DELMIAWorks

RealTime Production Monitoring

Release: 2022

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RealTime Production Monitoring

RealTime™ provides the core tools for the acquisition and disbursement of critical production data. RealTime™ turns your system into a *dynamic environment*, where actual production feedback is immediately made available to any person on the network with access to this module.

RealTime™ hardware is used to monitor production cycles and determine when work centers go down. The RealTime™ system can be set up as a Wired system or Wireless. With the hardware installed, every cycle of connected work centers can be counted. Each cycle is representative of the number of cavities or multipliers on the Bill of Manufacture running at the time. RealTime™ can also count rejected cycles. A rejected cycle must be preceded by a good cycle.

RealTime™ is *shift based*–that is, it automatically creates shift reports, providing maximum flexibility and speed when reporting shift production. Production reporting is easier because **EnterpriseIQ** fills in total cycles, good parts, and production hours for you. Production reporting is just a verification that the numbers are correct.

Machinery or work centers are connected to EnterpriseIQ through three basic hardware devices.

1. MIU or Machine Interface Unit

2. MMU or Machine Monitoring Unit (or RealTime™ Box)

3. Computer/ workstation, on your network

A Machine Interface Unit (MIU) is installed in each of the machine's control panels. Then for Wired RealTime™ , using a pair of wires it is connected to the MMU (this unit is also referred to as the RealTime™ Box or Machine Monitoring Unit) containing the RealTime™ Monitoring (RTM) boards. For Wireless RealTime™ , a wireless Machine Interface Unit (radio module) is used.

A signal is then sent from the MMU to a computer running the RTServer software. The RTServer software will update the Oracle data base in real time allowing EnterpriseIQ users to view the status of jobs running in connected work centers.

Note: If you have opted to run a Not Signaled RealTime™ system then hardware other than the RT computer is not required.

Why Use RealTime™ Monitoring?

The obvious benefit of RealTime™ production monitoring is that you can view at a glance how all presses are operating at any given moment. Color coded information tells you quickly and accurately how the press is performing, measured against the standard.

Some of the key features that RealTime™ supports include:

- **Executive Overview**--Shows four bar graphs that reflect current efficiencies of the entire plant such as machine utilization, unscheduled downtime, effective cycle and average scrap.
- **Machine Monitoring**--Allows the user to view the presses in several related views including: Work Orders, Part Numbers, Quality Control, Setup Control, Material Control, and Cycle/Part Counts.
- **Production Data Entry**--Allows the user to enter or edit scrap and downtime as they happen.

This section discusses the RealTime™ software set up as well as information on using the RealTime™ monitor on a daily basis.

Wired RealTime

The DELMIAworks wired RealTime™ system was designed to be as simple as possible. The signal between your work center and the MMU is a simple discrete off/on signal. A 5vdc current is supplied to the MIU from the MMU. The MIU solid state relays will return the current to the MMU when the work center cycles. The input is triggered when the signal goes from Off to On. The time the input is On or Off is not relative to the cycle, the cycle time is the time from On to On. The MMU's processor will detect which input has turned on and send the corresponding address that identifies the input and the work center. This address is then sent out from the MMU via the RS485 cable to the RealTime™ computer running RTServer. The MMU uses an RS485 signal that is sent by a pair of wires to a device known as an HT485 attached to the RealTime™ computer's COM port. This device converts the signal to RS232 so the computers COM port can accept the data. The RTServer software monitors the comport(s) (up to 4 COM ports) and reads, then processes addresses as they come in. The processed information is then stored on the Oracle server for retrieval by other computers running RealTime™ Monitoring.

For more information on Wired RealTime™ please refer to the ***RealTime Wired Installation https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Wired-Installation.pdf*** TechNote available on MyIQMS (Support->TechNotes).

Wireless RealTime

Wireless RealTime™ was developed using low power 2.4 ghz radio modules on Channel 26. Each module has the capability of communicating with any other module by utilizing Mesh Networking technology. An MMU (Machine Monitoring Unit) base station is connected to a computer running RTServer that will gather cycle information from each work center installed with a wireless Machine Interface Unit (radio module).The RT Server computer will then communicate via your network with the EnterpriseIQ server allowing DELMIAworks clients to view work center information in real time.

Using a wireless solution has eliminated the high cost of running wires to each work center. If you currently have a wired system, the wireless system can be installed on your existing system provided you have installed the corresponding software updates.

For more information on Wireless RealTime™ please refer to the ***Wireless https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Wireless-Installation.pdf***RealTime™ TechNote available in the customer portion of the DELMIAworks website.

Software Setup for RealTime

If you have received a RealTime™ computer from DELMIAworks, the software will already be preloaded. Since you will be connecting this computer to your network a couple of changes need to be made. To login to the computer, DELMIAworks uses user name 'Administrator' with a password of 'iqms' when this unit is prepared. If you are configuring your own then see 'Configuring a RealTime computer'. The following steps are no different than a standard EnterpriseIQ work station setup.

- Configure the computer for your network.
- The Mapping of the Master Home Directory will need to be reestablished.
- Run IQStatus update, and add RTserver.exe to the local home and create a Shortcut to the desktop if required.
- The IQORA alias will need to be modified to reflect your Oracle server information.
- The Shop Calendar Shift Times must be setup within EnterpriseIQ.
- Work centers will need to be assigned to RealTime™ Addresses.
- Create a DELMIAworks/Oracle user called RTBOX.

Once you have the computer communicating with the network, map the Master home as one would a standard DELMIAworks workstation and run IQStatus to update the PC. Use the IQStatus installer to add RTServer to the local home and create a shortcut to the desktop if not already done.

RTServer will require an IQMS (Oracle) user called RTBOX with a password of IQMS. This user and password are hard coded into the Rtserver.exe and cannot be changed. Create the RTBOX user just like any other user.

When using EIQ Security Inspector Password Policy features such as, the password minimum length is 5, and the ‘At Least 1 digit’ option, the user must turn off the password policy, create the RTBOX user, then turn the password policy back on.

Note: Changes in later versions of Oracle require Case Sensitivity in the password, so it is suggested that the password be IQMS, all CAPITALIZED.

Note: No roles are allowed or required on the RTBox user.

Preparing a **RealTime**™ computer

The RealTime™ computer is basically a standard workstation with an Oracle client and an EnterpriseIQ client installed. Simply perform a standard install, and add the RTServer software to the local home using IQStatus installer. You would then make a shortcut to the desktop from the local home directory as shown in the steps above.

RTServer.exe

RTServer is the software that will monitor the MMU for cycle information from the work centers. RTServer performs several functions besides cycle monitoring.

- RTServer monitors the local computers clock for shift change times and triggers the creation of shift reports.
- RTServer determines when to open and close a downtime interval on a work center based on a user selected multiplier under parameters between 1.5 and 10 times the cycle time. This is referred to as the Downtime Threshold Multiplier.
- During the startup of RTServer and shift changes, RTServer will synchronize the RTServer computer's time with the Oracle server's time while taking into consideration time zones across wide area networks. The use of 'Atomic Time Clock' software on the RealTime™ computer is not supported or required and will distort cycle times if used.
- RTServer has a companion application call Watchdog to gather system errors and keep RTServer running. Watchdog can also count cycles when RTServer or Oracle is down for maintenance.

Options

- RTServer can be setup to start from computer power-up. This is referred to as Auto-Start.
- Unlimited RTServers can be running on a single system. Each computer running RTServer is referred to as a Site.
- A single RTServer computer can monitor 4 COM ports connected to local MMUs for a total of 256 inputs.
- Time synchronization can be based on Oracle time zones or off-set hours for time zones not supported by Oracle.
- RTServer can be restarted using the Watchdog option when network problems arise.
- If RTServer is down Watchdog can count the number of times an address is sent from the MMU. This is a backup system and can only count the address frequency. No cycle time, up-time or downtime can be determined.
- Rejected cycles can be counted based on automatic work center output or manual user input. Additional licensing is required.

Configure System for RealTime

Before RealTime™ can be used, certain steps must be completed. Make sure that all necessary data has been entered in the following areas before continuing:

- **Work Centers**
- **Manufacturing Configuration (BOM)**
- **Work Orders**
- **Shop Calendar**

The final step is to schedule the work orders. RealTime™ is completely based on the schedule, and will not display data until a job is loaded into the schedule. In addition to the above, initial setup also involves telling the RealTime™ system some basic information such as **Plant Parameters**. This information is described in the sections below.

Shop Setup

This shop calendar must be entered prior to scheduling any jobs. To access the Shop Calendar from RealTime™ on the menu go to **Configure/Shift Schedules**. Shop Setup is used to define the following: how many shifts per day are being run, shift start times, and the number of days per week that the work centers (Mfg or Generic) will be in operation. For the Default calendar, enter information under Mfg or Generic Center fields such as the number of days per week and which shifts are working. The shifts are then assigned to valid work centers. For EPlant users, a default shop calendar can be set up per EPlant. Specific shop calendars can also be set up for Manufacturing Cells. When determining the current shift, the system first looks to the Manufacturing Cell. If no custom calendar exists for the cell, it then looks to the EPlant. If there is not a default set up for the EPlant it uses the System Default calendar.

Shop Calendar can also be accessed in the Scheduling module under **Options|Shop Setup**.

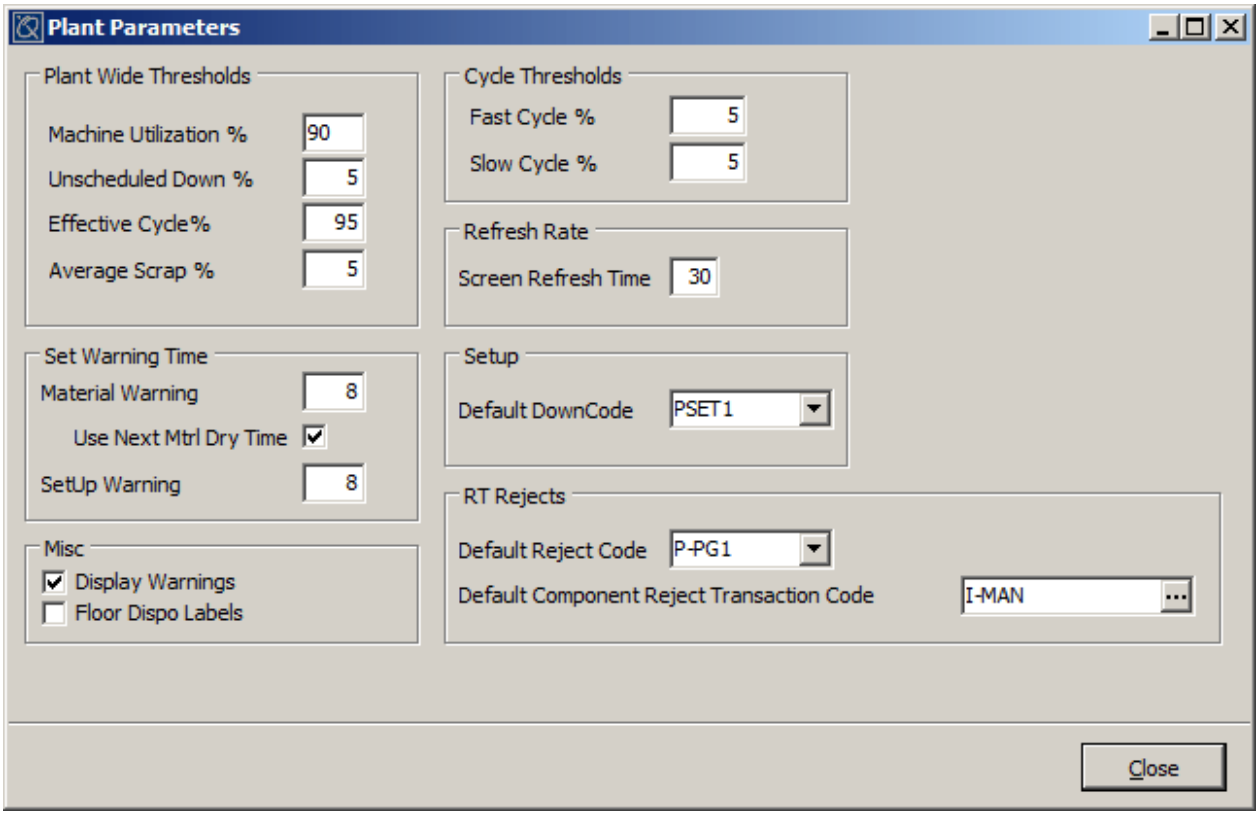
Refer to the Shop Setup section in the Initial Data Entry portion of the help files for detailed information on setting up the Shop Calendar.

Plant Parameters

The values entered here are the defaults to determine which color the bar graphs will be shown in under Plant Efficiency and the line item colors displayed on the main RealTime™ screen.

To SETUP Plant Parameters:

- From the main RealTime™ Monitoring screen, select **Configure|Plant Parameters…** from the main menu. The following screen will be displayed:



There are seven sections shown in the illustration above. Each section is discussed in detail below for your reference.

Plant Wide Thresholds

The Executive Overview option displays various plant wide values in the form of bar graphs. Here the user can get a quick overview of several factors as described below. Use this section to input the "break points" for easy reading of the bar graphs.

The colors will be RED or GREEN, depending on whether the actual percentages of the following sections are above or below the defaults entered here.

- **Green** - Indicates whether you are performing at or above the percentage.
- **Red** - Indicates that you are below the percentage entered.

Machine Utilization

Machine Utilization refers to the total number of presses currently running. If the actual machine utilization percentage is ABOVE this number, the bar graph shown on the Plant Efficiency screen will be displayed in green. If the actual machine utilization percentage is BELOW this number, the bar graph will be displayed in red. The calculation for this field is:

Calculation: The total Number of Machines RUNNING divided by The Total Number of machines = Machine Utilization

Unscheduled Down

EnterpriseIQ supports *scheduled* downtime. RealTime™ records downtime whether it was scheduled or not. This parameter displays the number of machines that are currently down but are NOT scheduled to be down. This information is calculated by looking at all down work centers by RealTime™ address. It then looks at whether there is downtime or a job in the number one position. If there is downtime in the first position it is considered scheduled downtime, if there is a job in the number one position and the work center is down, then this is considered unscheduled downtime. This calculation does not include machines that are monitored by RealTime™ but not actually wired to RTServer.

If the actual percentage of machines showing unscheduled downtime is ABOVE the number entered in this field, the bar graph shown in Plant Parameters will be red. If the actual percentage is BELOW the number entered, the bar graph will be green. The calculation for this field is:

Calculation: The system looks at the percentage of unscheduled work centers compared to total number of downed work centers. For example, you have 15 machines listed as down, 2 with jobs in the number one position. The percentage of unscheduled downtime is 13% (2 divided by 15= 13%).

Notes: In scheduling, you are allowed to enter in DOWNTIME on a machine. If the downtime entry is in the first position on the schedule, RealTime™ would see this machine as scheduled down. This would be used if the machine was going to be down due to some planned activity, such as maintenance, no work orders for this machine or even a holiday.

If the down time code is marked as Planned Down it will not be considered as Unplanned Down the Realtime Plant Efficiency View.

Please note, that unscheduled downtime is determined by RealTime™ as not receiving a cycle after the '**Downtime Threshold Multiplier**' times the greater of either standard cycle or average cycle time has past. The minimum is 120 seconds.

Effective Cycle

This plant wide parameter quickly averages all cycle information and displays the overall cycle effectiveness. It includes only those jobs that are currently reporting production. It does not include any machines that are currently down. The calculation for this field is:

Calculations:

- **For Non Extrusion**: Good Parts divided by Cavities divided by hours
- **For Extrusion**: (Good Parts * Part Length) / Prod Hrs
- **For Extrusion 3**: Good Parts / Prod Hrs

If the actual effective cycle percentage is ABOVE the threshold percentage entered, the bar graph will be green. If it is BELOW the number entered, the bar graph will be shown in red.

Average Scrap

Average scrap is based on the machines that are currently running. The system looks at the number of rejects entered and averages them (based on the threshold percentage you entered) for the plant and then displays the total.

If the actual average scrap rate is ABOVE the number entered, the bar graph will be shown in red. If it is BELOW the number entered, the bar graph will be shown in green. The calculation for this field is:

Calculation: ((Total Cycles divided by the number of Cavities) - Good Parts) divided by (Total Cycles x Cavities).

Set Warning Time

There are two portions under this section:

- **Material Warning**
- **SetUp Warning**

Use this section to issue a visual warning that a job is near completion. This warning will allow the worker a certain amount of time to prepare for the next job in terms of materials and tool setup. Use this entry to tell RealTime™ how far in advance of the current job completion time the warning should occur. For example, to notify a tool changer that a new job should be set up three hours before it is time to run, set the SetUp warning value to 3. These are global settings and will apply to all jobs.

This will effect the information on the Setup Control and Material Control views. Based on the Warning Time, the Next Mfg. # or Next Material field will change from the color brown to purple visually indicating that a change is within the warning time. The SetUp Warning setting will also effect the Part Numbers view. The Hours to Go and Parts to Go fields will be colored orange if the hours to go of the current job is within the Setup Warning threshold set up in Plant Parameters.

For Material Warning, select the '**Use Next Mtrl Dry Time**' box to use the dry time associated to the next material instead of the material warning hours. If the next material does not have a dry time populated the system will use the current Material Warning Time.

Cycle Thresholds

RealTime™ will tell the user by color if the actual cycle time on a machine is running slower or faster than the standard cycle time, given a range of an acceptable percentage. SLOWER than standard plus the Slow Cycle% value will show red. Between the slow and fast percentage will display in green, and faster than the acceptable range is shown in yellow and black.

Setting these two entries will setup a range that you say is an acceptable cycle time range to run in. (This is a plant wide setup, cycle thresholds per Config # cannot be setup).

There are two entry selections:

- **Fast Cycle%**: An acceptable percentage *faster* than the standard cycle.
- **Slow Cycle%**: An acceptable percentage *slower* than the standard cycle.

Note: If these parameters are set to zero they will default to 50 percent.

Screen Refresh Time

Enter in a number, in seconds, on how often the RealTime™ monitoring screen should update with new information. This also affects how frequently the started IQVoice screen refreshes. DELMIAworks recommends the amount entered here be no less than 30 seconds or your lowest cycle time, whichever is higher. This causes the system to work harder and manual refresh of the screen can always be done regardless of the number entered here.

Default Down Code

This is the downtime code that will automatically populate the Down Code field for a downtime interval when a set up is performed on a work center, or when the Reopen Interval button is selected on a work center with a work order scheduled. **Note**: A chargeable downtime code cannot be set as the default down code. If attempted the user will get an error stating, 'This downtime code is marked as chargeable and cannot be assigned as a default setup code'.

Default Reject Code

Select a reject code from the drop down list that will be used as the default when a reject address is processed by RTServer.

Default Component Reject Transaction Code

A default transaction code can be selected or updated that will be used when rejects are entered for components. The user can change the reject code from the default before posting the rejects. Select the reject code from the pick list. The code can be cleared by backspacing over the entry or by using the delete keyboard button.

Note: This is the same setting as the setting in ShopData - when one is changed, both are changed. The codes are also to be used in RTStation.

Display Warnings

Use this function to display or suppress warning messages that notify users they are trying to Floor Disposition more parts than RT has counted ('**Dispo Exceeds Production**'). This option also effects WMSIQ and IQRF.

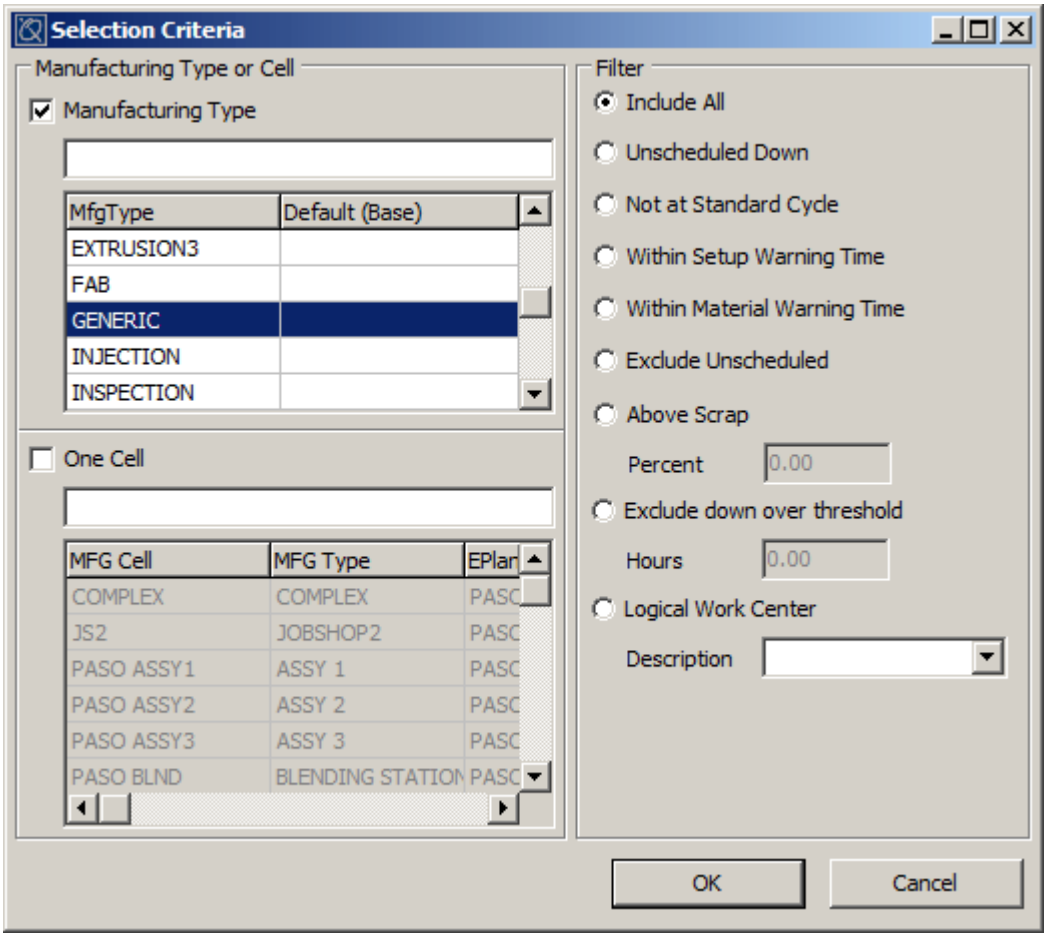
Floor Dispo Labels

With this option checked the system will prompt the user to print labels after floor dispositions. The Print Labels form will automatically appear for the item that was floor dispositioned. If it is not checked the user can still right click and floor disposition without the prompt to print labels.

Launching the RealTime Monitoring Screen

To LAUNCH the program, follow the steps below:

- Select the tab labeled 'RealTime™ ' from the EIQ Launcher Bar.
- Select the RT (RealTime™ Monitoring) button to launch the program. The following screen will appear:



- Select how to view the work centers and press [OK]. Enter the information in the white space to hyperbrowse to the desired Manufacturing Type or Cell, or use the scroll bars.

Work centers may be viewed by:

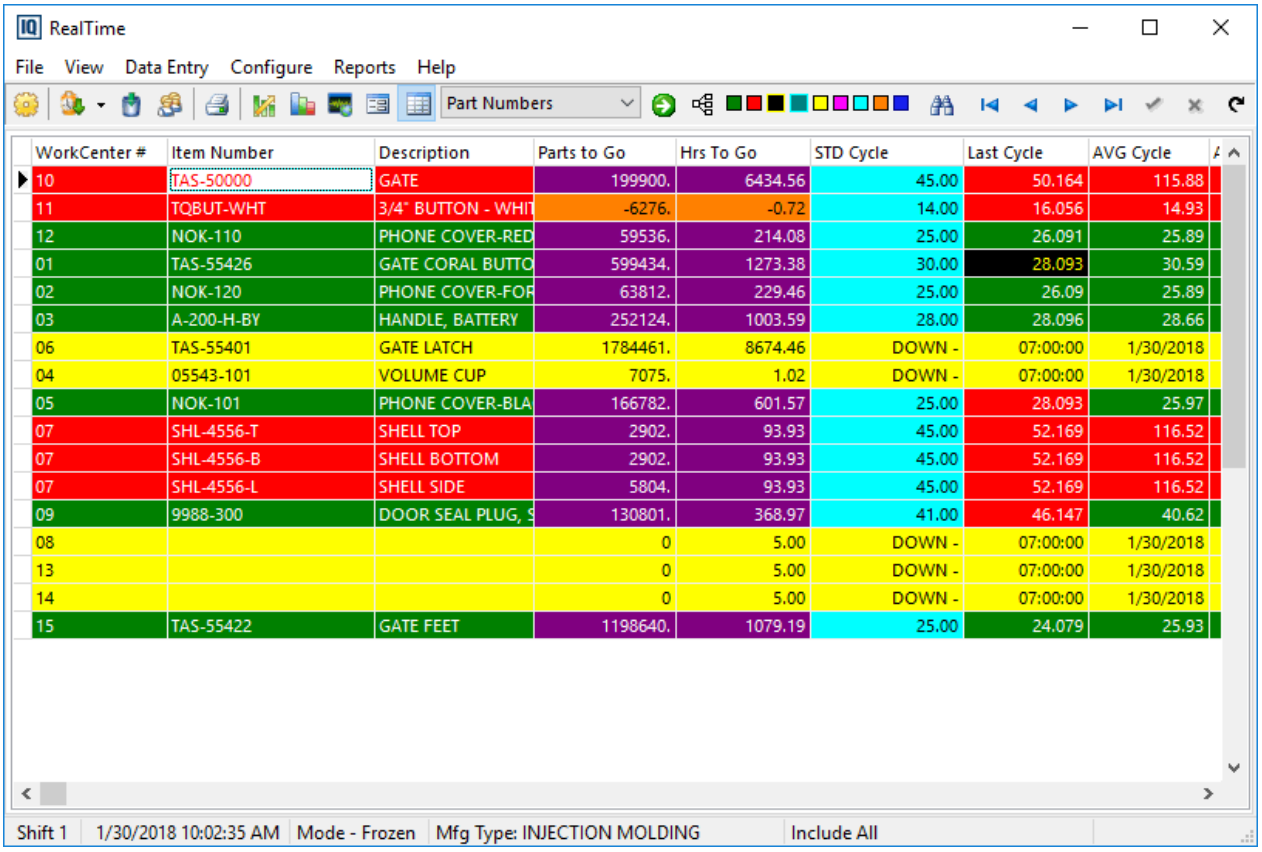
- **Manufacturing Type** - Select Manufacturing Type to view work centers of a particular type such as injection, extrusion, or generic.
- **By Cell** - Selecting this option will only show those work centers that have been designated to a particular cell. **Note**: If Mfg. Cells are being used you must use the filter by cell when entering into the RealTime™ monitoring screen in order for the system to know which shift setting to pick up.

In addition to selecting one of the options mentioned above, the user can also use the filter options to help narrow the grouping a step further.

- **Include All** - Shows ALL work centers associated with the designated Mfg Type or cell selected.
- **Unscheduled Down** - Shows only those work centers that have unscheduled downtime.
- **Not At Standard Cycle** - Lists those work centers that were running outside of their standard cycle time.
- **Within SetUp Warning Time** - This option will only include those centers that will need a change to the next job, within the established time frame. The time frame is a user defined value. If the current job is within X hours of completion - X being the user defined number of hours set in the Plant Parameters (Setup Warning) - then display these jobs on this screen. (Centers showing a warning will be highlighted in Brown with white lettering).
- **Within Material Warning Time** - This option will only include those centers that will need a change in material for the next job, within the established time frame. The time frame is a user defined value. If the current job is within X hours of completion - X being the user defined number of hours set in the Plant Parameters (Material Warning) - then display these jobs on this screen.
- **Exclude Unscheduled** - Check this option to exclude work centers that do not have something scheduled on them. This filter will also exclude machines that are scheduled down.
- **Above Scrap** - Show only those jobs on work centers that are above the scrap% entered here.
- **Exclude down over threshold** - Exclude those jobs on work centers that have been down for more than the hours entered here.
- **Logical Work Center** - Select this option to filter the RealTime™ view to display information for the specific logical work center description selected from the drop down list. (Please see the Logical Work Centers section form more information on the Logical Work Center functionality).

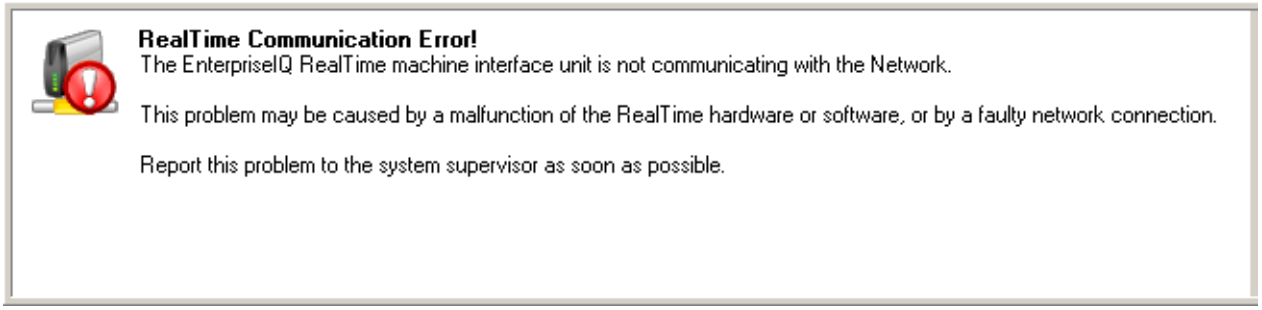
RealTime™ Monitoring

After selecting a viewing option, the following screen will be displayed.



The screen on your workstation may be a little different depending on which manufacturing type was selected.

If the RealTime™ **Communication Error** appears in the top left portion of the screen (as shown below), this indicates that RT Server may not be running or there is a connectivity issue. Contact your system supervisor first, and if it still cannot be resolved, contact DELMIAworks Support.



Monitoring RealTime Production

Once the initial setup process is complete, and jobs have been scheduled on the work centers, several views of production data will become available across the network. These include current production records by part number and/or work order. The user can access current press efficiencies while the press is running. Setup and material changes are automatically displayed on line before the current job is completed.

The user can change the monitoring view by selecting a different speed button or by selecting **View.**

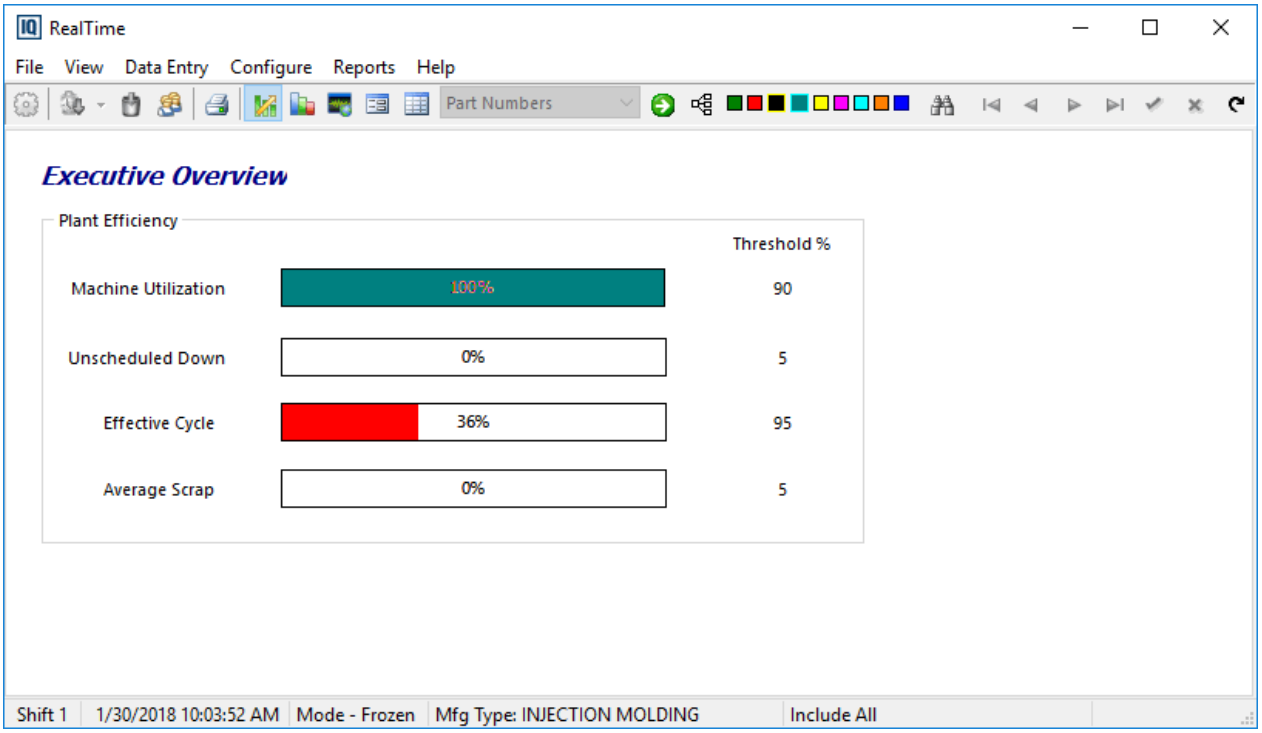
Cycle Through Views

Selecting this function simply allows the user to cycle through the different screen functions available (i.e. *View All centers, Individual Centers, Cycles Graph, etc.*). To cycle through each view, click on this button repeatedly.

The viewing options are described below.

Executive View

Select the *Executive View* button  , or select **View** and choose this function from the submenu. The following screen will be displayed:



The graph illustrated above shows the plant efficiencies based on the selected MFG Type for the EPlant the user is logged into, and are updated on a RealTime™ time basis. They will not show individual machine efficiencies.

Generally, you will want to see the Machine Utilization and Effective Cycle filling up most if not all of the graph, indicating that all machines are being used and are running effectively (very little scrap). The user should also expect to see the Unscheduled Downtime and Average Scrap very small. Each bar graph will be color coded based on the Plant Wide Thresholds set up in Plant Parameters. See Plant Parameters.

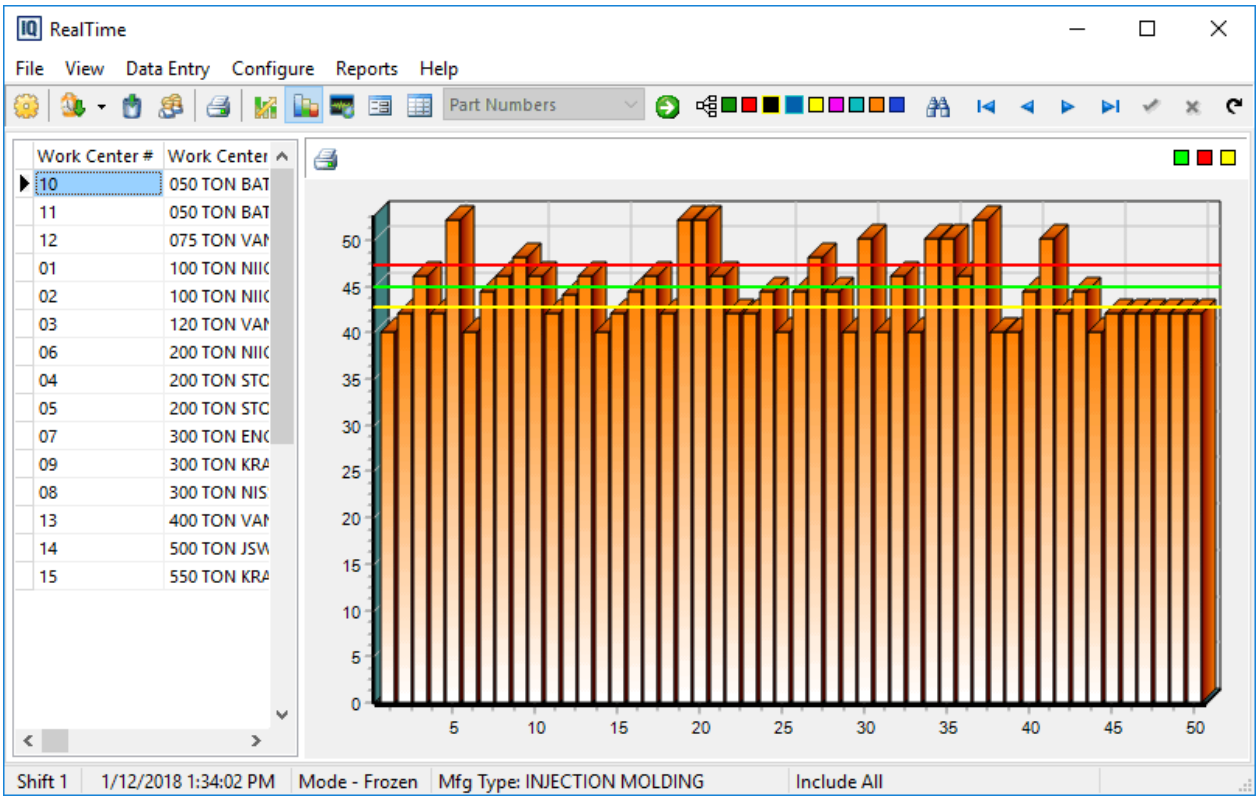
Cycles Graph

Cycles Graph

Select this function to display the last 50 cycle times received by RealTime™ . Below is an illustration of this display.

The graph can be printed by selecting the Printer speed button in the top left portion of the graph window.

Note: It is recommended to view the Cycles Graph in full screen before printing for proper formatting.

