enter a unique name into the **Name** box and click the **Save** button to save the new smart setting. The Advanced toolbar settings that it represents can now be easily retrieved by selecting this new smart setting from the drop-down menu. The new setting can also be applied to one of your 10 dashboard positions.

Check the **Default** checkbox to make this your default smart setting for the analysis section. Each time you navigate to an analysis section within plant reporting, your default smart setting will be the first report loaded.

You can set defaults and remove custom smart settings by clicking the **Manage Settings** button.



Figure 10: Manage Smart Settings Window

Click the **Make Default** link beside any smart setting to make it your default setting.

To delete smart settings, check the checkbox beside each smart setting you wish to delete and click the **Delete** button. Click OK to confirm the deletion.

If you have the appropriate permissions within Plant Reporting, you can opt to have your smart setting published at the **Plant** or **Enterprise** level. If it is defined as a *Plant* smart setting, it will appear in the smart setting list for any user who views this plant. As an *Enterprise* smart setting, it will appear in the smart setting list for any user who views any plant. Or you can simply define it as a **User** smart setting which will limit its visibility to you only.

Your ability to create **Plant** or **Enterprise** smart settings depends upon the role that your login has in the software. If you do not have permissions, these options will be grayed out and inactive. The **User** option is available to all reporting logins.

OEE (Overall Equipment Effectiveness)

OEE (Overall Equipment Effectiveness) was first used by Seiichi Nakajima, the father of total productive maintenance, in describing one of the the fundamental measures to track production performance. Although it was first applied within discrete manufacturing, OEE is now used throughout process, batch and discrete production plants as a principal metric for measuring improvement in manufacturing performance.

When calculating *OEE*, Informance adheres to the standard definition:

$$OEE = \text{Availability} \times \text{Performance} \times \text{Quality}$$

The *Availability* component of the calculation is driven by the uptime recorded for each asset in the system where  $\text{Availability} = \text{Uptime} / \text{Total Time}$ . If, for example, a production line has 4 hours of uptime and 4 hours of downtime in an 8-hour shift, its availability would be calculated at 50% (4 hours uptime / 8 hours total time = 0.5 or 50%).

Be aware that *Total Time* is dependent upon how you select data from Informance. Within the Informance data selection interface, you may choose to omit periods of time based on the downtime reason that was tagged to each event. Informance records data 24-hours a day, 7 days a week; however, you may consider some time during each week to be excluded from a report because the downtime was planned or scheduled. Time can also be automatically excluded if your shift schedule in the Informance System Administration is configured to exclude certain time periods such as weekends. This cannot be configured or altered via Plant Reporting.

With the applying omitting periods of time in data selection in our previous example, assume that a production line has 4 hours of uptime in an 8 hour shift and 2 hours of scheduled or excluded downtime. If you chose to remove those 2 hours of excluded time from your report, then the availability would be calculated as: 4 hours uptime / 6 hours of total time = 0.66 or 66%.

It is important to understand how you can affect the Total Time in an availability calculation and to make sure that all analysts within your organization are aligned on how data is selected. If your team is not consistent, then different users can end up with different OEE calculations for the same line. These concepts are discussed in more detail in the next chapter on *Data Selection*.

*Performance* or Speed Loss is calculated by comparing the actual production rate to the ideal production rate for an asset. Informance will first calculate your actual production rate by summing the total units produced and the total uptime. For example, a production line that produced 9600 units in 4 hours of uptime will generate an actual production rate of 2400 units / hour in Informance.

To determine the performance for the line, Informance will compare this actual rate of 2400 units / hour to the listed ideal rate for the part or SKU that was produced. If, for example, the ideal rate is 3000 units / hour then the performance of this line is 80% (2400 actual / 3000 ideal = 0.8 or 80%).

Name	Description	Status	Ideal Rate	Major DT	Minor DT	OPC Code	Cost Per Elementary Unit	Bottle	Carton	Case	Actions
1	48oz Brand A	Active (Inactivate)	3600	0	0		\$ 1	0	0	0	[Edit] [Delete]
2	48oz Brand B	Active (Inactivate)	3600	0	0		\$ 1.1	0	0	0	[Edit] [Delete]
3	64oz Brand A	Active (Inactivate)	3000	0	0		\$ 1.25	0	0	0	[Edit] [Delete]
4	64oz Brand B	Active (Inactivate)	3000	0	0		\$ 1.38	0	0	0	[Edit] [Delete]

Figure 11: A Part list in Informance showing Ideal Rates for each Part

The *Quality* component of the OEE calculation is a simple comparison of the units produced to the units rejected where  $Quality = \frac{Units\ Produced - Units\ Rejected}{Units\ Produced}$ . So if a production line filled 2400 bottles but rejected 48 bottles at various points down the line, the Quality would be 98%  $[(2400\ produced - 48\ rejected) / 2400\ produced = 0.98\ or\ 98\%]$ .

If the OEE calculation involves multiple part runs or multiple assets where different ideal rates are involved, the resulting OEE value will be weighted by the uptime of each part/asset.

Plant Reporting has a dedicated tab for OEE allowing you to trend OEE and its three component values over time and break it down by any of the tagging fields. You will find OEE reporting options in the Capacity Analysis and Cycletime Timeline sections as well.

## Super Reasons

Although four levels of downtime reasons are available for operator entry, a fifth level – the Super Reason – is introduced for analytics. Your existing reason and subreason structure can be mapped to this fifth tier as a linear map at all levels of the reason and subreason structure.

Just as with the standard Reason lists, your Super Reason list can only be defined through the System Administration web site.

## Additional Fields

The Plant Solution has recently introduced a powerful new feature for data collection and analysis: *Additional Fields*. Customers can now go beyond the traditional downtime reason, part and user tags and define an unlimited number of new tagging fields.

Unlike the primary tagging fields (Parts, Users, Downtime Reasons) these additional fields can be named by you using your specific terminology. You can define a 'Batch' field, for example, to tag your data



according to a unique Batch ID; or a 'Crew Size' field to track the number of operators on a line during different periods of production.

If you have defined additional fields for your Informance system, they will be listed in most analytics sections as new 'Separate By' options for each report.

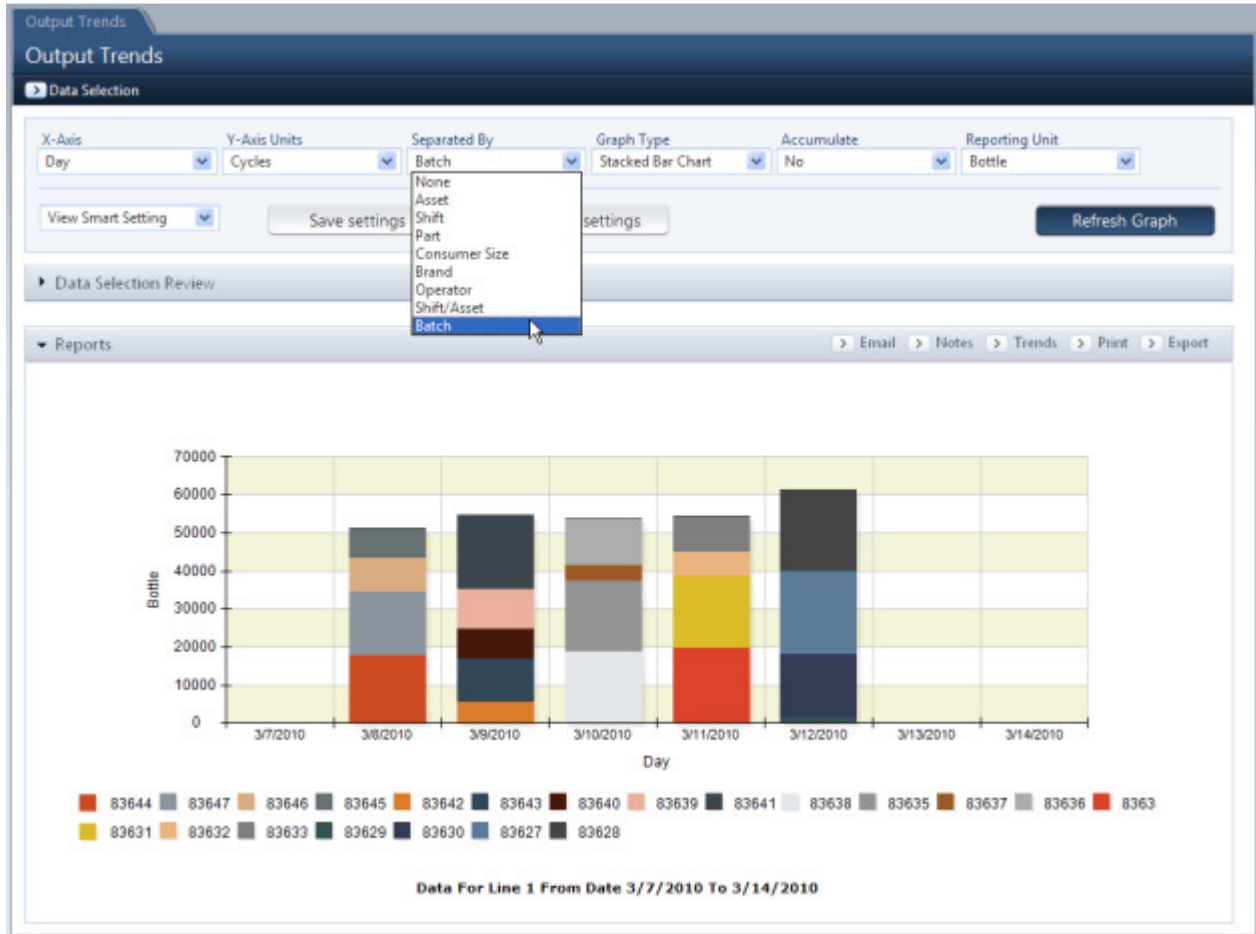


Figure 12: Bar Chart Separated by an Additional Field (Batch)

## Hierarchies

The Plant Solution has recently introduced a powerful new feature for data analysis: *Hierarchies*. Customers can now add categories or attributes to any of the following data fields; Assets, Parts, Users, and user defined Additional Fields.

Up to 5 Hierarchy categories can be assigned to each data field at the administrative level. Each category can then have attribute names that could be assigned to each data selection element. Each lower level data selection element (ex. Line/machine, parts SKU's/names) can then be mapped to the appropriate attribute from the options created.

For example the tagged part/product can be mapped to a Consumer Size category attribute (48oz, 32 oz., etc.) and to a Brand category attribute. Note the plant reporting Data Selection window below in

figure 12a. The 48oz Brand A and 48 oz. Brand B are categorized under both the Consumer Size 48oz and under the Brand BC.

This Hierarchy feature allows the Plant Reporting user to select/deselect data based on the various attributes and as well allows further "Separate By" options in most analytics as is shown in Figure 12 above.

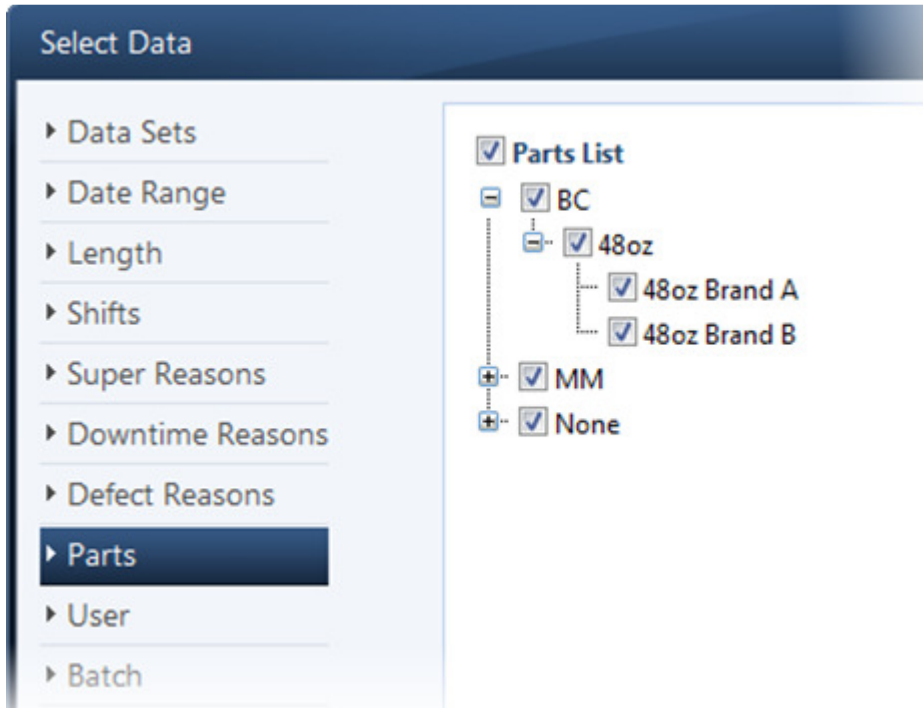


Figure 13a: Data Selection – Part's Hierarchy expanded view

### Reporting Units

As you have probably learned by now, Informance's data collection focuses on production counts taken at various points in a manufacturing process. In many applications, the units counted at each monitoring point are different and tend to scale up as product moves through the process.

For example, consider a manufacturing line used to package individual serving drinks. First the individual bottles are filled, capped and labeled. Then multiple bottles are grouped into cartons, the cartons are grouped into cases, and the cases are finally stacked onto pallets.

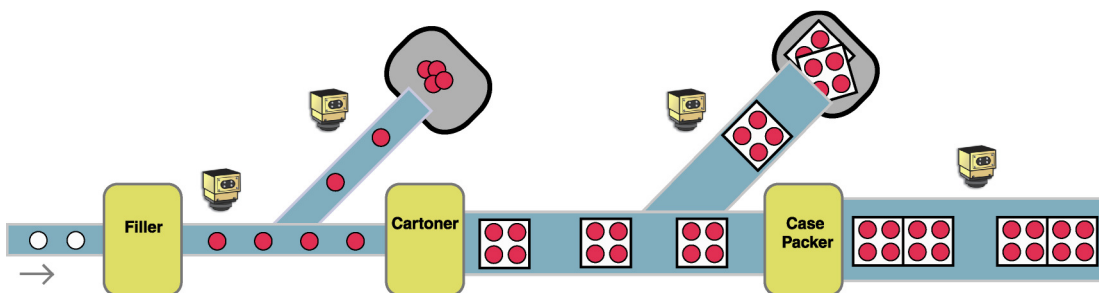


Figure 14: Manufacturing Line Process

To fully monitor this application on all assets with defect tracking, Informance would need to monitor the counts at several locations. Further, a mechanism must exist to allow these different counts to be resolved based on a common elementary unit. This is where **Reporting Units** come in.

Reporting Units provide the means to represent production counts in different scales. Each asset in your Informance database can have a unique set of units or multiple assets can share a set. The reporting units can be global to the asset or vary by part depending upon the needs of the application.

Although Reporting Units help facilitate those applications where several monitoring points are used, they can also be applied to applications with just a single monitoring point. If your application just uses a single cycle count with no additional sensors for defect tracking, you may still use Reporting Units to scale those cycle counts as needed.

### Using Reporting Units in Plant Reporting

For those analytical sections that report cycle data (i.e. Cycletime Timeline, Cycletime Histogram), the Plant Solution will provide the option of displaying these reports in any of the defined Reporting Units for the selected assets. For example, if the selected asset uses 'Bottles', 'Cartons' and 'Cases' as the Reporting Units in its unit set, Plant Reporting will allow you to easily switch between those units and scale the counts appropriately.

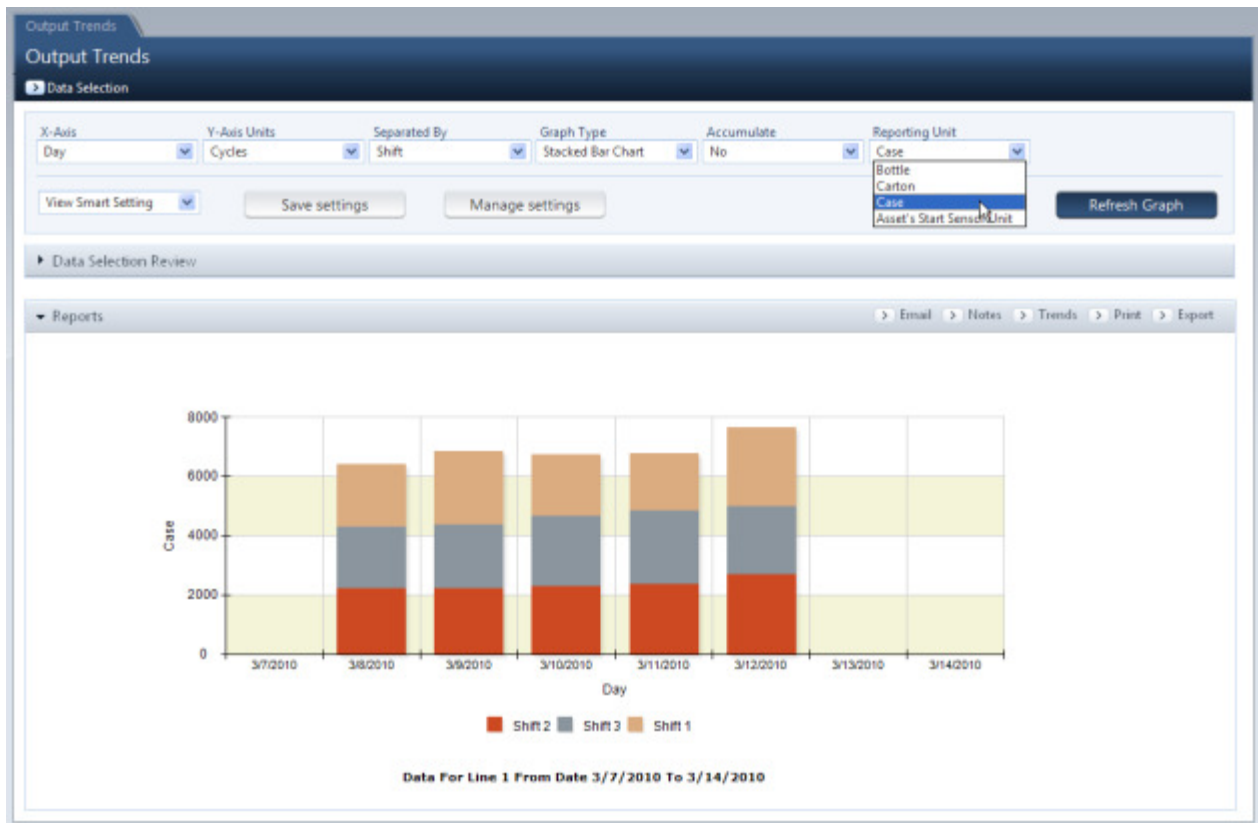


Figure 15: Reporting Units

Once a chart has been generated, you can use the **Reporting Units** drop-down box to switch between the defined units. As you switch between the Reporting Units, notice that the legend is updated to reflect your unit choice and the cycle numbers are scaled appropriately.

If your data selection includes multiple assets with no common unit, the only option within the Reporting Units drop-down box will be **Asset's Start Sensor Unit**. Thus all cycles will be shown in terms of the starting unit for each asset.

## Trends

The trends feature allows you to temporarily apply statistical lines such as *standard deviation*, *mean* or *min-max* on any applicable chart within Informance Plant Reporting. Within the *Trends* pop-up window you will also be able to adjust the range of the Y-Axis on any applicable chart. Typically all bar charts and line charts will support these feature while pie charts and dial charts will not.

To apply a trend line to any chart or adjust the Y-Axis range, click the trends link located next to the print and export links above the chart. The trends box will appear:

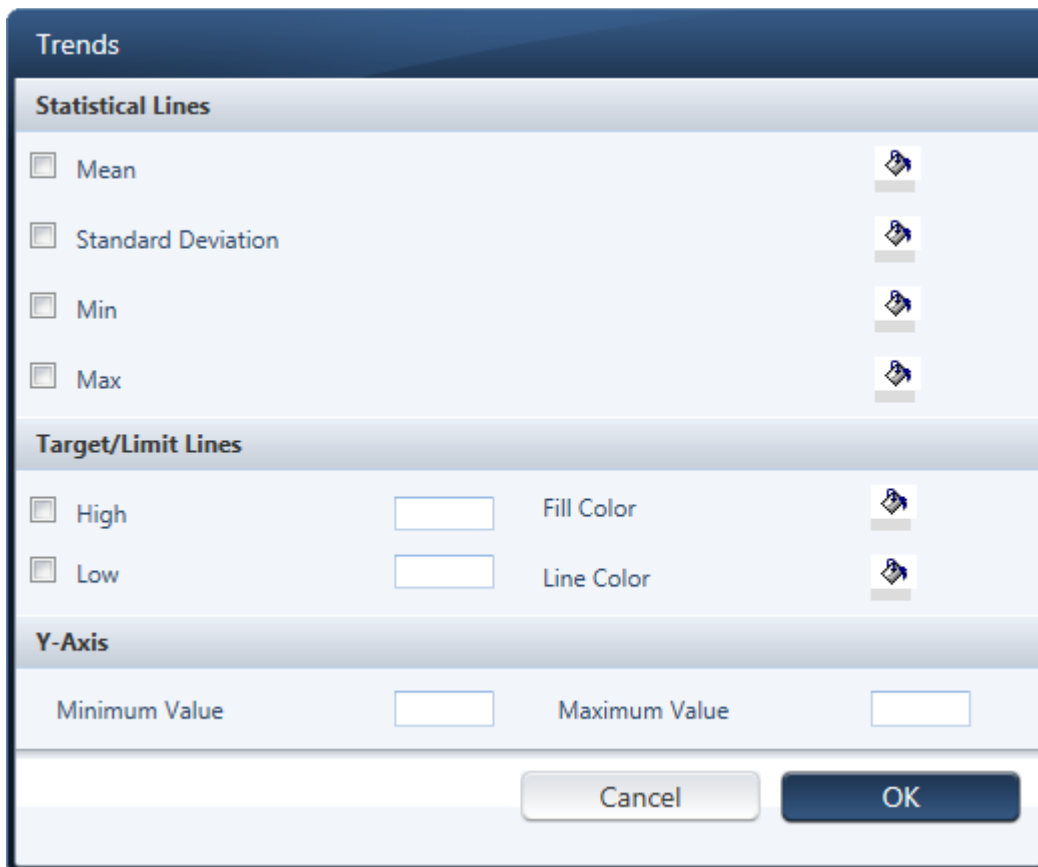


Figure 16: Trends Window

Check the box next to each statistical line you wish to apply. If you wish to specify the color for a trend line, click the paint bucket to the right of that statistic to get a pop-up palette of color choices. When using the High/Low limit lines, you must specify the values for these limits in the boxes provided.

After selecting your trend lines and specifying the appropriate values and colors, click the **OK** button in the lower right corner of the trends box to apply these trends to your chart.

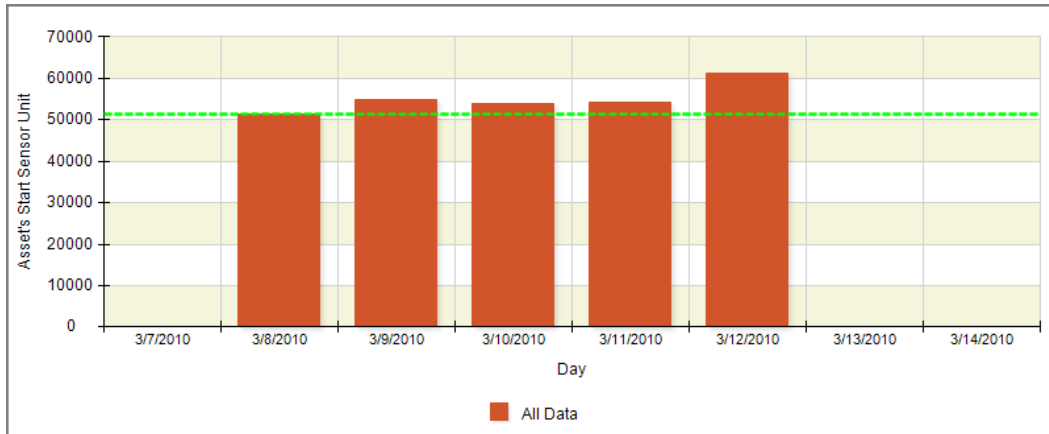
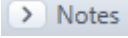


Figure 17: Example Bar Chart with the Mean Trend Line Applied in Green

Similarly, if you wish to zoom in on a specific Y-Axis range of data you may alter the minimum and maximum Y-Axis values. After adjusting the Y-Axis, your chart will be refreshed to reflect the new range you have specified.

Both Trend lines and Y-Axis value changes can be saved as part of a smart setting and there for used within a Smart Dashboard.

### Chart Annotations (Notes)

On any chart you can add multiple footnote-style notations within the chart area. To add an annotation, first click the notes link (  ) in the upper right corner above the chart then click on an area of the chart itself. The Chart Annotations dialog box will appear.

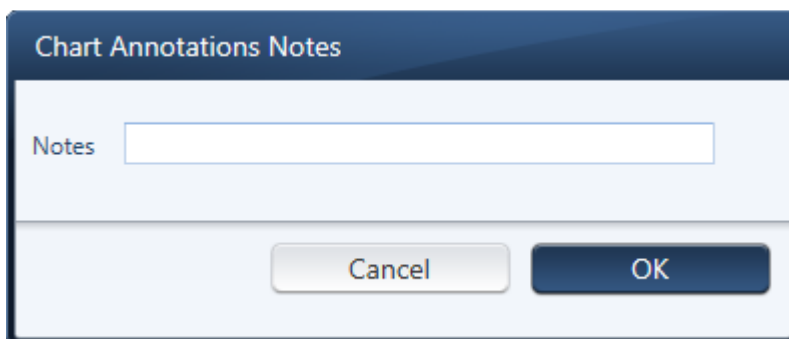


Figure 18: Chart Annotations Window

Enter the annotation in the *Notes* box and then click the *OK* button to close the pop-up. Your chart will then be re-drawn with the footnote number marking the section of the chart you selected.

