DELMIAWorks

Scheduling

Release: 2022

Contents

Scheduling

Scheduling, Capacity, & Planning

Introduction—Building a Finite Schedule

EnterpriseIQ provides the tools to build Work Orders which are placed in a scheduling queue. The **Scheduling** module (located under the **Manufacturing** tab) is the main machine loading screen used to schedule Work Orders. Work orders, which are automatically generated by **EnterpriseIQ** from Sales Orders, Auto MRP, Forecast, or created manually by the user, are loaded onto each machine in the order of preference.

The key to scheduling is understanding the Work Order generation process. Refer to Generated Work Orders for details on the logic behind system generated work orders.

Before accurate Work Orders can be scheduled, the following items must be entered into the system:

- **Scheduling Parameters**–(Found under **Options**). This section should be filled in before beginning the scheduling process. It includes schedule and run time scopes, safety lead time, time fence, etc.
- **Shop Setup**–(Found under **Options**). Be sure you have created shifts and assigned them to the valid work centers before scheduling. Using the Set Calendar function from within Shop Setup recreates and stores weekends/off- shift information according to the Shop Calendar Setup parameters.
- **Work Centers**–Before you can create a schedule, you must define valid work centers.
- **Inventory**—Both finished goods and raw material inventories should be as accurate as possible.

General Notes on Scheduling

Color coding is used to display work orders that are on time (green), late (red) or potentially late (rust) due to shipping means, plus other color coding that will be discussed further in the chapter. By adjusting the order of the work orders or by moving them to a machine with a different loading, you may dramatically effect how and when the work order will be completed.

The first position of the schedule is always reserved for work orders that are currently loaded on your machine whether they are actually running or not. If the machine is down or inactive for a valid reason, the first position should contain a scheduled downtime entry.

REALTIME CONSIDERATIONS: If the RealTime™ System is installed, it will be tracking all run-time and downtime for each machine. If a machine is not running a work order, then downtime should be scheduled. Otherwise, RealTime™ will log the downtime as unscheduled.

EnterpriseIQ offers two different presentations of the scheduling information (Text View and Graphic View). Both methods share common features such as inserting, moving, editing, removing or adding downtime. However, there are differences between the two that will be discussed below. The first section will explain the Text View mode.

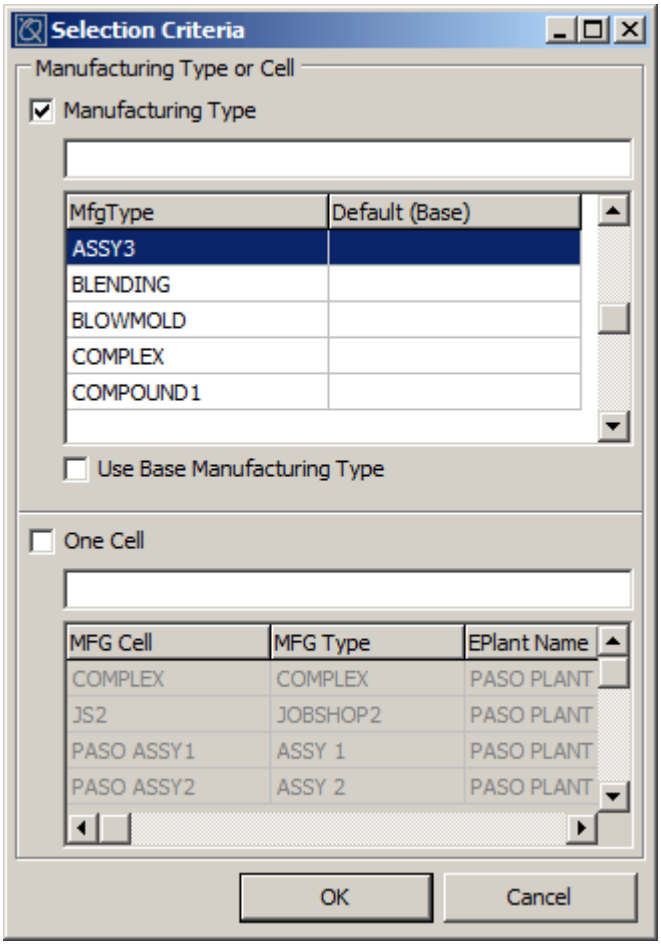
WebIQ Graphic View Functionality: Graphic View or Graphic Mode is currently unavailable in WebIQ version 1.

Accessing the Scheduling Module

EnterpriseIQ has made the scheduling and tracking of Work Orders easy and fast. Once the Work Orders are automatically generated or manual Work Orders are entered, the work orders are scheduled by dragging and dropping from a pick list of unscheduled work orders.

The scheduling module can be accessed from the main menu bar of the **EIQ Launcher Bar** under **File|Manufacturing|Scheduling**, or by clicking on the Manufacturing Scheduling button under the Mfg tab.

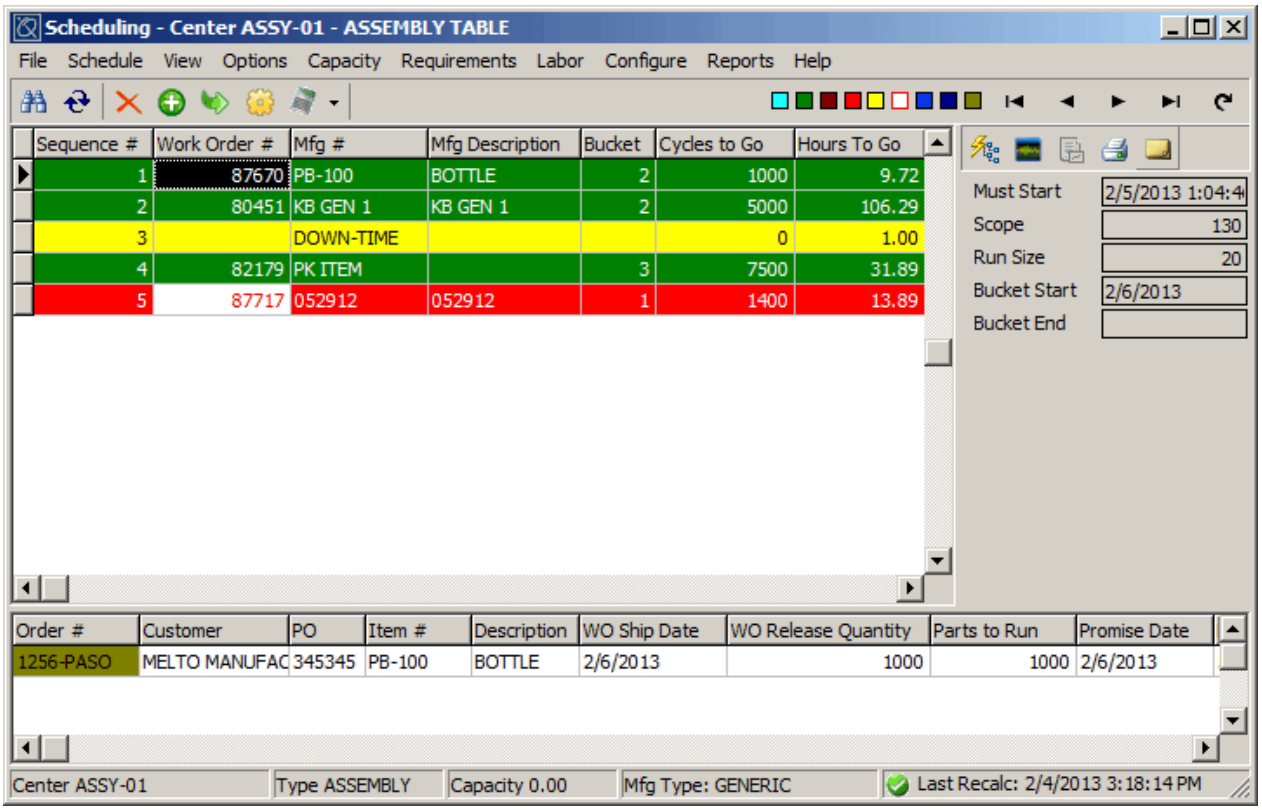
- The first step is to select the work centers to view (based on MFG Type or Cell) from the Selection Criteria screen that will appear. Enter the information in the white space to hyperbrowse to the desired record, or use the scroll bars.



The user can view work centers by:

- **Manufacturing Type** - Choose Manufacturing Type if you only wish to view work centers of a particular type such as injection, extrusion, or generic. A manufacturing type may consist of only one work center or several “like” work centers. With the One Manufacturing type selected there is an additional option '**Use Base Manufacturing Type**'. When this is checked, the schedule will include all work centers associated to the base manufacturing type and not just the work centers associated to the specific manufacturing type. For example, the Kitting Mfg Type is based on Generic, if the Kitting Mfg Type is selected without the 'Use Base Manufacturing Type' option checked, only work centers associated to the Kitting Mfg Type will display in the schedule. If the option is checked then all work centers associated to the Generic base Mfg Type will display.
- **One Cell** - Acts as a filter. Selecting this option will only show those work centers that have been designated to a specific cell.

➢ Select how you wish to view your work centers and press [**OK**]. The following screen will be displayed:



Setup for Scheduling

Setup Parameters

The first step in creating a schedule is to set the **EnterpriseIQ** scheduling parameters. The basic parameters to be input for shop production include schedule scope, manufacturing run size, and override the schedule pool window option. The values stored here are default values that apply to all work orders.

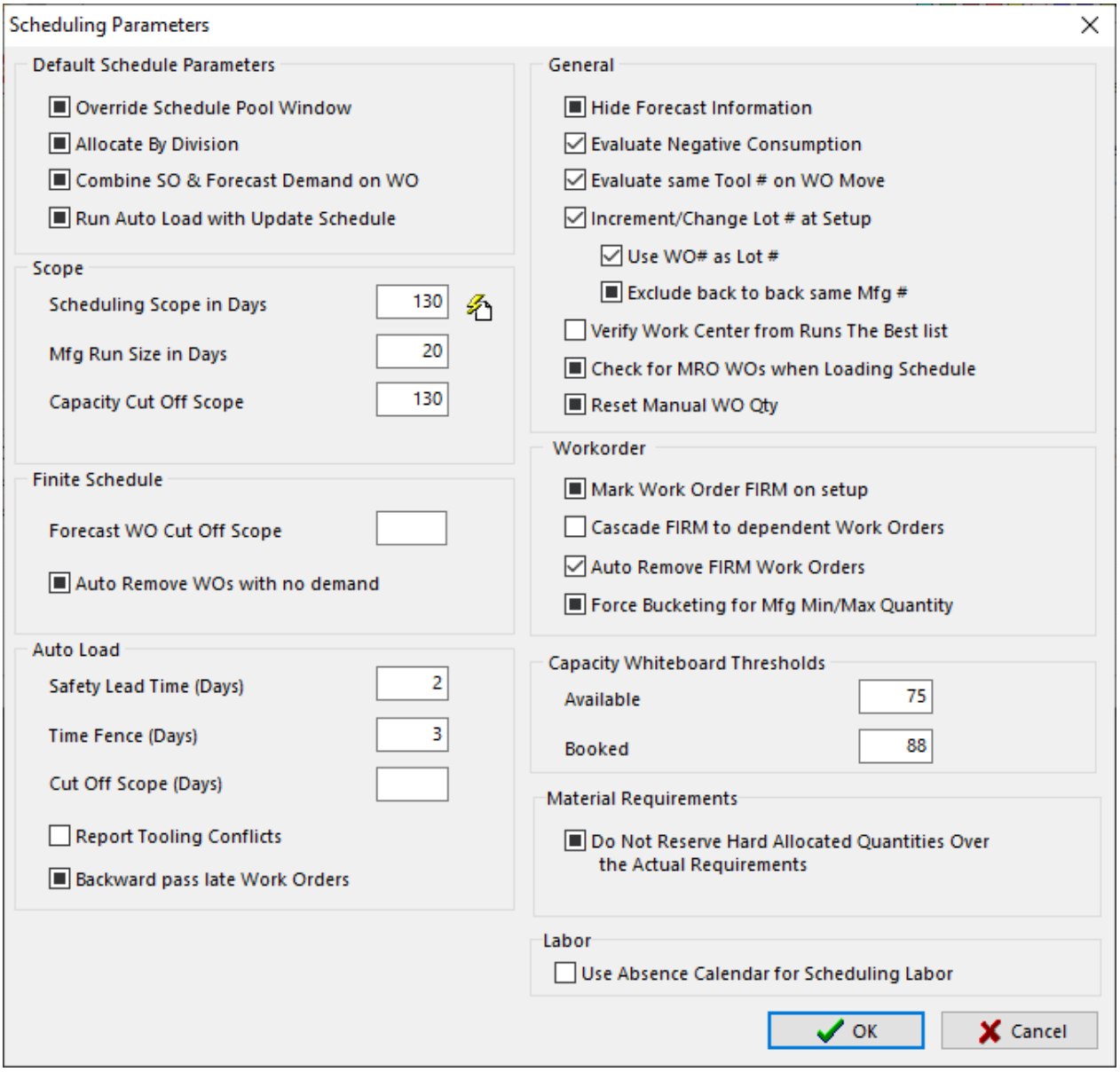
Default Schedule

The Shop Calendar uses values stored in this section to create a default calendar. The default schedule is the most generic schedule that your shop may have. For example, your plant may run 24 hours per day, three shifts, five days per week. However, several machines may actually run over weekends or through holidays. Using the Shop Calendar, these exceptions can be created and maintained.

Scheduling Parameters

Clicking on **Options** located on the main menu bar within the scheduling screen, provides access to the Scheduling Parameters and Shop Setup screens.

Scheduling Parameters - Includes the specification of the Scheduling Scope, the Manufacturing Run Size, the Safety Lead Time, the Override Schedule Pool Window, Capacity Cut Off scope, Time Fence options, and others. Security can be placed on each of the Scheduling Parameter options.



Parameter Listing (Alphabetical Order)

Allocate By Division	With this option checked, manufactured items are allocated by division. Manufactured items associated to a division on a sales order will be allocated to that division during the update schedule process. The system will use the following hierarchy when determining the correct division: The division associated to the Ship To address at the release level, Ship division at the line item detail level, then the division at the header level. Inventory locations with a division will be allocated to the corresponding division from the sales order based on the hierarchy above. Inventory items in a location not associated to a division will be allocated to a division requirement based on the requested date. There is no cross over between divisions. Essentially, the rules are: Division inventory ONLY allocates to orders for that division, and inventory in a location without a division allocates to division orders based on date. **Note**: If the Sales Order does not have a division in header, detail or release sections, the system will not allocate inventory from locations with a division. It will only allocate inventory from locations without a division. For example, a sales order is created with a division 1 ship to address for 20000 items. There are 3000 items in a division 1 location, 2000 in a location without a division, and 1500 in a division 2 location. If this option is checked the work order will be created for 15000 pieces (20000 - (3000 + 2000)), since the on hand in division 2 is not considered to meet the demand. If this option is not checked the work order would be created for 13500 pieces (20000 - (3000 + 2000 + 1500)), since the on hand from division 2 will also be allocated to the demand. **Note**: This option must be checked when setting up Auto-MRP by Division with the 'Auto-MRP Scope in Days' feature checked. If a user attempts to uncheck this parameter when an item has division Auto-MRP with 'Scope in Days' setup a warning will appear stating, "Scope in days functionality will not apply if Allocate by division checkbox is unchecked! Would you like to continue?". Selecting 'No' will return the user to the Scheduling Parameters form with no changes made. If 'Yes' is selected the 'Scope in Days' field in Auto-MRP division settings will be grayed out as an indicator that it no longer applies to the Auto-MRP calculations. If the 'Allocate by Division' parameter is re-checked, the 'Scope in Days' field will no longer be grayed out.
Auto Remove FIRM Work Orders	With this checked the system will delete FIRM work orders that are completed because they have zero demand and are no longer on the schedule when update schedule is run. This includes all type of work orders except Manual Outsource work orders marked firm. This is a global setting that can be overridden on an individual firm work order. Note: The system will not delete FIRM work orders that are on non-archived production reports unless it has been fully reported against in PRW (where the dayprod.origin = PRW). Note: This does not apply to work orders that were marked finished when doing a set up in RealTime™ if they still have demand.

Auto Remove WOs with no demand	If this option is checked, when Update Schedule is run, the system will remove work orders (not scheduled in the first position) from the schedule that have no demand (they appear white in the schedule). Note: This does not include white Firmed Work Orders that no longer have requirements or Manual work orders.
Backward pass late Work Orders	This option is used in conjunction with Auto Load. When a work order is loaded onto a work center, if it is late due to preceding work orders, the preceding work orders will be scheduled to start earlier if possible and by the amount of time the last scheduled work order was late. When this option is checked, during auto load, when a work order is added to the work center, it will be evaluated to determine if the scheduled production start time is later than the (must start date - lead time). If the work order is late, the amount of production time that the work order is late will be evaluated against prior work orders' production end times to see if there is enough combined gaps that will prevent a late work order from being late. Move time is considered so the system will not schedule jobs to start before move time would allow. This process may shift several work orders to run earlier than the must start date – lead time due to a single work order that is late. Dependent work orders will not be moved ahead of their predecessor's production end time. **Note**: For ASSY work orders the Backward Pass option will not run if the 'Fast Finite Schedule (do not adjust sibling processes)' is not checked in Assembly Track Parameters.
Capacity Cut Off Scope	The capacity cut off scope allows you to set a different limit than the schedule scope for capacity and material requirement reports and calculations. The time in days can be set to something greater than the schedule scope to see requirements for a work order further out in the future, but limit it as well to something reasonable. For example: If you have a work order for a very large quantity that is going to start to run today continually for 180 days and the capacity cut off is set to 140 days, the material requirements will stop calculating after 140 days. It will not show the material requirements for the remaining 40 days until they are within the 140 day scope. This feature was added because work orders that were going to run for a very long time into the future were causing update schedule to take a very long time. Note: Capacity Cut off Scope should not be shorter in time than the Schedule Scope. This will cause it to be ignored. Note: Material requirements are not generated if the demand is outside of the Scheduling Scope. This parameter only applies to situations where the work order is created for demand that starts within the scheduling scope but will continue running beyond it. This allows for viewing material requirements beyond the scope but within a reasonable range.
Capacity Whiteboard Thresholds	These thresholds relate to the Whiteboard Capacity Plan views for work center types and labor (Capacity and Labor menus). The Capacity Whiteboard displays the calculated percent available for each work center type and labor type (Required Hrs / Available Hrs * 100). Enter a value to establish the booked and available thresholds which will control the color coding of the bars in the whiteboard planner. If the % Available <= the Available Threshold then it will be colored green; if the % Available <= the Booked Threshold then it will be colored Yellow; otherwise it will be colored red. If no values are established in these fields the system will use 100% to determine the color coding.

Cascade FIRM to dependent Work Orders	With this option checked all dependent demand work orders are marked firm automatically when the main work order is made firm.
Check for MRO WOs when Loading Schedule	If this parameter is checked, when the user performs a setup, inserts a work order or moves a currently scheduled work order to the first position, a form will popup that shows the non-miscellaneous MRO WOs/Tasks that are open for tools that are attached to the BOM. The form has Continue and Cancel buttons. If the user selects the Continue button the work order will be scheduled or moved into the first position. The Cancel button will cancel the insert or move to the first position. Security can be placed on the Continue button to prevent users from scheduling tools that need maintenance. Note: This setting does not affect Auto Load.
Combine SO & Forecast Demand on WO	With this option checked the system will combine the sales order and forecast demand onto work order(s) based on the Mfg Run Size scope. The forecast demand will display in blue text in the Delivery Quantities grid on the work order to differentiate the demand. *Note*: With this option checked, all planned and forecast work orders are created with a Origin of "Planned" as each WO may contain demand coming from Sales Orders, Dependent demand or Forecast requirements. If there is only Forecast demand (no sales order to combine with), the work order will be a Forecast work order and the customer will carry over from the Forecast.
Cut Off Scope (Days)	The Auto Load Cut Off Scope is used to limit the work orders that are auto loaded to todays date + Cut Off Scope based on capacity. No work orders that would start outside this date range will be auto loaded regardless of their Must Start Date. Example: If the Cut-Off scope is set to 90 days, and auto load is run, then 90 days worth of work capacity will be loaded onto the machine, even if more work orders would have a must start date within that 90 days, no additional work orders will be loaded until more capacity has been freed up.
Do Not Reserve Hard Allocated Quantities Over the Actual Requirements	When this is checked, material requirement planning will not treat hard allocated quantities any different than non-hard allocated quantities. For example, If you hard allocate 1000 lbs of material to a work order, but really only need 700 lbs for the job. With the option checked, after running update schedule, the 300 lbs that is not needed will not be treated as hard allocated and will be included in material requirement planning.

Evaluate Negative Consumption	With this checked the Must Start Date of dependent work orders will be based on the actual start date of the parent work order. This applies to all levels (child and grandchild). If the work order item is a component of a phantom item, the must start date of the work order will be calculated from the grandparent item (the item that calls the phantom item) since there is no phantom item work order. Note: Items that are sold (level 0) should not be a phantom item if you want the child work orders to update correctly with a new must start date. Note: If a work order contains a direct demand such as sales order then the must start date will not be moved to start earlier just because the dependent demand calls for it. If it is not checked the Must Start Date of dependent work orders will be based on when the dependent Item is needed based on the promise date of the release that drives the dependent item negative. Note: Move time is being considered for dependent work orders. Example scenario: A sales order, with three releases that are each one week apart. If there are enough components to make the first two releases. With the option unchecked, the work order for the components would have a must start date set after the second release promise date. It would be based on the promise date of the release that requires the work order, and then work backwards based on the run time of the final release and the component work order. This option does not affect whether the system will display negative consumptions when work orders are moved. See Moving a Work Order for more information. Note: Evaluate negative consumption will take into account a gap in parent - child work orders. If a grandparent work order is scheduled with a phantom parent, the child work orders of the phantom adjusts to the actual start time of the grandparent work order.
Evaluate Same Tool# on WO Move	With this checked, when a user moves a job in the schedule, the system will check for any jobs that use the same tool number that are running back to back with the work order being moved and will prompt the user with the option of moving ALL adjoining jobs instead of just the first one. Note: The system only looks at consecutive jobs following the one being moved and not work orders before the one being moved.
Exclude back to back same Mfg #	This parameter only applies if the 'Increment Lot # at Setup' parameter is checked. If this is checked the lot number will not automatically increment if the manufacturing number is the same as the one that was run prior to the set up. **Note**: This parameter does not apply when adding work orders to Assembly Track.
Force Bucketing for Mfg Min/Max Quantity	If this is checked, update schedule will force multiple sales releases into a single bucket even if they have min or max quantities. This also works with 'multiples of'. When using the 'Max WO Batch Size' option in BOMs, the system will force bucketing up to the Max WO limit set on the BOM. The work order will still be marked firm when it is scheduled in the first position. In the work order module, if additional demand was added by the system due to Mfg Min Qty or Multiples Of values the line will be colored orange in the Delivery Quantities section.

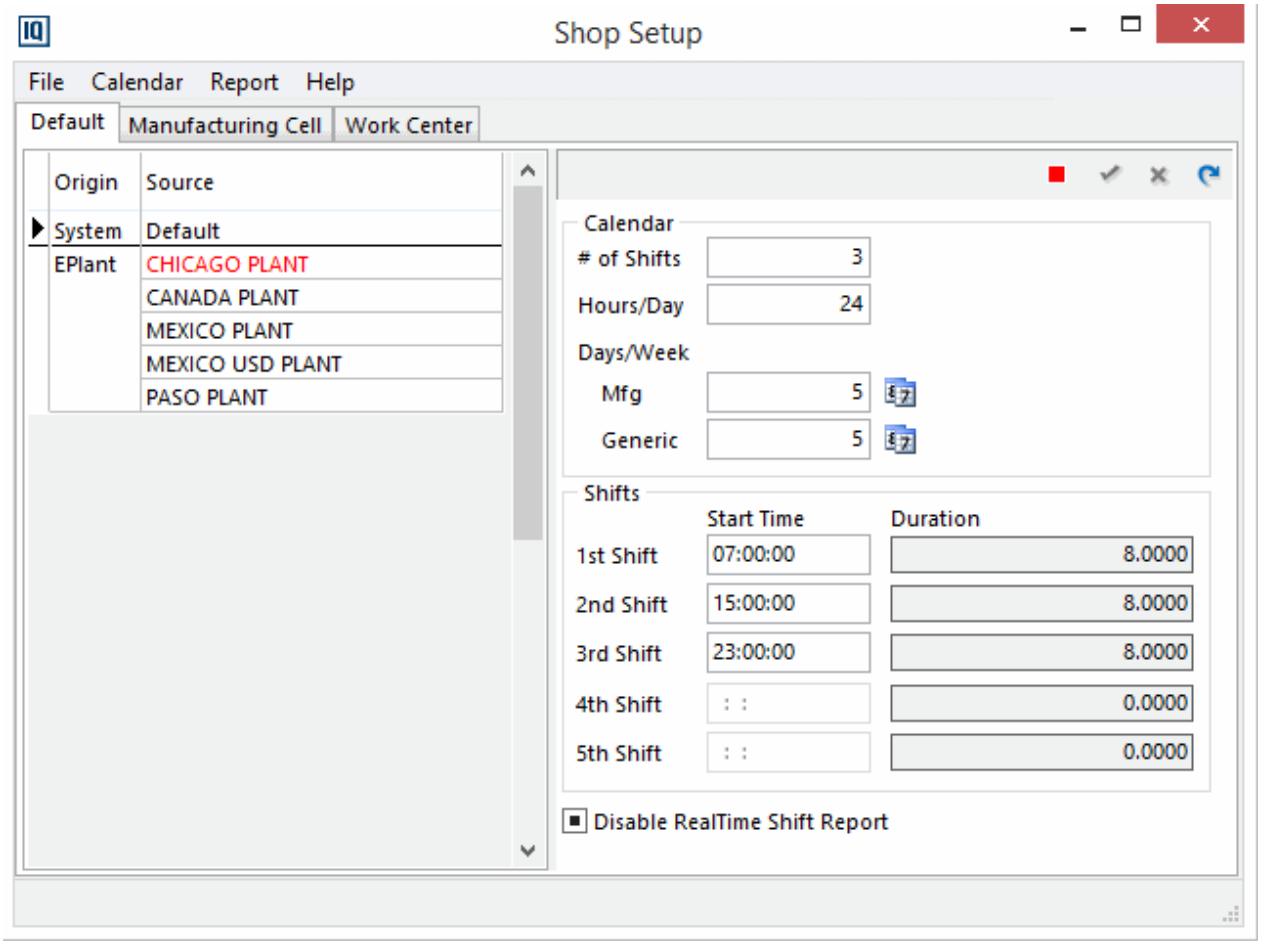
Forecast WO Cut Off Scope	This is a value in days that is used to filter the forecast work orders based on the Must Start Date. Only forecast work orders that have a must start date that falls between the current date and the Forecast WO Cut Off Scope will be available to load in the finite schedule either manually or via Auto Load. A Forecast WO Cut Off Scope can also be set at the inventory level for a specific item. The system will look at the value associated to the inventory item first followed by the global setting. The global setting only applies if the inventory item does not have the 'Exclude Forecast Work Orders from Schedule' option checked, or the Cut Off scope is not populated.
Hide Forecast Information	The user can choose to hide the material requirements for forecast work orders. With this option checked, the forecast information will be hidden from: the scheduling pool, material exception list, daily projected requirements, and daily material staging. The forecast information will still be a part of the labor and rough cut capacity information. Also, if this option is checked forecast work orders will not be loaded onto the schedule if the Auto Load process is run.
Increment Lot # at Setup	With this checked when setting up a job running on a work center connected to RealTime the system will automatically increment the lot number to the next available Lot #. After checking this option the lot number will increment for ALL BOMs from now on, not just those that had a lot number previously.
Mark Work Order FIRM on setup	With this option checked when any work order for any MFG type or cell is put into first position it will be marked firm
Mfg Run Size in Days	The Mfg Run Size in Days (Based on the Shop Calendar) is used to group delivery dates into manageable run sizes. This value tells the system that you only want to manufacture enough inventory to cover so many days worth of product releases (referred to as buckets). The system will accept a run size as small as one but it is not recommended. The lower the number, the more tool changes are usually required. The higher the number, the more inventory you will probably carry. The global value is set in Scheduling Parameters, but it can also be set in each BOM configuration, allowing each job to maintain a unique run size. This value is stored with each BOM, and can be found under Options|Miscellaneous Parameters|Scheduling. For a complete discussion on setting the Scheduling and Run Size Scopes, refer to the Generated Work Orders section in Work Orders.
Override Schedule Pool	EnterpriseIQ provides the capability to schedule work orders according to the work center type specified in the BOM. When work orders are to be scheduled at a particular work center, EnterpriseIQ preselects work orders which are designed to run only on that type of work center and provides a pick list of only those work orders. The Override Schedule Pool Window option is used to show all work orders available for scheduling, not just work orders that are designed for a particular type of work center. NOTE: EnterpriseIQ provides the capability to use this feature on a selective basis when adding a work order by having an Override button on the Insert Work Order screen. The Override button provides the same functionality as the Override Schedule Pool Window option, but only when desired.
Report Tooling Conflicts	With this option checked the system will evaluate potential tool conflicts during the Auto Load process. The conflicts will be displayed in the Auto Load form. Please see Report Tooling Conflicts in the Auto Loading the Schedule section for more information.

Reset Manual WO Qty	This option is designed for manual work orders where floor dispositioning is not done. When the work order is removed from the work center, the run quantity will revert back to its original run quantity as if nothing had been produced. Note: In Inventory -> Additional tab, the Floor disposition setting should be 'Do not disposition partials'. If this is checked the work order run quantity does not decline based on the floor disposition quantity. Floor dispositioning will inflate the parts to go, therefore floor dispositioning should not be done. If this is not checked, you can floor disposition. If items are floor dispositioned, after update schedule is run, a manual work order will be reduced by the floor disposition quantity like firm work orders. When the work order is removed from the work center, it will not revert back to the original quantity since the work order run quantity is reduced with each floor disposition. The Floor disposition setting should be 'Do not disposition partials'.
Run Auto Load with Update Schedule	When this parameter is checked, the system will run Auto Load in between IRV32 and IQCapacity. With this checked, the MRP Engine will create new work orders based on demand. Auto Load schedules the work orders on the finite schedule. Capacity planning then will create material required dates based on the finite schedule.
Safety Lead Time	The Safety Lead Time is used with the Auto Load feature, and specifies the number of days prior to the must start date that the system should schedule the production run. The value entered in the scheduling parameters is global. This value can be set up per customer which will override the global value set here. This field is in Customer Maintenance on the Misc tab (AR/Customer Maintenance/Misc/Safety Lead Time field). For example, if your work order has a must start date of 06/15, and the Safety Lead Time value is set to 10, then the auto load feature will attempt to schedule the work order on 06/05 in an appropriate work center. When converting 'Safety Lead Time in Days' to hours for the Auto Load calculation the system finds the Hours per Day for the work center and uses that instead of 24 hours to ensure the number of days are logical. Note: If Snap To Last Job is checked the system will ignore the Safety Lead Time. Safety Lead Time is also used with the 'Just in Time' (JIT) scheduling option. The system will automatically populate the Force Start date with the Must Start date minus the Safety Lead time in days.
Scheduling Scope in Days	The Scheduling Scope in Days value determines how far into the future the system should look for planning purposes. This is used by MRP to analyze delivery dates and creation of work orders to meet those delivery dates. For example, a value of 120 will tell EnterpriseIQ to include only those orders and releases that occur in the next 120 days.

Time Fence (Days)	The time fence value is also used in conjunction with the Auto Load feature. It is used to "lock in" work orders, protecting the current schedule. For example, if you want to maintain the next seven days of scheduled work orders, but want Auto Load to re-arrange the rest of the work orders, set this value to seven. When Auto Load runs, any work orders on any work centers with start dates within the next seven days will not be re-positioned or moved. Notes: The work orders scheduled in the first two positions are by default always protected regardless of the time fence. The system will never remove them and re-schedule them. A Time Fence can be set at the work center level which will override the global value set in scheduling parameters for that work center.
Use WO as Lot #	This parameter only applies if the 'Increment Lot # at Setup' parameter is checked. If this box is checked, instead of using the next available lot number the system will use the work order number for the lot number. Note: With 'Use WO as Lot#' checked, if the user wants to change the lot number using the 'Next Lot#' button on the 'Set FG Lot#' screen, the specific MFG Lot# increments unless the 'Retain Assigned Lot# for this Work Order' is checked for the firmed WO.
Use Absence Calendar for Scheduling Labor	This applies to Labor Scheduling. If this option is checked the pick list when scheduling employees will filter out employees that are absent for the full duration of the work order, and employees that are absent for some of the work order duration will be highlighted in pink in the pick list. Please see Labor Scheduling for more information.
Verify Work Center from Runs The BestlList	With this checked when a work order is added to the schedule the system will check to see if the work center the work order is being added to is on the Runs the Best list for the BOM. If it is not, an exception message will appear allowing the user to continue or cancel. Security can be placed on this option to not allow the job to be scheduled.

Shop Setup

Shop Setup must be completed prior to scheduling any work orders. 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 center(s) (manufacturing or generic) will be in operation. For more information please see the section on Shop Setup.



Text Mode Scheduling

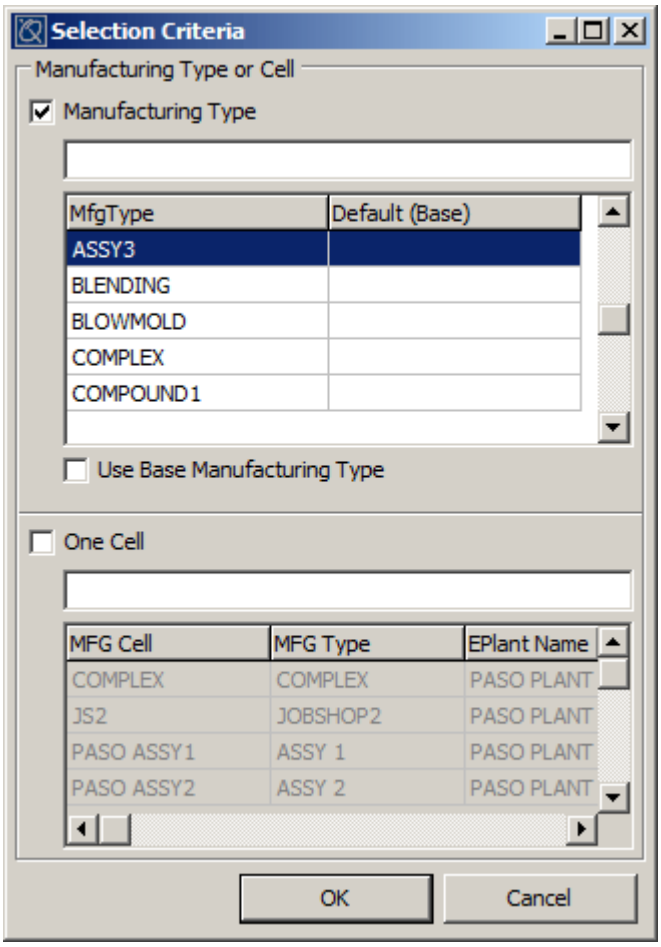
There are two methods used for scheduling. The first method described below is Text Mode scheduling. The second method is Global Visual scheduling. Both methods of scheduling (Text and GVS) share many common features.

To fully schedule, your work orders should be up to date and include the latest order and inventory information. Be sure to use the Update Schedule function prior to making significant changes to your schedule. This function, highlighted in detail in the How to Generate Work Orders - Update Schedule section, will rebuild the work orders and re-evaluate material and capacity planning tables. (The function can be found under the File menu of the main scheduling screen).

The Scheduling Screen—Text Mode

To view the schedule in Text Mode:

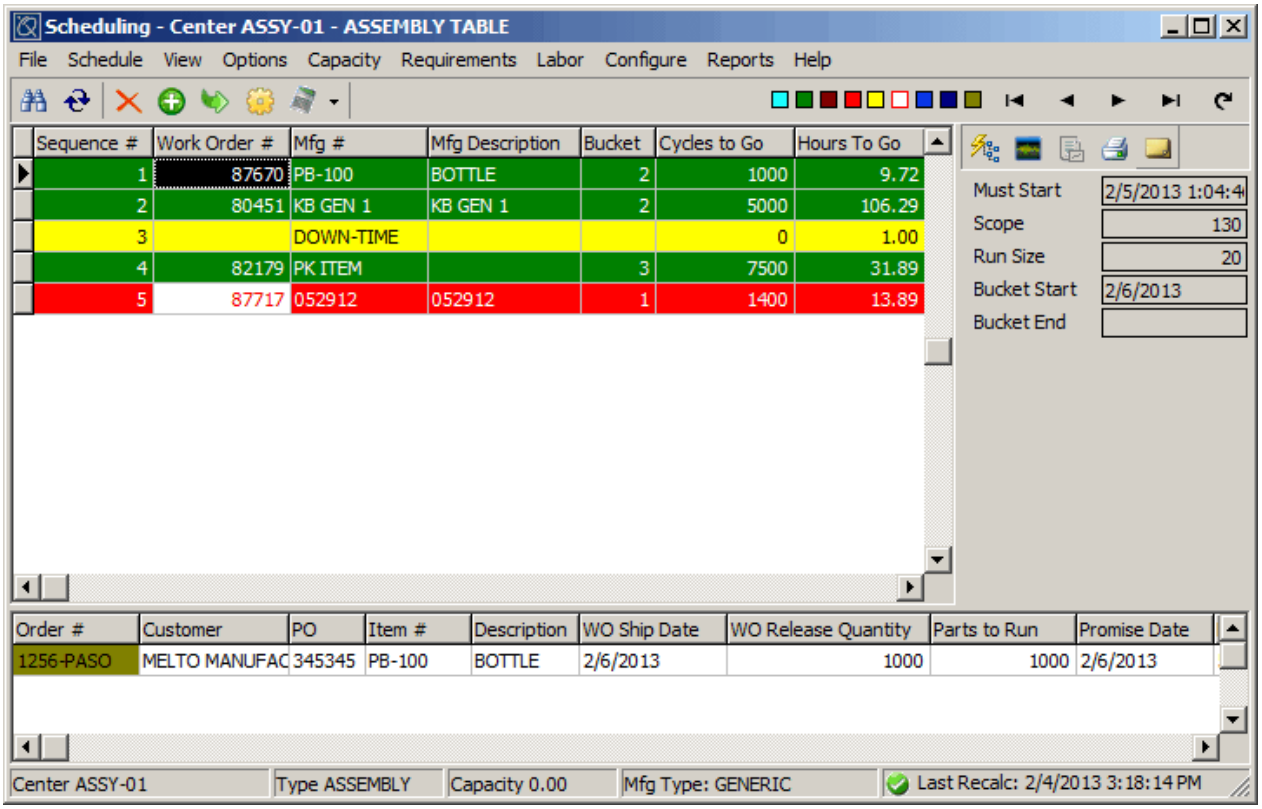
- From the **EIQ Launcher Bar** under *Mfg*, click on the Scheduling button.
- The first step is to select a **Manufacturing Type** from the Selection Criteria screen that will appear.



The user can view work centers by:

- **Manufacturing Type** - Choose Manufacturing Type if you only wish to view work centers of a particular type such as injection, extrusion, or generic. A manufacturing type may consist of only one work center or several "like" work centers.
- **One Cell** - This acts as a soft filter. Selecting this option will only show those work centers that have been designated to a particular cell, or those with no cell.

➢ Select a Manufacturing Type, or further filter by selecting a specific Cell an click on [**OK**] to continue. The EnterpriseIQ Scheduling screen will appear:



The screen displays a substantial amount of information about the current work order(s) loaded. The screen contains three main sections:

- The machine loading window
- Sales Order detail window displaying the associated sales orders which make up the Work Order.
- Data area (right side of screen) displaying various work order criteria (i.e. Must Start, Scope, Run Size, pounds of material, and Material used).

Use the arrow keys on the keyboard to move up and down through the list of work orders currently loaded. Notice how the information shown in the Work Order window changes as you move from work order to work order.

A color code key, located in the upper right hand corner, depicts the color scheme used in the schedule:

- Green - The work order will be finished on time.
- Brown - The work order is going to be late, but the days late is within the ship days so it could potentially still be on time by shipping with a faster method.
- Red - The work order will not be finished on time.
- Yellow - Downtime and Tool out of service (only Tool # field will be yellow).
- White/Red outline - Indicates there is not enough material to run the work order.
- Light Blue - Forecast work order will be finished on time.
- Dark Blue - Forecast work order will not be finished on time
- Olive Green - The Sales Order has a line item note. This color will appear on the Order # field in the lower section.

Note: Work orders that appear completely white (with a must start date for year 1899) have 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.

If these work orders are removed from the schedule manually or by the system if the 'Auto remove WOs with no demand' scheduling parameter is checked, they will not be put into the scheduling pool because there is no longer any demand for the item.

These work orders should not be edited, changed, or updated as they are just place holders. If there are still requirements for the item users should remove the white work order from the schedule, create a new work order, mark it firm, and schedule it.

The information shown in the gray data area cannot be edited. These fields include:

Must Start	This is the date that the work order must be started if it is to meet all delivery requirements.

Schedule Scope & Run Size	The scheduling scope value is used to build the "scheduling pool," which is a list of all work orders that fall within the scope, and to generate the associated raw material requirements. Common scheduling scopes are 90-120 day range. Run Size Scope works with the scheduling scope to help determine the proper manufacturing lot sizes. Please see Scheduling Parameters for additional information on these fields.
Bkt Start & End Dates	These dates relate to the run size scope days used to determine buckets. The bucket start date is the must ship date of the first release in the bucket. The bucket end date is the start date + Mfg scope in days.
Material **(For applicable MFG types)**	Displays the associated material item number and description. You can right click in this area and jump to the Raw Material inventory or to the Sales Order for the FG.
LBS **(For applicable MFG types)**	Displays the amount of material needed for this Work Order. ('LBS/K'/1000 * Cycles to Go)
Dry Time	This displays the Dry Time value for class PL materials.

BOM Tree

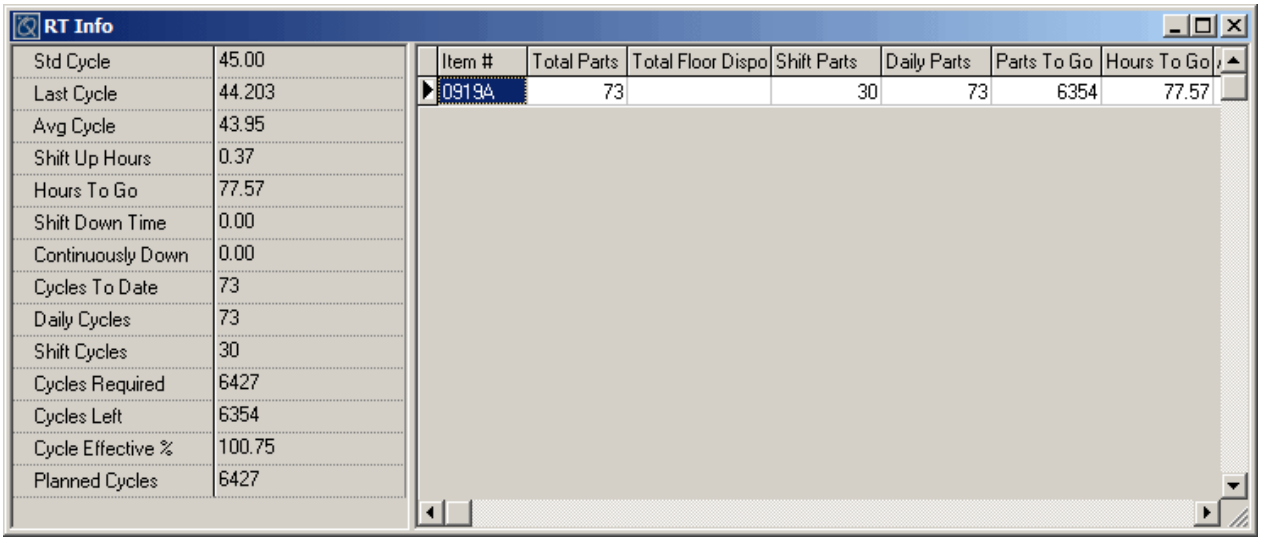
From the Text Scheduling screen the user has quick access to the BOM Tree for the highlighted work order. Click on the speed button  to view the BOM Tree. It will automatically display the explosion view for the sum of the releases on the work order. For the Extrusion MFG Type, if user clicks on the BOM Tree in the upper portion of the scheduling screen it will display in parts. The right click BOM Tree option in the lower section will display feet.

To change the quantity select the BOM Qty Explosion button and enter the desired quantity. Select the Material Exception List button  to open the BOM Tree Material Exceptions list. This list displays only the materials associated to the BOM.

Users can right click on an item in the BOM Tree and Jump To: BOM, Inventory, Transactions/Locations, or Inventory Availability.

RT Info

Also from the Text Scheduling screen the user can view the RT Info for the work order in the first position. Select the RT Info speed button  to display the RT production summary cycle information for the work order. The left side of the form displays the cycle information such as average cycle, cycles to date, shift cycles, and cycles left. The right side of the form displays information such as, parts to go, hours to go, shift and daily parts, bad parts, scrap %, and more.



Quality Exceptions

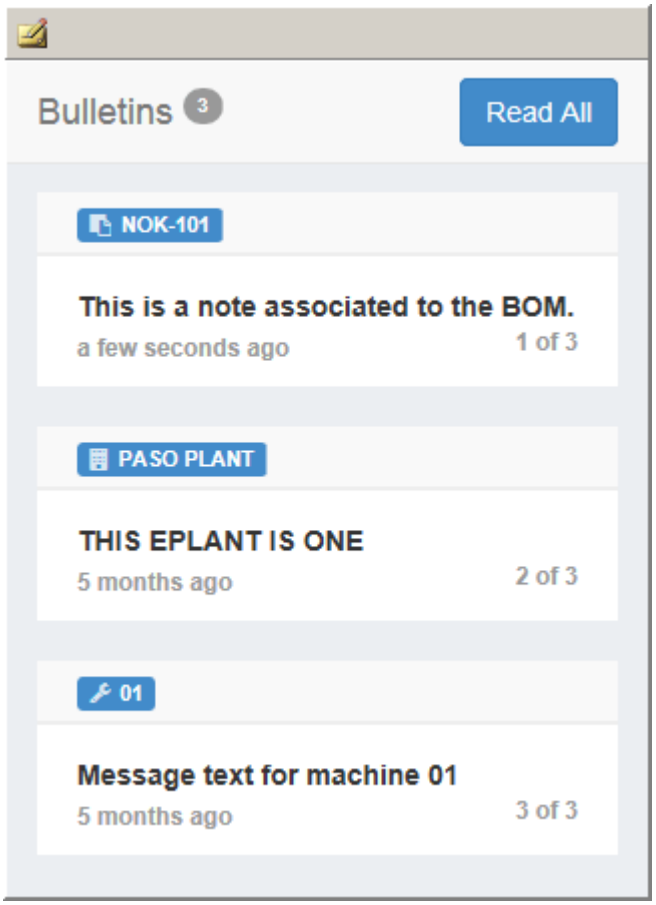
If the highlighted item has an open quality exception a 'Y' will appear in the Quality Issues column and users can click on the Quality Exceptions button  to display the pending CAR, ECO, MRB, Deviation and/or PPAP records. Jumps to the quality records are available from the Open Quality Modules form.

Print Work Order

Select the Printer speed button to print the work order. The Print Work Order screen will appear with the From and To fields populated with the highlighted work order and the destination set to Printer. The user may make changes to this form.

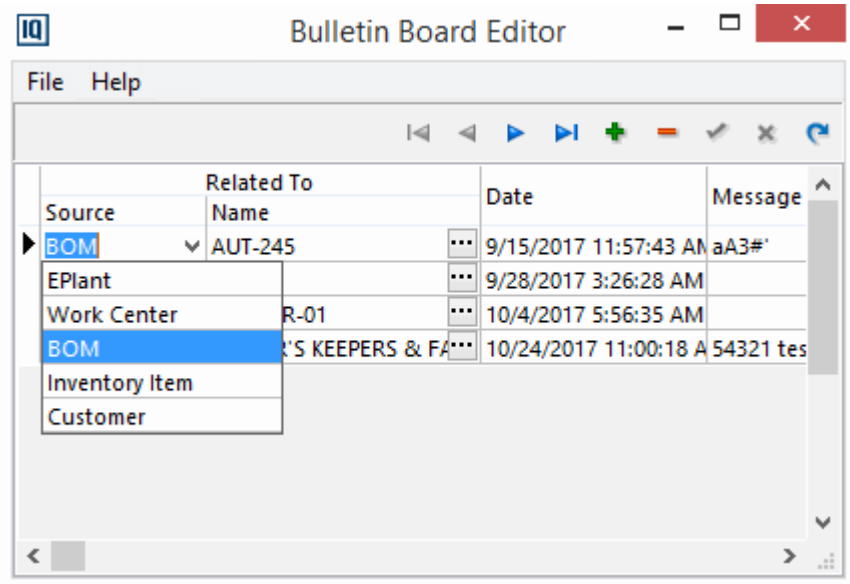
Bulletin Board

A Bulletin Board can be accessed by selecting the Show/Hide Bulletin Board button  . The Bulletin Board will display in the top right grid instead of the Must Start and material information. 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.



The Bulletin Board can be used to create messages relevant to: EPlant, Work Center, BOM, Inventory Item, Customer.

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.

Machine Loading Window

The machine loading window is where Work Orders are loaded into the schedule. The user can load an unlimited number of work orders, and can scroll vertically and horizontally to display additional Work Order information. Below is a field listing describing in more detail each of the fields shown in this section.

Sequence #	Work Order #	Mfg #	Bucket	Cycles to Go	Hours To Go	Start	End
1	112132	TQBUT-RD	4	58	0.23	2/14/2018 3:05:	2/14/2018 3:19:0
2	110860	NOK-101	2	40000	296.85	2/14/2018 3:19:	2/27/2018 4:10:1
3		DOWN-TIME		0	8.00	2/27/2018 4:10:	2/27/2018 12:10:
4	111691	NOK-101	3	15000	111.32	2/27/2018 12:1(	3/4/2018 7:29:18

Machine Loading Window Fields (Alphabetical)

#	Job sequence number. This number is automatically assigned by the system each time a work order is loaded onto the schedule.