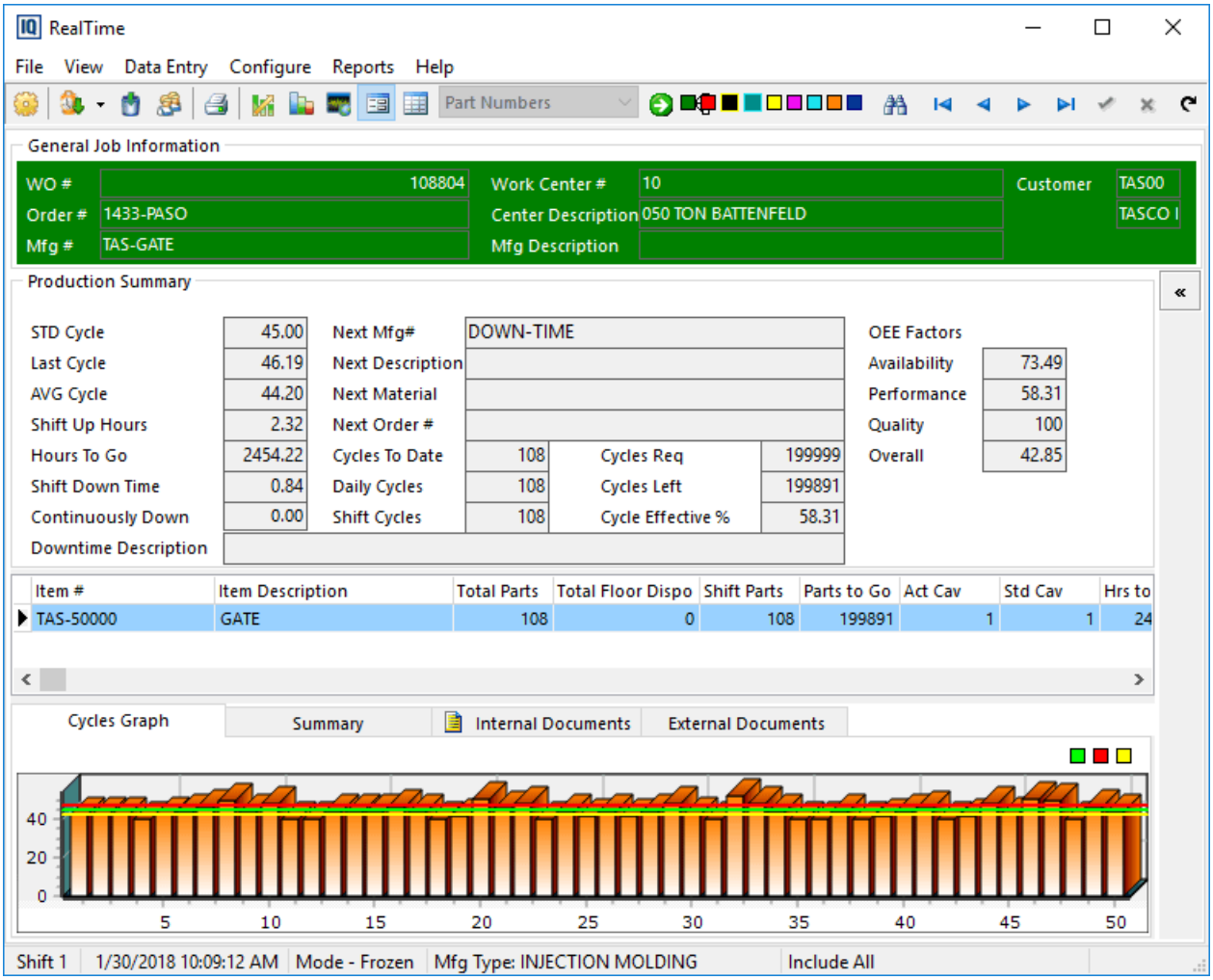


Note: For very fast cycle times the graph will show the average cycle time of the packet sent in not each individual cycle. This will only occur if a delay is setup on the MIU so multiple signals can be gathered and if the average cycle time of the packet is less than 5 seconds.

Individual Center Information

This function provides the user with general job information along with a Production Summary. From this single screen, you can view everything about an individual job - how it currently performing, the next job, the next material change, scrap to date, cycles to date, cycles graph, etc.

Below is a display of this screen information. The field listing below describes each of the fields shown on this screen in more detail.



General Job Information	
WO #	Work Order number.
Customer	Shows the customer (and customer number) associated with this work order.
Mfg. # and Description	This is the manufacturing number and description currently running on the work center.
Work Center # and Description	Shows the number and description of the work center you are currently viewing.
Order #	This is the sales order(s) associated to the currently running work order. If there is more than one sales order there will be a drop down arrow to view them all.
Production Summary	
STD Cycle	BOM standard cycle time.
Last Cycle	Cycle time for the last cycle received.
AVG Cycle	Average of the last 50 cycles received.
Cycles To Date	How many cycles have been received to date.
Daily Cycles	Shows the number of cycles received since the beginning of Shift 1.
Shift Cycles	Shows the number of cycles received during the shift that the job has been running (i.e. shift 1,2, or 3). When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up.
Cycles Req	Shows the number of cycles required in order to complete the work order.
Cycles Left	The number of cycles remaining to complete the work order. When jobs are running back to back the day parts are per work order. Cycles Required - Total Cycles. NOTE: When the Do Not Disposition Partials option is unchecked in Production Reporting parameters, the cycles left field in RealTime Production Monitor will not take into account cycles that have been placed on production reports for previous days. The cycles left field will be calculated based on the current Cycles required – daily cycles. If the Option is checked, the Cycles Left will be calculated based on the Cycles Required- Cycles to Date.
Cycle Effective %.	Shows the cycle efficiency for the entire run. Compared against the Net Cycles/hr field in the BOM. Cycle Effective % is calculated as follows: (((Good Parts / Std Cavity) / Shift Up Hrs) / (3600 / STD Cycle)) x 100

Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Shift Up Hours	Shows the number of hours that this work center has been running during this shift.
Hours To Go	The number of hours remaining to complete the work order.
Shift Down Time	Number of hours this work center has been down on this shift.
Continuously Down	Shows continuous downtime since the last setup. **Example**: During the first shift a problem occurred and the press went down. This downtime lapsed over into the second shift. Usually when a new shift begins, downtime is set back to zero. Continuous downtime keeps track of the entire time that press was down until it is brought back up.
Next Mfg # **Next Description**	Shows the next manufacturing # and description scheduled to this work center. If nothing is scheduled, this field will show down-time.
Next Material	Shows the material that will be used in the next work order.
Next Order #	Shows the next work order number in line for production.
OEE Factors	Availability, Performance, Quality, and Overall OEE percentages. (For details on the calculations see OEE Factors View).

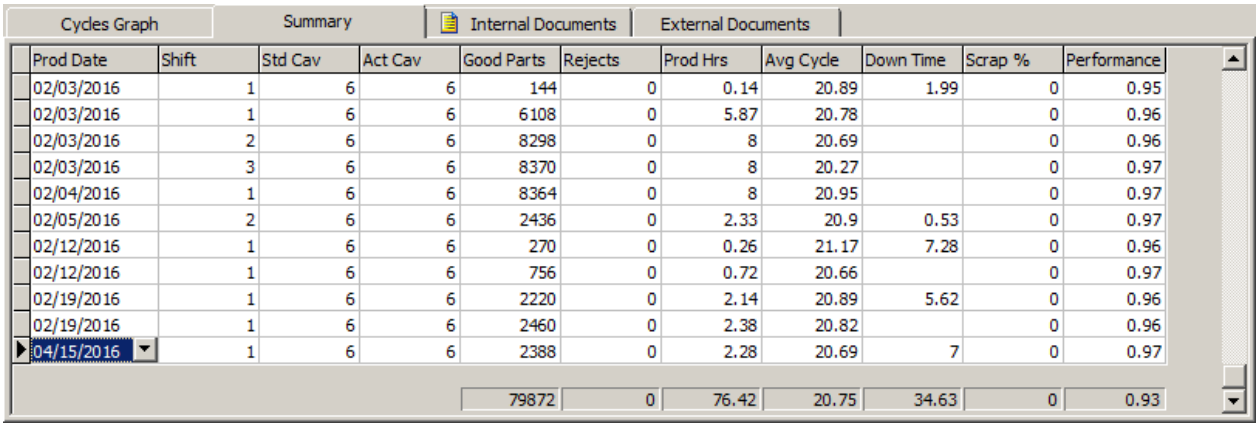
The grid area shows many of the same fields from the Production Summary, but also includes information such as Item information, Lot #, and scrap.

There are four tabs at the bottom of the screen:

Cycles Graph - This section displays the last 50 cycle times received by RealTime™.

Summary - This is a summary of the work order. It includes: Prod Date, Shift, Good Parts, Avg Cycle, Rejects, Scrap %, Performance, Prod Hrs, Down Time, Actual Cav or Multiplier, and Std Cav or Multiplier (based on MFG type). This data comes from archived, un-opened, and open production reports.

The Totals include: Good Parts, Avg Cycle, Rejects, Scrap %, Performance, Prod Hrs, and Down Time. Scrap is calculated: Total Rejects/(Total Good Parts + Total Rejects).

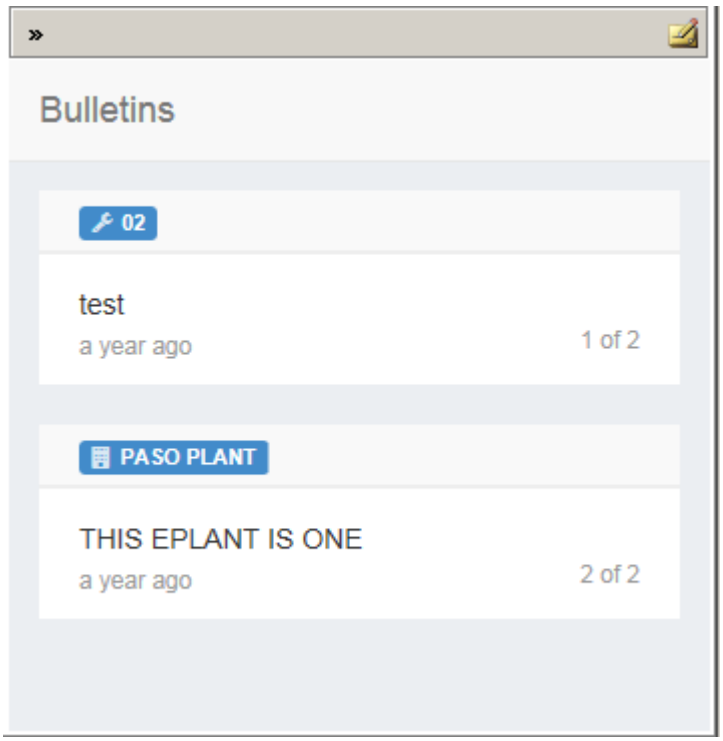

Cycles Graph | Summary | Internal Documents | External Documents

Prod Date	Shift	Std Cav	Act Cav	Good Parts	Rejects	Prod Hrs	Avg Cycle	Down Time	Scrap %	Performance
02/03/2016	1	6	6	144	0	0.14	20.89	1.99	0	0.95
02/03/2016	1	6	6	6108	0	5.87	20.78		0	0.96
02/03/2016	2	6	6	8298	0	8	20.69		0	0.96
02/03/2016	3	6	6	8370	0	8	20.27		0	0.97
02/04/2016	1	6	6	8364	0	8	20.95		0	0.97
02/05/2016	2	6	6	2436	0	2.33	20.9	0.53	0	0.97
02/12/2016	1	6	6	270	0	0.26	21.17	7.28	0	0.96
02/12/2016	1	6	6	756	0	0.72	20.66		0	0.97
02/19/2016	1	6	6	2220	0	2.14	20.89	5.62	0	0.96
02/19/2016	1	6	6	2460	0	2.38	20.82		0	0.96
04/15/2016	1	6	6	2388	0	2.28	20.69	7	0	0.97
				79872	0	76.42	20.75	34.63	0	0.93

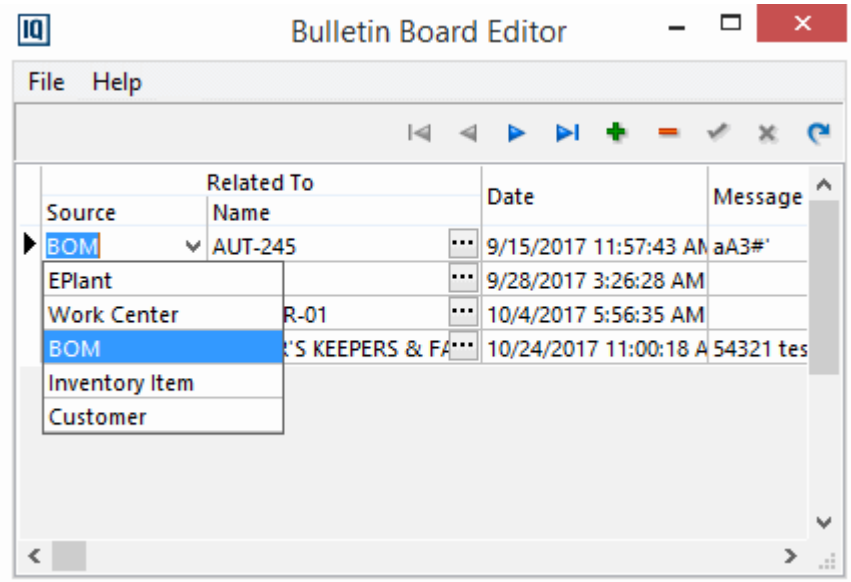
Internal Documents and External Documents - Each of these tabs include a tab for documents associated to: BOM, Customer, Inventory, AKA, Work Center, and MRO. Documents can be added or viewed. For the Customer section the system will display documents associated to every customer associated to the work order in first position on the Work Center.

Bulletin Board

A Bulletin Board will display on the Individual Work Center module in RealTime™. To hide or show the Bulletin Board select the Hide/Show button  . The bulletin board will display messages associated to the EPlant, Work Center, BOM, Inventory Item, and Customer if relevant to the current work center. The number of Bulletins will display at the top. The messages will be bold until marked read. Select the blue source header or the text to mark it as read. Select the 'Read All' button to mark all the messages as read.



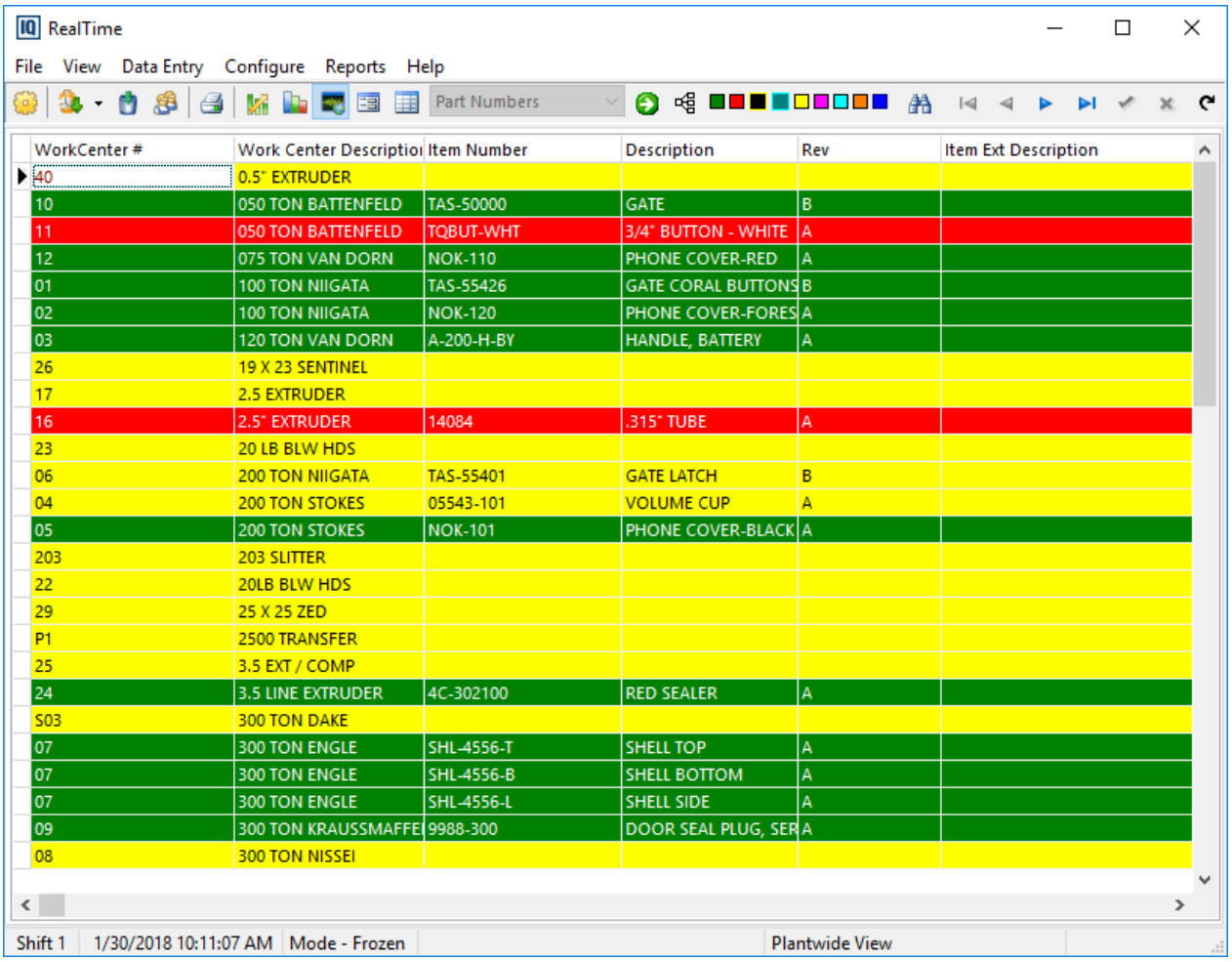
To create a message select the 'Add/Edit Bulletin(s) button  . The Bulletin Board Editor will display.



Select the Source from the drop down list. Then select the ellipsis button to access the corresponding pick list, i.e. BOMs, Work Centers, etc. Select the ellipsis button in the Message field to enter a message. The Date and User fields will populate automatically with the date/time the message was created and the logged in user name. These fields cannot be manually changed.

Plantwide View

Select the Plantwide View speed button at the top of the RealTime™ module  to view all the work centers connected to RT Server for all MFG Types plant-wide. It will display the common columns across all Mfg Types, and uses the same color coding as the other views.



Plantwide Screen Field Listing (in alphabetical order)

Customer #	This is the Customer number associated to the work order.
Description and Extended Description	Description of the item being produced.
Down Hrs	Number of hours the work order has been down on this work center during the current shift. *REMINDER: This amount could be larger than the continuously down because continuously down looks at the CURRENT interval. Down hours looks at ALL intervals that occurred during that shift.
Downtime Description	Shows the Downtime description.

Downtime Reason	The downtime reason or the PM work order number.
FG Lot #	This field shows the current FG Lot # that is currently being used. You can change this number from RealTime™ by using the pop up menu option.
Floor Dispo	The quantity of items that have been floor dispositioned.
Hours to Go	The number of hours remaining to complete the work order. The time is recalculated continually based on average cycle time. This field will be colored orange if the Hours to Go of the current job is within the Setup Warning threshold set up in Plant Parameters. For Virtual Work Centers the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine). For scheduled downtime the hours to go are calculated based on: cntr_sched.prodhrs - (total_dwn + day_dwn + shft_dwn).
Inspection Hours to Go	This is the number if hours to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Run Hours setting entered for the Inspection Group associated to the item in the Inspection Setup module. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed.
Inspection Parts to Go	This is the number if items to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Parts Produced setting entered for the Inspection Group associated to the item in the Inspection Setup module. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed.
Item Number and Rev	These fields display the Item Number and revision of the manufactured part.
Mfg #	Shows the number of the actual manufacturing configuration (from the Bills of Manufacture)
Out-of-Spec Events	This column displays out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.
Priority	If the Priority check box on the work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	These fields will contain any vital information concerning the work order running. This information can be entered here, on the work order, or from the Scheduling module. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.
Quality Issues	For users with the Quality module the system will check to see if the item is associated with a CAR/CAPA, ECO, Deviation, PPAP/Product PQ, or MRB. If it is, a Y will appear in this field. The user can select the ellipsis button to display a form with the specific records and Jump to capability.

STD Cycle	Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2 and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
Tool #	Shows the Tool number associated with the BOM.
Total Scrap	Shows the total current days rejects. This is cleared out and restarts each production day.
Up Hrs	Number of hours the work order has been running on this work center during the current shift.
WO #	Shows the number of the work order currently running on the work center selected.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center currently running.
Work Order Quantity	Shows the total release quantity requested on the work order.

View All Centers Machine Monitoring

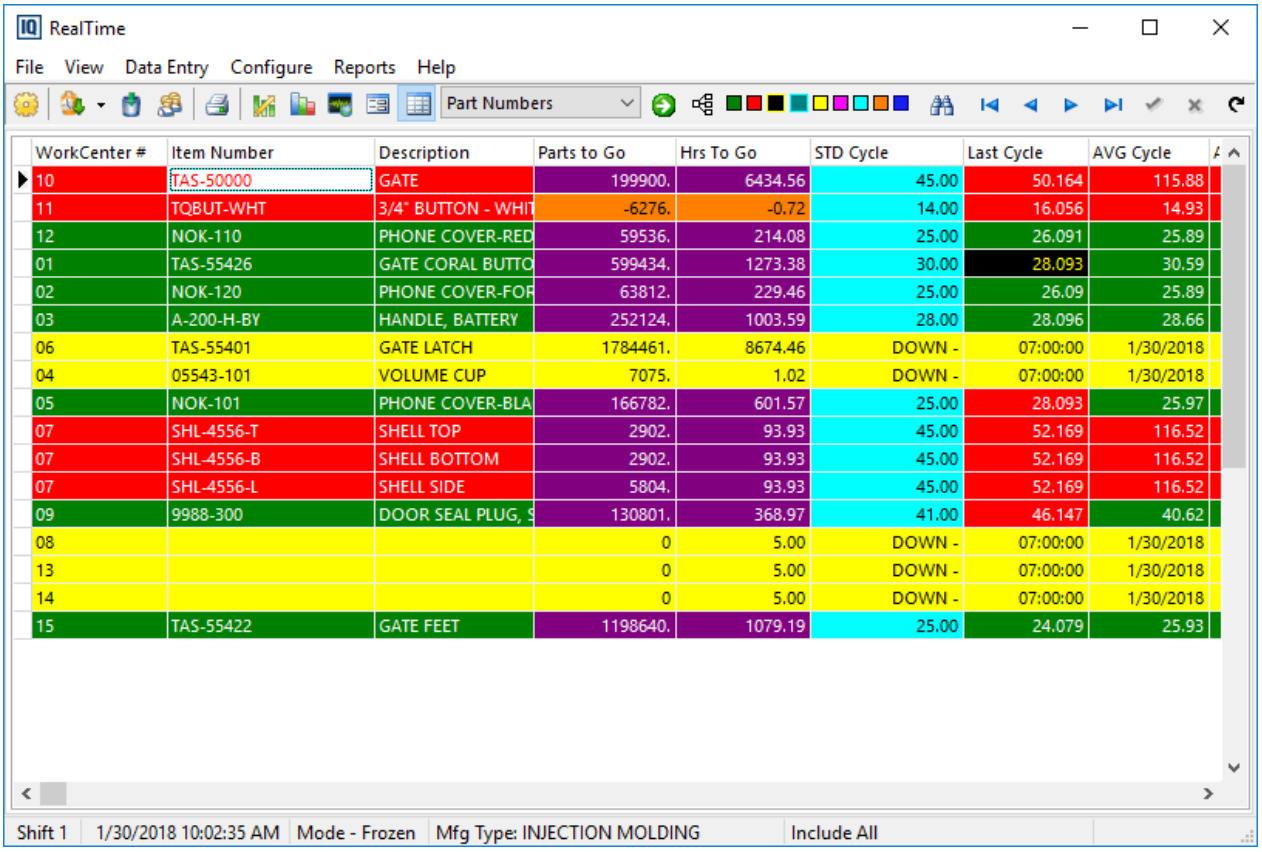
View ALL Centers

If the user wishes to view ALL production activity for each job currently running, select this function. When in View All Centers mode the user can view the machines from seven different perspectives. Each screen is related, but with a different focus.

For example, the user can watch a Parts to Go quantity for a work order slowly count down as cycles are received, or they can view the next tool or material change.

Other fields will change accordingly on each of the six screens available:

- Work Orders
- Part Numbers
- Quality Control
- Setup Control
- Material Control
- Cycle/Part Counts
- OEE Factors



Select the desired view from the drop down list located next to the 'View ALL Centers' speed button.

From each view users can select the Search button to view the pick list of work centers that includes columns such as Item # and Mfg #.

Color Codes:

Each work center will be color coded. Below describes what each color stands for:

- Green - Work Center is running within standard cycle threshold. (The Cycle thresholds are set up in Plant Parameters see Cycle Thresholds).
- Red - Work Center is running slower than standard cycle threshold.
- Black/Yellow text - Work Center is running faster than standard cycle threshold.
- Medium Blue - Work Center is monitored but not wired to RTServer.
- Yellow - Work Center is down.
- Pink - Scrap % is higher than BOM Scrap %. This will only show in the Scrap % field on the Quality Control view.
- Light Blue - This indicates that the work order has been marked as priority. The 'Priority' field will also have a Y in it to indicate the work order has been marked a priority and the 'Priority' and 'Priority Level' fields will appear in light blue. Please note the 'STD Cycle' and 'UpHrs' fields will appear in light blue by default if a work center is assigned to the work order, even if the work order is not marked as 'Priority'.
- Orange - When the Hours to Go of the current job is within the Setup Warning threshold set up in Plant Parameters, the Parts to Go and Hours to Go columns in the Part Numbers view will turn Orange to indicate this.
- Medium Blue - The Inspection Parts to Go, or Inspection Hours to Go columns will display in medium blue if the inspection threshold setup in SPC has been reached.
- Purple - The next MFG # or Material is inside the warning time. This color is applicable to the Setup Control and Material Control views. This is based on the SetUp Warning Time (under Set Warning Time in Plant Parameters).
- Brown - The next MFG # or Material is outside the warning time. This color is applicable to the Setup Control and Material Control views. This is based on the SetUp Warning Time (Set Warning Time in Plant Parameters). Once it is within the warning time the Next Mfg. # or Next Material ID field will change from the color brown to purple.

Note: For family tools the items will be listed on multiple lines in the order they are listed on the BOM in Items Details.

Note: The Hrs To Go field will display in white when the work order has no requirements since the last time update schedule was run. (No requirements may be due to a number of reasons such as a change to the sales order or ‘on hand’ inventory). The Origin of the work order will remain to help troubleshoot why there is no longer any demand.

Note: The calculations shown in the following sections are based on the Native UOM set to Imperial. The system will adjust the calculations for Metric if that is selected as the Native UOM (in System Parameters->Regional tab, or if EPlants are used, the Enterprise tab->Miscellaneous tab).

All Fields

Each screen contains relevant fields based on the view. Below is a chart showing all of the fields from all views. The 'X' indicates that field is available in the corresponding view.

The sections below will also describe each field available in the various views.

Field Name	Part Numbers	Work Orders	Quality Control	Setup Control	Material Control	Cycle/Part Count	OEE Factors
Act Multiplier or Cav	X		X			X	
Availability %							X
AVG Cycle	X	X	X	X	X	X	X
Bad Parts			X				
Bkt		X					
BOM Scrap %			X				
Cust #	X	X	X	X	X	X	X
Cycles EFF %			X				
Cycles Left		X		X			
Cycles Planned		X					
Cycles Req		X					
Day Cycles						X	
Day Out of Spec Events						X	
Day Parts						X	
Description and Extended Description	X		X	X	X	X	X
Down Hrs	X					X	
Downtime Description	X	X	X	X	X	X	
Downtime Reason	X	X	X	X	X	X	
Dry Time					X		
EPlant ID							X
FG Lot #	X						
Floor Dispo	X		X			X	

Good Parts			X				
Group Code	X	X	X	X	X	X	X
Hours to Go	X	X		X	X		X
Inspection Hours to Go	X		X			X	
Inspection Parts to Go	X		X			X	
Item Number and Rev	X		X	X	X	X	X
Labor	X	X	X	X	X	X	
Last Cycle	X	X					
Lbs to Go					X		
Lot #			X				X
Material ID					X		
Mfg #	X	X	X	X	X	X	X
Mfg Cell							X
Mfg Type							X
Must Start	X	X		X	X		
Next Dry Time					X		
Next Item Priority				X	X		
Next Material ID					X		
Next Mfg #				X			
Next Must Start				X	X		
Next Primary Tool #				X			
Next Priority Level				X			
Next Priority Note and Note 2				X			
Next Process # & Description				X	X		
Next WO #				X	X		
Operators							X

Order #				X	X		
Original Cycles Required		X		X	X		
Original WO Qty	X		X			X	X
Out of Service				X			
Out of Service Reason				X			
Out-of-Spec Events	X		X				
Overall %							X
P.O. #					X		
Parts to Go or Parts Left	X	X	X	X			X
Parts Req		X					
Performance %							X
Priority	X	X	X	X	X	X	X
Priority Level	X	X	X	X	X	X	X
Priority Note Priority Note 2	X	X	X	X	X	X	
Process # and Process Description	X	X	X	X	X	X	X
Process Alarms	X	X	X	X	X	X	X
Quality %							X
Quality Issues	X		X			X	
Scheduled Start Time				X			
Scrap %			X				
Shift Cycles						X	X
Shift Down Hrs							X
Shift Good Parts							X
Shift Out of Spec Events						X	

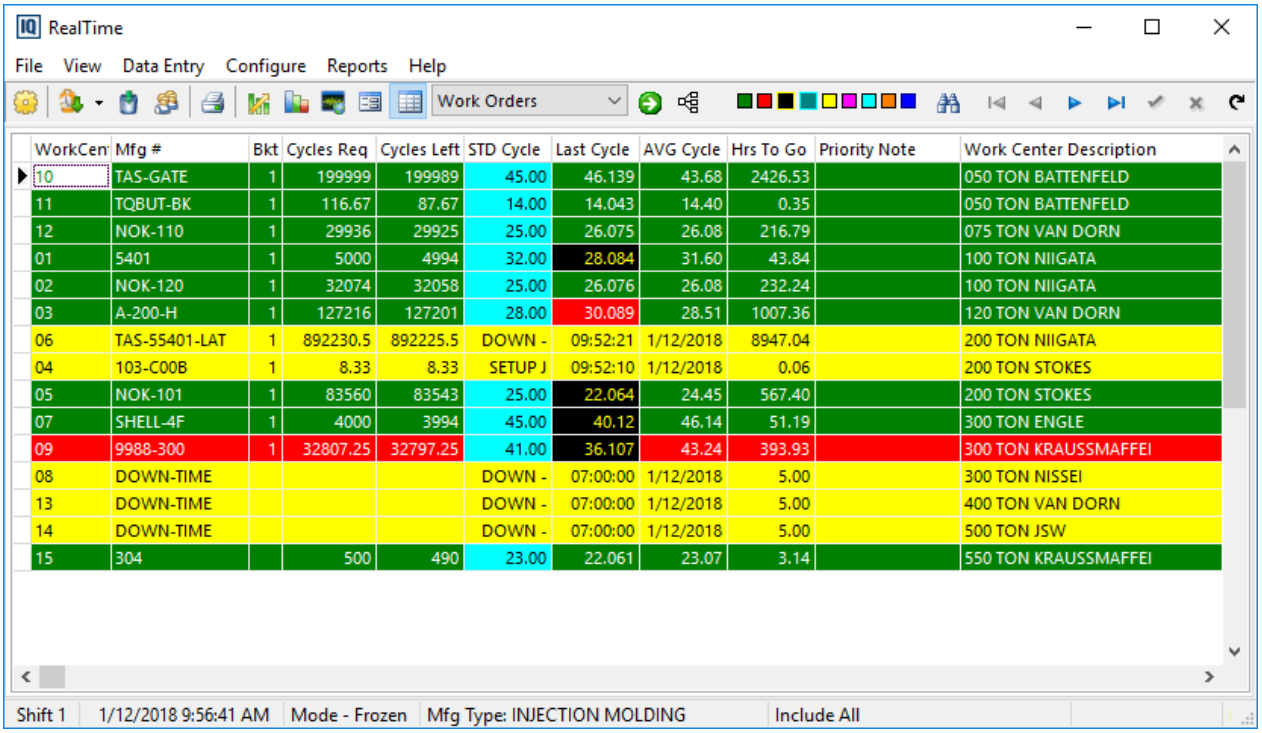
Shift Parts						X	X
Shift Rejects							X
Shift Up Hrs							X
SO #							X
Stay Down	X	X	X	X	X	X	X
STD Cycle	X	X	X	X	X	X	X
Std Multiplier or Cav	X		X			X	
Tool #	X	X		X		X	X
Total Cycles						X	
Total Floor Dispo						X	
Total Out of Spec Events						X	
Total Parts						X	X
Total Scrap	X						
Up Hrs	X					X	
WO #	X	X	X	X	X	X	
Work Center #	X	X	X	X	X	X	X
Work Center Description	X	X	X	X	X	X	X
Work Order Quantity	X						

Work Orders View

To view Production monitoring by Work order:

- Select this function from the RealTime™ main menu bar or from the submenu shown under **View.**

After selecting **Work Orders** from the menu, the following screen will be displayed. The table below describes the fields. There are slight differences depending on the manufacturing type. These differences will be noted in the table.



WorkCen	Mfg #	Bkt	Cycles Req	Cycles Left	STD Cycle	Last Cycle	AVG Cycle	Hrs To Go	Priority Note	Work Center Description
10	TAS-GATE	1	199999	199989	45.00	46.139	43.68	2426.53		050 TON BATTENFELD
11	TQBUT-BK	1	116.67	87.67	14.00	14.043	14.40	0.35		050 TON BATTENFELD
12	NOK-110	1	29936	29925	25.00	26.075	26.08	216.79		075 TON VAN DORN
01	5401	1	5000	4994	32.00	28.084	31.60	43.84		100 TON NIIGATA
02	NOK-120	1	32074	32058	25.00	26.076	26.08	232.24		100 TON NIIGATA
03	A-200-H	1	127216	127201	28.00	30.089	28.51	1007.36		120 TON VAN DORN
06	TAS-55401-LAT	1	892230.5	892225.5	DOWN -	09:52:21	1/12/2018	8947.04		200 TON NIIGATA
04	103-C00B	1	8.33	8.33	SETUP J	09:52:10	1/12/2018	0.06		200 TON STOKES
05	NOK-101	1	83560	83543	25.00	22.064	24.45	567.40		200 TON STOKES
07	SHELL-4F	1	4000	3994	45.00	40.12	46.14	51.19		300 TON ENGLE
09	9988-300	1	32807.25	32797.25	41.00	36.107	43.24	393.93		300 TON KRAUSSMAFFEI
08	DOWN-TIME				DOWN -	07:00:00	1/12/2018	5.00		300 TON NISSEI
13	DOWN-TIME				DOWN -	07:00:00	1/12/2018	5.00		400 TON VAN DORN
14	DOWN-TIME				DOWN -	07:00:00	1/12/2018	5.00		500 TON JSW
15	304		500	490	23.00	22.061	23.07	3.14		550 TON KRAUSSMAFFEI

Work Orders Screen Field Listing (in alphabetical order)

AVG Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.
Bkt	Buckets are assigned by EnterpriseIQ and represent the total amount of production required as based on the Run Size Scope (refer to the Work Order chapter for more information on how work orders and buckets are created). The total bucket amount may consist of items necessary to fulfill multiple orders, but the orders are grouped into buckets for the purposes of scheduling one production run. The user must run Update Schedule in order for this field to show a bucket. Manual work orders will not show a bucket number.
Cust #	This is the Customer number associated to the work order.

Cycles Left	Shows the total number of cycles remaining to complete the work order. When jobs are running back to back the day parts are per work order. Cycles Required - Total Cycles. This field is Length Left for the Extrusion MFG type and Lbs Left for the EXT2 MFG type. NOTE: When the Do Not Disposition Partials option is unchecked in Production Reporting parameters, the cycles left field in RealTime Production Monitor will not take into account cycles that have been placed on production reports for previous days. The cycles left field will be calculated based on the current Cycles required – daily cycles. If the Option is checked, the Cycles Left will be calculated based on the Cycles Required- Cycles to Date.
Cycles Planned	Cycles Planned from the work order. For planned and forecast work orders, this value is the original count at the time the WO is created. For manual work orders, this value populates when it has been marked firm, and is taken from the cycles required field (WORK ORDER.CYCLES_REQ). This value will be locked for Firm work orders only. The value will change for non-firm planned work orders as the requirements change. However, when a work order is set up to run, the RealTime™ history table (HIST_ILLUM_RT) records the cycles planned at the time the work order was set up. This number will not change.
Cycles Req	Shows the total number of cycles required to complete the work order from the start of this job. This field is Length Req for the Extrusion MFG type and Lbs Req for the EXT2 MFG type.
Downtime Description	Shows the Downtime description associated to the Downtime Code if applicable.
Downtime Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Hours to Go	The number of hours remaining to complete the work order. The time is recalculated continually based on average cycle time. For Virtual Work Centers the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine.
Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
LAST Cycle	Cycle time for the last cycle received. This field is LAST Length/Hr for Extrusion MFG type, and LAST Weight/Hr for Extrusion2 and Compound1.
Mfg. #	Current work order being run on the press. Should also be the work order that is in the first position on the press in Manufacture Schedule.
Must Start	The Must Start date for the work order.

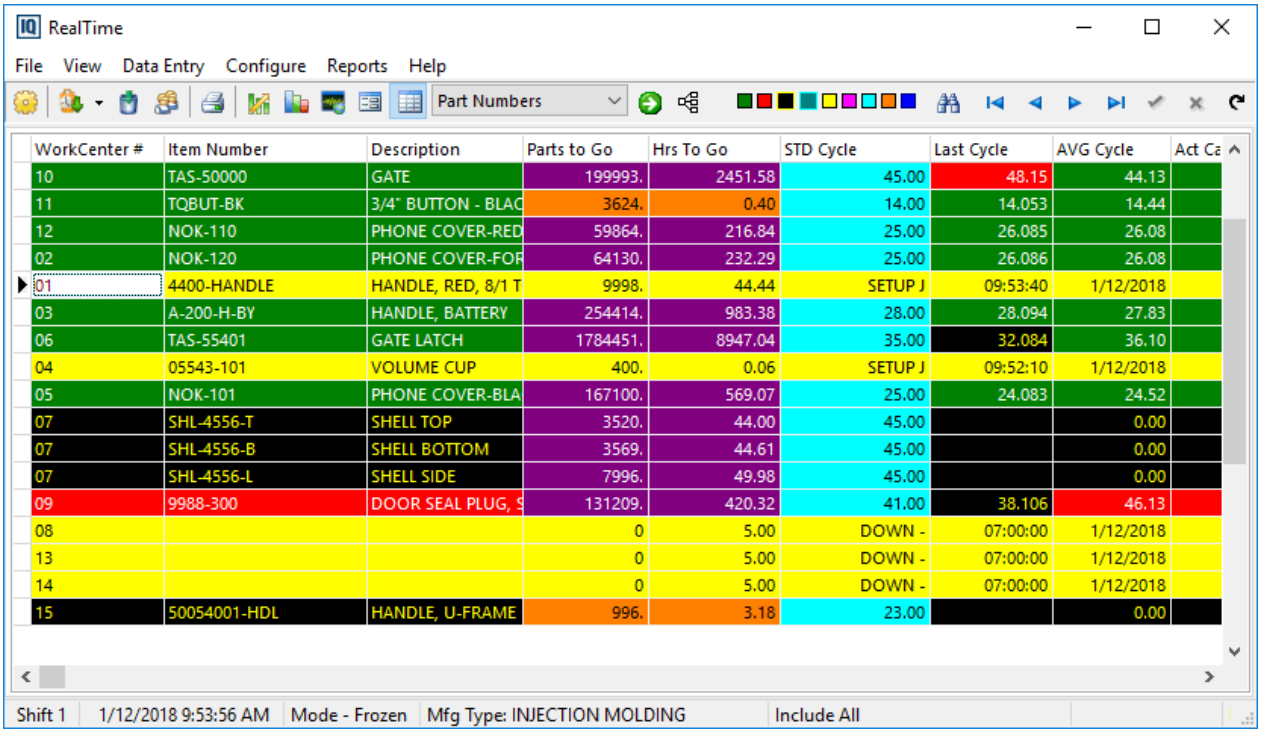
Original Cycles Required	The original quantity of cycles required when the work order is setup in the first position.
Parts Left	Extrusion manufacturing type only. Parts remaining to be produced.
Parts Req	Extrusion manufacturing type only. Shows the total number of parts required to fulfill the work order.
Priority	If the Priority check box on the work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	These fields will contain any vital information concerning the work order running. This information can be entered here, on the work order, or from the Scheduling module. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting, and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
Tool #	Shows the Tool number associated with the BOM.
WO #	Shows the number of the work order that is currently running on that work center.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows what kind of work center the job is running on.