Below the legend you will find the text of your annotation followed by a red X button which you can click to delete the note if necessary

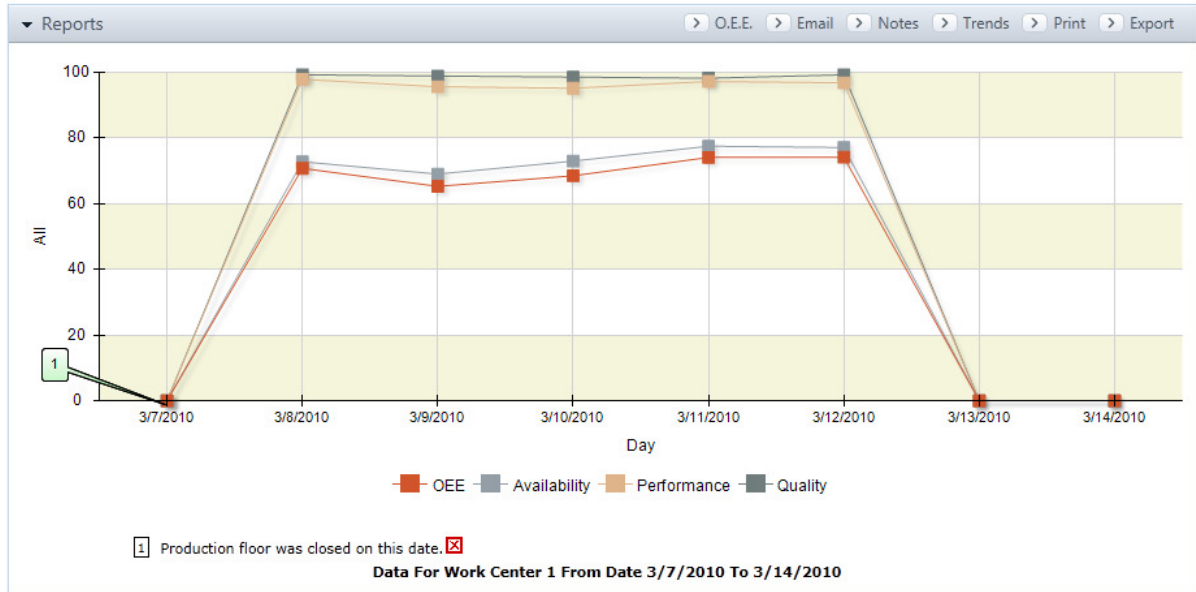


Figure 19: A Chart with an Annotation.

Chart annotations are intended for printing, exporting and emailing purposes only and will remain on the chart until you refresh your graph, change data selection, or navigate to a different report within the same analysis section. Annotations cannot be saved as part of a smart setting nor can they be applied to the Dashboard.

### Emailing Reports and Dashboards

Users with the appropriate role will have the ability to email a report or dashboard directly from Plant Reporting. Emails can be sent *one-time* or you may setup recurring emails on a daily, weekly or monthly basis. To generate an email, click the email link ( [> Email](#) ) on the right side of the screen above the chart/graph within any analytical tab or the Dashboard. The Configure Email options pop-up will appear:

The 'Configure Email' dialog box contains the following fields and options:

- Note:** Recurring emails can only be setup if a smart query and smart setting have been specified.
- Smart Query:** Line\_1\_All Data\_No Excluded
- Smart Setting:** Standard Capacity Analysis
- Include Data Table:**
- Frequency:**  One Time  Daily  Weekly  Monthly
- Recipients:**
- Notes:**
- Buttons:** Cancel, OK

Figure 20: Email Options pop-up

To setup a recurring email of a single report within an analytics tab, the active chart must be generated from a listed Smart Setting and Smart Query. If you have made an ad hoc data selection instead selecting one of your smart queries, then you may only send a one-time email of the current report. Similarly, if you have made manual adjustments to the chart with the advanced toolbar rather than choosing a listed smart setting, then you can only send a one-time email of the report. You also have the option of including the data table associated with any particular report. But if the "Include Data Table" box is left unchecked, only the chart/graph will be included in the email.

To setup a recurring email, first choose the email frequency (daily, weekly, monthly) and "Start Date/Time" which will specifies the exact date and time of the first scheduled email. Subsequent emails will be sent based on that start time. For example, if you setup a weekly email to start Wednesday Mar 17, 2010 at 7:45am, the following emails would be sent each Wednesday at 7:45am from that date forward.

Configure Email

Note: Recurring emails can only be setup if a smart query and smart setting have been specified.

Smart Query: MD- Line 1\_3-9-12\_No Excluded

Smart Setting: Downtime Part Comparison

Include Data Table:

Frequency:  One Time  Daily  Weekly  Monthly Start Date/Time: 7/30/2012 9:00 AM

Recipients: lauren.james@acme.com; david.warner@acme.com

Notes:

Cancel OK

Figure 21: Email Options – Scheduling a Daily Email

After setting the frequency, enter the email recipients. Multiple email recipients should be separated by a semi-colon (i.e. "john.doe@epicor.com; jane.doe@epicor.com").

Lastly, use the *Notes* box to enter any comments that you want included in the email body. Then click **OK** to close the email options window and save your new email entry.

Once a notification has been saved, you may cancel or modify the email by clicking "Manage Emails" link at the top of the navigation panel. A listing of all scheduled notifications will appear and any desired changes can be made in this window. However, if you wish to change the Smart Query or Smart Setting a new notification must be created.

## Data Selection

The Data Selection window is used to query a specific set of data from your database to be used within the analysis sections. During any web reporting session, you will automatically be prompted for a Data Selection when leaving your dashboard to enter an analysis section. While working within any of the analysis sections, the **Data Selection** link will be active allowing you to change your selection at any time.

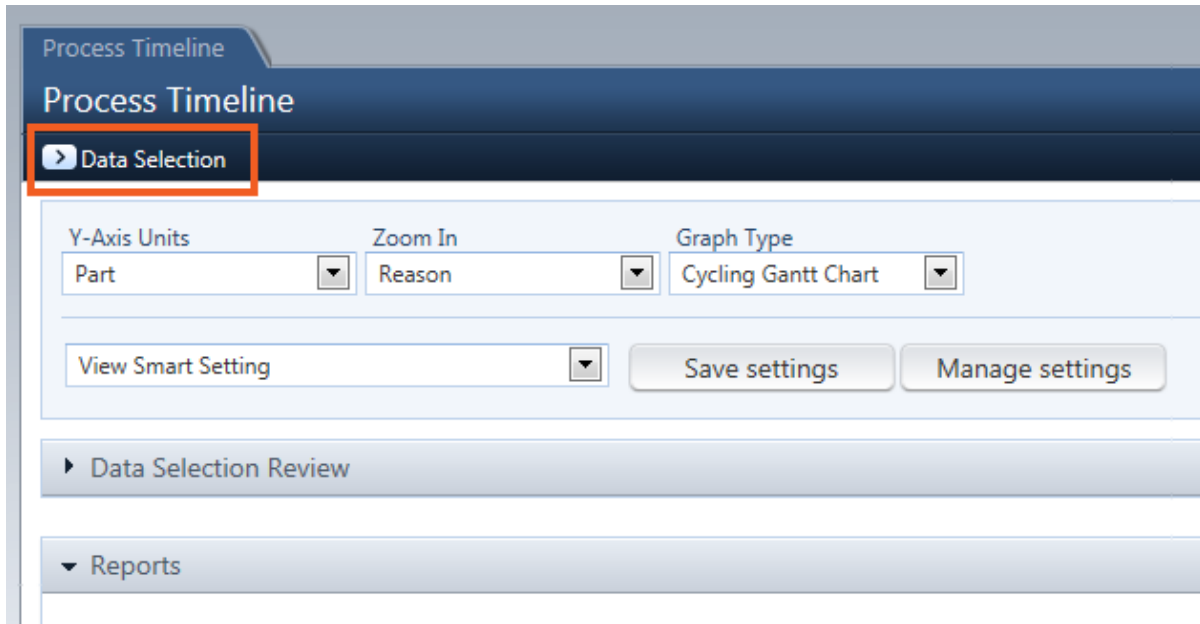


Figure 22: Data Selection Link

Change the query used for your reports at any time by clicking the *Data Selection* link (highlighted in orange above).



## Overview

Each event recorded by Informance has several attributes such as a Date/Time stamp, a Shift ID, a Part tag, Reason tag, etc. The data selection window allows you to specify which data to include in your reports according to these attributes. All of the attribute categories are listed along the left hand side of the data selection window while the asset options are displayed on the right.

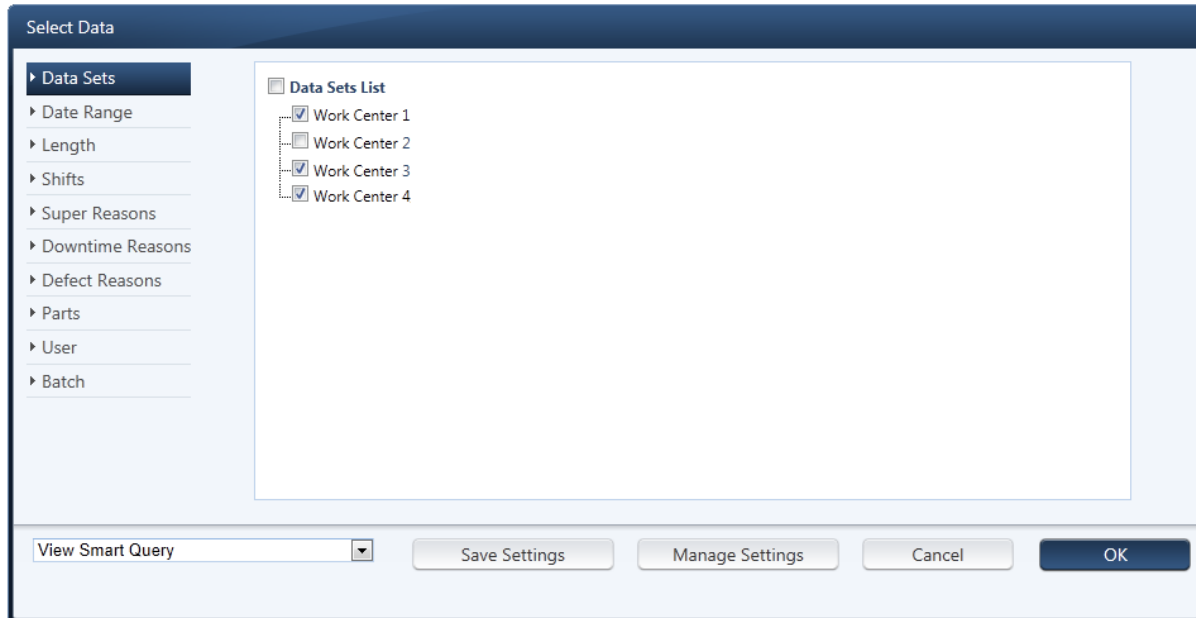


Figure 23: Data Selection Window

## Data Sets

As shown in the image above, the first attribute you must define is the Data Sets (i.e. lines, machines). The data selection window will not allow you to proceed with any further attribute selections without first selecting one or more of the Data Sets from your plant. After selecting data sets, the software will then tailor the rest of the attribute selections (Downtime Reasons, Parts, etc.) according to those data sets. This makes for a much faster data selection process and ensures the final query will be logical.

## Date Range

Here you will specify the date range of data to include in your reports. Choose to use a period of time from a default calendar or a period of time from your fiscal calendar.

For the default time period, several pre-defined data ranges are available in the **Select** drop-down box such as *Current Day*, *Previous Day*, *Current Week*, *Last 7 Days* and several others. For the fiscal time period, options such as *Previous Fiscal Week*, *Current Fiscal Week*, *Fiscal Periods 1 through 12* and several others.

If you wish to specify precise calendar dates, select *Custom* and enter your exact date range in the *From* and *To* boxes provided.

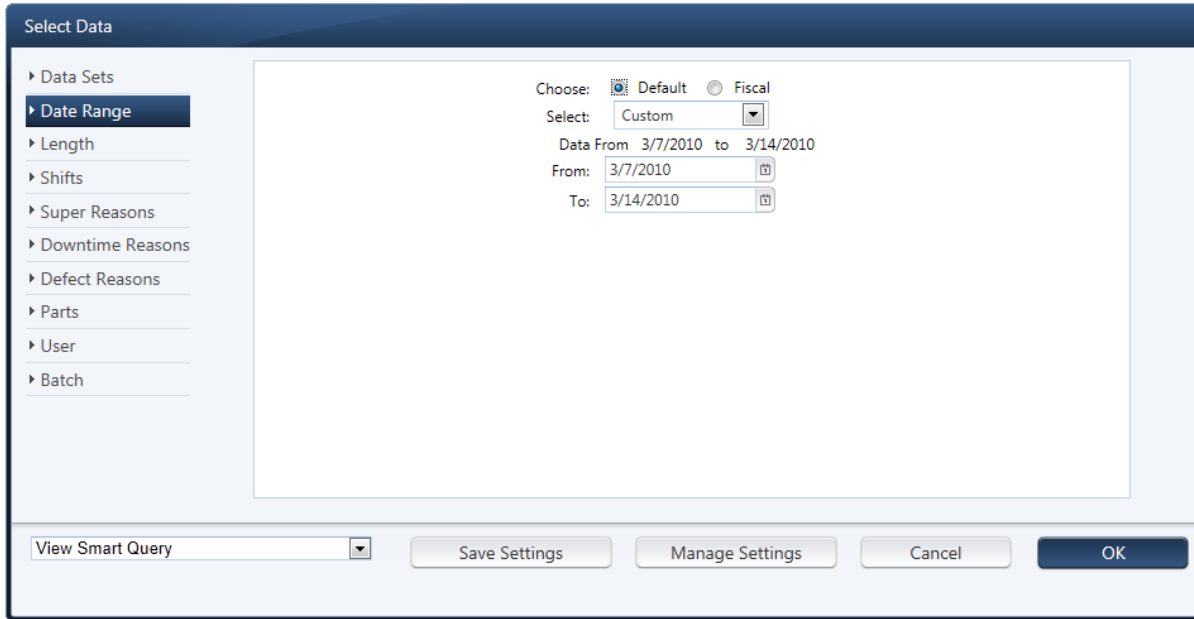
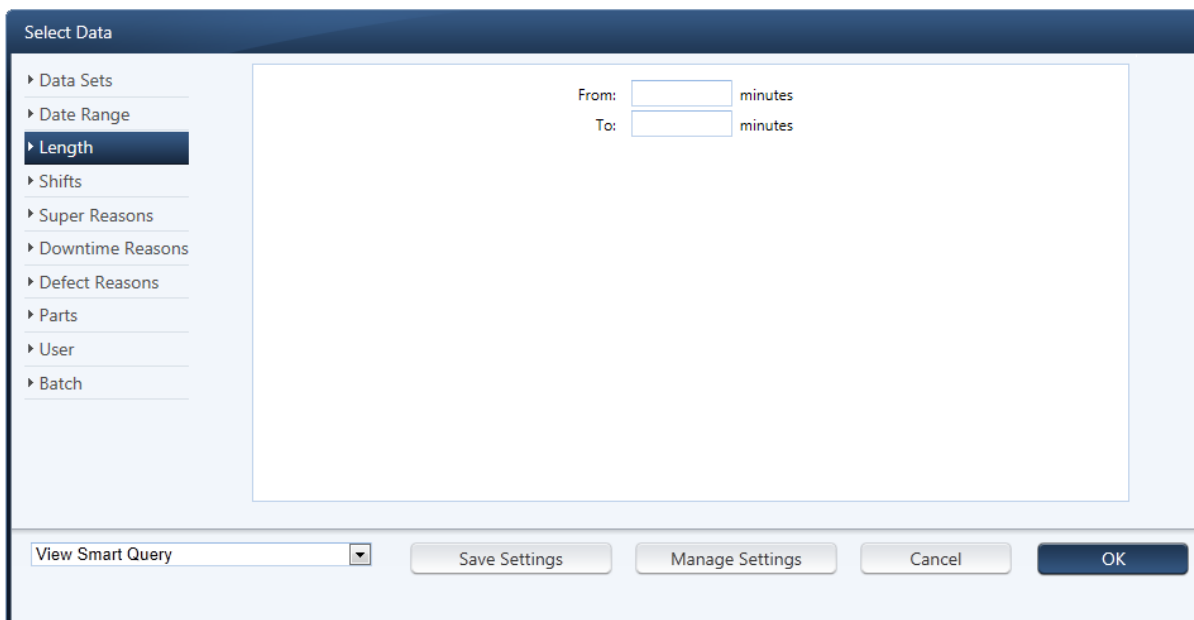


Figure 24: Data Selection Date Selector

The valid date range of data is always shown between the **Select** drop-down box and the **From** box. Remember to refer to this whenever using the **Custom** date range option to ensure your range is valid.

## Length

This option allows you to limit the downtime events based on duration. For example, if you wanted to report only those downtime events that were less than 10 minutes in length, simply enter 0 in the *From* box and 10 in the *To* box. Downtime events greater than 10 minutes would then be excluded from your reports.



## Shifts

If you wish to analyze only a specific shift within your date range, make that selection here. By default, your reports will include all shifts.

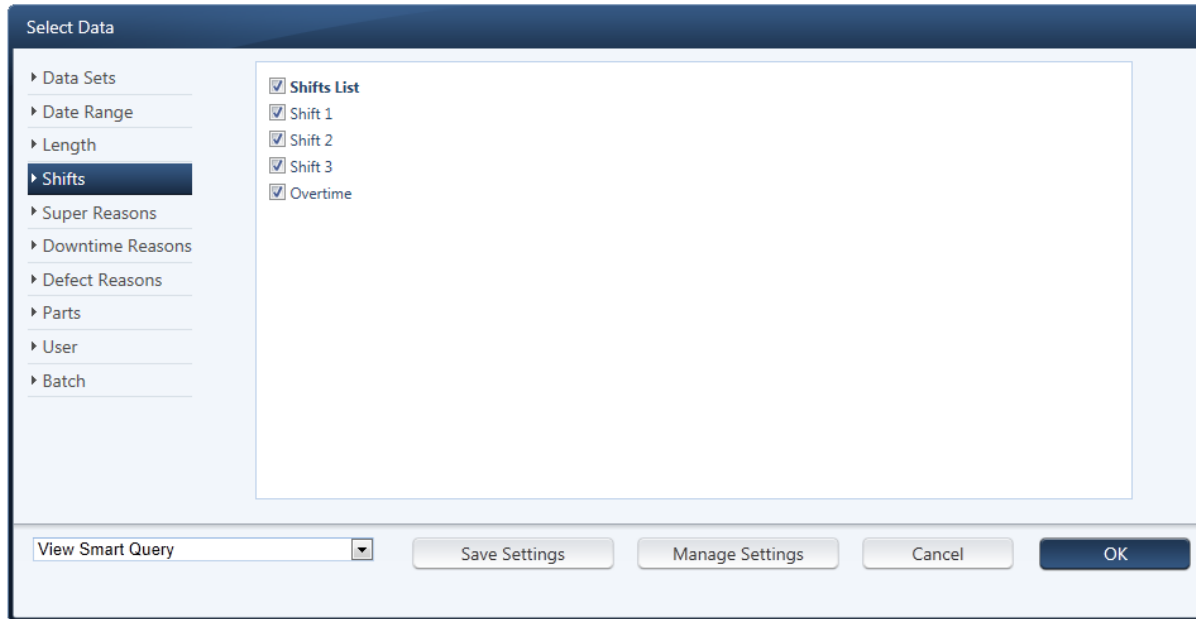


Figure 25: Data Selection Shift Selector

## Super Reasons

Here you can choose to exclude some of your downtime events based on Super Reason. By default, all Super Reason categories will be included in your reports.

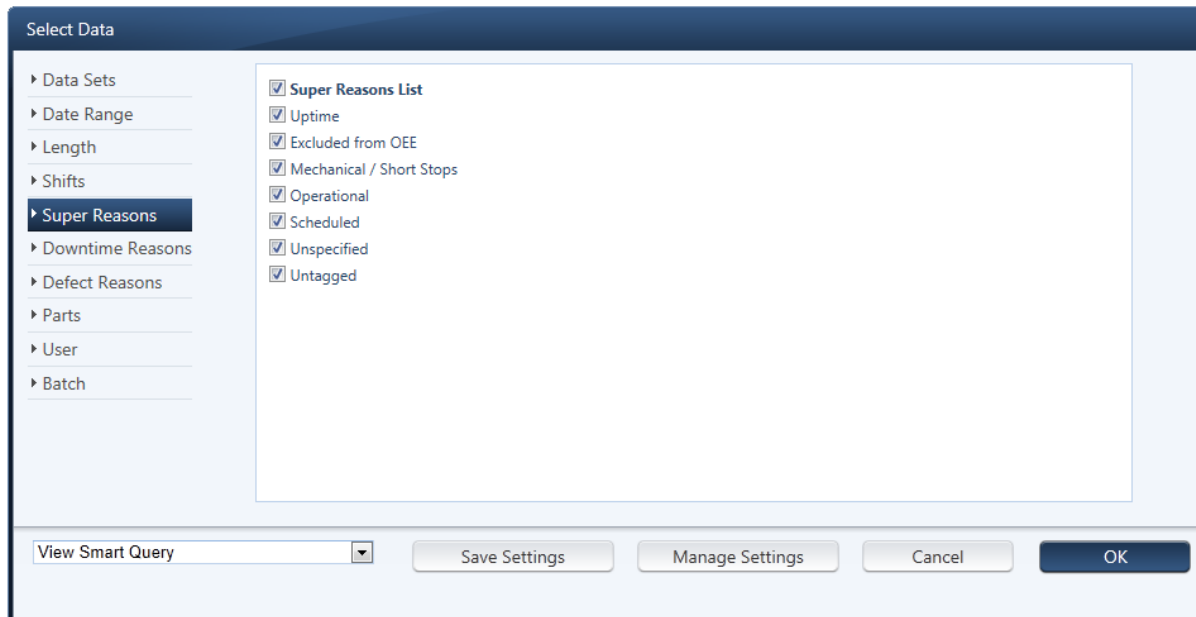


Figure 26: Data Selection Super Reasons Selector

## Downtime Reasons

Here you can choose to exclude some of your downtime events based on Reason and/or any subreason level. You have the added option of reporting only the top 5, 10 or 15 downtime reasons and rolling the rest up into an *Other* category. This can be very useful when looking at many assets or a large date range during which many different downtime reasons could have been used. Checking the *Report Top* checkbox will roll these lesser used downtime reasons up which often produces a cleaner and more usable downtime report.

You can also click Expand All to expand the tree to view all reasons and subreasons or click Collapse all to only display the top level of downtime reasons.

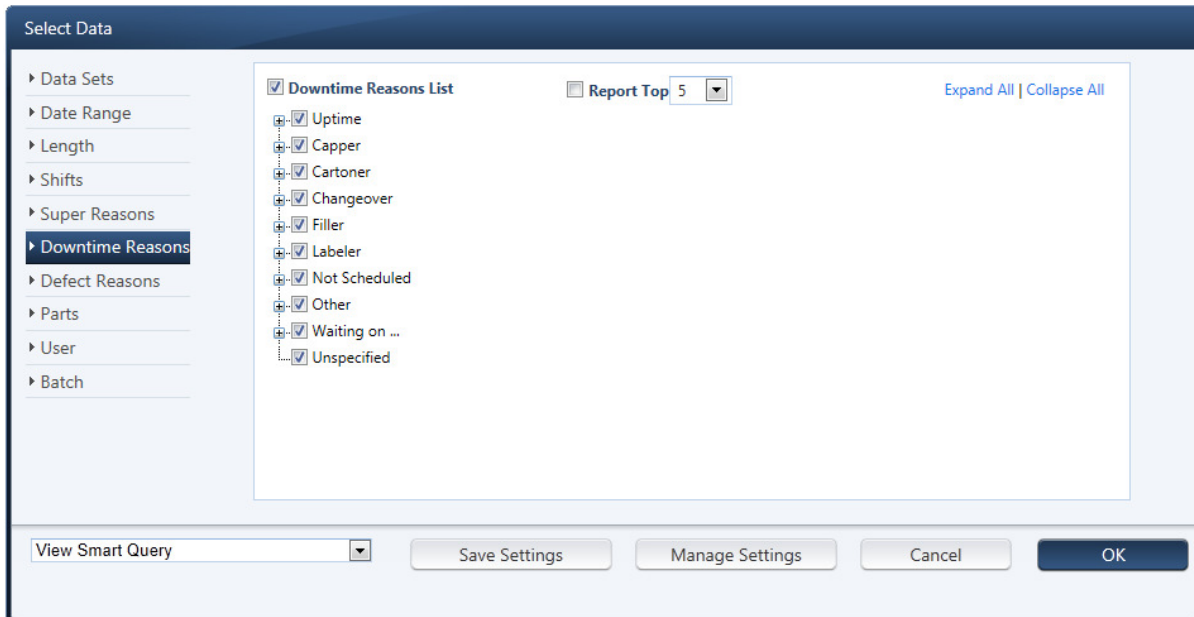


Figure 27: Data Selection Downtime Reasons Selector

Be aware that even though some downtime reasons may be included (checked) here, the data could still be excluded if you chose to de-select a Super Reason. Similarly, a downtime reason that you have chosen to exclude (uncheck) here will be excluded even if its corresponding Super Reason is included. In other words, exclusions from either section always take precedence.

## Defect Reasons

Here you can choose to exclude some of your quality or defect data based on Defect Reason. Click Expand All to expand the tree to view all defect reasons or click Collapse all to only display the top level of defect reasons.

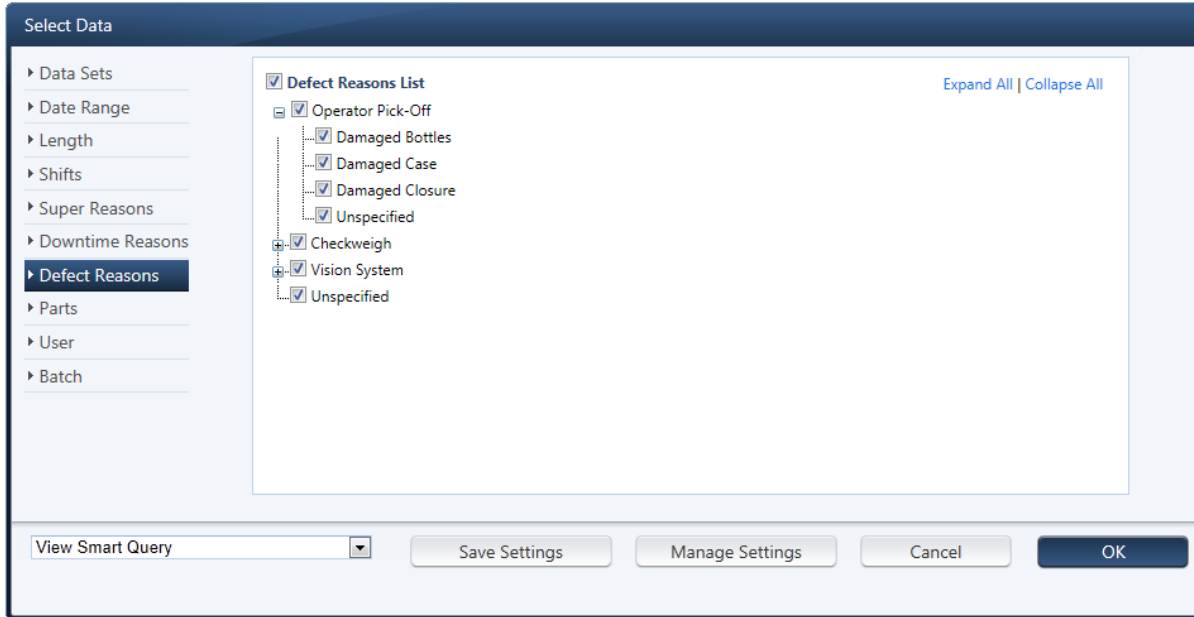


Figure 28: Data Selection Defect Reasons Selector

## Parts / User / Additional Fields

Within these sections you exclude uptime and downtime events based on their Part, User or Additional Field tags (if any). By default, your reports will have no exclusions of these attributes.