Auto Remove	If the work order is Firm this will display the Auto Remove setting associated to the work order. It can be one of three options: System Default - If the Auto Remove field has not been changed on the specific work order it will be set to System Default. (The system Default is set in Scheduling Parameters->Auto remove FIRM Work orders). Y - If the Auto Remove field has been changed on the specific work order to Y. N - If the Auto Remove field has been changed on the specific work order to N. Non firm work orders will say N/A.
Bkt	Buckets are assigned by EnterpriseIQ and represent the total amount of an item that needs to be manufactured within the Run Size Scope. 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. Manual work orders will not show a bucket number.
Cycles To Go or Length To Go (Extrusion molding) or Lbs to Go for EXT 2 and EXT 3	This represents the number of cycles, length, or Lbs needed to complete this work order. NOTE: For users who do not use RealTime: Work order(s) that are not in the first position of the schedule will be decremented by the amount being dispositioned on the production report immediately without having to run update schedule. This applies to planned and manual work order types. Re-opening or refreshing the schedule will adjust the figures. Work Orders in the first position are changed only after update schedule is ran.
Days Late	This shows how many days late or early you will be on this work order. The date is calculated by comparing the Must Start Date to the Actual Start Date.
Downtime Reason	Text field showing the downtime reason assigned to the work center if it is down.
End	The calculated end date and time that the work order will be completed. Note: For EPlant users, if the time zone of the Oracle server differs from the time zone of the work center's EPlant, the system will display the start and end times with the time zone offset (the time based on the work center's EPlant).
FG Lot #	This is the FG Lot number associated to the current record.

Hours to Go	Shows the number of calculated production hours to finish the work order. For jobs that are not in the first position this is calculated as: net cycle time * cycles required. For jobs in the first position the system uses: standard cycle time * cycles required. When it moves into first position the system uses the standard because there is no scrap or slow cycle time yet. For work centers connected to RealTime, the time will change with the first shot and is recalculated continually based on average cycle time. For work centers not connected to RealTime, the system uses standard but as a production report is completed the time changes based on what is left to run. To see the updated Hours to Go in the schedule either Update Schedule needs to be run, the button 'Calculate This Work center's Production Start and End Time' clicked, or the Work Order is moved to a different position. Work centers marked as connected to RealTime but not signaled take into account the Efficiency factor when the work order is in first position just like when it is not in first position. When dispositioning on a RealTime, non-signaled work center the Hours To Go will update after a screen refresh. <u>For Virtual Work Centers:</u> The job is scheduled in the typical manner. When the work order is in any position other than the first position the Hours To Go will be calculated as: ((net cycle time * cycles required) / Virtual BOM Multiplier). If the job is in the first position the hours to go is calculated: (standard cycle time * cycles required) / actual number of work centers associated to virtual machine.
Labor	This is the number of required operators from the BOM. This is a read only field for informational purposes.
Mfg #	The manufacturing number of the configuration associated to the work order.
Mfg Description	Mfg Description of the configuration associated to the work order.
Must Start Date	Shows the date that the work order must be started or some of the scheduled deliveries may not be met. The Must Start Date is calculated by taking the total number of hours needed to create the finished item, start up time and approximate ship time and subtracting the number of days from the delivery date. The date includes the time it takes to complete all requirements in the work order.
Origin	Indicates if the Work Order was created from a sales order (Planned), the Forecast module (Forecast), or a manual work order (Manual).
Primary Material # **Primary Material Description**	These field will display the primary material number and description for the Mfg Types that have a primary material.
Priority	Work orders can be marked as a priority. If the work order is set as a priority this field will display a Y with a blue background.

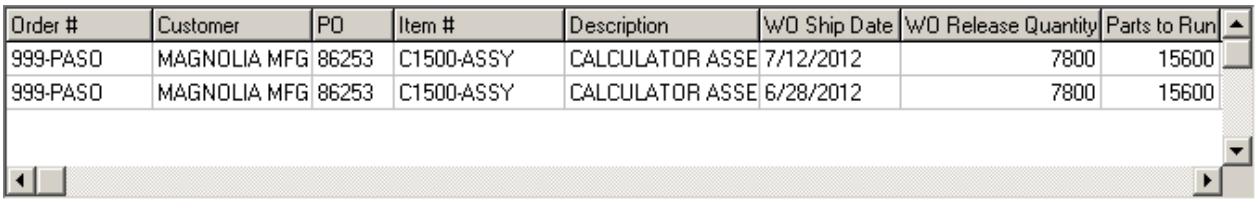
Priority Level	This indicates the work order's priority level. A numeric value can be entered by selecting the ellipsis button and entering the level in the pop up form. This value will be visible in RealTime and on the work order as well. The level can also be entered from the work order or RealTime and this field will be updated. Priority Level values are not sequential, there can be multiple records with the same level.
Priority Note **Priority Note 2**	There are two text field notes attached to the Work Order. To attach a priority note from the schedule, right click and select Edit Work Order. Type the text in the Priority Note, and/or Priority Note 2 field. These notes will also be visible from the work order and in RealTime. Priority Notes can also be added from a work order or RealTime and will be visible in the schedule.
Quality Issues	A 'Y' is displayed in this column if an item on the work order is associated with a CAR/CAPA, ECO, Deviation, PPAP/Product PQ, or MRB. The Quality Exceptions icon can be used to see the records and jump to them if needed.
Run Hold	A work order can be placed on run hold by checking the Run Hold box on the work order. If it has been placed on Run Hold this field will have a 'Y' in it. If a work order is set as Run Hold then when it gets setup in first position the user receives the message, "Work Order # <xxxx> is on a Run Hold - do you want to continue?". The user is given the option to select Yes to continue or No to cancel. Security can be placed on the continue option to prevent users from scheduling the work order.
Start	The date the work order will start based on where it is scheduled. The actual start date/time checks the shift schedule in Shop Calendar. An <A> suffix will be added to the 'Start Time' on the finite schedule when the job is auto loaded. If the user forces a start time it will have a <F>. When moving a work order on the same work center or another work center the system will remove the Force Start Date if the source is 'A' (set by Auto Load). If force start time was set by a user (the source is 'U' (<F> suffix) the system will leave the force start time. When a work order with a Force Start Date is moved into Seq#1 the start time is updated to be current time, since it is currently running. The system will also remove the <F>. If the Work order is moved back into a position below Seq#1, or on to a different work center than previously assigned, the force start date will be retained. Note: For EPlant users, if the time zone of the Oracle server differs from the time zone of the work center's EPlant, the system will display the start and end times with the time zone offset (the time based on the work center's EPlant).

Setup Hours	The number of hours required for setup. This field will be null for jobs scheduled in the first position as they are considered already set up. For job scheduled in positions other than the first one, this information comes from the Bill of Material. The system will use the hours from the 'SetUp Hrs 1 field'. If the same tool is running back to back in a work center the 'Setup Hours 2' value will be used instead of 'Setup Hrs 1'. For example, Setup Hrs 2 can be set to zero and if the same tool will be running back to back the schedule will not add set up hours to the schedule which will provide a more accurate end time for the job. If the BOM has Auxiliary Equipment attached with setup hours the setup hours are added to the work order's Setup Hours column and the end time is calculated accordingly. If the job scheduled in front of the work order uses the same auxiliary equipment, Setup 2 is used instead of Setup 1. If applicable, the teardown time based on the auxiliary equipment assigned to the work order ahead of it is added to the setup hours. The teardown time is the total number of hours for all equipment that will not be used in the upcoming work order. If more than one auxiliary equipment needs to be torn down then the value added to the setup hours is the sum of the teardown times of both. For example: <u>Tear Down Times</u> Aux X - 1 hr Aux Y - 2 hrs Aux Z - 3 hrs Aux W - 4 hrs <u>BOM A uses</u>: X Y Z <u>BOM B uses</u>: X Y Only Aux Z will need to be torn down since X and Y are also used by BOM B, so the teardown time is 3 hrs. The Setup Hours will be appended by 3 hrs. The Setup hours will then affect the end date/time for the work order. The teardown time appended to the setup hours is re-evaluated when moving jobs. Teardown time is considered when using Auto Load to schedule work orders.
Tool #	By default, this will display the tool marked as the Primary tool associated to the BOM. Double click on the field then select the ellipsis button to bring up a form displaying a list of all the tools associated to the BOM. This list includes the Tool #, Location, Description, and Service IN and OUT dates. If any tool associated to the BOM has been marked out of service from the PM module during the time the work order is scheduled, this field will be yellow and specify the tool # and the dates the tool is out of service. (This applies to forecast work orders as well).

User ID	This is the User ID that inserted the work order into the schedule. If the work order is inserted from Auto Load it will be the User ID that ran Auto Load. If Auto Load is run from IQAlert it will display the User ID of the user logged into IQAlert.
WO Type	This specifies whether the work order is marked Firm or not. If the work order is firm, this field will say FIRM otherwise it will be blank.
WO#	Work Order number, assigned via the automatic work order generation system or during the creation of a manual work order.

Work Order Information Window

For standard work orders (planned, manual, and forecast) the lower window of the Scheduling screen displays available data such as the sales orders that make up the Work Order currently highlighted. As you use the arrow keys to scroll through the scheduled work orders this window changes to show the corresponding sales orders. This grid is sorted from earliest to latest based on the Promise Date.



Order #	Customer	PO	Item #	Description	WO Ship Date	WO Release Quantity	Parts to Run
999-PASO	MAGNOLIA MFG	86253	C1500-ASSY	CALCULATOR ASSE	7/12/2012	7800	15600
999-PASO	MAGNOLIA MFG	86253	C1500-ASSY	CALCULATOR ASSE	6/28/2012	7800	15600

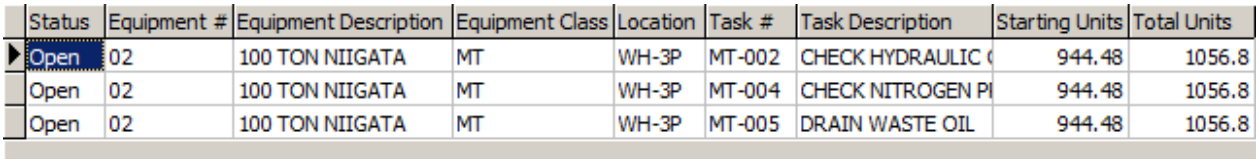
Work Order Window Alphabetical Field List

Customer	Customer assigned to the Work Order.
Description and Ext Description	The current item description as found in the manufacturing standard and associated with the Work Order.
Item #	The current item number as found in the manufacturing standard and associated with the Work Order.
Items On Hand	The On Hand quantity for the inventory item. This is also visible in the scheduling pool.
Order#	The Sales Order number associated with the Work Order. This is the same order number assigned when the sales order was created. This field will be olive green if the line item on the sales order has a note. The user can right click and select 'Sales Order Line Note' to view the note.
Parts to Run or Length To Run (Extrusion)	A calculated field showing how many more parts need to be run allowing for any FG and WIP inventories, plus the yield parts number. Yield is calculated scrap on downstream operations. This number covers only delivery requirements for the current work order. For the Extrusion manufacturing type this field will show the "Length to Run". The quantity shown here is the amount needed to fulfill the delivery requirement.
PO#	Customer PO # from the sales order.

Promise Date	The date the parts were promised to the customer. This comes from the sales order. For Firm work orders this is based on the time it was firmed.
Request Date	This date also comes from the Sales Order. It can be used as the date the customer requested the parts. For Firm work orders this is based on the time it was firmed.
Rev	The revision associated to the item number.
Ship To information	Ship To Company, Ship To Address, Ship To City, Ship To State/Region, and Ship To Postal Code. This information is also in the Add a Work Order screen.
WO Note	This is the WO Note from the Release section of the sales order. The note can be edited by right clicking and selecting WO Note.
WO Release Qty	Number of parts required to be shipped on that date.
WO Ship Date	The date this work order must be complete for shipping to make the promised date.

MRO Work Order Details

When highlighted on a scheduled MRO Work Order the details section will display the task information.



Status	Equipment #	Equipment Description	Equipment Class	Location	Task #	Task Description	Starting Units	Total Units
Open	02	100 TON NIIGATA	MT	WH-3P	MT-002	CHECK HYDRAULIC (	944.48	1056.8
Open	02	100 TON NIIGATA	MT	WH-3P	MT-004	CHECK NITROGEN PI	944.48	1056.8
Open	02	100 TON NIIGATA	MT	WH-3P	MT-005	DRAIN WASTE OIL	944.48	1056.8

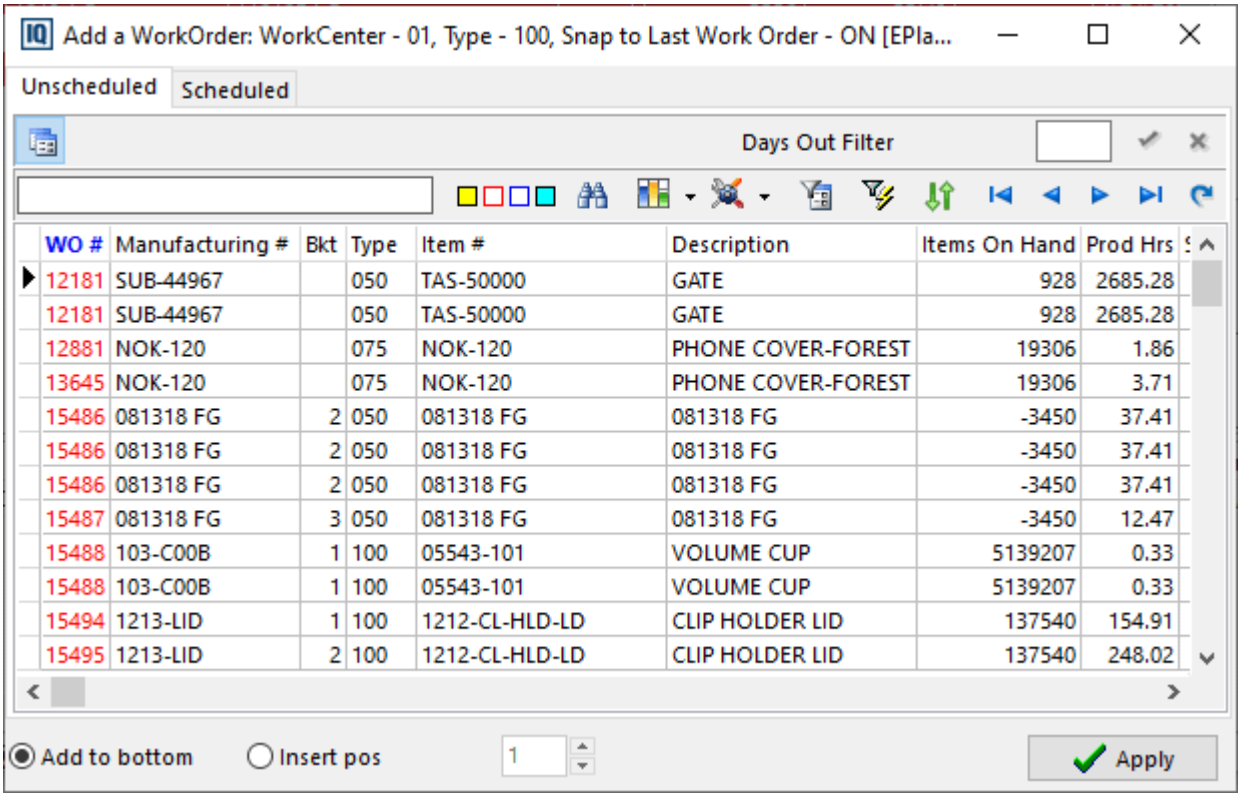
This includes columns for: Status, Equipment #, Equipment Description, Equipment Class, Location, Task #, Task Description, Starting Units, and Total Units.

Scheduling a Work Order - The Scheduling Pool

To schedule a work order:

- From within the Scheduling screen, locate the work center of interest. Use the Search icon or the navigator to move between work centers.

-  Click on the Add/Insert Work Order speed button or right click with the mouse and from the sub-menu, click on **Insert Work Order**. This action will display the Scheduling Pool. This form has several columns of information about each work order and can be sorted on any field by selecting it from the right click menu.



WO #	Manufacturing #	Bkt	Type	Item #	Description	Items On Hand	Prod Hrs
12181	SUB-44967		050	TAS-50000	GATE	928	2685.28
12181	SUB-44967		050	TAS-50000	GATE	928	2685.28
12881	NOK-120		075	NOK-120	PHONE COVER-FOREST	19306	1.86
13645	NOK-120		075	NOK-120	PHONE COVER-FOREST	19306	3.71
15486	081318 FG	2	050	081318 FG	081318 FG	-3450	37.41
15486	081318 FG	2	050	081318 FG	081318 FG	-3450	37.41
15486	081318 FG	2	050	081318 FG	081318 FG	-3450	37.41
15487	081318 FG	3	050	081318 FG	081318 FG	-3450	12.47
15488	103-C00B	1	100	05543-101	VOLUME CUP	5139207	0.33
15488	103-C00B	1	100	05543-101	VOLUME CUP	5139207	0.33
15494	1213-LID	1	100	1212-CL-HLD-LD	CLIP HOLDER LID	137540	154.91
15495	1213-LID	2	100	1212-CL-HLD-LD	CLIP HOLDER LID	137540	248.02

The scheduling Pool contains all work orders both currently scheduled and unscheduled. Each group is displayed on a separate tab. Use the Unscheduled tab to see those work orders needing to be scheduled.

Color Coding

The work orders listed may be displayed in a different color.

- **Red text** in the WO# field indicates the work order is on the material exception list.
- **Blue text** indicates the work order is generated from the Forecast module.
- **Light Blue** - If the work order has been marked a priority the priority field will have a Y in it with a light blue background. When sorting by must start date the work orders marked a priority will filter to the top.
- **Yellow** - The Must Start field will display in yellow for work orders with a must start date that falls within the time frame when the tool will be out of service. (This is based on the Out of Service date entered in Preventative Maintenance or from the BOM's Tool Information section).

Days Out Filter

The scheduling pool can be limited to only view work orders where the must start date is so many days from today. This filter will help speed up the insert pick list. To filter the list to include only work orders for a certain time frame enter in the number of days out in the Days Out Filter field. The list will then display only those work orders that have a must start date within that period or are past due. For example if you set the Days Out Filter to 7, the pick list will only display work orders with a must start date that is prior to today through seven days from today's date.

Quick Search

You can search for any work order using the white box in the upper portion of the scheduling pool screen. You can sort this list based on any of the columns. Note that the current sort column displays as a blue header in the grid immediately below. Right click anywhere within the form and select the desired field to sort on. Use this functionality to show all work orders using similar materials, must start dates, machine type, etc.

For example, to search by work order, right click within the grid, and select WO# as your sort criteria. Then, using the keyboard, type in as much of the work order number as you know, the system will hyperbrowse to the matching record.

To search using the pick list select the Search icon to the right.

Filter Records

Select the Filter Records button to filter the records displayed in the 'Add a WorkOrder' screen. Highlight a field on the left side of the form then enter in the search values either on the By Value tab or the By Range tab. Multiple values can be entered in the Field Value field using an 'or' between records. Also, multiple fields may be selected. Then specify how the field value should be compared by selecting one of the options: Exact Match, Partial Match at Beginning, or Partial Match Anywhere. Users can also specify if the search should be Case Sensitive or to show the non matching records instead of the ones that match. Once all of the data is entered select the OK button and the list will bring back only the records that match the entered criteria. The filter information will remain while adding work orders to the schedule, but it will clear after exiting the 'Add a WorkOrder' screen.

Sort Criteria

Select the Sort Criteria speed button to select multiple criteria to sort the scheduling pool by. The Select Sorting Criteria form will appear. Choose from the Available criteria on the left and arrow them over to the right to have the work orders sorted by the selected criteria.

Unscheduled Work Orders and Type

By design, the Unscheduled list will find those work orders with a similar Type as the work center selected. For example, if you are attempting to schedule a work center of Type 100 (100 ton in the case of Injection molding), the list will show all 100 ton work orders and less.

The concept is that the work orders should be scheduled on this type of machine, and it is also possible that you can schedule work orders of lesser tonnage.

This behavior can be overridden by clicking the Override Center Type icon button. Then all work orders will be displayed regardless of the work center type.

Note: This does not apply to the OUTSOURCE MFG Type as it looks only at the exact Center Type.

Runs the Best

Display Runs the Best - Click on the Runs the Best button to display the “Runs the Best” information for the highlighted configuration. This is the list of work centers where this configuration has run with corresponding percentages.

If you are just beginning to enter data, no production history is available and the Runs the Best screen will contain no data. As you use the Production Reporting module, this feature becomes more useful.

(For more information on Runs the Best please see Runs the Best).

Filter Runs the Best - The user can select the drop down arrow next to the runs best speed button to filter the scheduling pool to only show those manufacturing numbers that have the target work center in their runs the best list.

Authorized Work Centers

Display Authorized Work Center - Click on the Authorized Work Centers button to display the Authorized Work Center list for the highlighted work order. This displays all work centers that are associated to the EPlant, Manufacturing Type, and Cell that are associated to the BOM on the work order. Work centers that are authorized for the BOM will have a check in the Authorized box. When this form is accessed from the Scheduling Pool changes cannot be made. The toggle buttons are visible but the right click options to check and uncheck are grayed out. To make changes users must access it from the BOM module.

(For more information on Authorized Work Centers please see Authorized Work Centers).

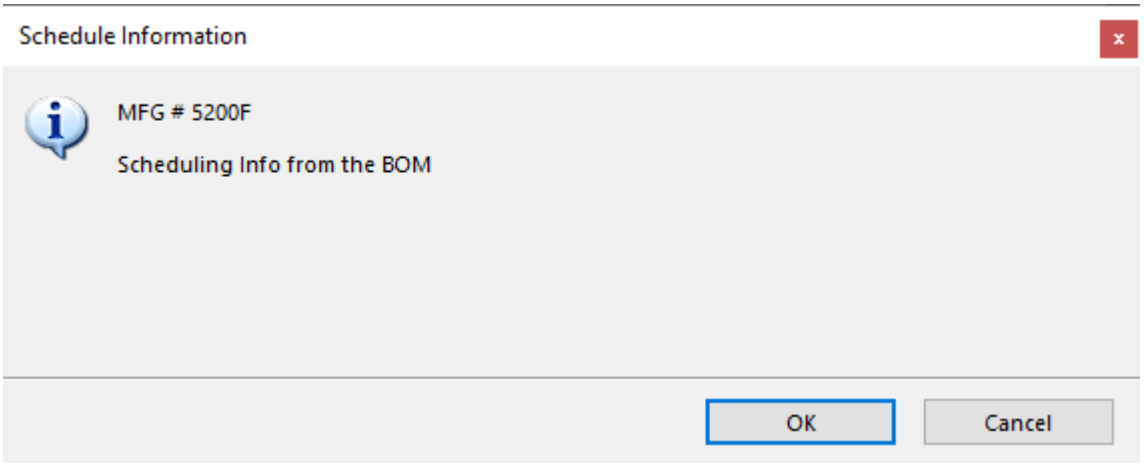
Filter Authorized Work Center - The user can select the drop down arrow next to the Authorized Work Center speed button to filter the scheduling pool to only show those manufacturing numbers that have the target work center in their Authorized Work Center list.

Note: Users can filter on both Runs the Best and Authorized Work Centers at the same time. The 'Override Center Type' option takes precedence and will override the work centers that are displayed.

Inserting a Work Order onto the Schedule

Select a **Work Order** and select 'Add to Bottom' or 'Insert Pos'. When Insert Pos is selected, enter the position by manually typing up to three numbers or use the up/down arrows. Once selected click on the 'Apply' button or double click. The work order can also be added to any position in the schedule by using the drag and drop functionality.

If the BOM associated to the work order has a '**Schedule Info**' note associated to it, a pop up message will appear with the note. Select OK to continue with inserting the work order on the work center, or select Cancel to not schedule the work order.



Multiple work orders can be selected using the Shift and Ctrl keyboard buttons. The work orders will be added to the schedule based on the order they were selected.

RealTime Considerations: It is recommended to use the Setup option for inserting jobs into the first position. When dragging into the first position the setup form will not display which allows users to suspend the current work order if the machine is running before inserting a work order in the first position. Doing a Setup will give the user choices as what to do with the current Work Order, where dragging a work order into the first position all work orders are simply moved down one sequence in the machine loading list. If a work order is dragged into the first position a Confirm popup box will display with Yes and No buttons. Security can be placed on the Yes button to prevent users from doing this.

Note: If the 'Check for MRO WOs when Loading Schedule' Scheduling Parameter is checked, when inserting a work order in the first position that has non-miscellaneous MRO WOs/Tasks that are open for tools that are attached to the BOM, a form will display showing the open MRO work orders. The form has Continue and Cancel buttons. If the user selects the Continue button the work order will be scheduled or moved into the first position. The Cancel button will cancel the insert or move to the first position. Security can be placed on the Continue button to prevent users from scheduling tools that need maintenance.

Note: Update schedule will not allow buckets to be scheduled out of sequence. Update Schedule will re-bucket if a user schedules out of sequence manually.

Note: On the day that daylight savings time begins there will be no 2AM hour. To prevent errors the system will automatically skip over the time change and will not allow jobs to be scheduled during that hour.

Override Center Type

 If a particular Work Order cannot be located or if no Work Orders are displayed in this section, click on the Override Center Type button at the top of the screen. This will bring up a listing of all available Work Orders regardless of center type. Select the work order you wish to schedule from that list insert into the schedule as described above.

Stay on Top

 The Stay on Top option allows the user to make the Scheduling Pool screen stay on top of any other open screen. When jumping to another module from here, this option will determine if the Insert Work order screen stays on top of the module jumped to.

Logical Work Centers - When scheduling logical work centers, the scheduling pool will be filtered by the primary material associated to the logical work center. Auto load will only schedule work orders that use the primary material that is associated to the logical work center. Note: This does not apply to the Generic MFG Type. (Please see the Logical Work Centers section for more information).

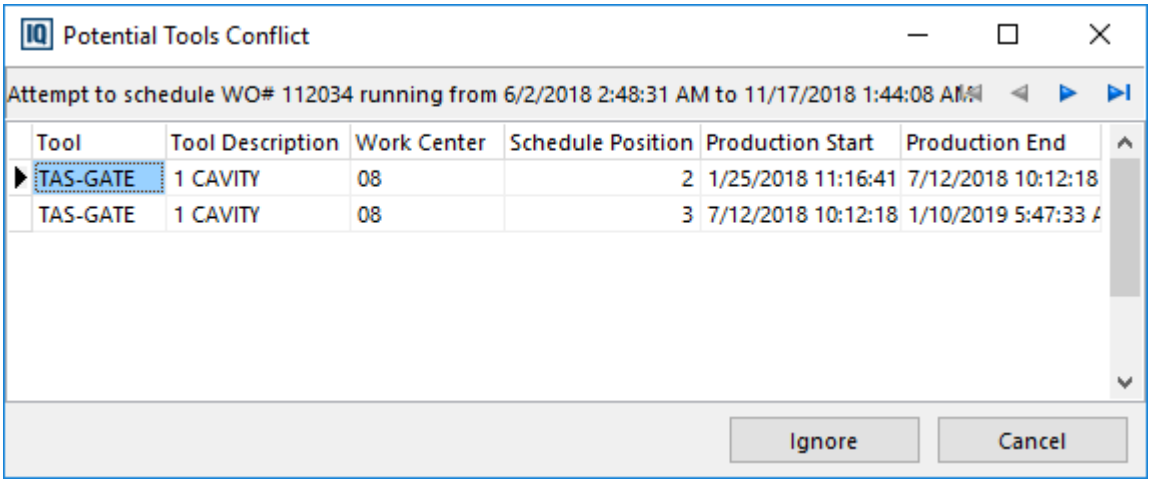
Right Click Options from the Scheduling Pool

- Jump to BOM
- Jump to Work Order
- Jump to PM - Takes the user to the PM record for the associated tool.

- Materials on Exception List
- Runs the Best - Access to the Runs the Best and Filter Runs the Best options described above.

Potential Tools Conflict

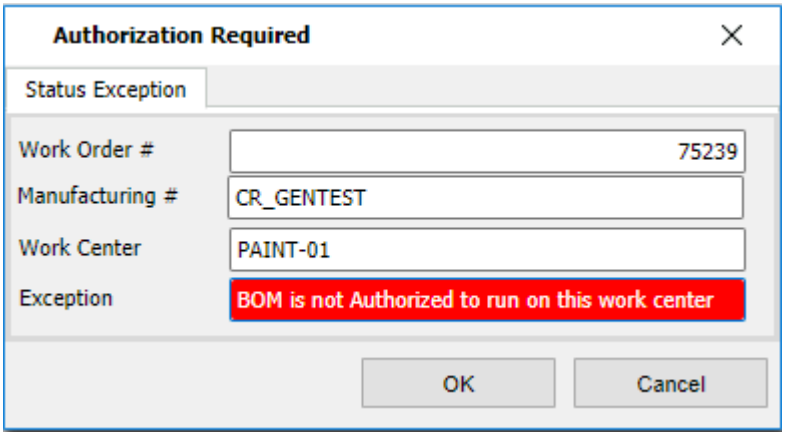
The user will receive a message 'Potential tool conflict' when they insert a work order on a work center where that same tool number is already scheduled on another work center to run in that same time frame. The system looks at the tool number and not the configuration number.



Note: This message will only appear during the insert or set up function. If a work order is moved after inserting it into a work center or if Auto Load is used, the system does not look for tool conflicts.

Unauthorized Work Center Status Exception

If a user attempts to add a work order in the schedule for a work center that is not authorized, they will receive an Authorization Required Status Exception message. The Status Exception message will state, "BOM is not Authorized to run on this work center". The pop up message includes an OK and Cancel button, and a 'Do not show next time' option. Security is available on this pop message.



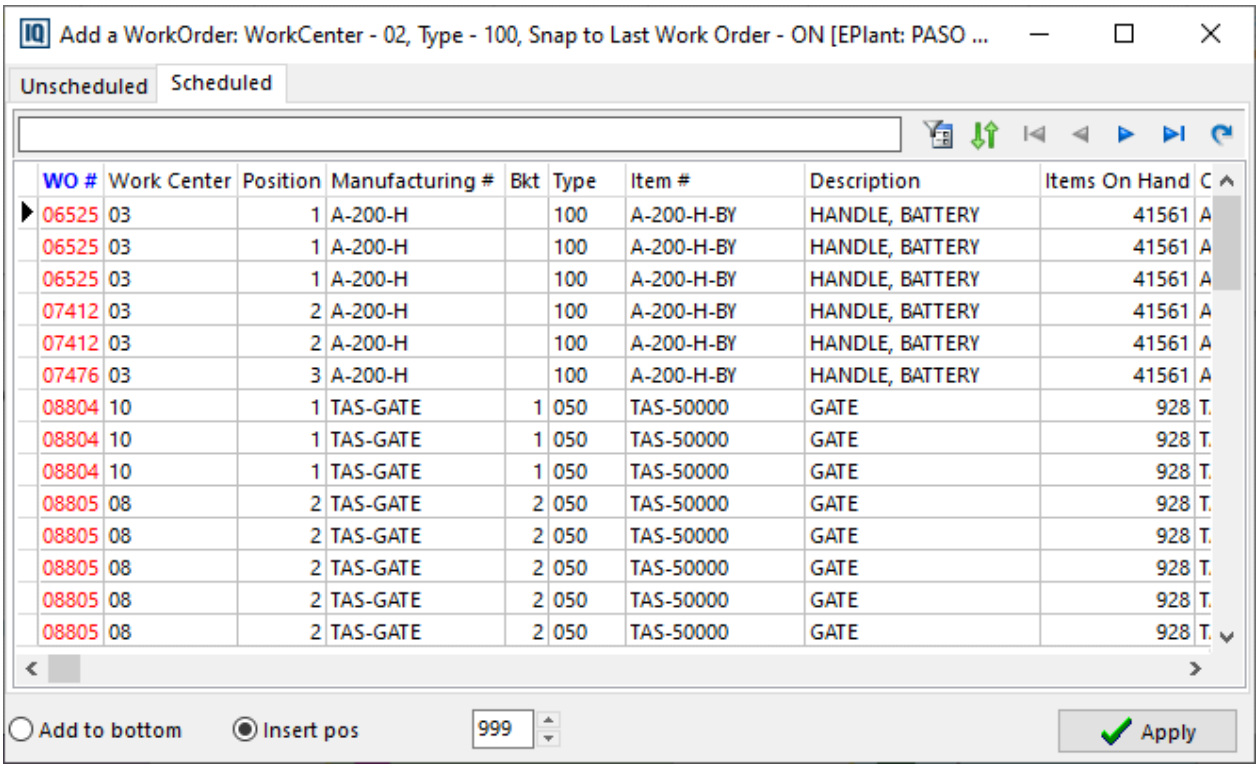
If the user has security for the OK button it can be selected to continue to add or move the work order in the schedule and add it to the production report for the unauthorized work center. If Cancel is selected the work order will not be added/moved.

Note: There is not a parameter (setting) associated to this feature, the system will always evaluate for authorized work centers.

Note: This is separate functionality from the Runs the Best feature which has it's own warning when the scheduling parameter ('Verify Work Center from Runs The Best list') is checked.

Scheduled Tab

The Scheduled tab includes all work orders scheduled based on the current viewed manufacturing type. To view all MFG Types select the 'Override Mfg Type' button. The scheduled work orders will be listed including information such as: Work Center scheduled on, position, item details, must start date, production hours, cycle time, service date out and in dates, and more.

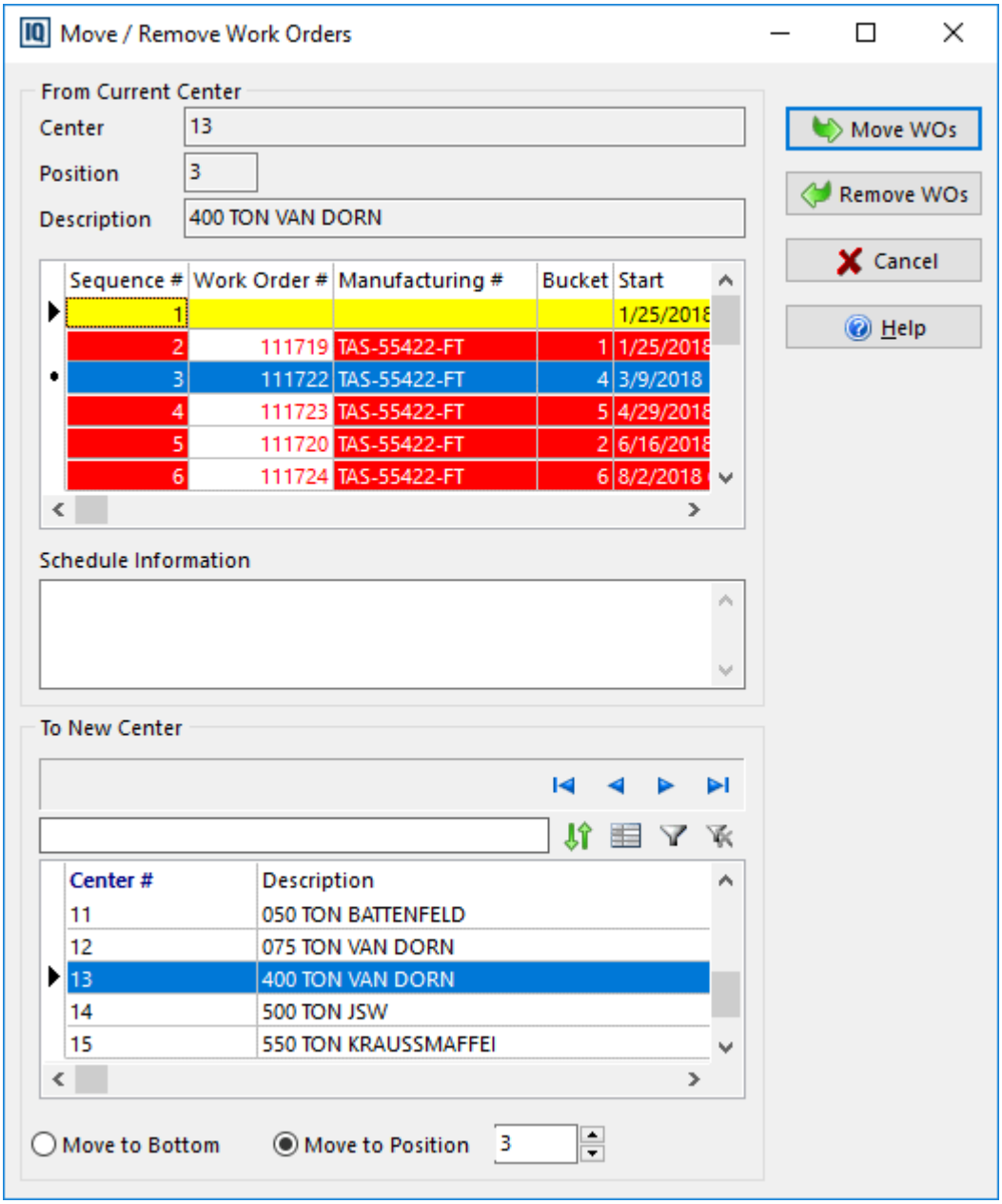


WO #	Work Center	Position	Manufacturing #	Bkt	Type	Item #	Description	Items On Hand	C
06525	03	1	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
06525	03	1	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
06525	03	1	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
07412	03	2	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
07412	03	2	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
07476	03	3	A-200-H		100	A-200-H-BY	HANDLE, BATTERY	41561	A
08804	10	1	TAS-GATE	1	050	TAS-50000	GATE	928	T
08804	10	1	TAS-GATE	1	050	TAS-50000	GATE	928	T
08804	10	1	TAS-GATE	1	050	TAS-50000	GATE	928	T
08805	08	2	TAS-GATE	2	050	TAS-50000	GATE	928	T
08805	08	2	TAS-GATE	2	050	TAS-50000	GATE	928	T
08805	08	2	TAS-GATE	2	050	TAS-50000	GATE	928	T
08805	08	2	TAS-GATE	2	050	TAS-50000	GATE	928	T
08805	08	2	TAS-GATE	2	050	TAS-50000	GATE	928	T

Moving/Removing Work Orders

To Move or Remove work order(s) that are already on the schedule, follow these steps:

- From within the Scheduling screen, select the work order to be moved/removed.
-  Next, use the Move/Remove Work Order speed button or right click with the mouse and select **Move/Remove Work Orders...** from the submenu. The following screen will appear:



Move Work Order(s) - From this screen, the user will be allowed to move the work order or multiple work orders from the current center and position to a new center and position. Only work centers associated to the MFG Type or Cell the user selected when opening the schedule will be available from the list. Highlight the work order(s) using the Shift or Ctrl keys on the keyboard to select multiple work orders, then select the new work center and position and click the 'Move WOs' button. If the BOM associated to the work order has a Schedule Information note it will display in the middle section.

Remove Work Order(s) - If the Remove WOs button is used the highlighted work order(s) will be removed from the schedule. This functions like the 'Remove Work Order' option except from this screen users can multi-select to remove several work orders at once. Highlight the work order(s) using the Shift or Ctrl keys on the keyboard to select multiple work orders, then select the 'Remove WOs' button.

Note: When removing multiple work orders from the work center all at once, if the work order in the first position is included, the system will bring up the Setup form to select a work order to setup instead of removing any of the work orders. The system cannot remove multiple work orders and setup the new one in the first position all at once.

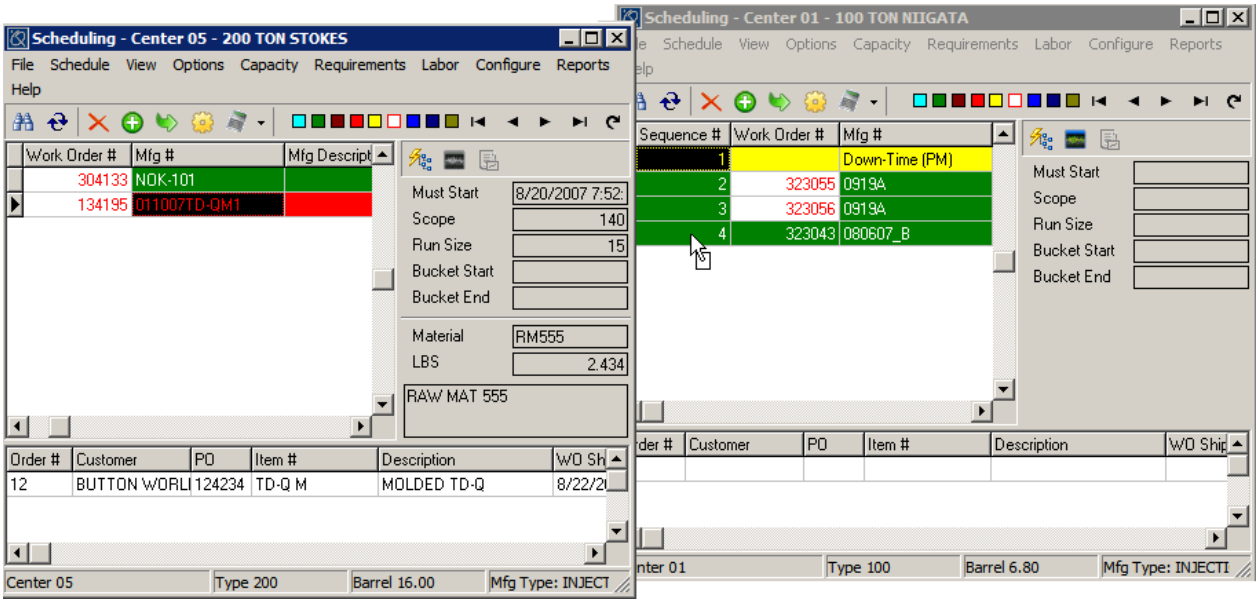
Note: If the 'Check for MRO WOs when Loading Schedule' Scheduling Parameter is checked, when moving a work order in the first position that has non-miscellaneous MRO WOs/Tasks that are open for tools that are attached to the BOM, a form will display showing the open MRO work orders. The form has Continue and Cancel buttons. If the user selects the Continue button the work order will be scheduled or moved into the first position. The Cancel button will cancel the insert or move to the first position. Security can be placed on the Continue button to prevent users from scheduling tools that need maintenance.

Moving a Work Order within a Work Center

To change the position of a work order within the same work center the user can drag and drop the work order using the mouse to the desired position. If the desired position is off the screen then place the cursor in the lower sales order section to scroll down, or in the speed button section to scroll up.

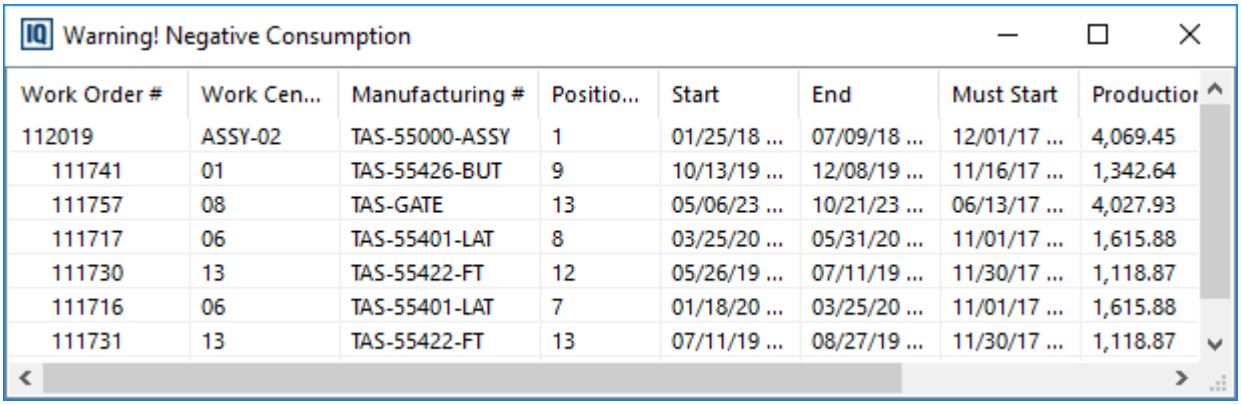
Moving a work Order with Multiple Screens Open

Multiple scheduling screens can be opened for viewing at one time. Work Orders can be moved from one screen to another by dragging and dropping it into the desired position. This will allow a quick view of the schedule impact to both work centers at the same time. This can only be done within the same MFG Type.



Negative Consumption Warning

If the user moves a higher level work order to run earlier than it's consumed items manufacturing end date a Negative Consumption warning box will appear. If overlap hours are entered on the Generic BOM, the system will adjust for that accordingly and not display this warning if the user is scheduling after the overlap hours even if it is before the end date:



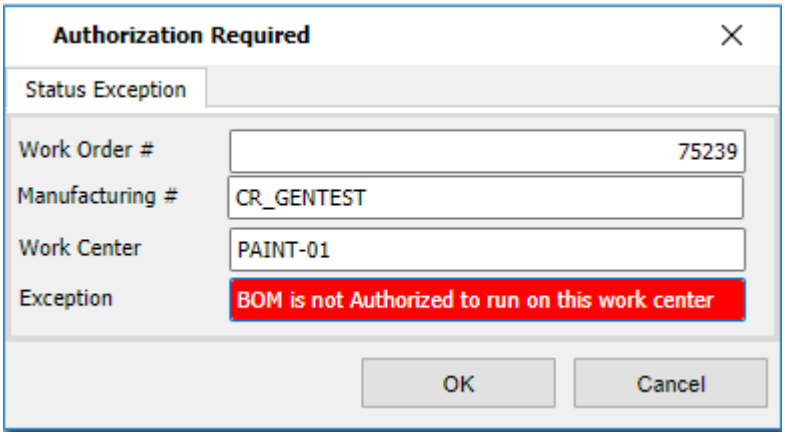
This warning is not the same as the ‘Evaluate Negative Consumption’ scheduling option. This warning will appear whether that option is checked or not.

This warning displays the work orders that are affected by the move and includes the following information: Mfg #, work center and position scheduled on, start and end dates, must start date, production hours required, and overlap hours. From this form the user may jump to the schedule or the scheduling window for any item on the list by right clicking on the line item.

Note: This warning will not appear upon inserting a work order onto the schedule, only with moves.

Unauthorized Work Center Status Exception

If a user attempts to move a work order in the schedule to a work center that is not authorized, they will receive an Authorization Required Status Exception message. The Status Exception message will state, "BOM is not Authorized to run on this work center". The pop up message includes an OK and Cancel button, and a 'Do not show next time' option. Security is available on this pop message.



If the user has security for the OK button it can be selected to continue to add or move the work order in the schedule and add it to the production report for the unauthorized work center. If Cancel is selected the work order will not be added/moved.

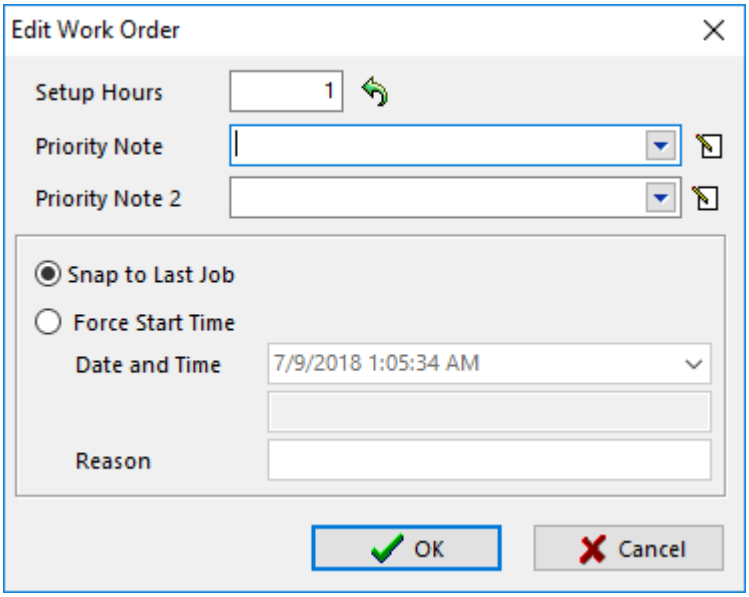
Note: There is not a parameter (setting) associated to this feature, the system will always evaluate for authorized work centers.

Editing a Work Order

From the Edit screen the user can edit the set up hours, add a priority note (a simple information field provided to hold a brief note about the work order), and adjust the forced start time.

To EDIT a work order:

- From the Scheduling screen, highlight the work order to edit.
- Next, right click with the mouse and select **Edit Work Order…** from the submenu.



The **Setup Hours** field will display the information from the Setup Hrs 1 field from the BOM unless the work order is scheduled consecutively after a work order with the same tool number, which in that case it will use the Setup Hrs 2 field from the BOM. Set up hours can be edited by entering a different value in the field. This will not effect the BOM or other areas of the software.

To add **Priority Notes** enter text in the fields or select the Edit button to add up to 255 characters of text for each note field. These notes will be visible from the work order, in RealTime, and in Assembly Track Dispatch Lists. Priority Notes can also be added from a work order. A user defined drop down list can be created for each of these fields. Right click and select 'Edit User Defined List' and enter the priority note information in the Text field.

The **Forced Start Time** option, is used to force a different start date/time for the work order. By default, work orders in EnterpriseIQ are loaded to start immediately after the preceding work order. However, situations can occur where it is important to start a work order on a specific date in the future. This may be because capacity is available and there is no need to start a work order early, or material may not be available until a certain date, etc. Enter a date and time in the format MM/DD/YY xx:xx (military time), or use the drop down button to bring up the calendar. The Force Start Date cannot be prior to the current date and time. The user can optionally enter a reason for making the change. If a work order has a force start date, the Start Time will have a <F> suffix. The system stores this force start time so if a scheduled work order 'A' is set with a Forced Start Time, and then a work order 'B' is scheduled in front of 'A', so the start time on 'A' must be pushed back, and then 'B' changes again so that the original Forced Start Time is available again, work order 'A' will resume the original Forced Start Time.

When moving a work order on the same work center or another work center the system will remove the Force Start Date if the source is 'A' (set by Auto Load).

If force start time was set by a user (the source is 'U' (<F> suffix) the system will leave the force start time. When a work order with a Force Start Date is moved into Seq#1 the start time is updated to be current time, since it is currently running. The system will also remove the <F>. If the Work order is moved back into a position below Seq#1, or on to a different work center than previously assigned, the force start date will be retained.

Note: For EPlant users, if the time zone of the Oracle server differs from the time zone of the work center's EPlant, the system will display the time with the time zone offset (the time based on the work center's EPlant).