Part Numbers View

Select this function to view production by part number.

Note: A single work order may contain multiple part numbers (because of family tools). This screen is used to view the individual part numbers running on a work center. Therefore, multiple part numbers may be displayed on a single work center.

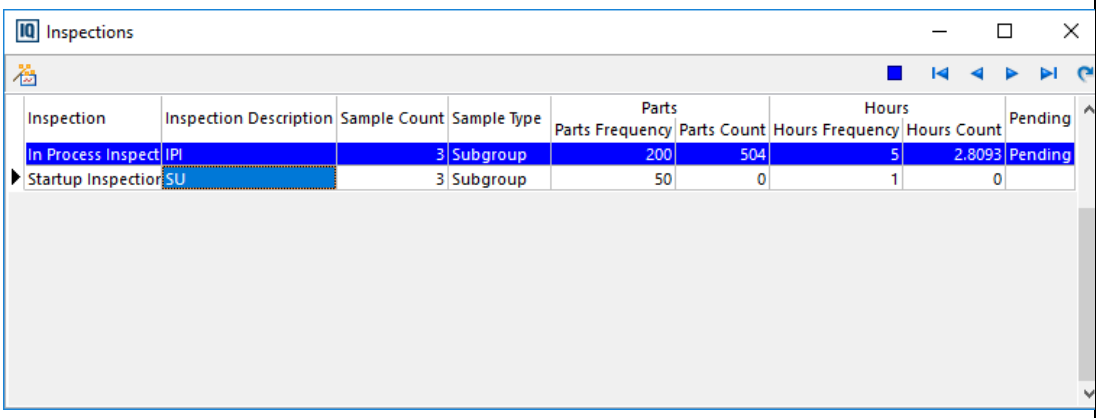
Use the field listings below the illustration to familiarize yourself with each field There are slight differences depending on the manufacturing type. These differences will be noted in the table.



Part Numbers screen Field Listings

Act Multiplier or Cav	Actual number of multipliers or cavities in production. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
AVG Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.
Cust #	This is the Customer number associated to the work order.
Description and Extended Description	Description of the item being produced.

Down Hrs	Number of hours the work order has been down on this work center during the current shift. *REMINDER: This amount could be larger than the continuously down because continuously down looks at the CURRENT interval. Down hours looks at ALL intervals that occurred during that shift.
Downtime Description	Shows the Downtime description associated to the Downtime Code if applicable.
Downtime Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.
FG Lot #	This field shows the current FG Lot # that is currently being used. You can change this number from RealTime™ by using the pop up menu option.
Floor Dispo	The quantity of items that have been floor dispositioned. For the EXT1 Mfg Type this field will be labeled Floor Dispo Length. There is an also an additional field called 'Floor Dispo Parts' that will equal the Floor Dispo Length divided by the Pt. Length specified on the BOM Item Details->Item Information tab.
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Hours to Go	The number of hours remaining to complete the work order. The time is recalculated continually based on average cycle time. This field will be colored orange if the Hours to Go of the current job is within the Setup Warning threshold set up in Plant Parameters. For Virtual Work Centers the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine). For scheduled downtime the hours to go are calculated based on: cntr_sched.prodhrs - (total_dwn + day_dwn + shft_dwn).

Inspections Due	For inventory items, Inspection Groups (in Inspection Setup) can be set as a 'RealTime Inspection Frequency' group by entering the Run Hours and/or the Parts Produced. More than one group can be set up for this feature. When the item is running in the first position, RealTime™ will count down based on the frequency settings for the item. In the RealTime™ Part Numbers, Quality Control and Cycle Part Counts monitoring screens this column will display the number of inspections due out of the number of total inspections groups setup with a 'RealTime Inspection Frequency' (i.e. 3/4). When either frequency has been met (equal or greater), this field will display in blue. This column will recalculate the fraction when inspections are performed and RT monitor is refreshed to display the current inspections required out of the total that are setup. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details such as Parts Count, Hours Count and Pending. The line for required inspections will display in blue. From the form users can access the Quick Inspection module to perform a new quick inspection on a group using the speed button or right click option.  When the user clicks 'Available Inspections' the SPC counts are calculated first, before the form displays. In order to account for additions and deletions of inspection groups setup with a 'RealTime Inspection Frequency', the denominator in the Inspections Due value is recalculated and the field is updated when users click the 'Refresh' button in RealTime™. Note: During the normal RealTime™ refresh the denominator is not updated in order to keep the refresh rate fast.
Inspection Hours to Go	This is the number if hours to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Run Hours setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Inspection Parts to Go	This is the number if items to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Parts Produced setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Item Number and Rev	These fields display the Item Number and revision of the manufactured part.

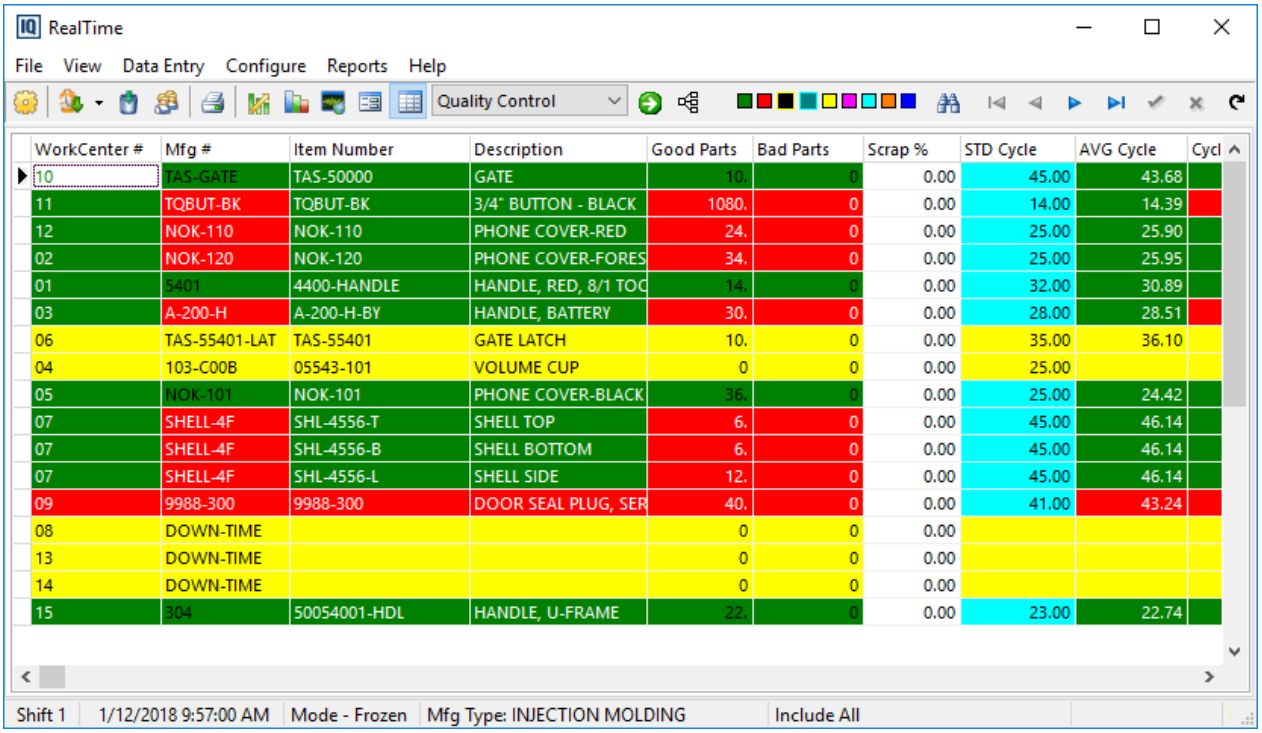
Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
LAST Cycle	Cycle time for the last cycle received. This field is LAST Length/Hr for Extrusion MFG type, and LAST Weight/Hr for Extrusion2 and Compound1.
Mfg #	Shows the number of the actual manufacturing configuration (from the Bill of Manufacture)
Must Start	The Must Start date for the work order.
Original WO Qty	The original work order quantity at the time the work order was setup in the first position.
Out-of-Spec Events	This column displays out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.

Parts to Go	Parts remaining to complete work order. This field will be colored orange if the Hours to Go of the current job is within the Setup Warning Threshold set up in Scheduling Parameters. **Calculations:** *The RealTime™ Parts to Go calculation (MFG Type -> RT parts to go based on scans = Not Checked):* If the item is not floor dispositioned (the 'Do not Disposition partials' is not selected). The calculation is as follows: Run qty + shift_rejects + day_rejects + since_sched_rejects - since_sched_qty - shift_qty - day_qty + counted_dispo If the Item does have the 'Do not Disposition partials' selected the calculation is: Run qty + shift_rejects + day_rejects - shift_qty - day_qty + counted_dispo - Partial (Partial = Total qty - total rejects - floor dispo qty total) This is Length to Go for the Extrusion MFG type and Lbs to Go for the EXT2 MFG type. For the EXT MFG Type there is an additional field called Parts to Go as well, which is the parts remaining to be produced. *The RealTime™ Parts to Go calculation (MFG Type -> RT parts to go based on scans = Is Checked):* Run qty – floor dispo qty total **Notes**: DELMIAworks recommends that if you are using the floor disposition functionality in RealTime™ monitoring, ShopData, RF or WMS that you run update schedule just after the start of the new production day (beginning of 1st Shift). This will ensure that the RealTime™ parts to go calculation is accurate as of the start of each production day. For Manual work orders, you must have the Dispo Partials option ON for the item (Inventory->Additional tab) in order for the 'parts to go' count to be correct, whether floor dispositioning or not. For non-signaled work centers if the quantity on a Firm work order is changed the Parts to Go will update to that value. It will not subtract floor dispositioned parts if any were reported prior to the work order quantity change. For a Manual work order the quantity will be adjusted by the floor dispositioned quantity. For all MFG types except ASSY1, ASSY2, ASSY3, Job Shop and Outsource, if the 'RT parts to go based on scans' option is checked the parts to go count will not decrease until a RF scan/floor disposition transaction is done.
Priority	If the Priority check box on the work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	These fields will contain any vital information concerning the work order running. This information can be entered here, on the work order, or from the Scheduling module. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.

Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Quality Issues	For users with the Quality module the system will check to see if the item is associated with a CAR/CAPA, ECO, Deviation, PPAP/Product PQ, or MRB. If it is, a Y will appear in this field. The user can select the ellipsis button to display a form with the specific records and Jump to capability.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting, and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
Std Multiplier or Cav	Standard Multiplier or Cavity. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
Tool #	Shows the Tool number associated with the BOM.
Total Scrap	Shows the total current days rejects. This is cleared out and restarts each production day.
Up Hrs	Number of hours the work order has been running on this work center during the current shift.
WO #	Shows the number of the work order currently running on the work center selected.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center currently running.
Work Order Quantity	Shows the total release quantity requested on the work order.

Quality Control View

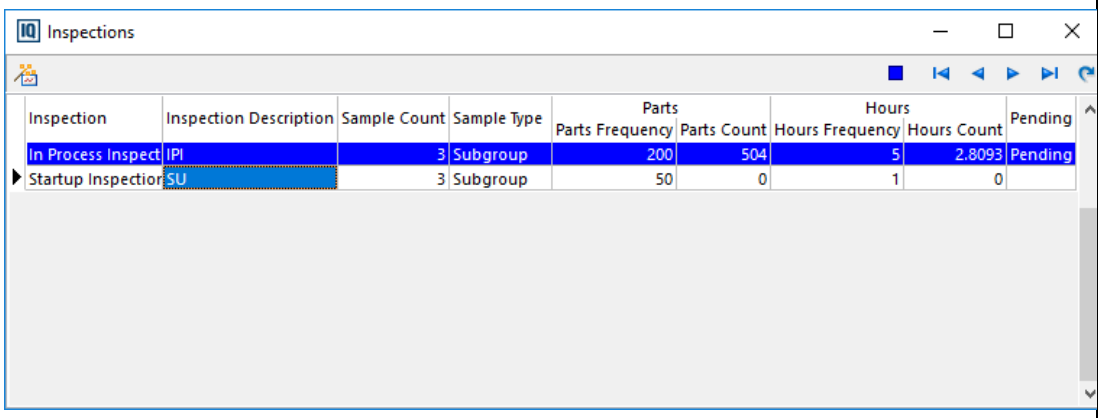
The Quality Control screen displays information regarding scrap (good and bad parts), rates and cycle efficiency. There are slight differences depending on the manufacturing type. These differences will be noted in the table.



Quality Control Field Listings

Act Multiplier or Cav	Actual number of multipliers or cavities in production. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
Avg Cycle	Average of last 50 cycles received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.
Bad Parts	Number of bad items produced on this shift. The total bad items field gets filled in when you enter in rejects through RealTime™ in the Production Data Entry section of the RealTime™ Monitoring menu. This is Bad Length for the Extrusion MFG type and Bad Lbs for the EXT2 MFG type.
BOM Scrap %	The Scrap % from the General BOM Info.
Cust #	This is the Customer number associated to the work order.
Cycle EFF %.	Shows the efficiency of each cycle. Cycle EFF % is calculated as follows: For Non Extrusion: (((Good Parts / Std Cavity) / Shift Up Hrs) / (3600 / STD Cycle)) x 100 For Extrusion: ((Good Length / Shift Hrs) / Std Length/Hr) * 100 For Extrusion 3: ((Good Parts / Shift Up Hrs) / (3600 / STD Cycle)) x 100

Description and Extended Description	Description of the part being manufactured.
Downtime Description	Shows the Downtime description associated to the Downtime Code if applicable.
Downtime Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.
Floor Dispo	The quantity of items that have been floor dispositioned. For the EXT1 Mfg Type this field will be labeled Floor Dispo Length. There is an also an additional field called 'Floor Dispo Parts' that will equal the Floor Dispo Length divided by the Pt. Length specified on the BOM Item Details->Item Information tab.
Good Parts	Number of good parts produced on this shift. (Total parts -bad parts). This is Good Length for the Extrusion MFG type and Good Lbs for the EXT2 MFG type.
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.

Inspections Due	For inventory items, Inspection Groups (in Inspection Setup) can be set as a 'RealTime Inspection Frequency' group by entering the Run Hours and/or the Parts Produced. More than one group can be set up for this feature. When the item is running in the first position, RealTime™ will count down based on the frequency settings for the item. In the RealTime™ Part Numbers, Quality Control and Cycle Part Counts monitoring screens this column will display the number of inspections due out of the number of total inspections groups setup with a 'RealTime Inspection Frequency' (i.e. 3/4). When either frequency has been met (equal or greater), this field will display in blue. This column will recalculate the fraction when inspections are performed and RT monitor is refreshed to display the current inspections required out of the total that are setup. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details such as Parts Count, Hours Count and Pending. The line for required inspections will display in blue. From the form users can access the Quick Inspection module to perform a new quick inspection on a group using the speed button or right click option.  When the user clicks 'Available Inspections' the SPC counts are calculated first, before the form displays. In order to account for additions and deletions of inspection groups setup with a 'RealTime Inspection Frequency', the denominator in the Inspections Due value is recalculated and the field is updated when users click the 'Refresh' button in RealTime™. Note: During the normal RealTime™ refresh the denominator is not updated in order to keep the refresh rate fast.
Inspection Hours to Go	This is the number if hours to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Run Hours setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Inspection Parts to Go	This is the number if items to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Parts Produced setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Item Number and Rev	Item Number and revision of the manufactured part.

Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
Lot #	The Finished Good Lot number associated to the Mfg #.
Mfg. #	Shows the number of the actual manufacturing configuration (from the Bill of Manufacture). Should also be the work order that is in the first position on the press in Manufacture Schedule.
Original WO Qty	The original work order quantity at the time the work order was setup in the first position.
Out-of-Spec Events	This column displays out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.
Parts to Go	Parts remaining to complete work order. See the Parts to Go information in the Part Numbers Screen field listing above for complete details. This is Length to Go for the Extrusion MFG type and Lbs to Go for the EXT2 MFG type
Priority	If the Priority check box on the work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	These fields will contain any vital information concerning the work order running. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Quality Issues	For users with the Quality module the system will check to see if the item is associated with a non-archived CAR/CAPA, ECO, Deviation, PPAP/Product PQ, or MRB. If it is, a Y will appear in this field. The user can select the ellipsis button to display a form with the specific records and Jump to capability.
Scrap %	Percentage of bad parts to total parts. If this is greater than the BOM standard scrap percent this column will display in pink.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	BOM Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)

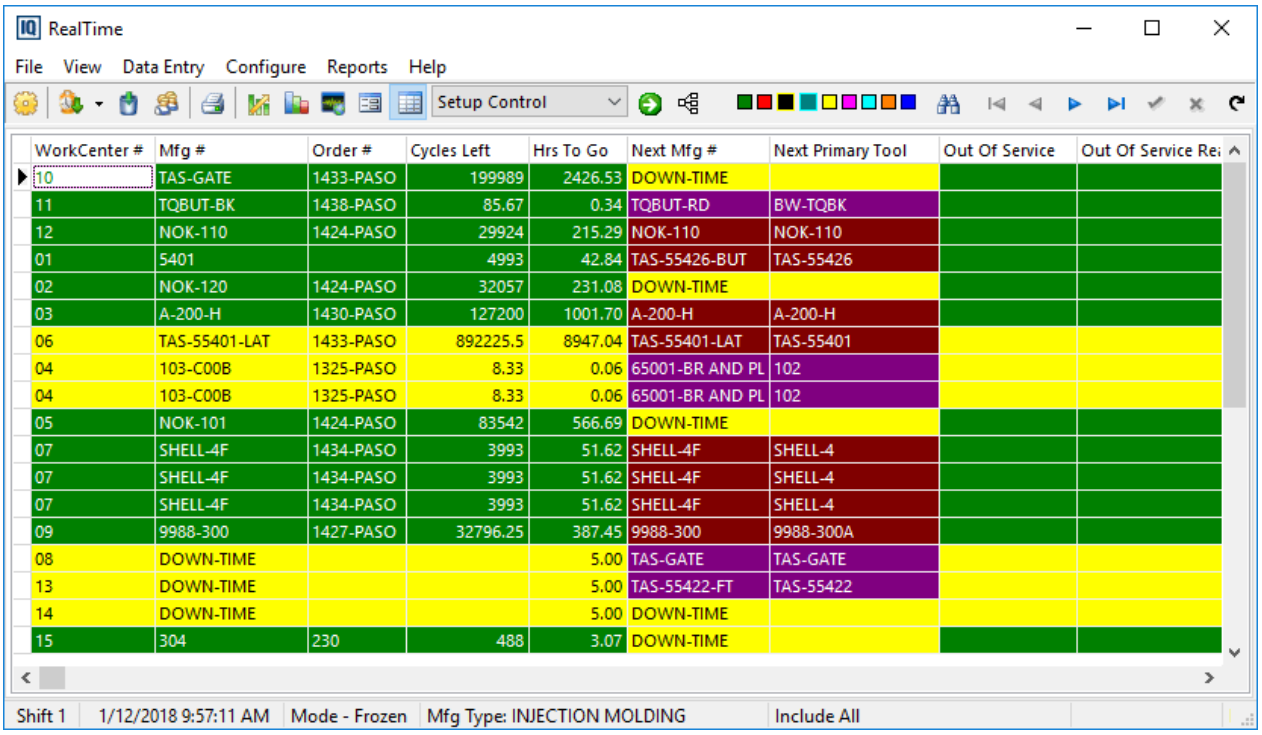
Std Multiplier or Cav	BOM Standard multiplier or cavitation. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
WO #	Shows the number of the work order currently running on the work center selected.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center.

Setup Control View

This screen is often used by those who perform tool changes to determine the next job requiring setup.

Based on the SetUp Warning Time (under Set Warning Time in Plant Parameters), the Next Mfg. # field will change from the color brown to purple. This serves as a warning to the setup people that they will have to make a change soon. If the Next Mfg. # is the same as the one currently running, it will still change to purple even though no tool change will be necessary.

Use the field listings below the illustration to familiarize yourself with each field. There are slight differences depending on the manufacturing type. These differences will be noted in the table.



WorkCenter #	Mfg #	Order #	Cycles Left	Hrs To Go	Next Mfg #	Next Primary Tool	Out Of Service	Out Of Service Re
10	TAS-GATE	1433-PASO	199989	2426.53	DOWN-TIME			
11	TQBUT-BK	1438-PASO	85.67	0.34	TQBUT-RD	BW-TQBK		
12	NOK-110	1424-PASO	29924	215.29	NOK-110	NOK-110		
01	5401		4993	42.84	TAS-55426-BUT	TAS-55426		
02	NOK-120	1424-PASO	32057	231.08	DOWN-TIME			
03	A-200-H	1430-PASO	127200	1001.70	A-200-H	A-200-H		
06	TAS-55401-LAT	1433-PASO	892225.5	8947.04	TAS-55401-LAT	TAS-55401		
04	103-C00B	1325-PASO	8.33	0.06	65001-BR AND PL	102		
04	103-C00B	1325-PASO	8.33	0.06	65001-BR AND PL	102		
05	NOK-101	1424-PASO	83542	566.69	DOWN-TIME			
07	SHELL-4F	1434-PASO	3993	51.62	SHELL-4F	SHELL-4		
07	SHELL-4F	1434-PASO	3993	51.62	SHELL-4F	SHELL-4		
07	SHELL-4F	1434-PASO	3993	51.62	SHELL-4F	SHELL-4		
09	9988-300	1427-PASO	32796.25	387.45	9988-300	9988-300A		
08	DOWN-TIME			5.00	TAS-GATE	TAS-GATE		
13	DOWN-TIME			5.00	TAS-55422-FT	TAS-55422		
14	DOWN-TIME			5.00	DOWN-TIME			
15	304	230	488	3.07	DOWN-TIME			

Setup Control Field Listings

AVG Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.

Cust #	This is the Customer number associated to the work order.
Cycles Left	Number of cycles remaining to complete the work order. When jobs are running back to back the day parts are per work order. Cycles Required - Total Cycles. This field is Length Left for the Extrusion MFG type and Lbs Left for the EXT2 MFG type. Note: When the Do Not Disposition Partials option is unchecked in Production Reporting parameters, the cycles left field in RealTime Production Monitor will not take into account cycles that have been placed on production reports for previous days. The cycles left field will be calculated based on the current Cycles required – daily cycles. If the Option is checked, the Cycles Left will be calculated based on the Cycles Required- Cycles to Date.
Description and Extended Description	Description of the item number to be manufactured next.
Down Time Description	Shows the Downtime description associated to the Downtime Code if applicable.
Down Time Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Hours to Go	Number of hours remaining to complete the work order.
Item Number and Rev	Shows the item number and revision that will be made next.
Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
Mfg. #	The manufacturing number currently running on the press.
Must Start	The Must Start date for the work order.
Next Item Priority	If the Priority check box on the next work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Next Mfg. #	Shows what manufacturing is scheduled to run next on this work center.
Next Must Start	The Must Start date for the next work order.

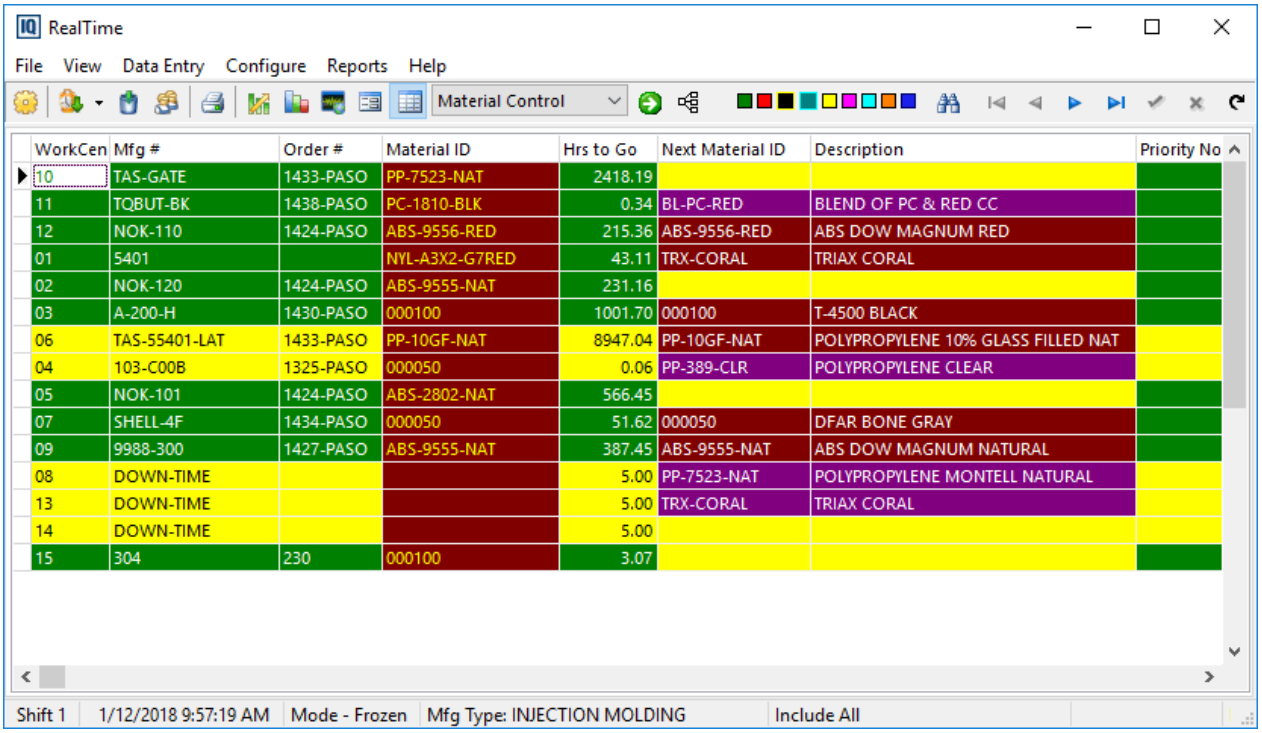
Next Primary Tool #	Shows the next primary tool number associated to the BOM that is scheduled to run next on the press.
Next Priority Level	This indicates the next work order's priority level.
Next Priority Note **Next Priority Note 2**	These fields will contain any vital information about the job to be setup next.
Next Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Next WO #	The work order number in the #2 position.
Order #	This is the Sales Order number.
Original Cycles Required	The original quantity of cycles required when the work order is setup in the first position.
Out of Service	This field will have a Y in it if the Next Primary Tool will be out of service when it is scheduled to run.
Out of Service Reason	This is the reason the next primary tool has been marked out of service.
Parts Left	Extrusion manufacturing type only. Parts remaining to be produced
Priority	If the Priority check box on the current work order is checked this field will display in light blue with a Y indicating the work order is a priority
Priority Note **Priority Note 2**	Contains any vital information about the job to be setup next. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Scheduled Start Time	The scheduled start time for the work order.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.

STD Cycle	BOM Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting, and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
Tool #	Shows the Tool number associated with the BOM.
WO #	Shows the number of the work order currently running on the work center selected.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center.

Material Control View

This screen is used to determine when the next material change will need to take place. Based on the Material Warning Time (under Set Warning Time in Plant Parameters), the Next Material ID field will change from brown to purple. This will serve as a warning to the material handler that this material will need to be changed and what material will be needed. If the Next Material is the same as the one currently running, it will not change to purple because no material change will be necessary.

For example, work centers 03, 06, 09, etc. have a material change. This information is based on the material specifications found in the work order in the second position of the schedule.



Material Control Field Listing

AVG Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.
Cust #	This is the Customer number associated to the work order.
Description and Extended Description	The description and extended description for the Next Material ID.
Downtime Description	Shows the Downtime description associated to the Downtime Code if applicable.
Downtime Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.

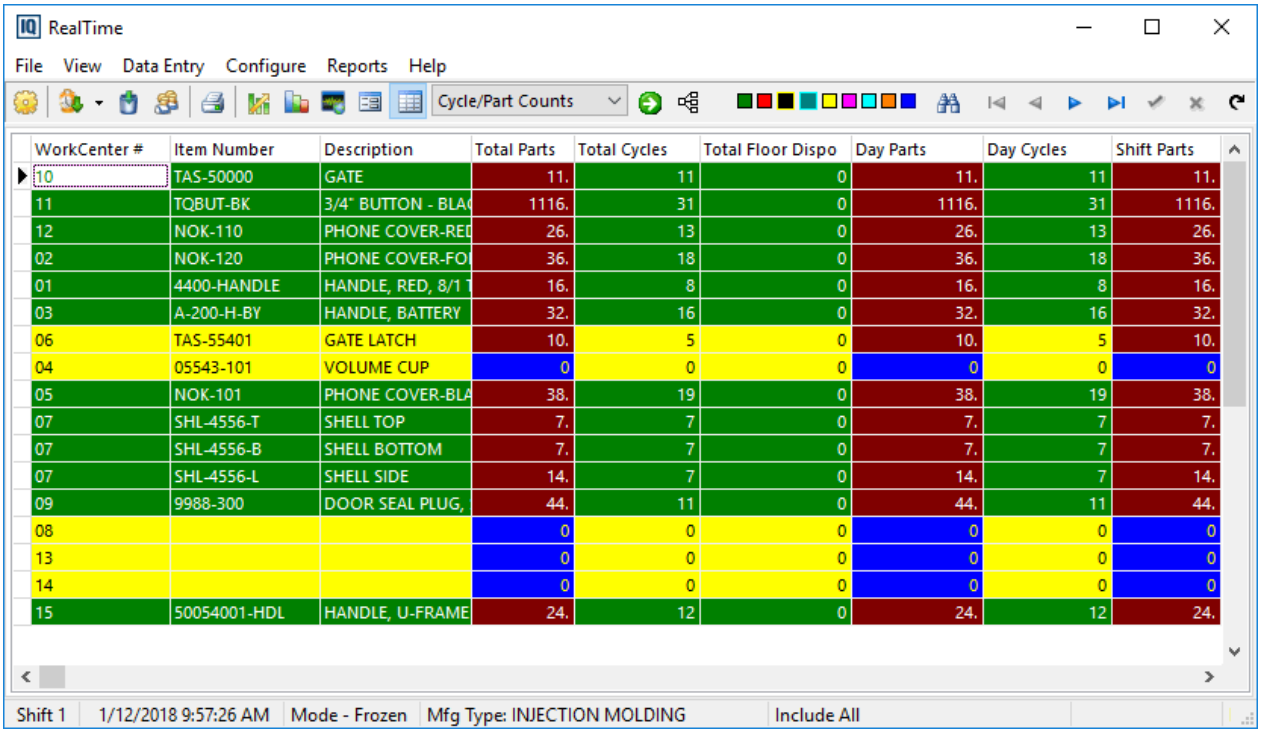
Dry Time	The dry time for the current material (the item listed in the Material ID field).
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Hours to Go	The number of hours remaining to complete the work order. The time is recalculated continually based on average cycle time. For Virtual Work Centers the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine.
Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
Lbs to Go	This is the pounds of material required. This is calculated: Cycles To Go * (Lbs per K /1000)
Material ID	Shows the item number of the material currently being used at this work center.
Mfg #	The manufacturing number currently running on the press.
Must Start	The Must Start date for the work order.
Next Dry Time	The dry time for the next material required.
Next Item Priority	If the Priority check box on the next work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Next Material ID	Shows the item number of the material that is to be used in the next scheduled job.
Next Must Start	The Must Start date for the next work order.
Next Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Next WO #	The work order number in the #2 position.
Order #	This field shows the sales order number for this job.
Original Cycles Required	The original quantity of cycles required when the work order is setup in the first position.
P.O. #	Shows the Purchase Order related to this job.
Priority	If the Priority check box on the current work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the current work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.

Priority Note **Priority Note 2**	These fields will contain any vital information concerning the work order running. This information can be entered here, on the work order, or from the Scheduling module. To enter a note, right click and select Priority Notes. Select a note from the drop down list, or select the Edit Priority Note button to enter information manually.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Rev	Item revision.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	BOM Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting, and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
WO #	Shows the number of the work order currently running on the work center selected.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center.

NOTE: Based on the Warning Time (under Set Warning Time in Plant Parameters), the Next Material ID field will change from brown to purple. This will serve as a warning to your material handler that this material will need to be changed and what material will be needed. If the Next Material is the same as the one currently running, it will still change to purple even though no material change will be necessary.

Cycle/Part Counts View

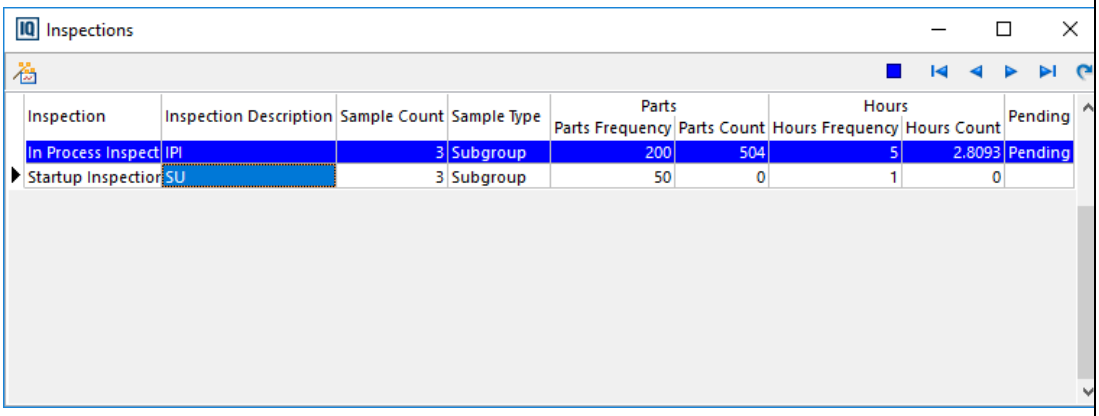
The Cycle/Part Counts screen shows how many hours, parts, and cycles you still need to run to complete the work order. By contrast, the Cycle/Part Count screen displays how far into the job you are currently. Use the field listings below the illustration to familiarize yourself with each field. There are slight differences depending on the manufacturing type. These differences will be noted in the table.



Cycle/Part Count Field Listings

ACT Multiplier or Cav	Actual number of multipliers or cavities in production. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
AVG Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Length/Hr for the Extrusion MFG type, and AVG Weight/Hr for Extrusion2 and Compound1.
Cust #	This is the Customer number associated to the work order.
Day Cycles	Number of cycles received since the beginning of Shift 1. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up.
Day Out-of-Spec Events	This column displays the day total of out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.

Day Parts	Number of parts produced for this work order during the day beginning at shift 1. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up. In addition to Day Parts there is Day Length for the Extrusion MFG type. For the EXT2 MFG type this field is Day Lbs.
Description and Extended Description	Description of the manufactured part.
Down Hrs	Number of hours the work order has been down on this work center during the current shift.
Downtime Description	Shows the Downtime description associated to the Downtime Code if applicable.
Downtime Reason	The downtime reason (manually entered reason or the selected Downtime Code), or the MRO work order number.
Floor Dispo	The quantity of items that have been floor dispositioned. For the EXT1 Mfg Type this field will be labeled Floor Dispo Length. There is an also an additional field called 'Floor Dispo Parts' that will equal the Floor Dispo Length divided by the Pt. Length specified on the BOM Item Details->Item Information tab.
Group Code	Displays the Group Code (ARINVT_GROUP_ID) of the FG inventory item on the BOM. Users can sort work centers by group code as well using the right-click --> Sort option. The Group Code is selected within the Inventory module under the Additional tab.

Inspections Due	For inventory items, Inspection Groups (in Inspection Setup) can be set as a 'RealTime Inspection Frequency' group by entering the Run Hours and/or the Parts Produced. More than one group can be set up for this feature. When the item is running in the first position, RealTime™ will count down based on the frequency settings for the item. In the RealTime™ Part Numbers, Quality Control and Cycle Part Counts monitoring screens this column will display the number of inspections due out of the number of total inspections groups setup with a 'RealTime Inspection Frequency' (i.e. 3/4). When either frequency has been met (equal or greater), this field will display in blue. This column will recalculate the fraction when inspections are performed and RT monitor is refreshed to display the current inspections required out of the total that are setup. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details such as Parts Count, Hours Count and Pending. The line for required inspections will display in blue. From the form users can access the Quick Inspection module to perform a new quick inspection on a group using the speed button or right click option.  When the user clicks 'Available Inspections' the SPC counts are calculated first, before the form displays. In order to account for additions and deletions of inspection groups setup with a 'RealTime Inspection Frequency', the denominator in the Inspections Due value is recalculated and the field is updated when users click the 'Refresh' button in RealTime™. Note: During the normal RealTime™ refresh the denominator is not updated in order to keep the refresh rate fast.
Inspection Hours to Go	This is the number if hours to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Run Hours setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Inspection Parts to Go	This is the number if items to go before an inspection needs to be performed. This is based on the RealTime™ Inspection Frequency->Parts Produced setting entered for the Inspection Group associated to the item in the Inspection Setup module that is due the soonest. This field will turn blue when it goes to zero or below. This column will reset once an inspection is performed. When a Quick Inspection is required, inspectors can right click on the item in RealTime™ and select 'Available Inspections' to access a pop up form that displays the inspection group details (see 'Inspections Due' above for details).
Item Number and Rev	The Item Number and revision of the part being manufactured.