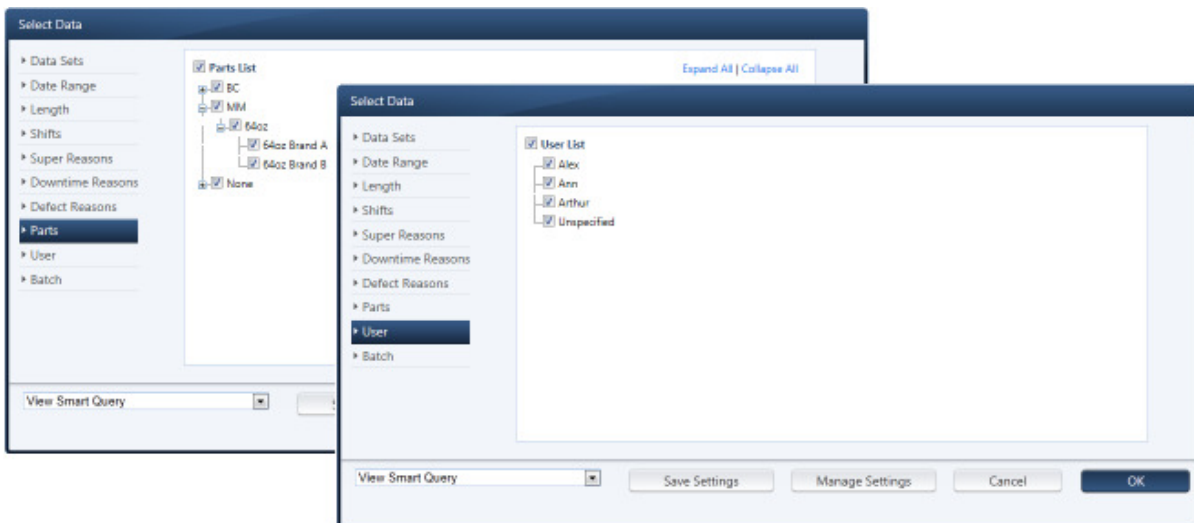


Figure 29: Data Selection Parts / User / Additional Fields Selector

## Smart Queries

All of your data selection options can be saved as **Smart Queries** to allow them to be easily retrieved or used within the Dashboard. To save your data selection options, click the **Save Settings** button at the bottom of the data selection window. The **Add Smart Query** box will appear:

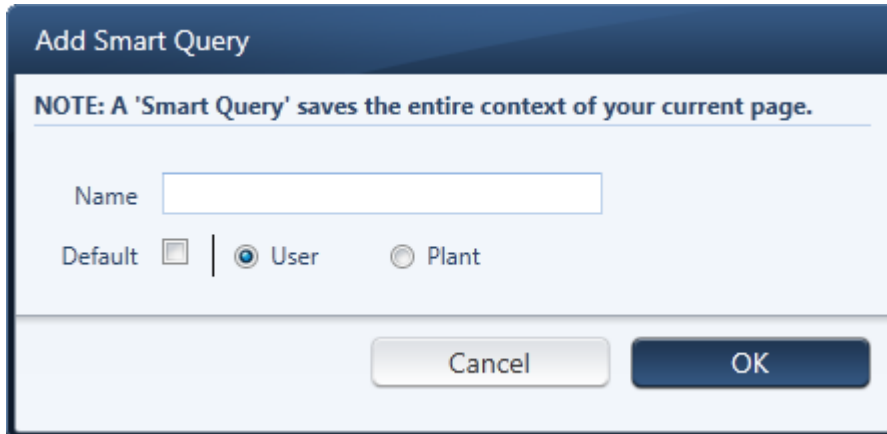


Figure 30: Smart Queries

Enter a unique name for this query in the **Name** box. Check the **Default** checkbox to make this smart query your default data selection. The default smart query is loaded automatically when you log in as your first data selection of each new reporting session.

If you have the appropriate permissions within Plant Reporting, you can opt to have your smart query published at the **Plant** level. If it is defined as a *Plant* smart query, it will appear in the smart queries list for any user who views this plant. Or you can simply define it as a **User** smart query which will limit its visibility to you only.

Click the **Save** button. The named Smart Query is now listed within the **View Smart Query** drop-down. The options defined by this Smart Query can be easily applied in the future by selecting it from the drop-down box.

Your ability to create **Plant** smart queries depends upon the role that your login has in the software. If you do not have permissions, this option will be grayed out and inactive. The **User** option is available to all reporting logins.

To further manage existing smart query settings, click the **Manage Settings** Button at the bottom of the Select Data window.

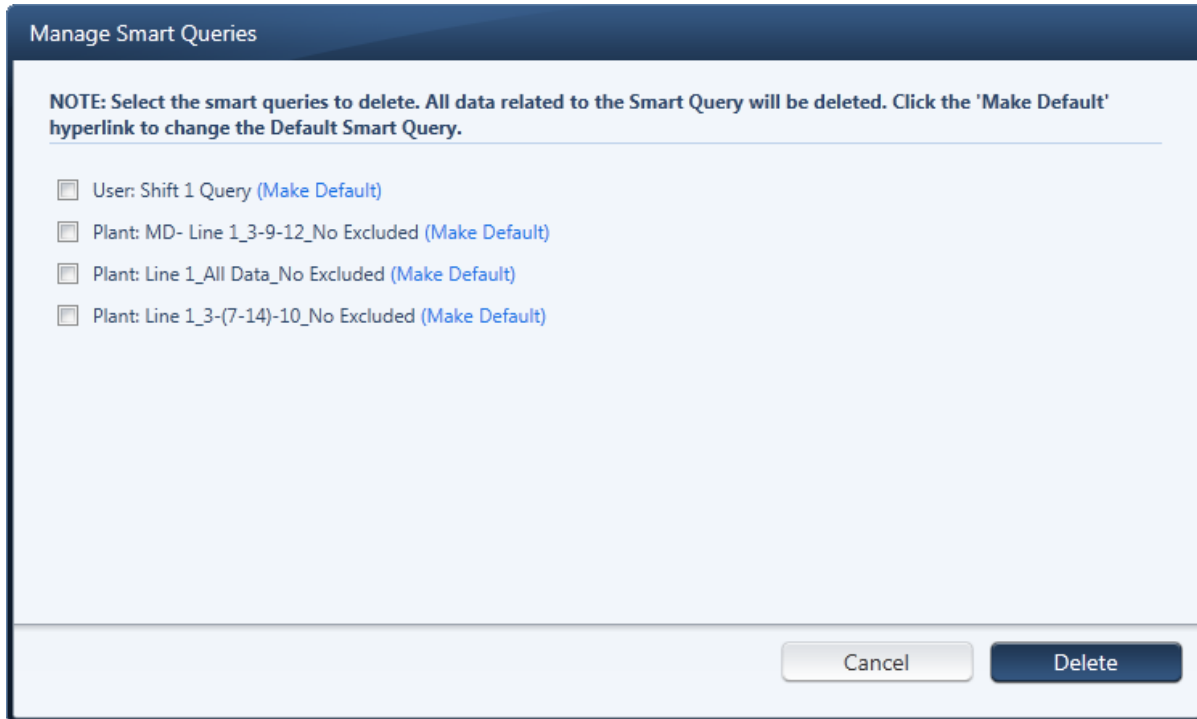


Figure 31: Manage Smart Queries

To delete one or more smart queries, place a checkmark beside each smart query you wish to remove and click the **Delete** button.

To make one of the smart queries your default query, click the **Make Default** link beside the query. Your default query displays default beside the query.

You must have appropriate permissions within Plant Reporting to remove a plant level smart query.

## The Analysis Sections

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The Informance Plant Solution contains all of the pre-set and customizable analytics organized into sections. Each analysis section focuses on a specific metric or set of metrics such as OEE, Cycletime, or Downtime.

This chapter covers the basic analytical sections of Plant Reporting which make up 11 of the 12 navigation tabs along the left side of the interface.

- OEE
- Capacity Analysis
- Cycletime Timeline
- Cycletime Histogram
- Downtime Timeline
- Downtime Histogram
- Process Timeline
- Quality Summary
- Quality Trend
- Financial Analysis (add-on module)
- Financial Timeline (add-on module)

The remaining 3 tabs – Dashboard, Additional Reports, and Event Management – are specialized sections and you will find separate chapters devoted to each of these topics later in this guide.

Before proceeding with this material, you are advised to review the section on Informance's **Reporting Environment** found in chapter 2 of this guide. It provides a detailed description of the common features and layout of each analysis section.



## OEE

## Overview

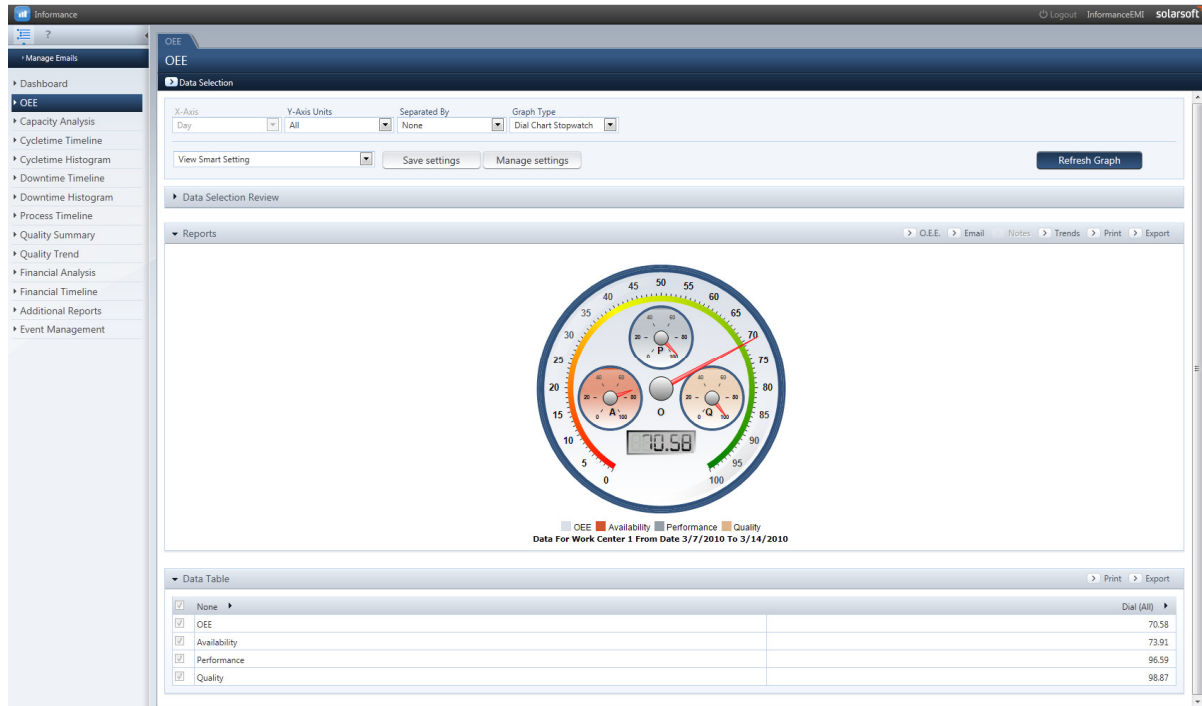


Figure 32: OEE Tab

The **OEE section** contains analysis of OEE with breakdowns of its three components: Availability, Performance and Quality. The information in this folder is useful in determining which of the three is having the biggest impact on OEE for the queried time period.

The *Advanced Toolbar* in the OEE section allows you to manipulate the following:

- **X-Axis:** Choose your time increment – Hour, Day, Week or Month. You can also choose a fiscal length of time – Fiscal Week, Fiscal Period, Fiscal Quarter or Fiscal Year (NOTE: X-Axis options are disabled when Graph Type is set to *Dial Chart Gauge* or *Dial Chart Stopwatch*)
- **Y-Axis:** Choose which OEE components to chart – OEE, Availability, Performance, Quality or All.
- **Separate By:** The data can be separated by None (no separation will occur), Data Set (i.e. line / machine / asset), Shift, Part, User Field, Shift / Data Set as well as any of your additional fields (The image below shows an additional field called 'Batch', your system may vary). NOTE: *None* is the only supported selection when Graph Type is set to *Dial Chart Gauge* or *Dial Chart Stopwatch*.
- **Graph Type:** Choose the type of chart to visualize your data – Dial Chart Stopwatch, Dial Chart Gauge, Separate Bar Chart, Stacked Bar Chart or Line Chart. NOTE: When *Dial Chart Gauge* or *Dial Chart Stopwatch* is selected, limitations are placed on other advanced toolbar settings as noted above.

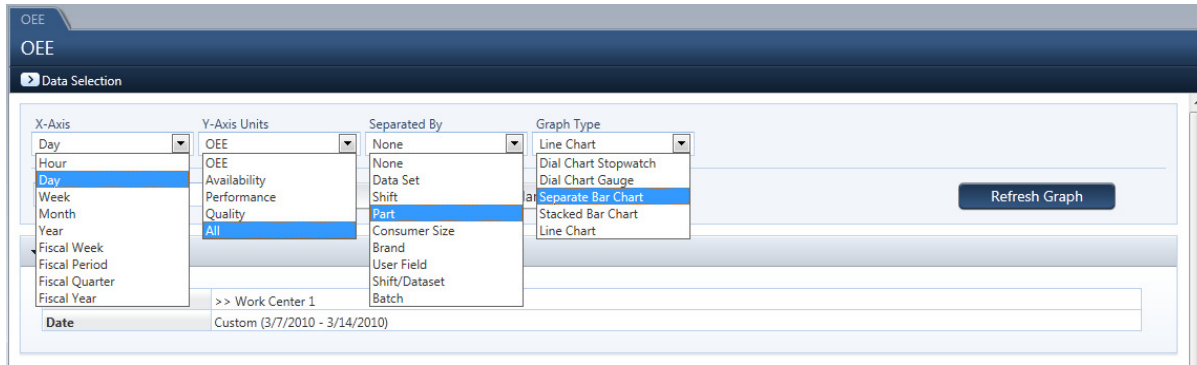


Figure 33: OEE Advanced Toolbar

### What Does the Data Mean?

**Overall Equipment Effectiveness (OEE)** is the key metric for determining whether progress is being made in improving manufacturing performance. This section should be one of the first reviewed and this data will help you prioritize your opportunities and the type of analysis needed.

### Why Use It?

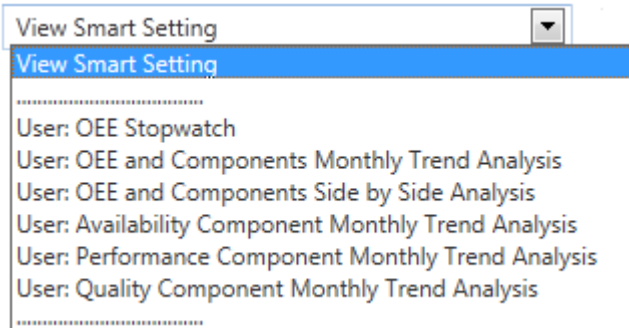
OEE provides a comprehensive performance measure of the process as measured across total available operating time less any user defined exclusions of time (ex. No Product Demand). OEE provides insight as to the nature of production inefficiencies by tracking the production losses in three general categories; Availability (uptime or downtime), Performance (speed/rate loss), and Quality (defects/scrap). Each of these categories are analyzed with different reports in Informance and the approach or tools to reduce the losses within each category vary. Thus, OEE helps to identify the opportunity gap and identify the top downtime drivers by loss category.

Some questions one might answer in this folder include:

- What other analysis sections should I focus on to reveal improvement opportunities?
- Is downtime (availability) really my largest opportunity for improvement? Should I be focusing on Performance or Quality instead?
- How is each asset performing against target rates? Are any assets regularly exceeding standard rates?

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the OEE consist of the following:

- OEE Stopwatch – Plots the average OEE for the queried time period on a speedometer style chart. Displays smaller speedometer for each of the 3 components of OEE.
- OEE and Components Monthly Trend Analysis – Trend lines for OEE and its 3 components are trended by month
- OEE and Components Side by Side Analysis – A separated bar chart displaying the values for the OEE and each of its 3 components side by side.
- Availability Monthly Trend Analysis – Month-by-Month trend of the Availability component
- Performance Monthly Trend Analysis – Month-by-Month trend of the Performance component
- Quality Monthly Trend Analysis – Month-by-Month trend of the Quality component

# Capacity Analysis

## Overview

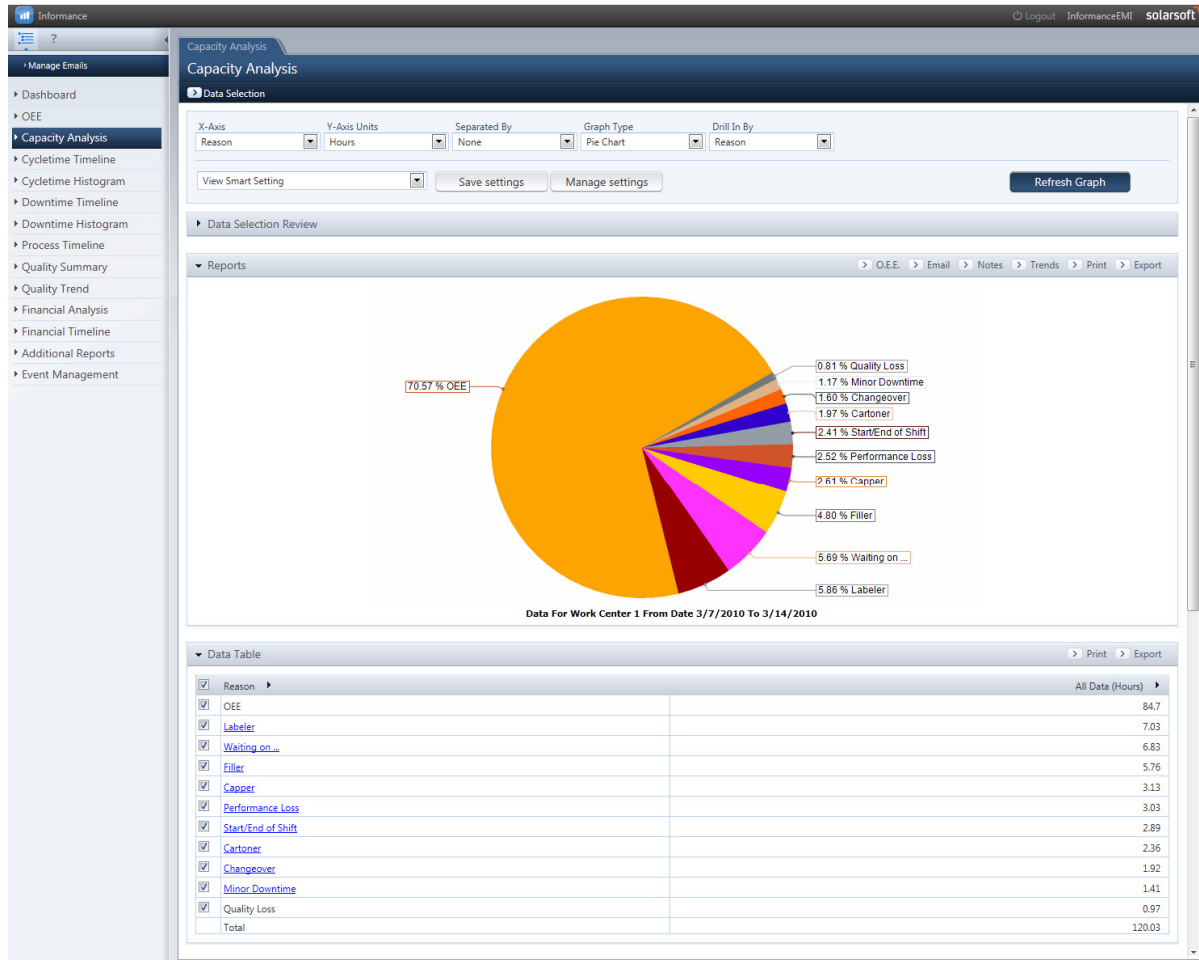


Figure 34: Capacity Analysis Tab

The **Capacity Analysis Section** contains an analysis in which uptime and downtime are compared for the time period selected by the Data Selection Query. The information in this folder is useful when analyzing the capacity and performance of a process.

The *Advanced Toolbar* in the Capacity Analysis section allows you to manipulate the following:

- **X-Axis:** Choose the Category (aka "reason") level to display:
- **Reason:** Displays uptime and downtime at the *Reason* level.
- **Downtime Reason:** Displays downtime at the *Reason* level, but no uptime.
- **Downtime SubReason 1 / 2 / 3:** These selections display downtime at the corresponding *subreason* level, but no uptime.
- **Reason / Subreasons:** Displays uptime and downtime at the *reason and all subreason* levels.
- **Super Reason:** Displays uptime and downtime at the *Super Reason* level.
- **Y-Axis:** Choose how to total the data – Minutes, Hours, Percent Hours or Events (i.e. number of occurrences)
- **Separate By:** The data can be separated by None (no separation will occur), Time Intervals (you will be prompted to select up to 5 different time intervals within your data selection), Fiscal time period range, Data Set (i.e. line / machine / asset), Shift, Part, User Field, Shift / Data Set, hierarchy categories (ex. consumer size, brand for Parts data), as well as any of your additional fields (The image below shows an additional field called 'Batch', your system may vary).
- **Graph Type:** Choose the type of chart to visualize your data – Pie Chart or Pareto Chart. NOTE: A *Pie Chart* by nature can only depict a single series or column from the data table. So if your data has been separated in a way that creates several columns in the data table, the Pie Chart will only depict the first column.
- **Drill In By:** Choose to drill into levels of data by time or by reason. Time is only available as an option if the Separated By value is a unit of time and the Graph Type is Stacked Bar Chart.

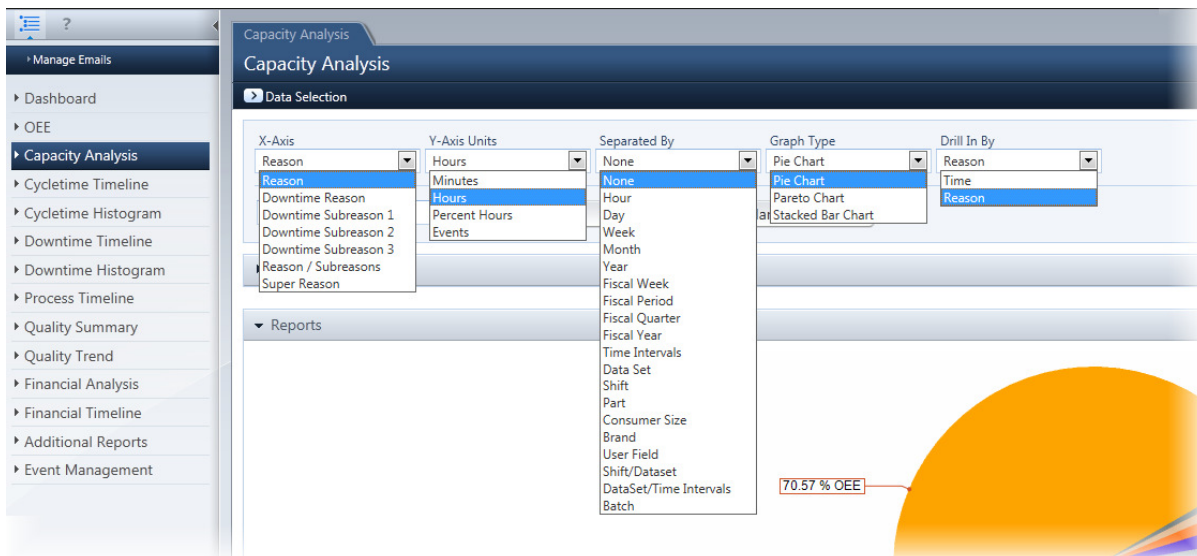


Figure 35: Capacity Analysis Advanced Toolbar

## What Does the Data Mean?

**Capacity Analysis** contains analyses that point the user to the largest opportunities for improvement. This folder also contains the key metric for determining whether progress is being made in improving manufacturing performance- Overall Equipment Effectiveness.

**Capacity Analysis** combines the data from the **Cycle Time Analysis Sections** and the **Downtime Analysis Sections** into one picture of the process. Capacity analysis is a capability study of the process. Every minute can be cataloged as either machine cycle time or machine downtime. A machine's capability for output is based on 100% usage of the available amount of time based on the number of shifts and active production days - for the process. This capability is also a function of the amount of cycle time erosion (e.g. speed loss) and quality loss (e.g. defect loss).

### Why Use It?

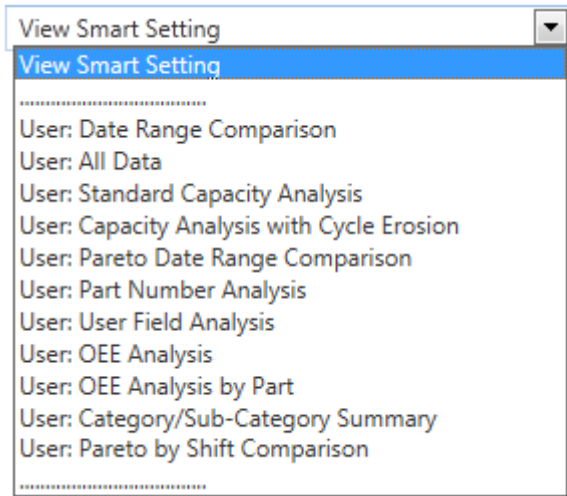
Capacity Analysis provides a capability study of the process and tracks 100% of uptime and downtime based on the date selection total available time minus any excluded time periods. It can also identify the top OEE loss drivers.

Some questions one might answer in this folder include:

- How much uptime do I have in terms of percent of the total time tracked? How much downtime? What are the top 5 downtime reasons driving downtime?
- How does downtime in a specific category compare this week against the previous or even against all the weeks in a month?
- How well are operators tagging the downtime events? Are there significant blocks of generic 'Minor Downtime' or 'Major Downtime' (i.e. downtime that has not been given a reason by the operator)?
- How much impact is speed loss/cycle erosion having on my OEE relative to downtime losses?
- Are assets experiencing significant downtime due to 'Micro Stops'?

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for Capacity Analysis include the following:

- Standard Capacity Analysis- Compares uptime and downtime as a percentage of time.
- Capacity Analysis with Cycle Erosion- Compares uptime and downtime as a percentage of time including Cycle Erosion (Speed Loss)
- Pareto Date Range Comparison- Compares capacity by date range.
- OEE Analysis- Generates the Overall Equipment Effectiveness analysis by multiplying availability, performance, and quality.
- OEE Analysis by Part- Calculates OEE by part.
- Part Number Analysis- Calculates capacity percentages by part number.
- User Field Analysis- Calculates capacity percentages by user field analysis.
- Category/Sub-Category Summary - Displays a summary pie chart of uptime and downtime reasons, separated by reason and subreason categories.
- Pareto by Shift Comparison – Compares capacity by production shift

### Calculating Overall Equipment Effectiveness (OEE)

Within the Capacity Analysis section there are additional tools for calculating OEE. To initiate an OEE calculation and include it in your chart, click the OEE link in the upper right corner near the smart settings box.