Selecting the function Snap to Last Job (which is also under the Configure menu) tells the system not to place any idle time between the end of one work order and the start of the next work order.

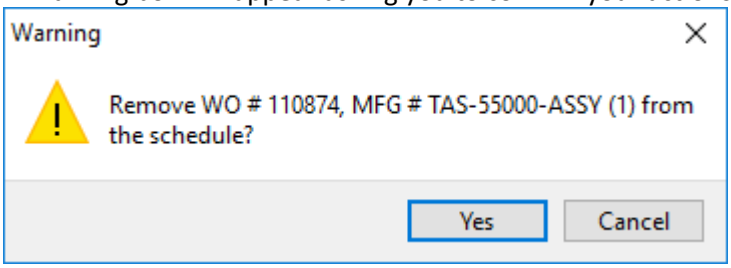
Removing a Work Order(s) from the Schedule

 To remove a single work order from the schedule, click on the Remove Work Order speed button or right click and choose remove work order from the sub menu. If production is still required, removing puts the work order back in the scheduling pool. If the work order is complete (has a zero or negative quantity) it will be removed from the entire system.

To REMOVE a work order that is currently scheduled, follow the steps below.

- From within the Scheduling screen, highlight the work order to be removed from the schedule.
- Next, right click with the mouse and select **Remove Work Order…** from the sub menu or click on the Remove Work Order speed button.

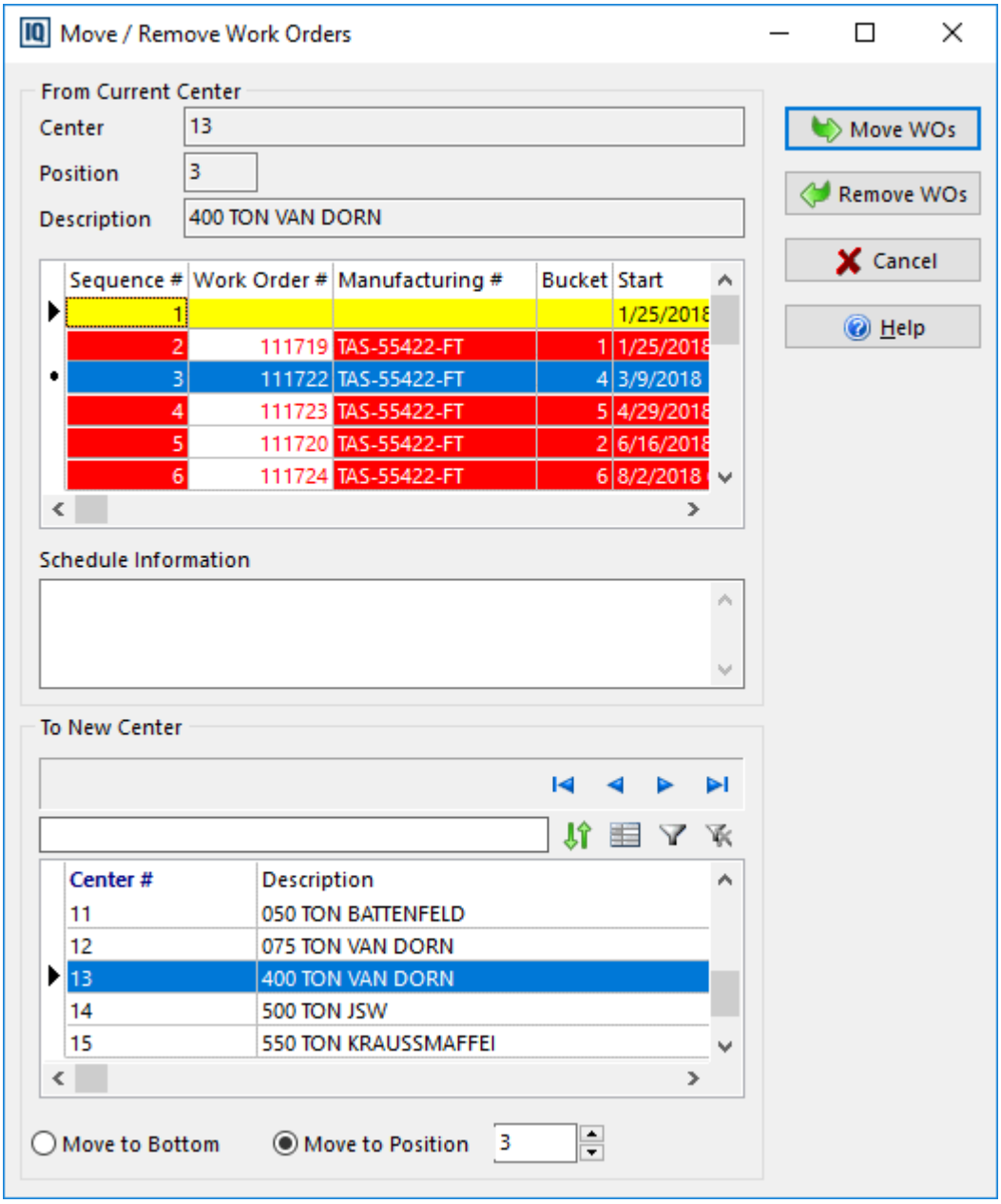
A Warning box will appear asking you to confirm your actions as displayed below:



- Selecting "Yes" will remove the work order and place it back into the Scheduling Pool if more production is required. If "Cancel" is selected, the user will be returned to the main Scheduling window.

Remove Multiple Work Orders

To remove multiple work orders, select the Move/Remove Work Order speed button  or right click with the mouse and select **Move/Remove Work Orders…** from the submenu. The following screen will appear:



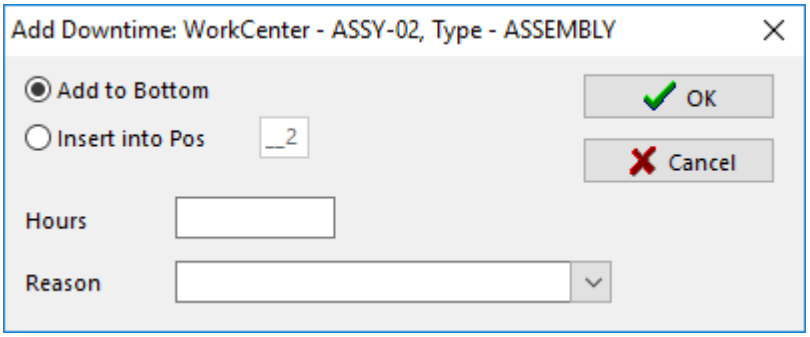
Highlight the work order(s) using the Shift or Ctrl keys on the keyboard to select multiple work orders, then select the 'Remove WOs' button.

Adding Downtime to the Schedule

Use this function to add or insert scheduled downtime into the schedule.

To ADD downtime:

- From within the Scheduling screen, select the work center to add downtime to.
- Right click with the mouse and select **Add Downtime…** from the submenu.



- Select where the downtime will be added (i.e. at the bottom or inserted in a particular position).
- Next, enter the anticipated **downtime hours**.
- Enter a **Reason** for the downtime by selecting a down time code from the drop down menu. Manually typing a reason is only allowed if a user has read/write access.
- When finished, select [**OK**] to exit back to the main scheduling screen.

Note: The reason is informational and will not have an effect on down time reporting through RealTime™.

Note: For RealTime™ users, 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.

Note: When Down Time is added to a work center that has it's own Shop Calendar set up, the Down Time will use the work center's Shop Calendar available hours to determine the End Time.

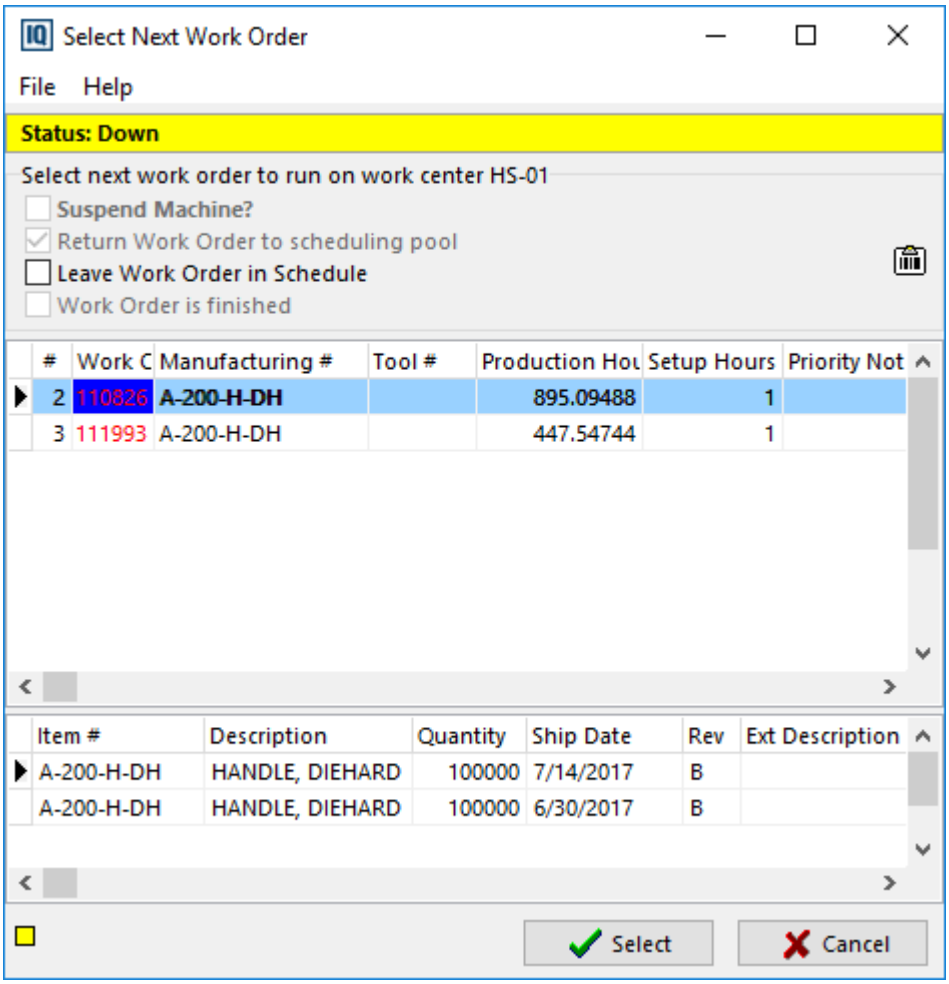
Setup Next

The Setup Next function sets up a different work order in the first position. Setup Next forces RealTime to begin counting production against the Work Order in the first position of the machine schedule.

To SETUP the Next work order, follow these steps:

- Select **Schedule** from the main menu within Scheduling and select *Setup Next* from the submenu or click on the speed button  .

The following screen will be displayed.



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. 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.

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).

If a work order has a material exception it will appear in red text.

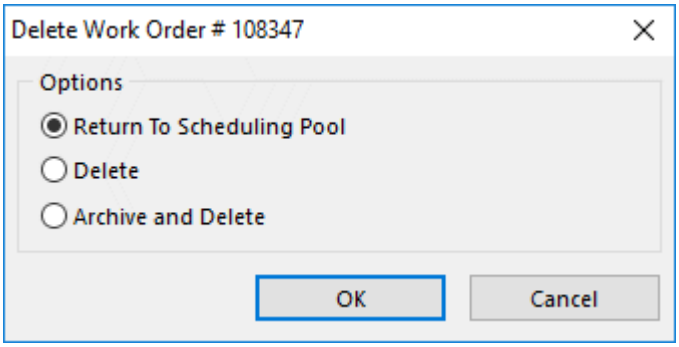
If the work center is currently running the Status will be 'Running' and display in red. In order to continue setting up another work order users will need to check the 'Suspend Machine?' box so the 'Select' button will be available. If the machine is currently down, the work center will not need to be suspended.

Change FG Lot # - 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 #.

Work Order Options:

- **Return Work Order # to Scheduling Pool** - Select this option if additional production needs to be made against the original work order. The work order will be returned to the scheduling pool keeping the original bucket number and be available for scheduling on another work center.
- **Leave Work Order <WO#> in Schedule** - If this option is checked the work order will not be removed. However, if the countdown has occurred on the work order and has been brought to zero cycles left it will no longer be available to be left on the schedule as the planned work order no longer exists. (Note: Once this option is checked on the workstation, it will be remembered in the registry and will be checked on the next setup).
- **Work order ### is finished** - If 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. 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 if the 'Cycles Left' field is greater than zero: "This Work Order has production required". The warning has Cancel and Continue buttons. Security can be placed on the Continue button.

If an option is not checked in the top section of the setup form, such as Return Work Order ID, # the system will pop up a screen asking the user if it should be returned to the scheduling pool, deleted or archived.


Delete Work Order # 108347
Options
Return To Scheduling Pool
Delete
Archive and Delete
OK
Cancel

- Selecting **Return to Scheduling Pool** will put the work order back into the scheduling pool so it can be scheduled again.
- 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.

If deleted or archived, 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.

The user will receive a message '**Potential Tool Conflict**' if when attempting to schedule a work order to a work center where that same tool number is already scheduled on another work center to run in that same time frame. Note: The system looks at the tool number and not the configuration number. A form will display indicating the tool and work center in conflict. Select Ignore to continue scheduling the work order, or Cancel to not schedule the work order.

If a user attempts to setup a work order for a work center that is not authorized, they will receive an Authorization Required Status Exception message. The Status Exception message will state, "BOM is not Authorized to run on this work center".

NOTES:

If using RealTime™ it is better to do the set ups from the RealTime™ screen to more accurately correlate the set up in the system to the same time as the actual set up in the work center. This will help keep accurate records of the actual set up time which can later be compared to the estimated set up time in the BOM.

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...".

If a work order is set as Run Hold then when it gets setup in first position the user will receive a message, "Work Order # <xxxx> is on a Run Hold - do you want to continue?". The user is given the option to select Yes to continue or No to cancel. Security can be placed on the continue option to prevent users from scheduling the work order.

If you do not want a user to return a job to the scheduling pool, the check boxes in the setup form and the pop up delete form should be marked invisible in Security Inspector, disabling it will not prevent a user from returning the WO to the schedule.

If the 'Check for MRO WOs when Loading Schedule' Scheduling Parameter is checked, when setting up a work order in the first position that has non-miscellaneous MRO WOs/Tasks that are open for tools that are attached to the BOM, a form will display showing the open MRO work orders. The form has Continue and Cancel buttons. If the user selects the Continue button the work order will be scheduled or moved into the first position. The Cancel button will cancel the insert or move to the first position. Security can be placed on the Continue button to prevent users from scheduling tools that need maintenance. Note this form will not pop up when performing a setup from RealTime™.

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".

Calculate Work Center

There are three options from this button  :

Calculate this work center's Production Start and End Time - This option will recalculate the Start and End time on the scheduled work orders for the current work center. For work centers not connected to RealTime™ this will update the Hours to Go. This does not recalculate the must start date.

Calculate All Work Centers, Including Dependent Must Start - This option recalculates the production start/end dates for every scheduled job on every work center including the 'Must Start' dates for all the child work orders of the top level (0) work orders that are scheduled. A confirmation box will appear, select Yes to continue or No to cancel.

Calculate this Work Center's Must Start Date based on Production End Time - The system will recalculate the must start date based on the calendar of the actual work center the work order is scheduled on. This will take the production end time minus the hours to go to arrive at must start date. This can be useful to evaluate the changes to the must start date after making modifications to the calendar or a work order. For example, if a release is removed from a work order (possibly due to lack of material), the scheduler can use this option to evaluate the changes to the schedule based on the new production hours. Another example is if a change is made to the shop calendar, such as adding a holiday, this option can be used to evaluate the changes to production start dates and must start dates with one click.

Right Click Options in the Upper Grid in Scheduling

By right clicking you will find the following options in addition to insert, move, edit, and remove functions. For other functions not listed below please refer to their specific sections such as 'Add MRO Work Order to Schedule'.

Find Work Center

Selecting this option brings up a listing of all the current work centers available for scheduling or viewing work orders.

Filter

This function enables the user to select for which manufacturing type and/or cell they would like to view the schedule for.

Sort

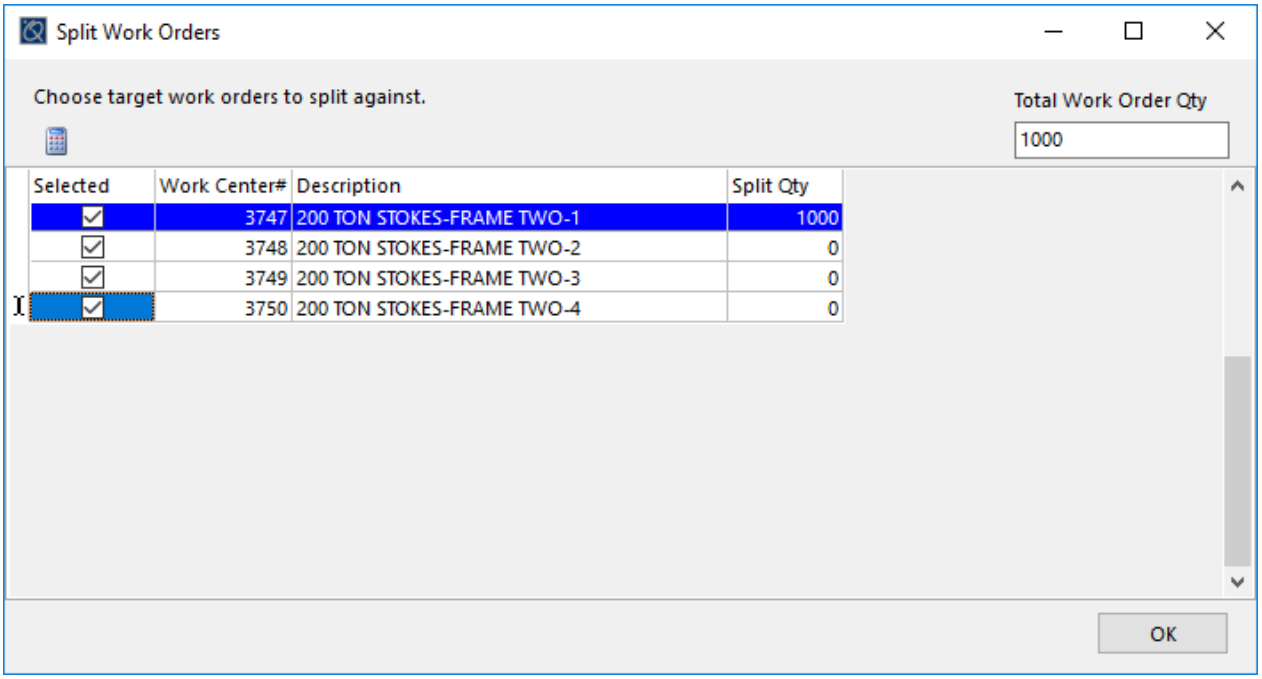
The Sort function only pertains to GVS view. It allows the user to select the way the work centers are sorted, either by work center number or description.

Re-Sequence By Must Start Date

Select this option to re-sequence the work orders scheduled on the work center by the Must Start Date. The system will not re-sequence the work order in the first position. After the re-sequence process the work center will be recalculated. After selecting this option a confirm message will appear stating, 'About to re-sequence by must start date. Please confirm to continue.' Select Yes to continue or No to return to the schedule with no changes.

Split Work Order

This option is used with Logical Work Centers. It allows users to split a work order amongst associated logical work centers. A form will appear listing the total work order quantity for the work order currently scheduled and the logical work centers where it can be split to. Select the work centers by checking the 'Selected' box. Then select the calculator button to split the work order quantity evenly amongst the selected work centers. The Split Qty can be manually edited if desired, but the total split quantities must equal the total work order quantity or an error will surface: "Sum of Split Qty should be equal to Total Work Order Qty."


Split Work Orders
Choose target work orders to split against.
Total Work Order Qty
1000
Selected
Work Center#
Description
Split Qty
3747
200 TON STOKES-FRAME TWO-1
1000
3748
200 TON STOKES-FRAME TWO-2
0
3749
200 TON STOKES-FRAME TWO-3
0
3750
200 TON STOKES-FRAME TWO-4
0
OK

Once the user clicks OK, the quantity on the original work order will update to the split qty and new work order(s) will be created with the various quantities specified from the screen. The new work order(s) will maintain the same start time as the original work order. In the process of splitting the work orders, the work order being split and subsequent split work orders are firmed in order to prevent Update Schedule from re-allocating material or updating the quantities based on demand. For more information please see the Logical Work Centers section.

Priority Note

Select Priority Note or Priority Note 2 to enter a priority note for the highlighted work order. These field can also be accessed from the Edit Work Order function. Type the text in the Priority Note, and/or Priority Note 2 field. These notes will also be visible from the work order and in RealTime™. Priority Notes can also be added from a work order or RealTime™ and will be visible in the schedule.

Recalc Center

This function is used is to force the system to re-evaluate the start and end dates of each work order scheduled.

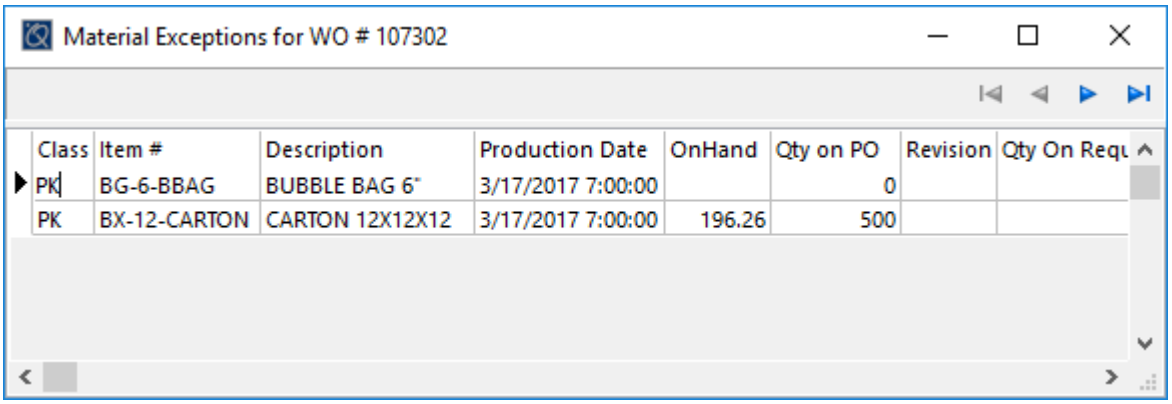
Calculate All Work Centers

This option will recalculate the start and end dates of each work order scheduled on all work centers. (See Calculate Work Center(s) Start and End Time).

Materials on Exception List

If the work order field is in red text this indicates that there is material on the exception list. Users can right click to bring up a list of materials that are causing the material exception for the highlighted work order. This displays the materials on exceptions for each day the job is running based on the actual start date.There may be more than one listing for the same item because it is listed for each day of production. Material exceptions are items that are required to meet your schedule, but show a shortage at some point during the production process. Exceptions are calculated by the total demand from the work orders less any on hand inventory. If a PO has a promise date that should arrive within the PO Range it will be taken into account. The system does not take in to account past due POs (having it show as an exception would tell the user to check out why the PO release is late).

This list includes the basic item information such as class, description and, revision, as well as the on hand, quantity on a requisition or purchase order, and production date. From this screen you can right click and jump to inventory or material exceptions for the raw material.



Class	Item #	Description	Production Date	OnHand	Qty on PO	Revision	Qty On Requ
PK	BG-6-BBAG	BUBBLE BAG 6"	3/17/2017 7:00:00		0		
PK	BX-12-CARTON	CARTON 12X12X12	3/17/2017 7:00:00	196.26	500		

Notes:

If multiple items use the same material the system will analyze situations where a work order could use the remaining on hand balance and finish successfully without incurring material exception status. For example, Work orders A and B are consuming the same material for a few days. On day X both of the work orders will require more than the available on hand for that day. The system will identify work order A, allocate the available on hand balance and exclude A from the material exceptions.

An inventory item can be marked 'Exclude from Finite Schedule Visual Material Exception' (Inventory->Additional tab). When this box is checked, if a material exception exists for the item, it will not cause the work order to turn red on the Finite Schedule.

Work orders will display in red text in the scheduling pool as well. When determining the visual material exception the system will use the Must Start Date for un-scheduled work orders. If the work order is scheduled it will use the actual Start Date.

Associated Tooling Equipment

This option is available if there is a tooling exception associated to the work order. A tooling exception is where a tool associated to the BOM on the work order has Preventative Maintenance out of service dates that fall during the time the work order is scheduled. This right click option will display the Tool #, Location, Description, and Service IN and OUT dates. A right click is available from this Tool Equipment form to 'Jump to PM'.

Jump to BOM

Use this function to jump to the bill of material to view the configuration details for the highlighted work order.

Jump to Work Order

Use this function to jump to the work order scheduled to the work center. (Work order information is available from scheduling regardless of whether there is a sales order, and for all applicable delivery dates).

Jump to MRO Work Order

Use this function to jump to the MRO work order scheduled to the work center. This option will be grayed out if it does not apply to the highligted work order.

Jump to RealTime™ Monitoring

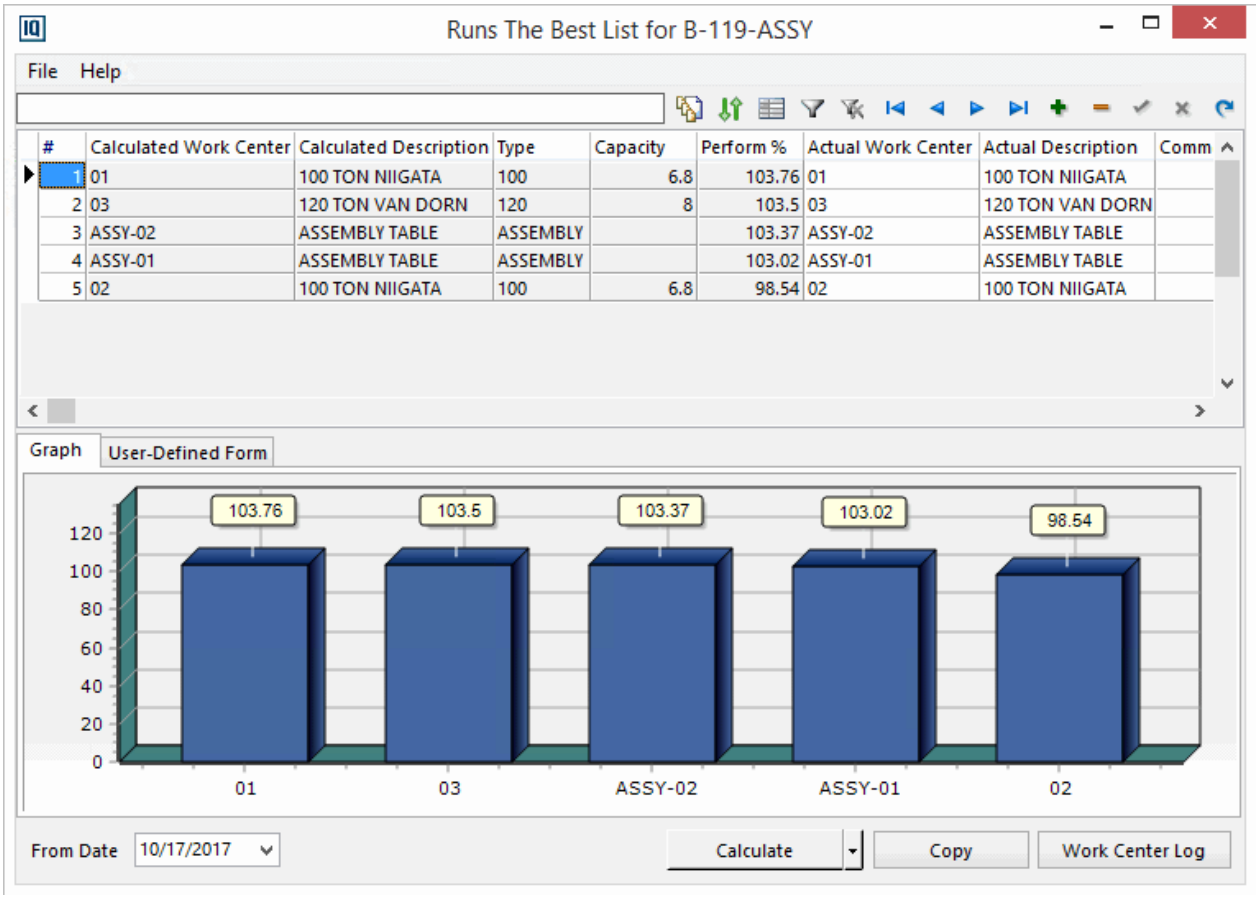
This will jump the user to the RealTime Monitoring module on the Part Number view. The work center the user jumped from will be highlighted.

Jump to Process Monitor Mfg # Setup

This option is available for users licensed for the Process Monitor. This will jump the user to the Process Monitor Mfg # Setup form for the Mfg # associated to the highlighted record, and once opened it will also locate the Work Center jumped from as well.

Runs the Best

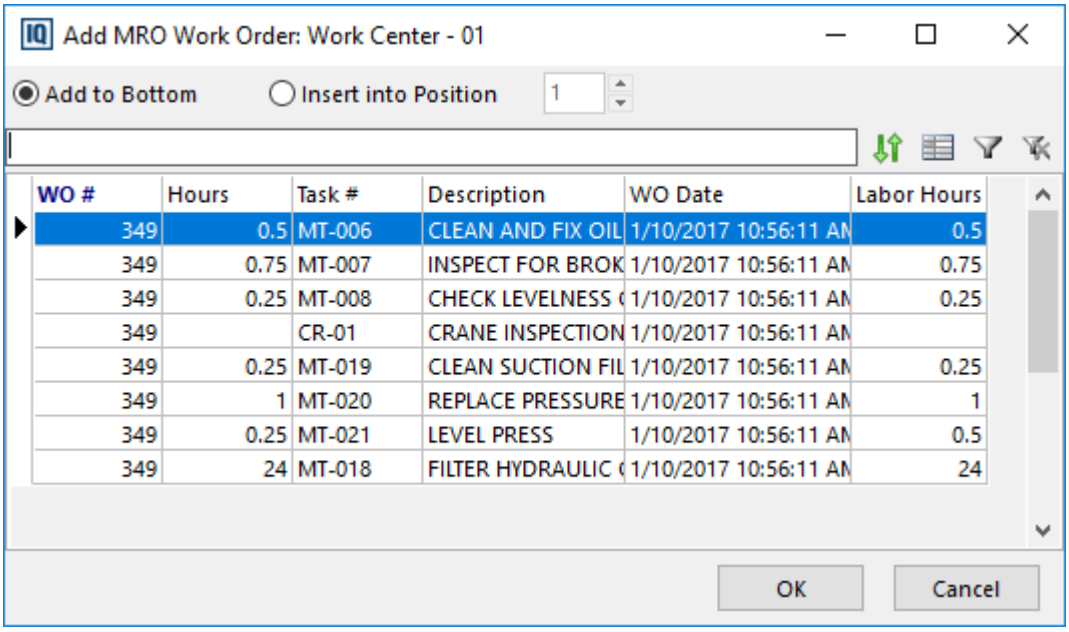
Select this option to bring up the Runs the Best list for the highlighted work order.



This form displays the work centers where the BOM runs the best along with performance percentages. For more information please see Runs the Best in the BOM section.

Add MRO Work Order to Schedule

This brings up a list of Maintenance, Repair and Overhaul (MRO) Work Orders associated with the work center. A MRO work order can be scheduled to the work center by adding it to the bottom, choosing a certain position, or using the drag and drop method. The hours to go populates with the total of the hours required for each task on the MRO work order.

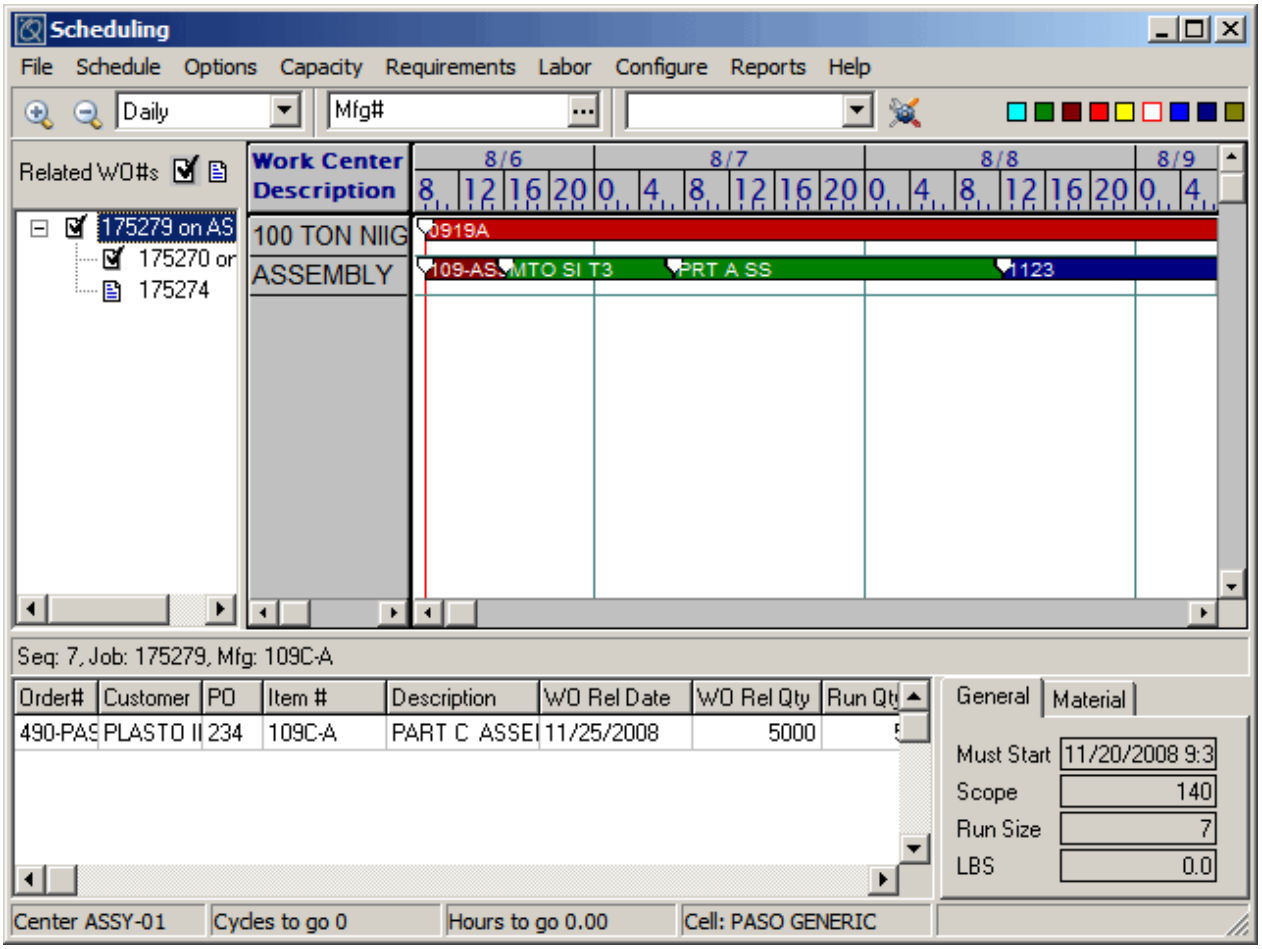


A forced start time can be applied to a MRO work order by right clicking and selecting Edit Job. Next, select the 'Force Start Time' option and enter a date and time. The Reason defaults to the MRO WO # but can be overridden.

Note: Only work orders for equipment with a 'MT' class will show in this list.

Scheduling Window

The scheduling window is a graphic view all of the work centers for **related** BOM's. If the job scheduled is an assembly it will show all the work centers involved in making the entire assembly scheduled or not scheduled. It has very similar information as the text view but allows you to see the information in a graphic form from an hourly, daily, weekly, monthly, or annual view. From this view you can select the same right click functions as the text screen such as, insert, move, etc. Following is an example of the scheduling window:

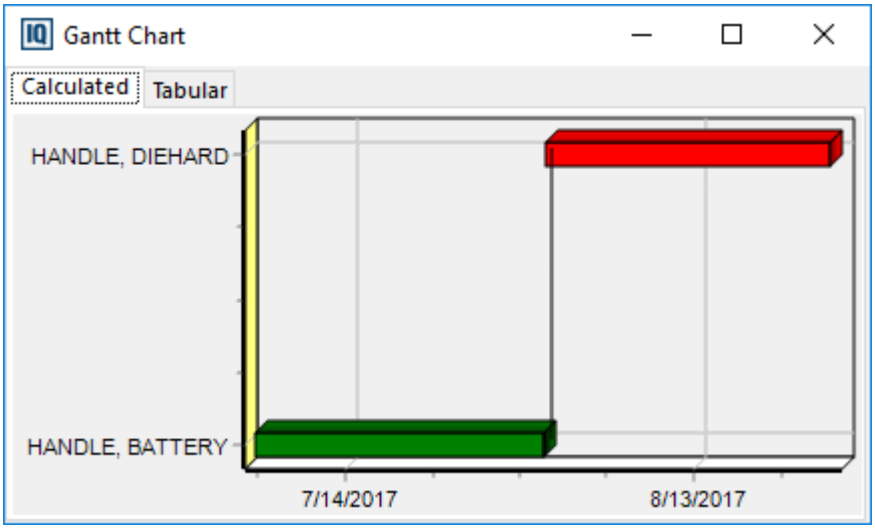


Right Click Options in the Lower Grid in Scheduling

This menu includes the ability to jump to inventory, inventory locations and transactions, sales orders, inventory availability, and MPS Time Phase.The user also has the ability to view a gantt chart for the highlighted work order and view the Work Order Routing Diagram.

Gantt Chart

Below is an example of a Gantt chart which shows all of the work orders that are required to complete a final product. This table can be viewed graphically or in a tabular format. From the graphic chart, put the mouse pointer on the bars to see additional information such as must start dates.

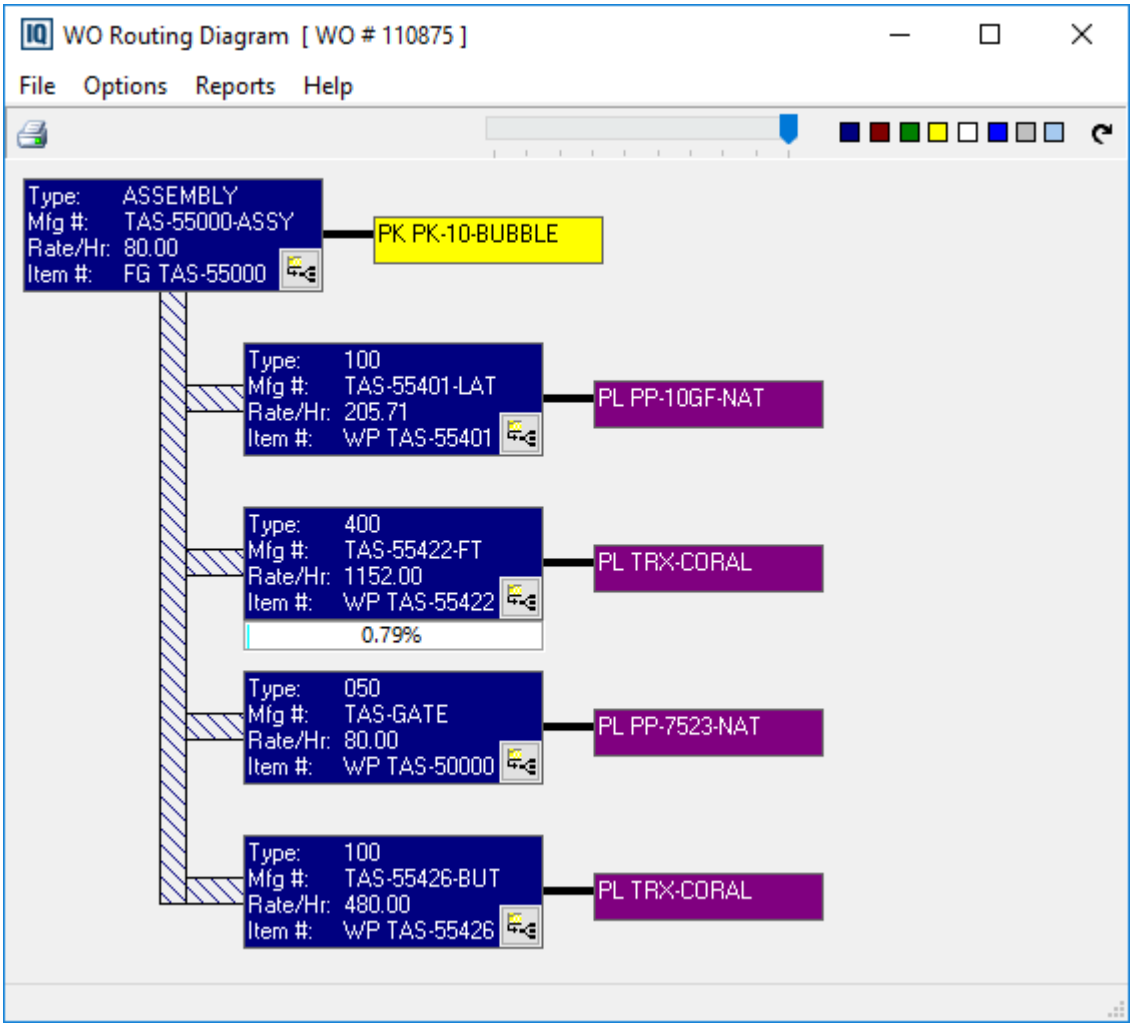


Work Order Routing Diagram

This feature brings up a color coded, visual routing diagram of the processes involved to make the highlighted item. Each step or required item is displayed as a color coded box.

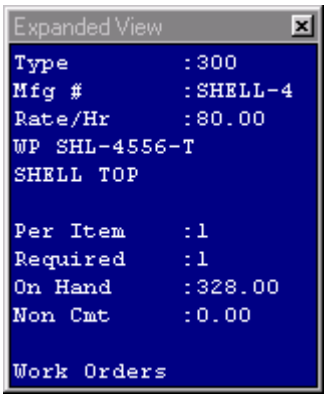
Color Coding - Each type of attached operation/component has a corresponding color associated with the information box.

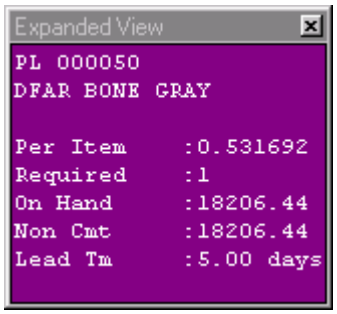
- Blue - represents a BOM / Routing.
- Purple - is the Primary raw material.
- Green - is a Purchased Component.
- Yellow - is a packaging item.
- White - is a purchased component used in a sub-operation. A sub-operation is an operation attached to an existing BOM which has been attached to the BOM Routing. If components are attached to this sub-operation they will show in white.
- Light Blue - is an Outsourced BOM.



Each box contains information about the routing step. The blue box displays four fields: Work Center Type, Manufacturing number, the calculated rate per hour based on the cycle time in seconds (3600/cycle time in seconds), and the Class and Item number of the product.

- **Expand** - This function expands the colored box that was right clicked on to show additional information about the routing step. In addition to the four fields shown on the non expanded box, you will see the Item Description, Parts per item, quantity required, quantity on hand, quantity non committed, and work order information. For raw materials the lead time information also displays.





Under **Options**, Toggle Expanded allows the user the choice to be able to expand multiple windows or only one at a time. With this option checked, only one box may be expanded at a time. With this option not checked, multiple boxes may be expanded and open at one time.

From each un-expanded box the user can right click and jump to the following areas:

- **Jump to Inventory** - This function will take you to the Inventory screen for the item that was right clicked on.]
- **Jump to BOM** - This function will take you to the BOM screen for the item that was right clicked on.
- **Jump to Exception List** - This function will take you to the material exception list for the item that was right clicked on. If the item is not on the list a pop up form stating so will appear.

From the WO Routing Diagram the user can click on the button in the lower right portion of a blue box to jump to the scheduling window which shows related work orders and where they are scheduled.

BOM Tree

This options opens up the BOM Tree form. It will automatically display the explosion view for the highlighted WO Release Quantity. For the Extrusion MFG Type, if user clicks on the BOM Tree in the upper portion of the scheduling screen it will display in parts. The right click BOM Tree option in the lower section will display feet.

To change the quantity select the BOM Qty Explosion button and enter the desired quantity. Select the Material Exception List button  to open the BOM Tree Material Exceptions list. This list displays only the materials associated to the BOM.

Work Order Info

This option brings up a grid displaying the work order information for all related work orders.

Sales Order Line Note

Select this to display the Line Item Note from the sales order for the highlighted item. The note pops up in read only format. Select the Print button to print the note.

WO Note

This is the WO Note from the Release section of the sales order. Select this option to view, edit, or print the note.

Print Labels

This option allows users to print labels for the highlighted item. Once selected the print label form will appear. The system will use the WO Release Quantity when calculating the number of labels to print.

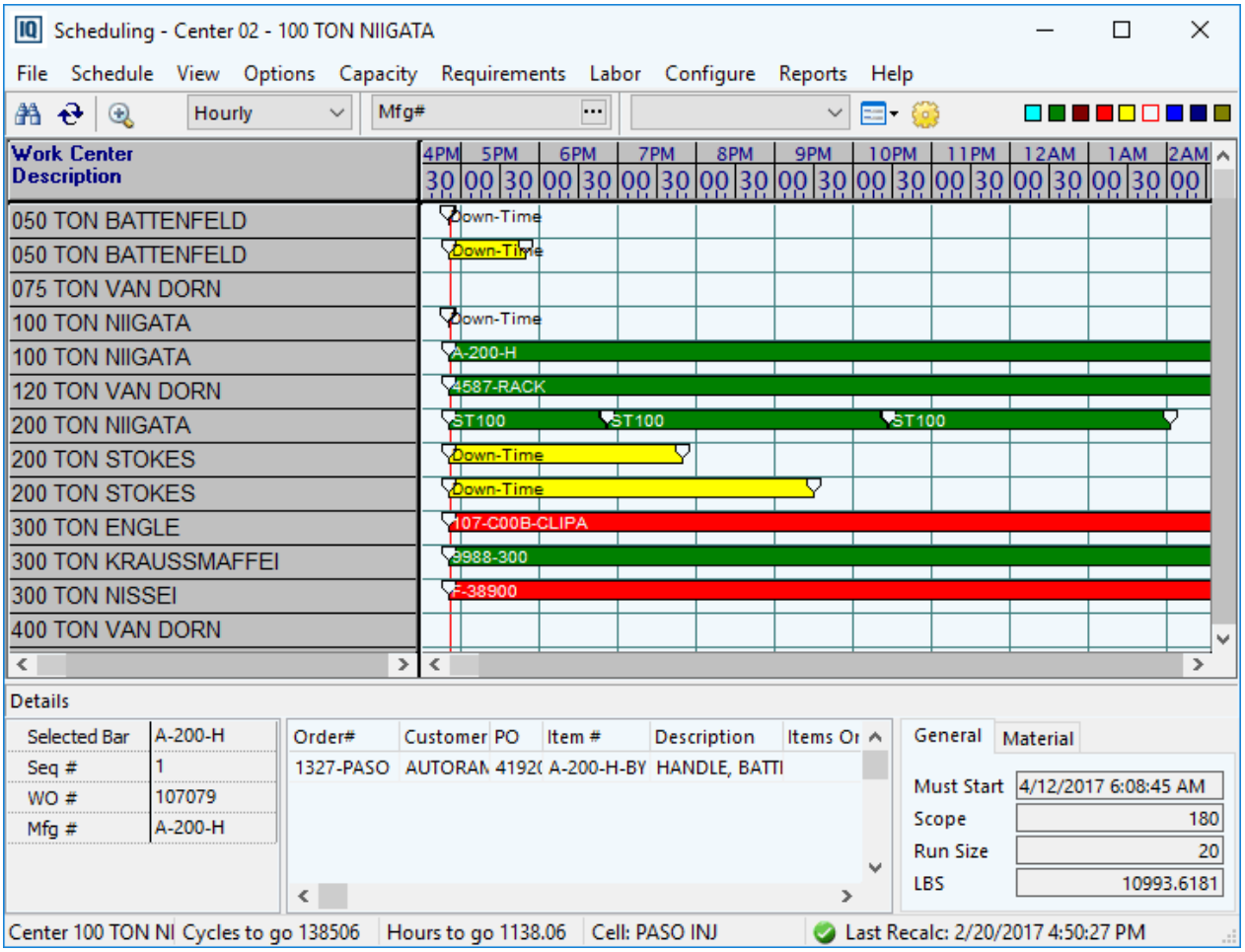
Visual Scheduling

Scheduling using the GVS Screen (Graphic View)

From the **EIQ Launcher Bar** under the *Mfg* tab, select the Scheduling button, or from the **EIQ Launcher Bar**, click on **File|Manufacturing|Scheduling**.

- Select a MFG Type or Cell and press [**OK**]. The Scheduling screen will appear in Text format by default. To switch to global visual scheduling (GVS) press the toggle button  . Or, from the menu bar select **View|Graphic Mode** from the submenu.