Labor	This is the Labor value from the BOM. This will not include labor for employee levels that have the 'Exclude from RT labor' box checked in the Employee Level list.
Mfg #	Shows the number of the actual manufacturing configuration (from the Bill of Manufacture). Should also be the work order that is in the first position on the press in Manufacture Schedule.
Original WO Qty	The original work order quantity at the time the work order was setup in the first position.
Priority	If the Priority check box on the current work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the current work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	These fields will contain any vital information about the job to be setup next.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Quality Issues	For users with the Quality module the system will check to see if the item is associated with a CAR/CAPA, ECO, Deviation, PPAP/Product PQ, or MRB. If it is, a Y will appear in this field. The user can select the ellipsis button to display a form with the specific records and Jump to capability.
Shift Cycles	Number of cycles received for this work order on this shift. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up.
Shift Out-of-Spec Events	This column displays the shift total out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.
Shift Parts	Number of parts produced for this work order on this shift. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up. In addition to Shift Parts there is Shift Length for the Extrusion MFG type. For the EXT2 MFG type this field is Shift Lbs.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	Standard cycle time. This field is STD Length/Hr for the Extrusion MFG type. For Extrusion2, Slitting, and Compound1 it is STD Weight/Hr and is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)

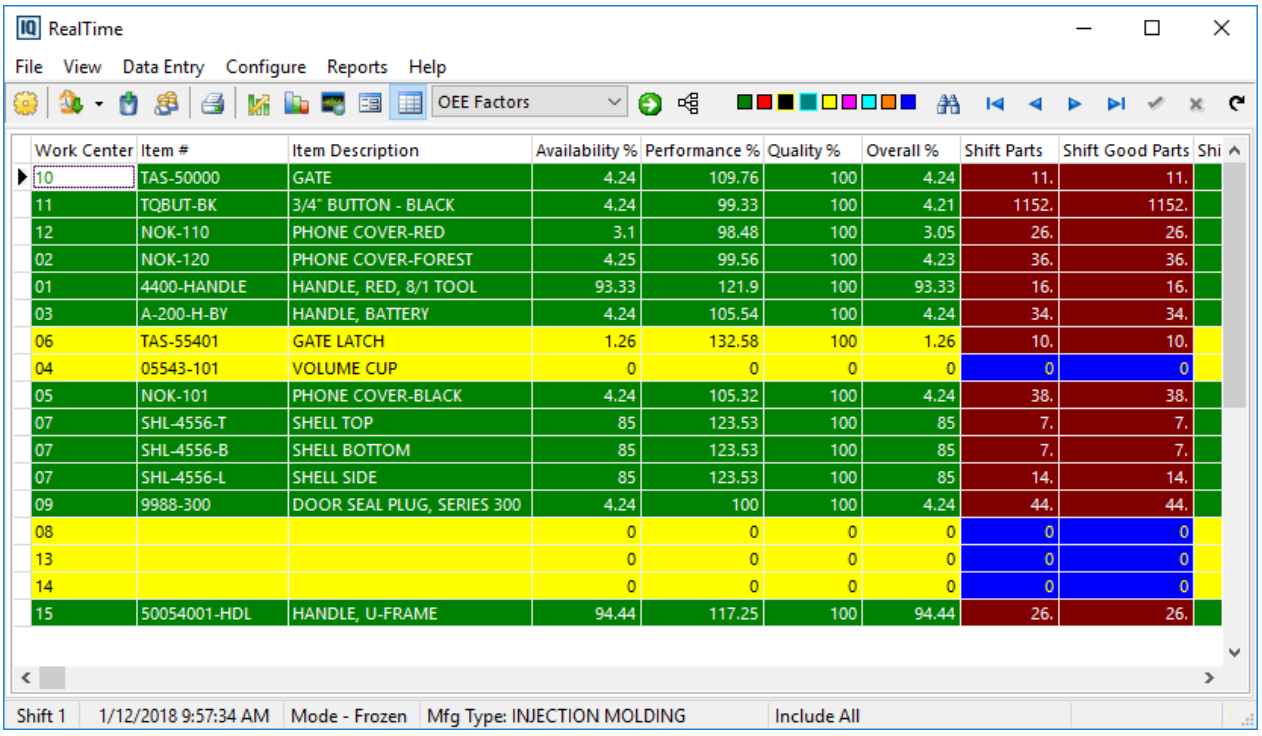
STD Multiplier or Cav	Standard multiplier or Cavity. This field is not associated with the Extrusion, EXT2, and EXT3 manufacturing types.
Tool #	Shows the Tool number associated with the BOM.
Total Cycles	Total number of cycles received so far for this work order. If running the same mfg. number back to back then the total cycles will include any parts that were overran for the previous work order.
Total Floor Dispo	The total floor dispositioned since the beginning of the run.
Total Out-of-Spec Events	This column displays the total out of spec variable data entered from Quick Inspection and SPC for the item while the work order is running.
Total Parts	Total number of parts produced so far for this work order. If running the same mfg. number back to back then the total parts will include any parts that were overran for the previous work order. In addition to Total Parts there is Total Length for the Extrusion MFG type and For the EXT2 MFG type this field is Total Lbs.
Up Hrs	Number of hours the work order has been running on this work center during the current shift.
WO #	Show the number of the work order that is currently running on the selected work center.
Work Center #	Current Work Center assigned to this job.
Work Center Description	This field displays the description of the work center.

OEE Factors View

This view provides several fields to review the overall equipment effectiveness (OEE). The OEE calculation fields include:

- Availability takes into account non planned Downtime Loss.
- Performance takes into account Speed Loss
- Quality takes into account Quality Loss
- Overall takes into account all three OEE Factors

Note: When a new job is setup the last runs OEE calculations are stored in the Hist_Illum_Part table. This information can be used in KPIs to compare current shift OEE with previous runs OEE percentages.



OEE Factors Field Listing

Availability %	(Shift Up Hrs / (Shift Up Hrs + Shift Down Hrs - Planned Down Time)) * 100 Example, assuming no planned down time hrs: (1.2933 / (1.2933 + 1.0875)) * 100 (1.2933 / 2.380833) * 100 = 54.32
Avg Cycle	Average of last 50 cycle times received (or less if 50 cycles have not yet been received). This field is AVG Ft/Hr for the Extrusion MFG type and AVG Weight/Hr for Extrusion2 and Compound1.

Cust #	This is the Customer number associated to the work order.
Description and Extended Description	Description of the part being manufactured.
EPlant ID	EPlant associated to the running job.
Group Code	Displays the inventory Group Code (ARINVT_GROUP_ID) of the FG Inventory item on the BOM. The Group Code is selected within the Inventory module under the Additional tab. The Group Code is selected within the Inventory module under the Additional tab.
Hrs to Go	Number of hours remaining to complete work order
Item Number and Rev	Item Number and revision of the manufactured part.
Lot #	The Finished Good Lot number associated to the Mfg #.
MFG #	Shows the number of the actual manufacturing configuration (from the Bill of Manufacture). Should also be the work order that is in the first position on the press in Manufacture Schedule
MFG Cell	MFG Cell associated to the MFG #.
MFG Type	MFG Type associated to the MFG #.
Operators	This is the Labor value from the BOM.
Original WO Qty	The original work order quantity at the time the work order was setup in the first position.
Overall %	((Availability % / 100) * (Performance % / 100)* (Quality % / 100)) * 100 Example: ((54.32/100) * (93.14/100) * (99.71/100)) * 100 = 50.45 This is capped at 100%.

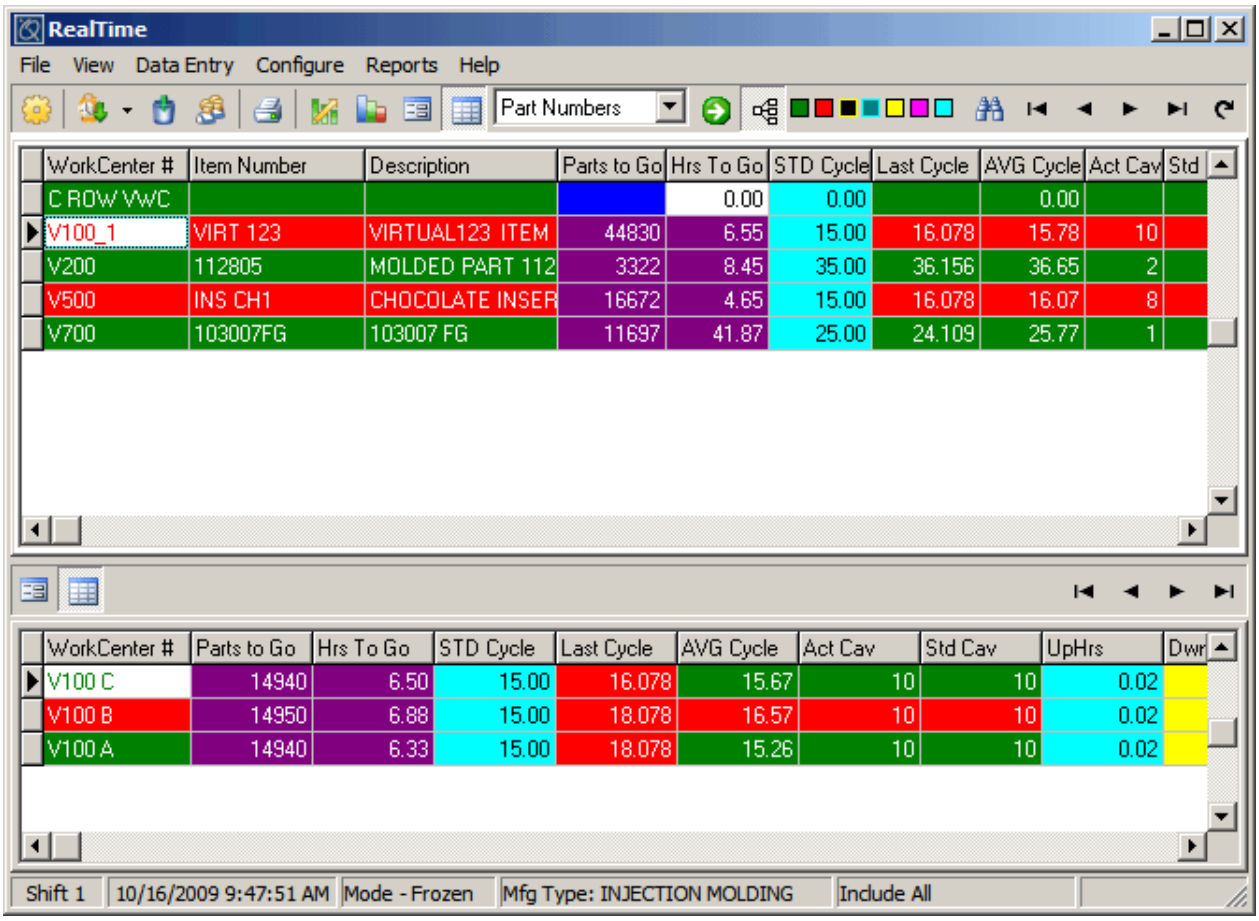
Parts to Go	Parts remaining to complete work order. This field will be colored orange if the Hours to Go of the current job is within the Setup Warning Threshold set up in Scheduling Parameters. **Calculations:** *The RealTime™ Parts to Go calculation (MFG Type -> RT parts to go based on scans = Not Checked):* If the item is not floor dispositioned (the 'Do not Disposition partials' is not selected). The calculation is as follows: Run qty + shift_rejects + day_rejects + since_sched_rejects - since_sched_qty - shift_qty - day_qty + counted_dispo If the Item does have the 'Do not Disposition partials' selected the calculation is: Run qty + shift_rejects + day_rejects - shift_qty - day_qty + counted_dispo - Partial (Partial = Total qty - total rejects - floor dispo qty total) This is Length to Go for the Extrusion MFG type and Lbs to Go for the EXT2 MFG type. For the EXT MFG Type there is an additional field called Parts to Go as well, which is the parts remaining to be produced. *The RealTime™ Parts to Go calculation (MFG Type -> RT parts to go based on scans = Is Checked):* Run qty – floor dispo qty total **Notes**: DELMIAworks recommends that if you are using the floor disposition functionality in RealTime™ monitoring, ShopData, RF or WMS that you run update schedule just after the start of the new production day (beginning of 1st Shift). This will ensure that the RealTime™ parts to go calculation is accurate as of the start of each production day. For Manual work orders, you must have the Dispo Partials option ON for the item (Inventory->Additional tab) in order for the 'parts to go' count to be correct, whether floor dispositioning or not. For non-signaled work centers if the quantity on a Firm work order is changed the Parts to Go will update to that value. It will not subtract floor dispositioned parts if any were reported prior to the work order quantity change. For a Manual work order the quantity will be adjusted by the floor dispositioned quantity. For the Injection MFG Type, if the 'RT parts to go based on scans' option is checked the parts to go count will not decrease until a RF scan/floor disposition transaction is done.

Performance %	((Shift Parts / Shift Up Hrs) / (1 / (Std Cycle/Std Cav/3600)) * 100 Example: ((8326 / 1.29333) / (1 / (25/48/3600)) * 100 (6437.629 / (1 /.0001446759)) * 100 (6437.629 / 6912) * 100 = 93.14 For the Extrusion MFG Types the system first calculates the 'pc per minute': EXT = (Feet per Lb / Lbs per Hr) / 60 EXT2 and EXT3 = 3600 / Std Cycle / 60 (See STD Cycle field below for calculation information) The Performance % is then calculated: (Total parts / Prod minutes) / pc per minute * 100
Priority	If the Priority check box on the work order is checked this field will display in light blue with a Y indicating the work order is a priority.
Priority Level	This indicates the current work order's priority level. A numeric value can be entered in this field and will update the corresponding field on the work order, or vice versa. Priority Level values are not sequential, there can be multiple records with the same level.
Process # and Process Description	For ASSY1 work centers there are columns for the Process Number and Process Description.
Process Alarms	This column is visible for users with RealTime™ Process Monitor device licenses. If there are process alarms the background will be red with a (Y) in the field.
Quality %	(Shift Good Parts / Shift Parts) * 100 Example: (8302 / 8326) * 100 = 99.71
Shift Cycles	Number of cycles received for this work order on this shift. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up.
Shift Down Hrs	Will show the number of hours that this work center has been down for this shift.
Shift Good Parts	Number of good parts produced on this shift. (Total parts -bad parts). This is Good Length for the Extrusion MFG type and Good Lbs for the EXT2 MFG type.

Shift Parts	Number of parts produced for this work order on this shift. When jobs are running back to back the day parts are per work order and do not include overran parts from previous work order. It resets itself after a set up. In addition to Shift Parts there is Shift Length for the Extrusion MFG type. For the EXT2 MFG type this field is Shift Lbs.
Shift Rejects	Number of rejected items produced on this shift. The Shift Rejects field gets filled in when you enter in rejects through RealTime™ in the Production Data Entry section of the RealTime™ Monitoring menu.
Shift Up Hrs	Number of hours that the work order has been running for this shift. The Shift Up Hrs will reset after a set up.
SO #	Shows the number of the sales order associated to the currently running job.
Stay Down	When the Android RT Work Center feature for Stay Down is being used, this column will display a 'Y'. When Stay Down is being used, the RTServer cycle description will display 'Stay Down' in parenthesis next to the signal.
STD Cycle	Standard cycle time. This field is STD Ft/Hr for the Extrusion MFG type. For Extrusion2m, Slitting, and Compound1 it is calculated: 3600 / (Lbs/Hr / (Lbs/K / 1000)) For Extrusion3 it is 3600 / (Lbs/Hr / Part Weight)
Total Parts	Total number of parts produced so far for this work order. If running the same mfg. number back to back then the total parts will include any parts that were overran for the previous work order. In addition to Total Parts there is Total Length for the Extrusion MFG type and For the EXT2 MFG type this field is Total Lbs.
Tool #	Shows the Tool number associated with the BOM.
Work Center #	Current Work Center assigned to this job.
Work Center Description	Shows the description of the work center.

Virtual or Complex Line Work Centers in RealTime

Virtual or associated (child) work centers will not be visible upon first opening the RealTime™ screen. The Complex Line work center will be visible but the child work centers will not. To view the virtual or complex line machines select the button  'Show only virtual / complex line work centers'. The screen will change to display only virtual or complex line work centers in the top section and the associated work centers in the bottom section.



The information displayed for the virtual or complex machines in the top section will be based on the selected view (Part Numbers, Quality Control, etc.). Changing the view on the parent does not affect the view for the associated work centers. The information displayed for the children is always the Part Number view.

The virtual machine is the sum of all the child machines. It accumulates all of the cycles made on all the children and shows the 'parts-to-go' for the entire run. The virtual machine will be the deciding factor as to whether the 'run' is done. The running child machines will run into the negative to compensate for a machine being down.

RealTime™ Production Data Entry with Virtual and Complex Line WC's

All production data entry, such as rejects and downtime, is entered on the virtual machine. There are no right-click options on the associated work centers. The procedure for entering the production data is identical to that for non virtual work centers.

For the Complex MFG Type, users can right click on the Complex Line and choose the production date/shift/cell for the children.

For more information on the Complex MFG Type please refer to the ***Complex Manufacturing https://my.iqms.com/cfs-file.ashx/__key/Technote/Complex-MFG.pdf*** TechNote.

For additional information on Virtual Work Centers please see the Virtual Work Centers section.

Production Data Entry

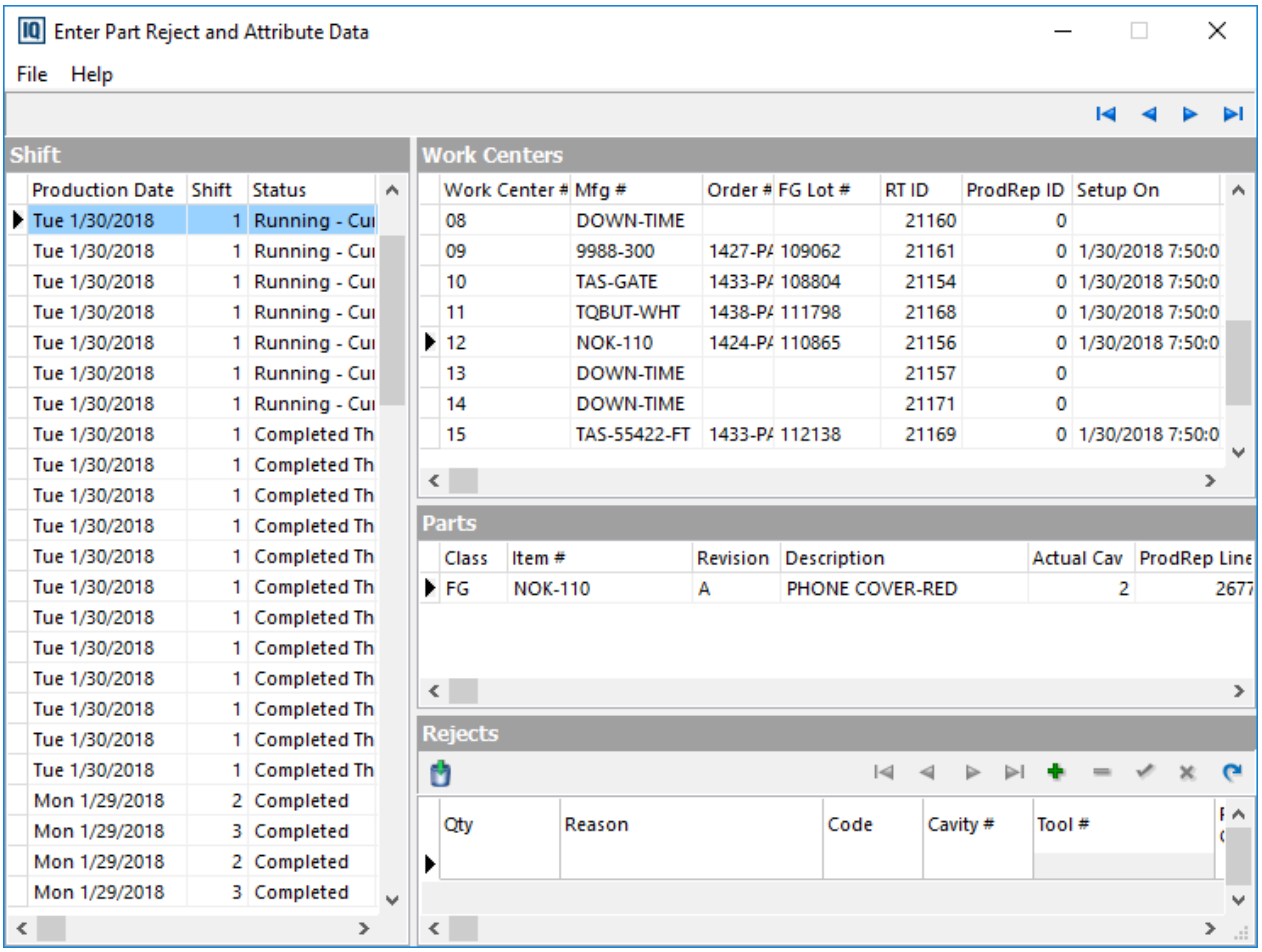
From RealTime™ , users can enter various production data. **EnterpriseIQ** supports reject, downtime, and labor reporting during the shift. This provides an opportunity to update the system with actual information as it occurs. The data can also be entered after the shift if the production report has not been opened.

Reject/Scrap Entry

This section allows the user to enter in a quantity of rejected parts and the reject codes for the current shift and any shifts that have not been opened in Production Reporting.

To access this screen, simply follow the steps below.

- Under **Data Entry**, select **Reject / Scrap Entry**, select the Reject speed button, or right click and select **Rejects**. The following screen will be displayed. The system will sort the Work Centers grid by how the RealTime sort is setup from the right click sort option on the RealTime screen.



This screen is broken down into four data boxes.

Shift

All *available* shifts will be displayed in this section. Available shifts are defined as those shift reports which have not been opened through Production Reporting.

A field listing has been provided to help familiarize you with each of the fields shown in this section.

Prod. Date	Shift date.

Shift	The shift associated to the production date.
Status	Information on shift status (running or completed). Rejects entered on a 'Completed' or 'Completed this shift' will reduce the good parts by the quantity of rejects entered.
Cell	If cells are being used, this indicates to which cell the shift report belongs.
EPlant ID	EPlant ID associated with the shift and cell.

Work Centers

Based on which Shift selection is chosen, the corresponding centers that have Work Orders scheduled to them will appear. This section can be sorted based on the work center # or work center description by selecting one of the options from the right click menu in this section.

- Highlight the work center to enter rejects on. Below is the field listing of this screen.

Work Center #	Work center number.
Mfg. #	Current work order being run on the work center.
Order #	Shows the Sales Order number associated with this job.
SetUp On	Show the date and time that this job was setup up on that particular work center.
FG Lot #	Shows the FG lot number to allow the user to reject from a certain lot.
ProdRep ID	The production report ID associated to the record.
RT ID	RealTime™ internal ID associated with the Work Center.
Work Center Description	Work Center Description

Parts

This box displays what part number(s) were being run on the work center selected. As you move through the work centers box, the Parts box will change to reflect the highlighted work center.

If this is a family tool, highlight the item number to enter rejects against. The following illustration shows what this section looks like. Use the field listing below the illustration to familiarize yourself with the fields in this section.

Class	Shows what class this item # is, i.e. Finished good.
Item #	Shows the item number of the manufactured part.
Rev	The item's revision level if applicable.
Description and Ext Description	Shows the description and extended description of the manufactured part number.
Act Cav	The actual cavities associated to the item.
ProdRep Line ID	The internal production report line item ID.

Rejects

This portion of the screen is where you enter in the quantity of rejected parts and the reject code. If rejects were entered in already for this shift on this part, they will appear in this section as well. (Security can be placed on NavRejects, QryRejects and sbtnRejectComponents in the Rejects section).

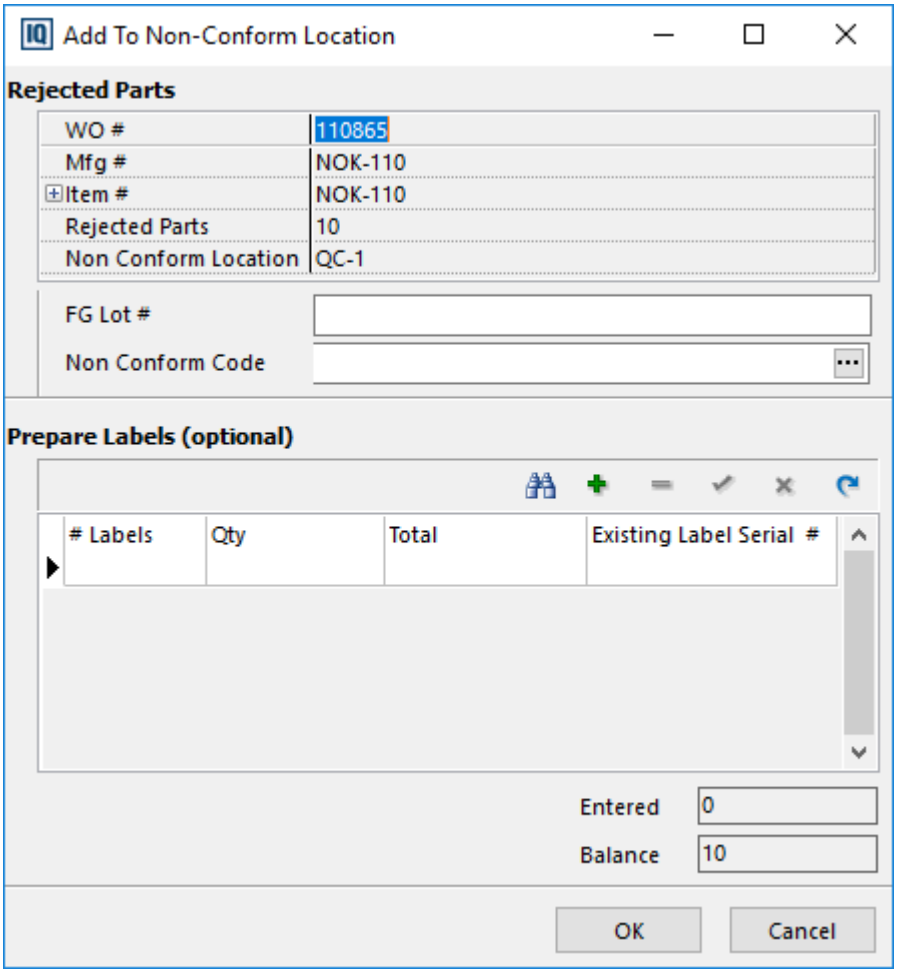
- Select the Insert (+) button on the navigator bar.
- Click on the **Quantity** field and enter the number of rejects.
- Under **Reason or Code**, click on the arrow down. A list of reject codes will appear. This pick list includes the CUser1 and CUser2 fields from the Reject Code list. Highlight the correct code for rejecting these parts. The system will display the sequential reject codes as follows:

- If there are reject codes on the BOM Level the system will only show those codes
- If there are reject codes on the Work Center level the system will only show those codes
- If there are reject codes on both the BOM and Work Center levels both will be visible
- If there are no reject codes on either BOM or Work Center levels all codes will display with soft filters on EPlant and the MFG Cell

- For Manufacturing Types of Injection, Blow Molding, and Die Cast the user can enter the **cavity number** from which the rejects came from. Also the Tool number associated to the BOM will automatically fill in the Tool # field.
- For Extrusion, Ext2, or Ext3 manufacturing types the user can optionally choose to enter rejects in a different unit of measure (UOM) than the good parts and have the rejects converted based on a user defined UOM conversion set up on the inventory item. (See Converting between Units of Measure for information on setting the conversion factors up). To do this click on the ellipsis button in the Rejects field and the Custom UOM form will appear. Select the UOM from the drop down field and enter the quantity. The system will automatically convert the rejects into the system UOM based on the user defined conversion set up in inventory. This allows you to report rejects in a different UOM than the good parts.
- A **comment** (up to 250 characters) can be entered for the reject.

Non Conform Location Reject Code

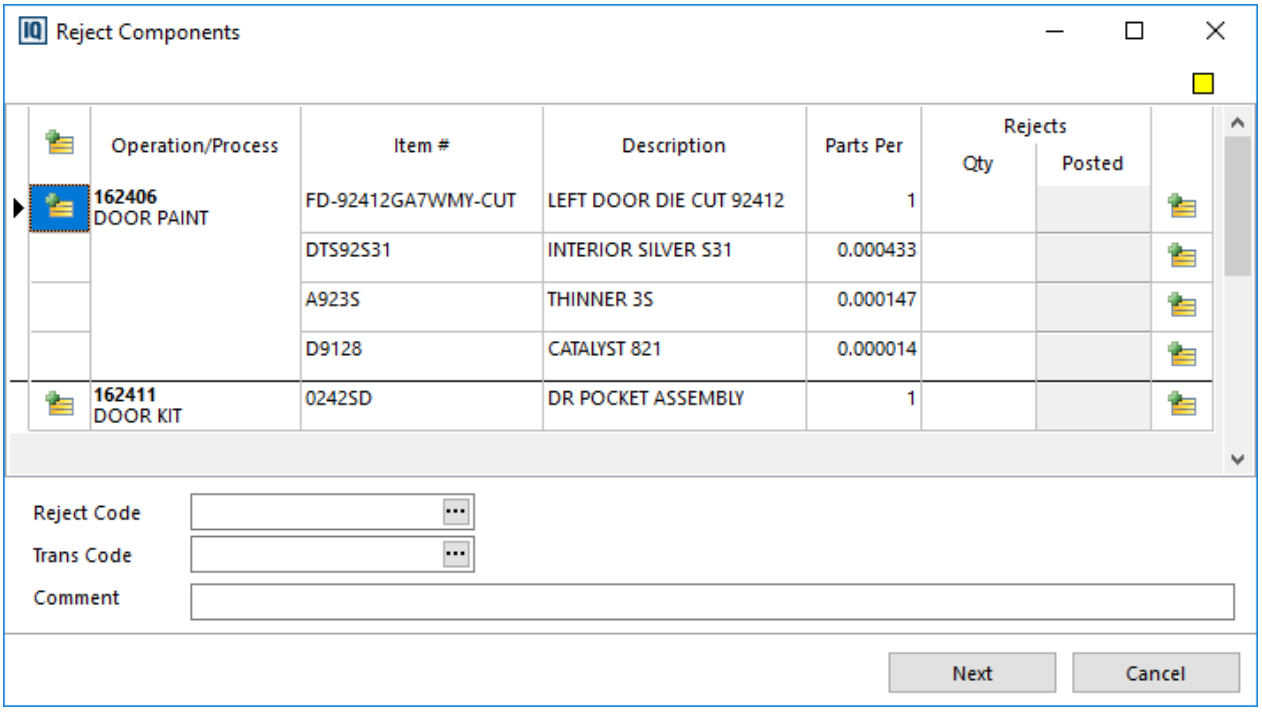
- If the selected reject code has a non conform location associated to it (Reject Codes list) the system will do an IN disposition transaction with a reason of 'Non Conform Mfg Rejects' for the quantity rejected into the location associated to the reject code. (This does not update the Floor Dispo column in the production report). Once the reject is posted a form will display to enter the FG Lot #, Non Conform Code and prepare labels.


Add To Non-Conform Location
Rejected Parts
WO #
110865
Mfg #
NOK-110
Item #
NOK-110
Rejected Parts
10
Non Conform Location
QC-1
FG Lot #
Non Conform Code
Prepare Labels (optional)
Labels
Qty
Total
Existing Label Serial #
Entered
0
Balance
10
OK
Cancel

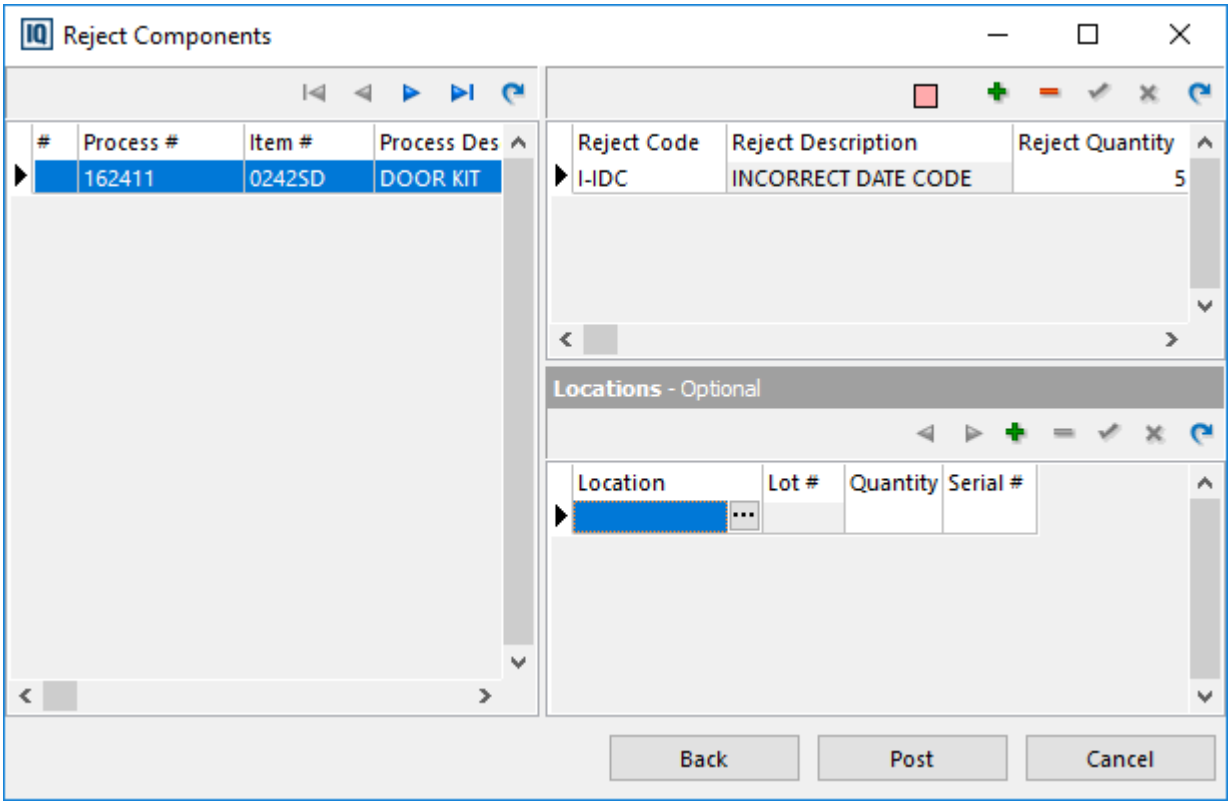
Enter the FG Lot # in the field if desired. If the item has the 'Lot # is mandatory' option checked in inventory it is required. Select the Non Conform Code from the pick list accessed by clicking on the ellipsis button in the field. This will be the non conform code associated to the non conform location in inventory. Labels can be prepared by manually entering in the number of labels and quantity per label, or existing label serial numbers can be selected from the pick list.

Rejected Components - Components associated to operation(s) attached to the BOM associated to the work order can be rejected automatically if the employee has the 'Backflush Rejects' user setting checked in Security Inspector->General tab. If that option is checked the system will backflush the components based on the quantity of rejects. The setting associated to the employee will display under the item description. It will say Backflush Rejects: ON or OFF. If the user selects the Add or Subtract buttons to make an adjustment to the reject quantity the system will automatically make adjustments to the rejected components. If the 'Exclude Reject Backflush' box can be checked (BOM->Attached Materials Detail tab) to exclude the attached material from being backflushed when reporting rejects. For example, if an item is rejected it may not be placed in a packaging item therefore the package should not be backflushed when rejecting the manufactured item.

Components or materials attached to operations can be rejected whether there is a reject entry for the manufactured item or not. To create a reject entry for the components only select the Rejected Components button above the Qty field  . To enter component rejects for an item's reject entry select the icon in the Rejected Components field. Both options will access the Reject Components form to enter rejects for attached components. This form will display all attached components. If the attached component has the 'Dispo by Cycles' option checked based on the BOM the Parts Per field will be highlighted in yellow. The quantity can be entered manually in the Qty field, or the user can select the button  to have the system populate the Qty field based on the number of rejects entered for the manufactured item and the Part Per of the component. Once a value is entered in the Qty field the icon will change to a red minus symbol. After making all of the desired reject entries, select the Reject Code from the list accessed from the ellipsis button. The reject code defaults to the one selected when rejecting the manufactured item. If a 'Default Component Reject Transaction Code' is set in Plant Parameters the Trans Code field will be populated with that code. A different transaction code can be selected from the pick list. Enter a comment if desired.



Select **Next** to access the Reject Components Locations form.



From this form users can select the specific location/lot to remove the rejected components from. This is optional unless the 'Component Reject Location is mandatory' option is checked for the Manufacturing Cell (System Parameters->Lists->Manufacturing Cells). If the option is not checked the bottom section will display 'Locations - Optional'. If it is checked it will display 'Locations - Mandatory'. The reject detail will be highlighted in light red indicating location(s) are required with the quantity equal to the Reject Quantity. If required and a location/lot is not selected an error will appear stating: 'A component reject location is mandatory. Please select a location'.

- For Non-Serialized Inventory Control (SIC) components, select the ellipsis button in the Location field and a pick list of locations associated to the component will display. Select a location/lot from the list. The quantities of the rejects will be removed from the location(s) chosen (negating the hierarchy).
- If the component is SIC, select the ellipsis button in the Location field and a pick list of locations associated to the component will display. Once a location is selected, then the labels linked to that location will display for the user to choose from.

Note: Rejected components cannot be over reported or under reported on the location level in relation to the totally reject quantity.

- Select the **Post** button to post the reject entry. Component rejects will write to the rejects table and will be removed from inventory, based on the disposition hierarchy by default, or from the selected location, at the time they are rejected. A Disposition translog record will be created for the quantity of component(s) backflushed with the reject code description as the reason. The quantity rejected will populate the Posted field on the Reject Components form and is the running total of rejects.

- Select the **Cancel** button to return to the main rejects screen without finishing the transaction.