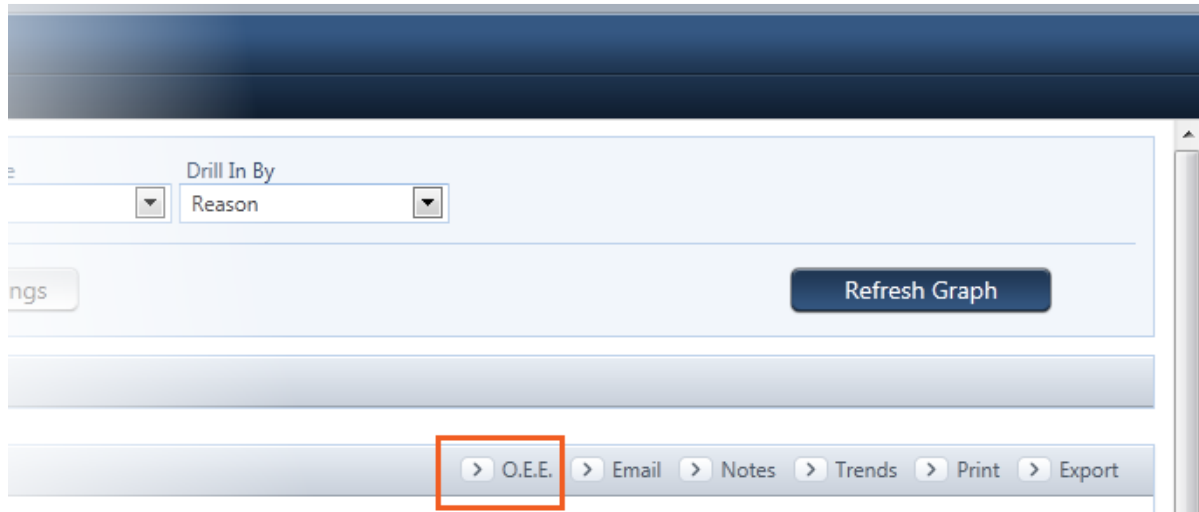


Figure 36: OEE Report Section Link

Upon clicking the OEE link, the OEE calculation window will appear. Here you have the ability to view OEE and each of its components separated by any of your tagging fields.

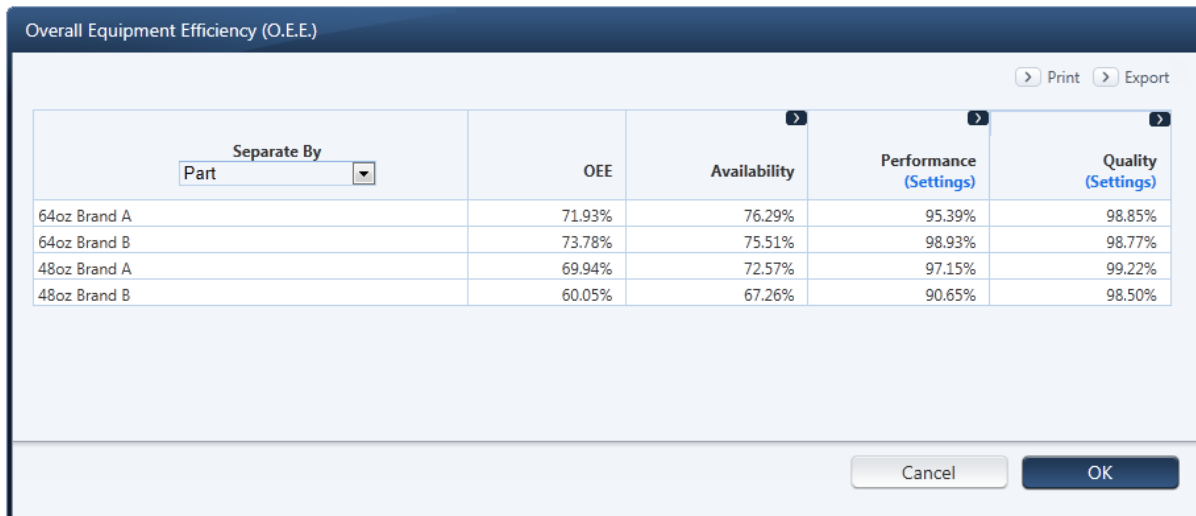


Figure 37: Capacity Analysis OEE Settings

The first column of this table is the *Separate By* column where you can choose to display your OEE data by any of the tagging fields. Separating by Part (as pictured above, for example) will provide a breakdown of the OEE by each Part that was run during the timeframe of your data selection. Similarly you can choose to separate by Time Period (i.e. hours, days, weeks), Fiscal Time Period (i.e. fiscal period, fiscal week, fiscal period), Time Period, Data Set (i.e. line, asset, machine), Shift, User Field, Hierarchy Categories, or any of your Additional Fields.



The OEE value is provided in the second column followed by the three components of the OEE calculation: Availability, Performance and Quality. This allows you to easily see which component is most affecting the OEE for any of your tagging fields. These last three columns can also be expanded using the arrow buttons (▶) to display additional details on each of the component numbers. In either the collapsed or expanded views, the data can be exported or printed directly from this window using the export (▶ Export) or print (▶ Print) links, respectively.

Separate By Part	OEE	Availability		Performance (Settings)			Best Hour			Data Set				Quality (Settings)			
		Actual Uptime	Ideal Uptime	Date/Time Stamp	Parts Produced	Uptime during the best hour	Downtime during the best hour	Calculated Cycle Time	Parts Produced	Actual Uptime	Ideal Uptime	Calculated Erosion Hours	Total Cycles	Defect Count			
64oz Brand A	71.93%	76.29%	23.53	22.44	95.39%	User Value	0.00	0.00	0.00	3000.00	67323.00	23.53	22.44	1.09	98.85%	67323.00	772.00
64oz Brand B	73.78%	75.51%	32.60	32.25	98.93%	User Value	0.00	0.00	0.00	3000.00	96764.00	32.60	32.25	0.35	98.77%	96764.00	1194.00
48oz Brand A	69.94%	72.57%	22.33	21.69	97.15%	User Value	0.00	0.00	0.00	3600.00	78094.00	22.33	21.69	0.64	99.22%	78094.00	612.00
48oz Brand B	60.05%	67.26%	10.23	9.28	90.65%	User Value	0.00	0.00	0.00	3600.00	33390.00	10.23	9.28	0.96	98.50%	33390.00	502.00

Figure 38: Expanded View of Capacity Analysis OEE Settings

The expanded Availability columns reveal the Actual Uptime and Ideal Uptime in decimal hours. The actual uptime is a direct sum of all uptime events while the ideal uptime is a calculated value based on the total units produced for each part and the part’s ideal rate. For example, in the table pictured above, the ideal uptime for the first part, 64 oz Brand A, is 22.45 hours. This value is calculated by taking the total units produced of this part (67,337) and dividing by the ideal rate for the part (3000 units / hour). This essentially represents the time that it should have taken for the asset to produce 67,337 units of the ‘64 oz Brand A’ part.

Within the Performance section, you can click on the *Settings* link to view options for the performance calculation. By default, the performance calculation will be configured to use the listed Ideal Rates for each part. You can opt to have the ideal rate determined by a *Best Hour* within your data selection or a manually entered *User Value*.

**Performance Options**

- Don't Calculate Performance Loss
- Calculate Erosion With Best Hour
- Calculate Erosion With User Value
- Calculate Erosion From Standard Rate Tables

Cancel OK

Figure 39: Performance Options for Capacity Analysis OEE

If you choose the *Don't Calculate Cycle Erosion* option, the software will assume no performance loss and the Performance will be represented as 100% for the purposes of the OEE calculation. If you choose to *Calculate Erosion with Best Hour*, the software will search out the hour in your data selection timeframe where the most units were produced and derive an ideal rate based on the actual performance in that hour.

Overall Equipment Efficiency (O.E.E.)

Separate By Part	OEE	Availability	Performance (Settings)	Best Hour					
				Date/Time Stamp	Parts Produced	Uptime during the best hour	Downtime during the best hour	Calculated Cycle Time	Parts Produced
64oz Brand A	74.53%	76.29%	98.83%	3/11/2010 12:00:00 AM	2754.00	0.95	0.95	2895.56	67323.00
64oz Brand B	64.01%	75.51%	85.82%	3/10/2010 12:00:00 AM	3197.00	0.92	0.92	3458.29	96764.00
48oz Brand A	72.83%	72.57%	101.16%	3/9/2010 12:00:00 AM	3099.00	0.90	0.90	3457.20	78094.00
48oz Brand B	66.35%	67.26%	100.16%	3/10/2010 12:00:00 AM	3157.00	0.97	0.97	3258.37	33390.00

Figure 40: Cycle Erosion Performance for Capacity Analysis OEE

To illustrate this concept, consider the example pictured above where you can see in the first row of the table that Informance has identified the hour starting at 3/11/2010 7:00:00 PM as the best hour for the '64oz Brand A' part. In that hour, 2754 parts were produced and the line was up 95% (0.95) of that hour which generates a *Calculated Cycle Time* of 2896.56 units per hour. By measuring all other production of the '64 oz Brand A' part against this new ideal rate, the performance becomes 98.83% for that part.

The third option for determining an ideal rate for the calculation is to manually enter a user value. You can apply a single user value to all parts by entering it within the *Performance Options* dialog box. Alternatively, you can click on the rate values listed in the *Calculated Cycle Time* column and change each one individually. After clicking on a rate, the *Enter New Value* box will appear allowing you to type in a new rate and click *OK* to apply it.

Enter New Value

Enter a new value below

Cancel OK

Any ideal rate that is manually entered here or is derived from the *Best Hour* setting is only used within your reporting session. The changes that you make in the Capacity Analysis OEE table are used within that report only and will not effect other user's reports or the listed rates for each part in the system. The listed ideal rates can only be changed via the *System Administration* web site.

The expanded columns of the *Quality* section in the OEE table show both the *Total Cycles* as well as the *Defect Count*. The Quality percentage is then a simple calculation of (Total Cycles – Defect Count) / Total Cycles.

Clicking on the *Settings* link will open the *Quality Options* window where you can choose not to calculate quality or display the defect as a percentage rather than a count.

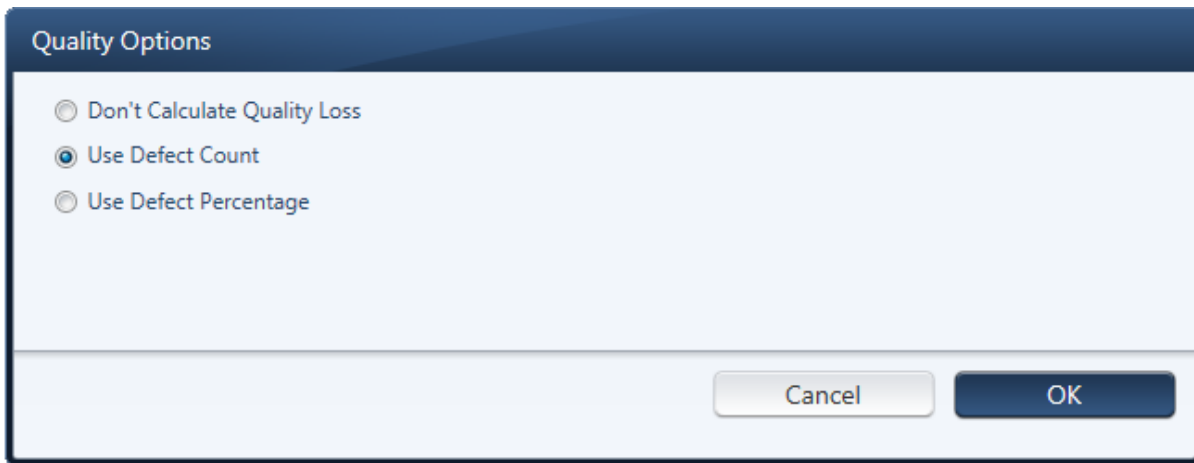
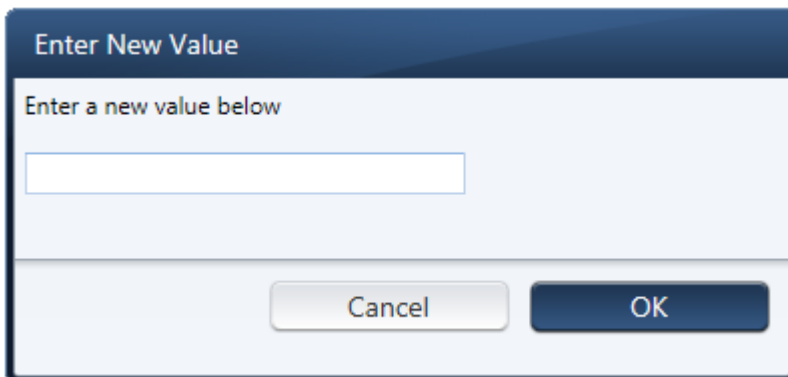


Figure 41: Quality Options for Capacity Analysis OEE

If you choose the *Don't Calculate Quality Erosion* option, the defect count will be disregarded and quality percentage for all rows in the table will go to 100%. You can also experiment with different defect counts by clicking on any value in the defect count column and changing it. Just like manually changing an ideal rate, clicking on a defect count will open the *Enter New Value* window allowing you to type in a new defect count and click *OK* to apply it.



A new manually entered defect count is only used within your Capacity Analysis reporting session. The changes that you make in the Capacity Analysis OEE table are used within that report only and will not effect other user's reports or the actual recorded defects in the database. Manual changes to the defect counts can only be made within the Informance IFA Operator Interface.

## Cycletime Timeline

### Overview

The **Cycletime Timeline Section** contains analysis in which production counts, cycles, parts, etc. are arrayed against the time period selected by the Data Selection Query.

The information in this folder is useful when trending production, Overall Equipment Effectiveness, Capacity Utilization, Shift Performance and other production related metrics by hour, day, week, month and year.

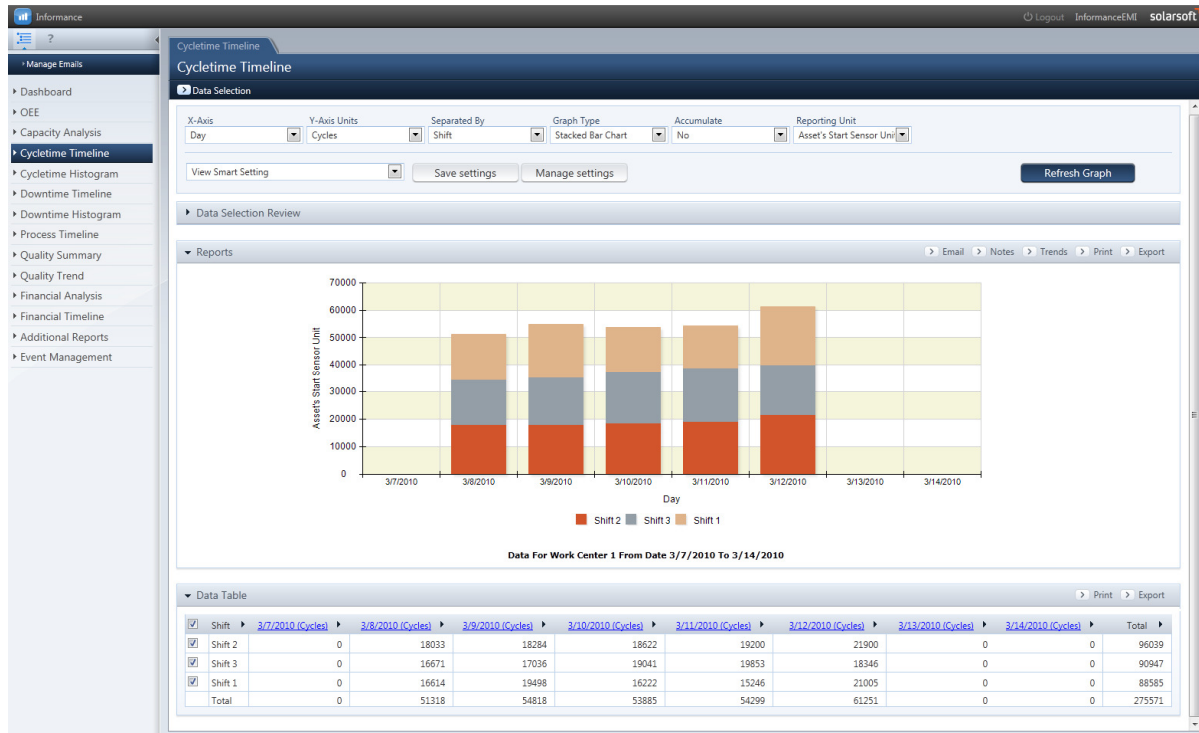


Figure 42: Cycletime Timeline Tab

The folder can be configured in several ways:

- Data can be viewed by year, week, day, or hour.
- Data can be viewed as cycles, hours of uptime, or percent utilization (uptime/total time).
- Data can be separated by shift, data set, part, hierarchy categories, or any additional fields.
- Data can be Accumulated.
- The Cycletime Timeline can be viewed in a variety of graph styles.
- Trended OEE by best hour, input values or ideal rates within the Cycletime Timeline through the Y-Axis advanced toolbar drop-down menu.

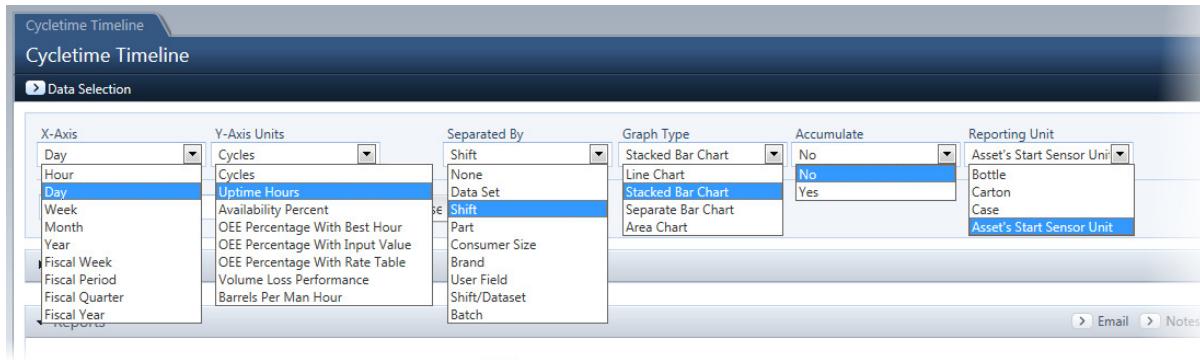


Figure 43: Cycletime Timeline Advanced Settings

## What Does the Data Mean?

For illustration as to how the data can be used, information in the Cycletime Timeline can yield the following insights:

- For a one or two shift operation, lower production output at the start of 1st shift can often be attributed to a cold start up condition. Many machines perform better after start-up adjustments are made and the line is tuned in.
- For manual or semi-automatic operations, operator fatigue can often be observed by noticing any consistent patterns in degradation of output through the shift. Adjusting break/lunch schedules or employing job rotation can help this condition.
- Using the accumulate mode, tool wear can sometimes be predicted by noticing the inflection points when the slope of the output line changes during a run.
- Shift comparisons of output performance can reveal training opportunities where one shift can learn from another shift's performance characteristics.

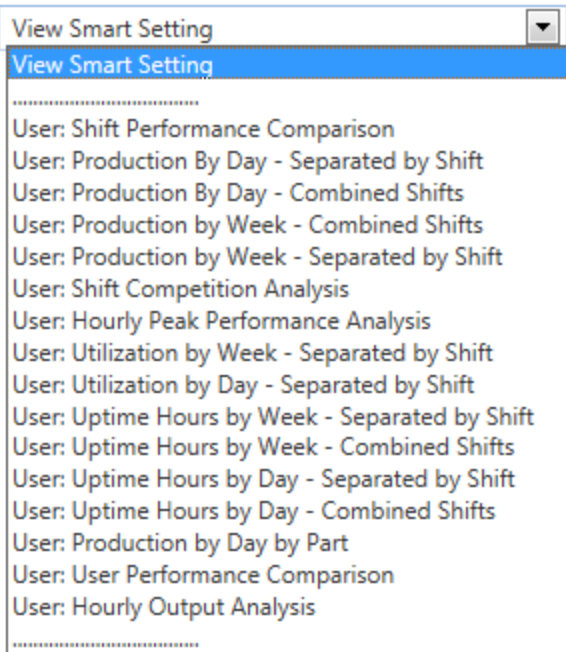
## Why Use It?

Cycletime Timeline is useful to answer time trend questions related to cycles and uptime. Analysis questions regarding production will most likely be answered here, for example:

- What day in the week/month had the most production? Which had a least? Why? (Here, simply drill on the day to investigate)
- Which parts lead production for the week/month? Which fell behind? Why?

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Cycletime Timeline include the following:

- Shift Performance Comparison: Compares shift cumulative production over time.
- Production by Day – Separated by Shift: Trended production by day broken out by shift.
- Production by Day – Combined Shifts: Trended production by day.
- Production by Week – Separated by Shift: Trended production by week broken out by shift.
- Production by Week – Combined Shifts: Trended production by week.
- Hourly Peak Performance Analysis: Cumulative production by time of day for the time period selected in the Data Selection Query.
- Utilization by Week – Separated by Shift: Percent of total hours of Uptime by week.
- Utilization by Day – Separated by Shift: Percent of total hours of Uptime by week.
- Uptime Hours by Week – Separated by Shift: Uptime hours trended by week broken out by shift.
- Uptime Hours by Week – Combined Shift: Uptime hours trended by week.
- Uptime Hours by Day – Separated by Shift: Uptime hours trended by day broken out by shift.
- Uptime Hours by Day – Combined Shift: Uptime hours trended by day.
- Production by Day by Part – Displays the quantity of production per day, broken out by part number. Selecting a part/day combination on the chart further breaks out the performance by hour for that day.

- User Performance Comparison – Production performance by Informance user by day. Selecting a day breaks out the performance data by hour.
- Hourly Output Analysis – Production cycle output, broken out by hour.

## Cycletime Histogram

### Overview

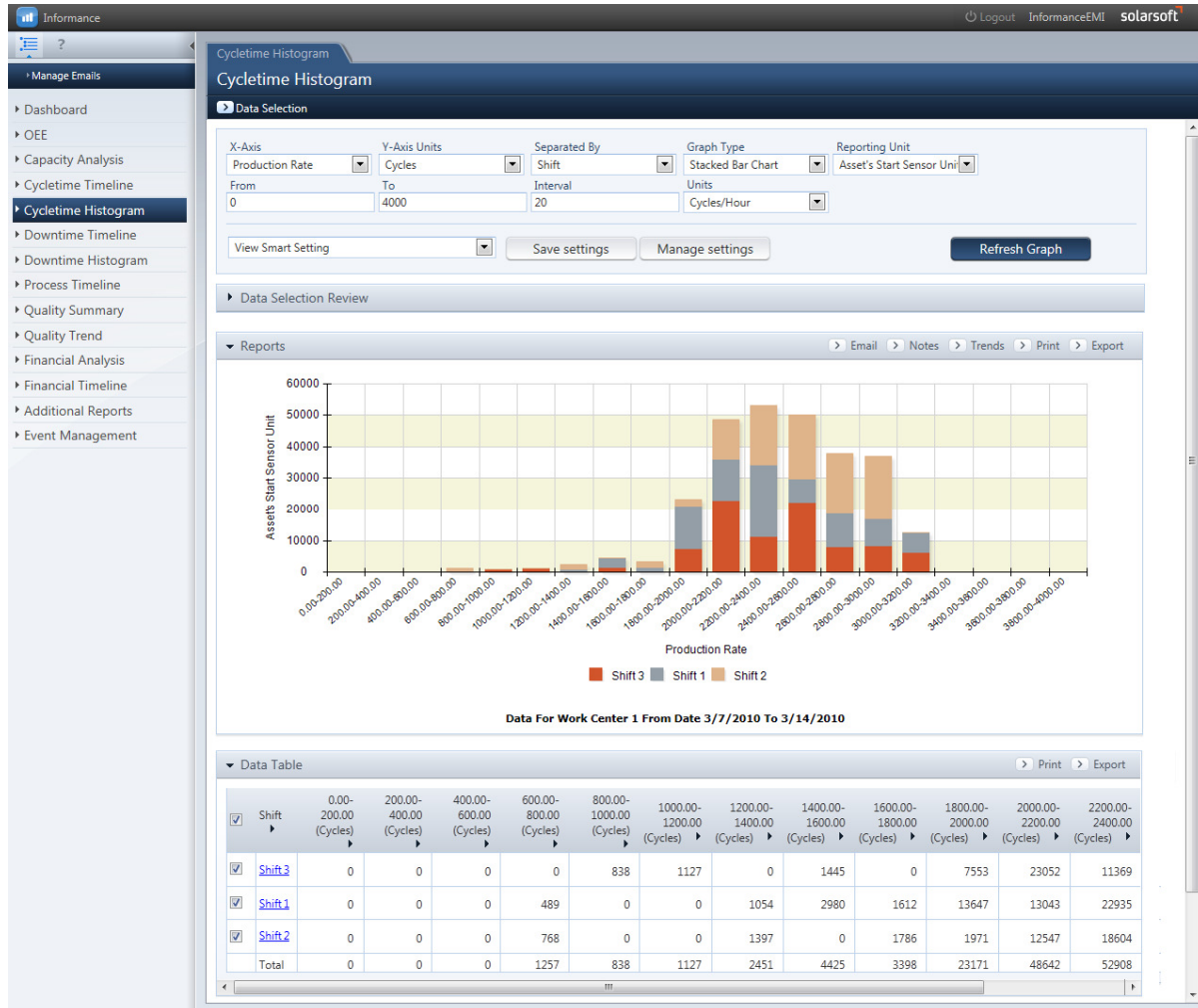


Figure 44: Cycletime Histogram Tab

The **Cycletime Histogram Section** contains analysis in which production counts, cycles, parts, etc. are arrayed against the rate at which they were produced for the time period selected by the Data Selection Query. The information in this folder is useful when analyzing the variability in a production process.

The folder can be configured in several ways:

- Data is viewed as actual (with downtime) or ideal (without downtime) distributions.
- Data can be separated by shift, data set, part, hierarchy categories, or any additional fields.
- The number of bars that represent the data can be varied. Each bar represents a range of speed rates.
- The units can be varied to express the production rate as cycles per hour, cycles per minute, minutes per cycle or seconds per cycle.
- The Cycle Time Histogram can be viewed in a variety of graph styles.

### What Does the Data Mean?

For illustration as to how the data can be used, information in the Cycletime Histogram can yield the following insights:

This analysis is used to see the amount of hourly output variation. Excess variation in a bottleneck process can affect the output of the surrounding processes.