The following screen will be displayed:



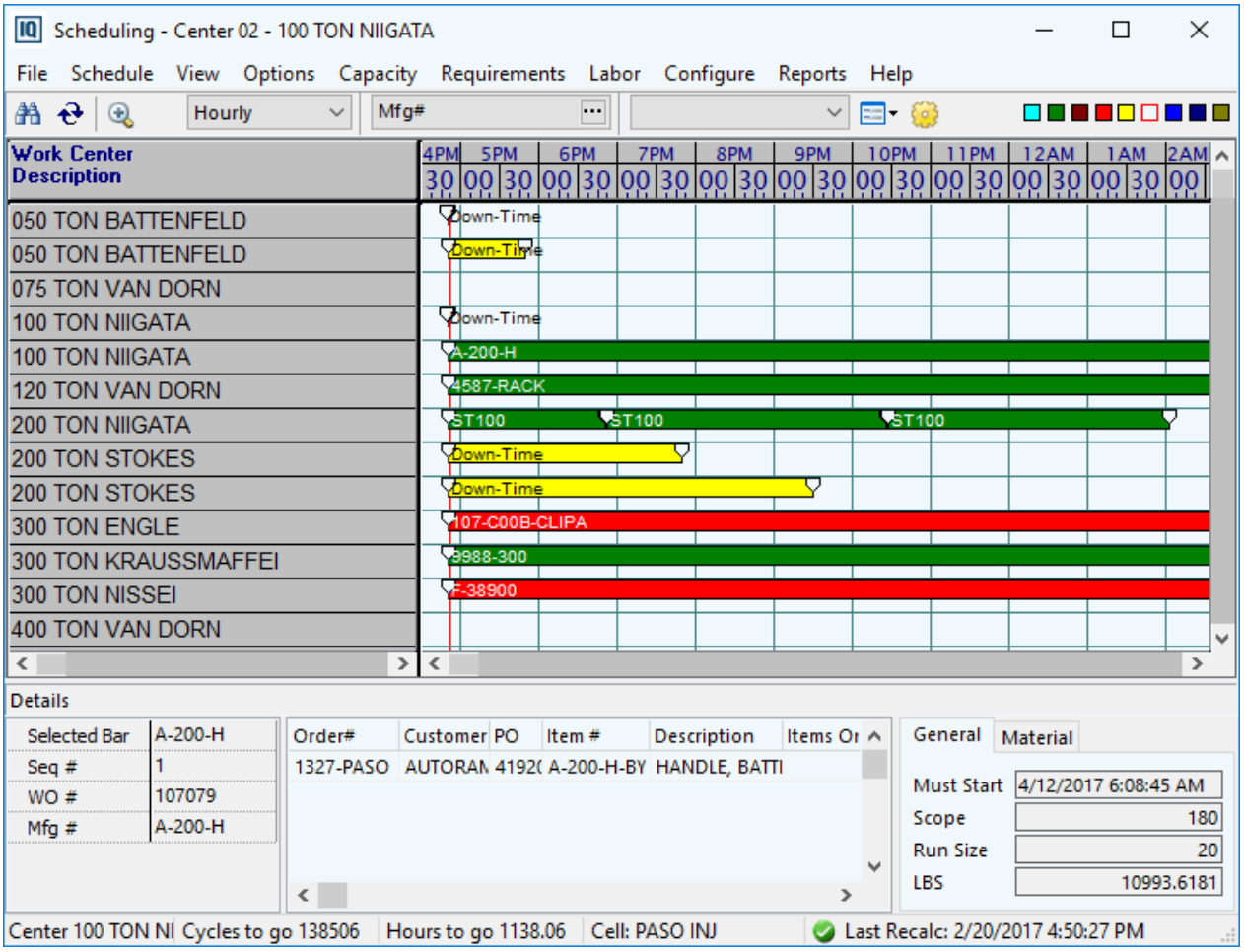
Note: If the Region and Language setting is set to a format that uses 'a.m.' and 'p.m.' for the time symbols, such as English(New Zealand), the Finite Scheduling will lock up when switching over to the Graphic View. To correct this go to Region and Language in the Control Panel, select Additional Settings, and change the time symbols on the Time tab to 'AM' and 'PM' (with no periods).

Just as in the Text view, this screen displays a substantial amount of information about the current work order(s) scheduled, but unlike the Text view, the GVS view displays multiple work centers instead of one at a time:

- The machine loading window
- Work Order Window containing the associated sales orders which make up the Work Order. (See Work Order Information Window for details).
- Details section which displays the Seq #, WO#, and MFG # for the selected bar
- Data area (bottom right portion of screen) displaying various work order criteria (i.e. Must Start, Scope, Run Size, pounds of material, and material used). Jump to Inventory and Sales Order is available from the Material tab.

Machine Loading Window

For the GVS mode allows the user to view at a glance a data area displaying a full view of all work centers and various work orders assigned to them. The work centers that will display are those associated with the manufacturing type and/or cell selected.



Note that as you click on a work order, the bottom portion of the screen displays work order and sales order info in the same manner as the text view screen. Included in this display is the order number, the customer, PO if applicable, part number and description, WO Release Date, WO Delivery Date, Run Quantity, Promise Date, and Request Date.

Scheduled days off will display as gray bars on the schedule as far out as the shop calendar has been set.

Work Order Time Line Bar

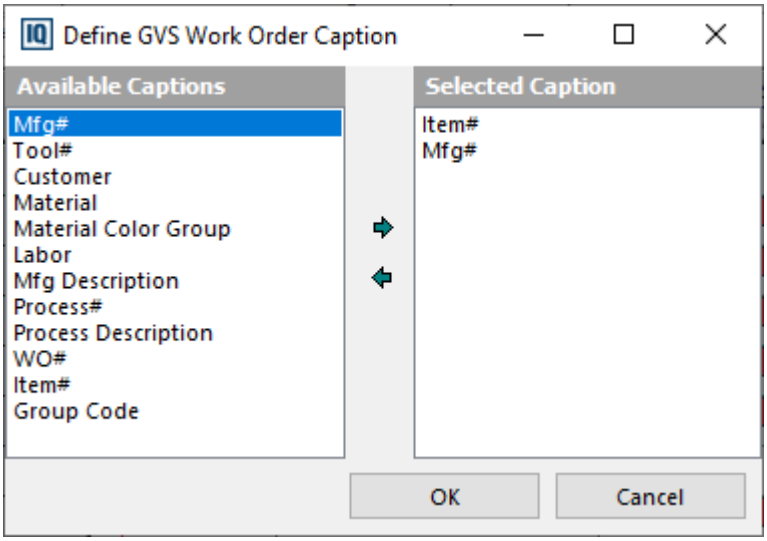
The user has the option of *viewing* each work order on an hourly, daily, weekly, monthly or annual basis. To do so, complete the following steps:

- Select a **viewing** option from the pull-down menu located to the right of the zoom tools on the main. Upon making the selection, watch the screen to see how the Time Line changes the items shown on the schedule.

GVS WO Caption

From the GVS view the user can change what is displayed in the work order bar.

Select the ellipsis button in the GVS WO Caption field. From the Define GVS WO Caption form highlight the desired caption from the Available Captions list and arrow it over to the Selected Caption side using the 'Add Caption' arrow button. Continue until all desired captions have been added. To remove a selected caption highlight it on the Selected Captions side and select the back arrow button. The order the captions are in on the Selected Captions side will be the same order they are displayed on the work order bar. By default just the Mfg # is selected.

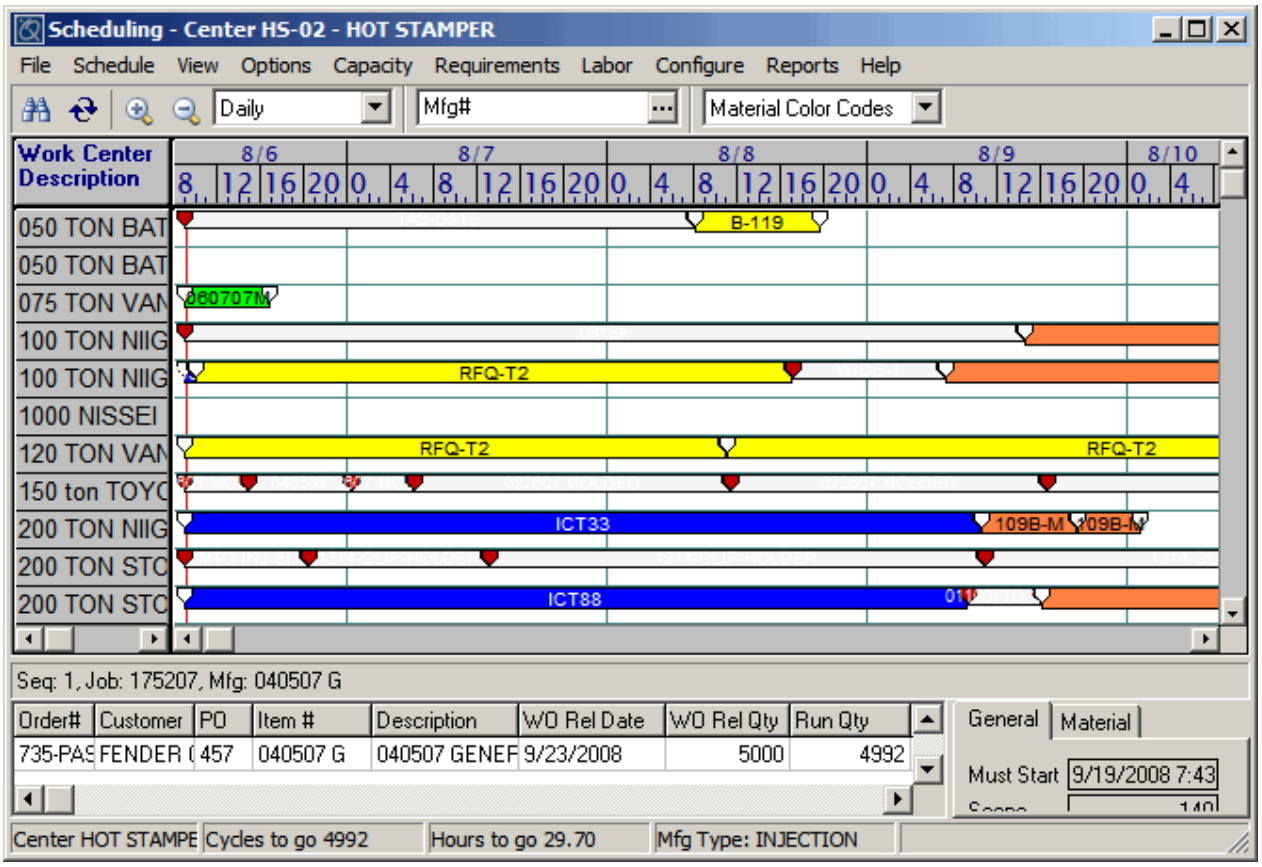


Note: Only the first Item's Group Code will display in the GVS view for family BOMs.

Exceptions Filter

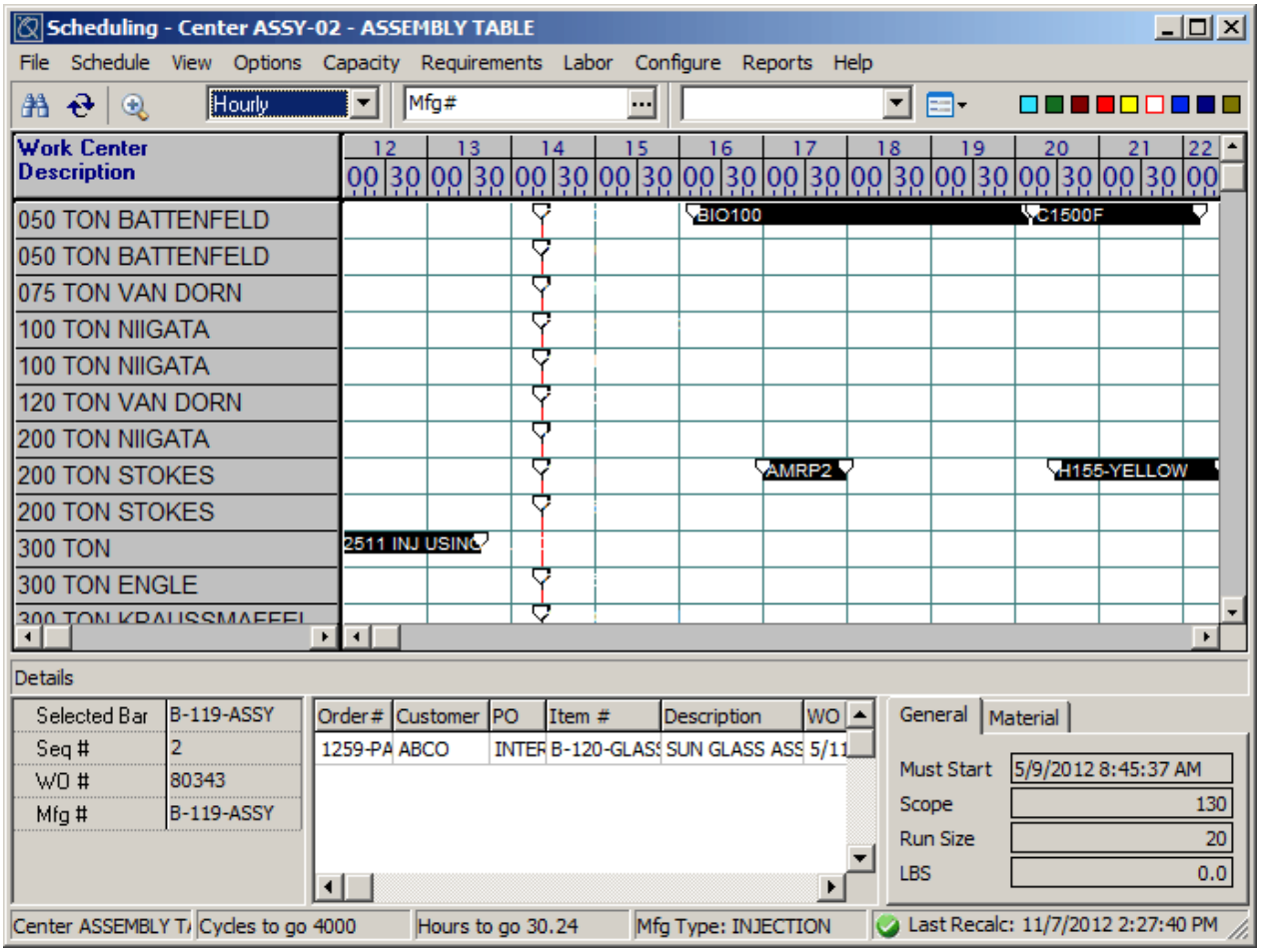
The user can filter the GVS view based on four options. The work orders that correspond to the selected filter will display. The options are:

- **On Time Info** - This is the default, all work orders will display in the color associated to their on time status.
- **Material Exceptions** - This option will only show those work orders where there is not enough material to run the work order. Right click and select 'Materials On Exception List' to see the material exception form for the highlighted work order.
- **Tooling Exceptions** - This option will only show those work orders that have a tooling exception. A tooling Exception is where a tool associated to the work order has PM out of service dates that fall during the time the work order is scheduled. A right click option 'Associated Tooling Equipment' is available to view the tool information and service in/Out dates. A right click is available from this Tool Equipment form to 'Jump to PM'.
- **Material Color Codes** - This option will display the work orders in the color associated to the main material of the BOM. This allows users to quickly identify like materials for grouping on the schedule. Color Codes are associated to inventory items on the Additional tab->Color Group field.



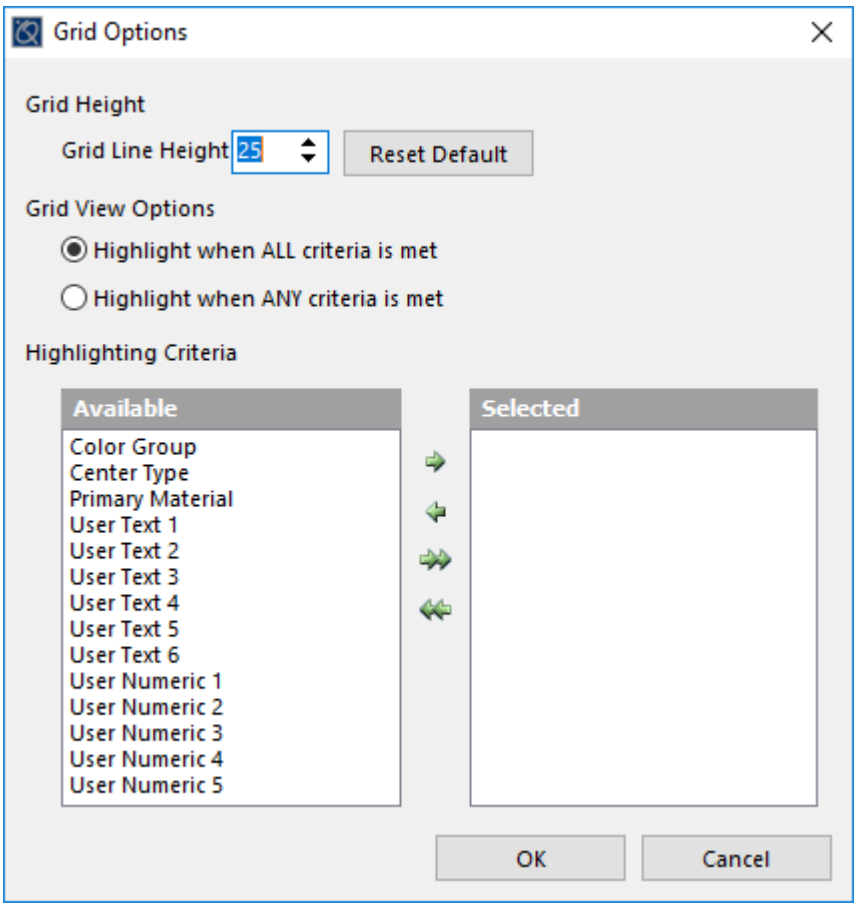
Setup Time View

 This allows users to select the *Setup Time View* option to only show Setup Times. The Work Order Time Line Bar will be set to Hourly when this view is selected. Changes cannot be made to the schedule while this mode is active.



Grid Options

The Grid Options feature allows users to establish criteria to be used to determine which work orders should be highlighted within the graphical schedule when adding work orders to the schedule. Select the Grid Options button at the top of the graphical schedule form  to access the options.



- Highlight When All Criteria is Met – This means that when adding a new work order to the schedule, scheduled work orders will be highlighted in purple to show a match if and only if all of the selected criteria is matching with the work order that is being added. This option will be enabled by default.
- Highlight When Any Criteria is Met – This means that when adding a new work order to the schedule, scheduled work orders will be highlighted in purple to show a match if any of the selected criteria matches to the respective information on the work order being added to the schedule.

The Available criteria to select in order to determine which work orders will be highlighted are:

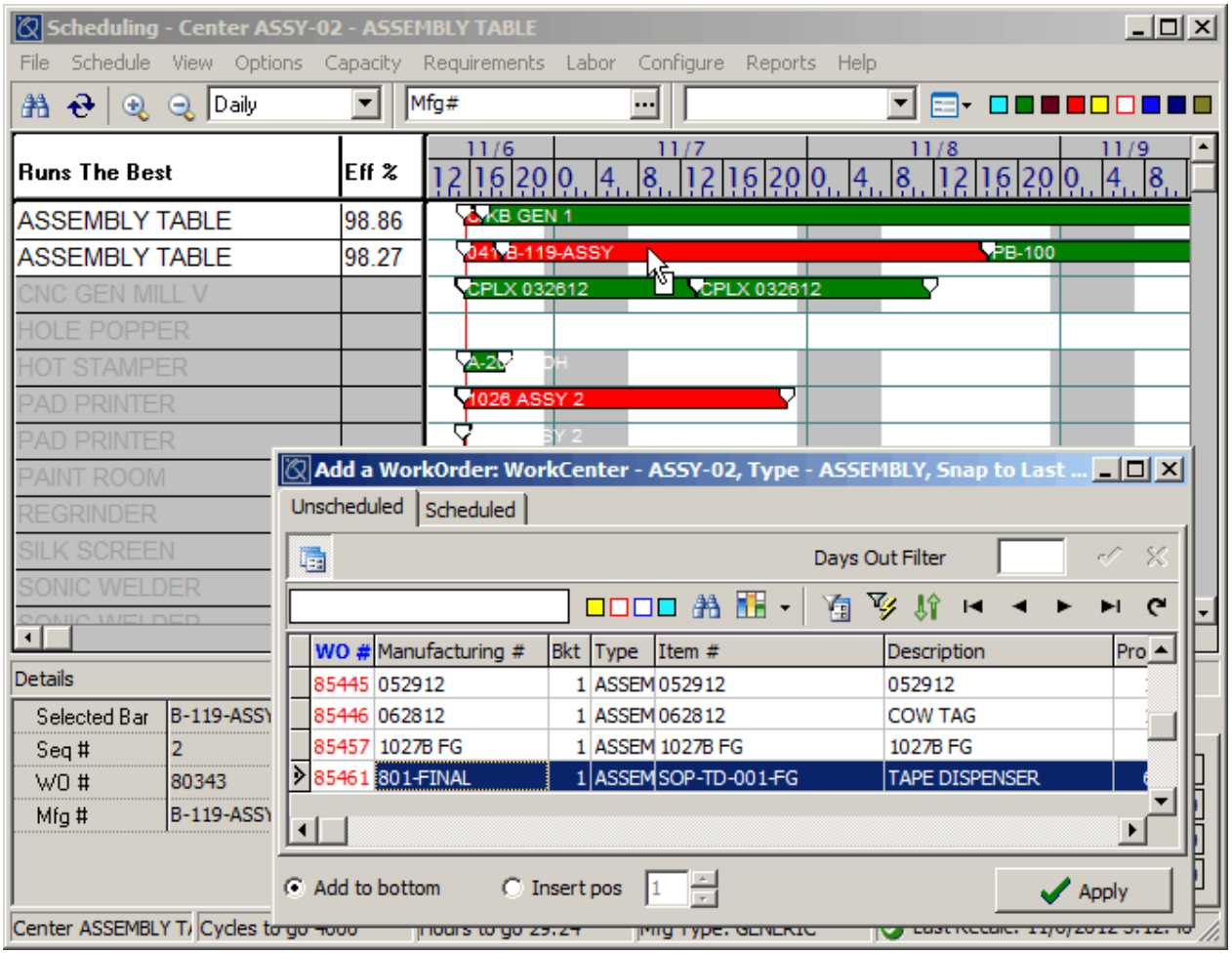
- Center Type – This will look at the Center Type specified on the BOM level.
- Color Group – This refers to the Color Group that is associated to the Inventory Item to be manufactured.
- Primary Material
  - For a Generic BOM, the primary material refers to the first raw material listed as a component in the Item Details tab of the BOM.

    - For Injection, Die Cast and Extrusion manufacturing types, this refers to the primary material specified on the general BOM tab.
- User Text (1-6) – This refers to the User Text fields that are associated to the BOM that is running for the work orders that are currently scheduled. If one of the selected User Text fields of the work order that is being added to the schedule matches the corresponding User Text field on a scheduled work order that would constitute a match.
- User Numeric (1-5) – This refers to the User Numeric fields that are associated to the BOM that is running for the work orders that are currently scheduled. If one of the selected User Numeric fields of the work order that is being added to the schedule matches the corresponding User Numeric field on a scheduled work order that would constitute a match.

Insert, Edit, Remove a Work Order

The functionality from the GVS screen is almost identical to that of the Text View. Inserting, Editing, and removing work orders are the same. Please see Scheduling a Work Order - the Scheduling Pool and the other corresponding sections above for more information.

The main difference between the GVS and Text view relates to the Move function. From the GVS screen users can move a work order between work centers using the drag and drop feature. Also, when inserting a work order onto the schedule the system will highlight the runs the best work centers and show the efficiency % as shown in the example below.

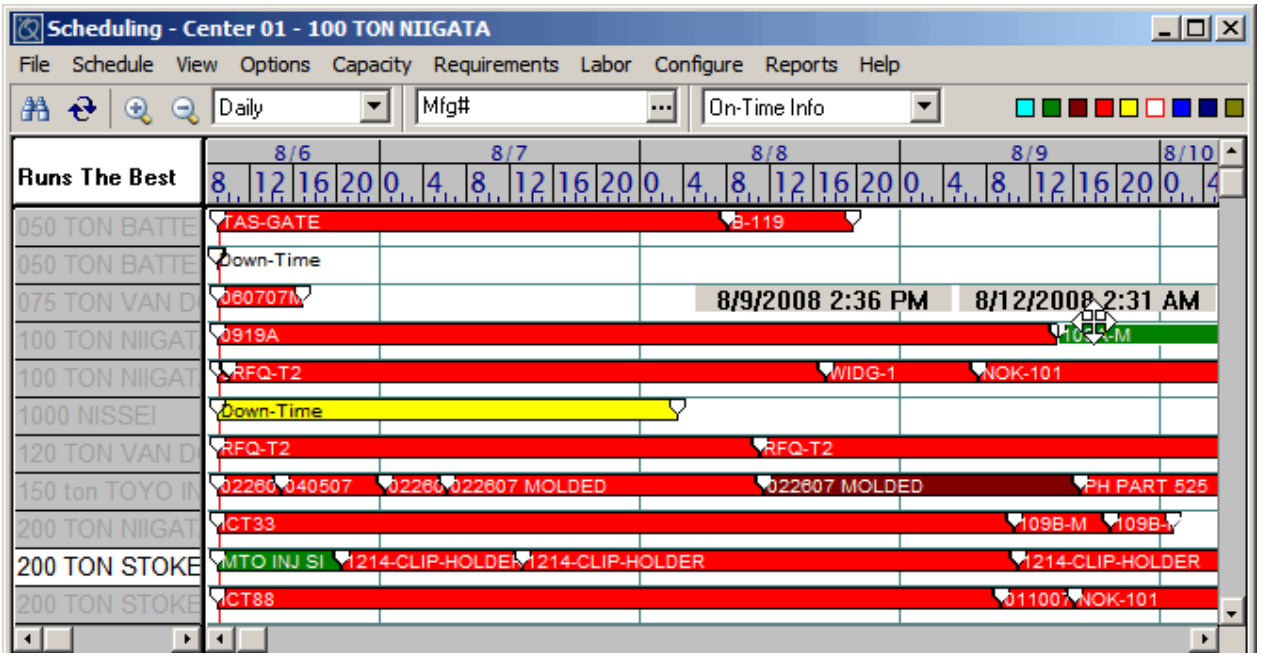


Moving a Work Order in GVS

To **MOVE** a work order that is currently scheduled:

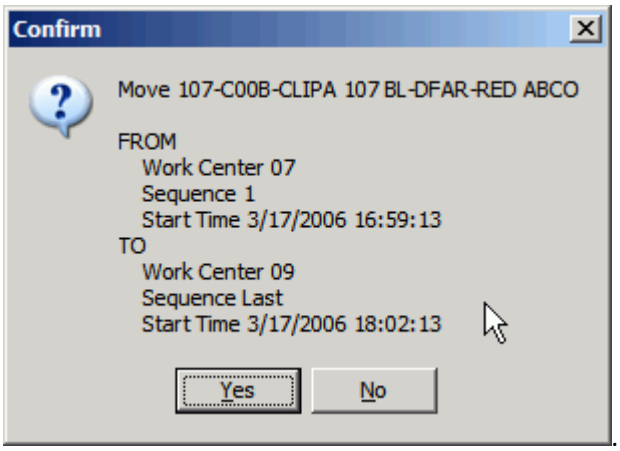
- From within the GVS view of the Scheduling screen, select the **Work Order** you wish to move by holding down the left button of your mouse. By holding down the left mouse button on the work order you selected will also provide you with details concerning the duration of the work order such as the starting date and time and ending date and time.

- Upon selecting the work order, you will see a 4-way arrow which allows you to drag the work order up or down, side to side as shown in the screen shot below:



Once a user begins to move a work order in the GVS view the work centers that are on the Runs the Best list will display in white while all others will be gray.

- **Drop** the Work Order into the desired location. You will then be presented with the following message



- Select "Yes" to move the work order to a new location, or "No" to cancel the move.

GVS Tool Bar Functions

 The **Zoom In (+)** and **Zoom Out (-)** are used to change the time scale. Use these tools if you wish to zoom in (or out) on work order details. Instead of seeing only a portion of what is on the screen, zooming in or out lets you see a larger view of the Time Line and work order duration.

Work Center Pick list

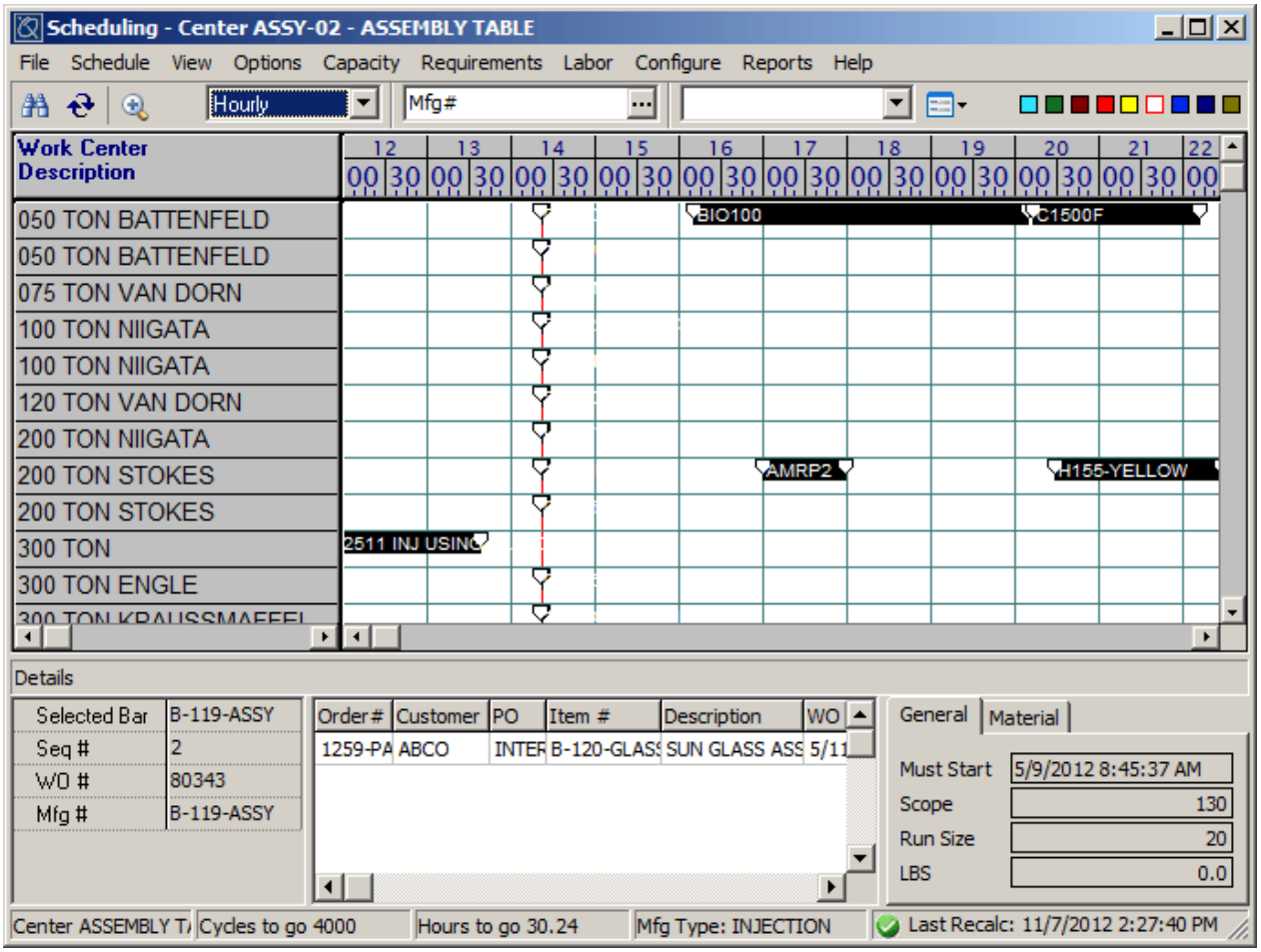
 Selecting the pick list function brings up a listing of all the current centers available for scheduling or viewing.

Flip Between Graphic and Text

 This allows the user to view the schedule in either Text view or Graphic (GVS) view. Click on this button to toggle between the two views.

Setup Time View

 This allows users to select the *Setup Time View* option to only show Setup Times. The Work Order Time Line Bar will be set to Hourly when this view is selected. Changes cannot be made to the schedule while this mode is active.

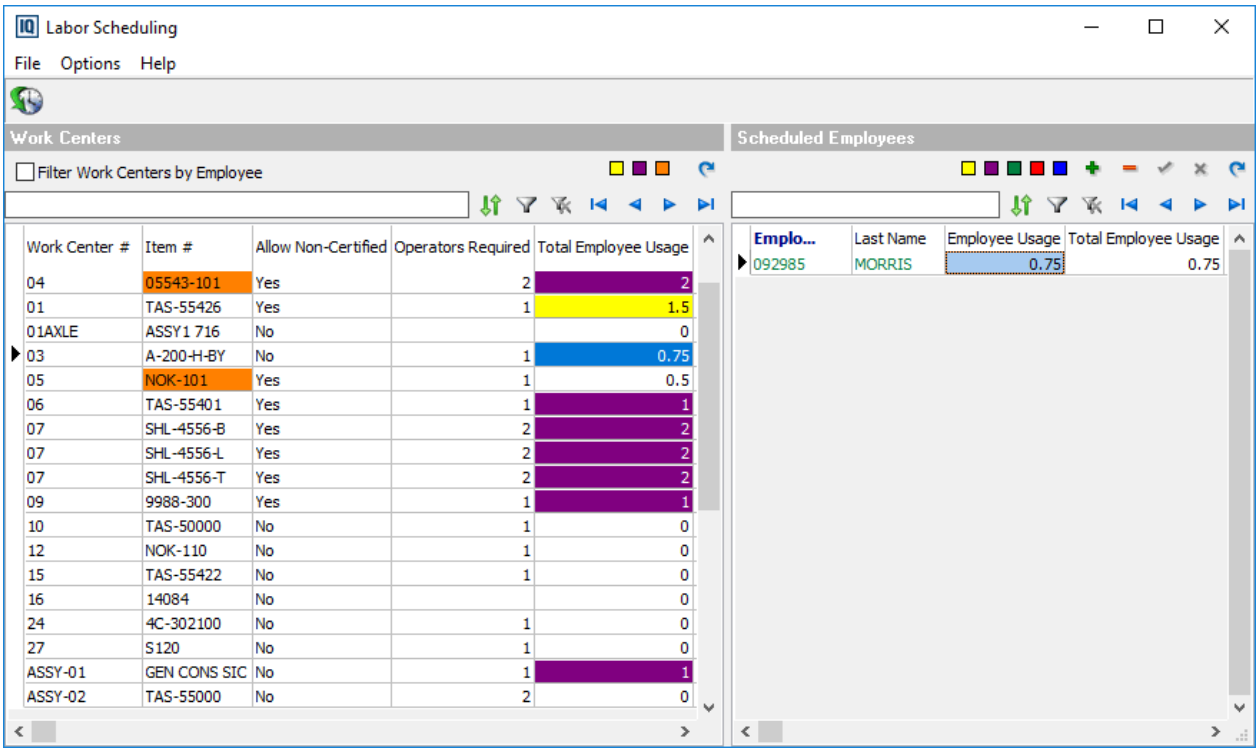


Print GVS

Select this option from the Reports menu to print the GVS view. A date range can be selected.

Labor Scheduling

This module allows users to schedule certified employees to specific work centers. Select this option from the Labor menu in the Scheduling module. Employees can then view the work centers they are scheduled on from the Clock In/Out Time and Attendance module.



The left side will display work centers that have work orders scheduled on them. The work center will be listed multiple times based on the items and Employee Levels associated to the MFG #.

Filter Work Centers by Employee - Check this option to only display work centers where the highlighted employee is scheduled.

This section includes the following fields. Users can sort on any column.

Work Center **Work Center Description**	There is a column for work center number and work center description.
Item # **Description** **Ext. Description** **Rev**	The inventory item information for the item(s) scheduled in the first position on the work center. There are four columns: Item Number, Description, Extended Description and Revision. If there is more than one item manufactured using the scheduled MFG #, the work center will be listed for each item. If the item has open quality issues the item number field will be highlighted in orange.
MFG #	The Manufacturing number scheduled in the first position on the work center.

Work Order	The work order number scheduled in the first position on the work center.
Allow Non-Certified	This toggle defaults to No indicating that only certified employees associated to the MFG # can be scheduled. Users can set this to Yes using the drop down list to allow non-certified employees to be scheduled. Security can be placed on this option to prevent users from selecting Yes. This value can be set at the MFG # level. In BOMs, on the Certified Employees tab there is a setting called 'Allow Non-Certified Employees'. This check box allows users to establish whether to allow Non-Certified employees to be scheduled in Labor Scheduling for the BOM. This defaults to un-checked. When a work order for the BOM is first scheduled the allow non-certify option in Labor Scheduling is updated with the control set at the BOM level. If this option is unchecked the Allow Non-Certified will be 'No' in Labor Scheduling. When this option is checked, Allow Non-Certified will be 'Yes'. The setting can be changed in the Labor Scheduling screen to override the BOM level setting. When it is manually changed, when removing the work order from the work center and then adding the work order back in the first position, the Allow Non-Certified will be populated with what is set at the BOM. When moving the work order from the first position into a different position on the same work center and then moving the work order back in the first position, the Allow Non-Certified will be populated with what was set in Labor Scheduling. When moving the work order from one work center to a different work center, the Allow Non-Certified will be populated with what was set in Labor Scheduling. Note: If a BOM does not have any external documents or certified employees setup, in Labor Scheduling, when adding any employee, if 'Allow Non-Certified' is set to No, the error: "Scheduling non-certified employees is not allowed for this work center <work center>" will still display. To be able to continue to schedule any employee the user must toggle 'Allow Non-Certified' to Yes.
Operators Required	The total number of operators required for all employee levels, including setup. The work center will be listed for each employee level associated to the MFG #. This field cannot be edited.
Total Employee Usage	The sum of employee usage for the specific work center. (Employee Usage is entered per employee in the right side of the form). The field will be color coded for quick visibility as to the status of the Total Employee Usage: ▪ This column will be highlighted yellow if the Total Employee Usage is greater than the amount of operators required to run the job. ▪ This column will be highlighted purple if the Total Employee Usage is equal to the amount of operators required to run the job. ▪ This column will have no highlighting if the Total Employee Usage is null or less than the Operators Required to run the job.

Color Coding in Work Center Section

- Orange - If the item is associated to an open CAR/CAPA, ECO, MRB, Deviation, or PPAP/Product PQ the item number field will be colored orange.
- Yellow - If the total employee usage is greater than the amount of operators required to run the job the 'Total Employee Usage' field will be highlighted yellow.
- Purple - If the total employee usage is equal to the amount of operators required to run the job the 'Total Employee Usage' field will be highlighted purple.

Jump To Options:

- Jump to BOM - This will open the scheduled BOM.
- Jump to Work Center - This will take the user to the highlighted work center.
- Jump to Work Order - This accesses the scheduled work order.
- Show Quality Issues - If an item number is associated to an open CAR/CAPA, ECO, MRB, Deviation, or PPAP/Product PQ the item number field will be colored orange, and the user can select this option to view the Open Quality Modules form. From this form users can jump to specific quality records. If quality records are not associated to the item this option will be grayed out.

The right side of the form will display scheduled employee information:

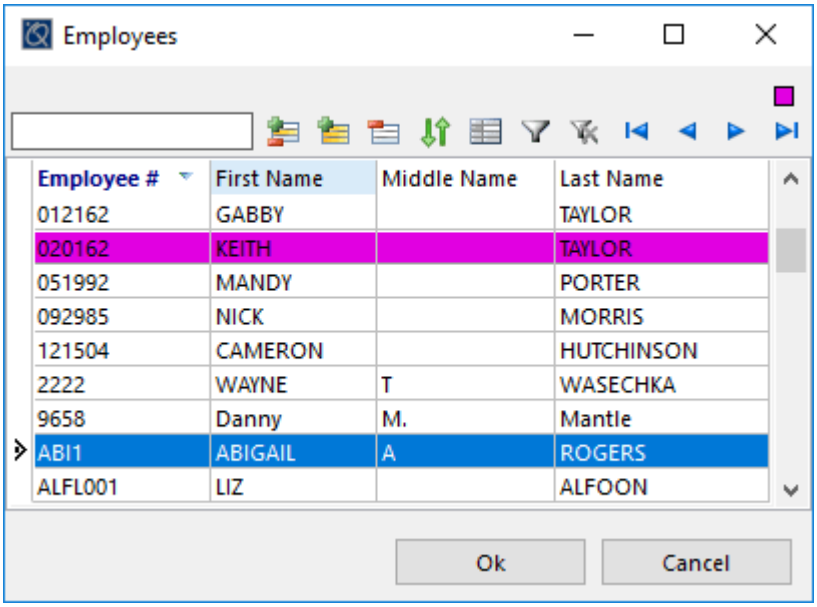
Employee Name	There are columns for: Employee #, First Name, Middle Name, and Last Name. The font in the employee name columns will colored to indicate certification status: ▪ Green - Certified ▪ Red - Not certified - If 'allow non-certified' is set to Yes and employees who are not certified are assigned, then the system will color code them in red. ▪ Blue - Re-Certification is Required. An employee is set to re-certification required if the Certified Date + # Months < Today's date.

Employee Usage	This value is calculated based on the number of operators required for the scheduled BOM but can be manually overwritten. Following are the rules as to how the system will calculate this field: ▪ Operators required is >= 1 and one employee is selected, employees usage = 1 ▪ Operators required is >= 1 and multiple employees are selected at one time, 1st employees usage = 1. If operators required is still greater than 1, 2nd employees usage = 1, and continues to do this until operators required amount is 0. Note: When adding employees one at a time, Employee usage for each employee will default to 1. ▪ Operators required is < 1 and one employee is selected, employees usage = operators required value from BOM. ▪ Operators required is < 1 and multiple employees are selected at one time, 1st employee usage = required value from BOM. All other employees will default to 0. Note: When adding employees one at a time, Employee usage for each employee will default to 1. This field is color coded to enable better visibility as to the employee's usage: ▪ Purple - The Total Employee Usage field will be highlighted purple when an employee's total employee usage is equal to 1. ▪ Yellow - The Total Employee Usage field will be highlighted yellow when an employee's total employee usage is greater than 1. If manually entering this value the value is restricted to 0.00 through 1.00. 1 would be the value for a full employee's time in a day. If a value over 1 is added an error stating: "Entered value is higher than the allowed value. Please enter a value of 1 or less". Note: Removing the work order from the work center will clear the scheduled employees. Note: If an employee is scheduled for a family BOM, they will show up as assigned to all items.
Total Employee Usage	This is the sum of the employee usage for all work centers the employee is scheduled on. This is updated automatically whenever an employee is scheduled on a work center and allows users to clearly see when an employee's total usage is equal to or greater than 1. ▪ This field will be highlighted purple when an employee's total employee usage is equal to 1. ▪ This field will be highlighted yellow when an employee's total employee usage is greater than 1. ▪ If the total employee usage falls below 1 this field will update automatically and show no color.

Both sections include a white search bar to find Work Centers and Employees by typing in key words, letters, or numbers to filter the list. Sorting on columns is available as well.

Scheduling Employees

From the right side of the screen select the Insert (+) button to access the employee pick list. This list displays active employees based on the EPlant the user is logged into. From this pick list users can select multiple employees at once using the toggle buttons or the Shift and Ctrl keyboard buttons.



If the '**Use Absence Calendar for Scheduling Labor**' is checked in Scheduling Parameters, the pick list will filter out employees that are absent for the full duration of the work order, and employees that are absent for some of the work order duration will be highlighted in pink. (Note: The dates considered for the work order's run include the Must Start date and the current date, and does not limit work orders to the Must Start and End Dates in case the work order runs late). There is also a field in this pick list called '**Works Next Prod Shift**' that will indicate a Y or N as to whether the employee has a Time and Attendance shift scheduled in the next production shift. If the employee is scheduled for the next shift, but will be absent, this field will populate with an N.

Work Next Prod Shift Example:

Shop Calendar Shifts: # of Shifts 3, Hours/Day 24, 1st Shift 7:00:00, 2nd Shift 15:00:00, 3rd Shift 23:00:00

Employee T&A Shift:

John - Shift 1 – M-F 7:00 – 15:00

Mary - Shift 2 – M-F 15:00 – 23:00

Chris - Shift 3 – M-F 23:00 – 7:00

Betty - Shift W1 – Sat-Sun 7:00 – 19:00

Tom - Shift W2 – Sat-Sun 19:00 – 7:00

Scenario: Scheduler goes into Labor Scheduling employee pick list at 14:00 on Thursday. In the pick list the 'Works Next Prod Shift' field will be populated as follows for each employee:

John = N

Mary = Y

Chris = N

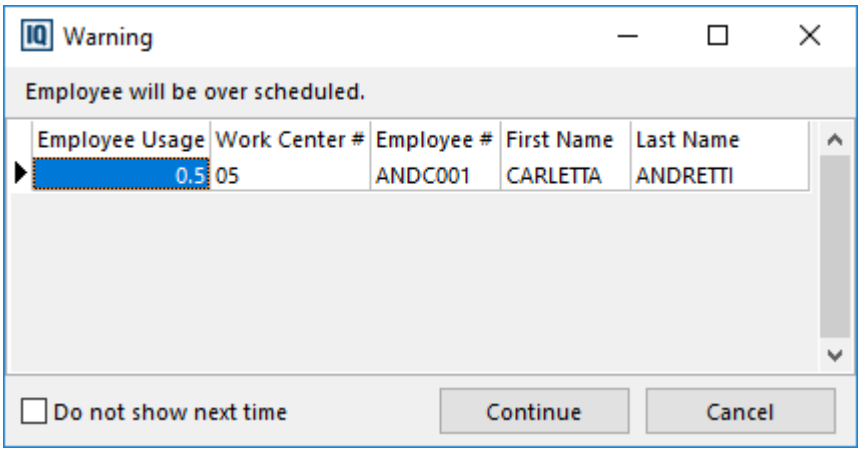
Betty = N

Tom = N

Scheduling Employees to the Work Center

Select employee(s) from the list to be scheduled to the work center. Multiple employees can be selected by using the toggle buttons or the Shift/Ctrl keyboard buttons.

The system will calculate the sum of the employee usage based on all work centers the employee is scheduled on. If the sum of the employee usage is equal to greater than one for an employee a warning will display showing the over scheduled employee and the work center(s) they are scheduled on.



If 'Continue' is selected the employee will be scheduled, if 'Cancel' is selected the employee will not be scheduled. If there are additional employees that would be over scheduled a warning will display for them also, with the same options to Continue or Cancel. This warning message also has a 'Do not show next time' check box, which when checked will suppress the warning message. Users can disable items in Security Manager for the warning form, such as the Continue and Cancel buttons, and 'Do not show next time' check box.

Once a selection has been made on all the warnings, an information message will display stating the number of employees scheduled and not scheduled. After selecting OK on the message the pick list will remain open to choose additional employee(s) if desired. Once all the employees are scheduled select 'Cancel' on the pick list to close the form.

If the employee is not certified on the MFG # (Certified Employees tab) and the Allow Non-Certified setting is set to 'No', a message will appear stating: "Scheduling non-certified employees not allowed for this work center". If the Allow Non-Certified setting is set to 'Yes' this message will not appear and the employee will be scheduled.

Employees can be removed from a work center by selecting the delete (-) button on the right.

Employee Section Color Coding

There is color coding in the Employee section to indicate whether employees are certified or not, and color coding for Total Employee Usage.

- Green - The font in the Employee Name fields will be green indicating the employee is Certified.
- Red - Not certified - If 'allow non-certified' is set to Yes and employees who are not certified are assigned, then the system will color code the Employee Name fields in red font.
- Blue - The Employee Name fields will be in blue font indicating Re-Certification is Required. An employee is set to re-certification required if the Certified Date + # Months < Today's date.
- Purple - The Total Employee Usage field will be highlighted purple when an employee's total employee usage is equal to 1.
- Yellow - The Total Employee Usage field will be highlighted yellow when an employee's total employee usage is greater than 1.

Note: If 'No Training Req' is set to Y for an External Document the system will allow for any employee to be scheduled to a work center (regardless of what the 'Allow Non-Certified' option is set to). The employee will still show with the red color chip since they are not-certified, but can be scheduled since they do not need training to run the job.

Note: If multiple documents are assigned to the employee and the employee is certified for one document but not the other, and 'No training Req' is set to N or Null, then the employee cannot be scheduled to the work center if 'Allow Non-Certified' option is set to No.

Note: In instances where multiple BOMs contain multiple attached documents with different certification levels, the red color chip always takes precedence over blue and green, and the blue color chip always takes precedence over green.

Note: If an employee is scheduled for a family BOM, they will show up as assigned to all items.

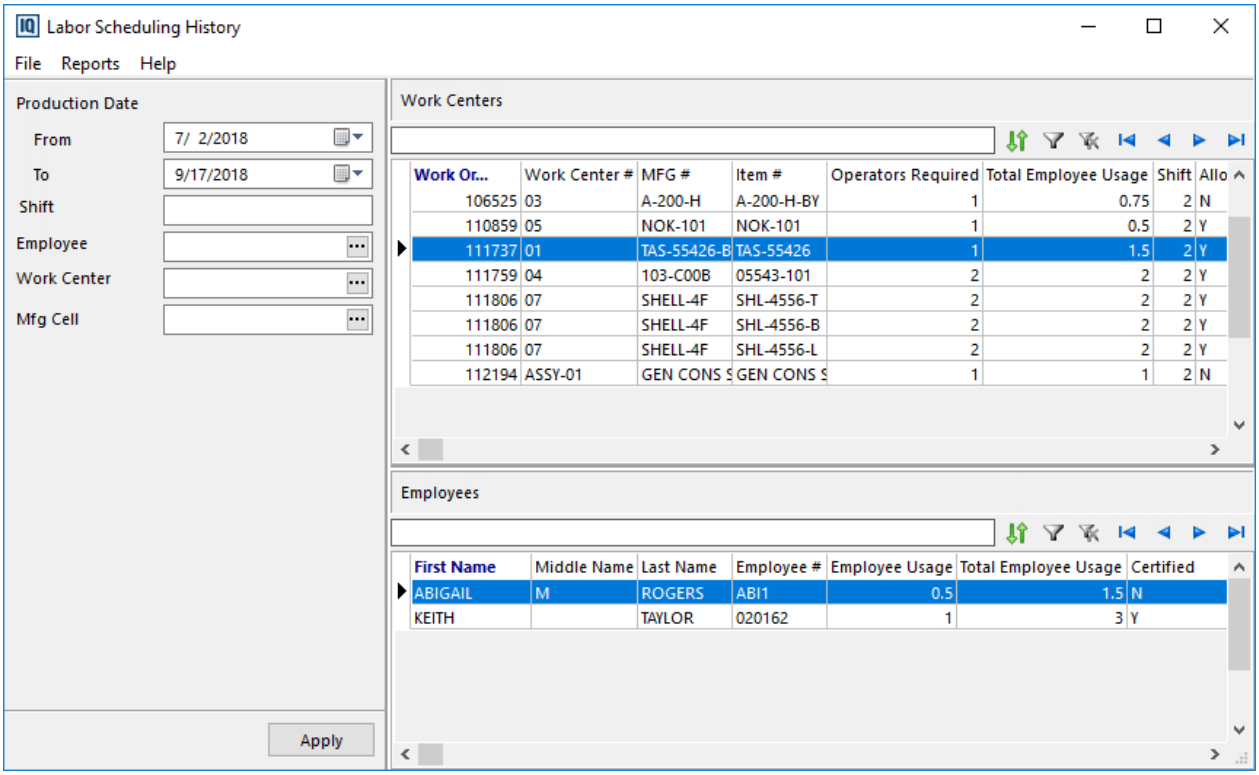
Note: When a BOM does not have attached documents, employees can only be added to the scheduled employees grid if the Allow Non-Certified is set to Yes. When the employee is added to the Scheduled Employees grid the record is color coded white.