- Select the **Back** button to return to the prior form

EnterpriseIQ supports unlimited reject entries per part, with as many different codes as required. If additional rejects for this part are remaining but need to be placed under another reject code, press the arrow down key or the Insert (+) button and a new entry line will be created. Rejects entered from RealTime™ are captured in the Rejects table with a source of RT. If the reject was created based on a MIU signaled scrap entry the source would be RS.

The user may edit any existing reject. Go through the process of selecting the shift, work center and item number. When you get to the Rejected Parts box, use the arrow key to select and edit any reject quantity entered previously.

Reject entries can be deleted by selecting the delete record button. This will remove the row from the reject table entirely. The deletion also changes the illum_part shift_rejects amount.

Rejects are entered on a shift by shift basis. The user will have the opportunity to enter rejects for manufactured items and components through RealTime™ until the production report has been processed for a shift. Rejects entered for items that are on ‘Completed’ or ‘Completed this shift’ will reduce the good parts by the quantity of rejects entered.

Note: The logged in user ID will populate in the REJECTS table in order to track who reported rejects. (In shop floor applications like ShopData that are shared among more than one user, the user recorded is the user logged into the application, not who entered the transaction).

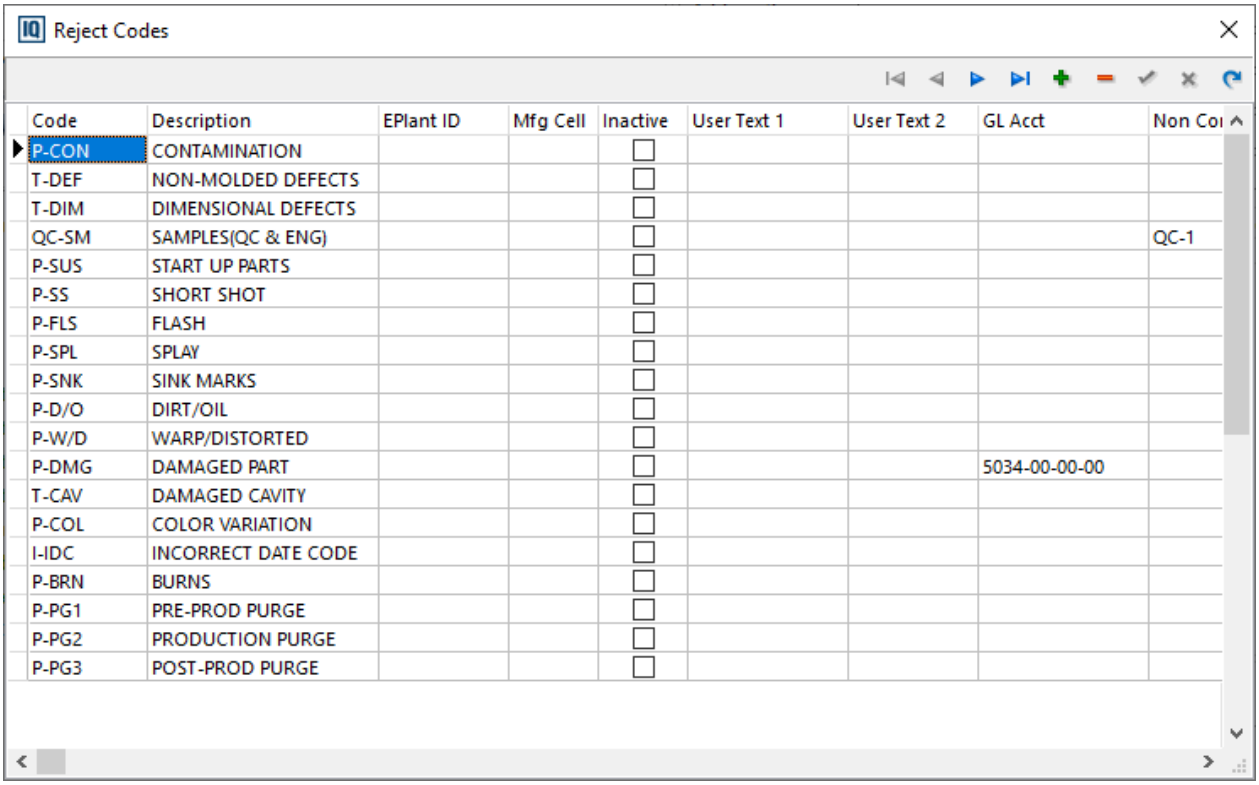
Note: At the time of reject entry, the system will populate the TOP_WORKORDER_ID field with the work order ID associated to the top level item. For example, A consumes B, B consumes C, and C consumes D; if D is rejected, TOP_WORKORDER_ID would be the work order ID associated to A.

Edit Reject Codes

This selection displays a list of all current reject codes and descriptions. To access the Edit Reject Code box, select **Edit Reject Codes** from the Data Entry menu.

Add a New Reject Code

Select the **ADD [+]** function key located on the Navigator bar to enter a new Reject Code.



Code	Description	EPlant ID	Mfg Cell	Inactive	User Text 1	User Text 2	GL Acct	Non Co
P-CON	CONTAMINATION			☐				
T-DEF	NON-MOLDED DEFECTS			☐				
T-DIM	DIMENSIONAL DEFECTS			☐				
QC-SM	SAMPLES(QC & ENG)			☐				QC-1
P-SUS	START UP PARTS			☐				
P-SS	SHORT SHOT			☐				
P-FLS	FLASH			☐				
P-SPL	SPLAY			☐				
P-SNK	SINK MARKS			☐				
P-D/O	DIRT/OIL			☐				
P-W/D	WARP/DISTORTED			☐				
P-DMG	DAMAGED PART			☐			5034-00-00-00	
T-CAV	DAMAGED CAVITY			☐				
P-COL	COLOR VARIATION			☐				
I-IDC	INCORRECT DATE CODE			☐				
P-BRN	BURNS			☐				
P-PG1	PRE-PROD PURGE			☐				
P-PG2	PRODUCTION PURGE			☐				
P-PG3	POST-PROD PURGE			☐				

At this time enter in the new reject code. This code may be a combination of both letters and numbers.

Next enter in a brief description of the reject code. When completed, remember to SAVE all entries made and click on the **[x]** to exit and return to the main RT screen.

Reject codes can be EPlant specific. The **EPlant ID** will be automatically assigned based on the EPlant the user is logged into at the time it is created or can be manually changed by selecting the ellipsis button in the field and selecting the EPlant from the Assign EPlant form.

Each Reject Code can also be associated to a **Mfg Cell**. If codes are not associated to the BOM or work center the system will display all codes with soft filters on EPlant and the MFG Cell.

Check the **Inactive** box to mark Reject Codes as inactive. This will hide them from drop down lists throughout the system.

CUser1 and CUser2 - These User Fields can be used to provide additional information about the reject codes. Double click the column heading to enter a user defined caption. Right click on the field to enter a User Defined List to be used to populate the fields. These fields will display in the pick list when entering reject information.

A **non conform location** can optionally be associated to a reject code. Select the ellipsis button in the field to access the pick list of locations marked as non conform in the locations list. When a non conform location is associated to a reject code, the system will do an IN disposition transaction with a reason of 'Non Conform Mfg Rejects' for the quantity rejected into the location associated to the reject code.

To **Edit** a Reject Code highlight the reject code or reject description to change. Make the change and save the entry.

To **Delete** a reject code, complete the following:

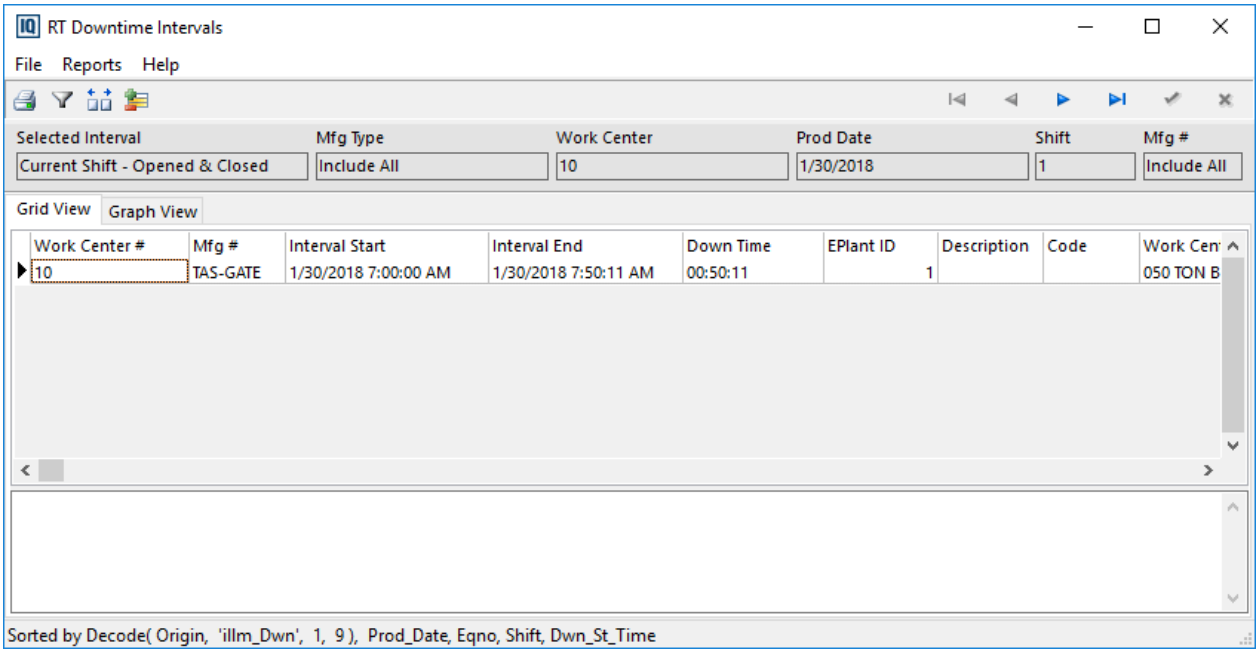
- Highlight the reject code to delete. Press the Delete **[-]** key located on the Navigator bar. You will be asked to confirm your actions.
- Choose [**OK**] to continue or [**CANCEL**] to quit and exit out to the main RT screen.

WARNING: Changing a description for an existing code will change the description on all reports using that code. Changing the code itself, will remove the link in all records using the old code. DELMIAworks does not recommend changing codes since it can affect both current production reports and history reports.

Downtime Reporting

This selection allows the user to give a reason why a machine is down. This will only apply to unscheduled downtime. Unscheduled downtime is determined by RealTime™ as not receiving a cycle after the 'Downtime Threshold Multiplier' times the greater of either standard cycle or average cycle has past or a minimum of 120 seconds. The **Downtime Threshold Multiplier** is set in The RT Server module under the Options/Parameters menu. This value defaults to three. At this point RealTime™ will open a DOWNTIME INTERVAL and keep track of how long the machine was down. RealTime™ created downtime intervals have a start time beginning from when the last signal was received. As long as the machine is down, it is referred to as an OPEN INTERVAL. When RealTime™ receives activity based on the greater of the standard or average cycle times the threshold, it closes the downtime interval. For wireless RealTime™ this is a minimum of 120 seconds. The downtime is now referred to as a CLOSED INTERVAL.

- Select **Downtime Reporting** from the **Data Entry** menu, right click and select Downtime, or use the Downtime speed button and the RT Downtime Intervals screen will display. By default this will display only the downtime information for the work center that is highlighted. If the criteria is set to include all work centers, the system will remember this in the registry and the downtime form will display all work centers each time it is opened. The shift displayed is for the selected work center and not the default shift.



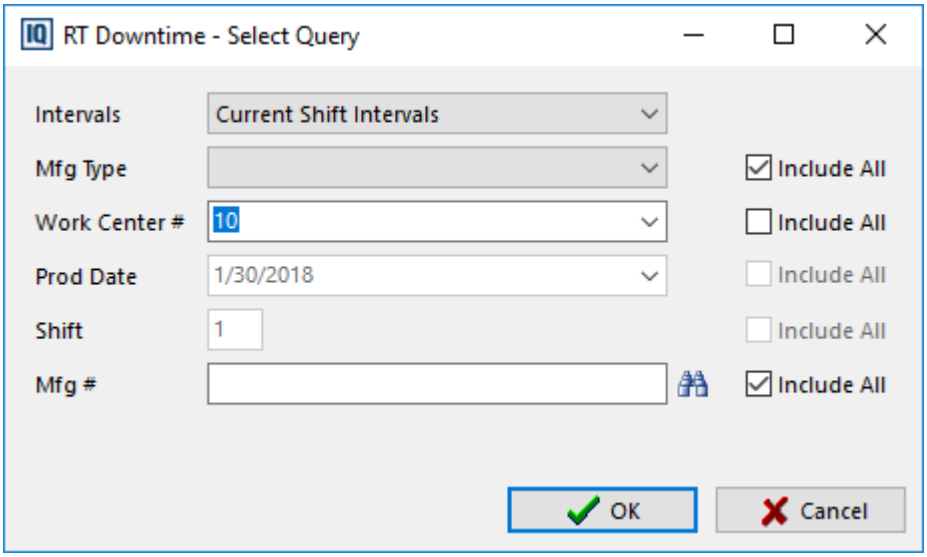
This screen is divided into the following sections:

Downtime Interval–Select Criteria	This section allows you to narrow the search for downtime intervals on work centers reported by RealTime™.
Down Code Entry Screen	This is the middle section of these screen. After completing the Select Query portion, your query selections will appear in this section. The cursor will be at the DOWN CODE portion ready for you to assign downtime codes to the intervals.

Downtime Memo	This section allows you to enter more detailed information to explain the downtime more fully than just a downtime code. You may have a separate memo for each downtime interval.

To start:

- Select **File** from the RT DownTime Intervals screen and select "**Select Criteria**" from the menu shown. You can also click the "Change Selected Criteria" speed button. The following screen will be displayed:



- Select the **Interval** option from the drop down list:

Select between **Current Shift Intervals**, **Current Shift Open Intervals, Current Shift Closed Intervals,** or **Past Shift Intervals.**

- If **Current Shift Intervals** is selected, the Downtime screen will display open and closed intervals for all work centers or the selected work center. The open intervals will be highlighted a light yellow and will be listed at the top of the form, and the closed intervals will be white.
- If **Current Shift Open Intervals** is selected, the Downtime screen will display unscheduled down intervals for the selected work center or all the work centers.
- If **Current Shift Closed Interval** is selected**,** the Downtime screen will display the downtime intervals for the current shift that are closed.
- If the user selects **Past Shift Intervals,** the Downtime screen will display all past shifts - closed intervals.

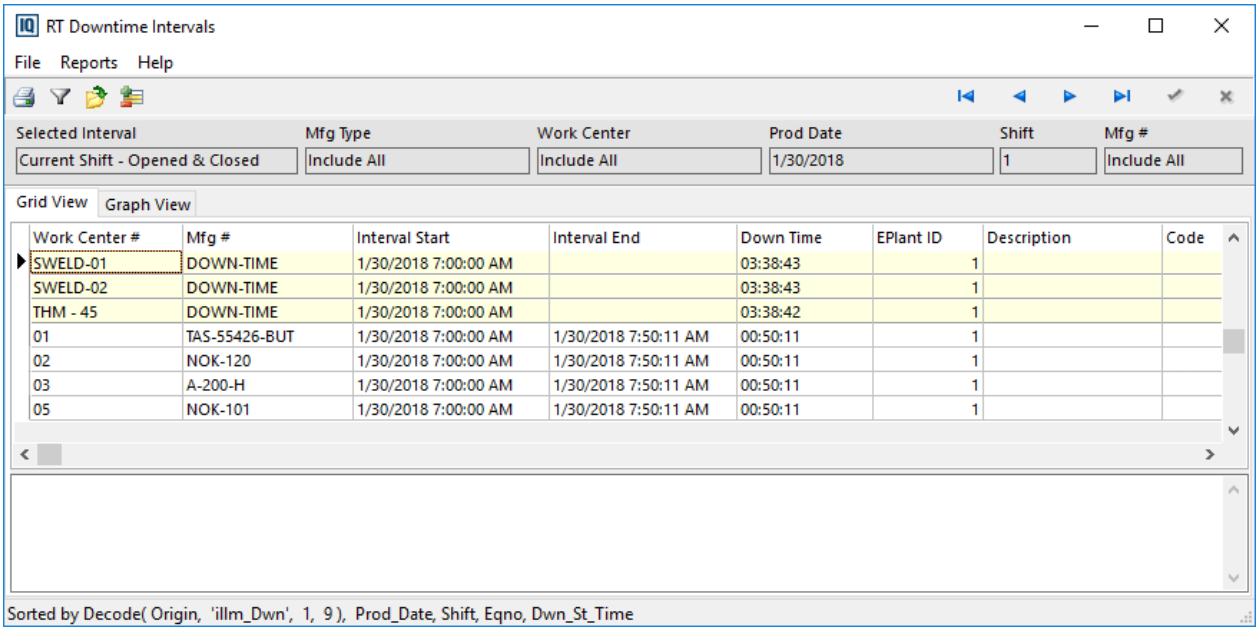
Additional Criteria Selections:

- Mfg Type - Select a Mfg Type from the drop down list to filter the downtime intervals displayed based on work centers associated to the selected Mfg Type. Select the 'Include All' option to see all Mfg Types.
- Work Center - The downtime intervals displayed defaults to the current work center. A different work center can be selected by specifying a work center using the drop down list or the pick list in the criteria form. To view for all work centers select the 'Include All' check box. This setting is remembered in the registry.
- Mfg # - A specific Mfg # can be selected from the pick list, or choose to include all.

If *Past Shift* Intervals is chosen you may filter the selection even further for:

- Production Date - Select a date from the drop down calendar or check the 'Include All' option.
- Shift - Enter a Shift in the field or check the 'Include All' option.

After entering your Query, a screen similar to the following will appear:



Field Listing:

Work Center #	Work center number.
Work Center Description	Work center description.
Mfg #	Current work order running. May also show 'downtime'.
Interval Start	Shows the date and time when the downtime interval started. This time comes from the Oracle Server and not the local machine.
Interval End	If the interval is closed the field will display the date and time the interval ended. When viewing the 'Current Shift Open Intervals', if the interval is open the field will display THE Current Time. This time comes from the local time and not the Oracle Server. This cannot be edited. A downtime interval can be closed by selecting the ellipsis button in the field, then selecting Yes to the confirm message. A pop up form will appear to enter the Downtime end date and time. If the work center is still down a new downtime interval will be created with the Interval Start date/time based on the end time of the previous down time.
Downtime	Shows the amount of time that this job was down for.
Description	The description for why the work center was down. This drop down menu is sorted by description.
Code	The code for why the work center was down. This drop down menu is sorted by code.
EPlant ID	The EPlant ID number if applicable.
Shift #	For past intervals the shift will be listed.

Entering the DownTime Reason

After selecting one of the intervals mentioned above, the user may now enter the Down Codes from the pick list available when clicking on the Description field or the code field. You may also enter a memo associated with the downtime interval by typing in the lower section of the form. Each downtime interval may have a separate memo. A downtime code can be added to multiple records at once by first selecting the 'Automatic Multi-Select' speed button  and then clicking on the desired records (or if the multi-select button is not pushed in the Shift and Ctrl keyboard buttons can be used to select multiple records), then right click and select '**Assign Down Code to Selected Intervals**'. The Downtime Codes pick list will appear to choose from. The pick list includes the Cuser1 and Cuser2 user fields from the Downtime Codes list.

The list is filtered as follows:

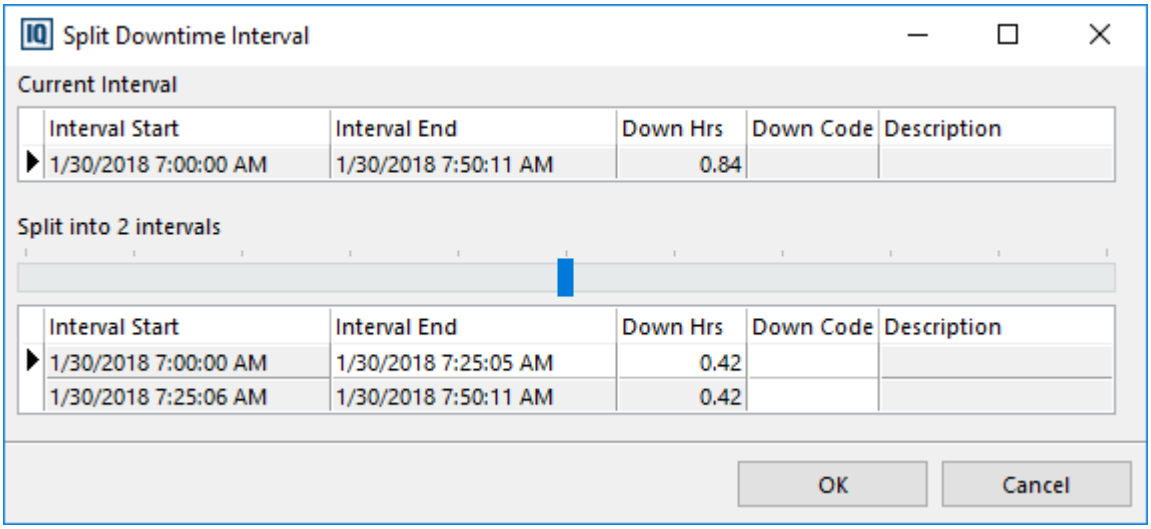
- If there are downtime codes on the BOM Level, but not at the Work Center Level – only show those codes
- If there are downtime codes on the Work Center level but not at the BOM level – only show those codes
- If there are downtime codes on both the BOM and Work Center levels – only show the combined codes
- If there are no downtime codes on either BOM or Work Center levels – show all codes with a soft filter on EPlant (logged in EPlant or no EPlant).

Select the code and press the Select button, post the entry and it will be assigned to all of the selected records.

 The **Reopen Interval** button allows you to 'restart' the downtime for a specific downtime interval. Highlight the interval you would like to 'reopen' and click this icon. The Interval Start time will change to the current date and time, and the default down code set up in Plant Parameters will populate the code field.

 This **Split Downtime Interval** speed button allows the user to enter two different downtime reasons for one closed interval. This feature can be used to specify two downtime codes for a closed interval from the Current Shift Closed Intervals or the Past Shift Intervals (this cannot be used with open intervals).

To split the downtime interval highlight the closed interval and click on the speed button. The following form will appear:


Split Downtime Interval
Current Interval
Interval Start
Interval End
Down Hrs
Down Code
Description
1/30/2018 7:00:00 AM
1/30/2018 7:50:11 AM
0.84
Split into 2 intervals
Interval Start
Interval End
Down Hrs
Down Code
Description
1/30/2018 7:00:00 AM
1/30/2018 7:25:05 AM
0.42
1/30/2018 7:25:06 AM
1/30/2018 7:50:11 AM
0.42
OK
Cancel

The top section displays the interval start and end times as well as the total hours the work center was down. The bottom section displays the interval split in two. The system defaults to dividing the interval in half but the amount of hours for each interval can be changed. To change the split the user can use the bar or type the information in the down hours field on the first interval. To change the hours using the bar, drag it using the mouse in either direction and the hours for each interval will change. The hours may be changed by typing in the number of hours for the first interval and the system will automatically calculate the hours for the second interval based on the total down hours in the top section.

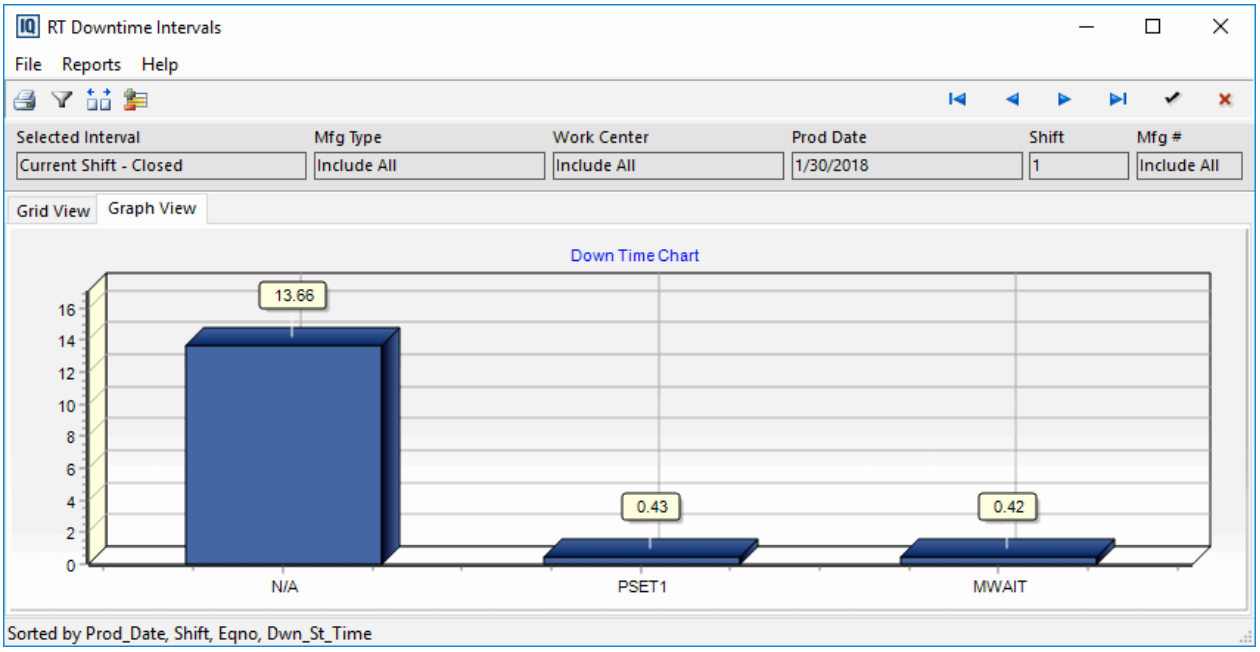
Once the number of hours has been established for each interval select the downtime reason for each from the pick list accessed from the ellipsis button in the Down Code field. The same down code filtering described above applies to this pick list.

There will now be two line items for the interval on the main form. Each interval can have a separate note associated with it.

Print - The Print speed button will access the list of registered reports for the module.

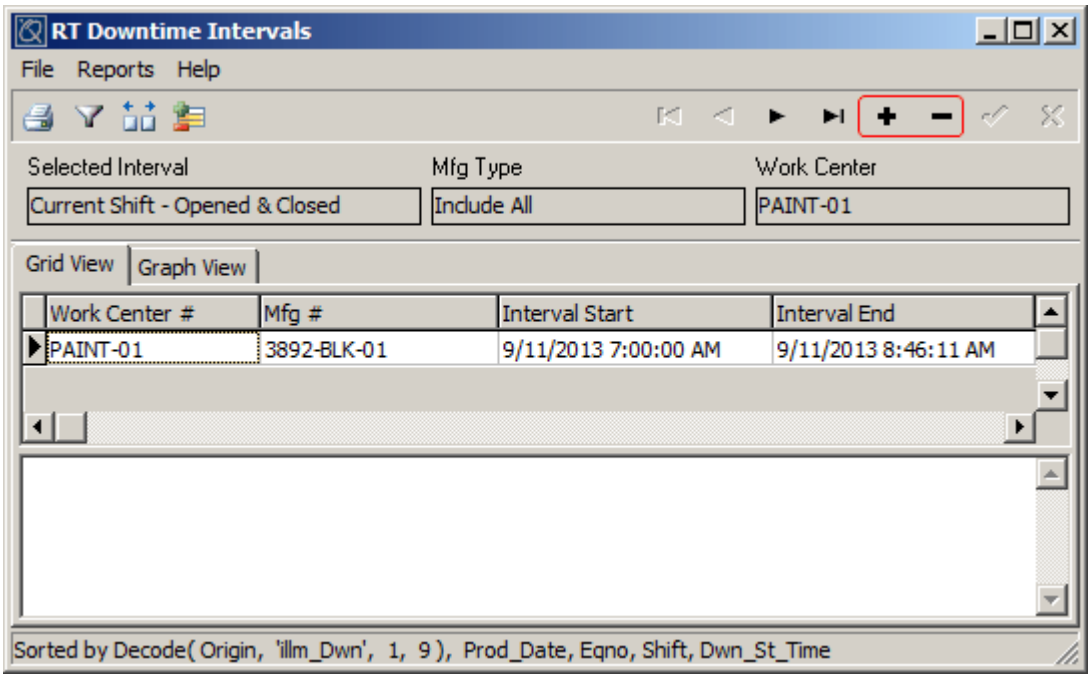
Graph View

The Graph View tab displays the Down Time information based on the current filter criteria as a pareto chart.

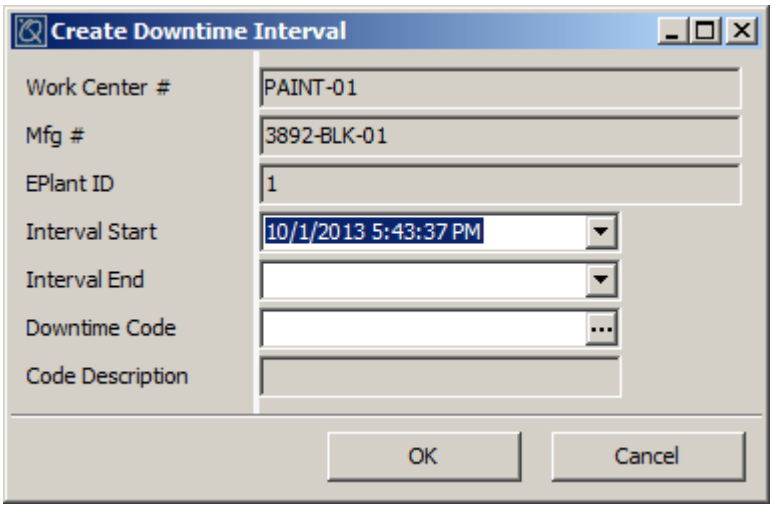


Adding Downtime Intervals for Non-Signaled Work Centers

Users can manually enter downtime intervals on work centers that are connected to RealTime™ but marked as 'RTServer is Not Signaled'. The Downtime Intervals screen will have a plus and minus icon to add or delete an interval.



To **Add** a downtime interval select the insert record (+) button and the following form will appear with the Work Center #, Mfg #, and EPlant ID populated:



The **Interval Start** defaults to the current date and time. Select the drop down arrow to change the date, or manually enter the information in the field.

The I**nterval End** field can be left blank, which makes it an open interval. Once the downtime is over, the user can select a date from the drop down calendar and then arrow over to the right in the field to add the current time. The date/time can also be manually entered.

Select the **Downtime Code** from the pick list accessed by clicking on the ellipsis button in the field. The Code Description will fill in based on the selected code. Press OK to close the form and return to the RT Downtime Interval screen. The entered downtime will be listed.

Note: To **Delete** a downtime record, click on the 'delete Record (-) button and select OK.

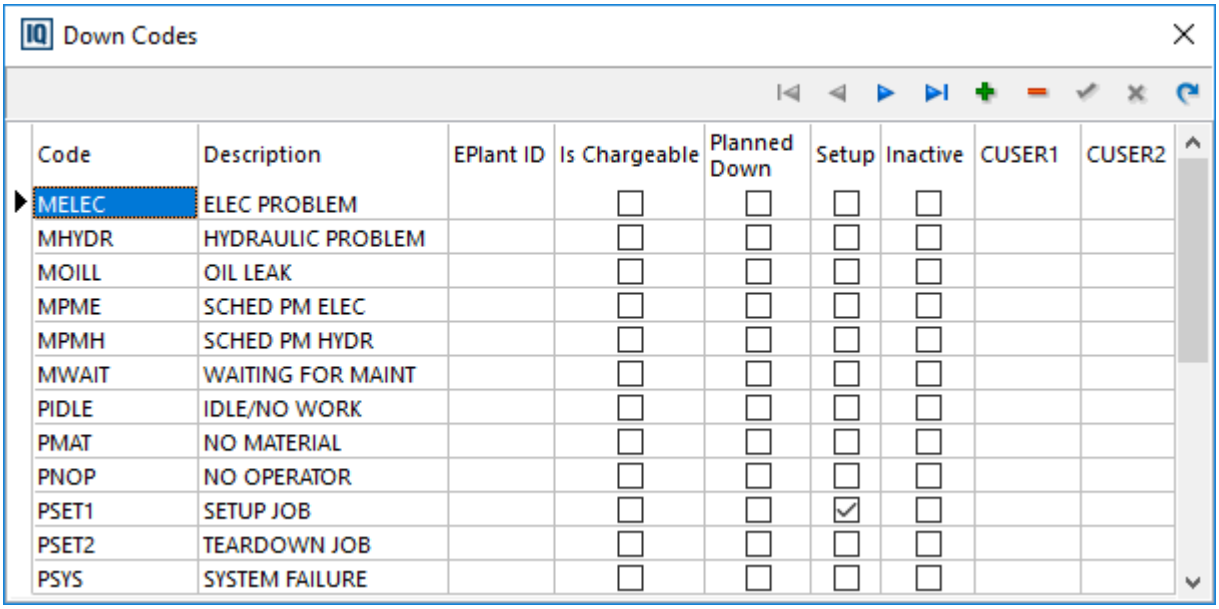
Adding or Editing Downtime Codes

This selection displays a list of all your current downtime codes and descriptions.

Add a New Downtime Code

To ADD a downtime code, complete the following steps:

- Select Data Entry from the RealTime™ main menu and from the submenu that will appear, click on **Edit Downtime Codes.**



Code	Description	EPlant ID	Is Chargeable	Planned Down	Setup	Inactive	CUSER1	CUSER2
MELEC	ELEC PROBLEM		☐	☐	☐	☐		
MHYDR	HYDRAULIC PROBLEM		☐	☐	☐	☐		
MOILL	OIL LEAK		☐	☐	☐	☐		
MPME	SCHED PM ELEC		☐	☐	☐	☐		
MPMH	SCHED PM HYDR		☐	☐	☐	☐		
MWAIT	WAITING FOR MAINT		☐	☐	☐	☐		
PIDLE	IDLE/NO WORK		☐	☐	☐	☐		
PMAT	NO MATERIAL		☐	☐	☐	☐		
PNOP	NO OPERATOR		☐	☐	☐	☐		
PSET1	SETUP JOB		☐	☐	☑	☐		
PSET2	TEARDOWN JOB		☐	☐	☐	☐		
PSYS	SYSTEM FAILURE		☐	☐	☐	☐		

- Select the **ADD** [+] function key located on the Navigator bar to enter in a new code. This code may be a combination of both letters and numbers.

- Now enter in a brief description of the downtime code.

- Downtime codes can be EPlant specific. The **EPlant ID** will be automatically assigned based on the EPlant the user is logged into at the time it is created or can be manually changed by selecting the ellipsis button in the field and selecting the EPlant from the Assign EPlant form.

- The **Is Chargeable** field can checked in order to include the downtime as a chargeable cost in production. Chargeable downtime will be included in the actual overhead cost calculation during dispositioning and flow through to post inventory transactions.

- **Planned Down** - Check this box if the downtime code is considered planned downtime. The system distinguishes between planned and non planned downtime for the OEE calculations on the RealTime™ Monitoring views. Planned downtime is subtracted from the Available time calculation. Also, it will not be considered as Unplanned Down in RT Meter and the Realtime Plant Efficiency View.

- **Setup** - Check the Setup box if the downtime code is setup related. When the production report is created, the system will populate the 'SU Hrs' with the sum of time RealTime captured for any Downtime Code that is marked Setup.

- Check the **Inactive** box to mark Downtime Codes as inactive. This will hide them from drop down lists throughout the system.

- **CUser 1 and CUser2** - These User Fields can be used to provide additional information about the downtime codes. Double click the column heading to enter a user defined caption. Right click on the field to enter a User Defined List to be used to populate the fields. These fields will display in the pick list when entering downtime information.

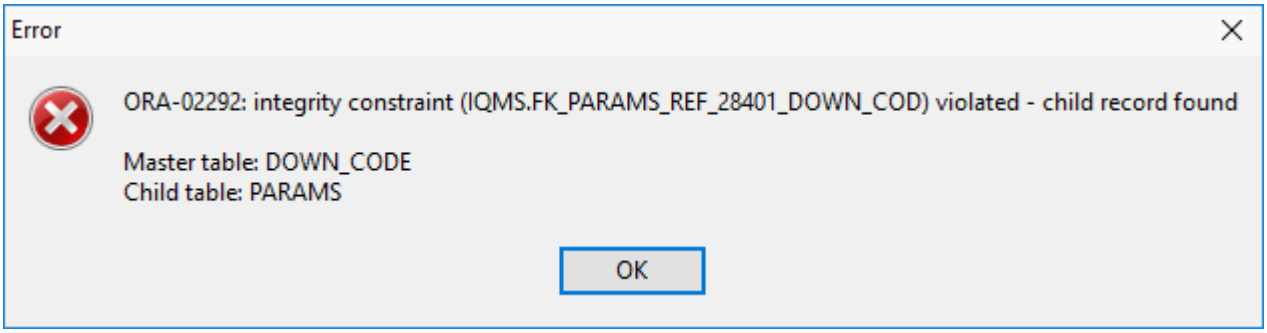
When finished, remember to post all entries by clicking on the check mark located on the Navigator bar before exiting back out to the main RealTime™ screen.

Editing a Downtime Code

- To edit a Downtime Code, highlight the code or description that needs to be changed and make the changes. (A downtime code can be edited and the original code will be maintained in the database).