Excess variation in an automatic process may indicate inconsistent part flow, sticky cylinders, or sticky valves.

The distribution of the data should have a bell shaped curve; the tighter the bell shape, the less variable the process. The distribution is often skewed to the left as line speeds are often variable at slower speed to targets either via direct operator speed adjustments or line control automation to compensate for downstream bottlenecks. If there is more than one peak in the data, the process is bimodal. This may indicate that a machine is operating at two distinct cycle times.

### Why Use It?

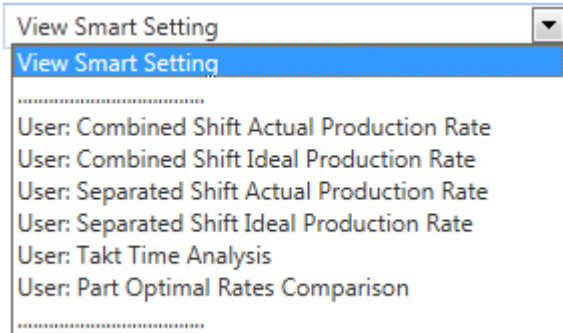
The Cycletime Histogram folder can be used to analyze production rates. This folder is used for many purposes, including the following:

- To see the amount of hourly output variation.
- To view the actual (downtime taken into consideration) vs. ideal (the optimal situation of 0% downtime) production rates in a histogram chart.
- Takt time analysis
- Part Optimal Rates Comparison where comparisons of actual production rates can be viewed by part.



## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Cycletime Histogram include the following:

- Combined Shift Actual Production Rate- Displays the actual production rate distribution of the date range selected.
- Combined Shift Ideal Production Rate- Displays the Ideal Production rate factoring out downtime.
- Separated Shift Actual Production Rate- Displays the actual production rate distribution of the date range selected separated by shift.
- Separated Shift Ideal Production Rate- Displays the Ideal Production rate factoring out downtime separated by shift.
- Takt Time Analysis - Displays the unit output rate distribution.
- Part Time Optimal Rates Comparison – Compares actual production rate distribution separated by parts

# Downtime Timeline

## Overview

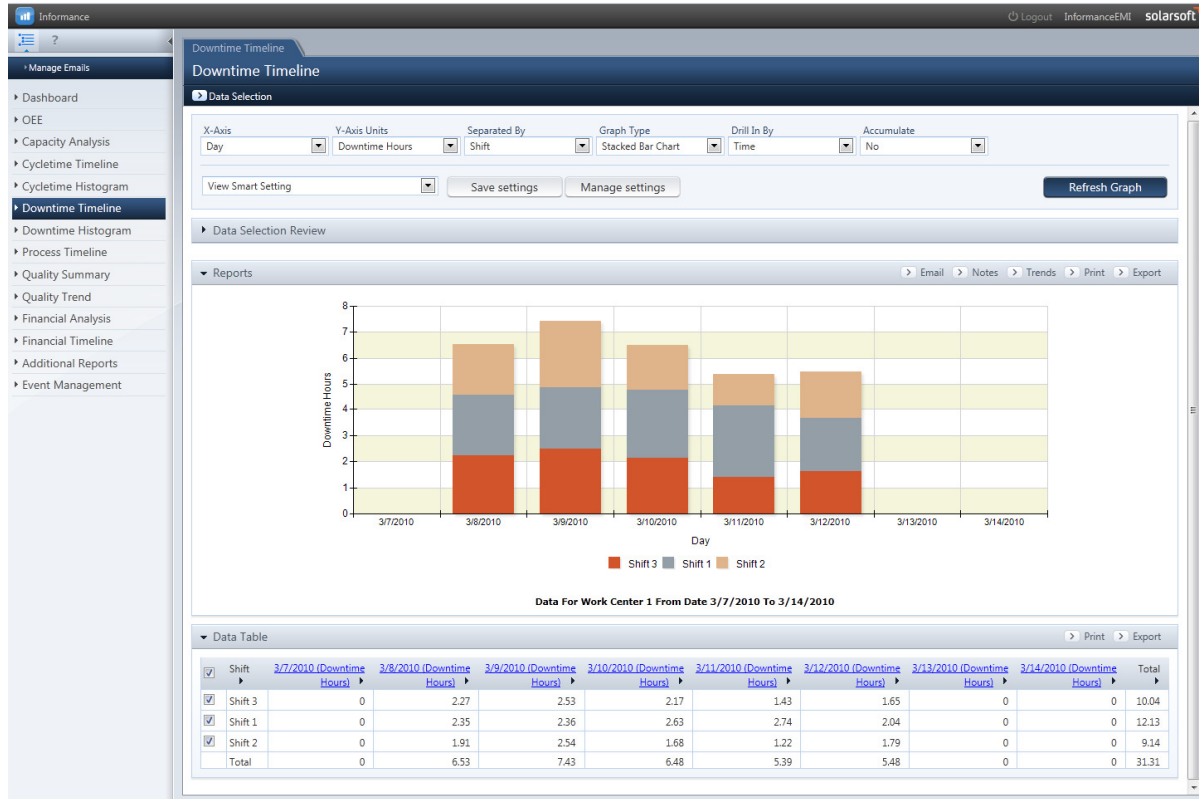


Figure 45: Downtime Timeline Tab

The **Downtime Timeline Section** contains analysis in which downtime events are arrayed against time for the time period selected in the Data Selection Query. This information in this folder is useful when analyzing the trend of downtime across different time periods.

**Downtime Timeline** is a view of downtime events where time related trends can be evaluated.

The folder can be configured in several ways:

- Data can be viewed by week, day, hour, or year.
- Data can be viewed as downtime hours, downtime events, % of downtime hours, Mean Time between Failure (MTBF Mean), Mean Time to Repair (MTTR Mean and Medium), and Stops per Uptime Hour.
- Data can be separated by shift, super reason, reason and each subreason level, data set, part, hierarchy categories, or any additional fields.
- Data can be **accumulated**.

The *Advanced Toolbar* in the Downtime Timeline section offers the options shown below:

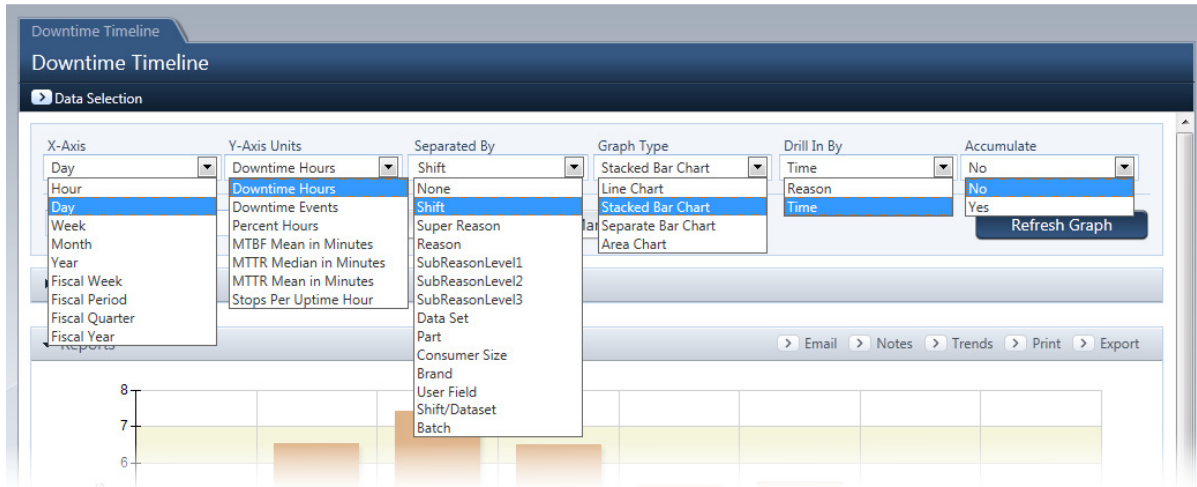


Figure 46: Downtime Timeline Advanced Toolbar

## What Does the Data Mean?

For an illustration as to how the data can be used, information in the Downtime Timeline section can yield the following insights:

- Start of shift, end of shift, and shift change periods can be reviewed for improper shift handoffs.
- Downtime event frequency can be reviewed in number of events or in Stops per Uptime Hour. As the number of events increases per uptime hour not only does downtime increase but the impact on equipment wear (stop and start) and the effort and wear on operators increases as well.
- MTBF used with a sufficient data population size can be used to determine appropriate PM intervals or the replacement of wear parts on equipment.
- Often one downtime reason will trail another. These trends are shown graphically and may indicate interdependent downtime reasons.
- Recurring downtime reasons can be observed from day to day to establish better preventative maintenance intervals.

## Why Use It?

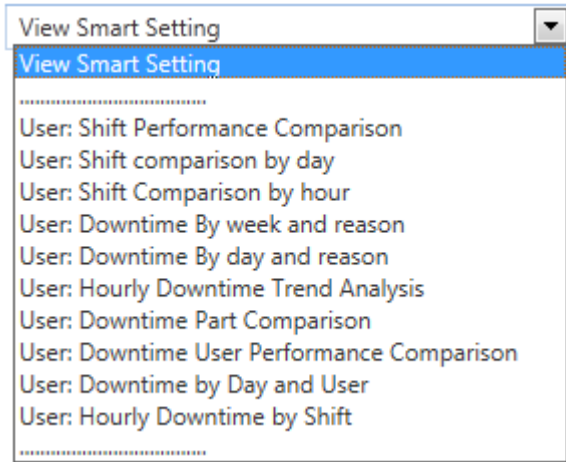
Downtime Timeline is useful to answer time trend questions related to downtime periods and reasons. Analysis questions regarding downtime will most likely be answered here, for instance:

What day in a week had the most downtime? Why? (Drill down by a left-click on the chosen day to investigate further).

This folder is useful for most any downtime analysis outside of downtime length analysis — for those values the Downtime Histogram folder is useful.

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Downtime Timeline include the following:

- Shift Performance Comparison- Compares cumulative downtime hours between shifts.
- Shift Comparison by Day- Trended downtime hours by day broken out by shift.
- Shift Comparison by Hour- Trended downtime hours within a day with shift separation.
- Downtime by Week and Reason- Downtime hours trended by week broken out by reason.
- Downtime by Day and Reason- Downtime hours trended by day and broken out by reason
- Hourly Downtime Trend Analysis- Downtime hours accumulated by time of day broken out by reason for a specified time period as determined by the Data Selection Query.
- Downtime Part Comparison – Compares downtime hours by day and separated by parts.
- Downtime User Performance Comparison – Compares downtime hours by day on a line chart, broken out by specific user. Selecting a day further breaks out the downtime by hour.
- Downtime by Day and User - Same as Downtime User Performance Comparison but in a Stacked Bar graph type.
- Hourly Downtime by Shift - Displays the total number of downtime hours in the selected time frame, broken out by hour of the day when the downtime took place and separated by shift.

## Downtime Histogram

### Overview

The **Downtime Histogram Section** contains analysis in which downtime events are arrayed against their severity and frequency at which they were produced for the time period selected by the Data Selection Query. The information in this folder is useful when analyzing the reliability of a process and the distribution and severity of downtime events.

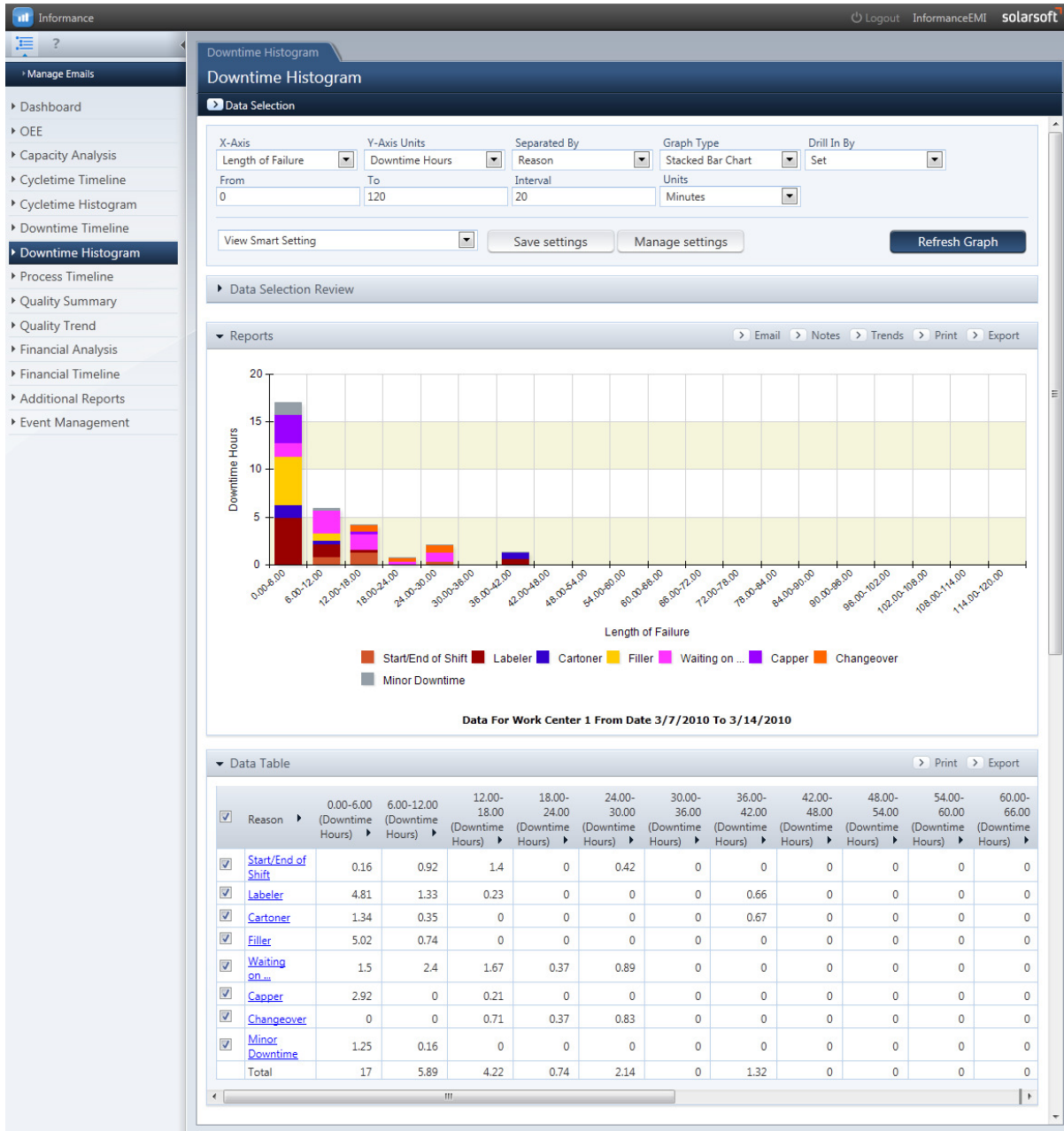


Figure 47: Downtime Histogram Tab

The folder can be configured in several ways:

- Downtime distributions can be viewed as events or accumulated hours
- Data can be separated by Super Reason, reason and each subreason level, data set, part, hierarchy categories, or any additional fields.
- Downtime length intervals can be varied.
- The Units for downtime can be expressed as hours, minutes or days.
- The data can be viewed in a variety of graph styles.

The Downtime Histogram folder has the ability to select and deselect downtime reasons for viewing, to isolate problems, and combine reasons.

### What Does the Data Mean?

The **Downtime Histogram** is a useful tool for looking at the distribution of downtime events. The nature of the downtime events can determine whether minor or major breakdowns are driving the majority of the downtime.

One of the settings allows data to be viewed as a count of downtime events or as the accumulated hour in a downtime event time category. The accumulated number of **hours** is valuable.

For illustration as to how the data can be used, information in the Downtime Histogram Folder can yield the following insights:

Reasons mapped onto the graph may indicate the frequency of certain downtime reasons with average lengths of downtime per event. For example, setup may average 25-35 minutes. Part jams may only average 5-10 minutes per event.

The Time between Failures (e.g. MTBF) values in the table can be used to establish preventative maintenance intervals.

The Downtime Histogram is one of the most difficult folders to understand. Some of the Advanced Toolbar settings must be used in the correct combination to make sense. The Smart Settings are helpful for configuring the Toolbar for the combination of settings that provide meaningful information.

### Why Use It?

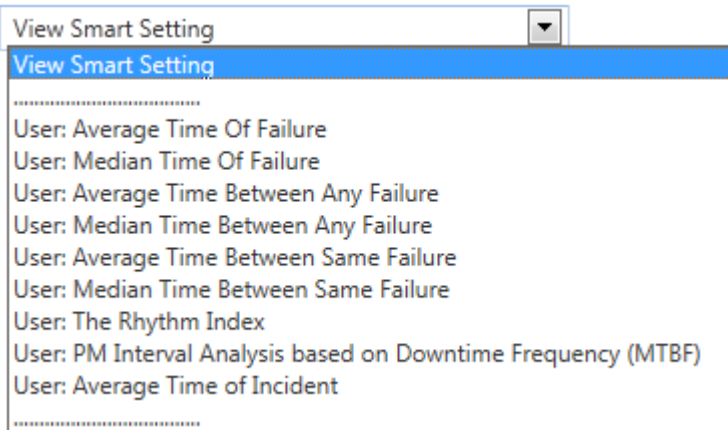
The Downtime Histogram Folder is useful to answer time questions related to event frequency and accumulation of hours in terms of major vs. minor downtime. Analysis questions regarding downtime most likely to be answered here are:

- Is the frequency of downtime events more focused in minor stoppages or major stoppages? What is the top downtime reason driving those stoppages?
- Is minor or major downtime driving downtime hour accumulation more? What is the top downtime reason driving this?

This folder is useful for most any downtime analysis for frequency, trending, and interval information.

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Downtime Histogram include the following:

- Average Time of Failure (Useful for Lean Manufacturing programs involving setup reduction)- Average time that the process has stopped.
- Median Time of Failure- Median time that the process has stopped.
- Average Time between ANY Failure- Average time between a process failure.
- Median Time between ANY Failure- Median time between a process failure.
- Average Time between SAME Failure- Average time between the same failure as determined by the reason code.
- Median Time between SAME Failure (Useful for establishing Preventative Maintenance Intervals) - Median time between the same failure as determined by the reason code.
- The Rhythm Index- Median time a process runs without stopping for any reason.
- PM Interval Analysis Based on Downtime Frequency – Analysis of intervals between the same failures and frequency of downtime occurrences.
- Average Time of Incident – Average time of each reason level failure over a selected time period, and separated by total hours within a downtime length range.

## Process Timeline

### Overview

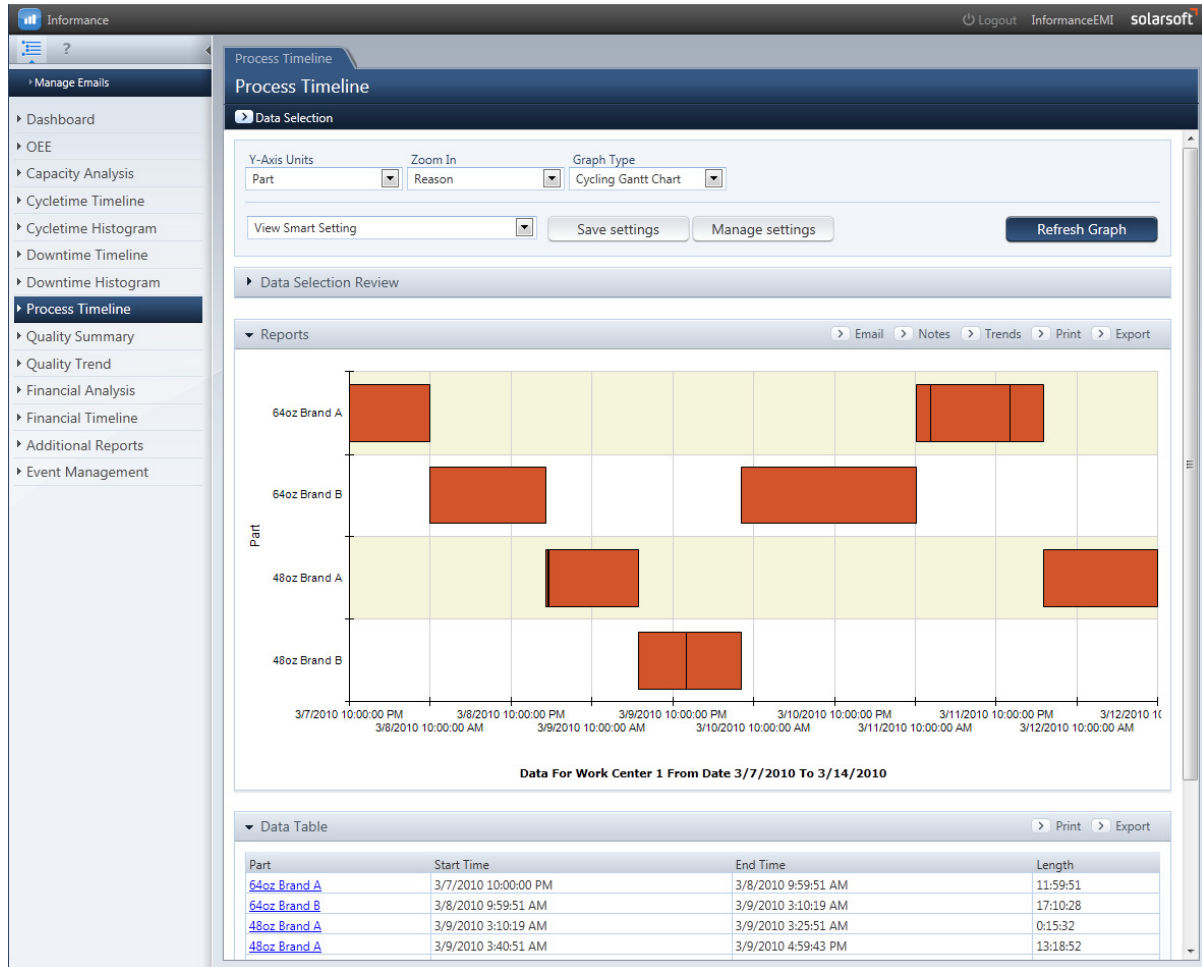


Figure 48: Process Timeline Tab

The **Process Timeline** Section contains information about the length and sequence of uptime and downtime events for the time period selected by the Data Selection Query. This information in this folder is useful when analyzing the sequence of events in a process in order to determine how different steps in the process may be causing delays or affecting one another.

The folder can be configured in several ways:

- Data can be zoomed in by a variety of options.
- The data can be viewed in two unique and distinct graph styles.



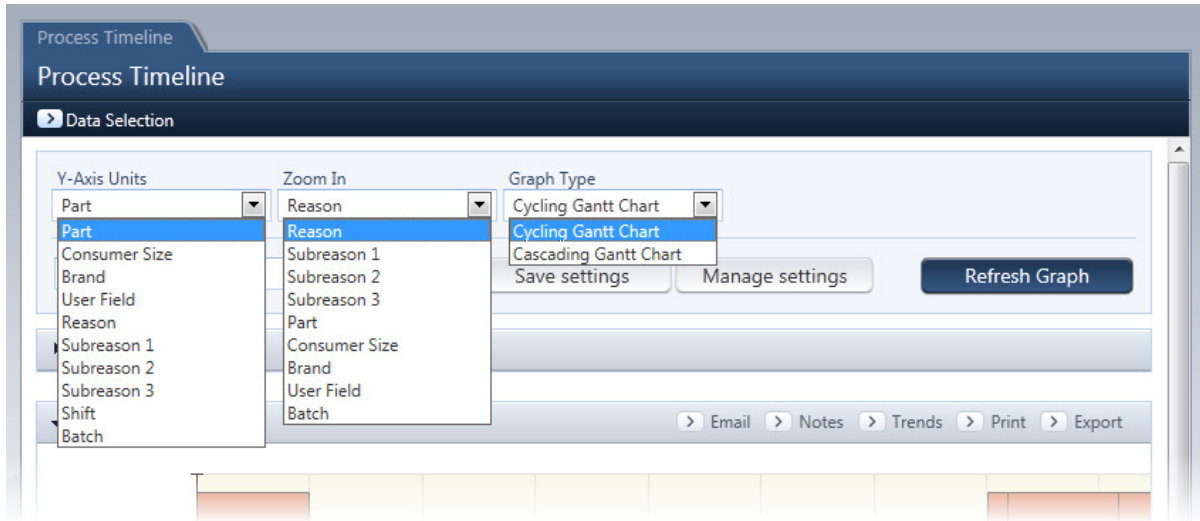


Figure 49: Process Timeline Advanced Toolbar

### What Does the Data Mean?

The **Process Timeline** is a useful tool for looking at the sequence of events over time. Activities mapped onto the graph may indicate the frequent occurrence of certain activities compared to others. Events may be interdependent if certain downtime events always follow in sequence. The folder views activity time lengths and timings of continuous event occurrences.

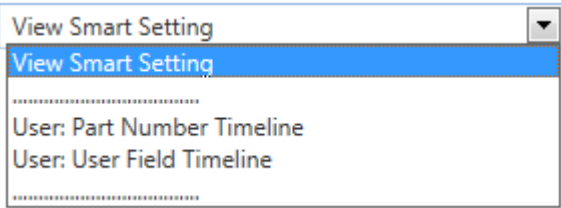
### Why Use It?

The Process Timeline is useful to answer questions regarding the sequence of events. Analysis questions regarding the process will most likely be answered here, for instance,

- What was the time interval in which a certain part was run? How long did it run in comparison to other parts?
- What downtime reasons appeared more than others for a queried time of data?
- What was the sequence of these downtime reasons?
- What parts were associated with these reasons? (Drill down by part option)
- By viewing the data across a time horizon, complications after set up and model changeover can be visually identified.
- Often one downtime reason will trail another. This sequence can be shown graphically and clearer by limiting reason selection to just the relevant reasons.

## Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Process Timeline include the following:

- Part Number Timeline- This gives the user the ability to see the sequence and duration of production runs by part number or SKU.
- User Field Timeline- The sequence and duration of your various User values.