From the Time and Attendance->Clock In/Out screen, and IQClock employees can select the **Labor Assignments** button to view the work centers they are scheduled on.

A refresh button is available to refresh the form to see updates.

Labor Scheduling History

From the Options menu users can select 'History' to view the Labor Scheduling History form. This form provides the ability to view which work centers and work orders employees were scheduled on in the past. The labor scheduling history can be viewed based on selected criteria.



Save to History  - On the Labor Scheduling form select this button to save the records to history. This saves the records currently in the form to history tables. When the labor scheduling records are saved to history, the production date and shift is based on the production calendar at the time the record was saved. The system will look to see if there is a calendar setup on the Mfg Cell. If one is not setup, the system will then look at the calendar setup on the EPlant. If one is not setup, the system will look at the default calendar.

Selection Criteria

On the left side of the form there are several options which can be used to filter the history records:

Production Date From and To	Select the production dates from the drop down calendars in the From and To fields. This defaults to one month back from the current date. Once changed the From date will be remembered when the form is reopened.
Shift	Optionally enter a production shift in the field to narrow the results.
Employee	A specific employee can be selected from the pick list accessed from the ellipsis button.
Work Center	The history results can be filtered based on a selected work center chosen from the pick list.
Mfg Cell	Select a Mfg Cell if desired to filter the history records for a specific cell.

Use the delete key to clear a selection that was chosen from a pick list, such as Employee.

Based on the Selection Criteria applied, the history records will appear in the Work Centers and Employees grids.

Work Centers

The top grid contains the same columns as Labor Scheduling, such as: Work Order #, Work Center # and description, MFG #, Operators Required, etc (see above for details), with several additional columns:

EPlant	The EPlant associated to the historical record.
Class	The inventory item's class.
Production Date	The production date and time associated to the record.
Shift	The Shift based on the production calendar.
Changed By	This is the user name that last changed the record.
Last Update	The date and time the record was last updated.
Mfg Cell	The Mfg Cell associated to the work center the work order was run on.

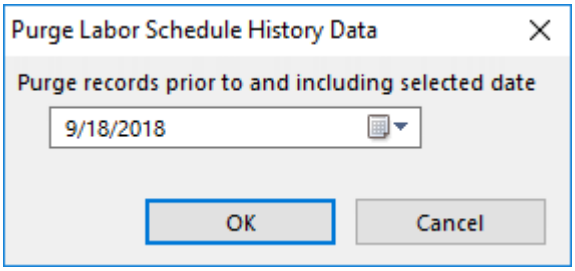
Employees

This grid contains the same columns as Labor Scheduling, but also includes a column for whether the employee was certified or not certified at the time the labor scheduling history records were created.

Purge Labor Schedule History Data

The historical data can be purged using this option. This is useful to reduce the size of the database and improve performance.

Select 'Purge' from the File menu in Labor Scheduling History and the following pop up form will display.



The system will purge the historical records prior to and including the date selected from the drop down calendar. Select OK to continue, or Cancel to not purge the records. After selecting OK a Confirm pop up will display stating: "You are about to purge Labor Scheduling History Data prior to and including mm/dd/yy", with Yes and No buttons. The pop up also includes the 'Do not show next time' check box. Security can be placed on the Yes button and the check box. When OK is selected the system will purge records based on the EPlant the user is logged into. If it is desired to purge records from all EPlants you must log in as 'View All'.

Security is also available for this menu option. To prevent users with the Scheduling Read/Write (IQSCHED_RW) role from purging records remove access to the 'Purge1' security item.

Please refer to the Certified Employees section in the BOM manual for more information on certifying employees..

Other Scheduling Menu Bar Functions

If the user is viewing the Scheduling screen in either GVS or Text view, the menu functions will be slightly different for each of the screens.

Schedule

The Schedule menu includes options such as moving and inserting work orders, as well as the following additional function is available:

- **Bucket End Date** - This function is only available for the work order in the first position. The bucket end date is the last release date within the bucket. To avoid constant changes to the work order quantity to the work order that is running, the system will not add releases to a bucket 1 group if the release is after the bucket end date. This function allows the user to change this date.

View

Under **View**, the following functions are available:

- **Text Mode/ Graphic Mode** - This changes the scheduling view.
- **Filter** - This function enables the user to select for which manufacturing type and/or cell they would like to view the schedule for.

Options

Under **Options**, the following functions are available:

- **Scheduling Parameters…** - This section should be filled in before beginning the scheduling process. It includes default days and hours of production, schedule and run time scopes, safety lead time, Time Fence, override schedule pool window option, and other options.
- **Conflict Evaluator** - This feature calculates when auxiliary equipment has an overlap (conflict). See Conflict Evaluator below for details.
- **Group ID Assignments** - This brings up the Group ID Assignments form with tabs for Unassigned and Assigned work orders. This can be used to group work orders. The Group ID will show on the Work Order form and in pick lists for Finite Schedule, Scheduling Pool, and Work Orders. See Group ID Assignments.
- **Shop Setup** - Be sure you have created shifts and assigned them to the valid work centers before scheduling. Using the Set Calendar function from within Shop Setup recreates and stores weekends/off shift information according to the Shop Calendar Setup parameters.

Capacity

Click on **Capacity** to access the following functions:

- **Rough Cut Capacity** and **Whiteboard Capacity Plan** - Rough cut capacity is defined as the total “time” consumed by your work orders. It does not assume all work orders have been scheduled.The system displays as much data as available, based on scheduled and unscheduled work orders present in the system. Rough Cut Capacity compares available press time based on the Shop Calendar versus required hours for each machine type. For additional information, please see Rough Cut Capacity.

Requirements

The following is available (These reports are discussed in greater detail later in the Scheduling manual):

- **Material Exception List** - The material exception list displays all raw materials (and in some cases component parts) that are required to meet your schedule, but are not available, or are on order. See Material Exception List.
- **Hard Allocated to WO** - This form has two tabs displaying hard allocated material details. The Work Orders tab displays the material that has been hard allocated to a work order, and the the Inventory Items tab displays existing hard allocations by item. See Hard Allocated to WO.
- **Daily Projected Requirements** - Somewhat similar to the Exception list, this list shows all the materials currently being consumed by the schedule. Some or all materials might also be on the Exception list.
- **Daily Material Staging** - **EnterpriseIQ** supports two views of material staging requirements:

  By Material: This tab page shows all materials required within the scope, where those products are needed, and the quantity needed.

  By Work Center: This view shows all work centers with the materials needed at each. Note that a single work center may have one or many materials, and each material may be needed over multiple dates, depending on the range set within the scope.
- **Daily Parts Projection** - This single screen can display the projected production results by item. Key to this ability is the time phasing aspect. As each work order is scheduled, EnterpriseIQ is able to report on the projected production by date.

Labor Capacity

EnterpriseIQ supports the ability to check your available labor capacity via the Labor Capacity form or the Labor Whiteboard Capacity Plan. Please see Labor Capacity for more information. This menu also provides access to Labor Scheduling (see Labor Scheduling).

Configure

Several options are available from the **Configure** submenu as shown here:

- **Existing Locks** - Occasionally the system will prevent a user from running Update Schedule because the system cannot acquire an exclusive lock. Select this to display the name of the workstation causing the lock, the Lock Handle, and Module.
- **Snap to Last Job** - When checked, this command puts the work order you are moving, adding, or editing's start time directly after the work order in front of it.See Snap to Last Job and JIT for details.
- **Zoom In / Zoom Out** (Only available in GVS Mode) - Used to change the time line scale and details. These functions are also located as buttons on the Tool Bar as discussed in GVS tool bar functions.
- **Resetting the Time Line** (Only available in GVS Mode) - The Time Line is the vertical red line that runs before each of your scheduled work orders. It signifies today's date and current time. If you have scrolled too far to the right in viewing work order details and wish to return back to the original starting date, choose this function to refresh your screen and set the time line back to its original state.
- **Show Work Order Details** (Only available in GVS Mode) - This is a toggle switch to be able to view the work order details or not.

- **Grid Options…** (Only available in GVS Mode) - Controls the line height of your scheduling grid. To change the appearance of your grid follow these steps. Select **Grid Options** and a screen will appear that will allow you to increase or decrease the space between the lines of your grid. Choose *Reset Default* to return to the original screen settings.
- **Colors…** (Only in GVS Mode) - Changes the appearance (colors) of your scheduling grid. From this screen, the user can change the *background* and *line* colors of the grid on the screen.

  Example: If you wish to change the background color of your grid so that it is easier on your eyes, select **Background** and choose a color from the color chart. Do the same for Lines. Select [**OK**] when finished to save your changes or Default to return to the original screen settings.

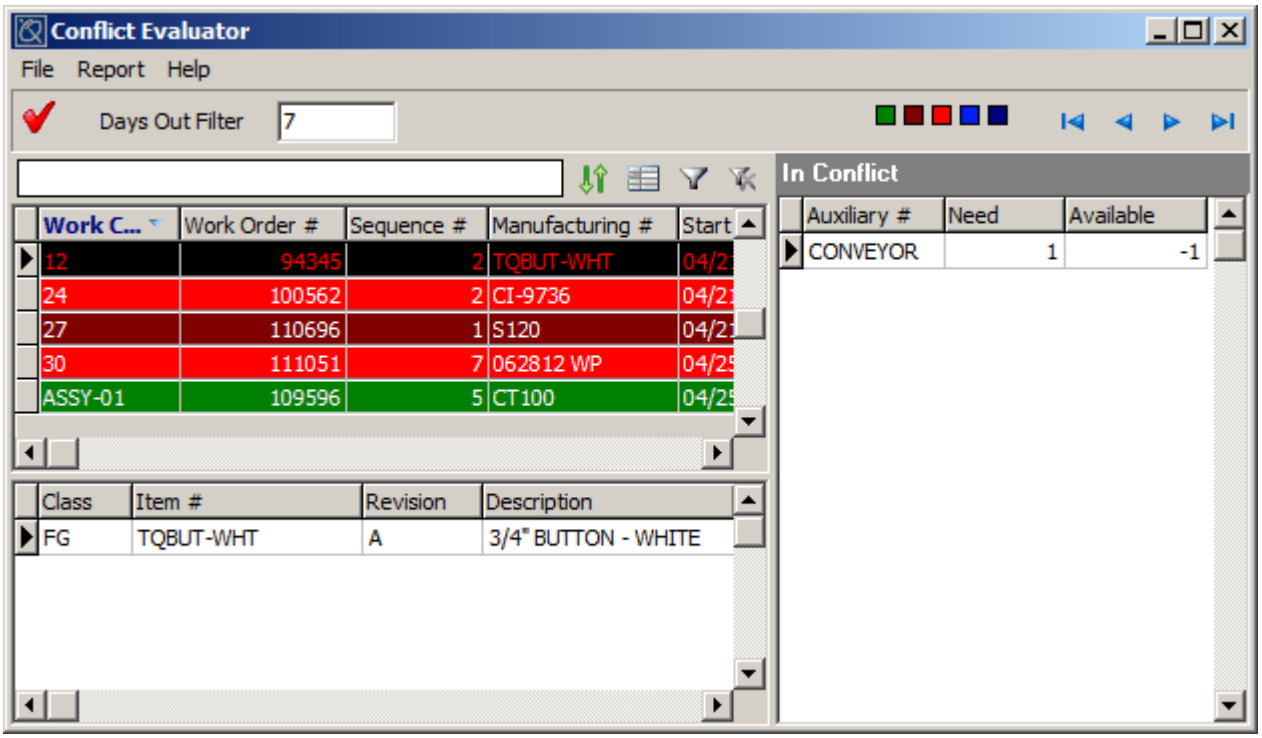
Reports

This menu provides access to the scheduling reports, printer setup, as well as the ability to Print the GVS.

The 'Print to GVS' option is only available when in the GVS view (in text view this option is grayed out). After selecting this option a pop up window will display asking for the date range to print. Once the range is established select OK. The print dialog will display to choose the printer to send the report to. The report is a print out of the GVS screen.

Conflict Evaluator

This feature calculates when auxiliary equipment has an overlap (conflict). The Conflict Evaluator will look at the auxiliary equipment attached to a Process as well as a BOM.



To evaluate conflicts click on the 'Evaluate Process Conflict' button. The left side of the screen shows the work orders that have a conflict. This screen shows work center, work order, Manufacturing #, scheduled position and start and end times. The lines are color coded like they are in the schedule based on whether the work order will be on time or late:

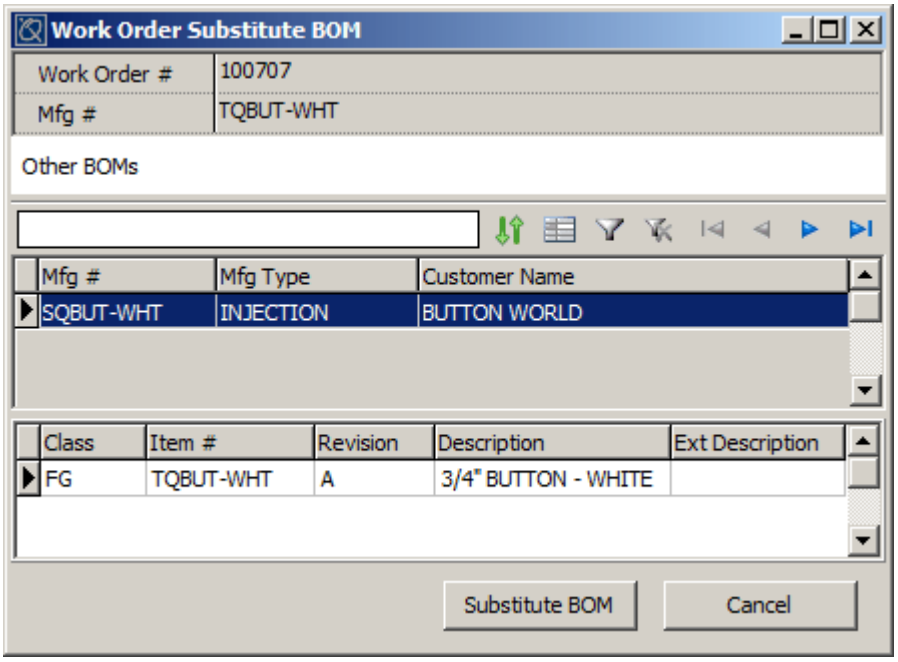
- Green - The work order will be finished on time.
- Brown - The work order will need special (faster) method of shipping.
- Red - The work order will not be finished on time.
- Light Blue - Forecast work order will be finished on time.
- Dark Blue - Forecast work order will not be finished on time

Days Out Filter - The information in the conflict evaluator tool can be limited to only view work orders where the start date is so many days from today. To filter the list to include only work orders for a certain time frame enter in the number of days out in the Days Out Filter field then click the 'Evaluate Process Conflict' button. The list will then display only those work orders that have a start date within that period. For example if you set the Days Out Filter to 7, the list will only display work orders with a start date that is seven days from today's date.

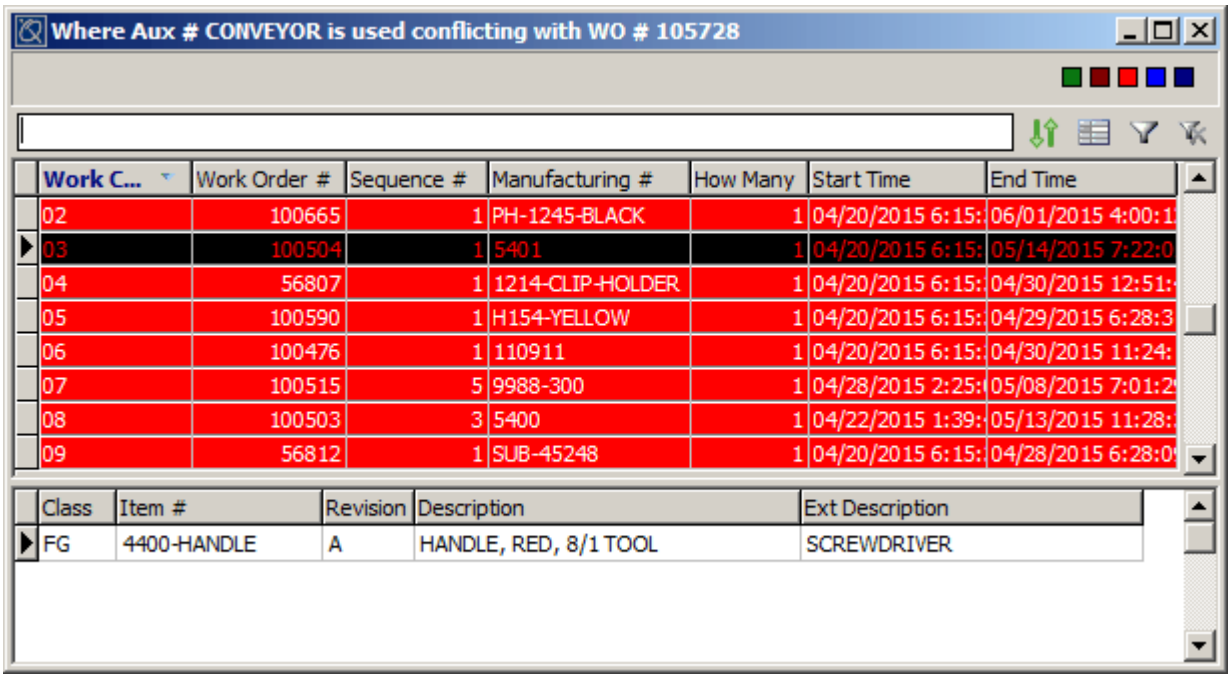
Note: If the days out filter is blank it will default to the 'Scheduling Scope in Days', but will not display in the day out filter.

Right Click Options

- Jump to Schedule
- Jump to BOM
- Show Other BOMs - This option will open a pick list that shows other BOMs that can be used as a substitute for the highlighted work order. This form includes Mfg#, Mfg Description, Mfg Type, Item #, Rev, Description, Ext Description, Class and Customer Name. To use a substitute BOM highlight the correct one and select the 'Substitute BOM' button. The highlighted work order will be marked firm and the BOM selected will be substituted. A confirmation message will display, 'Mfg# xxxxx will be applied to WO # xxxxx" - please confirm to continue.' Select Yes to continue or No to return to the form with no changes.



The right side of the screen shows the auxiliary equipment needed and the number 'available'. To see where the actual conflict is, double click on the right side, or right click and select 'Conflicts With' to view the work centers that are using the highlighted auxiliary equipment.



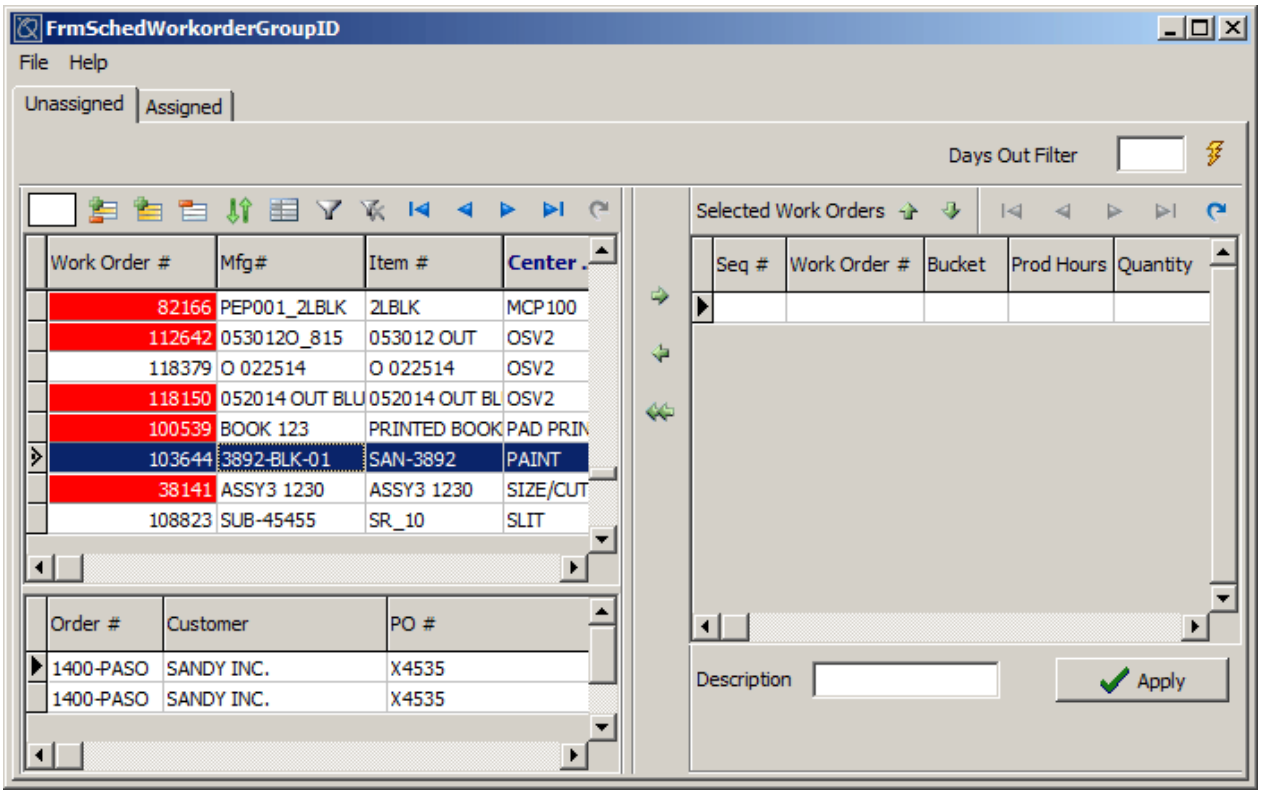
Group ID Assignments

The Group ID Assignments form is accessed from the Finite Scheduling module->Options menu. The Group ID Assignments form allows users to group work orders into the same Group ID. The Group ID will show on the Work Order form and in pick lists for Finite Schedule, Scheduling Pool, and Work Orders.

The screen includes two tabs:

- Unassigned -This will display work orders that have not been assigned to a group. All work orders including Forecast will display.
- Assigned - This will display work orders that have been assigned to a group.

Unassigned Tab



To assign Group ID's select the work orders in the list on the Unassigned tab. The list can be sorted by any column. Columns included are: Group ID, WO #, Manufacturing #, Bkt, Item #, Description, Type, Prod Hrs, Setup Hrs, Cycles Req., Must Start, Customer Name, Ship Date, Promise Date, Request Date , WO Type, Origin, Mfg Type, Mfg Cell, EPlant ID, Revision, User 1 and User 2 fields from the BOM, and Ext Description. There is also an advance filter option to enable users to filter the list for easier selection. The Work Order number field will be red if there is a material exception on the work order.

The lower section includes sales order information such as order #, PO #, and customer for the highlighted work order

A Days Out filter is included to just display work orders with a must start date within the entered number of days and any past due.

Highlight a work order or use the toggle buttons or the Shift and Ctrl keyboard buttons to multiselect work orders to group. Once selected, click on the right green arrow button to add them to the Selected Work Orders section. Work orders can be removed from the Selected Work Orders section using the left single arrow, or use the left double arrow to remove them all.

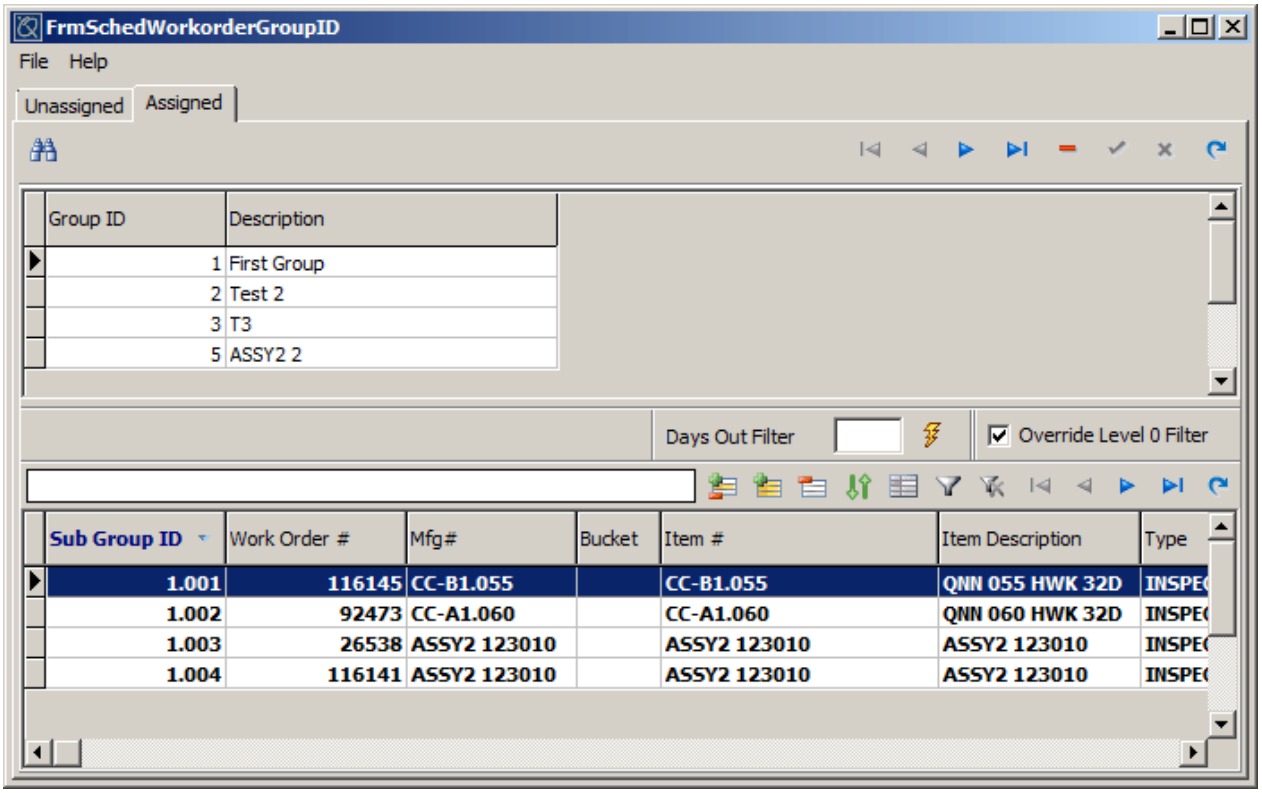
Description Field - This is an optional field that can be used for any notes to describe the group or for messages to the floor such as priority.

Apply - Once the desired work orders have been added to the Selected Work Orders section, click on the Apply button. A confirm message will appear stating, 'About to assign Group ID = xx for selected Work Order(s). Total quantity assigned to the group: xxxx Are you sure you want to continue?'. Select Yes to continue or No to return to the form. When Yes is selected the work orders will be on the Assigned tab with the Group ID assigned. Adding a level zero work order to a group also adds all child work orders.

Note: When added to a group, the work order is marked as Firm.

Assigned Tab

The Assigned tab displays the Group information in the upper grid and the associated work orders in the lower grid.



By default only level zero (top level) work orders are listed in the grid. They will display in bold text. Select the 'Override Level 0 Filter' to display all levels. Lower level work orders will not be in bold text. The first work order added to the group will have a Group ID of x.001, the second will be x.002 and so on.

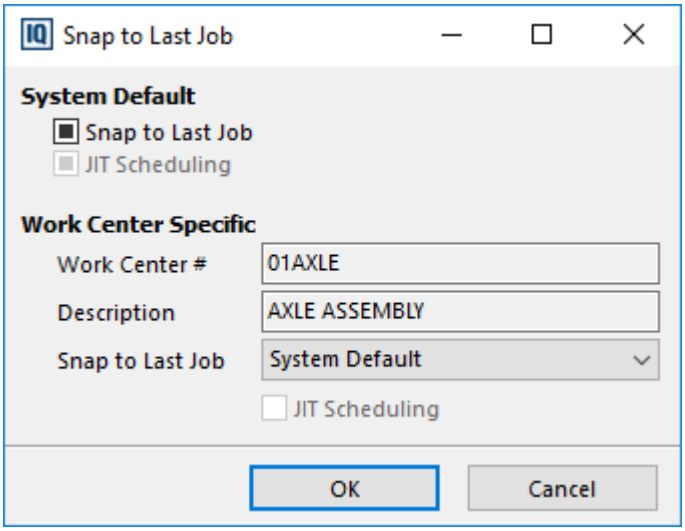
Jump To Work Order - Right click and select Jump To Work Order to access the highlighted work order.

Remove from Group - Assigned work orders can be multi-selected and removed from the group by right clicking and selecting Remove from Group. Work Orders scheduled in Assembly Track cannot be removed. Work Orders can be highlighted using the Shift/Ctrl keyboard buttons or the toggle buttons in the grid. A Confirm message with a Yes and No button will appear stating, 'About to remove selected work orders from Group ID x. Work Orders scheduled in Assembly Track will not be removed. Are you sure you want to continue?'. The removed work orders will be visible on the Unassigned tab.

Note: Removing work orders from a group removes the Firm designation. This cascades to all levels of the work orders that were multi-selected. The work order(s) will be deleted and regenerated by Update Schedule if not Finite Scheduled.

Snap to Last Job and JIT

- **Snap to Last Job** - When checked, this command puts the work order you are moving, adding, or editing's start time directly after the work order in front of it. Basically, it "snaps" to the back of the previous work order unless there is a forced start date. With this unchecked when doing a move in the GVS view the job will stay where it is dropped and will set the force date to the date and time of where it was dropped. This setting is global but can be overridden at the work center level from the Work Centers module or from the Snap To Last Job form in scheduling.
- **JIT** - The 'Just in Time' scheduling option is available from within the Snap to Last Job form if the snap to option is **not** checked. If JIT is checked, when adding a work order from the scheduling pool to the schedule the system will automatically populate the Force Start date with the Must Start date minus the Safety Lead time in days. The JIT setting can be set as a system default but can also be overridden for a specific work center from within this form.



Auto Loading the Schedule

Work Orders can be automatically loaded onto the schedule by using the Auto Load function. Selecting Auto Load creates a backup of currently scheduled work orders, removes those outside the time fence (set up under Scheduling Parameters), and reloads all outstanding work orders based on priority, Tool #, Runs the Best information, and if the work order will be completed at the earliest date. Note, items having the same tool # does not mean they will be scheduled in sequence, but they will be placed on the same Work Center as long as they can be and not be late based on the options selected. Auto load always assigns a force start date unless the job is running late. The system looks at the must start date and the safety lead time and uses that as the force start date. The Auto Load routine will look at the force start date and then look for the best fitting gap where the work order will be the least late from that force start date.

The system uses the following Scheduling Parameters for Auto Load:

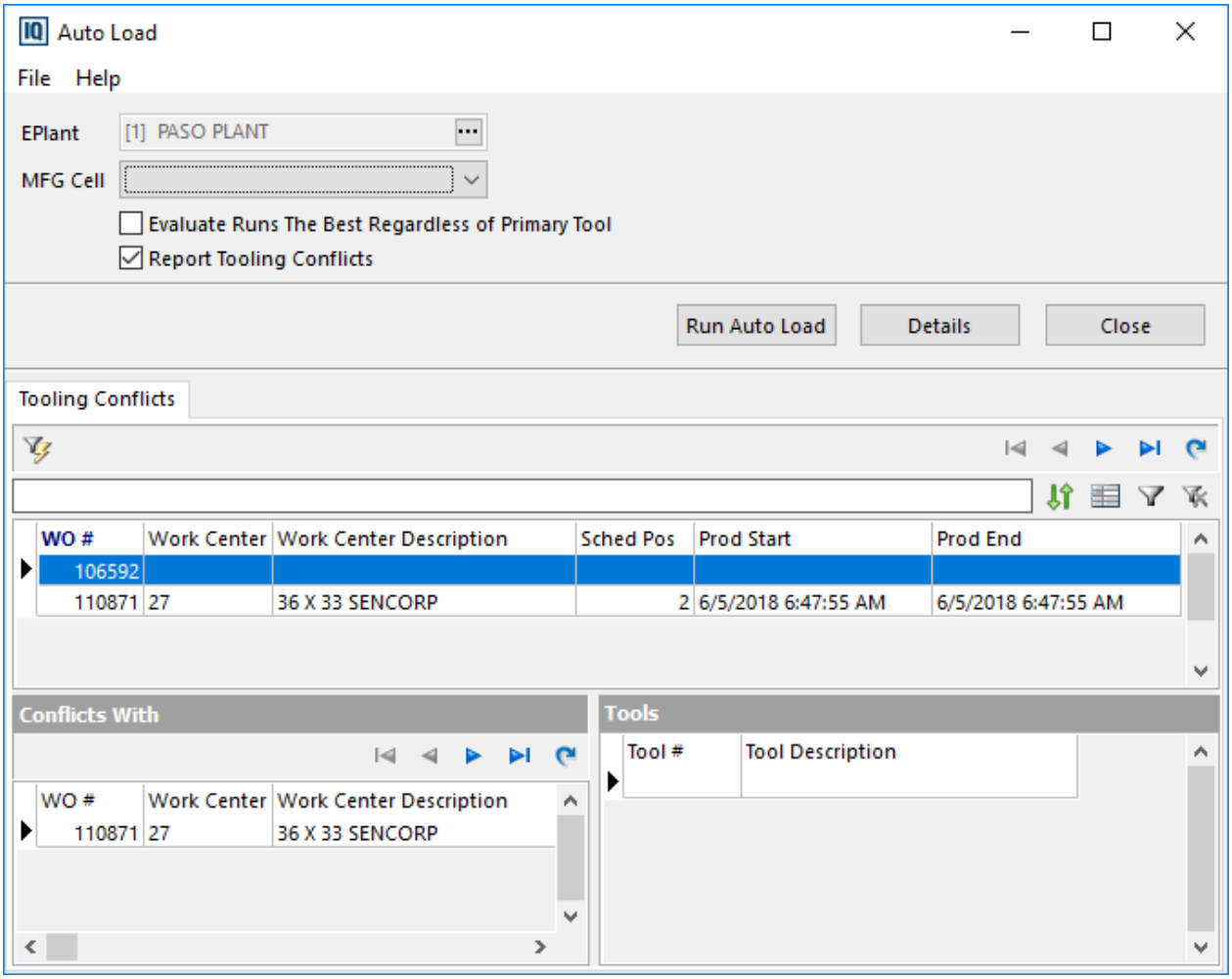
Backward pass late work orders	This option is used in conjunction with Auto Load. When a work order is loaded onto a work center, if it is late due to preceding work orders, the preceding work orders will be scheduled to start earlier if possible and by the amount of time the last scheduled work order was late. When this option is checked, during auto load, when a work order is added to the work center, it will be evaluated to determine if the scheduled production start time is later than the (must start date - lead time). If the work order is late, the amount of production time that the work order is late will be evaluated against prior work orders' production end times to see if there is enough combined gaps that will prevent a late work order from being late. Move time is considered so the system will not schedule jobs to start before move time would allow. This process may shift several work orders to run earlier than the must start date – lead time due to a single work order that is late. Dependent work orders will not be moved ahead of their predecessor's production end time.
Cut Off Scope (days)	The Auto Load Cut Off Scope is used to limit the work orders that are auto loaded to todays date + Cut Off Scope. No work orders that are outside this date range will be auto loaded regardless of their Must Start Date.
Report Tooling Conflicts	With this option checked the system will evaluate potential tool conflicts during the Auto Load process. The conflicts will be displayed in the Auto Load form. Please see Report Tooling Conflicts in the Auto Loading the Schedule section for more information.
Run Auto Load with Update Schedule	When this parameter is checked, the system will run Auto Load in between IRV32 and IQCapacity. With this checked, the MRP Engine will create new work orders based on demand. Auto Load schedules the work orders on the finite schedule. Capacity planning then will create material required dates based on the finite schedule.

Safety Lead Time	The Safety Lead Time is only used with the Auto Load feature, and specifies the number of days prior to the must start date that the system should schedule the production run. The value entered in the scheduling parameters is global. This value can be set up per customer which will override the global value set here. This field is in Customer Maintenance on the Misc tab (AR/Customer Maintenance/Misc/Safety Lead Time field). For example, if your work order has a must start date of 06/15, and the Safety Lead Time value is set to 10, then the auto load feature will attempt to schedule the work order on 06/05 in an appropriate work center. When converting 'Safety Lead Time in Days' to hours for the Auto Load calculation the system finds the Hours per Day for the work center and uses that instead of 24 hours to ensure the number of days are logical. Note: If Snap To Last Job is checked the system will ignore the Safety Lead Time.
Time Fence (Days)	The time fence value is also used in conjunction with the Auto Load feature. It is used to "lock in" work orders, protecting the current schedule. For example, if you want to maintain the next seven days of scheduled work orders, but want Auto Load to re-arrange the rest of the work orders, set this value to seven. When Auto Load runs, any work orders on any work centers with start dates within the next seven days will not be re-positioned or moved. Notes: The work orders scheduled in the first two positions are by default always protected regardless of the time fence. The system will never remove them and re-schedule them. A Time Fence can be set at the work center level which will override the global value set in scheduling parameters for that work center.

Running Auto Load Manually - Auto loading the schedule can be done for all EPlants at once (only if logged in as View All), for a single EPlant, or for an individual manufacturing cell in a single EPlant. The filter is automatically set based on the EPlant the user is logged into and the cell the user selected when entering the scheduling module. The cell can be overridden but not the EPlant.

Note: It is recommended to run Auto Load for all cells at the same time when dependent demand is coming from other cells to avoid conflicting scheduled Start dates.

From the File menu in Scheduling, select **Auto Load…->Run Auto Load** and the following form will appear. Note that the Tooling Conflicts details will automatically display if the option is selected, or the user can select the Details button to display them:



The EPlant field will populate based on the EPlant the user is logged into and cannot be changed unless the user is logged into View All. If the user selected a manufacturing cell when entering the schedule that cell will be displayed in the Mfg Cell field. This field can be changed by selecting a MFG cell from the drop down list. Only the MFG cells associated to the EPlant will appear.

Evaluate Runs The Best Regardless of Primary Tool - If this is checked, from the top of that sort the WOs are loaded into the work centers based on where they 'Run the Best' as long as they are not late. If they are late the system goes to the next Work Center in the 'Runs the Best' list until it finds a work center on the list the WO will be on-time or least amount late. If it is unchecked, the last primary tool scheduled on each Work Center is evaluated before the 'Runs the Best' list. If a matching primary tool is found the WO will be scheduled in that work center no matter what (even if the work center is not one on the BOMs runs the best list). This ensures that work orders that use the same tool (for example, the same part but multiple colors) are all run on the same work center. Scheduling it in on another Work Center would not work as the primary tool can only be used in one work center at a time.

Select the **Report Tooling Conflicts** option to display any potential conflicts after Auto Load is run. See Report Tooling Conflicts below for more information.

By default, if the system must auto load a manufacturing work order so it will be late due to capacity constraints, for Generic work orders that are associated with this manufactured item the generic work order's must start date will be modified and auto load will then schedule that generic work order based on the modified must start date.

Select the **Run Auto Load** button. A confirm box will display. Select Yes to continue or No to return to the Auto Load form.

Auto Load will perform the following:

1 All work orders (WOs) are removed from the schedule except the first two or those that fall within the time fence.

2 The unscheduled WOs are sorted by Must Start Date.

1. If **Evaluate Runs The Best Regardless of Primary Tool** is checked, from the top of that sort the WOs are loaded into the work centers based on where they 'Run the Best' as long as they are not late. If they are late the system goes to the next Work Center in the 'Runs the Best' list until it finds a work center on the list the WO will be on-time or least amount late.
2. If **Evaluate Runs The Best Regardless of Primary Tool** is unchecked, the last primary tool scheduled on each Work Center is evaluated before the 'Runs the Best' list. If a matching primary tool is found the WO will be scheduled in that work center no matter what (even if the work center is not one on the BOMs runs the best list). This ensures that work orders that use the same tool (for example, the same part but multiple colors) are all run on the same work center. Scheduling it in on another Work Center would not work as the primary tool can only be used in one work center at a time. If the WO's primary tool is not currently loaded in a Work Center the system will proceed using the work centers based on where they 'Run the Best' as long as they are not late (the start date is at or before the Must Start Date). If they are late the system goes to the next Work Center in the 'Runs the Best' list until it finds a work center on the list the WO will be on-time or least amount late. The system therefore attempts to schedule all current work orders, with the exception of those within the Time Fence (see below).

3 If the WO's primary tool is not currently loaded in a Work Center and Runs the Best is not setup, the system will proceed using the work centers based on the Center Type.

4 An <A> suffix will be added to the 'Start Time' on the finite schedule when the job is auto loaded. If the user forces a start time it will have a <F>. If a job with an <A> suffix is moved, the <A> suffix will be removed. If a job with a <F> suffix moved, the suffix will remain. When moving a work order on the same work center or another work center the system will remove the Force Start Date if the source is 'A' (set by Auto Load). If force start time was set by a user (the source is 'U' (<F> suffix) the system will leave the force start time. When a work order with a Force Start Date is moved into Seq#1 the start time is updated to be current time, since it is currently running. The system will also remove the <F>. If the Work order is moved back into a position below Seq#1, or on to a different work center than previously assigned, the force start date will be retained. Note: If the job is later 'snapped to' the previous job, the suffix will no longer appear as the snap to operation removes the auto load source, this will also occur when the start time of the job is the exact same time as the end time of the previous job, even if Snap to Last Job is unchecked.

Note: If the runs the best information for the BOM is populated (manual or system calculated) the system will use the work centers in the runs the best list unless it finds a match to the last primary tool scheduled on a work center.

Note: If the Backward pass late work orders parameter is checked, when a work order is loaded onto a work center, if it is late due to preceding work orders, the preceding work orders will be scheduled to start earlier if possible and by the amount of time the last scheduled work order was late.

A backup of the current schedule is always generated prior to changing work orders and schedules, so you can restore the former schedule. Please note, **EnterpriseIQ** only stores the last schedule and does not save any others.

Notes:

The work orders scheduled in the first two positions are by default always protected regardless of the time fence. The system will never remove them and re-schedule them. If jobs were scheduled into the first two positions during the auto load process they will not be removed if the former schedule is restored.

Auto load will first load work orders marked Priority over non-priority work orders.

The Auto Load process does not look at potential auxiliary equipment conflicts. If multiple work orders require the same auxiliary equipment it is possible for the system to load them into positions occurring at the same time.

A work center can be marked to be excluded from the auto load process. In the Work Center module there is a check box, 'Exclude from Auto Load'. Select this option to prevent the system from auto loading work orders to that work center.

There is also a check box in the Runs The Best list for specific BOMs called 'Do Not Autoload'. If this is checked, the work center will not be considered for that configuration when running auto load.

With the 'Evaluate Negative Consumption' scheduling parameter checked, if there is no safety lead time then a parent work order may be scheduled after it's must start date if the child will not be finished in time due to capacity constraints.

The system will prevent two users from running auto load against the same cell at the same time. The acquired lock will not prevent auto load from being run against different cells at the same time.

Parent work orders will be forced to start later and/or out of order (based on Must Starts) if their child work orders get scheduled later than the parents must start, regardless if Evaluate Negative Consumption is turned on.

Once work orders have been auto-loaded, you can manually continue to manipulate the schedule.

Backup and Restore

Also available is backup and restore from the File->Auto Load menu. Use the **Restore** method to replace the newly generated schedule with the backup. During the auto load process the current schedule is automatically backed up but the user can manually back up a schedule at anytime by selecting the backup option. Only one backup can exist, so whatever the last backup was will be what the schedule will be restored to.

Time Fence

Time Fence is located under Scheduling Parameters in the Schedule Module. In this field, enter the number of days to leave auto-loaded work orders in the schedule. A time fence can also be set at the work center level which will override this global value for that work center. When auto load runs, the system removes all work orders (except those in the first two positions) and will rearrange them based on the new parameters entered in this field.

The user can lock in the number of days of the schedule you want left in. For example, you want to leave the first two weeks of the schedule. Set your time fence to 14 days. Nothing running for the first 14 days will be rearranged.

Safety Lead Time

This feature is also related only to the Auto Load function. Go to Options/Scheduling Parameters and enter in the number of days prior to the must start date that the system should schedule the production run. This value can also be set up per customer which will override the global value set in Scheduling Parameters. This field is in Customer Maintenance on the Misc tab (AR/Customer Maintenance/Misc/Safety Lead Time field).

When converting 'Safety Lead Time in Days' to hours for the Auto Load calculation the system finds the Hours per Day for the work center and uses that instead of 24 hours to ensure the number of days are logical.

For example, if your work order has a must start date of 06/15, and the Safety Lead Time value is set to 10, then the auto load feature will attempt to schedule the work order on 06/05 in an appropriate work center. It will not schedule the work order any earlier than the must start date minus the safety lead time. The work order will not be run ahead of its time.

Note: If Snap To Last Job is checked the system will ignore the Safety Lead Time.

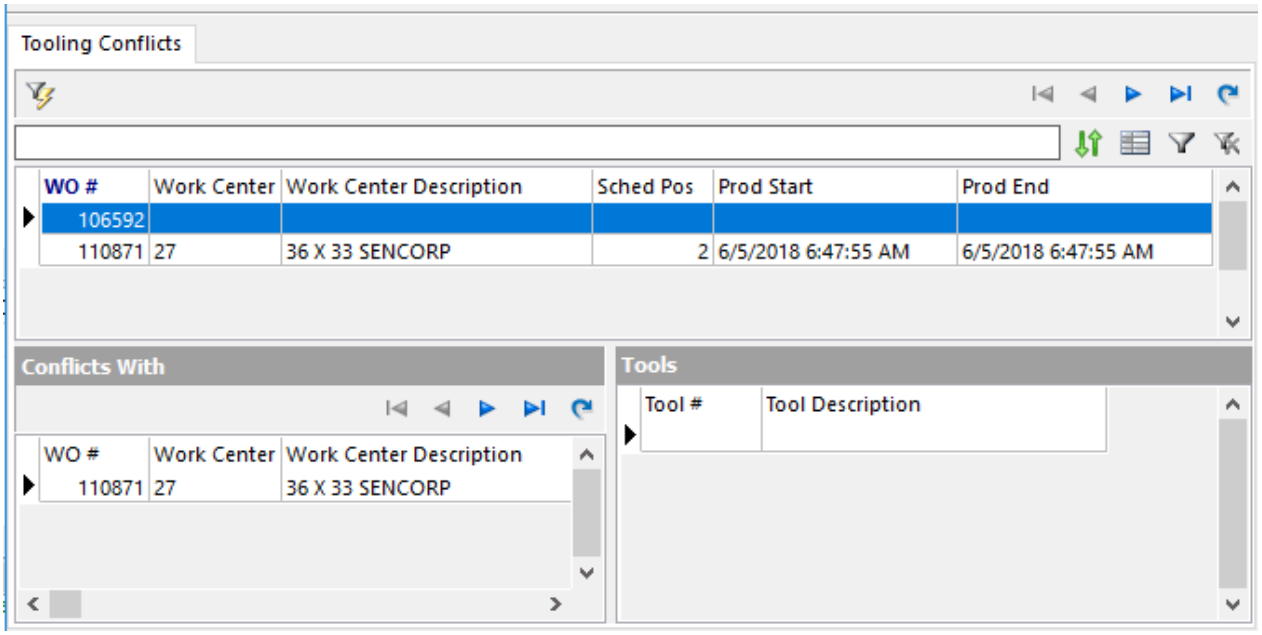
Forecast Work Orders and Auto Load

If work orders have been generated from the Forecast module they will be auto loaded like other types of work orders unless the Hide Forecast Information option is selected in Scheduling Parameters.

Report Tooling Conflicts

A tooling conflict is where the same tool is required on more than one work center at the same time. If the option to report tooling conflicts is selected the lower portion of this form will display any potential conflicts after Auto Load is run. This option can be set in the scheduling parameters or overridden from this form. This will provide the scheduler with additional information so they can avoid potential tool conflicts. This does not prevent the system from loading the jobs where there are potential conflicts.

Once Auto Load is run the conflicts will be listed in the lower section. The system will show the work orders that have a conflict based on the tools associated to the BOM. The upper section lists all of the work orders with a tool conflict. The lower left section will list the work orders that are in conflict with the highlighted work order. Both of these sections show the work center and position where the work order is scheduled as well as the production date information. Users can right click and select '*Jump to Schedule*' to access the schedule where the conflict occurs. The tool that is causing the conflict will be listed in the lower right section. All tools associated to the BOM will be evaluated for conflicts, not just the tool marked as the primary.



The user can also select the Apply Selection Criteria speed button to launch the query based on the settings from above.

Troubleshooting Auto Load

Below are possible reasons why a work order is not scheduled during auto load:

- If the 'Hide Forecast Information' Scheduling parameter is checked, Forecast work orders will not be auto loaded.
- If the work order's must start date field (workorder.start_time or workorder.autoload_start_time) is null.
- For Forecast work orders if the item has the 'Exclude Forecast Work orders from Schedule' it will not be auto loaded.
- If the forecast work order's must start date does not fall between the current date and the 'Forecast WO Cut Off Scope' associated to the item (Inventory->Manufacturing tab) or if null the global scope set in Scheduling Parameters, it will not be auto loaded.
- The EPlant and MFG Cell (unless null) must match.
- If it is an ASSY1 work order it must be in Assembly Track.
- If the ASSY1 work order process has the 'Exclude from Finite Scheduling' option checked.
- Rework work orders will not be auto loaded.
- Complex work orders will not be auto loaded.
- A work order will not be auto loaded if the 'runs the best' work center has the 'Exclude from Auto Load', or has been marked 'Inactive', or is not in the EPlant or MFG Cell being auto loaded
- If the BOM does not have runs the best work centers, the system uses the work center type. A work order will not be auto loaded if the work center type has the 'Exclude from Auto Load', or has been marked 'Inactive', or is not in the EPlant or MFG Cell being auto loaded.

Planning - Materials and Capacity

From the Scheduling menu (in either view), select **Requirements** to display a list of functions designed to provide material planning options.