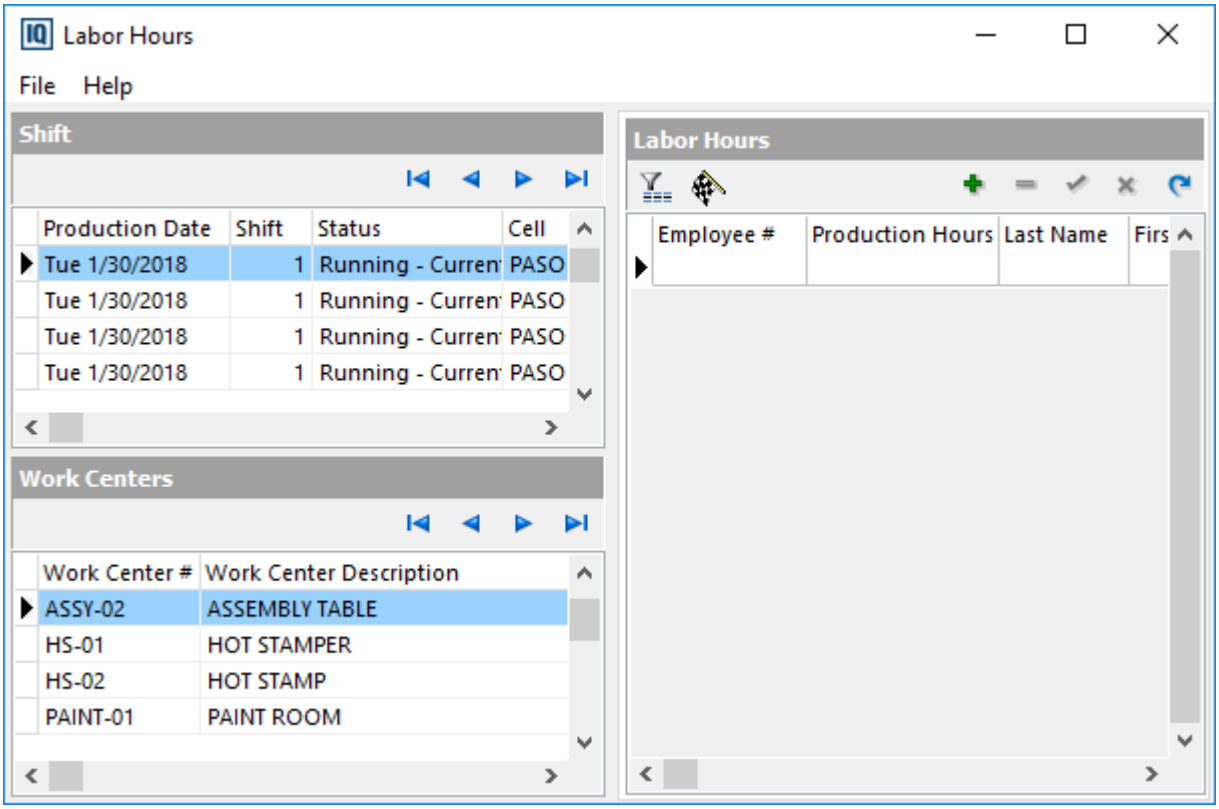
Deleting a Downtime Code

Highlight the downtime code you want to delete. Press the **Delete** key from the Navigator bar. You will be asked to confirm your action. Remember to post your changes before exiting. Make sure that this code is not being used anywhere before trying to delete. If you try to delete one that is being used, the following error will occur:



Labor Hours

This function can be used to report Labor hours on a particular work center prior to running Production Reporting. Labor information can also be entered for prior shifts if the production report has not been processed yet. Highlight the work order you would like to attach labor hours to. Select **Data Entry/Labor Hours** or right click and select Labor Hours, or use the Labor hours speed button, and the following screen will appear:



The top left section displays the list of shifts that are available to enter labor information for. The shifts in this section will be for shifts that have not had a production report processed yet. As the shift is selected the information in the bottom left section displays the work center that were run on the selected shift.

To attach labor select the shift and work center. Use the drop down menu in the **Emp#** field to attach an employee and type in the number of hours they worked on the work order. You may continue to add other employees to this same work order if desired by selecting the **ADD** [+] function key.

In the Labor Hours section there is a button to hide employees with zero hours  . When the button is depressed, employees with zero (null) hours will not show.

 The '**Production Report Cut Off'** button will create a new line item in the production report with the cycles attributed to the operator currently assigned. This will allow you to track exactly how much time an operator spent at a work center.

NOTE: Employees must be entered in Employee Maintenance prior to using the labor tracking function. When an employee is added, the production hours field will populate with the current Up Hrs displayed in RealTime™ Production Monitoring for the associated Work Center.

For Time and Attendance users: When an employee clocks into a currently running work order in Time and Attendance the employee will automatically display in the Labor Hours from in RealTime™ . Note that the Production Hours will not populate until labor is posted in Time and Attendance Tacks Clock I/O Maintenance. Production Hours is based off of RT_EMP_HOURS.PROD_HOURS which is not updated until labor is posted.

Other RealTime Functions

Cell & Filter

Use this option to switch between viewing the different kinds of jobs that may be running such as injection, extrusion, outsourced, etc.

Priority Notes

Highlight a work order, then right click anywhere within the RealTime™ screen and select Priority Notes, then select Priority Note or Priority Note 2 to edit the desired note. This brings up a screen where you can type a note for a particular job that displays on the RealTime™ monitoring screen. A short note can be typed in the field on the note form, or the user can select the Edit Priority Note button to type up to 255 characters of information. This form also includes the ability to create a user defined list of notes that users can select from the drop down arrow. To create the list, right click on the arrow and select 'Edit User Defined List'. These note fields are also visible in Scheduling and on the work order.

Runs the Best Documents

Right click on a line item and select this option to view the internal and external Runs the Best documents associated to the BOM. The forms caption will list the Work Center number and description, and MFG #.

Create MRO Work Order

This allows the user to create a Maintenance, Repair and Overhaul work order for a specific piece of equipment associated to the BOM or the work center, or any equipment in the MRO module “on the fly.” Users can create miscellaneous tasks or create work orders for tasks assigned to the equipment. See Creating MRO Work Orders from RealTime for details.

Show Downtime Description/Codes

The user can choose to view the downtime code or downtime description in the STD Cycle field by selecting this option. Select **Configure|Show Downtime Description** or **Downtime Code**.

Quick Machine Reject

This is designed for plants that have the “touch screen” capability (no mouse or keyboard). It is used to enter rejects in the same manner as discussed under the Reject/Scrap Entry section. This option is available under the Data Entry menu.

Resizing Data Columns to Fit Your Screen

If not all of the monitoring data can be seen on your screen, you are able to customize each column by holding down the left mouse button and dragging to the left or right (the borders between each column) to the desired size to fit all within your screen. All revisions are automatically saved and will not change unless further changes are made.

Frozen

In the 'View All Centers' view, if all the work centers do not fit on one screen, the screen can be set to automatically scroll to show the additional work centers. The default is set to Frozen which will not automatically scroll. To change the mode to Auto, click on the View menu and un-check the Frozen option. The system will then automatically scroll the screen every 15 seconds. The user may also use the arrow keys, page up and/or page down keys to move around the screen. Note: This feature does not apply to the 'Individual Center Info' view.

Sort

The user has the option to change how the monitor is sorted. The sort can be based on work center number or work center description. To change the sort, right click and choose sort from the menu, then select the sort method you prefer.

Submit Announcement

This feature is used with the **IQVoice** module. The user can select an announcement to be sent over the paging system for a set number of times with a set interval between announcements. This can be used to let others know of a problem with the work center or if an operator needs help or any type of user defined announcement. For more information please see the ***IQVoice https://my.iqms.com/cfs-file.ashx/__key/Technote/iqvoice.pdf*** TechNote.

Quick Inspection

Users with the SPC module will have access to the Quick Inspection form for a work center, the inventory item, or Tooling/MRO. For inventory items, if there are open CARs, MRBs, ECOs, Deviations, or PPAPs a status exception will be raised requiring authorization to proceed. If inspections have not been set up for the item a message will appear stating, "The selected Inventory Item has not been configured for SPC. Would you like to show Inspection Setup?" If No is selected the user will be returned to the RealTime™ screen, if Yes is selected the Inspection Setup module will open. If the work center option is selected and it has not been configured for SPC, a message will appear stating, "The selected Work Center has not been configured for SPC. Would you like to show Inspection Setup?" If No is selected the user will be returned to the RealTime™ screen, if Yes is selected the Inspection Setup module will open. If the Tooling/MRO option is selected a pick list appears to perform a quick inspection for any of the tools associated to that BOM that have inspection parameters setup and assigned to an inspection group in inspection setup. If none of the equipment associated to the BOM has been configured for SPC, a message will appear stating, "None of MRO equipment associated to the BOM have been assigned Inspection Groups". The message has an OK button for the user to return to the RealTime™ screen. For more information on the Quick Inspection please see the SPC documentation.

BOM Tree

This option will bring up the BOM tree for the MFG # that is scheduled. The BOM Tree allows the user to see all required inventory for the manufactured item along with the requirements per item. This information can be exploded for a specific quantity. Click on the BOM Qty Explosion button and enter in a quantity. The information displayed will show the requirements per item, the required amount of material to manufacture the quantity entered, as well as the non-committed material on hand. This function will show the user how much of the material in inventory that is not allocated towards existing orders. Select the Material Exception List button to open the BOM Tree Material Exceptions list. This list displays only the materials associated to the BOM that have a material exception. Right click ‘Jump To’s’ available from the BOM Tree include: BOM, Inventory, Transactions and Locations, or Inventory Availability.

Show Quality Issues

This feature will bring up a form displaying the CARs/CAPAs, ECOs, MRBs, Deviation, and PPAP/Product PQ records associated with the highlighted item. The user can jump to the quality issue from this form by right clicking.

Change regrind % for this Run

This option is only available for Injection and Blow Molding MFG Types. It allows users to change the regrind percent for the current run. This will only update the Regrind field in Hist_Illum_RT for the selected row. Highlight the row to be changed, right click and select this option. A pop up form will display to enter the new regrind %. The pop up box will show the current percent for reference.

Jump To's

From the RealTime™ screen users can right click and jump to the BOM, Inventory, Work Order, MRO Work Order, Schedule, SPC, In-Process Inspection Log, the Work Center, Inventory Availability, or Process Monitor for the highlighted item.

Notes:

If there is not a MRO work order associated to the record that jump to option will be grayed out.

When jumping to In-Process Inspection Log, if inspections have not been set up for the item a message will appear stating, "The selected Inventory Item has not been configured for SPC. Would you like to show Inspection Setup?" If No is selected the user will be returned to the RealTime™ screen, if Yes is selected the Inspection Setup module will open.

When selecting Jump to SPC if a sample is associated with the current record, then the jump will take the user directly to that subgroup. When an Inventory item is available under the current view (such as the Part Number view) then the jump will open SPC for the Inventory item. If no item is available in the view a pick list will display allowing the user to select an item.

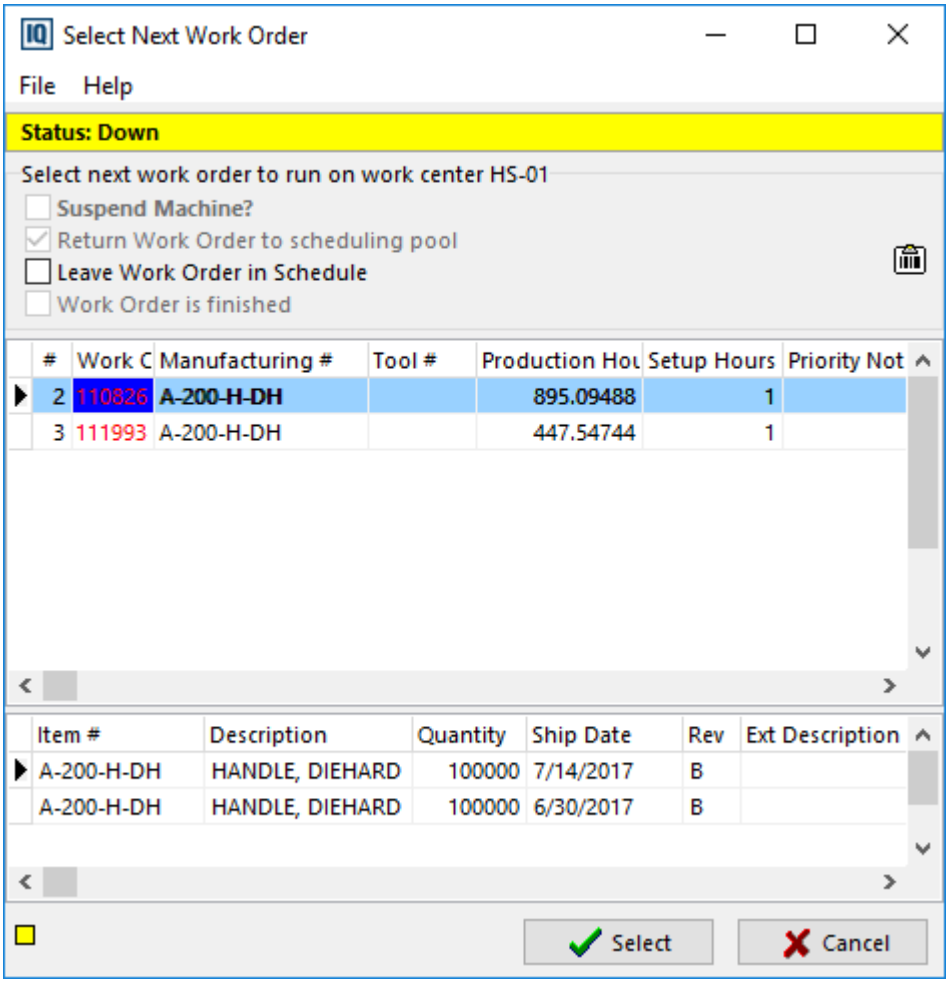
The Process Monitor option is only available for users licensed for the module. It is enabled if there is a BOM running, and the BOM has been set up in the RealTime Production Monitor Mfg# setup with a device.

Start Next Setup

Performs the same function as **Start Next Setup** in the Scheduling module. It removes the work order from the first position in the schedule and starts the selected work order. This also resets several counters in RealTime™ to start counting over for this new work order on the press.

Typically this is used when a job is done. For example, the down code is set to setup (see Setup Plant Parameter) or is entered manually, then when the tool is torn down, the Start Next Setup option is done in RT or scheduling with the new job selected. The setup downtime starts again, but now is charged to the new job until the first cycle comes in.

Upon selecting this function, the following screen will be displayed:



Note: Non-Signaled Real Time work centers will not have a down time interval opened at time of setup.

Use the Setup Next function when you want RealTime™ to start collecting data against a different work order in the machine sequence. This form lists the work orders currently scheduled on the work center in the order they are scheduled. This information in this form includes priority notes and scheduled start time. If a work order has a material exception it will appear in red text.

You may need to suspend the currently running work order if the machine is running. If so, the system will ask for confirmation. Setup will remove the work order in the first position, move all work orders up one sequence and RealTime™ will then begin registering production against the newly scheduled work order.

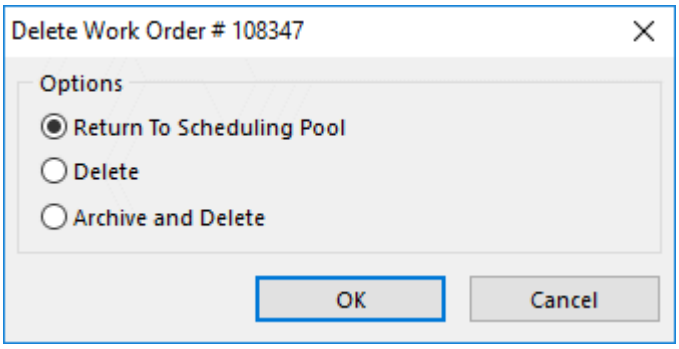
If the machine is currently down, you will not need to suspend the machine. Highlight the work order to be set up and press Select.

Gap Down-Time will display as sequence #0 when the work order currently in the first position will be removed before its scheduled End Date. Users can schedule the Gap Down-Time to put something in place until the next scheduled job is set to start, to fill in the time gap. The down-time gap is calculated based on the scheduled start date/time of the job removed from first position and the date/time of the next job's scheduled start date. When jobs have been snapped to the last job this is essentially the Hours to Go for the work order currently in the first position. Note: If the hours to go are less than one the Gap Down-Time will not display. When Gap Down-Time is selected the Downtime Reason field will populate with "Gap between work orders". A Downtime code/description can be assigned in RealTime™ if desired using the downtime reporting functionality. (See Downtime Reporting for details).

Additional Setup Options:

Return Work Order ID # to Scheduling Pool	If this option is checked, the work order will be returned to the scheduling pool keeping the original bucket number and be available for scheduling on another machine.
Leave Work Order ID# in Schedule	When this box is checked, the work order that was in the first position goes to the second position in the same work center schedule. Note: These two options are mutually exclusive to each other - only one option can be selected.
Work order ID # is finished	When this option is checked the system will update the Actual End Date (in HIST_ILLUM_RT) with the date and time the work order was moved out of the first position, and the 'WO Finished' field in the database will be marked 'Y'. Note: When the work order is put in the first position the system populates the Planned End Date field in HIST_ILLUM_RT with the work order end date/time. This will allow users to compare the two dates. If this option is selected the system will display a warning, 'This Work Order has production required', if the 'Cycles Left' calculated field is greater than 0. The warning has Cancel and Continue buttons. Security can be placed on the Continue button.

If neither the Return Work Order ID # or the Leave Work Order ID# are checked the system will pop up a screen asking the user if it should be deleted or archived.



- Selecting **Delete** will remove the work order from the system.
- If **Archive and Delete** is selected the work order information is written to the Hist_Workorder table. Archived work orders can be viewed from Work Order>File>View Archived Work Orders, or via the drop down menu item 'Search Archived Work Orders' on the binoculars icon on the work order form. Archived work orders are read only when viewing them.

The system will automatically re-number any scheduled buckets for that configuration. For example, bucket number two would become bucket number one, bucket number three would become bucket number two, and so forth. If demand is still required the next time update schedule is run a new work order will be created for the removed work order.

From the Start Next Job box the user can select the **Change FG Lot#** button  to easily change the lot number during the set up procedure. Once selected the Set FG Lot# form will appear to enter the new lot number for the highlighted Mfg #.

Note: If using User Defined Lot # Expressions - When setting up a work order in the first position or adding a work order to a work center when there are no jobs currently scheduled, if the user defined lot # expression is invalid users will receive a general SQL error stating, "While evaluating user assigned Lot # expression the following error occurred:...invalid SQL statement...".

NOTES:

If the machine is currently running, you must click the (**Suspend Machine?**) option in order to force a setup. Since the machine is down, RealTime™ will not count cycles, but it will count downtime against the setup. When starting a setup on a Non-Signaled RT Work Center the "Select Next work order to run" form will not show a status of 'Running'.

When downtime is scheduled in the first position it will count down based on the shop calendar. The system will not reduce the downtime (time to go) unless the work center is scheduled to run in shop setup.

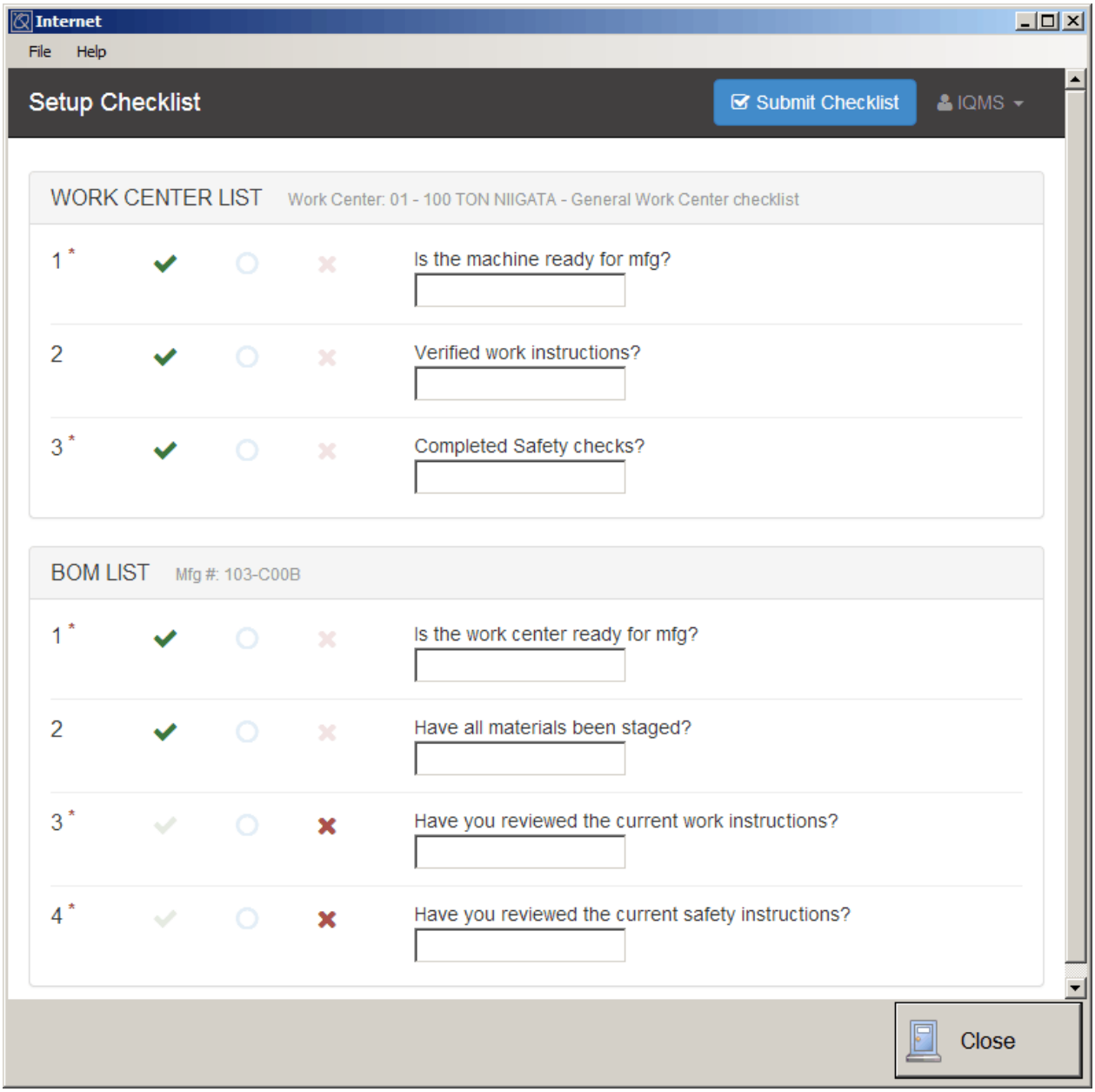
When a job over runs, and the next job that is set up has the same MFG# and is a Make to Order(MTO) job, the overrun cycles will subtract from the Cycles left of the new work order record. This will now not occur for MTO work orders that have different Make to Order IDs.

When a work order is setup A date/time stamp is populated in HIST_ILLUM_RT, which allows users to compare the Must Start Time to the Actual Start Time.

If the same Mfg number is already in the first position on another work center (RT signaled or not signaled) an error will occur stating: "Duplicated Mfg# - Setup Failed: Mfg# xxx is currently running on #x WO# xxx".

Checklist

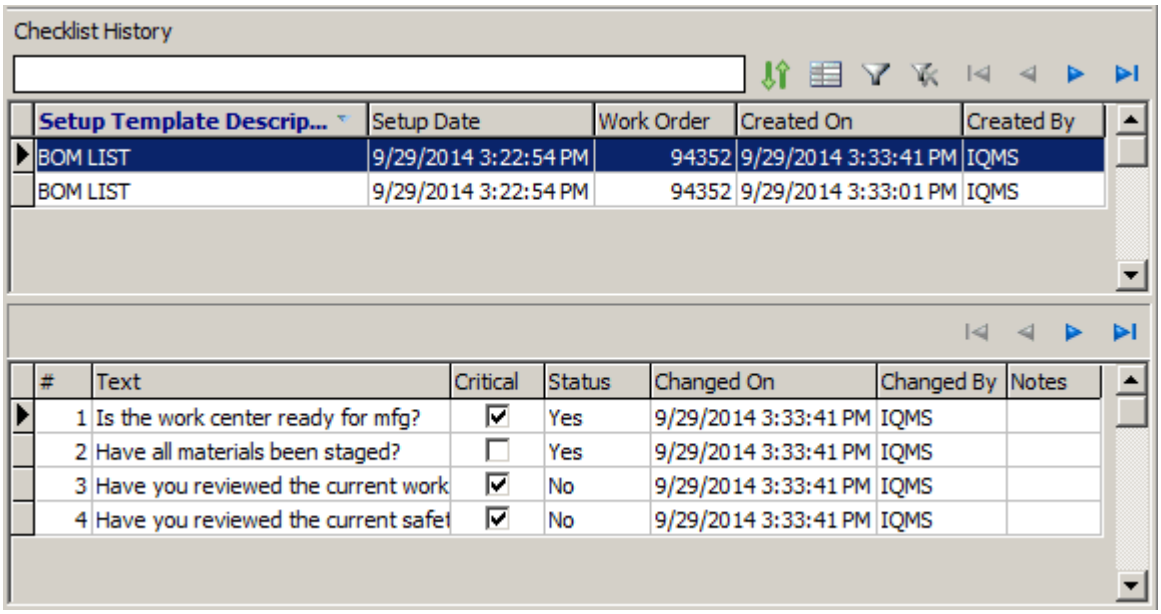
If a Checklist is associated to the Work Center, BOM, or Process, during a setup the web based Setup Checklist form will appear for the user to enter responses to the checklist items. If a BOM/Process and Work Center both have checklists the checklist will be combined on the same form with the Work Center's checklist listed first.


Internet
File
Help
Setup Checklist
Submit Checklist
IQMS
WORK CENTER LIST
Work Center: 01 - 100 TON NIIGATA - General Work Center checklist
1 *
Is the machine ready for mfg?
2
Verified work instructions?
3 *
Completed Safety checks?
BOM LIST
Mfg #: 103-C00B
1 *
Is the work center ready for mfg?
2
Have all materials been staged?
3 *
Have you reviewed the current work instructions?
4 *
Have you reviewed the current safety instructions?
Close

Users can select Yes, N/A, or No for each question. There is also a comment field to enter notes for each checklist item. Once all of the checklist items have been addressed select the Submit Checklist button at the top. If a response is not entered for a critical checklist item (critical checklist items will have a red asterisk next to the number) upon submitting a popup with a Yes and No button will appear stating, 'There are critical items on the checklist that are not marked with a decision. Continue?'. If No is select the user is returned to the checklist to enter a response. If Yes is selected, or if there are no un-answered critical items, a message indicating the checklist has been submitted will display. Select Close to exit the checklist. The work order setup will then be completed.

Checklist History

The information entered from this form is visible from the Setup Checklist form in the Checklist History section.



Print RT Reports

Print Reports

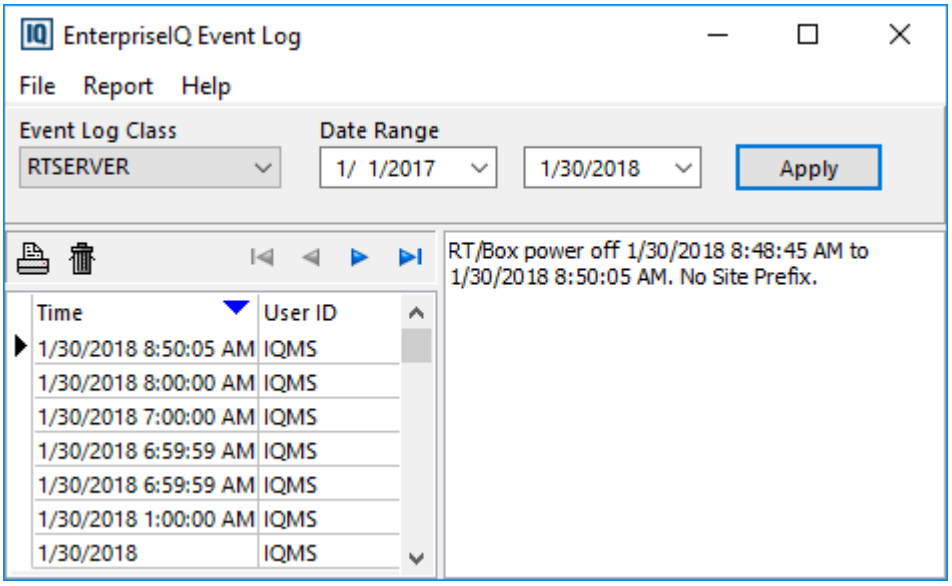
Select this function to bring up the Registered Reports screen. From this screen the user can select a report and print it to the workstation screen, output it to a printer or print it to a file. The printer setup can also be adjusted from here.

Event Log

EnterpriseIQ sends all known system and process errors to the event log. The log includes the date/time, a brief description of the error message, and the user ID. The log serves two main purposes:

- Detect errors within the data files. For example, if an order still exists for a part number that has since been deleted, the system will write this information to this file. By using this log on a continuous basis, you can fine tune the integrity of your databases.
- Log code listings if an error is encountered during execution. Should the program fail during execution, DELMIAworks can often use this information to determine the cause of the failure. Either the code can be modified to avoid the problem, or the message will assist DELMIAworks in determining whether the network reported an error.

To see the event log, from the **Reports** menu, click on **Event Log**. Below is an illustration of the system event log.



The system will also generate information concerning the status of the data. For example, the system will notify you of orders that call tools that are no longer valid. During update schedule, the system will report if it cannot find some types of information. These kinds of errors are logged to the Event Log. Be sure to review the event log, trace and correct the problem.

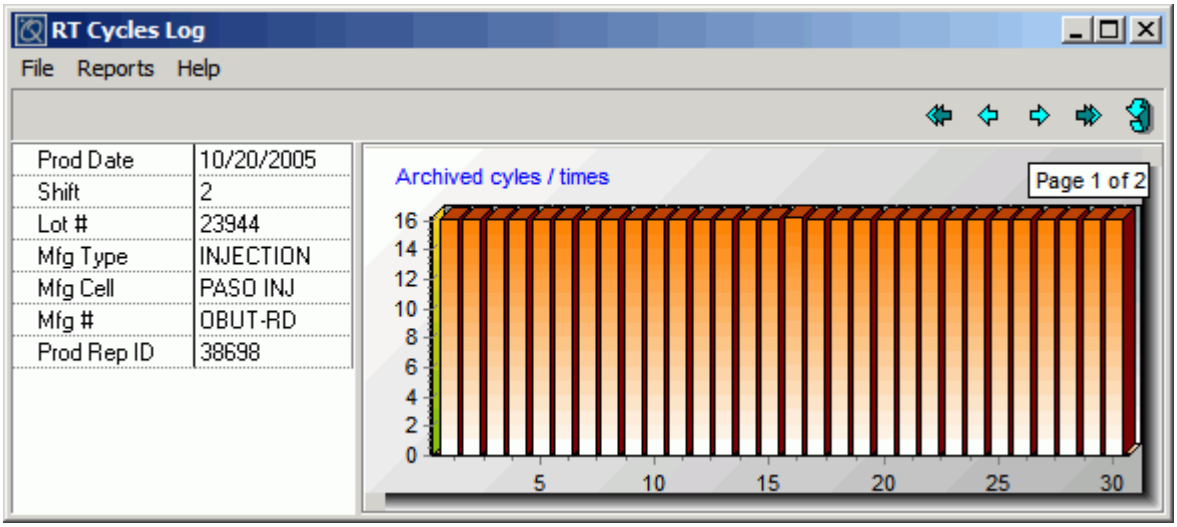
DELMIAworks support staff may ask that the event, or portions of the event log, be faxed over for review and analysis.

View Cycles Log

Select the View Cycles Log option from the RealTime™ File menu. If the work center has the option checked to 'Log Cycle Times', the system will maintain all of the cycles from the current shift and display them in a form. This option is also available in Production Reporting to view a history of cycles and times. This is designed for trouble shooting cycle times and should not be set for all work centers as it will fill up a lot of drive space.

Note: This feature is not designed as a cycle counter. The production report will contain the correct cycles. RT Cycle Log only picks up information when the machine is in run mode, where the production report counts every cycle. For example, when a machine is just starting up, the system receives one signal, and the production report gets 1, RT Cycles log gets 0 as it is not in run mode yet. Then when signal 2 comes in within cycle time the production report shows 2, RT Cycles log now picks up 1. RT Cycles log will always be one behind if the machine just started up. If the machine goes down again, and it receives one signal, then a long pause and then another signal, the production report picks up all of these signals but RT Cycles log does not.

The RT Cycles Log can also be accessed from the Production Reporting module via a right click option.



Note: The table that stores the cycles will grow quite large and it may be necessary to use IQPurge to delete old information. The following SQL block will delete records older than 90 days. (Please see the ***IQPurge https://my.iqms.com/cfs-file.ashx/__key/Technote/IQPurge.pdf*** TechNote for more information.

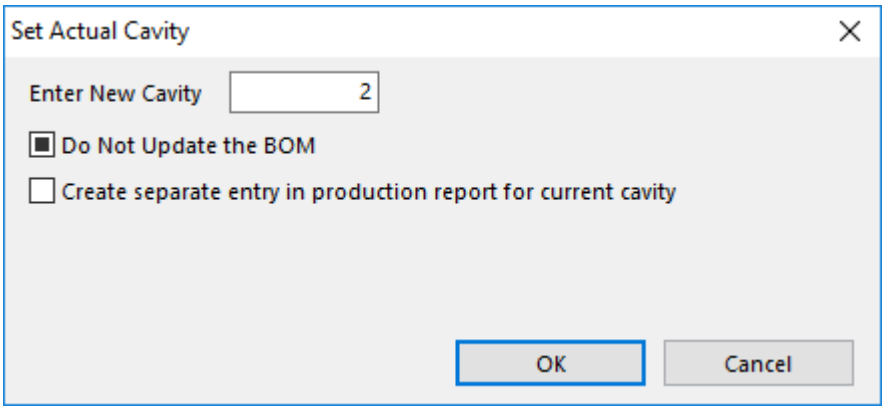
```
declare
   v_days    number:= 90;
   I         number;
begin
   loop
      I:= 0;
```

```
        for v in (select id from illm_cycle_hist where timestamp <= sysdate - v_days order by id)
        loop
           delete from illm_cycle_hist where id = v.id;
           I:= I + 1;
           commit;
           exit when I > 300;
        end loop;

        exit when I = 0;
    end loop;
end;
/
```

Actual Cavitation

Selecting this function allows the user to change the actual cavitation for a tool on a press. To change the actual cavitation right click or go to **Configure/Actual Cavitation** on the menu:



Example: The tool running in press 1 is a four cavity mold. For some reason, one of the cavities is not working correctly, so you block it off. RealTime™ will still be counting four parts per cycle unless you change the Actual cavitation from 4 to 3. Subsequent calculations and counts will now be based on only 3 cavities. The value should be changed each time the actual cavitation changes. For example, in the above scenario, if the cavity is fixed, this field should be changed back to 4. By default this is written to the BOM record and the production summary information will be updated. This value may also be set from the BOM.

Do Not Update the BOM - Check this box if you do not want the Actual Cavitation in the BOM to be updated with the value entered here.

If the user checks the option for '**Create a separate entry in Production Reporting**', Production Reporting will show two entry lines. The first entry line will show the original number of cavities running prior to the change. The second line will show the production run with the cavities changed.

A warning appears if the actual cavitation is set to zero. The warning message will indicate that the hours to go and other counters for the work order will be frozen. User has the option of continuing or canceling the change.

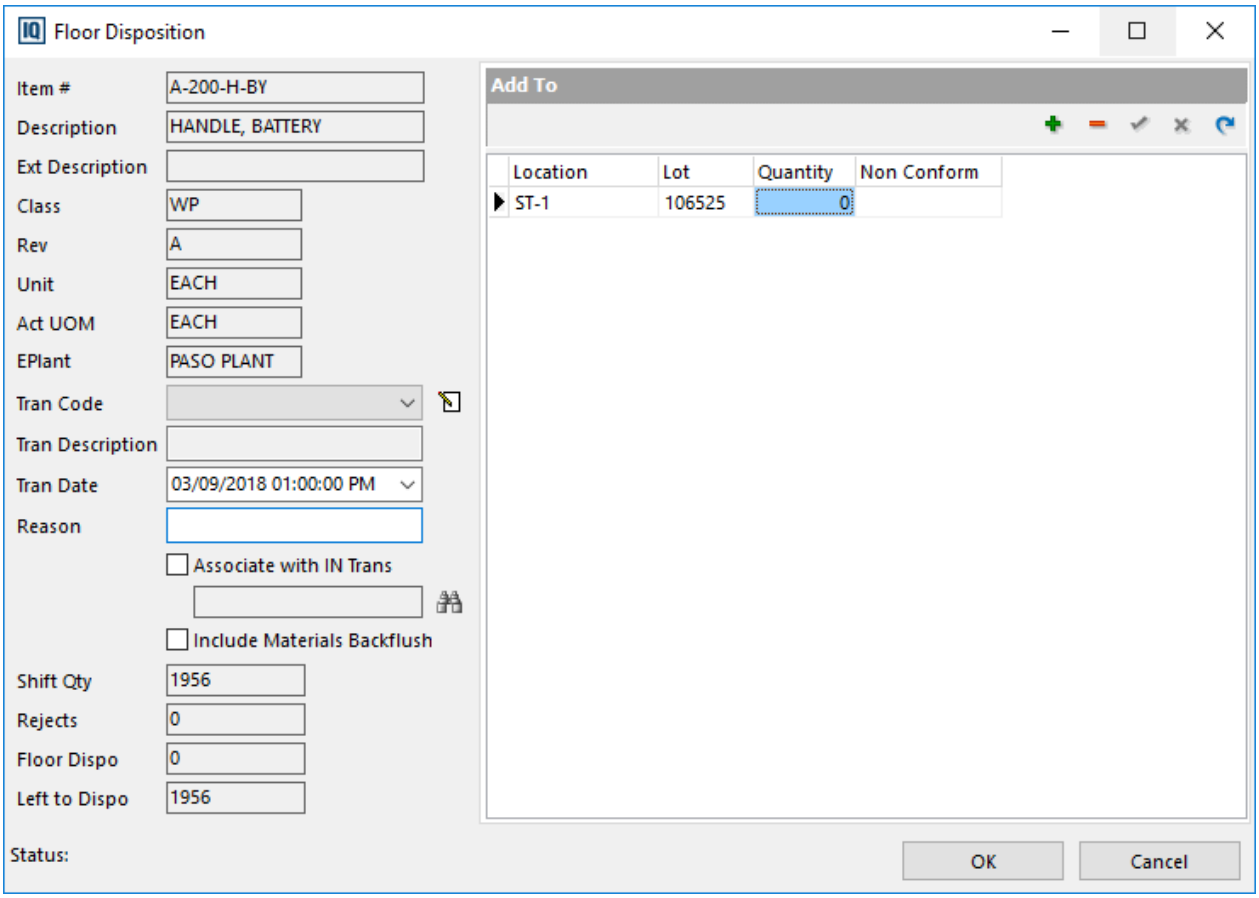
Floor Disposition

From within the RealTime™ monitoring screen, the user has the ability to disposition items before the run has been completed and before doing Production Reporting.