## Quality Summary

### Overview

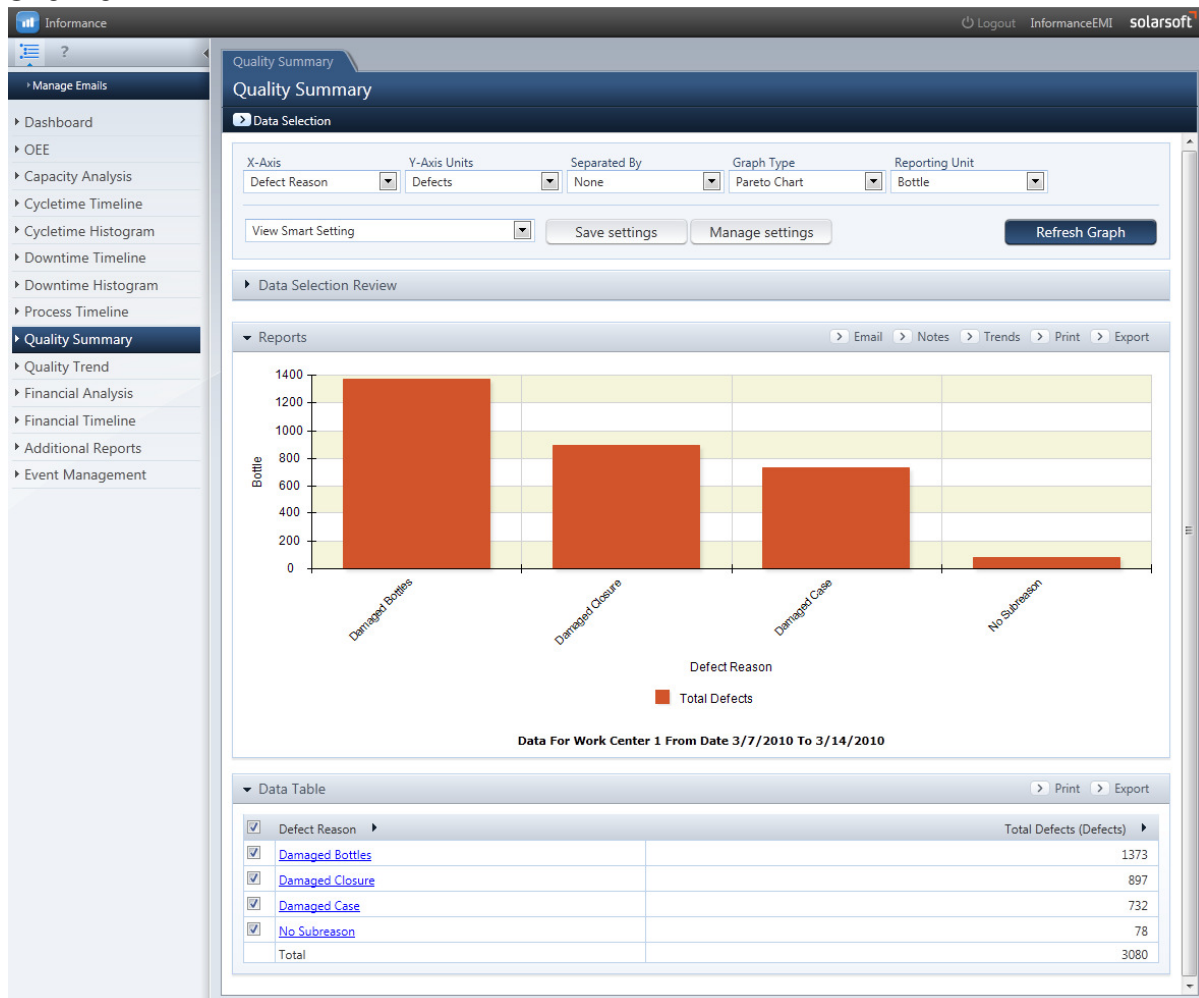


Figure 50: Quality Summary Tab

The Quality Summary folder provides defect information displayed by Defect Reason, Defect Subreason, or Defect Reason and Subreason. The default view shows defect distribution by Defect Reason for the queried time period. Defects can be displayed in various units of measure including defect count, defect % of total defects, and defect % of total production. Also, comparisons can be made between a number of standard Separated By options shared previously.

Each section of the pareto chart above represents the total defects that fall into each defect reason category. Using the drill-in/drill-out feature, you may left-click on any section of the pie chart to see how that portion breaks out into its subreasons.

The *Advanced Toolbar* options in the Quality Summary section are displayed below:

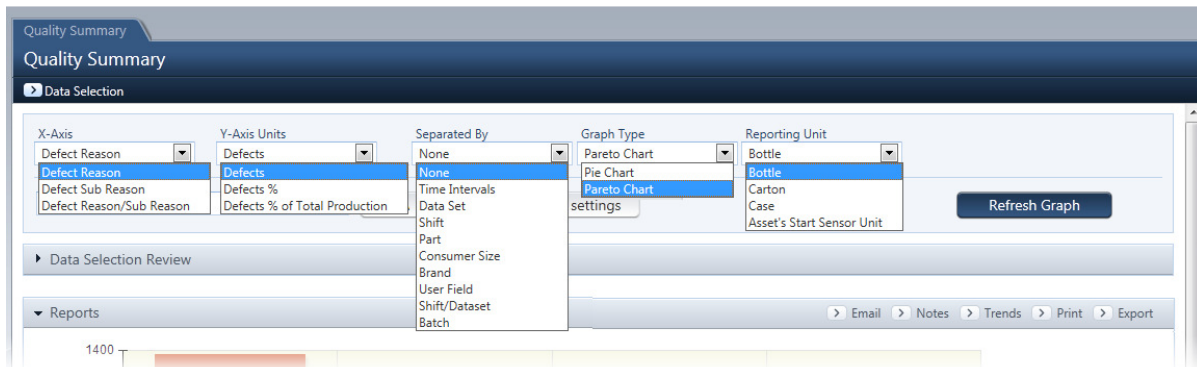
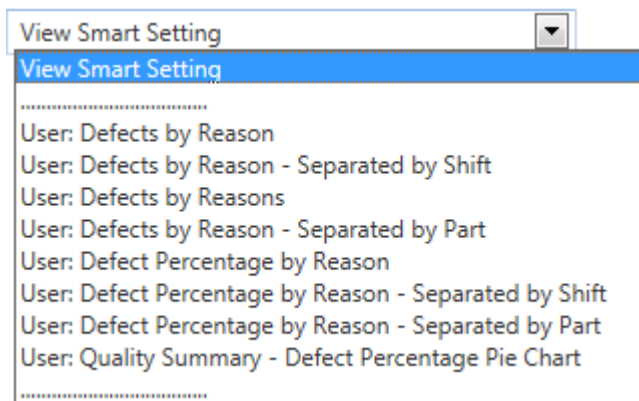


Figure 51: Quality Summary Tab Advanced Toolbar

### Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Quality Summary tab include the following:

- Defects by Reason – A view of all defects grouped by Reason
- Defects by Reason, Separated by Shift – A view of all defects grouped by Reason and color coded by the Shift during which they were recorded.
- Defects by Reason, Separated by Part – A view of all defects grouped by Reason and color coded by Part tag.

- Defect Percentage by Reason – All defects grouped by reason and displaying the percentage of total defects represented.
- Defect Percentage by Reason – Separated by Shift – All defects grouped by reason and displaying the percentage of total defects, separated by the production shift
- Defect Percentage by Reason – Separated by Part - All defects grouped by reason and displaying the percentage of total defects separated by Part.
- Quality Summary - Defect Percentage Pie Chart – Pie chart displaying total percentage of defects, broken out by defect reason.

## Quality Trend

### Overview

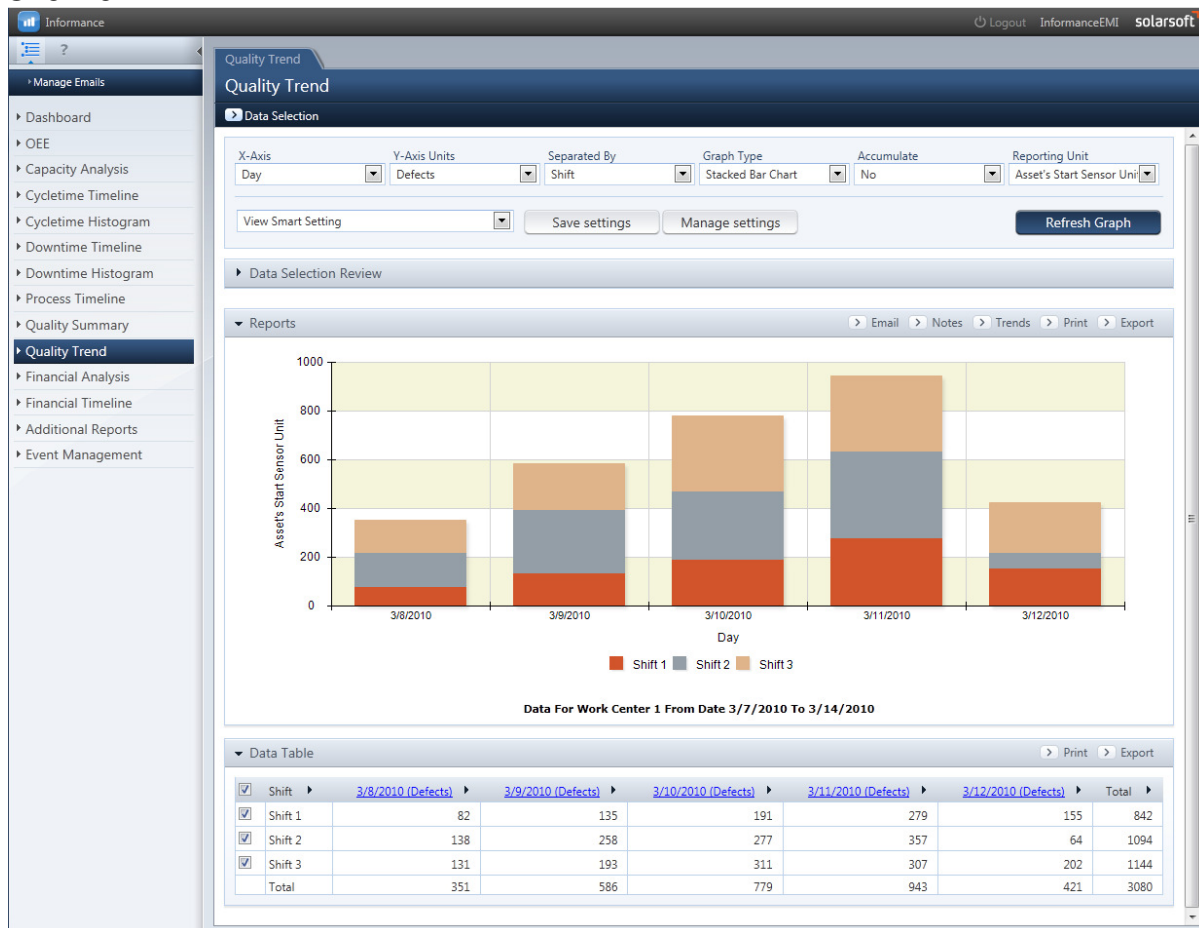


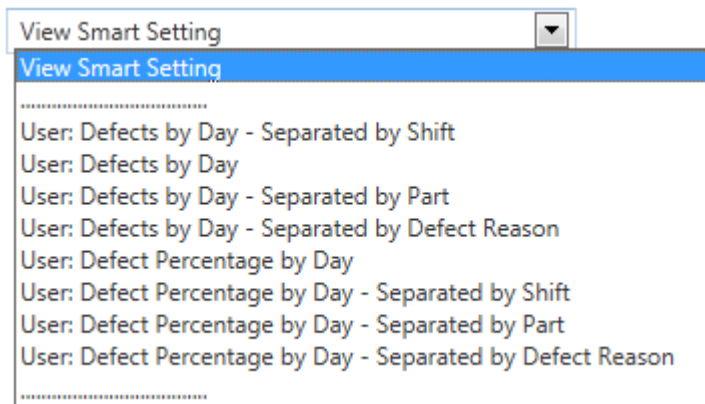
Figure 52: Quality Trend Tab

The **Quality Trend** Section provides defect results along a timeline (hour, day, week, month, year) to indicate when the losses occurred and the loss trend. The default chart will show total defect counts by day and separated by shift for the selected time period. Defects can be displayed in various units of measure including defect count, defect % of total defects, and defect % of total production. Also, comparisons can be made between a number of standard Separated By options shared previously.

Drill-in capabilities will vary depending upon the method of defect tracking being used. If you are using the defect branch approach, you will be able to view timelines down to the hour. For the Manual and Start/End approaches, the smallest resolution available will be the daily view. Because these approaches only record data by shift, the hourly totals will not be available.

### Standard Smart Settings

The smart settings can be accessed by clicking on the **View Smart Setting** drop-down box in the upper left corner of the screen.



The standard smart settings for the Quality Trend include of the following:

- Defects by Day – Daily totals of defect counts
- Defects by Day, Separated by Shift – A view of daily defect counts, color coded by shift.
- Defects by Day, Separated by Part – A view of daily defect counts, color coded by Part
- Defects by Day, Separated by Reason – A view of daily defect counts, color coded by Defect Reason
- Defect Percentage by Day – Daily defect percentage of total defects for the report time period.
- Defect Percentage by Day – Separated by shift - Daily defect percentage of total defects for the report time period, color coded by shift.
- Defect Percentage by Day – Separated by Part – Daily defect percentage of total defects for the report time period, color coded by part
- Defect Percentage by Day – Separated by Reason – Daily defect percentage of total defects for the report time period, color coded by defect reason.

## Financial Analysis Add-On Module

## Overview

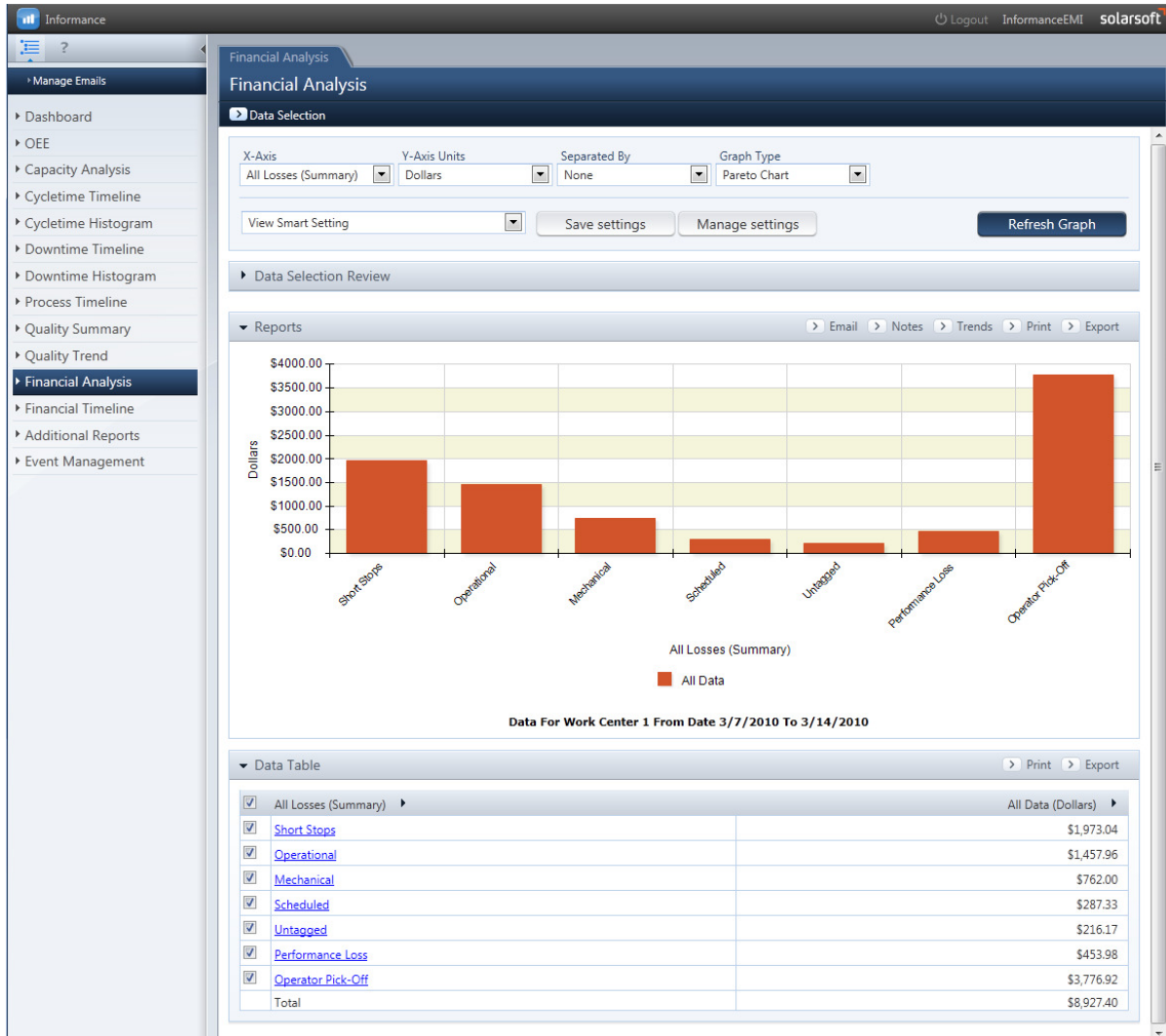


Figure 53: Financial Analysis Tab

The **Financial Analysis** tab allows you to analyze how performance, availability and quality losses affect your company's bottom line. The default chart displays all financial losses over the time period separated by downtime super reason, speed loss, and quality loss

You can also drill in to display the losses on all reason and subreason levels.

The *Advanced Toolbar* options in the Financial Analysis section are displayed below:

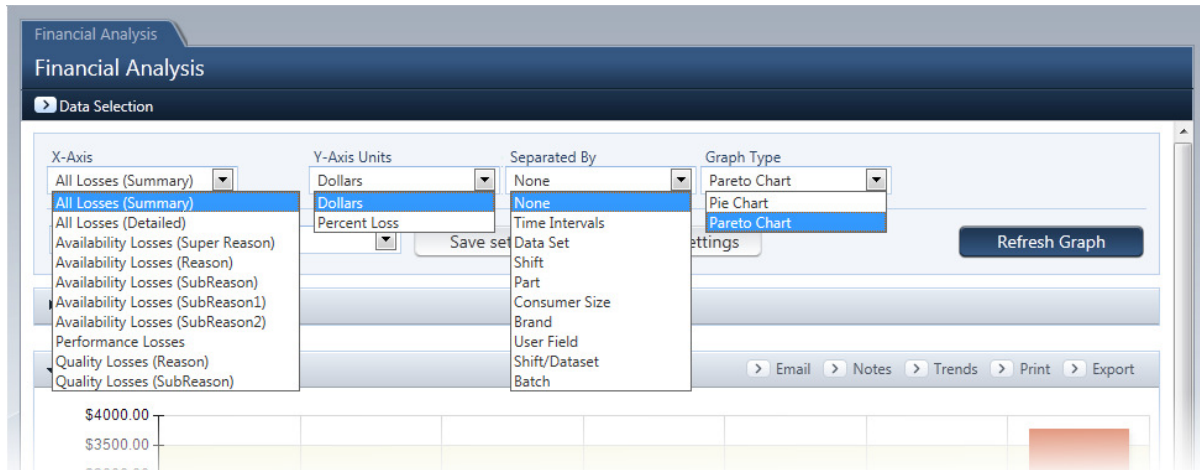


Figure 54: Financial Analysis Advanced Toolbar

The folder can be configured in several different ways.

- **X-Axis:** A summary (super reason, performance/speed loss, and quality loss level) or detailed (reason level, performance/speed loss, and quality loss reasons) display of losses can be viewed. Availability losses can be displayed by super reason, reason or by subreason (levels 1, 2 or 3). You can also display only performance losses or quality losses at the reason or subreason level.
- **Y-Axis Units:** Losses can be displayed as a dollar value or as a loss percentage.
- **Separate By:** The data can be separated by None (no separation will occur), Time Interval (useful for before and after improvement comparisons), Data Set (i.e. line / machine / asset), Shift, Part, User Field, Shift / Data Set, hierarchy categories, as well as any of your additional fields.
- **Graph Type** – data can be displayed in a pie chart or pareto chart.

# Financial Timeline Add-On Module

## Overview

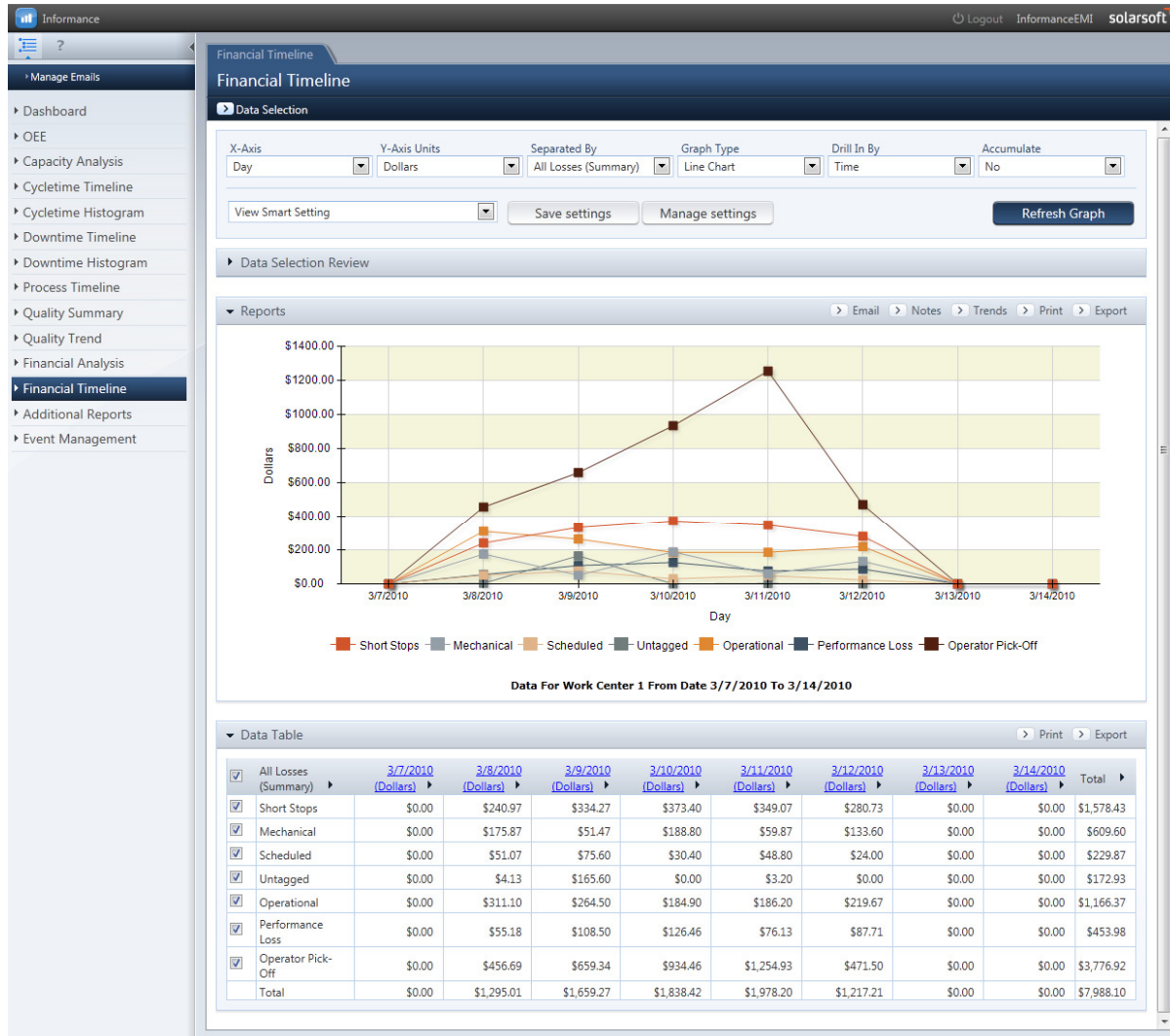


Figure 55: Financial Timeline Tab

The **Financial Timeline** tab contains information about the financial losses and sequence of loss events for the time period selected by the Data Selection Query. This information in this folder is useful when analyzing the financial effects of quality, availability and performance losses over time in order to determine which time periods and reasons have the greatest financial impact and is there a positive or negative trend.



The *Advanced Toolbar* options in the Financial timeline section are displayed below:

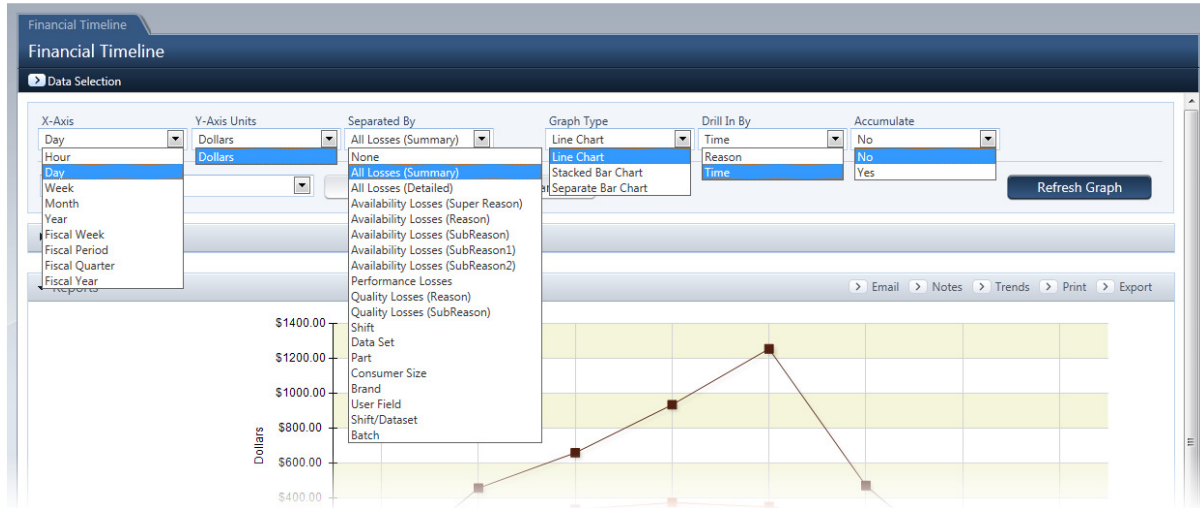


Figure 56: Financial Timeline Advanced Toolbar

The folder can be configured in several ways:

- **X-Axis:** Losses can be viewed by time period (hour, day, week, month or year) or by fiscal time period (fiscal week, period, quarter or year).
- **Separated By:** The data can be separated by None (no separation will occur), all losses at a summary level (super reason, performance/speed loss, and quality loss level), or all losses at a detailed level (reason level, performance/speed loss, and quality loss reasons). Availability losses can be displayed by super reason, reason or by subreason (levels 1, 2 or 3). You can also display only performance losses or quality losses at the reason or subreason level. Data can also be separated by Data Set (i.e. line / machine / asset), Shift, Part, User Field, Shift / Data Set, hierarchy categories, as well as any of your additional fields.
- **Graph Type:** Data can be viewed using three different graph styles.
- **Drill In By:** Choose to drill into levels of data by time or by reason. Reason is only available as an option if the Separated By value is an All Losses, Availability Losses or Quality Losses type.
- **Accumulate:** Data can be accumulated.

## Additional Reports

This section contains primarily text based reports based on the queried data as well as general settings and preferences reports. In this section you will find a report selection drop-down box and a Display button which are used to generate the different reports. The report itself will appear in the **Report Display** section below.