The information that is displayed in the various reports is based on the last time update schedule was run. Also, remember that the accuracy of the Open Orders and Inventory files are critical to successful material planning. These reports are affected by the information on the **general tab** in **inventory**. Such as: lead days, multiples of, Safety Stock, etc. Please see the Main Inventory Screen section for more details on these fields.

MRP Parameters

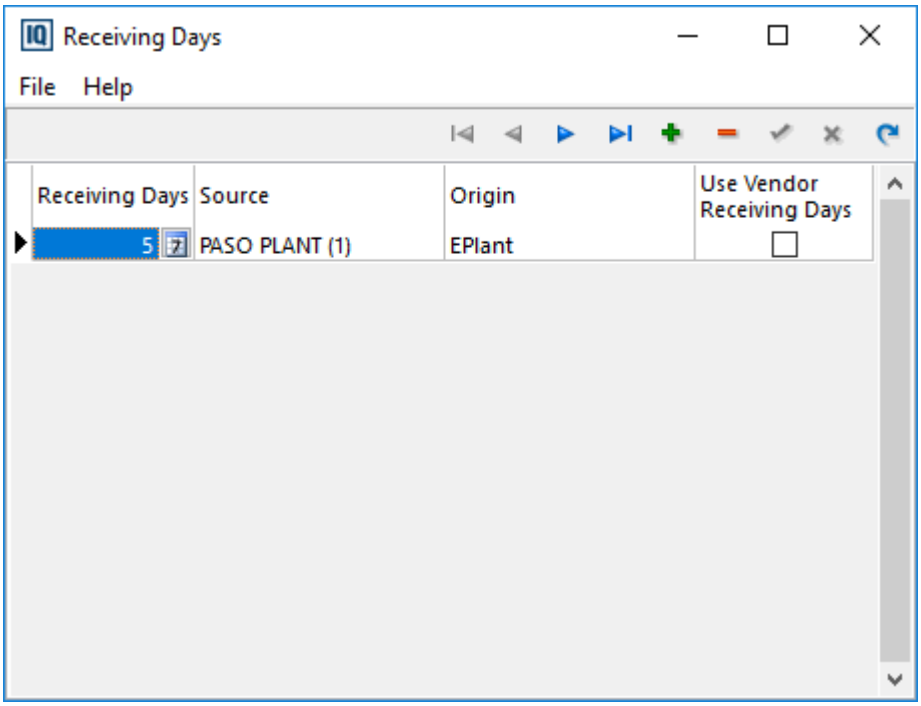
The following parameter fields are found on the General tab in Master Inventory. (Note: These values can be set up for purchased items for a specific division, which allows for different settings for divisions with different requirements).

- **Lead Days** - days between must order by and should arrive by.
- **Inspection Lead Days** - Additional days required for inspection. This will be subtracted from the must arrive date.
- **Multiples of** - The standard packaging quantity. This will round the requirements to the next multiples of for logical quantity ordering. (Note: This can be entered on the AKA Buying tab which will override the master inventory value).
- **Minimum & Maximum** - system will display a warning when blanket quantity on the PO is less than minimum or exceeds maximum amount.
- **Safety Stock** - to maintain minimum stocking levels.
- **PO Safety** - adds an additional number of days in which to bring the material on board. The days between should arrive by and must arrive by.
- **PO Scope** - is used to determine the number of days of material requirements that should be fulfilled as a single PO release quantity. Controls how much material to receive in against blanket order (i.e. only want to order enough material to complete production requirements over the next 7, 14, 21 days, etc.)
- **PO Range** - This is the number of days before and after the Should Arrive By date that are evaluated on the Ideal vs. Existing tab (and is when the middle grid also displays yellow in Projected Exceptions). The Ideal vs. Existing evaluation tool makes recommendations on how your current purchase orders might be re-arranged to acquire materials more efficiently. The Range value provides a baseline for making some of these assumptions. The suggested actions are based on comparing the 'Should Arrive' date of current PO releases compared to Should Arrive By dates for current order demand. If the promise date falls within the PO Range the system recognizes it as meeting the demand.

Receiving Days

Within the Material Exceptions list users can establish which days they receive on. This will ensure the Must Arrive By date is on a day receiving is allowed. If the calculated Must Arrive By date falls on a non-receiving day the system will back it up to a valid receiving day.

Select Receiving Days from the File menu and the following form will appear:



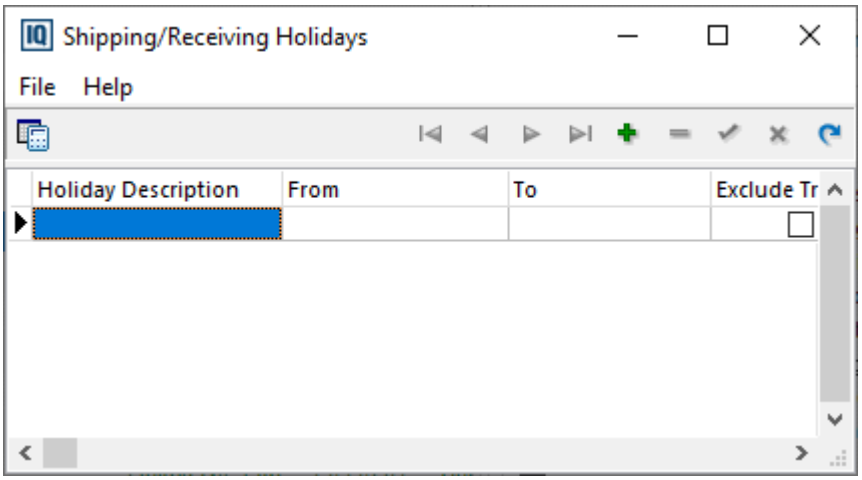
From this form the Receiving Days can be established for the system and for specific EPlants. Users can choose to select the 'Use Vendor Receiving Days' check box so the system will use the default vendor's receiving days (Vendor Maintenance->Miscellaneous tab) instead of the global setting.

If the 'Use Vendor Receiving Days is checked', the system will look for a vendor on the AKA Buying record marked as the Default for the item, or an existing PO. If the Vendor Receiving Days is set for the vendor, they will be used for calculating Must Arrive By and Vendor Receive. If the vendor is found but does not have Vendor Receiving Days established, the Material Exception List receiving Days will be used. If the Use Vendor Receiving Days option is not checked, the system will use the global Receiving Days (Default or EPlant) established in Material Exceptions.

Select the insert button, then click the button in the Receiving Days field. Select the days to allow receiving on the pop up form. The first entry made in this form will default to System as the Source and Origin as Default. To change the source/origin, select the ellipsis button in the Origin field and select a specific EPlant from the One Plant drop down list. To change the record to the default, select the Unassign option.

Shipping/Receiving Holidays

Receiving Holidays can be created which will be used in Material Exceptions for calculating the Must Order By, Must Arrive By and the Should Arrive By dates. Access Shipping/Receiving Holidays from the File menu of the Ship Via form or from the Lists menu in System Parameters.

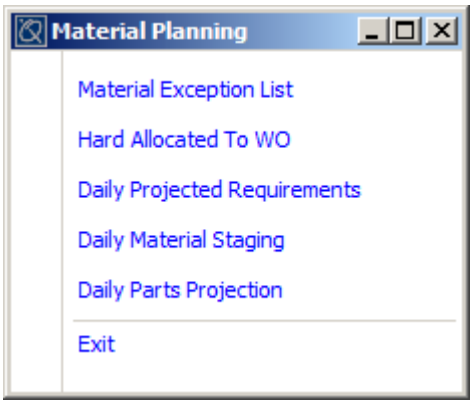


Enter a Description of the Holiday then enter the From and To dates using the drop down calendar. For a one day holiday it is important to add the times as well by arrowing to the right of the date field or enter in two consecutive days without the time information. The system defaults to midnight. For example, for a Holiday on July 4th, the user should enter From July 4 and To July 5. If the same date is used in the From and To with hours added the system will not recognize it as a holiday.

Shipping/Receiving Holidays can be **EPlant** specific. If the Shipping/Receiving Holidays are for a single EPlant click on the ellipsis button in the field and then select the EPlant from the 'Assign EPlant' form. The system will use the holidays where the EPlant ID is null or where it matches the EPlant ID of the record.

Material Planning Tools

Access to Material Planning tools is also available on the PO/Receiving tab of the EIQ Launcher bar. There is a Material Planning button  to access the Material Planning tools. When selected the Material Planning form will list the areas users can access to aid in the purchasing process for required materials.



For information on these tools see the sections below.

Material Exception List

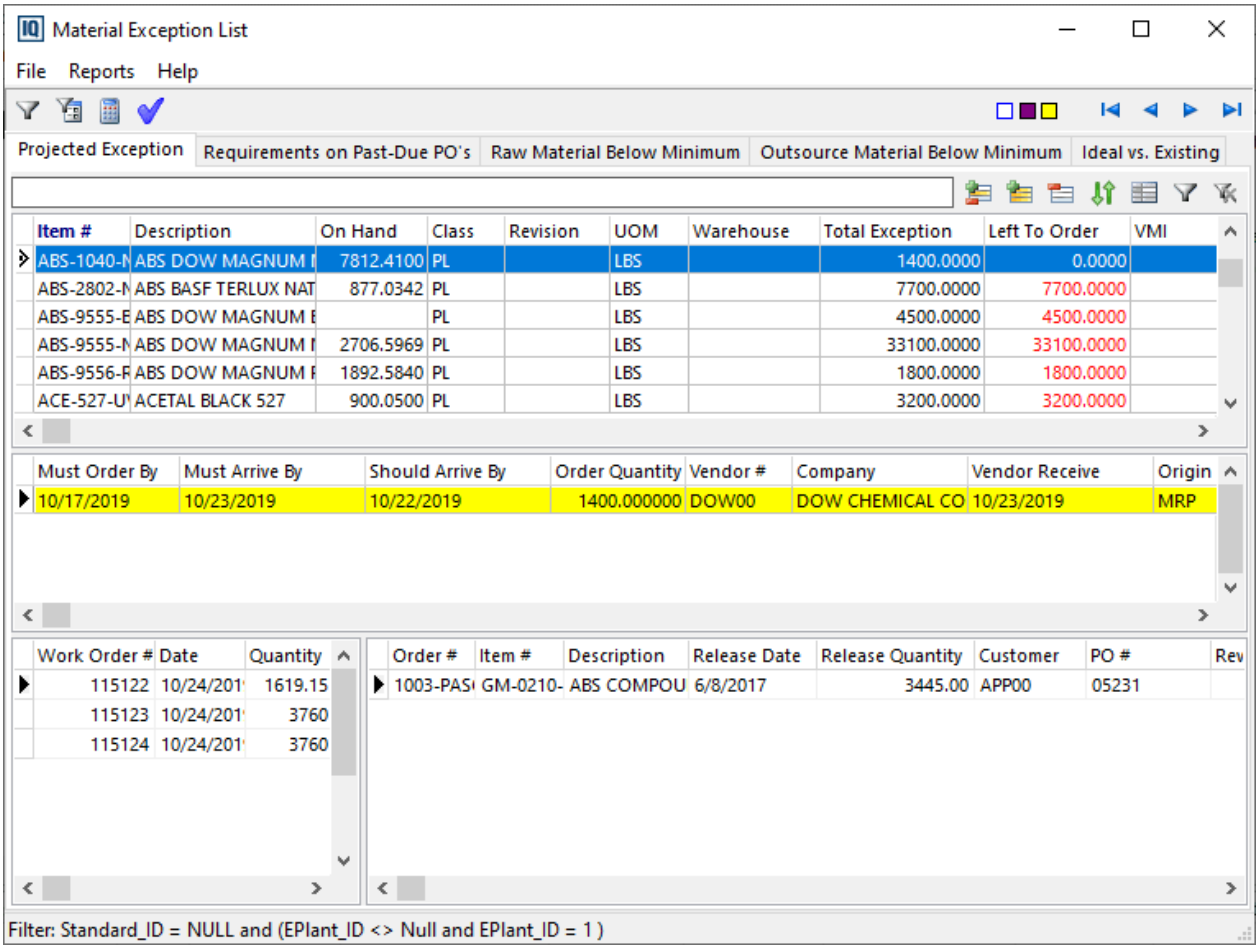
The material exception list area contains five tabs with useful information for purchasers. Projected Exception, Requirements on Past-Due POs, Raw Material Below Minimum, Outsource Material Below Minimum, and Ideal vs Existing.

The material exception list displays all items that are required to meet your schedule, but show a shortage at some point during the production process. It is a very useful material planning screen because it contains not only what items are needed, but when they are needed and in what quantity. In addition, this list shows the associated work orders and sales orders demanding the item which created the material requirement.

Note: Attached components marked as Exclude from Backflush on a BOM will not show up on the Material Exceptions.

Note: Running 'Update Schedule' is the only way to ensure up-to-date Material Exception information at any point of time.

Note: If there is demand for any of the items in a family tool, the system will generate 'family demand' for the other family items. This will ensure attached material/components are planned for all of the family items. If cavities are closed for any of the family items, material/components will not be planned for the item with zero actual cavities.

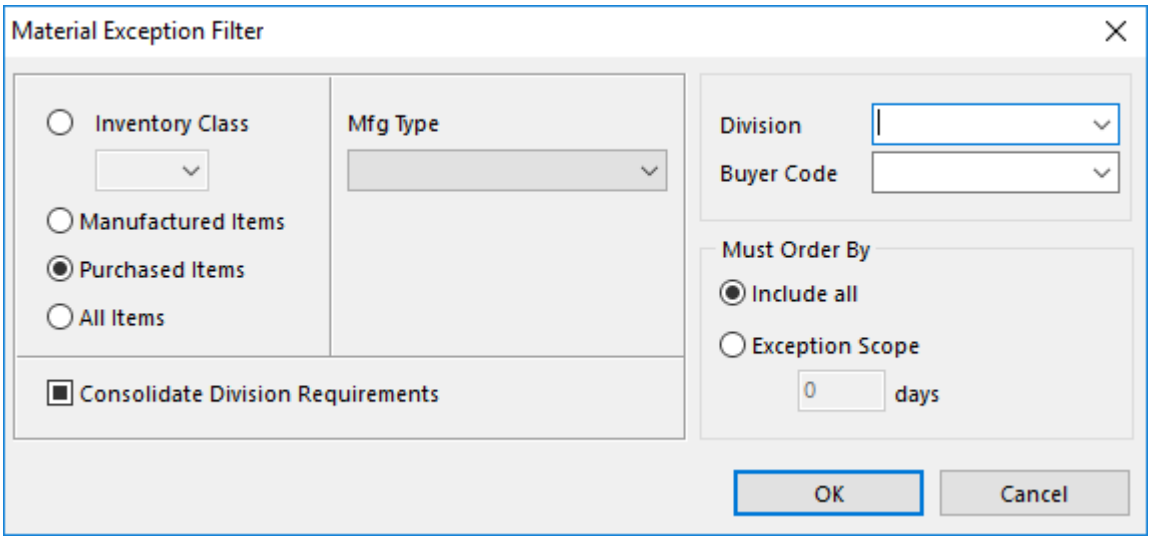

Material Exception List
File
Reports
Help
Projected Exception
Requirements on Past-Due PO's
Raw Material Below Minimum
Outsource Material Below Minimum
Ideal vs. Existing
Item # | Description | On Hand | Class | Revision | UOM | Warehouse | Total Exception | Left To Order | VMI
ABS-1040-N | ABS DOW MAGNUM I | 7812.4100 | PL | | LBS | | 1400.0000 | 0.0000 |
ABS-2802-N | ABS BASF TERLUX NAT | 877.0342 | PL | | LBS | | 7700.0000 | 7700.0000 |
ABS-9555-E | ABS DOW MAGNUM E | | PL | | LBS | | 4500.0000 | 4500.0000 |
ABS-9555-N | ABS DOW MAGNUM I | 2706.5969 | PL | | LBS | | 33100.0000 | 33100.0000 |
ABS-9556-F | ABS DOW MAGNUM F | 1892.5840 | PL | | LBS | | 1800.0000 | 1800.0000 |
ACE-527-U | ACETAL BLACK 527 | 900.0500 | PL | | LBS | | 3200.0000 | 3200.0000 |
Must Order By | Must Arrive By | Should Arrive By | Order Quantity | Vendor # | Company | Vendor Receive | Origin
10/17/2019 | 10/23/2019 | 10/22/2019 | 1400.000000 | DOW00 | DOW CHEMICAL CO | 10/23/2019 | MRP
Work Order # | Date | Quantity
115122 | 10/24/201 | 1619.15
115123 | 10/24/201 | 3760
115124 | 10/24/201 | 3760
Order # | Item # | Description | Release Date | Release Quantity | Customer | PO # | Rev
1003-PAS | GM-0210- | ABS COMPOU | 6/8/2017 | 3445.00 | APP00 | 05231
Filter: Standard_ID = NULL and (EPlant_ID <> Null and EPlant_ID = 1)

 The user can also set the EPlant view by clicking on this speed button and selecting the EPlant or view all. This applies to all tabs.

 This calculator button is used to recalculate the material exceptions after a purchase order has been entered to mark the line item yellow. This is equivalent to running Update Schedule, but does not create/update work orders. To make sure the exceptions are current the user should run update schedule.

 Select this button to display the Exception Details for the highlighted item, This can also be done by double clicking on an item or by highlighting an item and clicking on the [enter] key.

 The **filter** button brings up the following Material Exception Filter dialog box:



The Material Exception Filter allows the user to filter the items on that will display on the exception report. The user can filter the items based on the following options:

- **Inventory Class** - Select this option and then select the specific class from the drop down list. Only items with that inventory class will display on the exception report.
- **Manufactured Items** - Will display only manufactured items (those with a default manufacturing number).
- **Purchased Items** - Will display only purchased items (those without a default manufacturing number).
- **All Items** - Will display all items.

Once the type of items are selected the user can further filter the exception list based on:

- **Mfg Type** - Select a Mfg Type from the drop down list. When selected the upper grid of the exception list will be filtered by the Mfg Type of the Work Order that is associated to the exception. Only manufactured items on a BOM of the filtered Mfg Type will be shown, not demand from lower levels of the BOM.
- **Warehouse/Division** - Select the Warehouse/Division from the drop down list. Warehouse/Divisions are attached to master locations in inventory (not to items). When an order is entered against an item with a BOM, it looks up the division on the cell and allocates inventory based on locations with a matching division. Purchase order receipts are posted to inventory locations attached to divisions. Material requirements are division specific also and specific inventory PO Parameters (Min Order, Max Order, Reorder Point, PO Safety, Scope and Range) can be set up by Division which allows users to enter specific settings for situations where different Warehouses/Divisions have different needs.
- **Buyer Code** - Select the Buyer code from the drop down list. The Buyer Code list is created by the user (Inventory->Options->Buyer Code) and then Buyer Codes are assigned to inventory items. Please see **Buyer Code** for more information.
- **Must Order By** - This limits the information displayed to items with a Must Start Date from today's date through the number of days entered in the Exception Scope field. It will also include any scheduled work orders with a start date of today, regardless of the Must start Date. Select the Include All option to display all information regardless of Must Start date.
- **Consolidate Division Requirements** - By default the system will display the material requirements based on the warehouse/division they are required in (see the Division field description in the table above). Users can select this option to consolidate the demand for the EPlant which applies to both projected exceptions and raw material below minimum. If 'Consolidate Division Requirements' is un-checked when a PO line item is added through Material Exceptions List, it will automatically populate with the division associated to the item in Material Exceptions. If this option is checked the division on the PO line item will be the one associated to the Ship To address. Note: If 'Consolidate Divisional Requirements' is enabled/disabled after update schedule has already been run, the user will either need to run update schedule again or select the 'Calculate Material Requirements, Ideal vs. Existing, and Daily Material Requirements' button in order to consolidate/unconsolidated the requirements. Security can be placed on this check box.

Note: The advanced search filter and multiple sort criteria options are available from the exceptions lists to enable users to sort and find specific records more easily. Refer to the Pick Lists section in the Using EnterpriseIQ portion of the help files for more information on these features.

Projected Exception List

The **top section** of the list shows items the system has determined are needed to complete the schedule, but that show a shortage at some point during the production process. Material will be an exception until it has been received through the system.

Note: Running 'Update Schedule' is the only way to ensure up-to-date Material Exception information at any point of time.

The line items on this report may be color coded giving the user more information about the requirements:

- **Yellow** - The Must Order By will be highlighted in yellow if there is already a purchase order for the item within the PO Range. You can refer to the Ideal vs Existing report to evaluate the current purchase order(s) and see if there are any exceptions. When an item is marked yellow the user can right click and jump to the purchase order.
- **Purple** - This notifies the user that there is a problem with the requirements for these items (the material requirements are numerically oversized). The BOM's should be evaluated for incorrect information especially in the areas of 'Parts per'.
- **Blue text** - This notifies the user that the exception information includes requirements for forecasted orders. To hide the forecast information go to **Options/Scheduling Parameters** from the schedule and check **Hide Forecast Data**.

This portion of the screen shows the following information:

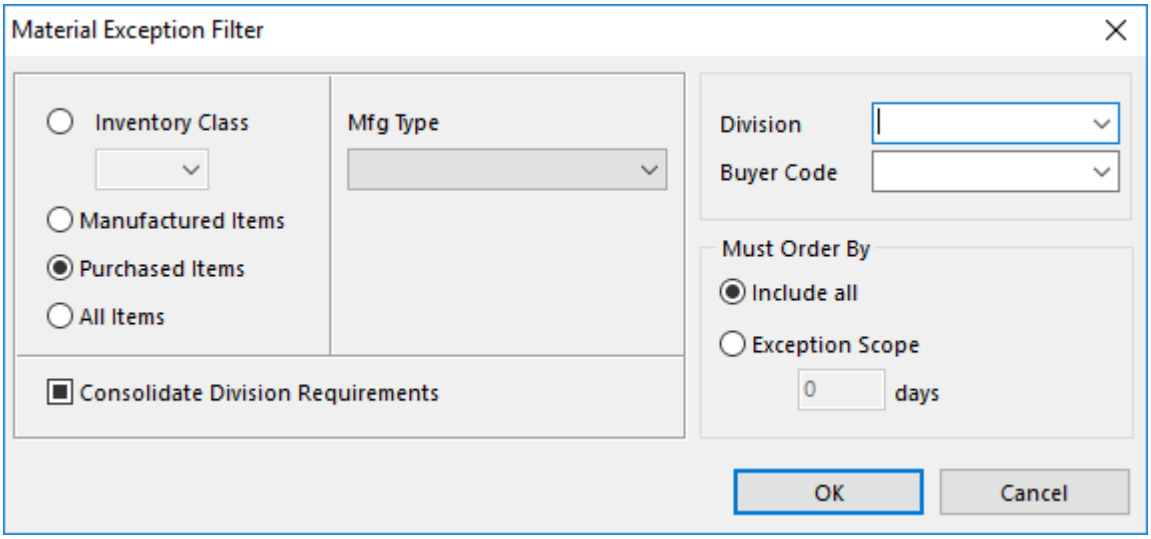
Buyer Code	The buyer code associated to the item.
Cost Object	This is only for JobShop. This displays the JobShop Project # and Task ID (Project <proj#> Task ID <taskid>'.
Division	The division/warehouse associated to the exception (including forecast demand). Note: The system will separate the requirements based on the division associated to the MFG Cell on the BOM or the work center (which overrides the BOM if the work order is scheduled). If the BOM has a MFG Cell with a division the material requirements will be separated for the specific division if the work order is not scheduled or scheduled on a work center with a division associated to the MFG Cell. If it is scheduled on a work center without a division linked to a MFG Cell, the requirements will be included in the non division requirements. If the BOM does not have a MFG Cell with a division the material requirements will only be separated for a division if the work order is scheduled on a work center with a MFG Cell with a division. Specific inventory PO Parameters (Min Order, Max Order, Safety Stock, PO Safety, Scope and Range) can be set up by Division which allows users to enter specific settings for situations where different Warehouses/Divisions have different needs. These values will affect the Total Exception and Left to Order quantities. If the system does not find a division it will use the null division Safety Stock + demand for all divisions = Total Exceptions. Left to Order quantity = On Order from null division only + demand quantity from all divisions combined. Note: The requirements can be consolidated for the EPlant by checking the 'Consolidate Division Requirements' option on the Material Exception Filter form.

Item details	These fields include: Item #, Description, Ext. Description, Class, Revision, EPlant
Lead Days	This will display the Lead Days associated to the item according to the division or no division (see Division above).
Left To Order	Calculated by taking the Total Exception less any amounts not received on purchase orders for the item and any Vendor VMI Quantity. Note: An overstated quantity may display after posting receipts until after running update schedule, or by updating material exceptions using the calculator button.
MPS	This box will be checked for MPS items (where the MPS Item box is checked on the Manufacturing tab in inventory). Users can right click and Jump to MPS from this section. The Master Production Schedule form will open. (See MPS - Master Production Scheduling Setup Information for more information).
On Hand	On Hand less Non-Allocated.
Total Exception	Calculated as the total demand from the work orders less any on hand inventory plus the Safety Stock if applicable. Then this amount is rounded up to accommodate the 'Multiples Of' (standard packaging quantity) field found in inventory.
UOM	The UOM is displayed in the EPlant's native UOM, or the UOM designated as the MRP UOM for the inventory item. Please note that if the UOM of your inventory item is not one of the predefined UOMs, a conversion factor must be created in the EPlant's native UOM for the system to properly convert and display it.
Vendor # and Company	The sequence 1 vendor number and name (from AKA Buying).
VMI	Only Vendor VMI will be included in this value.

Note: The system will also adjust the total exception for the safety stock if applicable.

Note: The material requirements are based on the standard shot weight. It does not adjust if cavities have been blocked. The system would not be able to determine how much of the runner/sprue also would be shut off and when exactly the tool may be repaired so requirements are always based on standard. To base it on actual the standard must be changed to reflect the actual runner/sprue and cavitation. For family jobs where the requirements are not equal for each part, the work order material required will be for the full shots required, not based on each part.

 The **filter** button brings up the following Material Exception Filter dialog box:



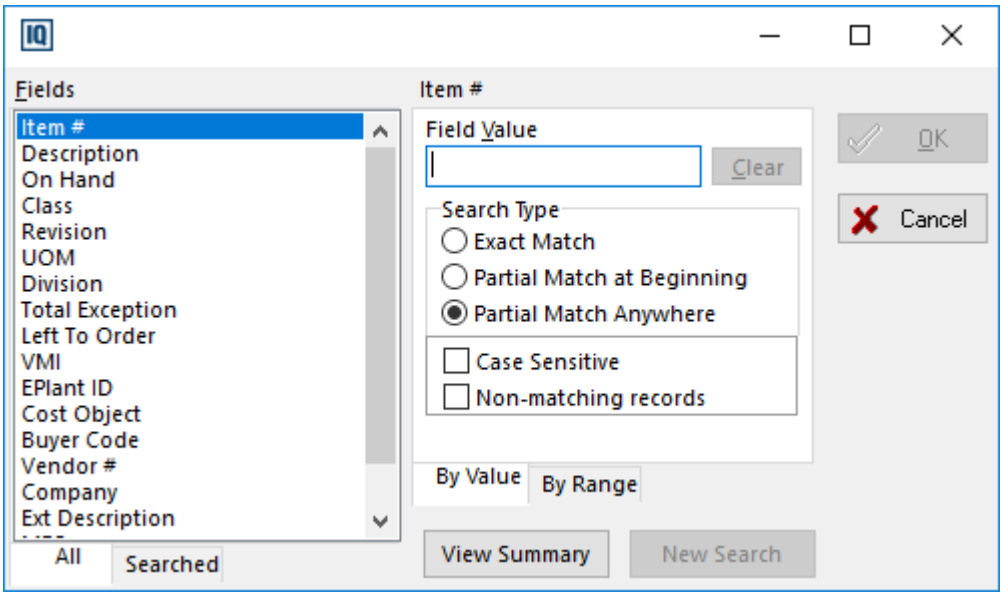
The Material Exception Filter allows the user to filter the items on that will display on the exception report. The user can filter the items based on the following options:

- **Inventory Class** - Select this option and then select the specific class from the drop down list. Only items with that inventory class will display on the exception report.
- **Manufactured Items** - Will display only manufactured items (those with a default manufacturing number).
- **Purchased Items** - Will display only purchased items (those without a default manufacturing number).
- **All Items** - Will display all items.

Once the type of items are selected the user can further filter the exception list based on:

- **Mfg Type** - Select a Mfg Type from the drop down list. When selected the upper grid of the exception list will be filtered by the Mfg Type of the Work Order that is associated to the exception. Only manufactured items on a BOM of the filtered Mfg Type will be shown, not demand from lower levels of the BOM.
- **Warehouse/Division** - Select the Warehouse/Division from the drop down list. Warehouse/Divisions are attached to master locations in inventory (not to items). When an order is entered against an item with a BOM, it looks up the division on the cell and allocates inventory based on locations with a matching division. Purchase order receipts are posted to inventory locations attached to divisions. Material requirements are division specific also and specific inventory PO Parameters (Min Order, Max Order, Reorder Point, PO Safety, Scope and Range) can be set up by Division which allows users to enter specific settings for situations where different Warehouses/Divisions have different needs.
- **Buyer Code** - Select the Buyer code from the drop down list. The Buyer Code list is created by the user (Inventory->Options->Buyer Code) and then Buyer Codes are assigned to inventory items. Please see **Buyer Code** for more information.
- **Must Order By** - This limits the information displayed to items with a Must Start Date from today's date through the number of days entered in the Exception Scope field. It will also include any scheduled work orders with a start date of today, regardless of the Must start Date. Select the Include All option to display all information regardless of Must Start date.
- **Consolidate Division Requirements** - By default the system will display the material requirements based on the warehouse/division they are required in (see the Division field description in the table above). Users can select this option to consolidate the demand for the EPlant which applies to both projected exceptions and raw material below minimum. If 'Consolidate Division Requirements' is un-checked when a PO line item is added through Material Exceptions List, it will automatically populate with the division associated to the item in Material Exceptions. If this option is checked the division on the PO line item will be the one associated to the Ship To address. Note: If 'Consolidate Divisional Requirements' is enabled/disabled after update schedule has already been run, the user will either need to run update schedule again or select the 'Calculate Material Requirements, Ideal vs. Existing, and Daily Material Requirements' button in order to consolidate/unconsolidated the requirements. Security can be placed on this check box. Note for ICT users: If the check box for' Consolidate Division Requirements' is checked when attempting to create a ship order for items between divisions, the following error will surface: "Ship order can not be created when parameter "consolidate division requirements" is checked." Ship Orders between EPlants will be created if this option is checked.

In addition to the Material Exceptions Filter, this form has an **Advance Filter** option as well. Select the Filter button to the right of the white space to access the advanced filter.



Select the desired filter options (see the Advance Search section in Pick Lists for more information). The filter information will be remembered when moving from the Projected Exception List to the Requirements on Past-Due PO's and Ideal vs. Existing. Once a filter option is chosen, the projected exception list will display the selected items.

 The user can also set the EPlant view by clicking on this speed button and selecting the EPlant or view all.

 This calculator button is used to recalculate the material exceptions after a purchase order has been entered to mark the line item yellow. This is equivalent to running Update Schedule, but does not create/update work orders. To make sure the exceptions are current the user should run update schedule.

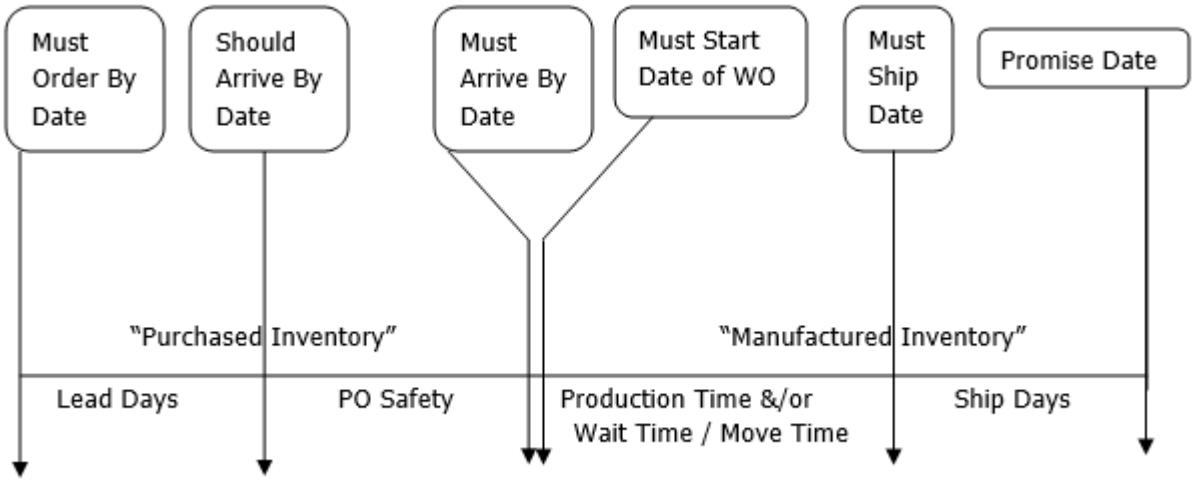
Display Exception Details - By double clicking on an item or by highlighting an item and clicking on the [enter] key or the Evaluate icon, the exception details are displayed for that item.

Middle Section Fields:

Must Order By	The Must Order By date is calculated by taking the Should Arrive By date less the Lead Days for the item. For example, if the Should Arrive By is 10/28 and the lead days is 5, then the Must Order By date will be 10/23. **Note**: The system will include the Auxiliary Setup and Teardown times when calculating the Must Order By date for scheduled work orders if they have Auxiliary Setup/Teardown time of 24 hours or greater. (The Must Order By is calculated in days not hours so for the setup/teardown time to affect that date it must be full days not just hours). Auxiliary setup/teardown are not included if the work order is not scheduled
Must Arrive By	The Must Arrive By date is the day prior to when the first Work Order is scheduled to run less any Inspection Lead Days for the item. Note: Even if the Must start date of a work order is in the past, the material requirements deliveries are based on the current date. For example, if a work order's must start date is several weeks in the past, when update schedule is run, the work order date (when it can be run) is based on the current date, as a work order cannot be run in the past. Therefore, since the Must Arrive By date is based on when the first work order is scheduled to run, it cannot be in the past.
Should Arrive By	The Should Arrive By date is the Must Arrive By date less the PO Safety days (counting all days as a day). For example, if the must arrive is 11/3 and the PO Safety is 7, then the Should Arrive By date will be 10/28.
Order Quantity	This is the quantity required for the work orders based on the PO Scope and rounded up to be divisible by the 'Buying Multiples Of' value for the item if applicable. This will also include the Safety Stock value if any. Note: The system may display two exceptions of the same origin listed in sequence instead of grouped into one exception if exceptions of different origins (i.e. planned and forecast) exists on the same production day.
Vendor # and Name	Sequence 1 vendor # and name from AKA Buying.

Vendor Receive	During update schedule the system will calculate the Vendor Receive date based on the days entered for the vendor in Vendor Maintenance->Miscellaneous tab->Receiving Days. The system will first use the receiving days based on an EPlant, if one is not found it will use the receiving days associated to a no EPlant record (null EPlant ID). For example, if the vendor has just Thursday set up as a receiving day, the system will calculate the Vendor Receive date as only on Thursdays. So, if the Should Arrive By date is 1/7/12 (a Saturday), the Vendor Receive date will be 1/5/12 (a Thursday). If the vendor does not have any receiving days setup, this field will populate with the Must Arrive By date.

The chart below shows the timeline from promise date to must order by:



Note: If Receiving Holidays have been created they will be used in Material Exceptions for calculating the Must Order By, Must Arrive By and the Should Arrive By dates. The system will adjust the dates back to avoid receiving during a holiday. Access Shipping/Receiving Holidays from the File menu of the Ship Via form or from the Lists menu in System Parameters to set up Receiving Holidays.

Lower Grids

The lower two grids display the work order(s) and sales order(s) that cannot be completed without the material. Click on any of the displayed work order records to see the corresponding sales order(s). From each section the user can jump to the Work Order, Sales Order, or inventory item using a right mouse click.

Work Order section fields: Work Order #, Date, Quantity, Hard Allocated, and Alternate item #. The Alternate item # column will populate with the alternate once the substitution is made. After Update Schedule is run the column will be blank because the WO details are now associated to the alternate item.

Sales Order section fields: Order #, Item information (Item #, Description, Rev, Ext Description), Release Date, Release Quantity, Customer Name and #, PO #.

Creating a PO

Top section Add to PO Option:

Right click on the highlighted item in the top section and select 'Add to PO'. Multiple items can be selected using the toggle buttons or the Shift/Ctrl keyboard buttons. A pick list of existing POs associated to the Default Vendor will appear. Select a PO from the list or select the New button to create a new PO. If the item does not have a default vendor listed in AKA Buying, a pick list of all AKA vendors will appear first, if none are listed then the Vendor pick list will display. Select a vendor then the list of existing POs associated to the vendor will appear. Select a PO from the list or select the New button to create a new PO. Note: When a PO is created from the top section a single release will be created for the **Left to Order** quantity (not the Total Exception) with the current date as the promise date. (To create multiple releases use the Add to PO (Item or Vendor) options from the middle section).

Middle Section Add to PO Options:

Once you have evaluated the requirements and would like to create a purchase order for an item simply highlight the requirement(s) in the must order area of the screen (middle section) and right click. To add multiple requirements to a single purchase order use the Shift or Ctrl keys on the keyboard to highlight multiple lines. Two options are available, Add to PO - Item or Add to PO - Vendor. If you choose Add to PO for the item a pick list of purchase orders which have that item on them already will appear. The user may choose one from the list and a new line for the item with the order quantity will be added to that PO. If you choose Add to PO for the vendor, a pick list of purchase orders associated with the vendors on the AKA Buying tab will appear. Again, the user may choose one from the pick list and the item and quantity will be added to the PO.

Note: The pick list displayed when Add to PO - Item is selected includes a column for 'Closed' which indicates if the line item is closed on the PO. It is not recommended to add to a closed line item as update schedule does not recognize the releases and will continue to suggest adding to a PO on the Ideal vs. Existing tab.

From either of the pick lists the user may select the ‘New’ button to create a new purchase order rather than add the requirement to an existing one.

Note: When a new PO is created, the Vendor used is based on the following hierarchy:

- If there is a default vendor in AKA Buying the system will create the PO for that vendor.
- If only one vendor exists the system will use that.
- If there are more than one vendor in AKA Buying, or the same vendor with different AKA Items, the system will pop up a pick list of the AKA Buying vendors and their AKA items for the user to choose from. If the user selects cancel on this list a pick list of all vendors will appear.
- If there are no vendors listed in AKA Buying the system will pop up a pick list of all vendors.

In all cases the actual purchase order screen will appear.

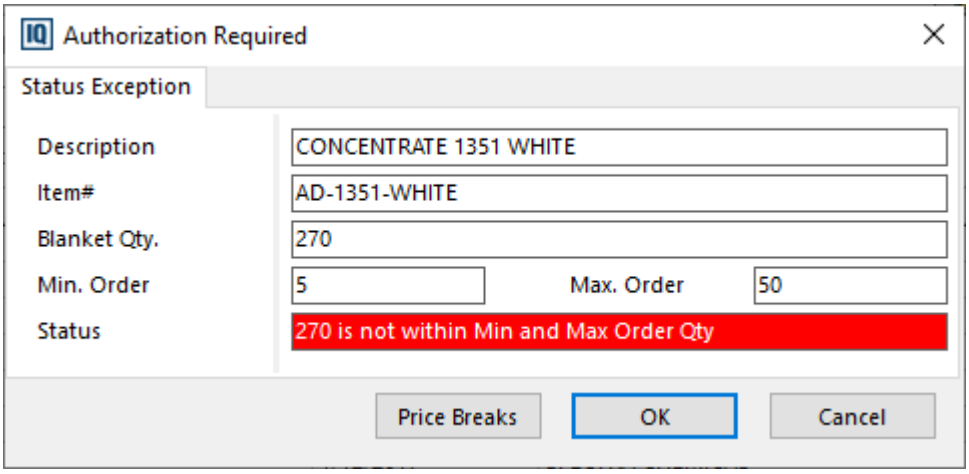
The Promise Date on the PO release defaults to match the Should Arrive By date for that specific order line.

If the System Parameter 'Auto Populate Request & Promise Date based on Lead Time' is checked (Purchase Order & Sales Order Setup tab), the system will add the lead days to today's date then compare that to the 'Should Arrive By' date to determine the promise date.

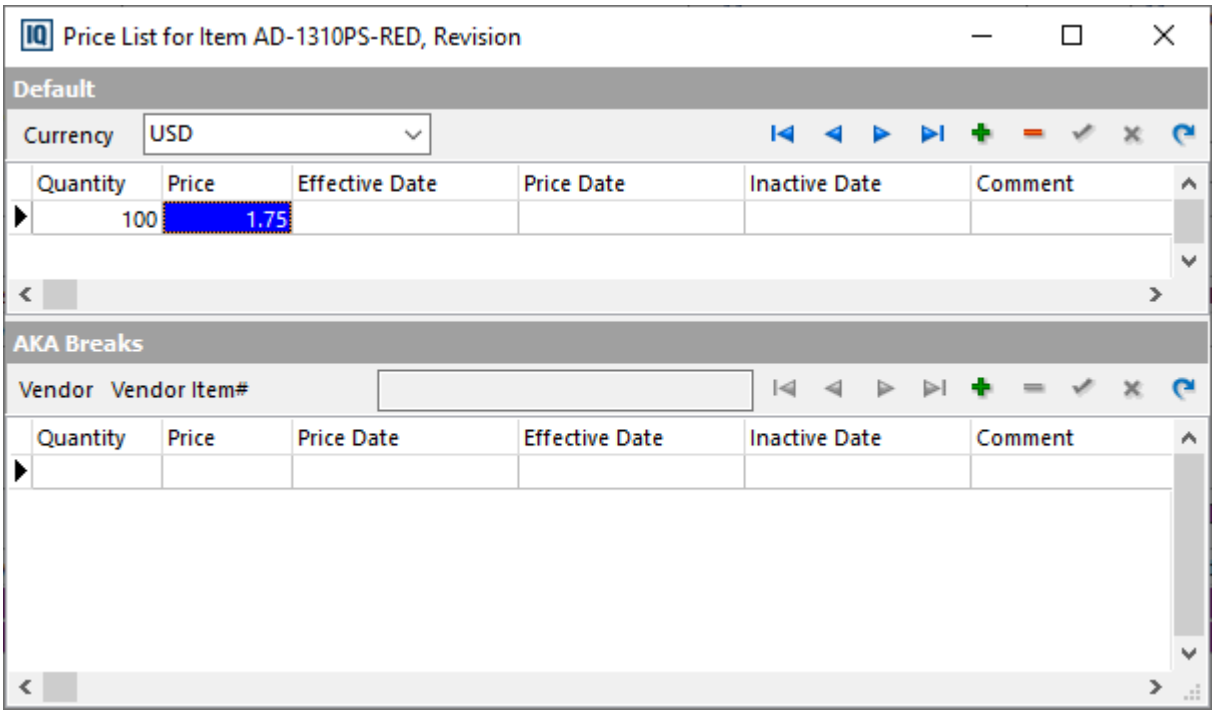
- If the 'Should Arrive By' date < to today's date + leads days then the Request and Promise Date = (Today's Date + lead days)
  - Ex: 7/1/2020 < 6/1/2020 + 60 days (8/1/2020) use 8/1/2020 (i.e. If the Must Order Date is earlier than Today’s date, then use today’s date + lead Days).
  - This applies when the PO is created from the top grid and the middle grid, Ideal vs Existing, and Raw Material Below Min.
- If the 'Should Arrive By' date >= to today's date + leads days then the Request and Promise Date is populated based on the following:
  - If the PO is created from the top grid or Raw Material Below Min = today's date + lead days.
  - If the PO is created from middle grid or Ideal vs Existing = Should Arrive By date. (i.e. If the Must order by date is today or later than today, the system will use the 'Should Arrive by' date for the Request and Promise Date).

The user can edit vendor, quantities, pricing, delivery dates, etc.

Note: If the PO quantity will be less than the Min Order quantity or more than the Max Order quantity set for the item in Inventory, a status exception warning will appear. Select OK to continue creating the requisition or Cancel to return to the Projected Exception list. Security can be place on this exception to prevent users from creating a requisition.



The Authorization Required form includes a Price Breaks button that will display the Buying and AKA Buying price breaks for the item.



Note: When creating a PO from the material exception form, if the item has a unit of measure conversion set up, the amount on the PO will be the purchase unit of measure, quantity and pricing.

Note: The quantity that is added to the PO is according to the decimal precision setup in System Parameters->Inventory Setup tab, up to 4 decimals, but will always be at least two decimals. For example, if it is set to 0 it will 'Add to PO' with 2 decimals, if set to 3 it will 'add to PO' with 3 decimals, if set to 4 it will 'add to PO' with 4 decimals, if set to 6 it will add to PO with 4 decimals. Please note, the 'Left to Receive' will show a remainder if a user adds to PO with less than 4 decimals.

Right Click options - Right click on the items in the *upper* section to access the following options:

- Jump to Inventory
- Jump to MPS
- Jump to Inventory Availability
- Vendor RFQ - From the this tab the user can create a Vendor RFQ for items by right clicking and selecting Vendor RFQ. Please see Vendor RFQ for details.
- Add to PO
- Jump to PO History - This accessed the PO History form for the item. See PO History for details.
- Alternative Item # (described below)

Note: Only 'Add to PO' is available to select when multiple items have been selected using the multi-select feature.

Alternate Item

If Alternate Items have been set up the user can substitute an alternate item for an item on the material exception list. From within the Material Exception List, right click on the item to be replaced and select Alternate Item #.

There are two options in System Parameters->Inventory tab available for Alternate Items. These options are mutually exclusive:

- Alternate Item# Applied to Substitute BOM - (Default method). If this option is selected alternate items can be substituted on sales orders or from material exceptions. When substituted in material exceptions, the system will attempt to create a substitute BOM.
- Alternate Item# Applied to Work Order Allocation - If this option is selected users can substitute alternate items from material exceptions for specific work orders. The associated WO becomes firmed. A substitute BOM is not created, instead the alternate item shows on the Material Allocation screen.

➢ When using the default method, from within the Material Exception List, right click on the item to be replaced and select Alternate Item #. Select the alternate from the pop up list. Select the work order(s) where the original item should be replaced by the alternate item by highlighting them in the pop up list using the toggle buttons. This list also includes the Mfg #. Once highlighted, press OK. The system will attempt to replace the item directly. However if the item is currently running the user will receive an error similar to the following:

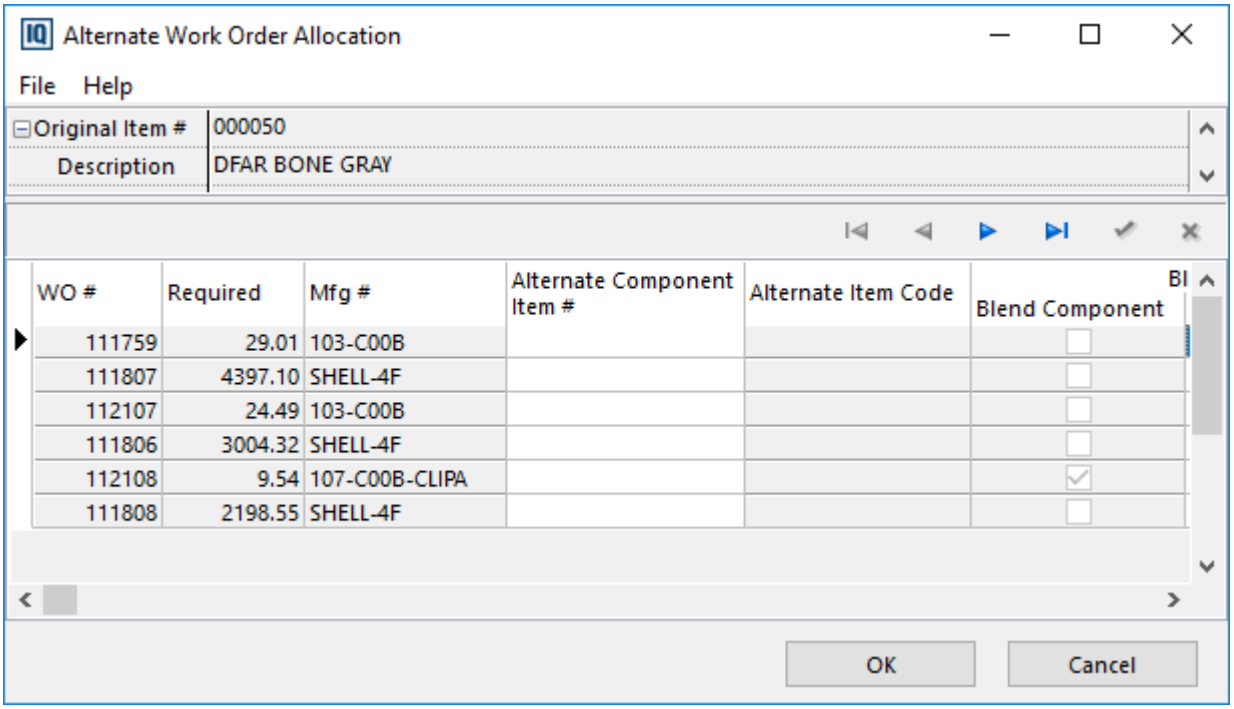
General SQL error. ORA-20500: WO# 147901 is currently running on work center 16. Mfg# substitution or change is not allowed.

If the system is able to replace the item directly the selected work orders will automatically have a substitute BOM created for them. The substitute BOM is the same as the original BOM except the original exception item is replaced with the Alternate item. The parts per for this item remains the same as the original.

Note: The design will not account for UOM conversions on either the original or alternate item since the system is unable to accommodate the correct conversion amount to order when the original, or alternate, or both items use their own unique conversion factor.

Note: When a component in a blend operation is replaced with an alternate item it will permanently replace the original item in the blend operation. This will affect all BOMs where the blend operation is used in.