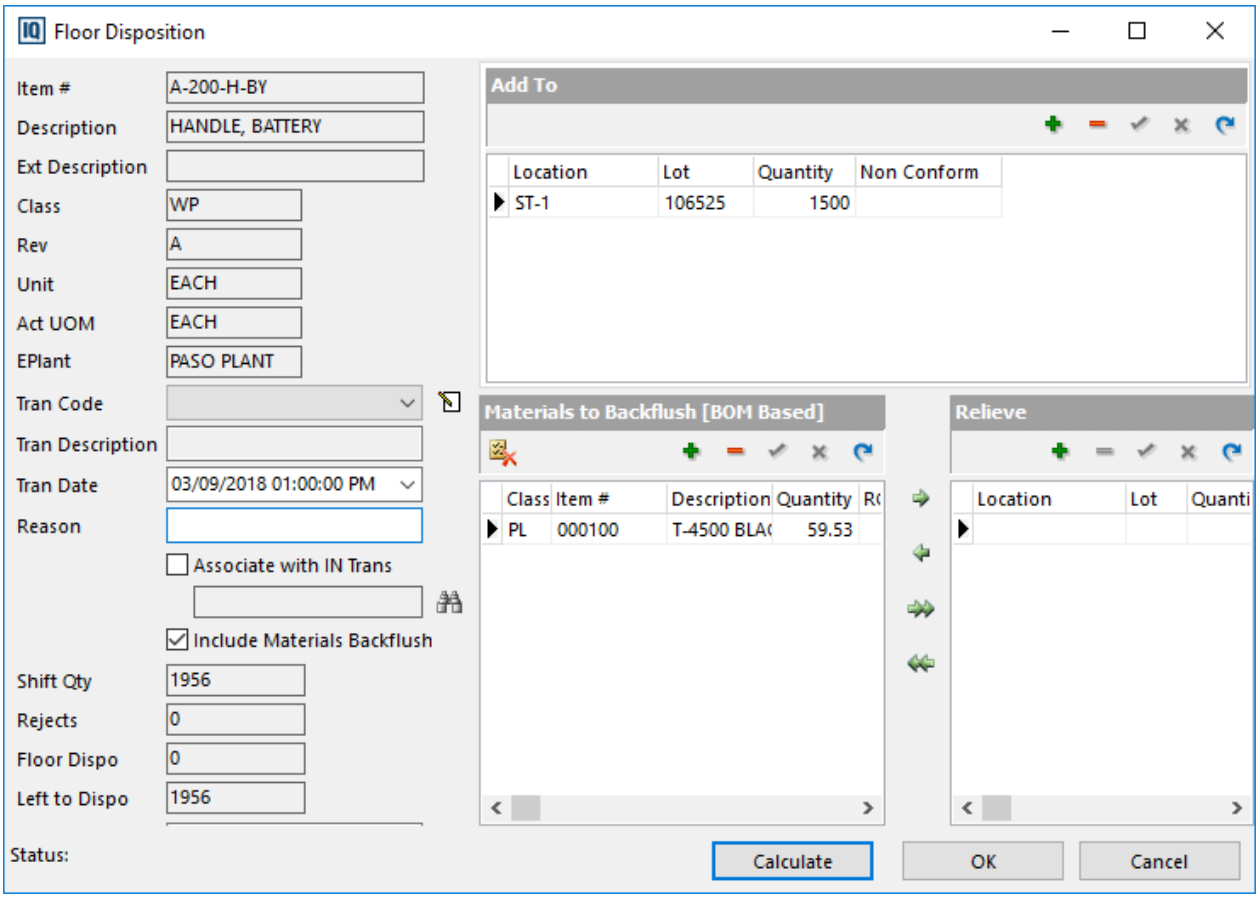
Example: Out of 1000 parts to be produced, you floor disposition 200 of those parts into Finished Goods. When you go to Production Report on that item, it will already show that 200 parts were floor dispositioned and that a remaining 800 parts (Good Parts) will need to be dispositioned. Dispositioned parts go directly into a location in inventory.

To use this function, complete the following steps.

- Highlight the item to be floor dispositioned, right click and select Floor Disposition from the menu shown.
- For **non serialized** inventory items the following screen will appear. Enter in the number of items to be dispositioned in the Qty field.



- **Backflushing** of raw materials can take place at this time as well. If the 'Backflush Materials' box is checked for the inventory item (Inventory->Manufacturing tab) the 'Include Materials Backflush' box will automatically be checked on this form. If it is not, the user can check the Include box to backflush. Once the quantity to floor disposition is entered select the Calculate button to have the system calculate the raw materials to backflush based on the standard. In production reporting, during dispositions, the program will look for the quantity already backflushed and backflush the difference (qty to backflush - floor backflushed). This value may be a negative number if a user floor dispositions more than is produced during the shift.



- To relieve raw materials from inventory check that the material listed is the actual material used. If it is not the user can double click in the item number field to bring up the inventory pick list and choose the correct material. (The pick list displays active items only, but includes a toggle button to view inactive items which can be selected).

- Material can be sent to the Relieve side one at a time using the single arrow, or all at once by selecting the double arrow. When selecting the single arrow the user must manually select a location to remove the items from. When using the double arrow option, the material locations will populate automatically based on the disposition hierarchy.

- Next, click on [**OK**] to disposition the items. As mentioned previously, dispositioned parts go directly the selected location.

If more parts are dispositioned than have been produced, a warning box will appear. The user can select OK to continue or Cancel depending on their security level.

Notes:

When using the floor dispositioning option, the 'Do not disposition partials' should be checked (Production Reporting->Options->Parameters). Otherwise, product could potentially be floor dispositioned and production reported on, which would cause inventory count issues.

It is recommended that if you are using the floor disposition functionality in RealTime™ monitoring, ShopData, RF or WMS that you run update schedule just after the start of the new production day (beginning of 1st Shift). This will ensure that the RealTime™ parts to go calculation is accurate as of the start of each production day. A good way to handle this procedure is by using IQAlert.

Inspection Required - SPC

If the Inspection Required setting is checked within SPC for a master inventory inspection group, operators will receive a prompt to complete the SPC inspection prior to completing the floor disposition transaction if an inspection is due or past due. Users will have the following options within the prompt:

- **YES** - Launches the Quick Inspection screen for the inspections due.
- **NO** - Will take the user back to the previous screen without any further action.

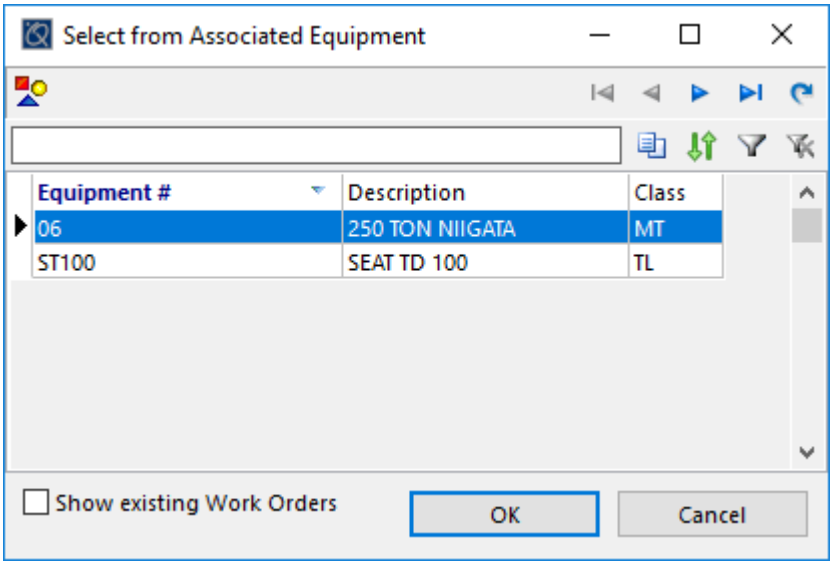
Once inspections are performed, the inspection counters are reset and the operator can continue with the floor disposition transaction.

Floor Disposition for Serialized Item

If the item is a **serialized item** a form to select the serial numbers will appear first. Highlight the items to be dispositioned by checking the box next to the desired records, then select OK. The Floor Disposition screen will then appear as shown above except the quantity will be filled in based on the serial number quantities selected.

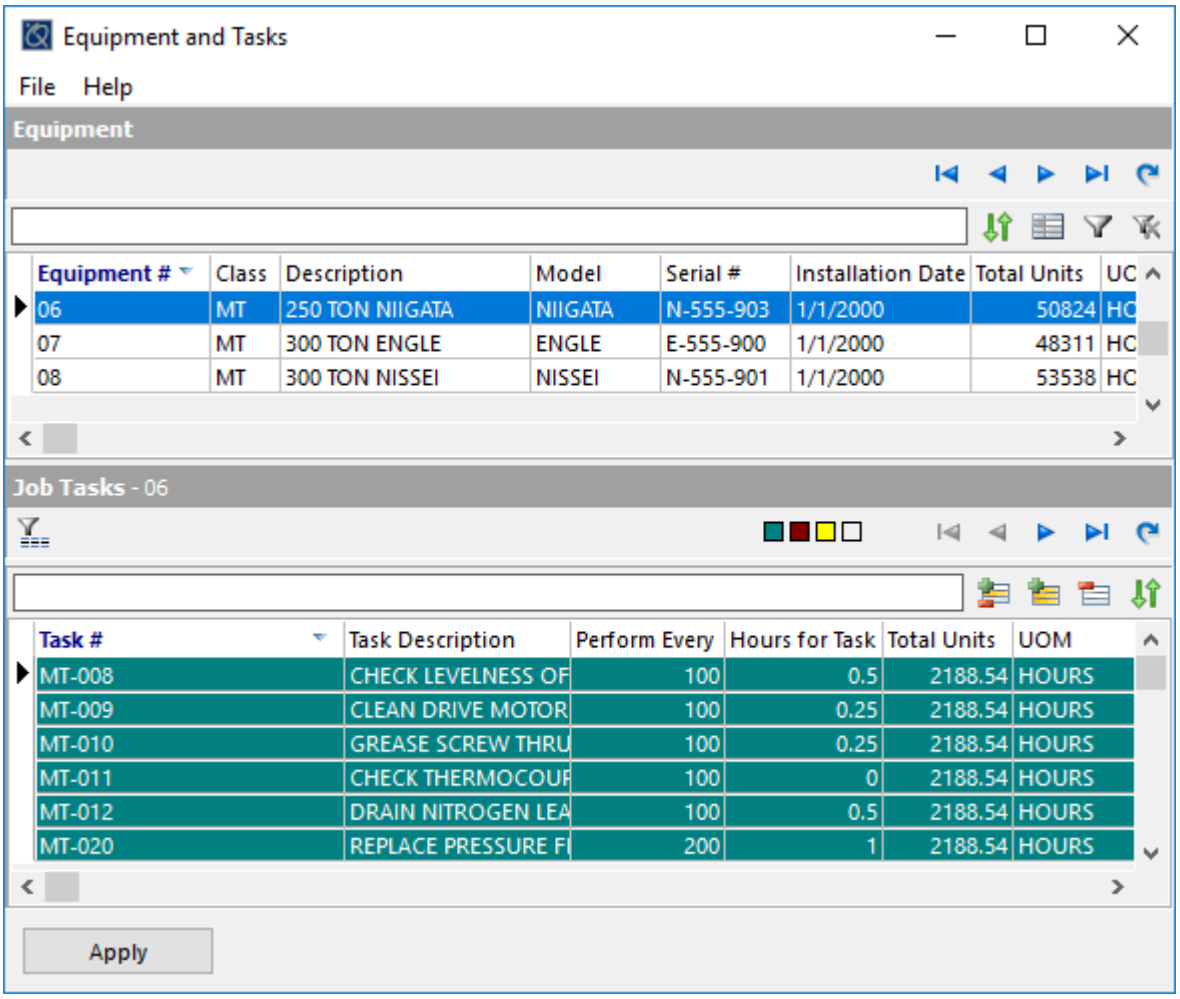
Creating MRO Work Orders from RealTime

Maintenance, Repair and Overhaul work orders can be created from RealTime™ using the right click 'Create MRO Work Order' option. This allows the user to create a Maintenance, Repair and Overhaul work order for a specific piece of equipment associated to the BOM or the work center, or any equipment in the MRO module "on the fly." Highlight the line on the screen you want to create a MRO work order for. By default the list of equipment associated to the BOM or Work Center will appear. To view all equipment select the toggle button on the pick list. (Equipment marked inactive in the MRO module will not display in the list. If a work center has been marked inactive in the Work Center module but not in the MRO module, it will still appear in this pick list).



Creating a New Work Order (Non-Miscellaneous Tasks)

After selecting the equipment, press the OK button. The Equipment and Tasks form will appear with the selected equipment highlighted. The lower section of this form will list the tasks associated to the equipment. Highlight the task(s) to be added to the work order using the toggle buttons or the Shift and Ctrl keyboard buttons. Select Apply to add the task(s) to the MRO work Order. Tasks can also be dragged to the work order.

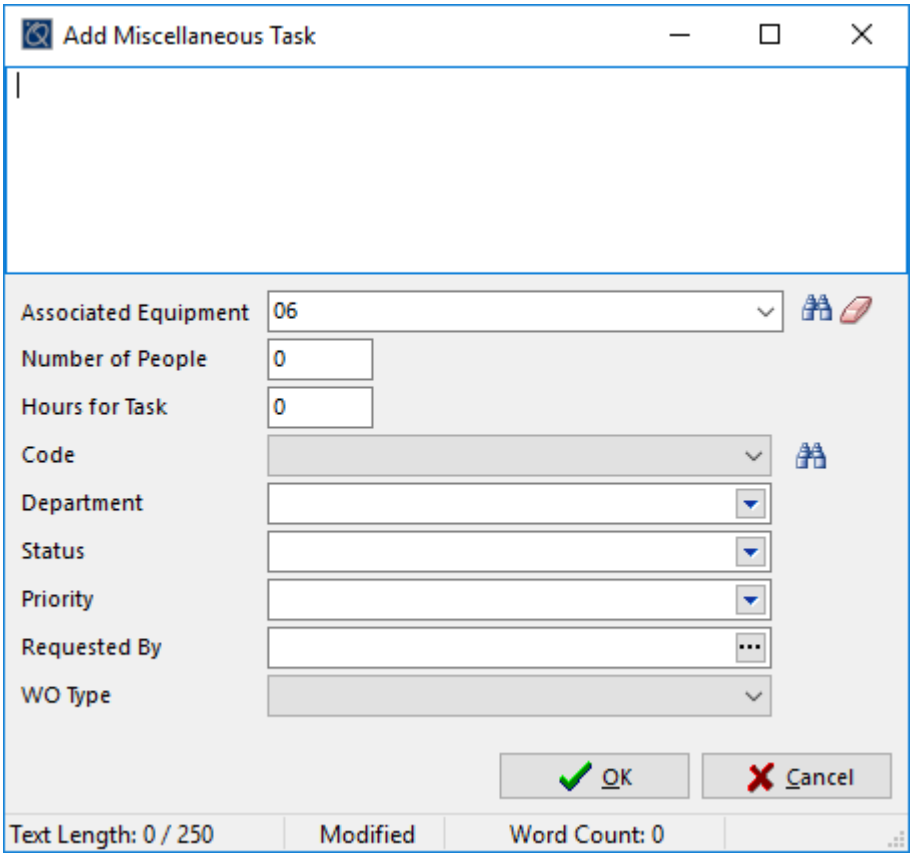


Close the Equipment and Tasks form and enter any additional information on the new MRO Work Order. The work order can be printed or sent as an email by selecting the printer button.

Note: If the MRO Work Orders have the filter set in that it would exclude the equipment selected from RealTime (i.e. filtering on a specific class), the Equipment and Tasks form will not appear with the selected equipment highlighted. Users must change the filter in MRO Work Orders.

Create a New Miscellaneous Work Order

To create a new Miscellaneous MRO work order first depress the Miscellaneous button on the pick list. Highlight the equipment in the list and select OK. The 'Add Miscellaneous Task' form will appear with the selected equipment populated in the 'Associated Equipment' field. Enter the miscellaneous task information in the white box, and enter information in the other fields to provide all the information required to complete the task. The additional fields are: Number of People, Hours for Task, Department, Status, Requested By, Priority, WO Type, and Code. Click OK and the newly created MRO Work Order will appear. The work order can be printed or sent as an email by selecting the printer button.



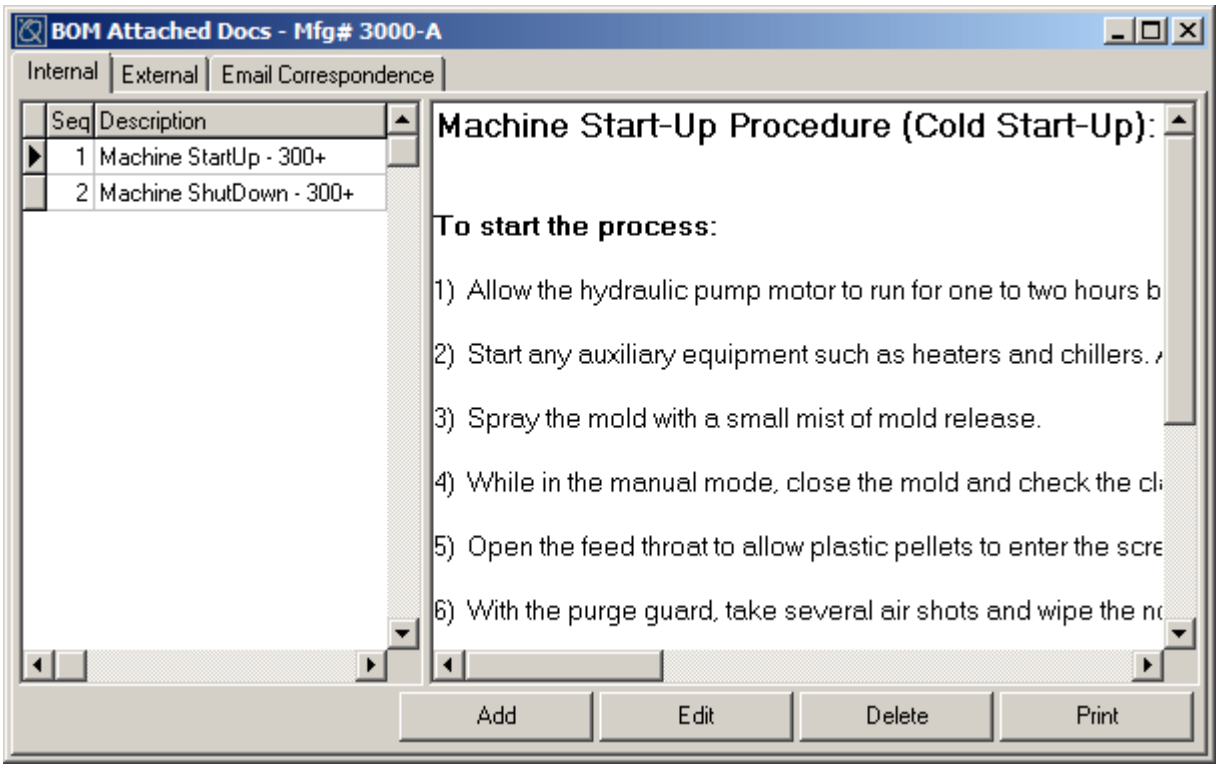
Show Existing Work Orders

A check box called 'Show existing Work Orders' is available on the pick list. If checked, when a piece of equipment is selected, a pick list of open work orders associated to that equipment will appear (if any) to choose from. Select a work order from the pick list to view/edit, or click on the 'New' button, to create a new work order for the equipment. When creating a new miscellaneous task work order, the Add Miscellaneous Task form will appear (as shown above) to enter a task and create a new work order.

RealTime Documents

To access Internal or External documents, or Email Correspondence associated to the BOM complete the following:

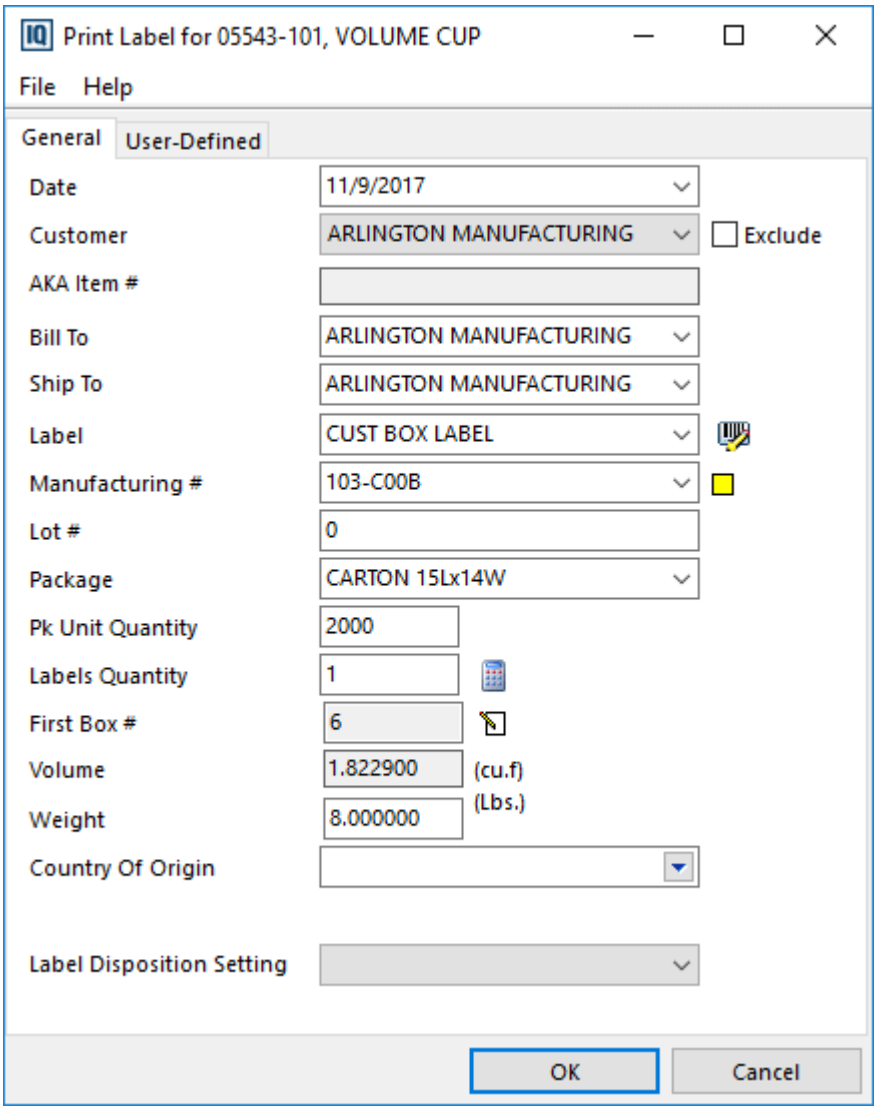
- From within the RealTime™ monitoring screen, right click and select **Documents** from the menu that will appear. The user can also click on **File|Documents** to select the same function. The following screen will be displayed. Documents can be viewed, added, edited, deleted and printed.



This screen, by default, will always remain on top of the RealTime™ screen once it has been accessed. However, the user can resize it or move it around to another location on the screen. This *floating* option allows the user to scroll through each center in operation and view any note(s) that have been attached to the configuration.

Label Printing from RealTime

Labels can be printed directly from RealTime™ for the item currently highlighted. Select an item on the main RealTime™ grid or from the items section on the Individual Center Info screen, right click and select RealTime™ Labels. The following screen will appear displaying the label information. If there are multiple sales orders on one work order using AKA (Also Known As) the user must select the sales order from the pick list (accessed by clicking the search button next to the Order # field). The sales order will tell the system the correct customer and ship to address. Check the 'Exclude' box to print labels without a customer.



Select the calculator button next to the Labels Quantity field to determine the number of labels to print. The label quantity is based on the work order quantity.

If the selected label is a Label Matrix label a Printer field will be visible for the user to select a specific printer. The selected printer will be remembered.

For **Forecast** Work Orders, the system will populate the Sales Order # and PO# on the label by locating a sales order detail that has a match for the item, customer, and ship to information from the forecast detail (ARINVT_ID + ARCUSTO_ID + SHIP_TO_ID from FORE_DTL_ID found in PTALLOCATE). If this query returns null the system will match on the customer and ship to (ARCUSTO_ID + SHIP_TO) to populate the label. There are conditions that must be met in order for the system to correctly populate the label: The forecast work order cannot be firmed and for WIP items it must find a sales order matching the forecasted parent.

Another label printing option is to use the RT Labels Monitor. The RT Labels Monitor will automatically print labels for manufactured items based on the parts produced captured in RealTime™. Any item set up to be monitored for automatic printing of RT labels will appear in this module. As a package is completed (based on the parts per packaging item in the BOM) a label will automatically print. (For more information on this option please refer to the ***RT Labels Monitor https://my.iqms.com/cfs-file.ashx/__key/Technote/RealTime_2221_-Label-Monitor.pdf*** TechNote).

Inspection Required - SPC

If the Inspection Required setting is checked within SPC for a master inventory inspection group, operators will receive a prompt to complete the SPC inspection prior to printing labels if an inspection is due or past due. Users will have the following options within the prompt:

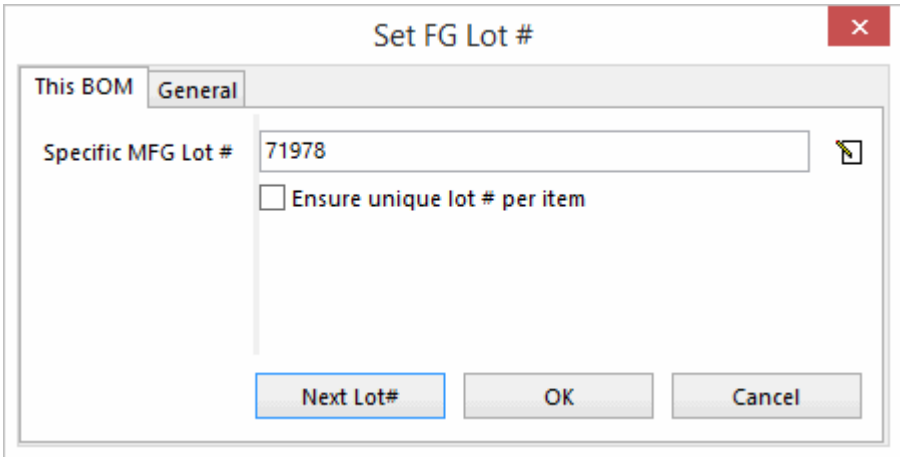
- **YES** - Launches the Quick Inspection screen for the inspections due.
- **NO** - Will take the user back to the previous screen without any further action.

Once inspections are performed, the inspection counters are reset and the operator can continue with the label printing operation.

Change FG Lot

The user has the ability to change the FG Lot # directly from the RealTime™ monitoring screen. To change the FG Lot #, complete the following steps.

- Right click anywhere within the RealTime™ monitoring screen and select Change FG Lot # from the menu. The following screen will appear:



The screen shows the current FG Lot # that is being used and will also allow the user to change it to a different number.

Next Lot # simply tells the system to apply the next lot number to this item. The next lot number is the next sequential lot number maintained by the system.

Ensure unique lot # per item - When this option is checked the system will assign a unique lot number for each item in a family tool.

Exp. Date - If the item has the 'Expiration Date is Mandatory' option checked (Inventory->Additional tab) this field will be visible. For a new lot number a date must be entered or the user will get an error. Select the date from the drop down calendar.

General - This field shows the last number used when Next Lot # was selected for any item.

(Please see the Finished Goods Lot Number section for more information).

Reject Reporting

Reject Reporting graphically displays the rejects that have been reported for the highlighted item, or based on selected criteria. It displays a Rejects Trend Chart and Rejects Pareto Chart. To access this function highlight the desired work center then right click and select Reject Reporting.

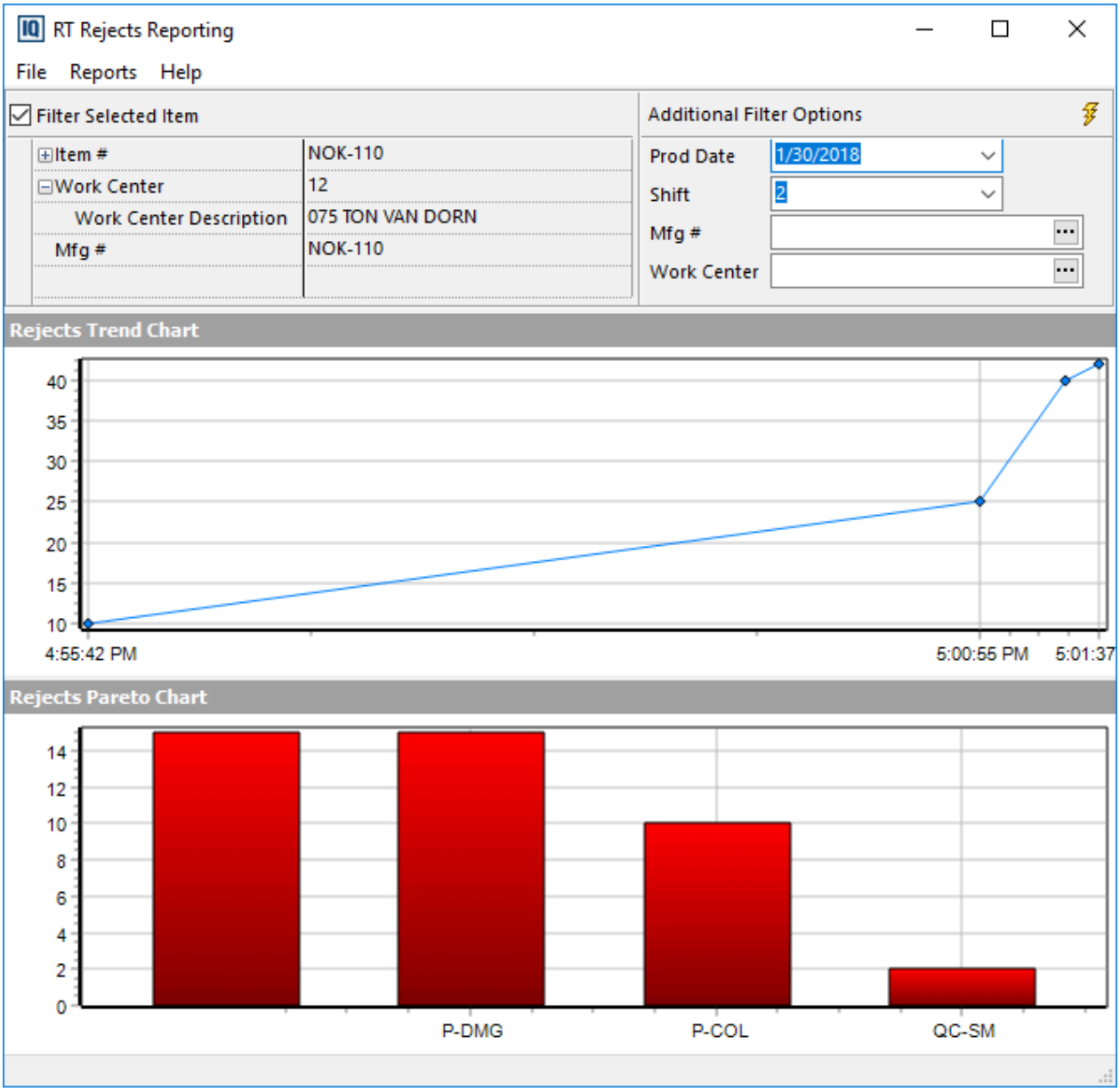
The filter information can be changed to view the chart for various criteria.

Filter Selected Item - By default this box is checked and the chart will display the reject information for the item running on the work center the user right clicked on. If this option is not checked the chart will display rejects for all items based on the filter options. After un-checking the box, click on the 'Apply' (lightning bolt button) to refresh the chart.

Additional Filter Options:

- Production Date - This defaults to the current production date. Select the drop down arrow to select a different date from the calendar.
- Shift - This defaults to the current shift. Select the drop down arrow to select a different shift.
- Mfg # - This defaults to the Mfg # running on the work center, but the user can select a different Mfg # from the drop down list.
- Work Center - This defaults to the work center the user right clicked on but can be changed using the drop down list.

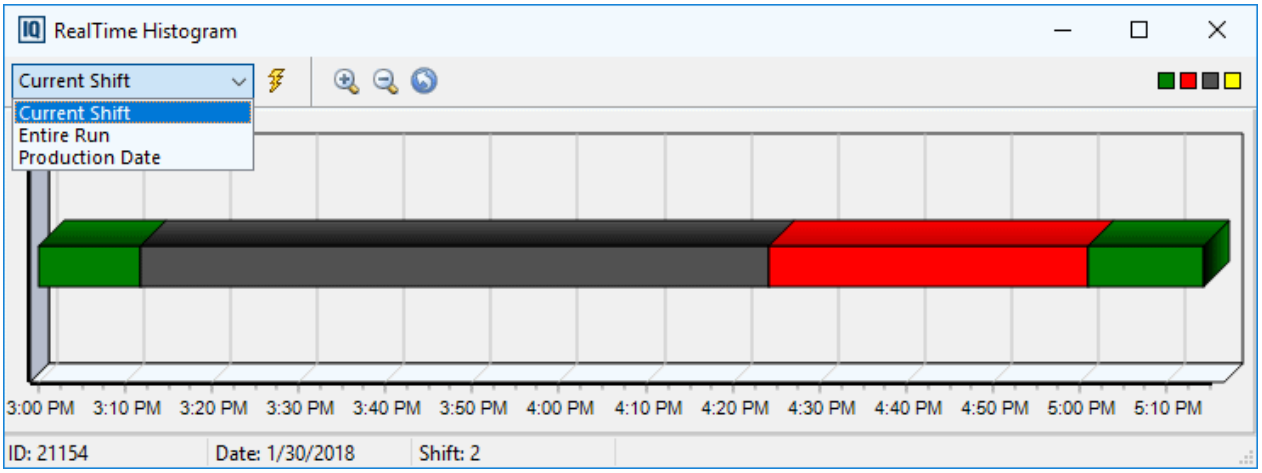
Once the criteria selections are made the user must select the 'Apply' button to refresh the chart to display the selected information.



It is recommended to have at least 2 or 3 selection criteria fields filled in (such as Prod Date and shift) otherwise performing cumulative summary of rejects will take a very long time.

RealTime Histogram

The RealTime™ Histogram option is available from the right click menu. This pop up a form displaying the cycle history for a work center.



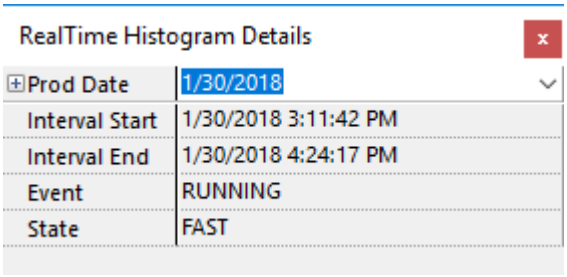
The histogram is colored coded to display the cycles compared to the standard. Slower than standard plus the Slow Cycle% value will show red. Between the slow and fast percentage will display in green, and faster than the acceptable range is shown in black. If the work center is down it will display in yellow. The Bottom of the form shows the date and shift information currently displaying.

Display Options:

The Histogram can display this information for the Current Shift, the Entire Run, or for a specific production date. Select the option from the drop down menu at the top. When the Production Date option is selected enter a production date and shift from the drop downs on the RT Histogram Selection Criteria box. Once an option is selected click on the Apply button  .

Additional Options:

- Scrolling - To scroll the histogram chart hold the right mouse button down and drag the chart left or right.
- Zoom In or Out - Use the zoom buttons to zoom the chart in or out.
- Reset Zoom - Select the Reset Zoom button to bring the chart back to the current time and zoom state.
- Details - Left click on the histogram and a pop up will display with the details for current interval. The details include: The Production Date, Shift, Production Report ID, Interval Start and End, Event, and State. The event field will display information about the interval such as Running, Shift Change, New Setup, and Down. The State field will display the state of the event such as Norm, Fast, Slow, and Down.

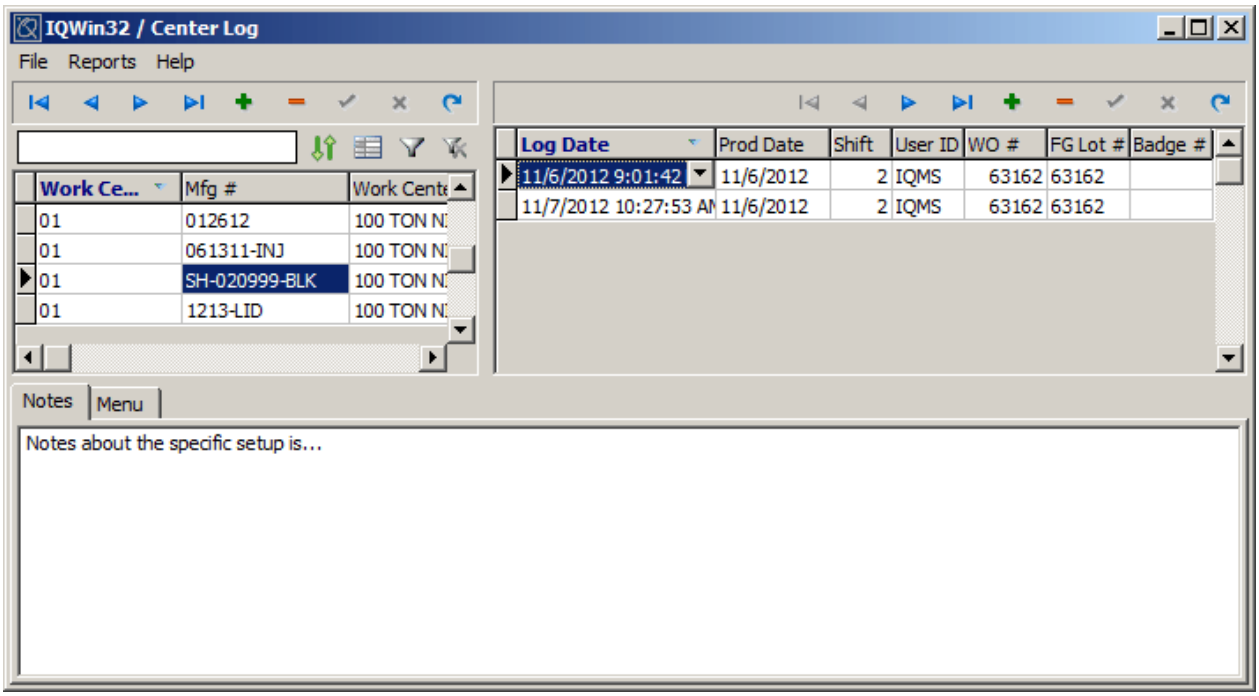


Work Center Log

Users can ADD a log entry to any job. This function can be used to record or review notes, tool changes, or any other information pertaining to a job and the machine it ran on. From the Work Center Log screen the user can view previous log entries or create a new entry.