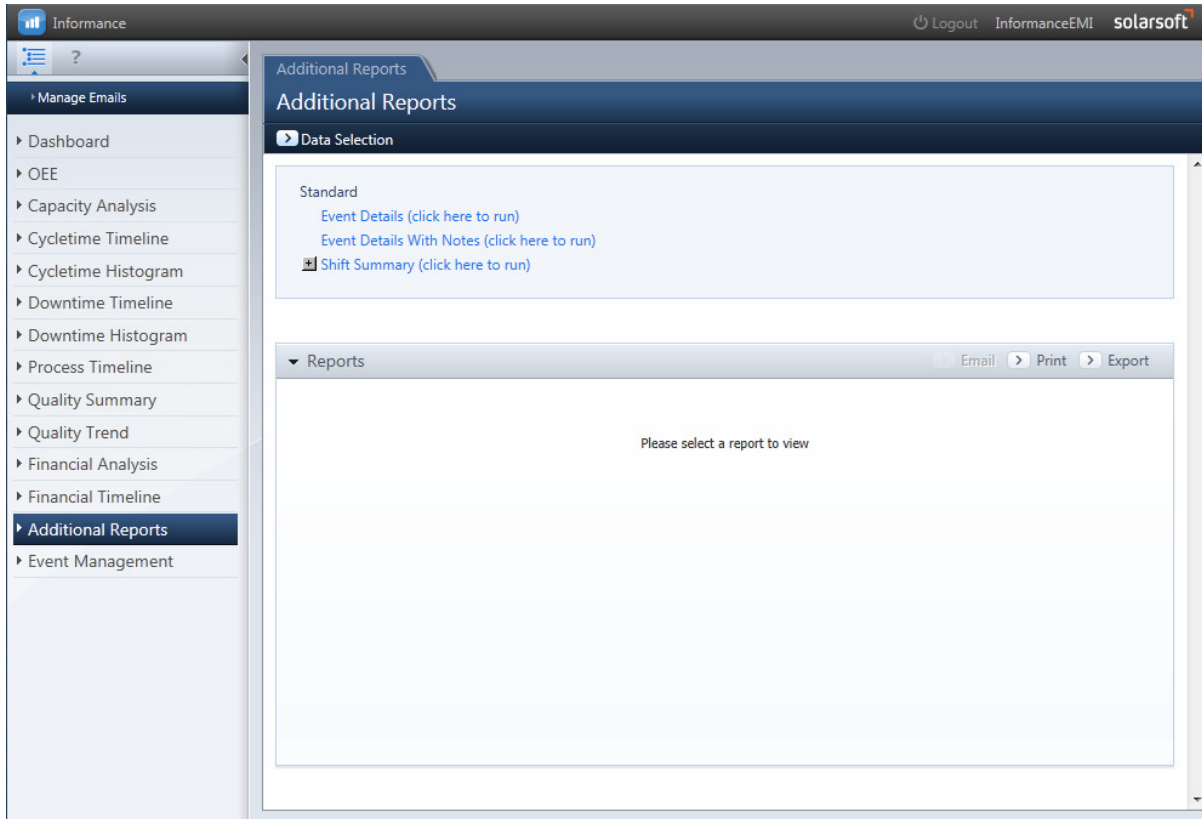
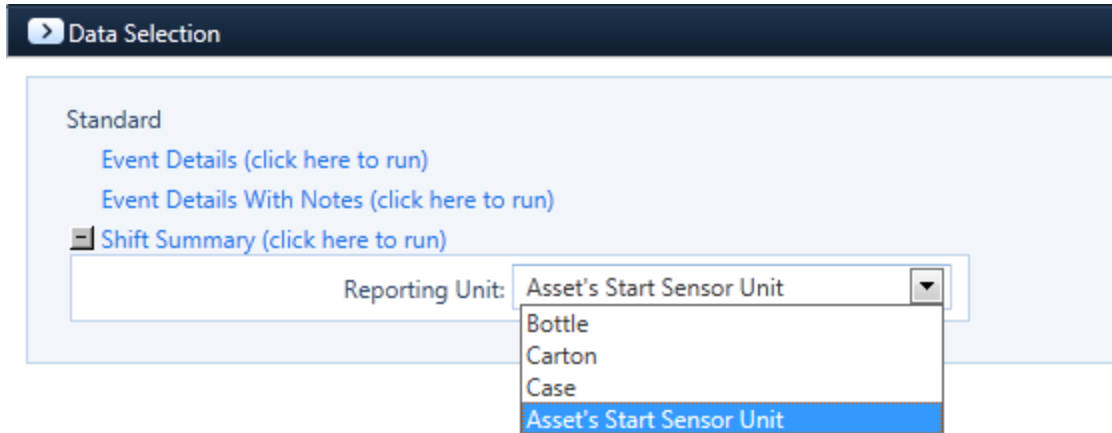


Figure 57: Initial Appearance of Additional Reports Tab

To display a report, simply click the report link in the Data Selection panel at the top of the window.

Some reports may support additional sort or units options. A checked box (  ) will appear to the left of the report link indicating that additional options are available. Click the box to display any other configuration options that can be selected for the report.



## Event Details

The Event Details Report is a text report of all individual event records from the current data selection. It can be used for detailed downtime reason investigation at the lowest level of data, the event itself. For instance, trying to outline in text form all the specific times a certain reason (i.e., Setup) occurred over a particular week or day and which parts were running during this occurrence.

To clearly differentiate between event types, the report presents all uptime events in green, all minor downtime events in gold and all major downtime events in red. If multiple assets have been selected, the data will be grouped by asset with a gray header marking each new asset section. For each asset grouping, the events will be listed chronologically by the date and then start time of the event. The dates shown are based on defined production days as configured in system administration. Thus, if your defined production day configuration is 6 a.m. to 6 a.m. (assume two 12 hr. shifts) then that full 24 hr. time period will be displayed as the same date for that production period.

In addition to the start time, this report also provides the length or duration (in decimal minutes), all four reason levels as well as the Part and User Field tag. If a note was entered for a downtime event it will appear immediately below the event record. Hierarchy categories and Additional Field tags are not included in this report.

▼ Reports ▶ Email ▶ Print ▶ Export

⏪ ⏩ 1 / 45 100%

### Event Details solarsoft<sup>7</sup>

DateTime	Length	Reason	SubReason	SubReason1	SubReason2	Part	User
<b>Work Center 1</b>							
3/8/2010 10:00:00PM	12.00	Start/End of Shift				64oz Brand A	Alex
3/8/2010 10:12:00PM	18.32	Uptime				64oz Brand A	Alex
3/8/2010 10:30:19PM	2.07	Labeler				64oz Brand A	Alex
3/8/2010 10:32:23PM	25.53	Uptime				64oz Brand A	Alex
3/8/2010 10:57:55PM	1.07	Cartoner	Package Jam			64oz Brand A	Alex
3/8/2010 10:58:59PM	0.27	Uptime				64oz Brand A	Alex
3/8/2010 10:59:15PM	3.07	Filler	Infeed Conveyor			64oz Brand A	Alex
3/8/2010 11:02:19PM	23.73	Uptime				64oz Brand A	Alex
3/8/2010 11:26:03PM	4.27	Waiting on ...	Labels/Packaging			64oz Brand A	Alex
<i>No staff in warehouse</i>							
3/8/2010 11:30:19PM	10.53	Uptime				64oz Brand A	Alex
3/8/2010 11:40:51PM	8.53	Labeler	Glue System			64oz Brand A	Alex
3/8/2010 11:49:23PM	4.27	Uptime				64oz Brand A	Alex
3/8/2010 11:53:39PM	1.20	Labeler	Label mis-feed			64oz Brand A	Alex
3/8/2010 11:54:51PM	1.47	Uptime				64oz Brand A	Alex

Figure 58: Event Details Report

## Event Details with Notes

The Event Details with Notes report is nearly identical to the Event Details Report. However, it displays only those events where Notes have been entered. All uptime events are filtered out of this report as well as any downtime events within your selected timeframe that do not have attached notes.

Shift Summary (click here to run)

Reports [Email] [Print] [Export]

1 / 1 100%

### Event Details With Notes solarsoft

DateTime	Length	Reason	SubReason	SubReason1	SubReason2	Part	User
<b>Work Center 1</b>							
3/8/2010 11:26:03PM	4.27	Waiting on ...	Labels/Packaging			64oz Brand A	Alex
<i>No staff in warehouse</i>							
3/8/2010 2:27:55AM	2.80	Capper	Other Mechanical			64oz Brand A	Alex
<i>Cap torque too low</i>							
3/8/2010 8:15:15AM	2.93	Filler	Other Mechanical			64oz Brand A	Arthur
<i>Fill nozzle mis-aligned</i>							
3/9/2010 8:18:51AM	4.27	Filler	Other Mechanical			48oz Brand A	Arthur
<i>Low air pressure</i>							
3/9/2010 3:50:19PM	1.20	Labeler	Other Mechanical			48oz Brand A	Ann
<i>Glue nozzle clogged</i>							
3/9/2010 3:52:27PM	2.13	Labeler	Other Mechanical			48oz Brand A	Ann
<i>Glue nozzle clogged</i>							
3/9/2010 7:11:47PM	5.20	Waiting on ...	Labels/Packaging			48oz Brand B	Ann
<i>No staff in warehouse</i>							
3/9/2010 9:18:35PM	11.87	Filler	Other Mechanical			48oz Brand B	Ann
<i>Fill nozzle mis-aligned</i>							
3/11/2010 10:34:47PM	12.47	Capper	Other Mechanical			64oz Brand B	Alex
<i>Motor overload</i>							
3/11/2010 4:48:19AM	4.13	Labeler	Other Mechanical			64oz Brand B	Alex

Figure 59: Event Details with Notes Report

## Shift Summary

This report organizes basic production information by shift. It lists the number of cycles recorded, uptime minutes, downtime minutes, and percent availability/utilization with daily totals. The information is grouped by asset with a grand total listed for each.

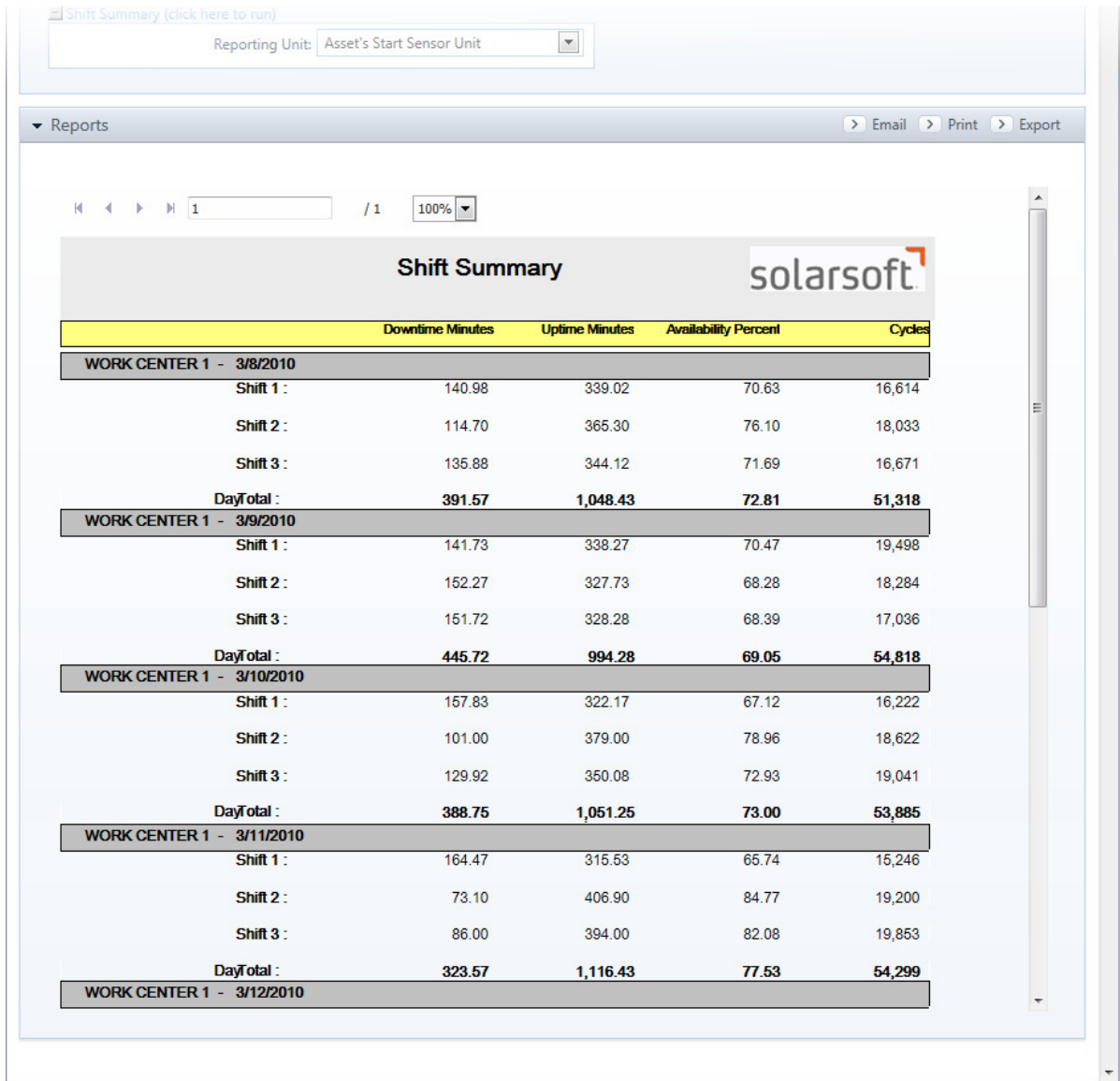


Figure 60: Shift Summary Report

# Event Management

Along with the hundreds of pre-configured charts and graphs, Informance also provides views of the raw data stored in the database. The **Event Management** section contains the sequential uptime, downtime and defect event records as well as production totals by day and shift.

Based on a user's permission level they will have view only capabilities or view and edit capabilities.

The information in Event Management at any given moment is reflective of your *Data Selection* query. Please review the chapter on *Data Selection* earlier in this guide for more details.

## Day/Shift Totals

The default view when first entering the Event Management section is a summary of cycles, uptime hours, downtime hours, total hours and defects by day.

The screenshot shows the Informance Event Management interface. On the left is a navigation menu with options like Dashboard, OEE, Capacity Analysis, etc., and 'Event Management' is selected. The main area displays a table titled 'Event Management' with a 'Data Selection' dropdown. The table has columns for Date, Production (Cycles, Uptime Hours, Downtime Hours, Total), and Defects (Collected By, Count). The data is for 'WORK CENTER 1' and covers dates from 3/8/2010 to 3/12/2010.

Date	Production				Defects	
	Cycles	Uptime Hours	Downtime Hours	Total	Collected By	Count
WORK CENTER 1						
3/8/2010	51318 Bottle	17.47	6.53	24	Various	351 Bottle
3/9/2010	54818 Bottle	16.57	7.43	24	Various	586 Bottle
3/10/2010	53885 Bottle	17.52	6.48	24	Various	779 Bottle
3/11/2010	54299 Bottle	18.61	5.39	24	Various	943 Bottle
3/12/2010	61251 Bottle	18.52	5.48	24	Various	421 Bottle

Figure 61: Event Management Day/Shift Totals

Clicking on any listed day will expand the record to show totals for each defined shift within that day.

Date	Cycles	Uptime Hours	Downtime Hours	Total	Collected By	Count																																																								
3/8/2010	51318 Bottle	17.47	6.53	24	Various	351 Bottle																																																								
<table border="1"> <thead> <tr> <th colspan="4">PRODUCTION</th> <th colspan="3">DEFECTS</th> </tr> <tr> <th>Shift</th> <th>Cycles</th> <th>Uptime Hours</th> <th>Downtime Hours</th> <th>Total</th> <th>Collected By</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>16614 Bottle</td> <td>5.65</td> <td>2.35</td> <td>8</td> <td></td> <td><a href="#">▶ Details</a></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Manual Entry</td> <td>82 Bottle</td> </tr> <tr> <td>2</td> <td>18033 Bottle</td> <td>6.09</td> <td>1.91</td> <td>8</td> <td></td> <td><a href="#">▶ Details</a></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Manual Entry</td> <td>138 Bottle</td> </tr> <tr> <td>3</td> <td>16671 Bottle</td> <td>5.74</td> <td>2.26</td> <td>8</td> <td></td> <td><a href="#">▶ Details</a></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Manual Entry</td> <td>131 Bottle</td> </tr> </tbody> </table>							PRODUCTION				DEFECTS			Shift	Cycles	Uptime Hours	Downtime Hours	Total	Collected By	Count	1	16614 Bottle	5.65	2.35	8		<a href="#">▶ Details</a>						Manual Entry	82 Bottle	2	18033 Bottle	6.09	1.91	8		<a href="#">▶ Details</a>						Manual Entry	138 Bottle	3	16671 Bottle	5.74	2.26	8		<a href="#">▶ Details</a>						Manual Entry	131 Bottle
PRODUCTION				DEFECTS																																																										
Shift	Cycles	Uptime Hours	Downtime Hours	Total	Collected By	Count																																																								
1	16614 Bottle	5.65	2.35	8		<a href="#">▶ Details</a>																																																								
					Manual Entry	82 Bottle																																																								
2	18033 Bottle	6.09	1.91	8		<a href="#">▶ Details</a>																																																								
					Manual Entry	138 Bottle																																																								
3	16671 Bottle	5.74	2.26	8		<a href="#">▶ Details</a>																																																								
					Manual Entry	131 Bottle																																																								
3/9/2010	54818 Bottle	16.57	7.43	24	Various	586 Bottle																																																								
3/10/2010	53885 Bottle	17.52	6.48	24	Various	779 Bottle																																																								
3/11/2010	54299 Bottle	18.61	5.39	24	Various	943 Bottle																																																								
3/12/2010	61251 Bottle	18.52	5.48	24	Various	421 Bottle																																																								

Figure 62: Expanded View of Day/Shift Totals

In this expanded view you will also have links to **View Details** in the right column for each shift.



## View Details

Clicking the **Details** link for any listed shift will generate a sequential list of all uptime, downtime and defect events within a pop-up window. The events are color coded to easily identify uptime (light green), minor downtime (orange), major downtime (red) and defects (dark green). By default the defect data will be summarized at the bottom of each detail view.

Work Center 1 - 3/8/2010 - Shift1

Exclude Downtime  Exclude Uptime  Exclude Defects

Uptime Minor Downtime Major Downtime Defect

Start	Part	User	Batch	Type	Cycles	Length	Reason	SubReasonLevel1	SubReasonLevel2	SubReasonLevel3
3/8/2010 6:00:00 AM	64oz Brand A	Arthur	83646	DT	0 Bottle	0:05:15	Start/End of Shift			
3/8/2010 6:05:15 AM	64oz Brand A	Arthur	83646	UP	656 Bottle	0:13:28	Uptime			
3/8/2010 6:18:43 AM	64oz Brand A	Arthur	83646	DT	0 Bottle	0:01:36	Filler	Bottle Jam		
3/8/2010 6:20:19 AM	64oz Brand A	Arthur	83646	UP	702 Bottle	0:14:24	Uptime			
3/8/2010 6:34:43 AM	64oz Brand A	Arthur	83646	DT	0 Bottle	0:01:44	Labeler	Bottle Jam		
3/8/2010 6:36:27 AM	64oz Brand A	Arthur	83646	UP	104 Bottle	0:02:08	Uptime			
3/8/2010 6:38:35 AM	64oz Brand A	Arthur	83646	DT	0 Bottle	0:00:48	Capper	Cap Jam in Chute		

Tag Part/User Tag Reason Tag Defect Edit Note Tag Additional Fields

OK

Figure 63: Day/Shift Totals Detail View

The following data is provided for each recorded event in the details view:

- Start date and time of the event
- Part tag
- User Field tag
- Additional fields tags (ex. Batch number)
- Event Type (Uptime, Downtime, Defect)

For each uptime and down downtime entry, the following information is displayed:

- Number of cycles recorded during the event (Uptime only)
- Length of the event in HH:MM:SS format
- Reason/Sub-Reason1/Sub-Reason2/Sub-Reason3 tag (Downtime only)
- Notes

For each defect entry, the following information is displayed:

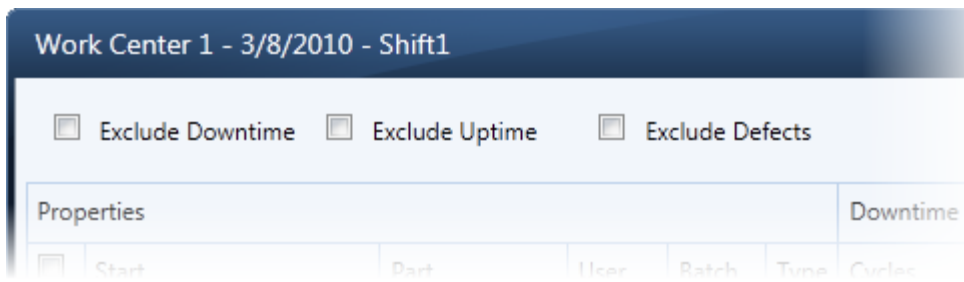
- Defect part count
- Reason/Sub-Reason for defect
- Collected by (method used to collect defect information)

You will also note that the asset, date and shift during which these events were recorded are always listed in details window header.

### Filtering the Details List

The Details view can be further filtered to exclude event types that are not of interest.

- To exclude all downtime events, check the Exclude Downtime checkbox.
- To exclude all uptime events, check the Exclude Uptime checkbox.
- To exclude all defects entries, check the Exclude Defects checkbox.



The Details view will then be refreshed with these excluded events removed.

### Editing - Block Tagging

Block tag editing allows you to change the tag for a range of events within Informance, such as part and user fields, downtime reasons or defect reasons.

Depending upon the configuration of your Informance system, tagging Reason, Part or User Field may require specific permissions. If you do not see the tag buttons at the bottom of your details window, then your account has restricted permissions and you will not have access to these features

### Tagging Part/User Information

When editing the Part and User Field tag in the Event Management, you will typically be changing a range of records as opposed to a single miss-tagged record, although either is possible. To support this, Informance offers *Block Tagging* for a large selection of records.

You will note that each event record is preceded by checkbox which you can use to select it.

You can select all entries in the list by checking the checkbox under the Properties column header. To uncheck all entries in the list, uncheck the checkbox under the Properties column header.

A block tagging operation will apply to all checked records. After selecting the records you wish to tag, click the **Tag Part/User** button in the bottom left corner of the details window.

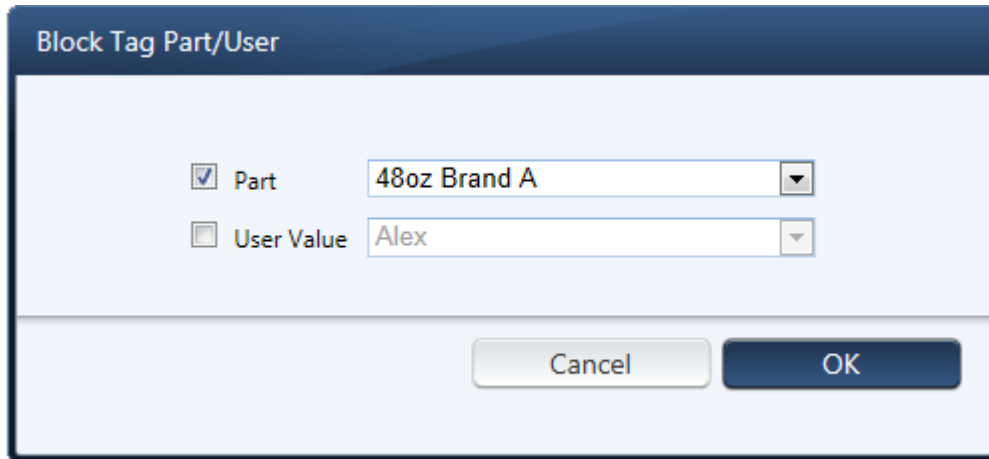


Figure 64: Block Tag Part/User Window

Simply check the box that corresponds to the tag category (or categories, if you wish to change more than one). Then pick the new tag value that you wish to apply.

Once your new tags are in place, click OK and then YES when asked to confirm the changes. The new tags will be applied and the data folder will reset to the first record. You can scroll back through the range to confirm your changes.

### Tagging Downtime Reasons

To block tag and change downtime reasons, check all downtime entries in the list and click the **Tag Reason** button.

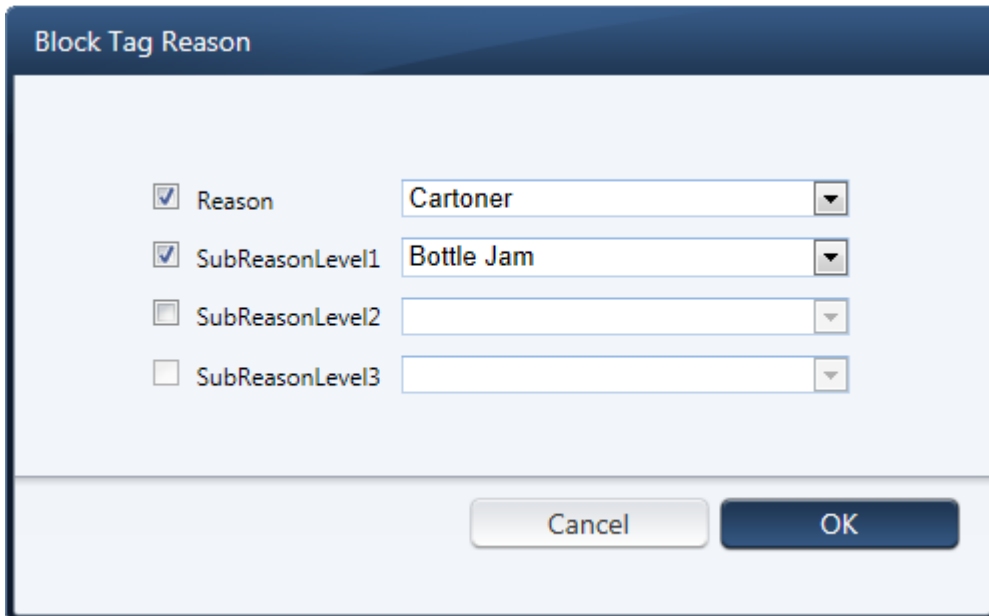


Figure 65: Block Tag Downtime Reasons

Place checkmarks beside the reason and or subreason level(s) you wish to tab.

Select the available option from the reason/subreason drop-down list. Available subreasons are based on the selection options on the higher reason levels.

Once all tags are in place, click OK and then click YES to confirm your changes. The tags will be applied.

If you wish to change a *Downtime Reason* for one or more events in the view details window, you must check only downtime records (those rows colored yellow or red). The software will not allow you to proceed with a reason change if your selection includes uptime and/or defect records.

### Tagging Defect Reasons

For defect entries, defect reasons can also be block tagged.

To do this, place checkmarks beside the defect entries you wish to tag in the list and click **Tag Defect**.