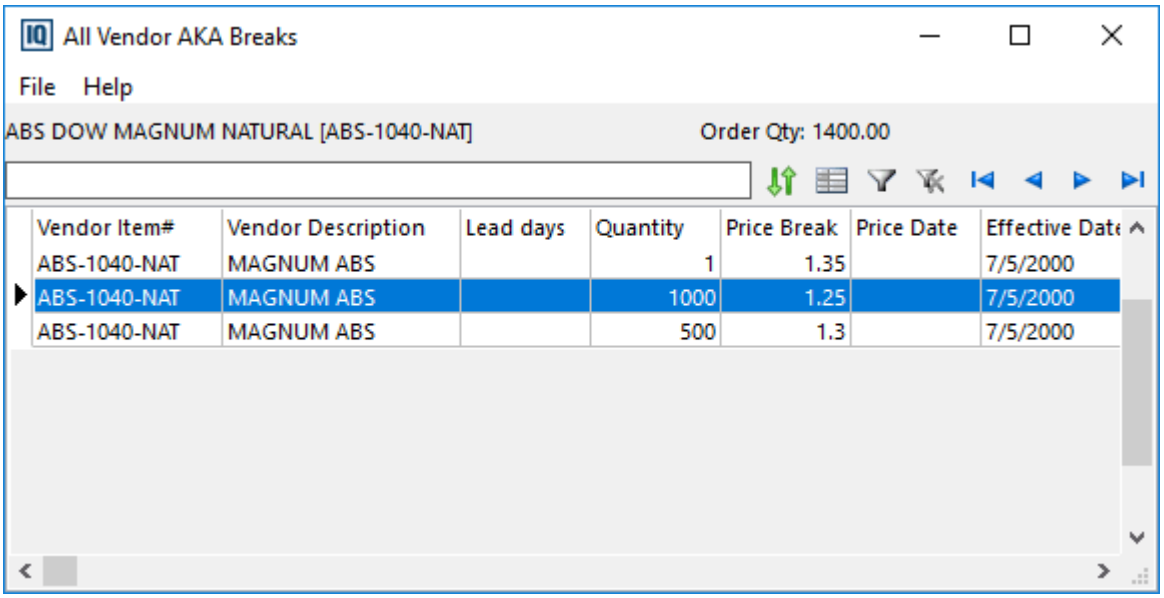
- When using the Work Order Allocation method users will select the specific work orders to use the alternate item. The associated WO becomes firmed. A substitute BOM is not created, instead the alternate item shows on the Material Allocation screen.



For more information please see the Alternate Items section.

Show All Vendor Price Breaks

Select this right click option (middle section) to view all of the AKA vendor price breaks associated to the item.



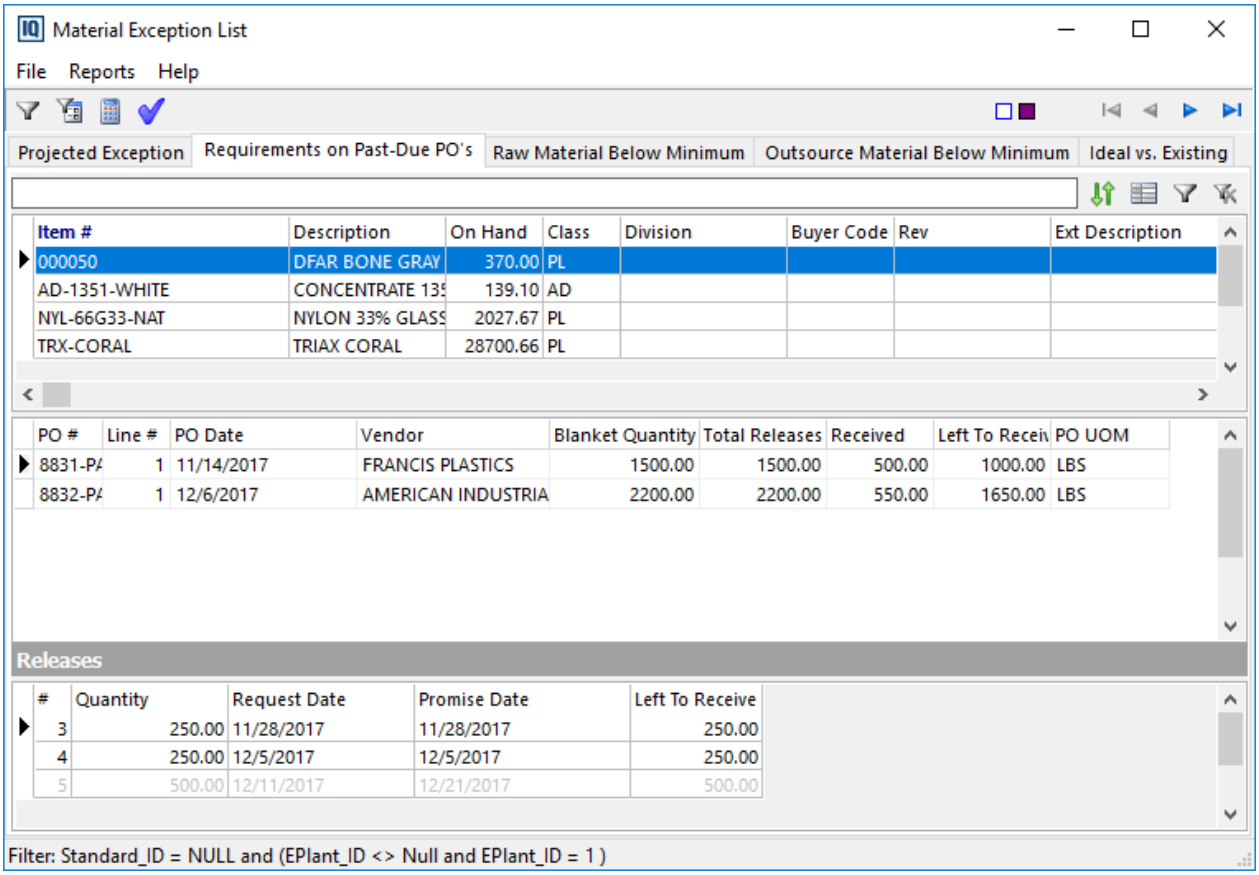
The system will highlight the record with the lowest unit price based on the Order Quantity column in the middle grid of the Material Exception List.

DRP Demand

DRP (Distribution Resource Planning) Demand is demand for an item that you buy and resell with no rework (the item does not have a default Mfg # associated to it). If the item is a purchased item that you resell and it is on a sales order it will show as a requirement in the top section. The user can right click in the middle section and select DRP Demand. This will open a box displaying the sales order(s) that are causing the demand for the item. The user can right click from the pop up form and jump to the highlighted sales order. **Note**: This should also be utilized for components of phantom kits.

Required Materials on Past Due POs

The second tab on this form displays outstanding past due POs for required items. This is intended to be an expedite type screen. Note that you can jump to Inventory from the top section and to the PO from the middle section by right clicking in the appropriate area.



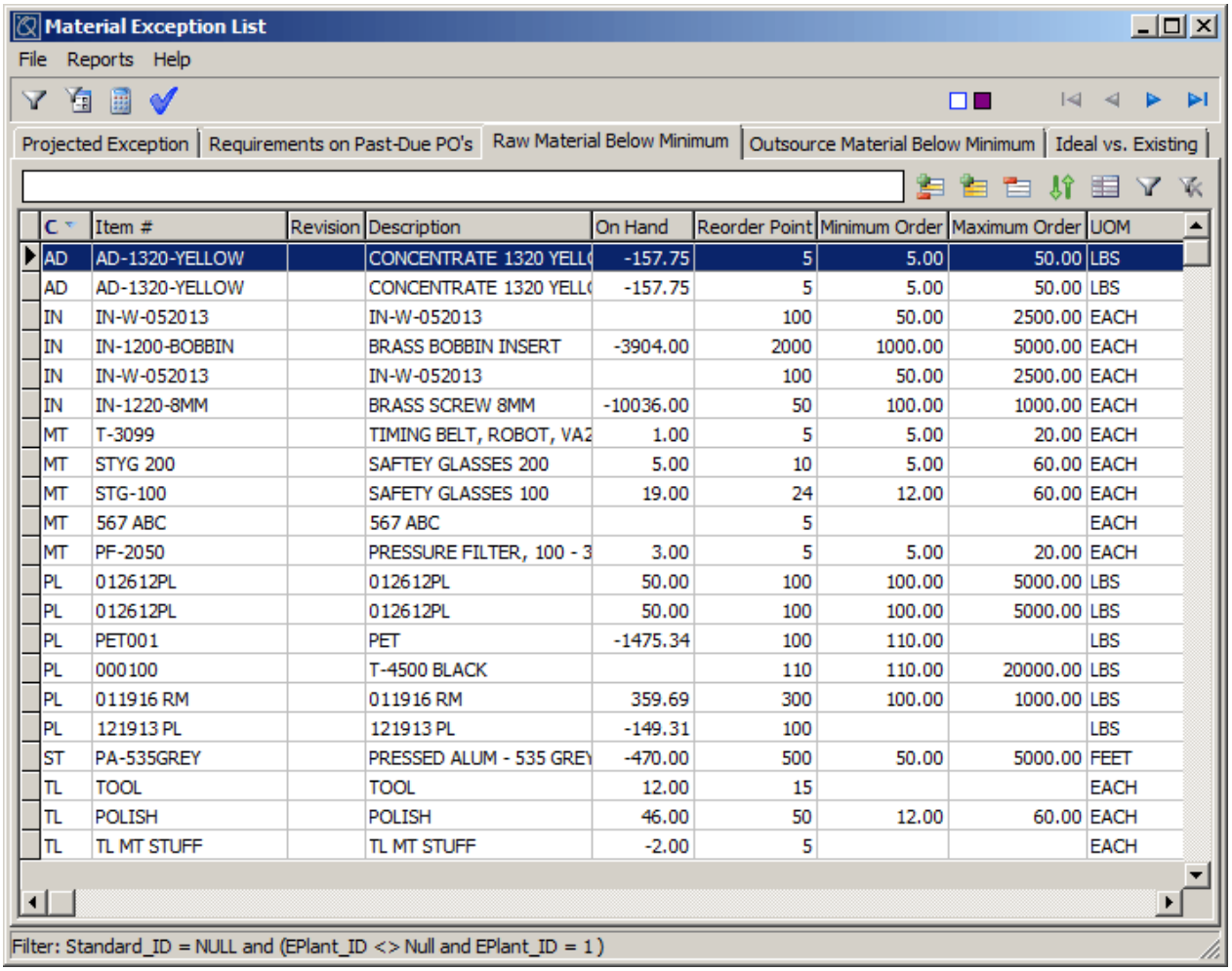
The top section displays the item information such as; Item #, Description, On Hand, and Class. Type information based on the column the grid is sorted by in the white box to find specific records. This form also includes the Sort Criteria and Filter Dataset features for advanced sorting and searching.

The middle section displays the purchase order information for the highlighted item including the PO#, Date, Vendor, Blanket Qty, Received, Left to Receive, etc.

The lower section displays the specific release associated to the line item that is past due. Only the releases that have not been received in full will appear. Releases that are past the current date will be in black text. Releases with a promise date in the future are in gray text. The Left To Receive column shows the amount left to receive for the release, this column is not cumulative.

Raw Material below Minimum

This list shows all materials with a current on hand balance less any hard allocated quantity that is below the Reorder Point regardless of whether there is a need for them or not. It is intended as a flag or notice screen.



C	Item #	Revision	Description	On Hand	Reorder Point	Minimum Order	Maximum Order	UOM
AD	AD-1320-YELLOW		CONCENTRATE 1320 YELL(	-157.75	5	5.00	50.00	LBS
AD	AD-1320-YELLOW		CONCENTRATE 1320 YELL(	-157.75	5	5.00	50.00	LBS
IN	IN-W-052013		IN-W-052013		100	50.00	2500.00	EACH
IN	IN-1200-BOBBIN		BRASS BOBBIN INSERT	-3904.00	2000	1000.00	5000.00	EACH
IN	IN-W-052013		IN-W-052013		100	50.00	2500.00	EACH
IN	IN-1220-8MM		BRASS SCREW 8MM	-10036.00	50	100.00	1000.00	EACH
MT	T-3099		TIMING BELT, ROBOT, VA2	1.00	5	5.00	20.00	EACH
MT	STYG 200		SAFTEY GLASSES 200	5.00	10	5.00	60.00	EACH
MT	STG-100		SAFETY GLASSES 100	19.00	24	12.00	60.00	EACH
MT	567 ABC		567 ABC		5			EACH
MT	PF-2050		PRESSURE FILTER, 100 - 3	3.00	5	5.00	20.00	EACH
PL	012612PL		012612PL	50.00	100	100.00	5000.00	LBS
PL	012612PL		012612PL	50.00	100	100.00	5000.00	LBS
PL	PET001		PET	-1475.34	100	110.00		LBS
PL	000100		T-4500 BLACK		110	110.00	20000.00	LBS
PL	011916 RM		011916 RM	359.69	300	100.00	1000.00	LBS
PL	121913 PL		121913 PL	-149.31	100			LBS
ST	PA-535GREY		PRESSED ALUM - 535 GREY	-470.00	500	50.00	5000.00	FEET
TL	TOOL		TOOL	12.00	15			EACH
TL	POLISH		POLISH	46.00	50	12.00	60.00	EACH
TL	TL MT STUFF		TL MT STUFF	-2.00	5			EACH

This list will display the Inventory Class/Item/Rev/Description/Ext Description, current On Hand, Hard Allocated, Reorder Point, Minimum Order, Maximum Order, Buyer Code, Vendor information, UOM, Warehouse/Division, quantity currently On Order, Lead Days, and PO Required information.

Note: The item will be listed multiple times if it has multiple vendors listed on the AKA Buying tab without a sequence number. If all AKA Buying records have a sequence number only the sequence one vendor will be listed.

The **PO Required** column will display a Y if the current quantity On Order will not put the On Hand above the Reorder Point. The list can be filtered to only display the items that require a PO by selecting the Filter Dataset button and selecting the PO Required field with a Field Value set to Y.

Right Click Options

Add to PO - Item or Vendor - You can create a PO for any item on this screen, or add to an existing PO already existing for the item. Highlight the item of interest, right click and use one of the Add to PO options. From the pick list the user can select the New button to create a new requisition instead of adding to an existing one. The system will use the default AKA Vendor listed for the item in inventory->AKA buying, or if there is not a vendor marked as the default a pick list of AKA Vendors will appear to choose from. If the user selects cancel on the AKA Vendor pick list, a pick list of all vendors will appear. If no vendors are listed in AKA Buying, the vendor pick list will appear.

When creating a new PO the system will create the PO for the minimum order quantity and will use the current date for the release request and promise dates. When adding to an existing PO, the system will create a new release for the minimum order quantity.

In all cases the actual purchase order screen will appear.

The Promise Date on the PO release defaults to match the Should Arrive By date for that specific order line.

If the System Parameter 'Auto Populate Request & Promise Date based on Lead Time' is checked (Purchase Order & Sales Order Setup tab), the system will add the lead days to today's date then compare that to the 'Should Arrive By' date to determine the promise date.

- If the 'Should Arrive By' date < to today's date + leads days then the Request and Promise Date = (Today's Date + lead days)
  - Ex: 7/1/2020 < 6/1/2020 + 60 days (8/1/2020) use 8/1/2020 (i.e. If the Must Order Date is earlier than Today’s date, then use today’s date + lead Days).
  - This applies when the PO is created from the top grid and the middle grid, Ideal vs Existing, and Raw Material Below Min.
- If the 'Should Arrive By' date >= to today's date + leads days then the Request and Promise Date is populated based on the following:
  - If the PO is created from the top grid or Raw Material Below Min = today's date + lead days.

Jump to Inventory - This will take you to the Inventory module for the highlighted item.

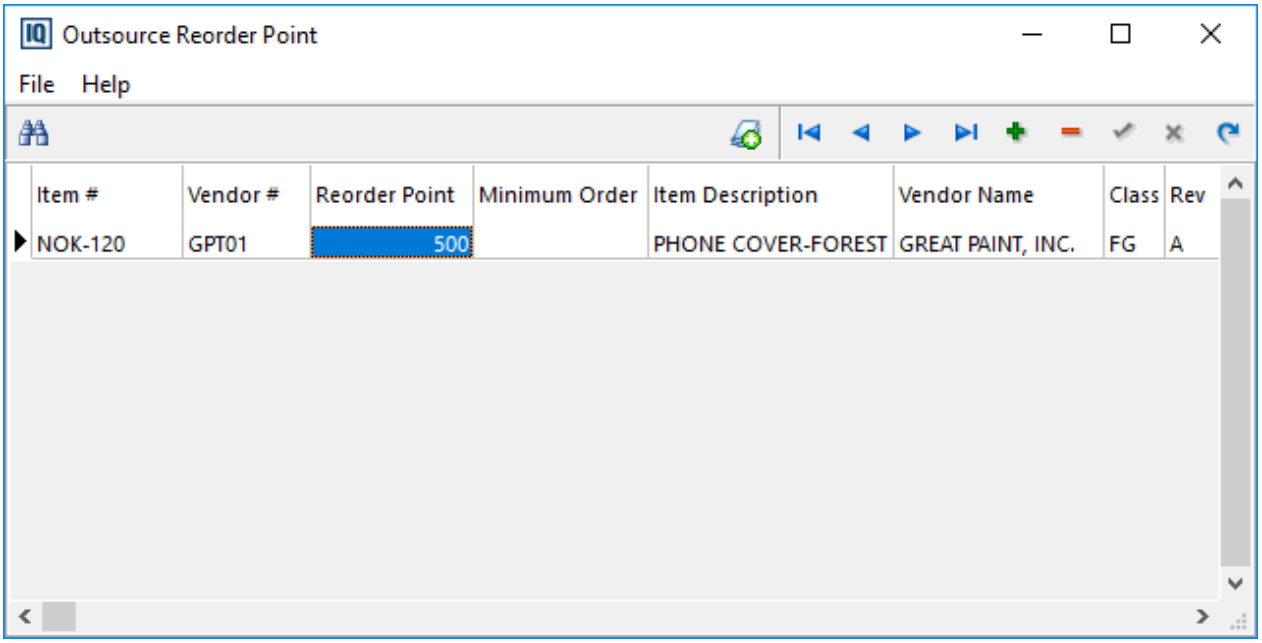
Show POs - This will bring up a pop up form displaying the Open PO's for the highlighted item as well as release information and quantity received. The user can right click from this form and jump to the PO.

Outsource Material Below Minimum

The Outsource Material Below Minimum information is a tab on the Material Exception List (Scheduling->Requirements menu->Material Exception List). This will display outsource items where the item's In Transit Qty in Outsource Central falls below the Reorder Point.

Set Reorder Point for Child Item / Vendor

To create reorder points for outsource items, select 'Set Reorder Point for Child Item / Vendor' from the Outsource Central File menu. When selected a pick list of existing items with a reorder point set will display. Select an item to access the form, or select New to create a new record. From the form users can select the insert record + button to add a single item, or select the 'Add Multiple Item #/Vendor' button to add multiple items at one time. With either option a pick list with all of the Child Items with Vendors from the Outsource Mfg Type BOMs will display. Depending on the pick list, select a single item or use the toggle buttons to select multiple items. The item and vendor information will populate the corresponding fields.

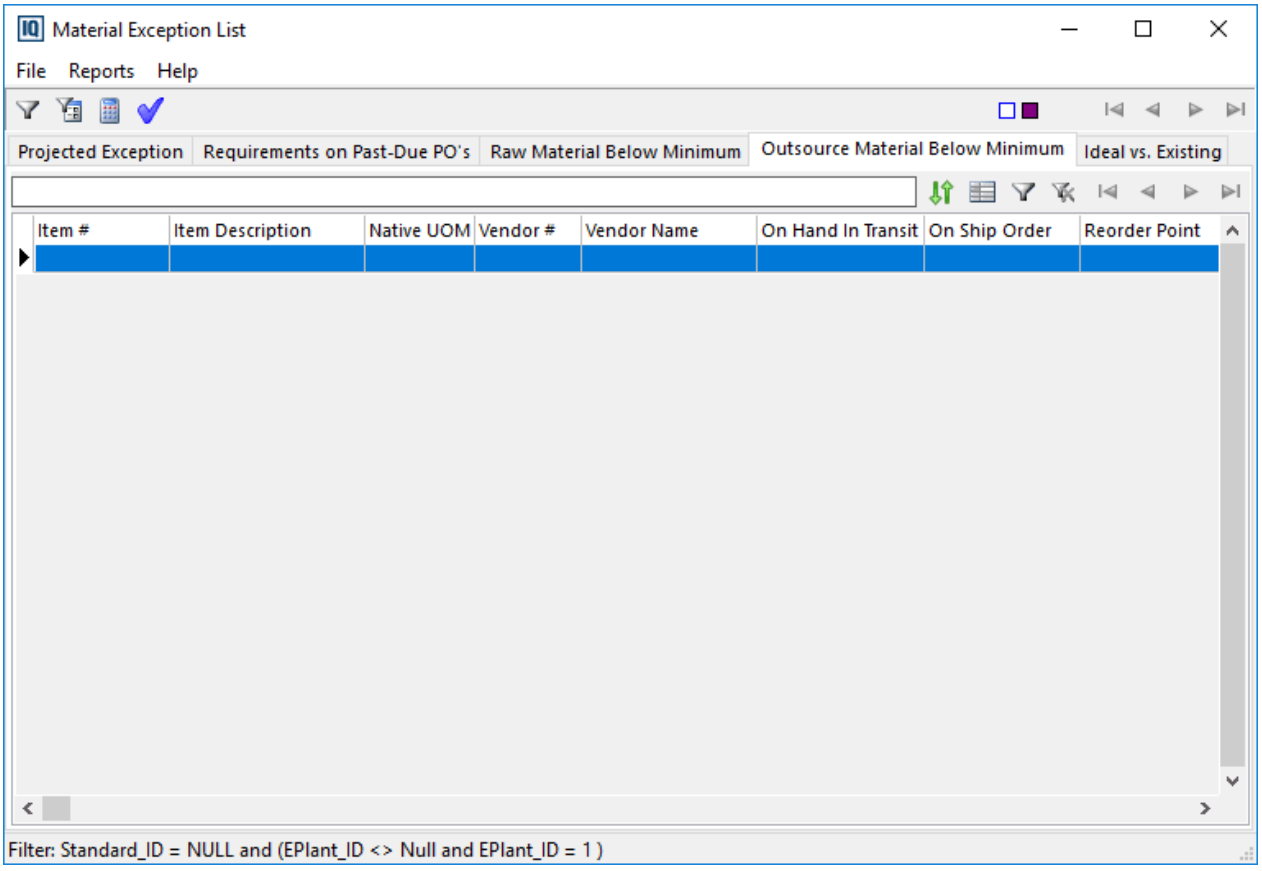


Enter information in the following fields:

- Reorder Point - This is the safety stock level for the item. If the item is set up with a Reorder Point and the amount in the item's In Transit Qty in Outsource Central falls below the Reorder Point the item will show up in the Material Exception List->Outsource Material Below Minimum. This value is also used in Outsource Central when the 'PO Based' Outsource Central method is used, when evaluating the Reorder Point, if the inventory of the child item at the vendor is less than the Reorder Point, the system will create a shipping order for enough to bring the vendors inventory up to the reorder point level. The system will consider the Minimum Order quantity when creating the ship order.
- Minimum Order - This is the minimum order quantity for the item. If a purchase order is created for less than this amount a warning message will appear.

Outsource Material Below Minimum

From the Requirements menu in the Scheduling module select the Outsource Material Below Minimum tab to view outsource items below their reorder point.



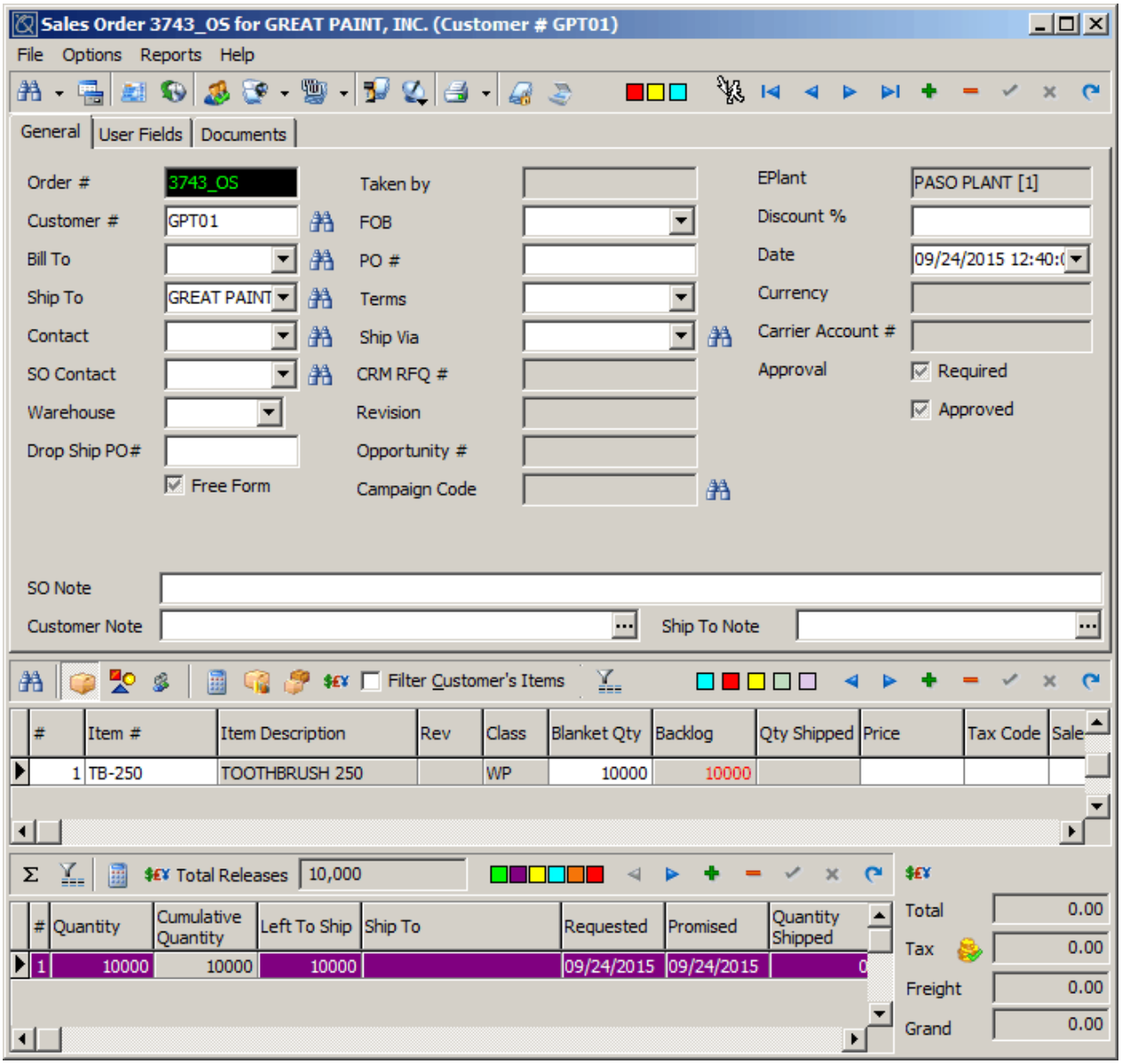
This will list the outsource items where the In Transit quantity in Outsource Central has fallen below the Reorder Point. This form includes the item information, vendor information, On Hand In Transit, On Ship Order, Buyer Code, and the item's Reorder Point, Maximum and Minimum Order quantities.

Right Click Options:

- Jump to Inventory
- Jump to Outsource BOM
- Jump to Vendor
- Jump to Ship Order - This will open the pick list to existing Ship Orders.

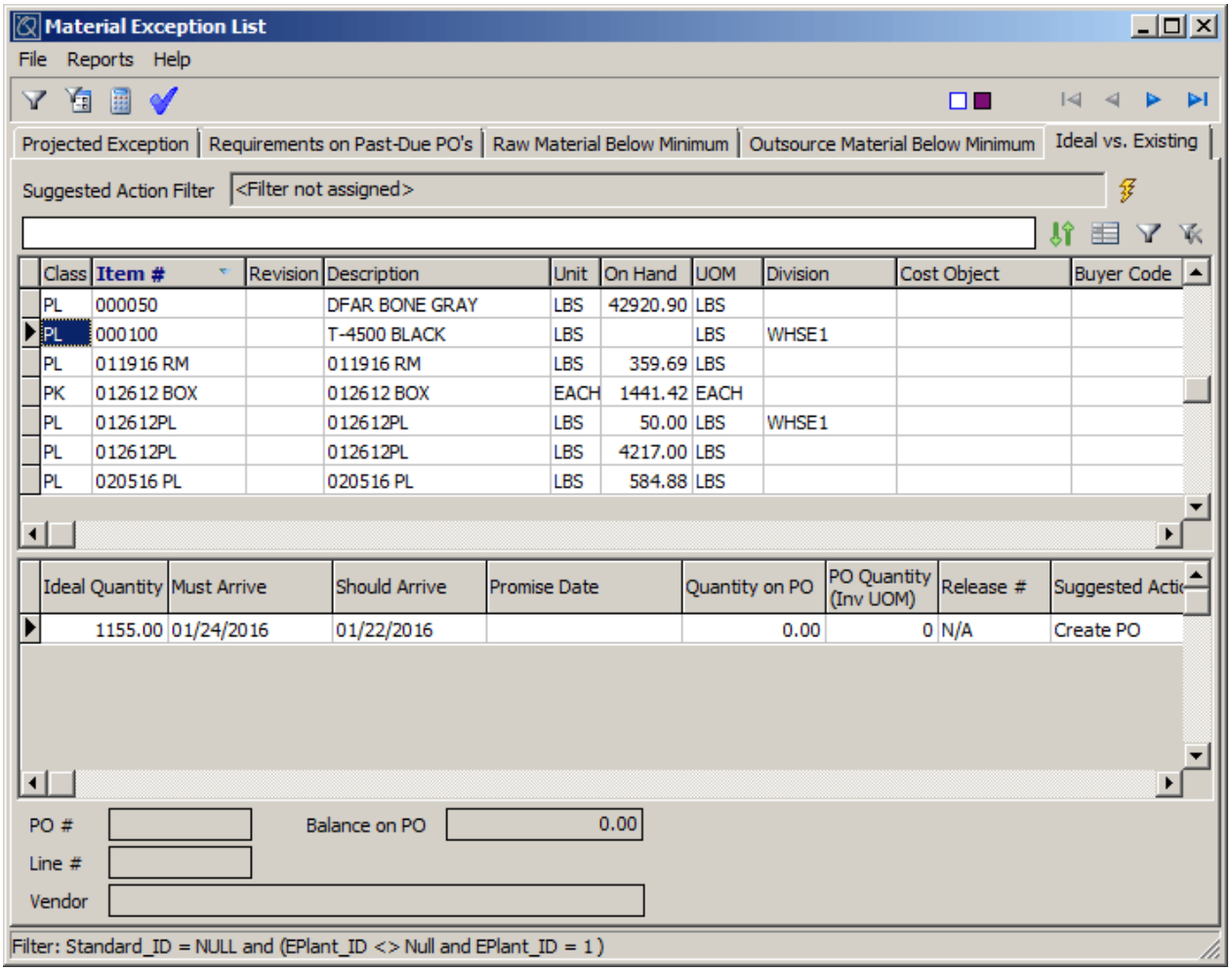
Create Manual Ship Order

When running Outsource Central in 'Inventory Mode' the Ship Order pick list has a 'New' button which can be used to create a Ship Order for the item/vendor combination without requiring a parent item or Outsource work order. This is considered a 'Manual Ship Order'. When created, these Ship Orders will have 'Y' populated in the 'Manual Ship Order' column in the pick list to identify them as such. After selecting New, a confirm message will appear stating, 'About to create a manual outsource shipping order. Please confirm to continue'. Select Yes to continue or No to not create the ship order. When Yes is selected the system will create a manual ship order with a release for today's date with a quantity equal to the Maximum Order quantity. These Ship Orders will be visible in Outsource Central in the Ship Orders screen like normal Ship Orders.


Sales Order 3743_OS for GREAT PAINT, INC. (Customer # GPT01)
File Options Reports Help
General User Fields Documents
Order # 3743_OS
Customer # GPT01
Bill To
Ship To GREAT PAINT
Contact
SO Contact
Warehouse
Drop Ship PO#
Free Form
Taken by
FOB
PO #
Terms
Ship Via
CRM RFQ #
Revision
Opportunity #
Campaign Code
EPlant PASO PLANT [1]
Discount %
Date 09/24/2015 12:40:
Currency
Carrier Account #
Approval
Required
Approved
SO Note
Customer Note
Ship To Note
Filter Customer's Items
Item # Item Description Rev Class Blanket Qty Backlog Qty Shipped Price Tax Code Sale
1 TB-250 TOOTHBRUSH 250 WP 10000 10000
Total Releases 10,000
Quantity Cumulative Quantity Left To Ship Ship To Requested Promised Quantity Shipped
1 10000 10000 10000 09/24/2015 09/24/2015 0
Total 0.00
Tax 0.00
Freight 0.00
Grand 0.00

Ideal vs. Existing

This form provides hints on how to best manage your current purchasing situation. **EnterpriseIQ** evaluates current POs and new requirements, and then offers suggestions on what to do in terms of cancelling, adding or changing POs.



The upper grid displays the materials on the exception report. To access the details in the bottom grids, double click on the line item in the top grid.

The middle grid will display the ideal quantity of the material you need, the quantity on the PO in both the PO and inventory unit of measure, when it must arrive, the promise date, and a suggested action. It will also display the release # satisfying the line if one exists. If a release is not associated it will display 'N/A'.

If a purchase order exists, the PO information is shown in the lower grid. From this screen the user also has the jump to inventory, show All Price Breaks, and add to PO right click options. Two add to PO options are available, Add to PO - Item or Add to PO - Vendor. If you choose Add to PO for the item a pick list of purchase orders which have that item on them already will appear. The user may choose one from the list and a new line for the item with the order quantity will be added to that PO. If you choose Add to PO for the vendor, a pick list of purchase orders associated with the vendors on the AKA Buying tab will appear. Again, the user may choose one from the pick list and the item and quantity will be added to the PO.

When creating a PO, the Promise Date on the PO release defaults to match the Should Arrive By date for that specific order line.

If the System Parameter 'Auto Populate Request & Promise Date based on Lead Time' is checked (Purchase Order & Sales Order Setup tab), the system will add the lead days to today's date then compare that to the 'Should Arrive By' date to determine the promise date.

- If the 'Should Arrive By' date < to today's date + leads days then the Request and Promise Date = (Today's Date + lead days)
  - Ex: 7/1/2020 < 6/1/2020 + 60 days (8/1/2020) use 8/1/2020 (i.e. If the Must Order Date is earlier than Today’s date, then use today’s date + lead Days).
  - This applies when the PO is created from the top grid and the middle grid, Ideal vs Existing, and Raw Material Below Min.
- If the 'Should Arrive By' date >= to today's date + leads days then the Request and Promise Date is populated based on the following:
  - If the PO is created from the top grid or Raw Material Below Min = today's date + lead days.

Note: The pick list displayed when Add to PO - Item is selected includes a column for 'Closed' which indicates if the line item is closed on the PO. It is not recommended to add to a closed line item as update schedule does not recognize the releases and will continue to suggest adding to a PO.

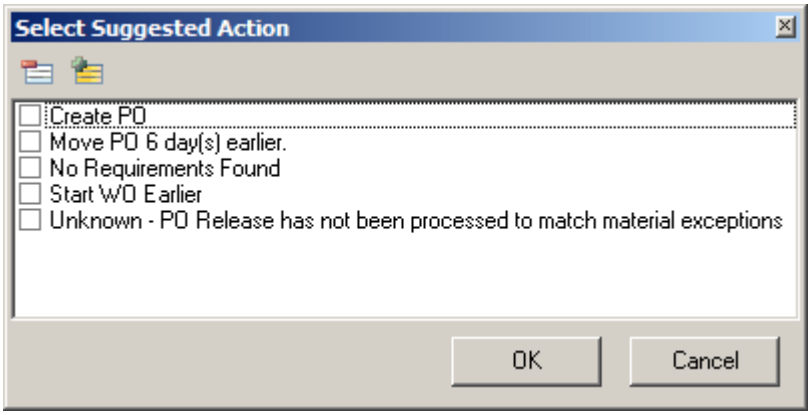
Note: If a new requisition is created from here, the system will use the default AKA Vendor listed for the item in inventory->AKA buying, or if there is not a vendor marked as the default a pick list of AKA Vendors will appear to choose from. If the user selects cancel on the AKA Vendor pick list, a pick list of all vendors will appear. If no vendors are listed in AKA Buying, the vendor pick list will appear. The Promise Date on the PO release will match the Should Arrive By date for that specific order line. The user can edit vendor, quantities, pricing, delivery dates, etc.

The suggested actions are based on comparing the 'Should Arrive' date with the 'Promise Date' on the purchase order. If the promise date falls within the PO Range established in inventory as a global setting or for the specific inventory item the system recognizes it as meeting the demand. The recommendations are displayed in the Suggested Actions column of the Ideal vs. Existing tab for records that fall within the PO Range number of days between the Promise Date of current PO releases compared to Should Arrive By dates for current order demand. Note: PO Range is the number of days before and after the Should Arrive By date that are evaluated. For example, if a PO release promise date is within PO Range number of days before the Should Arrive By date, suggested action = Ok. If PO release promise date is within PO Range number of days after the Should Arrive By date, suggested action is to move the PO release date earlier.

Ideal Vs. Existing Suggestions:

- **OK**.
- **Create PO**.
- **Start work order earlier** - this item is an attached component to make another item.
- **No requirement found** - open PO for this item with no production requirement. The item could be set for minimum stocking level.
- **Decrease or increase PO quantity**.
- **Move PO date XX days earlier** - existing PO and the promise date is within the PO range. The system understands the material ordered is due to come in within an acceptable time frame to meet work order date, however you may need to move promise date on PO closer to the actual start date on the work order.
- **Unknown - PO Release has not been processed to match material exceptions** - existing PO's should arrive date and the promise date is outside the PO range. The system understands the material ordered is not due to come in within an acceptable time frame to meet work order date. You may need to cancel existing PO or change the promise date.

Suggested Action Filter - This option allows users to filter this view to display only items with the suggested actions that are checked in the filter. Select the Assign button next to this field and a pop up form will display to choose the suggested actions.



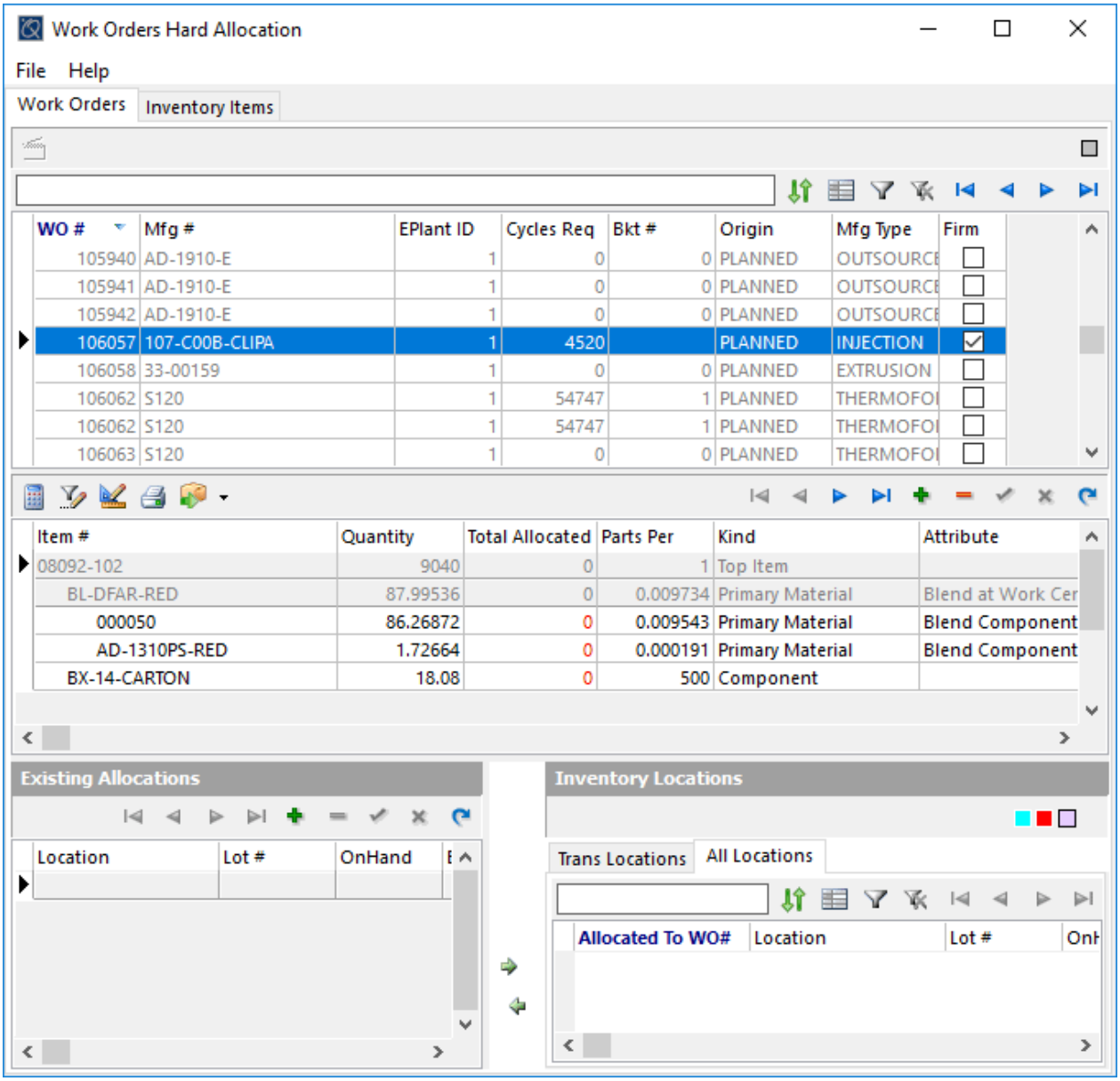
Place a check in the box next to the actions to be displayed. Use the 'Select All' or 'Unselect All' buttons to check/un-check all actions at once.

Only items that have a record with the selected actions will display. This filter only changes what is listed in the items grid. If the item also has a record for one of the suggested actions that has not been checked it will still display in the lower grid.

Hard Allocated to WO

This form has two tabs displaying hard allocated material details.

- The Work Orders tab displays the material that has been hard allocated to a work order. From this tab the user has the ability to add/edit/remove hard allocations. If a new hard allocation is being made to a work order that is not firm, the system will make it firm.
- The Inventory Items tab displays existing hard allocations by item.



Work Orders Tab

The functionality of work orders tab is basically the same as the Hard Allocate option in the Work Order module. The difference is this lists all of the work orders in the system. There are four sections in this form:

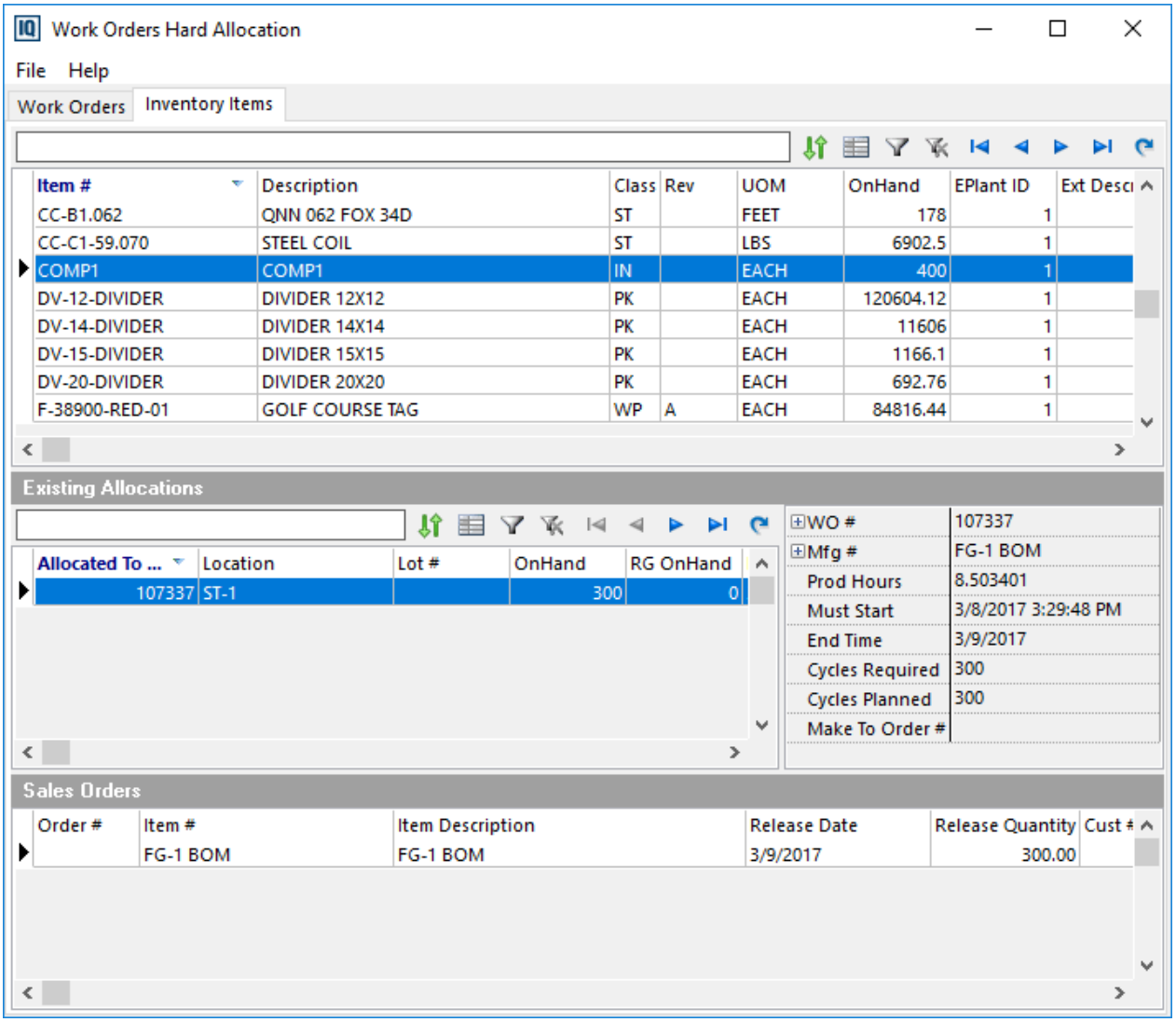
- **Work Orders** - Lists the current work orders.
- **Material Requirements** - This lists the materials required for the highlighted work order based on the BOM.
- **Existing Allocations** - Displays the existing hard allocations for the highlighted material.
- **Inventory Locations** - Lists the inventory locations associated to the highlighted material.

Hard Allocating Material

- Highlight a work order in the top section that requires hard allocation.
- A work order must be marked firm before hard allocation can take place. To mark the work order firm select the Firm WO speed button at the top of the form.
- Select the Calculate button in the middle of the form to calculate the material requirements for the work order. If the work order was not marked firm a message will appear stating, "A work order must be toggled to FIRM before proceeding with materials hard allocation. Toggle WO# xxxxx to FIRM?". Select Yes to firm the work order and calculate the material requirements, or No to cancel.
- The materials required for the work order will appear in the middle section. The inventory locations associated with the highlighted item appear in the lower right section. To hard allocate materials select the arrow left button. For details on hard allocating please see Hard Allocation in the Work Order section.

Inventory Items Tab

This tab lists the hard allocations by inventory item. This is for viewing only, the process of hard allocating cannot be done from this tab.



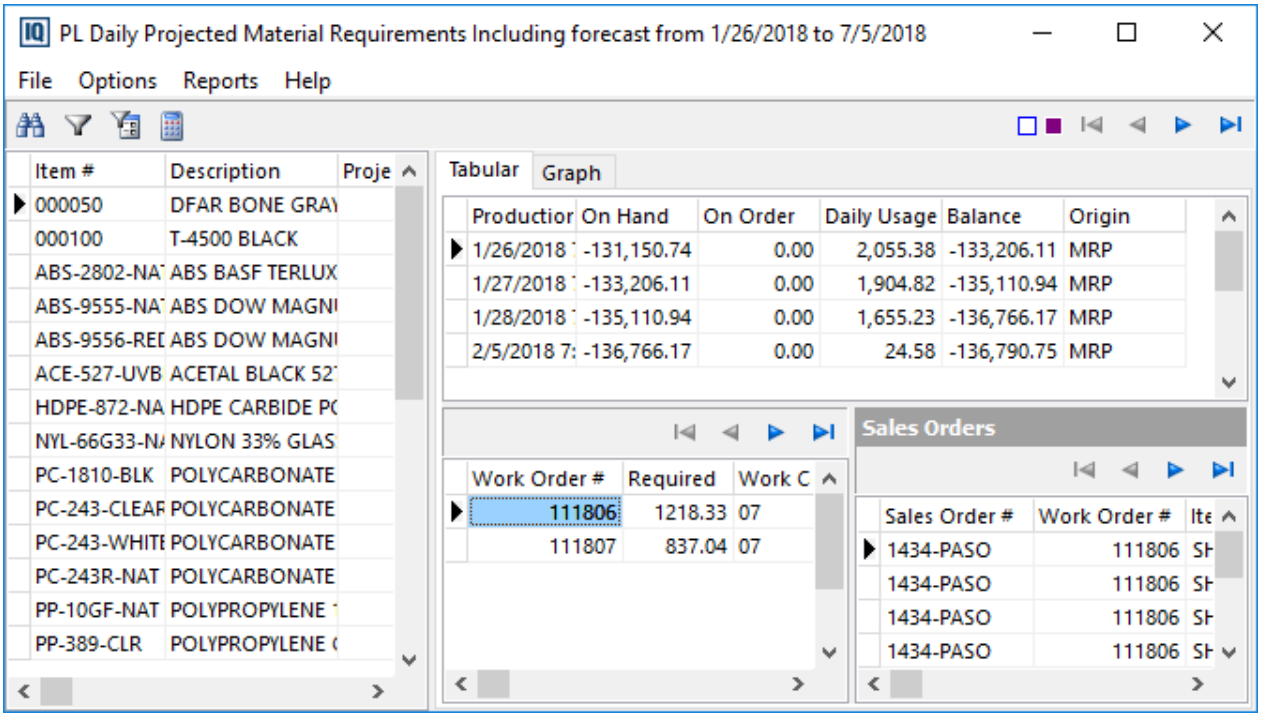
This tab contains three sections:

- **Inventory Items** - Lists the inventory items and details such as On Hand. A right click 'Jump to Inventory' option is available from this section.
- **Existing Work Order Allocations** - Displays the highlighted items existing hard allocations and the work order details. The user can jump to the work order from this section.
- **Sales Order Details** - The sales order associated to the work order. Right click and select' Jump to Sales Order' to access the sales order.