To ACCESS the log or make an entry in the log:

- From within the RealTime™ monitoring screen, select the job you wish to see the log for or make an entry on.
- Next, select **Configure** from the RealTime™ monitoring screen's main menu and from the submenu that will appear, choose **Work Center Log.** The following screen will appear. This function is also available if the user right clicks anywhere from within the RealTime™ Monitoring screen or from the Work Center Log icon on the RealTime™ tab of the launcher bar, or from the Runs Best module in BOMs.



When the user right clicks from RealTime™ an entry will be created for the Work Center/Mfg # combination automatically. When the detail record (right top grid) is added the system will populate the WO # and FG Lot# with the information carried over from RealTime™. Subsequent inserts in the detail section for the same work center and Mfg # combination will not have this information automatically updated but the fields can be entered manually.

To save the entry, enter a Log Date or select the post record button. If the user closes out of the module without saving the record it will be removed. The user can also add a new log entry or browse through existing log entries.

If there are log entries, your screen will look similar to the screen illustrated above. The user may [**Tab**] through all the screens and/or use the up and down arrow keys to view all log entries for each work center.

Adding a Log Entry

To ADD a log entry for a new configuration/work center combination from the Work Center Log, follow the steps below:

- Select the **ADD [+]** button in the left section. Select a **Work Center** and a **Mfg Configuration** by clicking on the ellipsis button and selecting from the pick list.
- Next, press the **ADD [+]** function key located on the Navigator bar in the right section. This will insert the Log date, Production date, Shift and User ID. The date defaults to the system date and the Production date and shift defaults to the current production date/shift. All of these fields may be edited by typing over the existing data. Values can also be manually entered in the WO # and FG Lot # fields.
- Enter in the desired information in the bottom section. Remember to save the entry before exiting.

Editing and Viewing Work Center Log Entries

The information on the left can be sorted based on Work Center #, Work Center Description, or Mfg #. Click on the header of the desired sort field. Then type the information you are searching for in the white box to hyper browse to that portion of the list. Scroll through the records to find the desired entry. Information pertaining to the work center/Mfg # combination, such as Prod Date, Shift, FG Lot #, User ID and Badge #. The information on the right can be sorted by any column. The attached notes will appear on the Notes tab. The notes can be edited.

The Work Center Log information can also be filtered using the Filter Dataset button. Select the button then enter the desired information in the Filter form.

Deleting a Log Entry

The user may delete a log entry for a single date, or delete all entries for a particular work center and configuration number.

If wishing to remove an entry for an entire work center/Mfg # combination be sure the cursor is on the correct row and press the DELETE function on the navigator bar in the left section. A prompt will appear asking the user to confirm their action.

To delete just a single date entry, highlight the date and press the DELETE function on the navigator bar in the right section. A prompt will appear asking the user to confirm their action.

User Defined Form

Select the User Defined Form tab to create user defined fields to enter data associated to the specific record. See User Defined Forms for details on creating the fields.

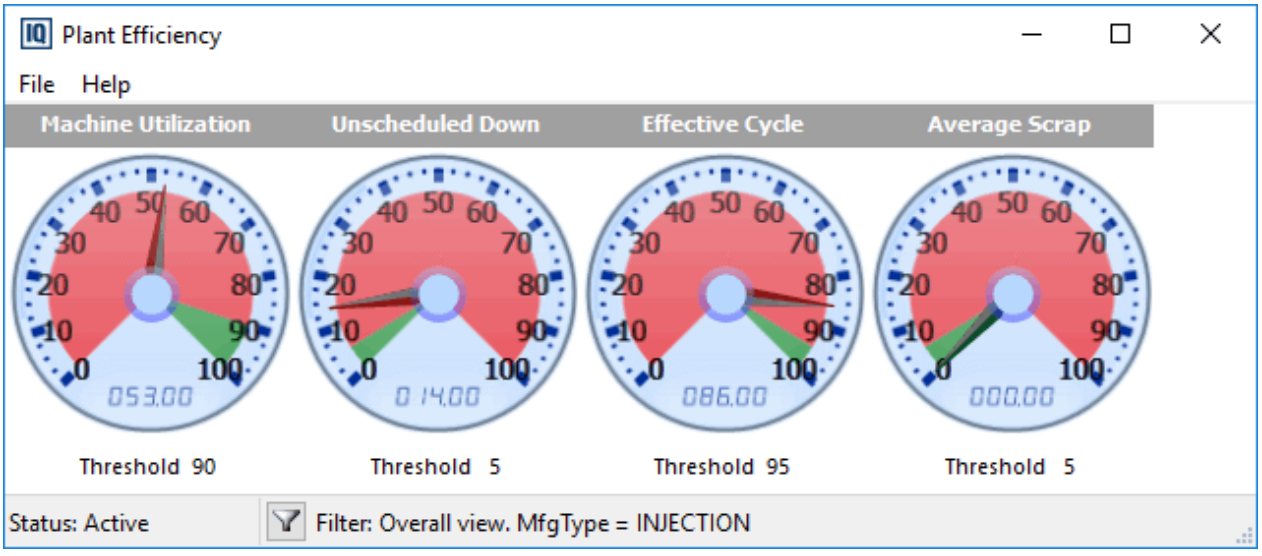
Hint: The User Defined Form can be used to as a setup checklist. This will allow users to sign off that they performed the setup requirements. This information can later be accessed based on the specific work center Mfg # combination.

Note: The Menu Caption cannot be set in this form. The entered text does not remain each time the form is opened/closed, as a Menu Option is only for drop down menus and not built-in forms.

RT Meter

RT Meter is an executive view of RealTime™ displayed in analog or digital format. The user can filter the view to display a specific Manufacturing Type or Cell for a single EPlant or all EPlants.

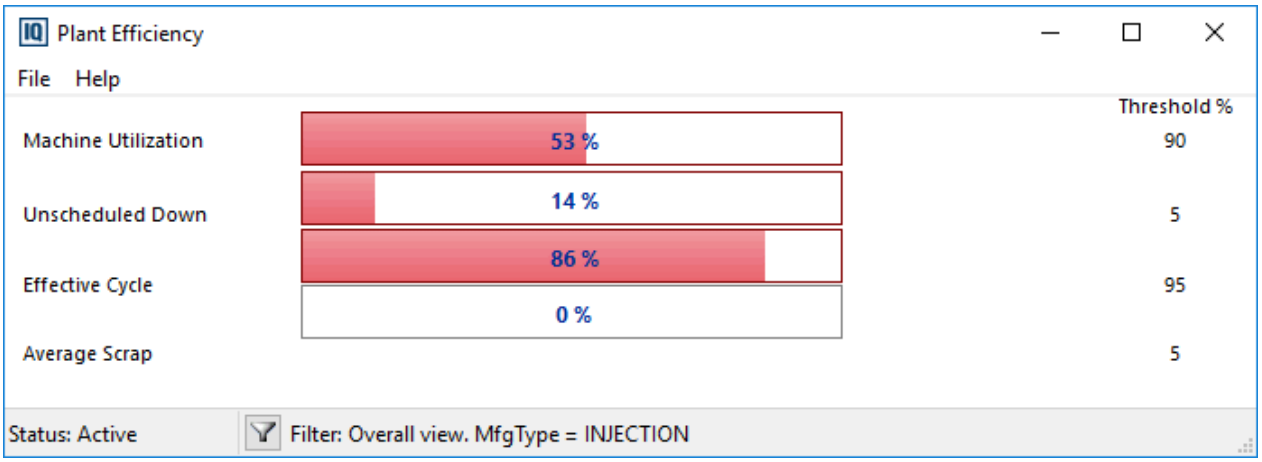
To access RT Meter select the speed button from the RT Machine Monitoring tab on the launcher bar. The following form will appear:



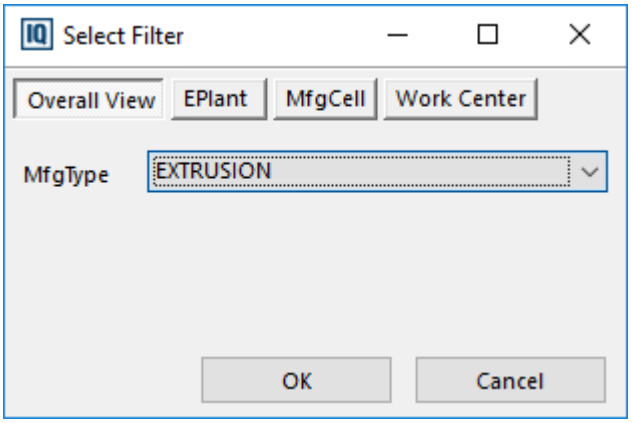
This form displays: Machine Utilization, Unscheduled Down, Effective Cycle, and Average Scrap, the same efficiencies that are displayed in the Executive view in RealTime™ . The dials display the threshold information entered in the Plant Parameters screen (see Plant Parameters) visually through color coding and as text. All calculations for the displayed information uses the same calculations as the executive view. (Please see Plant Wide Thresholds for these calculations). If the actual efficiencies are within the established thresholds the dial indicators will be green. If the efficiencies are outside the established thresholds the dial indicators will flash yellow and red to warn the user they are out.

Note: This screen refreshes based on the Refresh rate indicated in Plant Parameters within RealTime™ . This should not be anything less than 60.

The form defaults to analog but can be changed to digital. To change it click on File/Digital and the form will be displayed as follows:



The form defaults to the Overall view for the last selected Mfg Type. The filter can be changed to view other specific manufacturing types or cells. To change the information displayed select Filter from the File menu or click on the Change Filter speed button at the bottom of the form. The following screen will display:



From this screen the user can select which view will be displayed on the RT Meter form. The options are:

- **Overall view for a specific Mfg Type** - This option displays the information for all EPlants for the specific manufacturing type selected using the drop down menu.
- **EPlant for a specific Mfg Type** - This option displays the information for a specific EPlant for a specific manufacturing type.
- **Mfg Cell** - This option displays the information for a specific manufacturing cell.
- **Work Center** - This option displays the information for a specific work center. Select the work center from the drop down list.

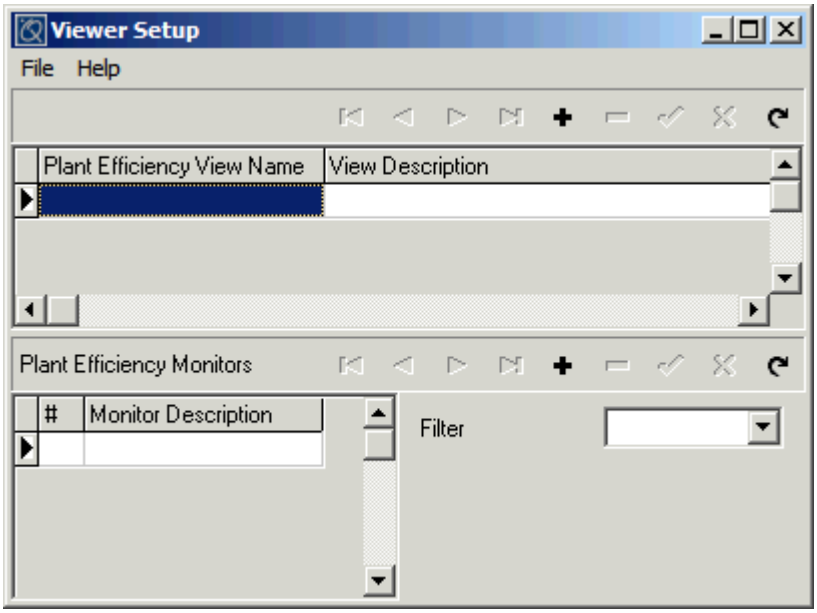
Once the filter has been selected the RT Meter will reflect the information for the selection.

RealTime Plant Efficiency View

 This option allows the user set up views to pick from to display efficiencies in a format similar to RT Meter. Multiple views can be established which allows a user to switch between them without having to make the view selections every time. Also, from this screen the user can jump to the schedule.

Set up Views

From the RT Machine Monitoring on the launcher bar select the RealTime™ Plant Efficiency View button. The first time this is accessed an empty pick list will appear. Select the New button from the pick list to access the Viewer Setup screen.



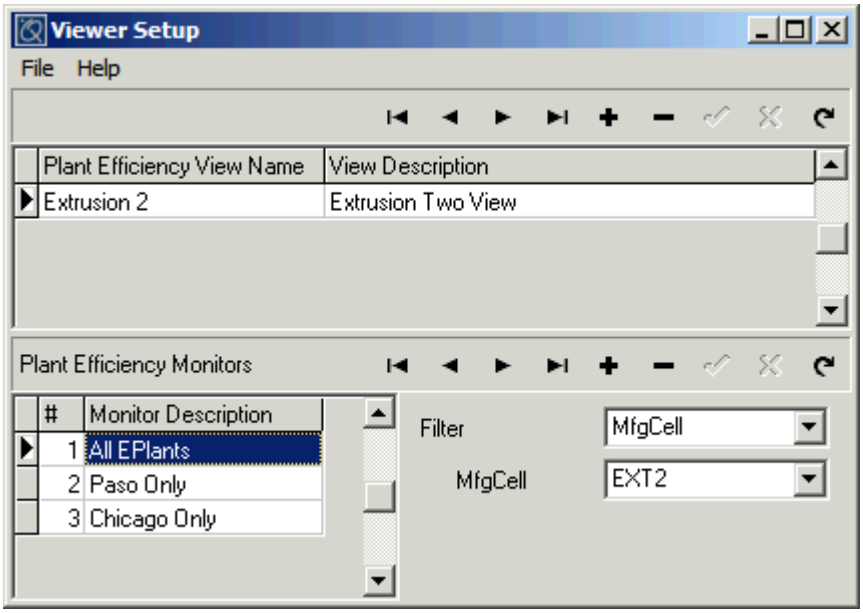
From this form the user can set up multiple views to be able to choose from. Select the ADD (+) button in the top section and enter a Plant Efficiency Name and View Description in the upper section.

Next, select the ADD (+) button in the lower section to create the Plant Efficiency Monitors to be associated to the View. The Monitor Description will populate automatically with the text Monitor #1 but can be changed. The Monitor description will display above the meter in the RealTime™ Plant Efficiency View so it should be descriptive of what the viewer is looking at.

Next, select the Filter from the drop down list to associate to the view. The options are:

- **Overall view for a specific Mfg Type** - This option displays the information for all EPlants for the specific manufacturing type selected using the drop down menu.
- **EPlant for a specific Mfg Type** - This option displays the information for a specific EPlant for a specific manufacturing type.
- **Mfg Cell** - This option displays the information for a specific manufacturing cell.

Additional Monitors can be associated to the View by selecting the ADD (+) button again and selecting a different filter option. In the example below the View is for Extrusion 2 with three monitors set up, one for all EPlants and two for specific EPlants.



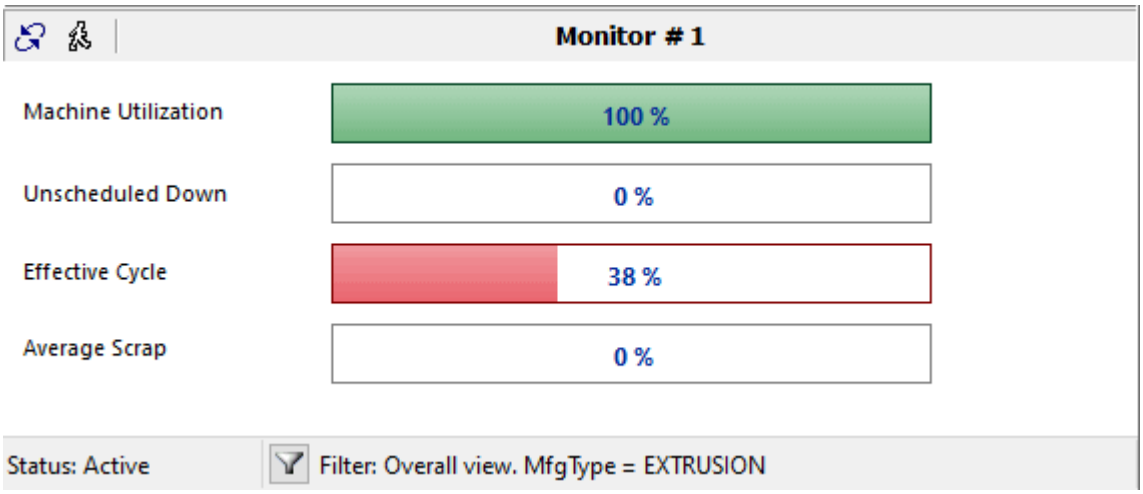
Using the RealTime™ Plant Efficiency View

Once views are set up the user can select them from the pick list. A form similar to RT Meter will appear with a meter for each monitor that was set up for the view.

Below is what the meter would look like based on the Viewer Setup screen above. Notice there are three meters one for all Extrusion 2 work centers for all EPlants and one each for the specific EPlants:

The Monitor description is displayed above the meters and the filter associated with the monitor is listed below the meters.

The meters default to analog but each one individually can be changed to digital by selecting the **Toggle Analog / Digital View** button above the specific meter. The meter will look like this instead:

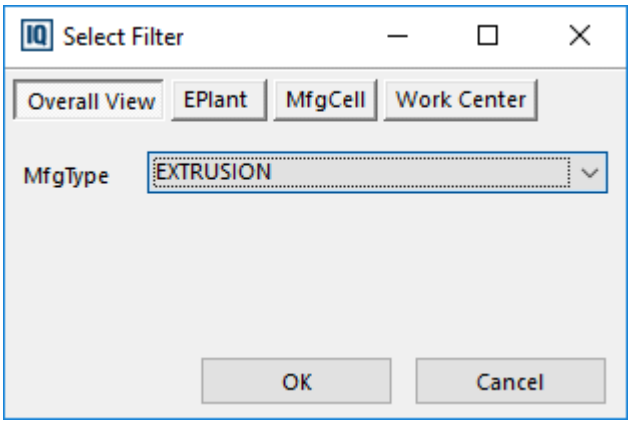


Select the toggle button again to return the meter to the analog view.

The user can **Jump to the** RealTime™ **Monitoring** screen for the specific view by selecting the jumping man button. The work centers visible will always be based on the filter associated to the monitor from the Viewer Setup form even if the filter is temporarily changed using the change filter button.

Note: The RealTime™ screen is identical to that which is accessed directly from the launcher bar except the five, right click jump to options are not available.

The filter can be temporarily changed to view other specific manufacturing types or cells. To change the information displayed, click on the Change Filter speed button at the bottom of the form. The following screen will display:



This is identical to the filter options available in the Viewer Setup form except there is one additional option to filter based on a specific work center.

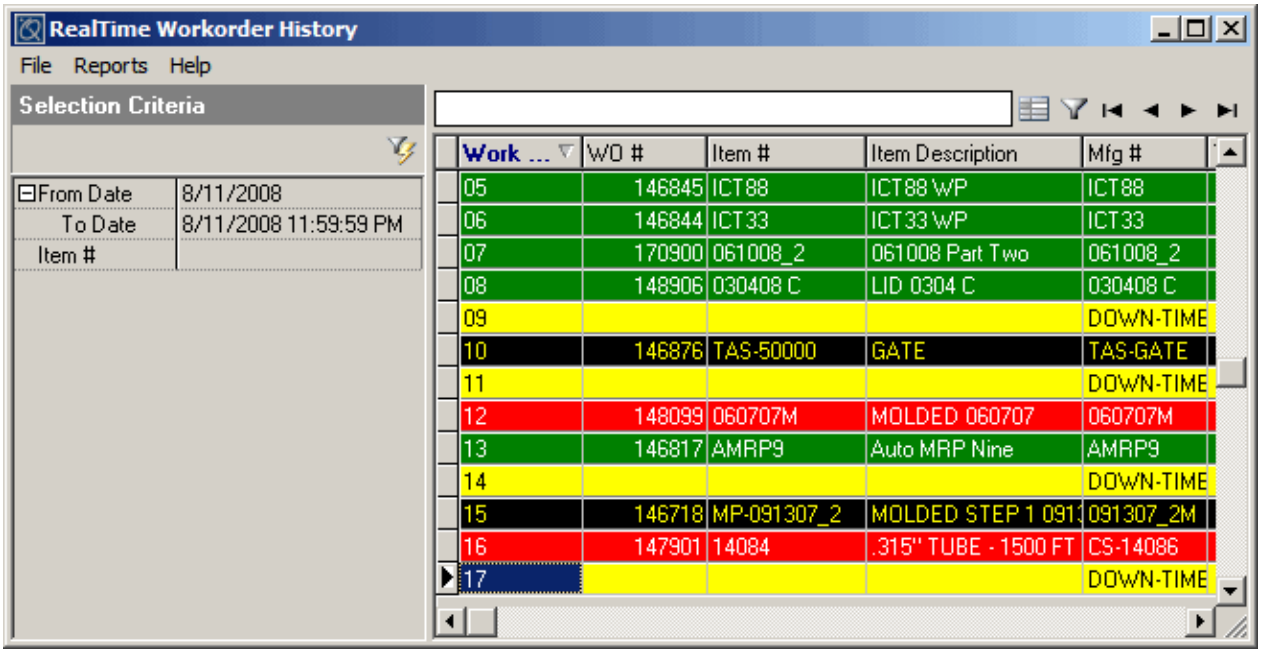
- **Work Center** - This option displays the information for a specific work center. Select the work center from the drop down list.

RealTime Work Order History

The RealTime™ Work Order History module displays a history of work order activity based on a user defined time frame for all work centers within the EPlant. This displays **finished** work orders and lists the details as in the RT Monitor.

 Select the RealTime™ Work Order History button on the RT Machine Monitoring of the launcher bar to access the module. The screen will be blank until the apply selection criteria button (lightning bolt) is selected. The 'From Date' defaults to the Current Date minus 30 days, and the 'To Date' is the current date. To enter a different date range select a date from the drop down calendar in the From Date and To Date fields on the left side of the form. Then select the Apply Selection Criteria button to populate the table with the work order history for the desired date range.

The Item # field in the Selection Criteria pane allows users to filter work centers by the FG inventory item being produced. The Master Inventory pick list, accessed by clicking the ellipsis in the Item # field, can be sorted by inventory group code, customer name, item number, and many more.



The user can view information regarding work orders for the specified date range that includes: total up hours, total cycles, total down hours, average cycle, work order quantity, total floor dispositioned quantity, FG lot number, priority notes, and many more. The records can be sorted by the various columns by clicking on the column header.

Note: The Work Order Quantity field is the original work order quantity, it is calculated as follows: Cycles Planned from the HIST_ILLUM_RT table * the Actual Cavity value from the HIST_ILLUM_PART table.

The RealTime™ Histogram can be accessed from this module by right clicking on the record you would like to view and selecting 'RT Histogram'. Please see RealTime™ Histogram for more information.

Note: The system will not display work orders associated to a ASSY1, 2 or 3 BOM.

RealTime LightStick™

The RealTime LightStick™ from can instantly provide visual communication on your manufacturing floor. Personnel can know immediately, from almost every space on your shop floor, at every machine, if you are running lean. The LightStick utilizes colored lights to indicate the status of a work center.

Colors on the LightStick are:

- Green solid – Running within standard cycle threshold
- Blue solid – Running faster than standard cycle threshold
- Red solid – Running slower than standard cycle threshold
- Red blinking - Overrunning of job is occurring*
- Yellow solid – Work center is down
- Yellow blinking - down with high scrap
- Yellow blinking red solid - slow with high scrap
- Yellow blinking green solid - normal with high scrap
- Yellow blinking blue solid - fast with high scrap

Note: The LightStick is capable of displaying green or blue in combination with a red flashing light. The machine could be running at standard but the work order is being overrun. This would be indicated by the illumination of both the green and flashing red light. When the stick is only flashing red, then the job is running slow and the work order is being overrun.

Additionally a switch can be added to the LightStick allowing the operator to manually indicate that the machine needs immediate attention. The colors will flash from the bottom up when the switch is enabled.

By using wireless mesh network technology the system can send signals from your wired RealTime™ server to a gateway that talks back to the shop floor machines.

Installation

Dedicated outputs are available in version 9/15 SP1 and greater.

The RealTime LightStick™ installation must adhere to the following requirements to ensure that the system is installed and becomes operational in the most cost-effective manner. Failure to follow these procedures may result in DELMIAworks rejecting the customer request to use RealTime LightStick™ or DELMIAworks not supporting and assisting in the troubleshooting of problems with the RealTime LightStick™.

Step 1 - Installing the RealTime LightStick™

DELMIAworks will provide assistance with the installation and configuration of the hardware. The assistance can include:

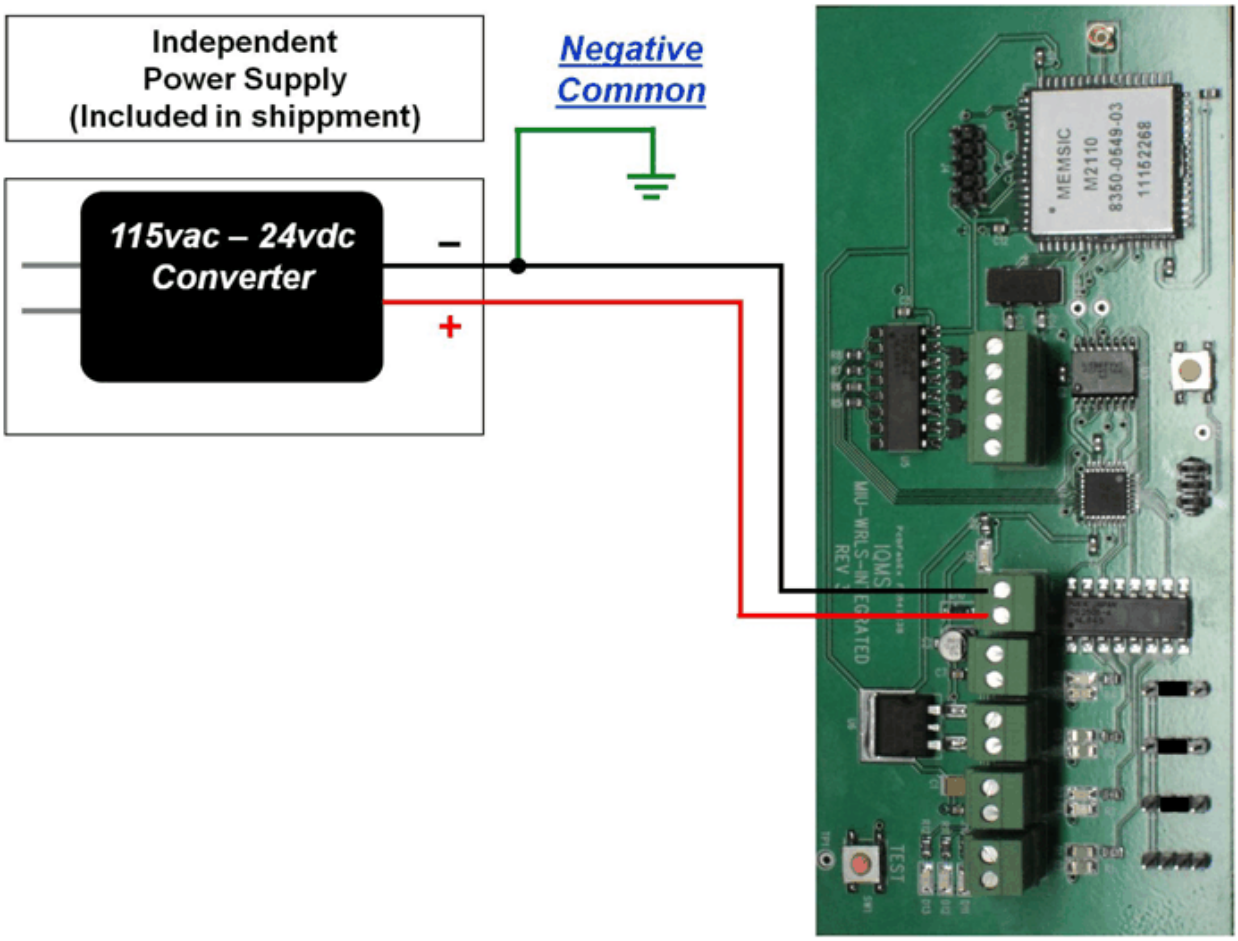
1. Onsite assistance to work side-by-side with your company's personnel to ensure that all system components are wired correctly to the work centers and power is provided correctly.

2 Telephone and Internet-based assistance.

Proper installation of the LightSticks and Gateways is critical to optimum performance of the system and improper installation can result in failure of the overall system or individual LightSticks.

Follow the instructions below for installation of the LightStick hardware:

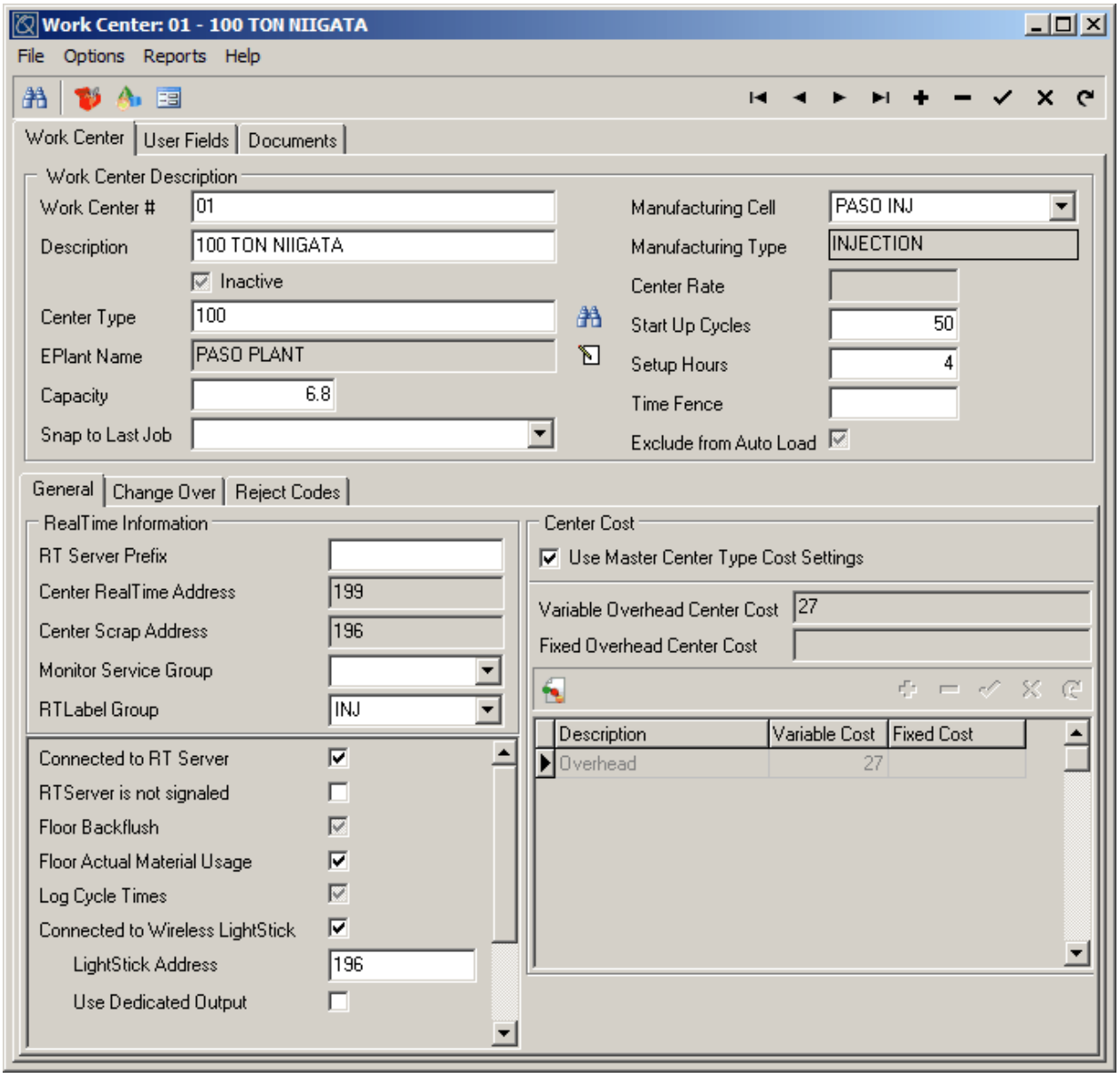
- Mount the MMU (Gateway) so that it has line-of-sight to as many work centers as possible. Since the wireless system works off of line-of-sight, all exceptions should be discussed with DELMIAworks before installation begins.
- If you are using an Ethernet MMU, it will need to connect to the LAN (a static IP address is required).
- If you are using a DB9 MMU, it will plug directly into the RT Server via serial cable.
- Mount the LightSticks where you wish for each work center using ½" EMT conduit.
- Using the supplied 24v power supply, plug the LightStick into a 110v outlet.



Step 2 – Assigning the RealTime LightStick™ Address & LightStick Type

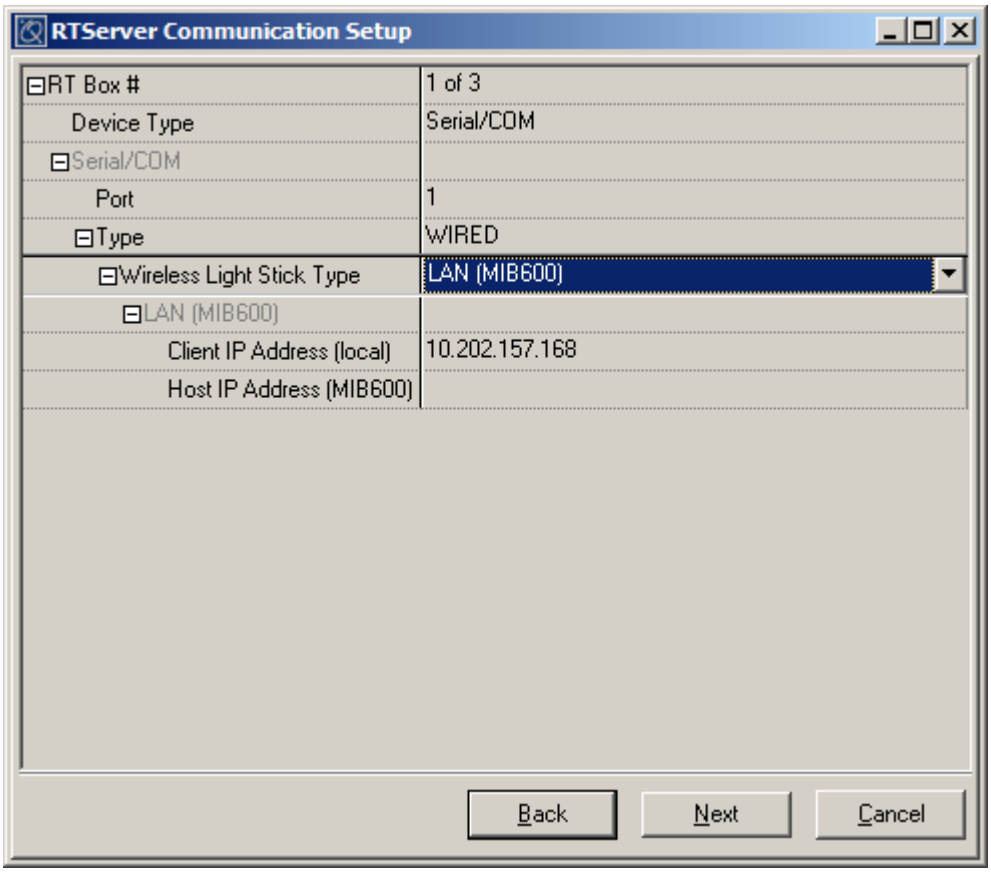
A RealTime LightStick™ address must be assigned to each work center for the LightStick to receive signals.

1 For each work center, check the 'Connected to Wireless RealTime LightStick' box on the work center screen and enter the LightStick Address in the corresponding field. See image below.



2. Assign the RealTime LightStick™ Type in the RTServer Communication Set-up screen. See image below.

3. The Use Dedicated Output is for use when a wired RT System is used in conjunction with a wireless LightStick system that requires multiple gateways. The reason for this is that a wired system can potentially span multiple rooms or buildings which a single wireless gateway cannot cover. When a single wired RT Box does span multiple wireless gateways, then it must be configured this way.



Step 3 – RealTime LightStick™ System Certification

Following installation of all RealTime LightSticks and Gateways DELMIAworks requires that the RealTime LightStick™ system undergo “Certification Tuning”. The certification process involves DELMIAworks remotely running diagnostic tools that will allow for development of a baseline performance specification and documentation of the optimum conditions for mesh networking at the customer site. This will allow DELMIAworks to streamline troubleshooting in the future as it will allow comparison of conditions at the time of the event to the baseline conditions and allow for quicker determination of system component problems.

Conditions: All LightSticks must to be installed to complete certification tuning.

For Ethernet Gateways (MMU)

- There can be no more than one switch between RTServer computer and the Gateway.
- Gateway must be assigned a static IP address.

Frequently Asked Questions:

(1) Can we use the LightSticks with WIRED RealTime™ connections?

The Wireless LightSticks will work side-by-side with a wired RealTime™ system. The cycle signals will be gathered using the wired system and the signal sent back to the LightSticks will go wirelessly.

(2) Is the hardware going to be changing or become obsolete?

We have refined the design, built the tooling and do not anticipate any modifications to the design at this time.

(3) Will the frequency band used by these lights will interfere with other wireless devices?

The LightSticks utilize 802.15.4 and ZigBee Protocol Mesh Network Technology so it will not interfere with 802.11b/g. If you have other wireless devices using mesh networking technology in this frequency range then there could be conflicts.

(4) Is there a separate module that will be needed to control the function of these lights, or is it simply "plug and play" with the existing RealTime™ Time system?

It is Plug & Play with the existing wired system as long as you are on the latest version of 9/15/06 SP1. In SP1 we are replacing the existing RTServer with a new one that has been enhanced to handle both the wired and wireless signals. 9/15/06 SP1 also has a modified work center master to store the LightStick address. One thing that is necessary is a 24v power source available at the machine for the LightSticks or you can use the 110v to 24v power supply provided with the LightStick.

(5) Would the addition of these lights impact our annual maintenance contract in any way?

The addition of the LightSticks will increase the annual maintenance.

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