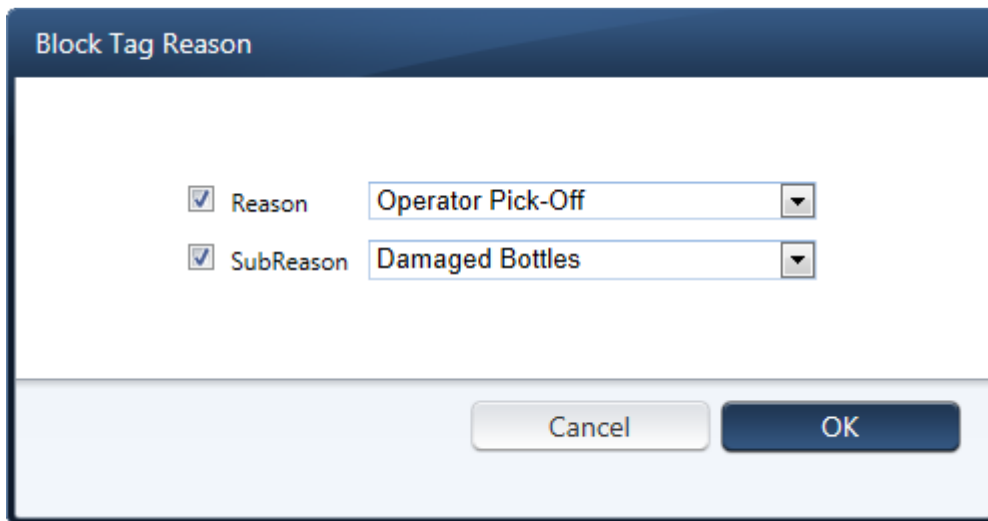


Figure 66: Block Tag Defect Reason Window

In the Block Tag Reason window, check the box beside the reason level you wish to tag.

Select the new reason or subreason from the drop-down list and click OK. In the confirmation window, click YES to confirm the changes.

### Tagging Additional Information

If your system has been configured with *Additional Fields* you can similarly make a block tag change to any of those fields.

Select the records you want to change then click the **Tag Additional Fields** button.

This is an example of the Block Tag Additional Fields window. Your window will contain the additional fields configured for your company.

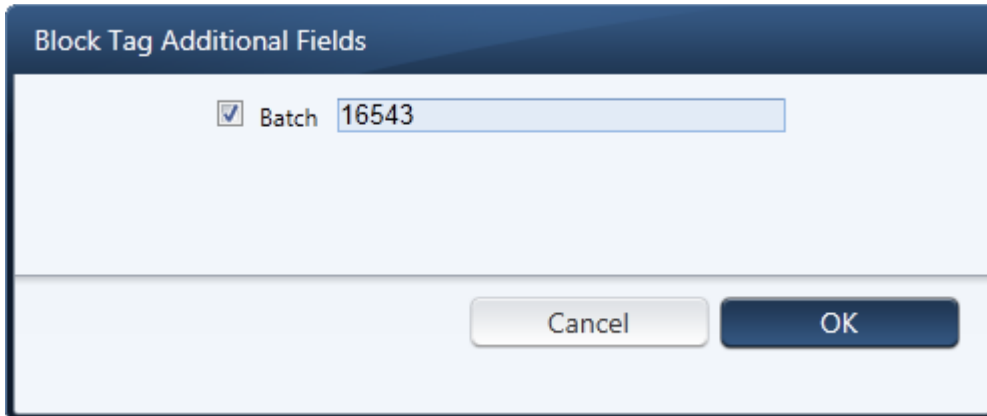


Figure 67: Block Tag Additional Fields Window

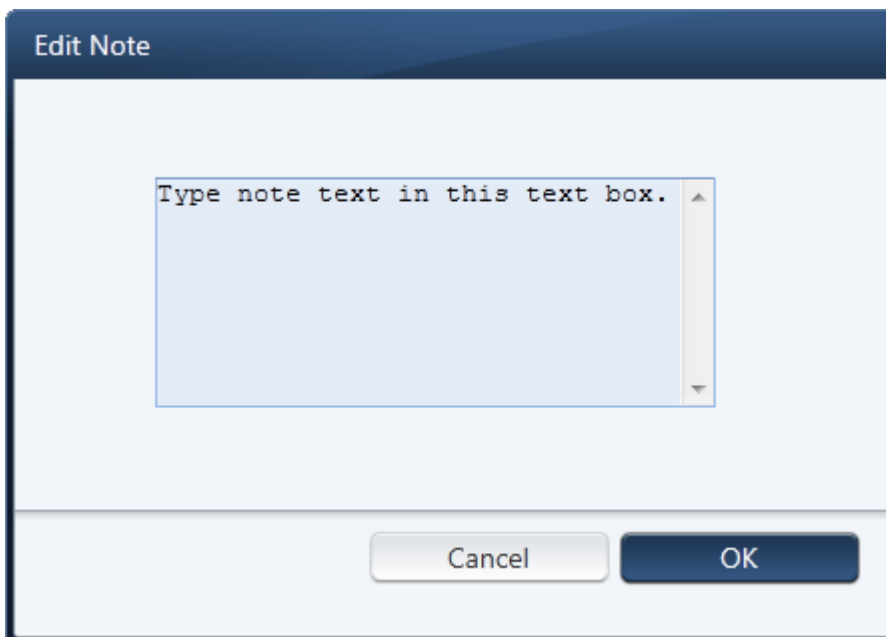
Check the checkboxes beside the additional field you want to change and enter the updated information. If your field is not driven from a pre-defined list then you will be prompted to manually key in the new tag.

Once your new tags are in place, click OK and then YES when asked to confirm the changes. The new tags will be applied and the data folder will reset to the first record. You can scroll back through the range to confirm your changes.

### Editing Notes

You can edit a note on a selected uptime or downtime entry.

Check the checkbox beside the entry you wish to edit and click the **Edit Note** button.



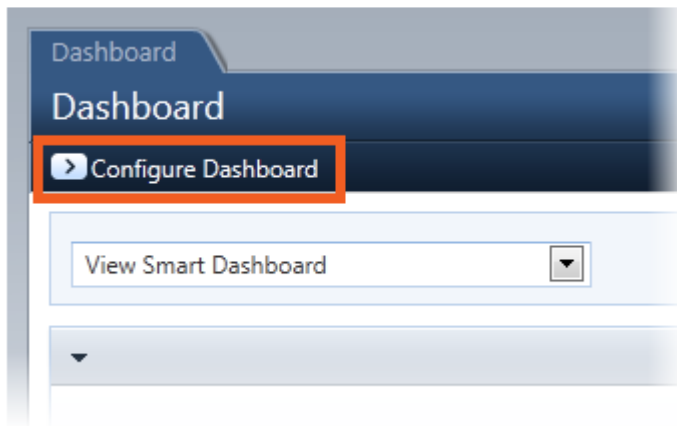
Click in the Text field and type the text the note should contain. Click **OK** to save your note.

## Configuring Smart Dashboards

Now that you have an understanding of the different analysis sections plus the Smart Settings and Smart Query features, you are ready to configure your dashboard. If you have not already defined at least one Smart Query, return to the data selection window and create one now. You will not be able to configure a dashboard position without it.

If you have configured only part of your dashboard or wish to modify the existing dashboard elements, the instructions below will also apply.

Click the **Configure Dashboard** link in the upper left to open the configuration window.



The Configure Dashboard window allows you to configure up to 10 different reports to be displayed within the dashboard.

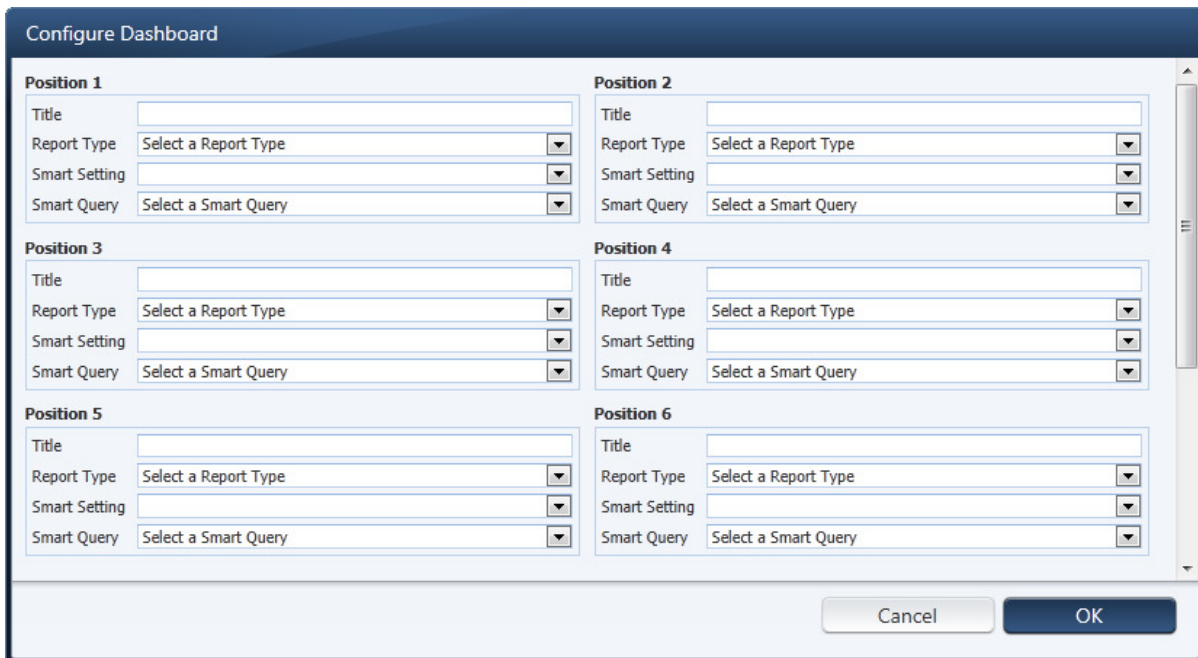


Figure 68: Configure Dashboard Window

The dashboard positions are displayed in the following order (For example, report 3 is displayed beneath report 1):

1	2
3	4
5	6
7	8
9	10

For each of the 10 dashboard positions, you must select a Smart Setting and Smart Query that will define the chart for that position. First choose the Report Type or Analysis Section where the Smart Setting is defined. The Report Type options are:

- OEE
- Capacity Analysis
- Cycletime Timeline
- Cycletime Histogram
- Downtime Timeline
- Downtime Histogram
- Process Timeline
- Quality Summary
- Quality Trend
- Financial Analysis
- Financial Timeline

Data from the **Additional Reports** or **Event Management** sections cannot be assigned to a dashboard position.

Once the Report Type is selected, the **Smart Setting** drop-down box will be populated with the list of choices from that section. Select the smart setting you wish to assign to the position and select a **Smart Query** to complete the definition. You should also enter a **Title** for the position that will appear above it in the Dashboard.

After you have defined the positions you wish to use, click the **Save** button in the lower left corner of the configuration screen to save your choices. The configuration window will then close and your new dashboard will be loaded.

You must define the Dashboard positions in order. If, for example, you define positions 1 and 3 without defining position 2; your entries for position 3 will automatically be moved up to 2.

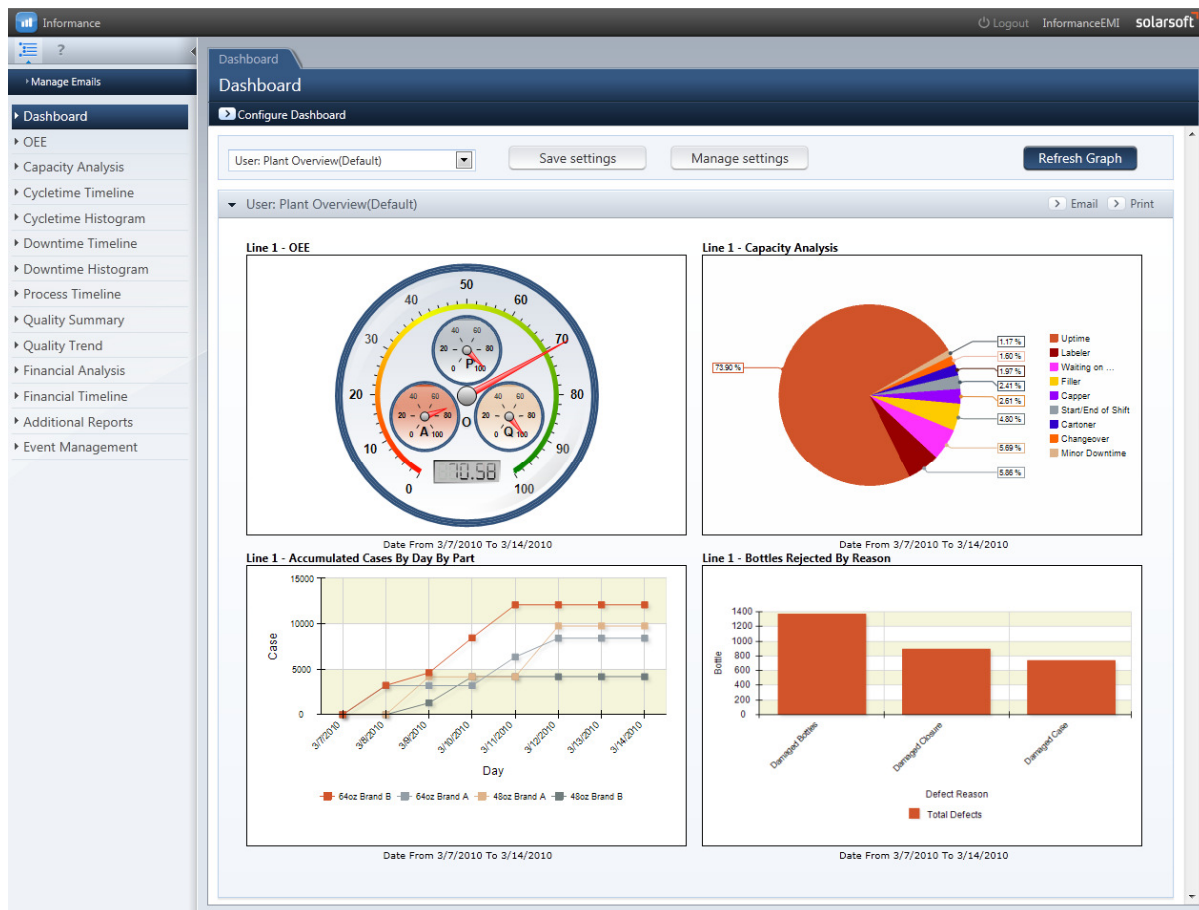


Figure 69: Example Dashboard with 4 Positions defined.

You may create multiple smart dashboards by clicking the **Configure Dashboard** button. In the Configure Dashboard window, you can make changes to the existing dashboard and click OK to close the dashboard. The changes will appear in the Dashboard them where you can verify the dashboard settings are





Once you have verified that the new dashboard appears correctly, click the **Save Settings** button to open the *Add Smart Dashboard* window.

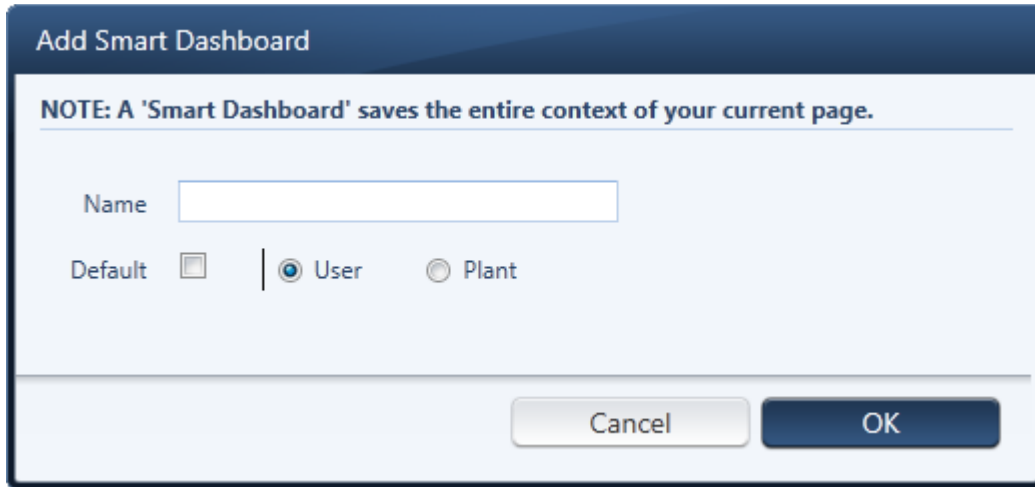


Figure 70: The Add New Dashboard Window

Within the *Add New Dashboard* pop-up, you will first enter a name for this new dashboard in the space provided. Check the *Default* checkbox if you want this to be the default dashboard loaded upon login then click the *Save* button to close the pop-up and save your new dashboard.

By default all new Dashboards are created as **User** dashboards such that they are only available to the current user. To publish a dashboard as a **Plant** dashboard and make it available to all users within the plant, you must have the proper permissions within plant reporting. Further, each chart within the dashboard must use a **Plant Smart Query** and either a **Plant or Enterprise Smart Setting**. A dashboard cannot be saved as a **Plant Dashboard** if any chart within uses a User Smart Query or User Smart Setting. When you attempt such you will be prompted upon saving if you would like to copy your User Smart Queries and Smart Settings to the Plant level.

## Appendix A: Roles and Security in Plant Reporting

Plant Reporting utilizes the Roles and Security scheme of the Informance system to enable and disable certain reporting features for different user groups. Each user or login for Plant Reporting is assigned a *Role* when their username is created. That role provides the user a certain level of access to the different reporting sections and features.

The security scheme for any Informance system is configured by the Informance services engineer upon installation. There is no limit on the number of roles that can be defined but at least one role is required - Administrator. The engineer will work with you to define a scheme that works best for your organization.

Below you will find detailed descriptions of each feature that can be enabled or disabled within Plant Reporting followed by a worksheet that you can use to define your scheme.

### Access to Analysis Sections and Additional Reports

The security system allows you to restrict access to any of the analysis sections for a given role. When access to a section is disabled, that tab will not be visible along the side of the Plant Reporting interface. Below is an example of what a user would see if the *Quality Summary* and *Quality Trend* sections were disabled for his/her role:

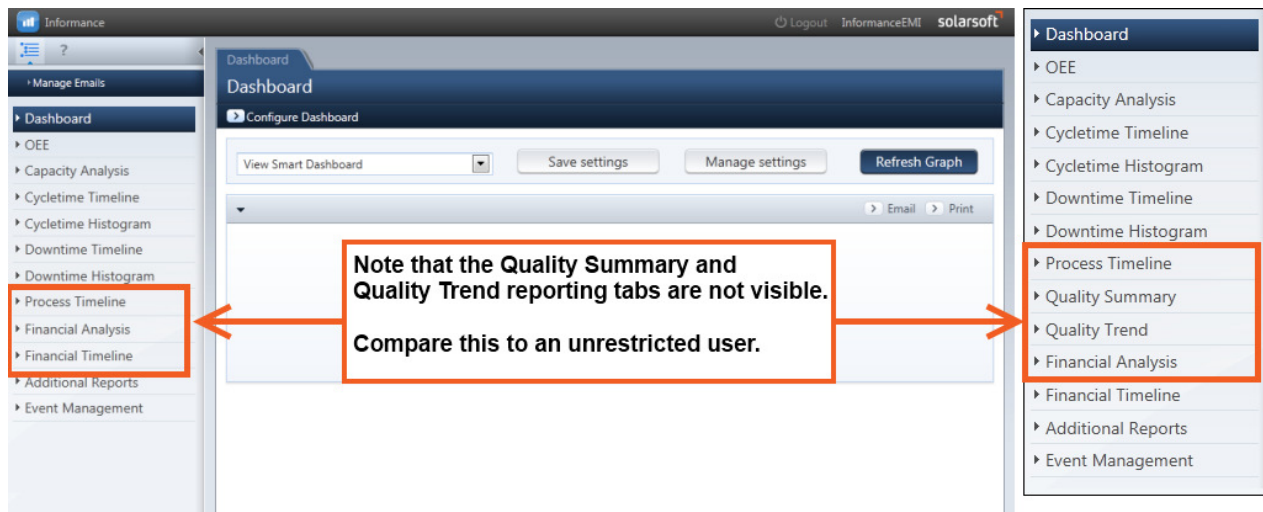


Figure 71: Security Access to Analysis Sections

All analysis sections can be disabled except the Dashboard. The Dashboard is a required tab for all roles.

Similarly, the list of available reports within the *Additional Reports* tab can be restricted by role. You may opt to disable certain reports for a role, in which case those users would simply not see them in the drop-

down list.

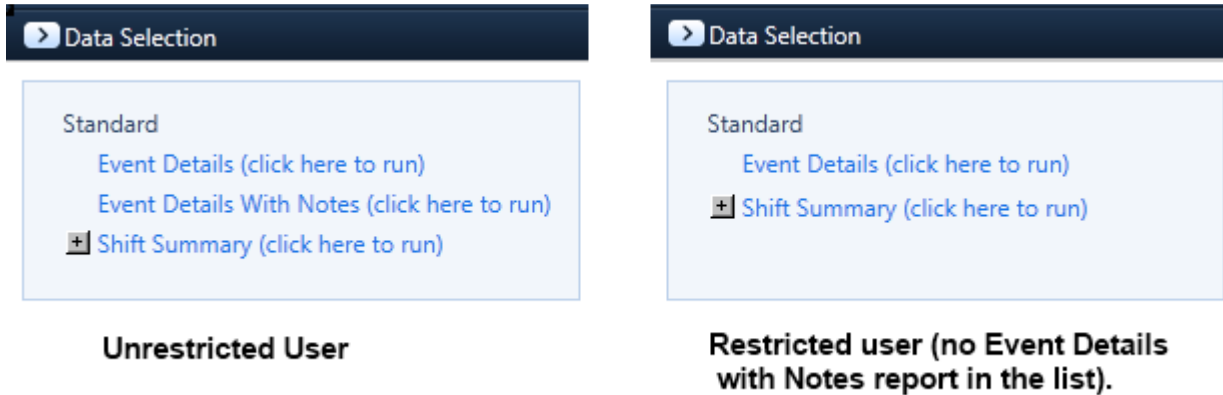


Figure 72: Security Access to Additional Reports

Disabling Analysis Sections or Additional Reports is typically done when there is a desire to focus a certain group of users on a specific type of analysis or if a section does not apply to your system. For example, customers who do not use Defect Tracking often opt to disable the quality sections as those reports would not yield any data.

## Dashboard Configuration

The ability to configure a Dashboard can be disabled as well. This does not remove the Dashboard tab from the interface, only the *Configure Your Dashboard* link in the upper left corner, thus the user cannot configure or edit their Dashboard.

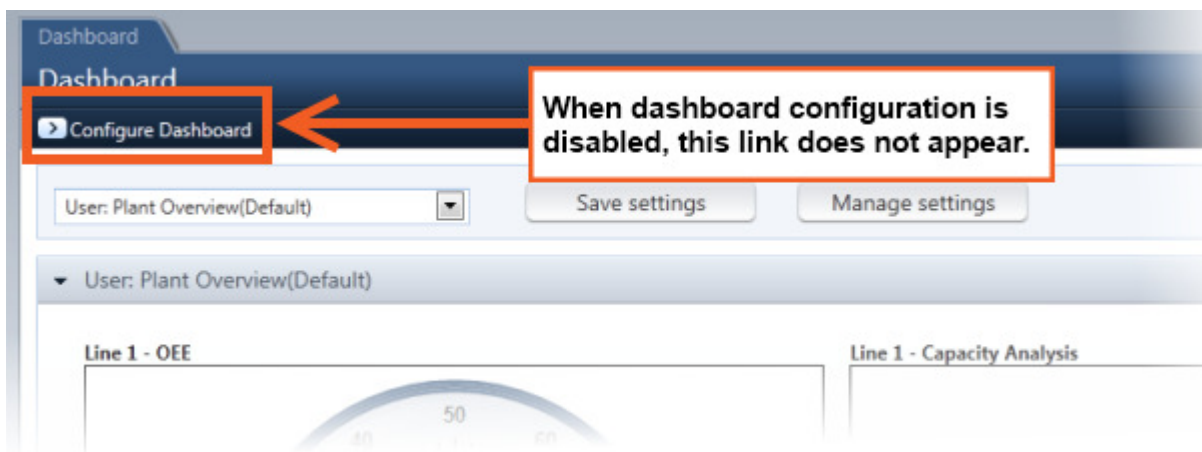


Figure 73: Dashboard Configuration Security Access

One reason why you may choose to disable Dashboard configuration for a role is when usernames within that role are shared among several analysts. In these cases, you could initially create the username at a higher level role such that a Dashboard can be configured. Once configured, the user would be demoted to lower level role which prevents further editing of the Dashboard. This way, every analyst who shares the username will have a consistent Dashboard to view and cannot accidentally alter it.


## Block Tagging

Block Tagging is a feature that is most commonly restricted for lower level roles. As this feature allows manipulation of the recorded data, it is typically disabled for the casual analyst. Block Tagging allows users to change the Reason, Part, User Field, or Additional Field tag of any record as well as enter Notes for any downtime event (see the Event Management chapter of this guide for more details). Within the event detail pop-up window for a given shift, a series of buttons are provided at the bottom to initiate the different block tagging options. When this feature is disabled, those buttons do not appear.

## Smart Queries / Smart Settings / Smart Dashboards

Although any user may define data selection *smart queries*, chart *smart settings* and in some cases *smart dashboards* for their own use, the ability to create *Plant* smart queries, *Plant* or *Enterprise* smart settings and *Plant* smart dashboards can be restricted to only certain roles. It is recommended that you restrict access of this feature to only those power users of plant reporting who can properly determine the smart queries and smart settings that are appropriate for shared use.

## Emails

The ability to configure and manage emails is also a function of the role a user has within Plant Reporting. For a restricted user, the email link (  Email ) will not be visible nor will the Manage Emails link.

## Security Worksheet

Use the worksheet below to define your security scheme. Along the top, enter a name above each column to serve as the Role name (Note: you do not need to use every column, only one role is required). Within that role column, place a checkmark for each feature that should be enabled for that role. A role called "Administrator" has been defined for you as an example.

### Informance Plant Reporting – Roles and Security Worksheet

Features	Enter Role names in the cells below						
	Administrator						
Access to Analysis Sections							
- OEE	X						
- Capacity Analysis	X						
- Cycletime Timeline	X						
- Cycletime Histogram	X						
- Downtime Timeline	X						
- Downtime Histogram	X						
- Quality Summary	X						
- Quality Trend	X						
- Additional Reports	X						
- Event Management	X						
- Financial Analysis (if applicable)	X						
- Financial Timeline (if applicable)	X						
Access to Additional Reports							
- Custom Reports (if applicable)	X						
- Event Details	X						
- Event Details with Notes	X						
- Shift Summary	X						
Allow Creation of <u>Plant</u> Smart Queries	X						
Allow Creation of <u>Plant</u> Smart Settings	X						
Allow Creation of <u>Enterprise</u> Smart Settings	X						
Allow Creation of <u>Plant</u> Smart Dashboards	X						
Allow Creation of Emails	X						
Allow Dashboard Configuration	X						
Allow Block Tagging	X						