Daily Projected Material Requirements

One of the most powerful views of material consumption and running balances is available from the Daily Projected Material Requirements form.

The information here can be displayed in text form and graphically.



Somewhat similar to the Exception list, this list shows all the materials currently being consumed by the schedule. This list shows a running daily usage and on hand balance. Selecting a particular production date will display the corresponding work orders and sales orders affected. The list can be filtered for a certain class of material, for a certain range of time, for a certain division, or for a specific Buyer Code.

Left Side

The left side of the screen displays the inventory items required based on the filter settings. This includes the Item #, Description, Class, Warehouse/Division, EPlant, Buyer Code, ReOrder Point, and Safety Stock. The other fields in this section are:

Projected On Hand	This is the Current On Hand plus the Past Due PO's quantity.
Past Due PO's	This is the total quantity of any past due purchase orders.
Current On Hand	This is the On Hand quantity for the inventory item less any Non-Allocated quantity.

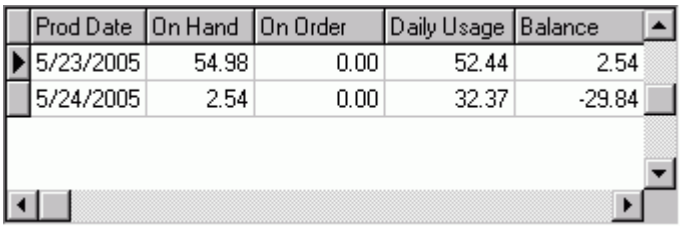
Right Side

The right side of this screen displays the production dates that fall within the selected date range set in the filter for the item. The system will calculate a running total of the item based on usage and expected receipts..

<table>
<tr><td>On Hand</td><td>This is the expected on hand for the production date. For the first date this is the same value as the Projected On Hand on the left less the hard allocated quantity, if any.

Note: It may not match the Projected On Hand if update schedule has not been run recently. To get the most current data the user should run update schedule. If this is not possible the user can set the filter to include more days in the past to view where the additional usage occurred.

For example the current on hand for the item is 54.98 but the On Hand on the right side is 2.54. If the filter is set to include more dates in the past, it will show where the additional material was used to come up with the 2.54 value. In this example it is: 54.98 - 52.44 = 2.54.

 
<table>
<tr><th>Prod Date</th><th>On Hand</th><th>On Order</th><th>Daily Usage</th><th>Balance</th></tr>
<tr><td>5/23/2005</td><td>54.98</td><td>0.00</td><td>52.44</td><td>2.54</td></tr>
<tr><td>5/24/2005</td><td>2.54</td><td>0.00</td><td>32.37</td><td>-29.84</td></tr>
</table>

Note: If the Scheduling parameter “Do Not Reserve Hard Allocated Quantities Over the Actual Requirements” is turned on and there is a quantity left that is over the actual requirement the On Hand will still display 0.00. The left over quantity is available and will be included in material requirement planning, but it does not show up as On Hand since it has already been assigned to the next demand.</td></tr>
<tr><td>On Order</td><td>This is the quantity due to be received on the date. The user can right click to view the On Order details including PO # and release information. From this pop up form the user can jump to the PO.</td></tr>
<tr><td>Daily Usage</td><td>This is the quantity of material that is expected to be used on that date based on the associated work order(s).

Note: This will show how much is required on each day regardless of the unit of measure (UOM), therefore, it is possible it might show in decimals even if the UOM is in eaches. The total exception and order quantity will respect the UOM (i.e. if it is eaches it will show a whole number).</td></tr>
<tr><td>Balance</td><td>The On Hand + On Order - Daily Usage for the specific Production Date.</td></tr>
</table>

Note: If the item is a blend and there is zero on-hand, the blend itself will not appear in the daily usage, but the components of the blend will show as being used.

Note: The BOM Eff. Factor setting reduces the amount of parts that it will show as being made in a shift/day (and thus requirements for components). For RUNNING jobs spanning multiple shifts/days, the difference between the calculated reduced amount and the 100% capacity amount is added to the last shift/day. If the balance of the parts per day reduced by the Eff. Factor applied to the last day is greater than that day's capacity, new day(s) are added as needed so required is not greater than capacity.

The lower right sections display the work order and corresponding sales order information. The work order section fields include: WO#, Required quantity, Hard Allocated quantity, and work center information including sequence #, if scheduled. If the work order is not scheduled the Work Center field will display "(Not Sched)". The Sales Order section fields include: Order #, Work Order #, item information, delivery date and quantity, and the customer associated to the sales order.

Right Click Options

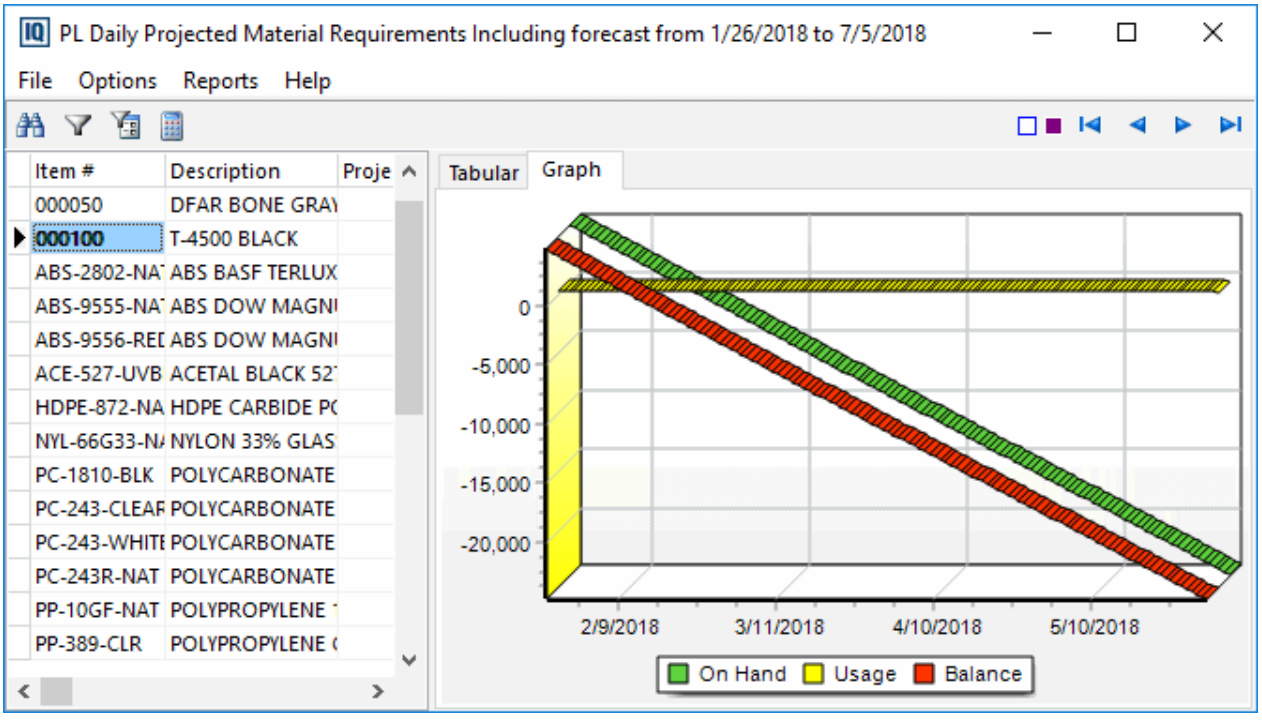
When you right click for from the left side of the screen you can jump to inventory, or inventory locations and transactions for the highlighted item or view past due PO information for the item.

From the upper right side of the screen you can right click and select '**On Order**' to see a brief list of outstanding POs, with Jump To PO capability. Or select '**DRP Demand**' (Distribution Resource Planning Demand is demand for an item that you buy and resell with no rework) which shows the sales order information for top level items, with a Jump To Order option. Note: The sales order reference will not show up if there is not a work order (there is material on hand to cover the sales order). If the user would like to see that information they should use Inventory Availability.

From the lower right side of the screen you can jump to the highlighted work order or sales order.

Graph Mode

To display a visual view of material consumption, select the **Graph** tab. The following screen will appear.



Three data points are displayed using the following color scheme:

Yellow	Daily usage
Green	On hand prior to consumption
Red	Ending balance

The spikes in the chart, if applicable, indicate material coming in from a PO.

Filter

This function allows the ability to limit the display to a certain class of material, for a certain range of time, for a certain warehouse/division, or for a specific Buyer Code. The information entered in the filter fields, including the date ranges, will be remembered until the user manually makes a change. The fields can be cleared by deleting the value in the field with the keyboard delete button.

EPlant

If you have EPlant set up this icon will allow you to choose the enterprise plant you want to see the information for or view all.

Calculate

The calculator button is used to recalculate PO Exceptions and Daily Material Requirements.

Material Staging

EnterpriseIQ supports two views of material staging requirements, by material or by work center. To be sure of having the most current information the user can select the calculator speed button which will bring up the update schedule form from which the user can recalculate the schedule.

Note: The work order must be scheduled to see records in this form.

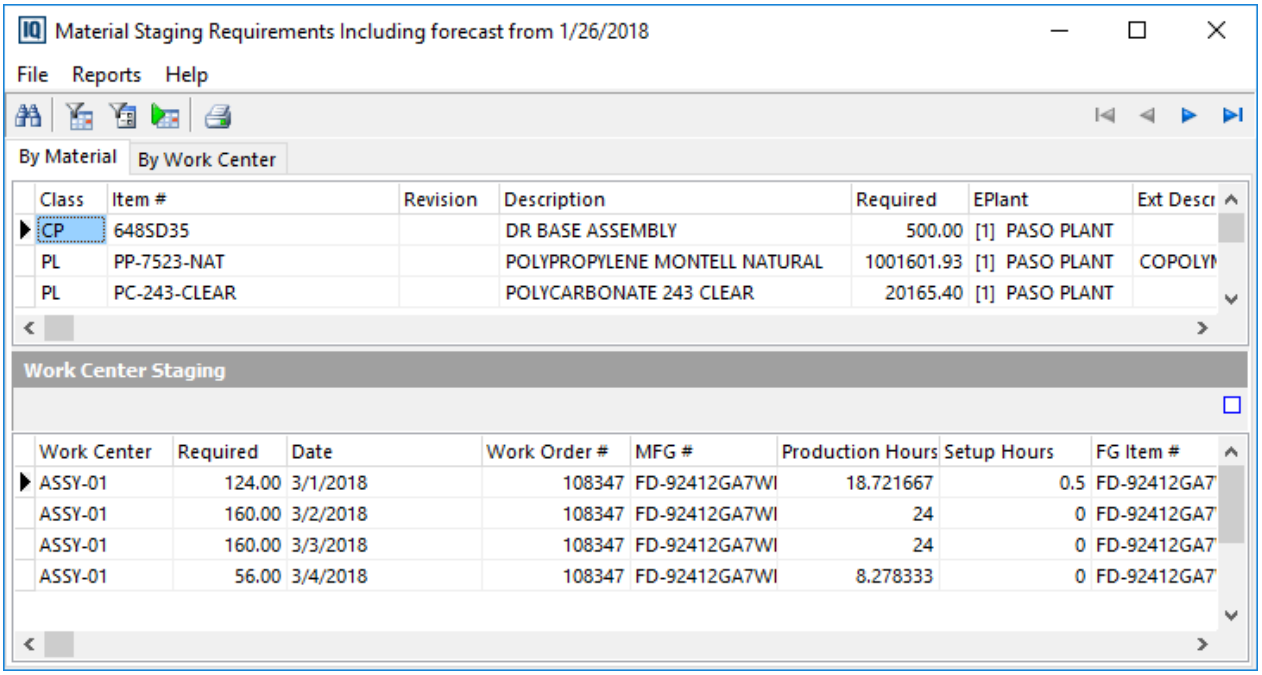
Select a Scope

To select a scope click on the scope icon and select the dates you would like to see the staging requirements for. You may also filter for a certain EPlant if applicable by clicking on the 'See EPlant View' icon.

By Material

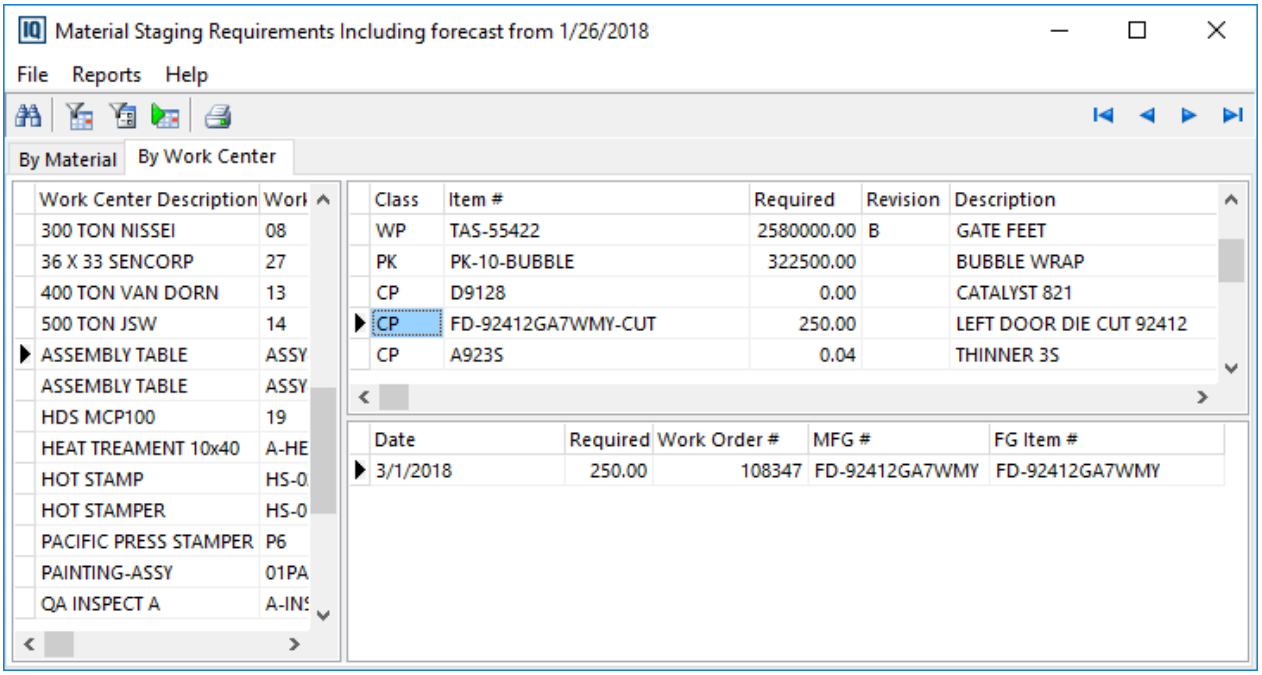
This screen shows all materials required within the scope.

The top section of this screen displays all of the items that should be staged for the scope selected. The bottom section displays where (which work center) the products are needed, and the quantity needed. By right clicking on a particular item, the user can jump to Inventory or Locations & Transactions.



By Work Center

This view shows all work centers with what materials are needed at each one. Note that a single work center may have one or many materials, and each material may be needed over multiple dates, depending on the range set within the scope.



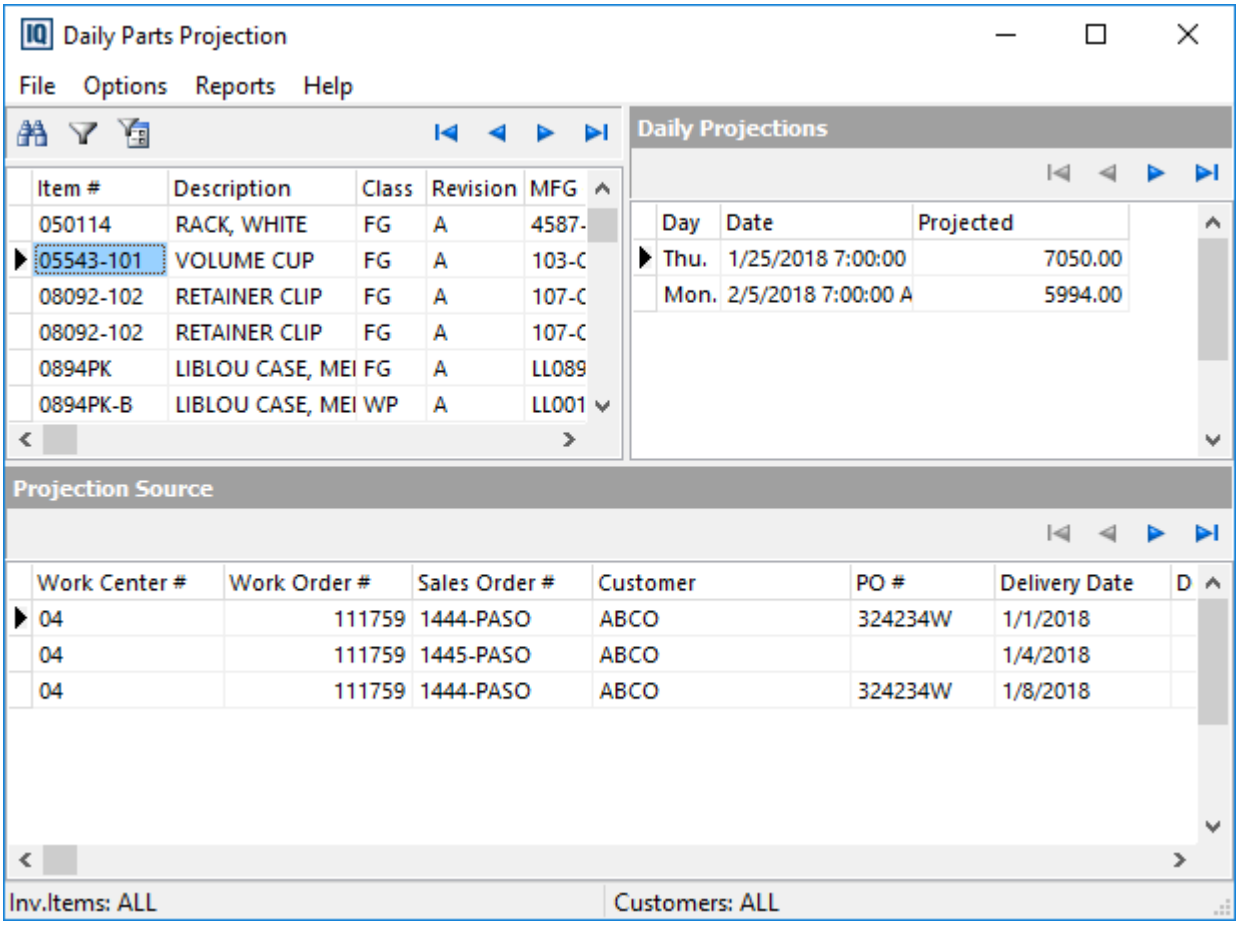
Note: When printing the staging report from the speed button the from date will be disabled as it will always use today's date.

Update Schedule can be run from this screen by selecting Run Update SChedule button  .

Daily Parts Projection

This single screen can display the projected production results by item. The key to this ability is the time phasing aspect. As each work order is scheduled, **EnterpriseIQ** is able to report on the projected production by date.

You may filter this screen to show only items on work orders and further narrow it to a specific customer. To do this click on the yellow Filter icon and select work orders.



In the case of unscheduled work orders, **EnterpriseIQ** displays them based on the must start date of the work order. These records are easily distinguished because they have no information in the 'Projection Source' grid.

Use the top left grid to highlight an item of interest. The Daily Projections grid (upper right) shows all dates of production, based on either the actual scheduled date or the projected must start date in the case on non-scheduled work orders.

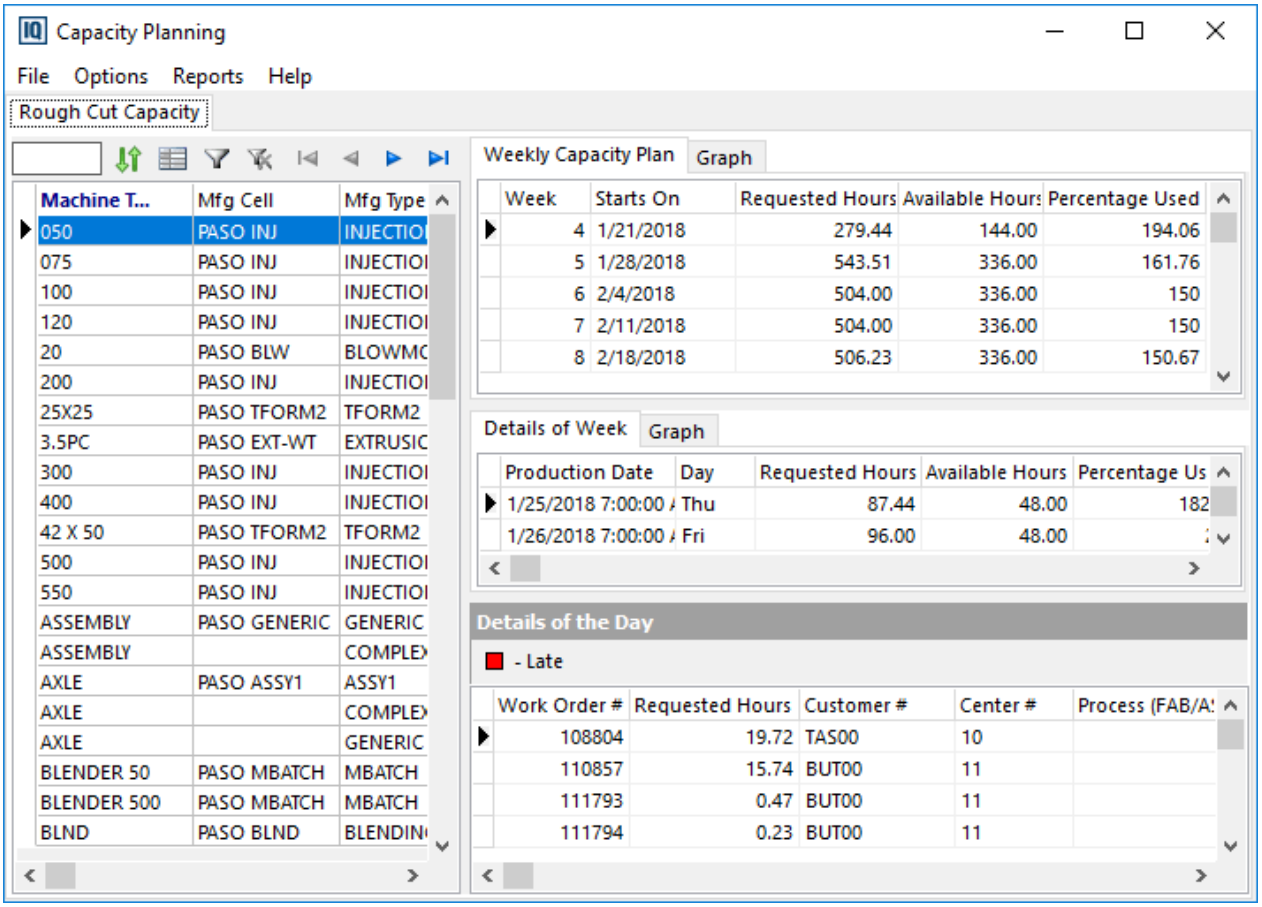
Highlighting any record in the Daily Projections grid will display the work center(s) where production is to take place in the Projected Source grid (lower grid). If the work center is not filled in, this indicates the projected date is based on the must start date of the work order, and is not currently scheduled.

Rough Cut Capacity

Rough cut capacity is defined as the total “time” consumed by your work orders. It does not assume all work orders have been scheduled. The system displays as much data as available, based on the work orders present in the system. The system uses the Shop Calendar to determine hours available. This tool is used for future forecasting to determine capacity requirements. To obtain the most accurate information this report should be run on Mondays.

If a work order is not scheduled, the Rough Cut model assumes that the work order will be run in the same week as the work order’s Must Start Date. If a work order is scheduled, then the model assumes work center usage at that time.

Access the Rough Cut Capacity screen by selecting **Capacity|Rough Cut** from the main menu bar within the Scheduling module. The following screen will appear.



All work center types are listed in the far left column (Machine Type) as well as Mfg Cell and Mfg Type. This list can be sorted by any of these fields by clicking the column header. Select any work center type to display the text and graph based weekly and daily capacity. Work orders are assigned to the work center type and MFG Cell based on the Center Type and MFG cell fields in the BOM.

Top Grid - Weekly Capacity Plan

The top grid (Weekly Capacity Plan) displays by week the required hours for the selected work center type, the available hours and the Used percentage.

Requested Hours - The Requested Hours include the Production time required for work orders plus the BOMs setup hours and the auxiliary equipment setup and teardown hours. The values used for the auxiliary equipment and teardown hours are based on whether the work order is scheduled or not.

Note: Update schedule must be run in order to have accurate values for the Requested Hours field.

- Example when Work Orders are Scheduled:

  BOM's 1, 2 & 3

  1st position downtime

  2nd position BOM1

  3rd position BOM2 (different Auxiliary Equipment than BOM1)

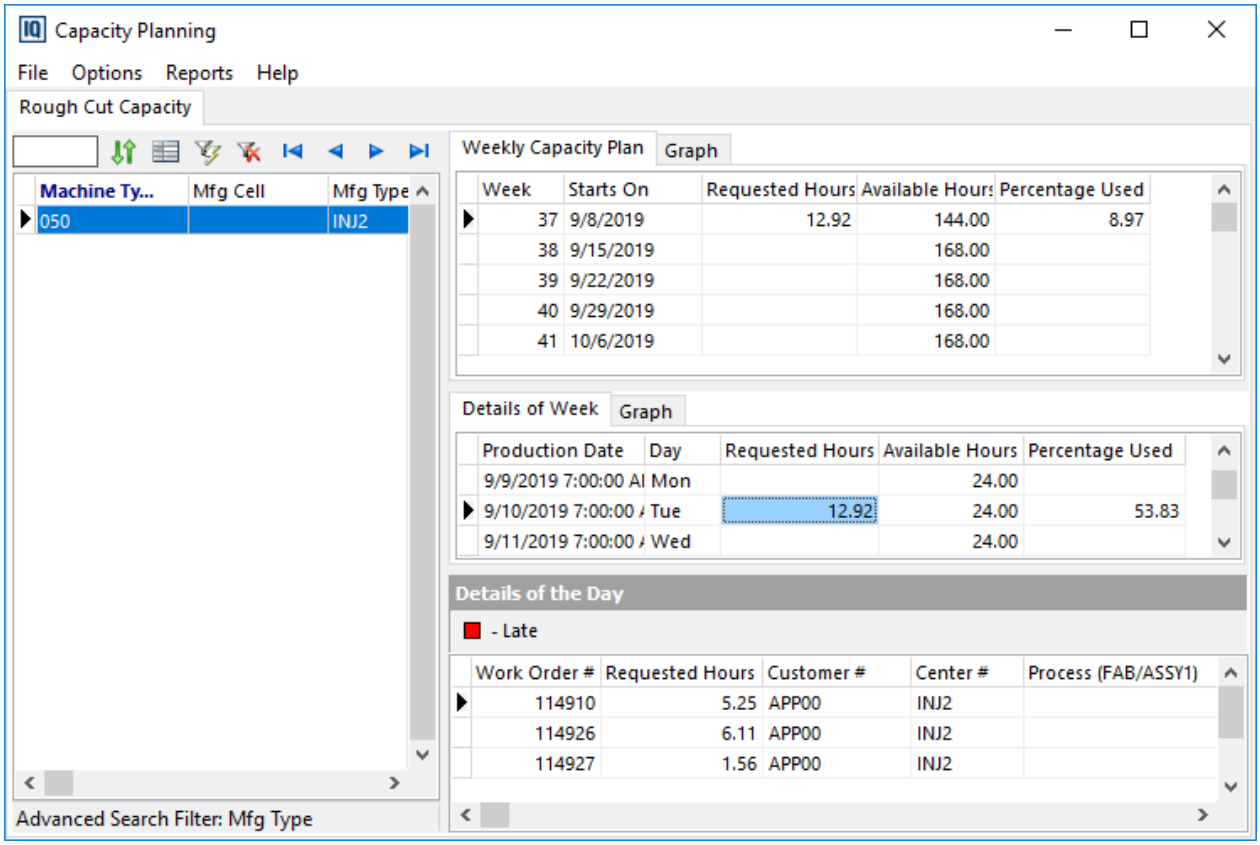
  4th position BOM3 (same Auxiliary Equipment as BOM2)

  Using the scheduling example above, the Requested Hours calculation for BOM2 will look at the auxiliary equipment for BOM1, and since it is not the same, the system will use the teardown from BOM1 and the auxiliary setup1 from BOM2.

Since BOM3 uses the same auxiliary equipment as BOM2, the calculation for BOM3 will use the Auxiliary setup2 hours and no teardown hours.

BOM	SU1	SU2	AUX SU1	AUX SU2	BOMs TD	PROD HRS	TD for CALC	TOTAL
BOM1	1.25	0.33	3	0.57	2	1		5.25
BOM2	1.11	0	2	0.56	1	1	2*	6.11
BOM3	0	0	2	0.56	1	1		1.56
	2.36	0.33	7	1.69	4	3		12.92

*TD is from BOM1

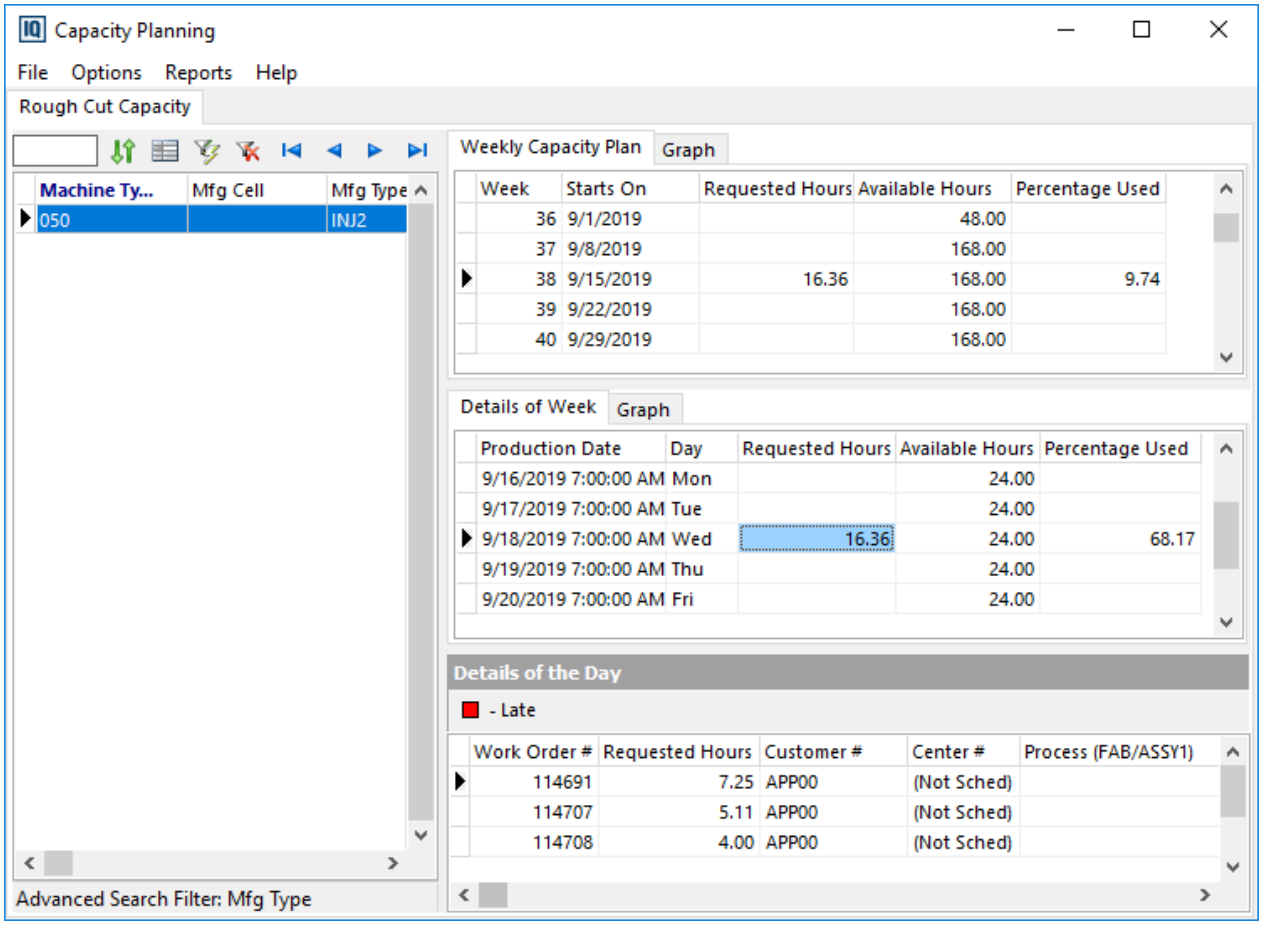


- Example when Work Orders are Not Scheduled:

  When work orders are not scheduled the system assumes they are not running back to back. In the example below none of the work orders are scheduled so the Requested Hours is the sum of SU1, AUX SU1, TEARDOWN (from BOM), and PROD HRS for all BOMs with work orders with a promise date in the same week.

Note: A BOMs teardown time is typically only used for jobs running behind it, but because the work orders are not scheduled, the system will use the teardown from the BOM the calculation is for.

BOM	SU1	SU2	AUX SU1	AUX SU2	TEARDOWN	PROD HRS	TOTAL
BOM1	1.25	0.33	3	0.57	2	1	7.25
BOM2	1.11	0	2	0.56	1	1	5.11
BOM3	0	0	2	0.56	1	1	4
	2.36	0.33	7	1.69	4	3	16.36



Available Hours - The available hours are based on the Shop Calendar. If a specific calendar is established for the Manufacturing Cell the system will use that otherwise it will use the Default calendar to determine available hours. For example, if you have two 100 type work centers that run 24 hours per day, 5 days per week the available hours for the week would be 240 hours (24 * 5 * 2). Choose the graph tab to visually view the same data.

Percentage Used - The Used Percentage is Requested Hours / Available Hours.

Middle Grid - Details of the Week

The middle grid (Details of the Week) shows the breakdown of the particular week highlighted in the grid above. Note that the individual days might show a different capacity than the weekly grid. This is possible since the weekly grid is based on the average availability over the full week. Individually, for example, a single day might be at 100% capacity. Overall, however, the week might be at only 85%.

Bottom Grid - Details of the Day

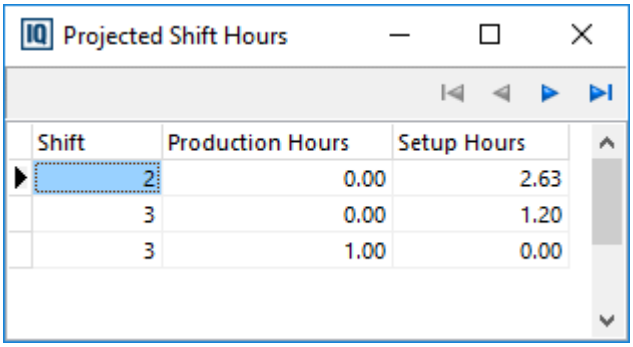
The bottom grid (Details of the Day) provides the lowest level detail. Here, all work orders that match the day are displayed, including the work centers consumed. This information comes directly from the schedule. If a work order is late, the Details of the Day grid will display that work order in Red. From the Details of the Day grid, use the right mouse click to jump to the Work Order, or to see the projected parts for the work order, or to view the hours per shift.

Right Click Options

From the 'Details of the Day' grid, users can right click and select:

- Jump to Work Order - Jumps to the work order.
- Projected Parts - Opens a pop up form displaying the BOM and item information with a column for the quantity of parts projected to be manufactured on that day.
- Hours per Shift - This will display the number of production and setup hours required per shift. The combined Setup hours are multiplied by the number of setup operators on the BOM.

Example: Using the scheduled example for BOM2 from above which has 0.75 setup operators.



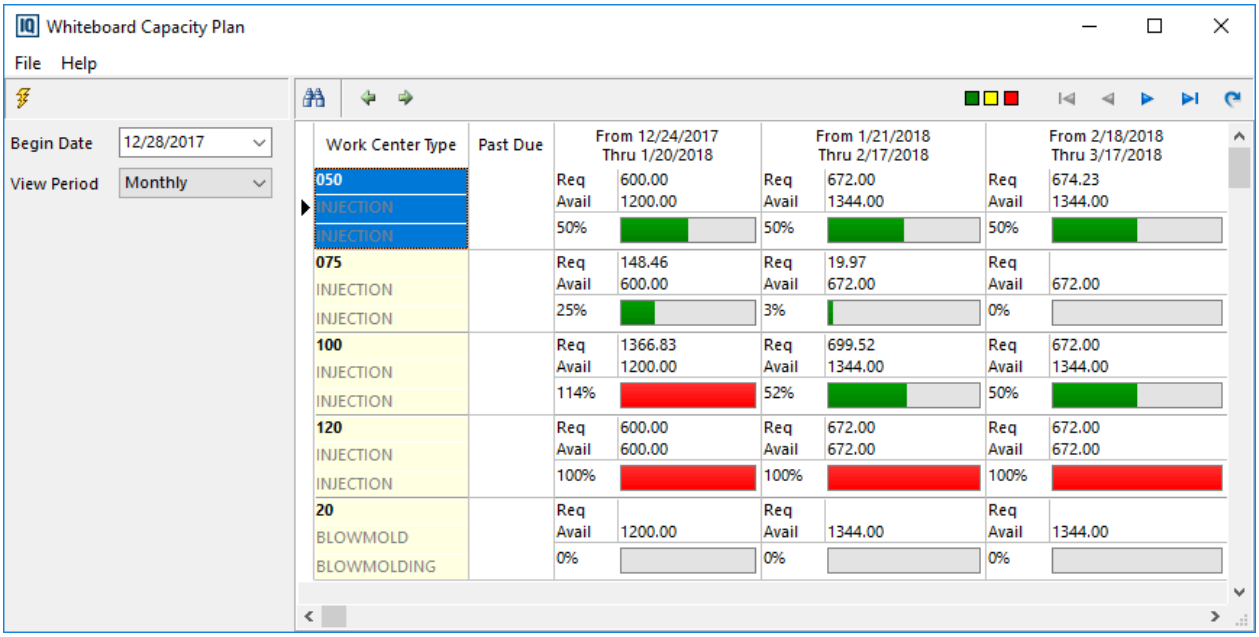
Shift	Production Hours	Setup Hours
2	0.00	2.63
3	0.00	1.20
3	1.00	0.00

The total production time required for the work order is one hour. The total setup hours required are 5.11 (SU1 + AUX SU1 + TD (from BOM1) = 1.11 + 2 + 2)

Total Setup Hours = 5.11 * 0.75 = 3.83 = (2.63 + 1.20)

Whiteboard Capacity Plan

The Whiteboard Capacity Plan tool provides a graphical view of the Rough Cut Capacity. The information displayed is very similar to Rough Cut Capacity as described above. The user can view the data from a monthly, weekly, or daily view based on an entered begin date. The information is filtered based on the EPlant the user is logged into.



- To use this tool first select a **Begin Date** using the drop down calendar. This date defaults to the current system date.

- Select the desired **View Period** from the drop down list (Monthly, Weekly, or Daily). The system will always display five columns based on the view period (five weeks, five days, or five months). In Monthly and Weekly view, the first 'From Date' starts on the first day of the week based on the Begin Date. In Daily view the first 'From Date' will equal the selected Begin Date.

- Next, select the **Apply Criteria** button.

The screen will display the rough cut capacity for each work center type/MFG Cell/MFG Type graphically (Out Source Mfg Type work centers are not included). Each period will show a bar graph based on the percentage available. This is calculated: Required Hrs / Available Hrs * 100. The color of the bars is dictated by the Capacity Whiteboard Thresholds entered in Scheduling Parameters.

- **Green** - If the % Available <= the 'Available' Threshold on that work center type.
- **Yellow** - If the % Available > the Available Threshold and <= the 'Booked' Threshold.
- **Red** - Red indicates the work center type is overbooked.

For example: If the Available Threshold = 50, and the Booked Threshold = 82

The bar colors will be as follows:

51% to 82% will be yellow (booked)

50% and less will be green (available)

83% and greater will be red (over-booked)

Note: If no values are established in the threshold fields the system will use 100% to determine the color coding.

Each period also shows the required hours, available hours, and the percentage used as numerical values.

The **Past Due** column shows the number of past due hours for the work center type for the selected period. This is equal to the late work order's requested hours (those highlighted in red) from the 'Details of the Day' section of the Rough Cut Capacity planning tool.

Future Hours - The last column displays the number of future hours outside of the selected view period.

Other Options:

Search - Select the search button to find a specific work center type. A Sort and Scope option is available in this pick list for the Work Center Type column only. This will allow users to view work centers side by side without having to do a lot of scrolling.

Move Forward or Back - Use the move buttons to move forward or backwards. It will move forward or back four weeks, one week, or one day depending on the view selected.

Labor Capacity

You can measure standard labor hours against the required hours to meet your schedule. The system can indicate, by week, day and shift, how many hours you normally have available and how many hours are currently planned. The planned hours are based on the work orders currently in the system. The display defaults to showing both scheduled and un-scheduled work orders, but users can select the toggle button  to only view scheduled work orders. Week, day, and detail records will show in red if the Labor Hours are greater than the Available hours.

Set Standard Labor Capacity

Before an evaluation of work hours can be made, the system must first understand what your "normal" or standard labor hours should be. You can establish different standard hours by manufacturing type, by cell, by day, by shift, and for a specific employee level.

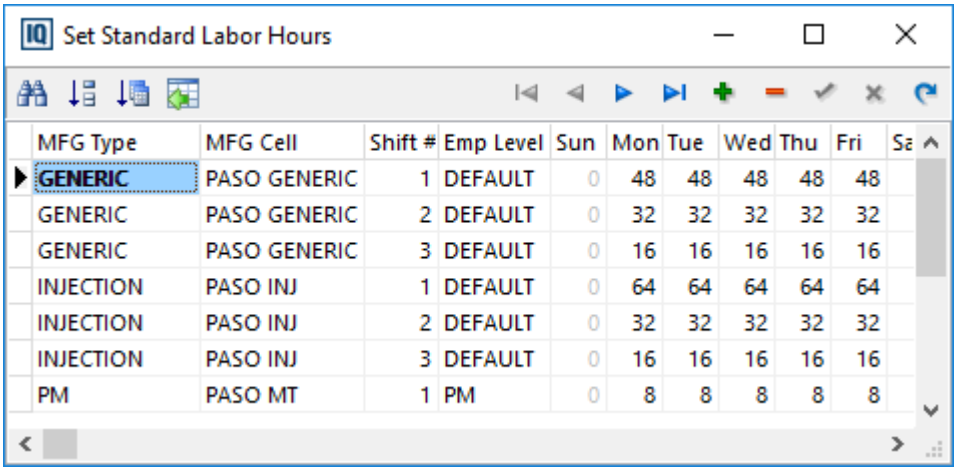
The Labor Capacity feature is found in **Scheduling** under the **Labor** menu option. Open the Labor Capacity form, then click on the Options menu to access the STD Labor Capacity form.

Use the **STD Labor Capacity** option to enter the standard hours. This information may be added one at a time by clicking on the **Add (+)** button and selecting the Mfg Type, Mfg Cell, and Employee Level from the drop down lists, and manually entering the Shift. Optionally, click on the Load All button  to add all of the available manufacturing types, manufacturing cell, shift, and employee level combinations set up in your system. Once the Mfg types, cells, shift numbers, and employee levels have been created, enter the hours for each day of the week. This can be done by highlighting the field and simply typing in the number of hours, or click on the Assign Hours button  to assign the number of hours to the shift all at once. The number of hours available is the number of employees multiplied times the number of hours per shift. For example, if you have eight employees on shift one and they work eight hours per day, the labor capacity for that shift/day would be 64.

Hours can be added based on the Time and Attendance Calendar by selecting the 'Assign Hours Based on Time & Attendance Calendar' button  . This will populate the standard hours from the Time and Attendance calendar for that record.

Note: In order for this to function the employees must be assigned a Department with a MFG Type and an employee level in Employee Maintenance, and be assigned to a Time and Attendance shift.

Once the grid is completed it will display the combination of manufacturing types, cells, and employee levels within those types, or just manufacturing types and employee levels (depending on the selected query). Each can maintain a different number of standard labor hours. You can delete any type you do not wish to track by clicking on the Delete **(-)** button. Use the Search button to access the pick list to find a specific record.



MFG Type	MFG Cell	Shift #	Emp Level	Sun	Mon	Tue	Wed	Thu	Fri	Sa
GENERIC	PASO GENERIC	1	DEFAULT	0	48	48	48	48	48	
GENERIC	PASO GENERIC	2	DEFAULT	0	32	32	32	32	32	
GENERIC	PASO GENERIC	3	DEFAULT	0	16	16	16	16	16	
INJECTION	PASO INJ	1	DEFAULT	0	64	64	64	64	64	
INJECTION	PASO INJ	2	DEFAULT	0	32	32	32	32	32	
INJECTION	PASO INJ	3	DEFAULT	0	16	16	16	16	16	
PM	PASO MT	1	PM	0	8	8	8	8	8	

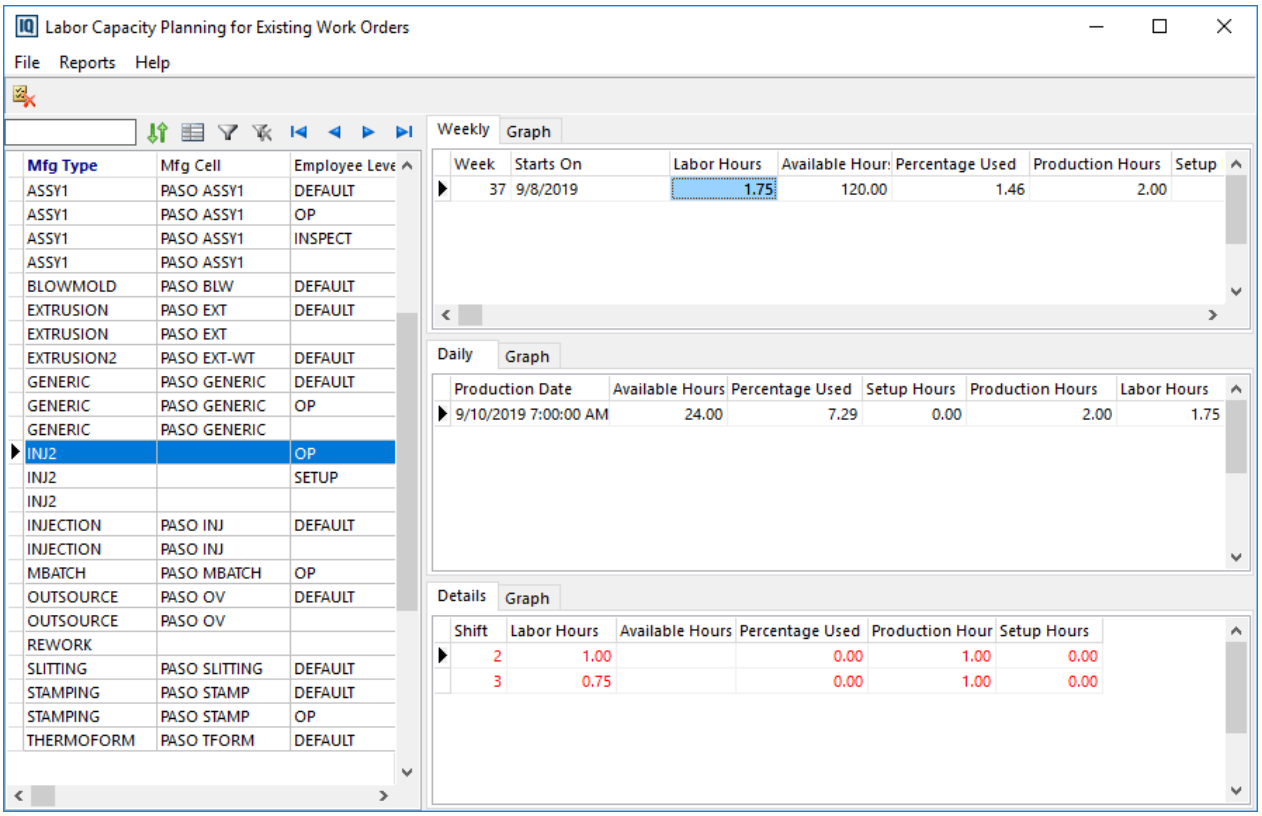
Labor Capacity Form

Once completed, **EnterpriseIQ** can compare these hours with the actual hours based on the work orders. This information is useful to determine future demand for labor resources as compared to the standard amount. Be sure to recalculate your production hours to ensure the accuracy of the information displayed.

Set Query

The desired query can be set by choosing an option from the File menu.

- Mfg Type + Mfg Cell + Employee Level - This is the default method and includes all columns.
- Mfg Type + Employee Level - With this option selected the form will not include Mfg Cells.



By default the planning form shows each Mfg Type, Cell, and Employee Level combinations with labor requirements on the left. If the Mfg Type + Employee Level query is selected manufacturing cells are not shown.The detail of how work orders within that combination are consuming labor is on the right. The upper grid shows the weekly view, while the lower two grids show the daily and detail (shift) view.

The weekly view shows the number of labor hours anticipated being consumed, the amount of hours available (based on the Standard Labor Hours grid), a calculated percentage of consumption, total production hours, and set up hours.

Labor Hours are the required amount of labor hours for each Employee Level, for all work orders in the specific time frame. For example, if a work order requires production of one hour and the 'OP' employee level is 0.75 on the BOM, the Labor Hours will be 0.75 (1 * 0.75).

Setup Hours

If the BOM has an employee with a labor type of SETUP the calculation is the number of Setup type operators listed on the BOM * Setup hours from the BOM, and may include Auxiliary Equipment Setup and Teardown Hours if applicable. The values used for the auxiliary equipment and teardown hours are based on whether the work order is scheduled or not.

Note: Update schedule must be run in order to have accurate values for the Setup Hours.

- Example of Scheduled Calculation:

  BOM's 1, 2 & 3

  1st position downtime

  2nd position BOM1

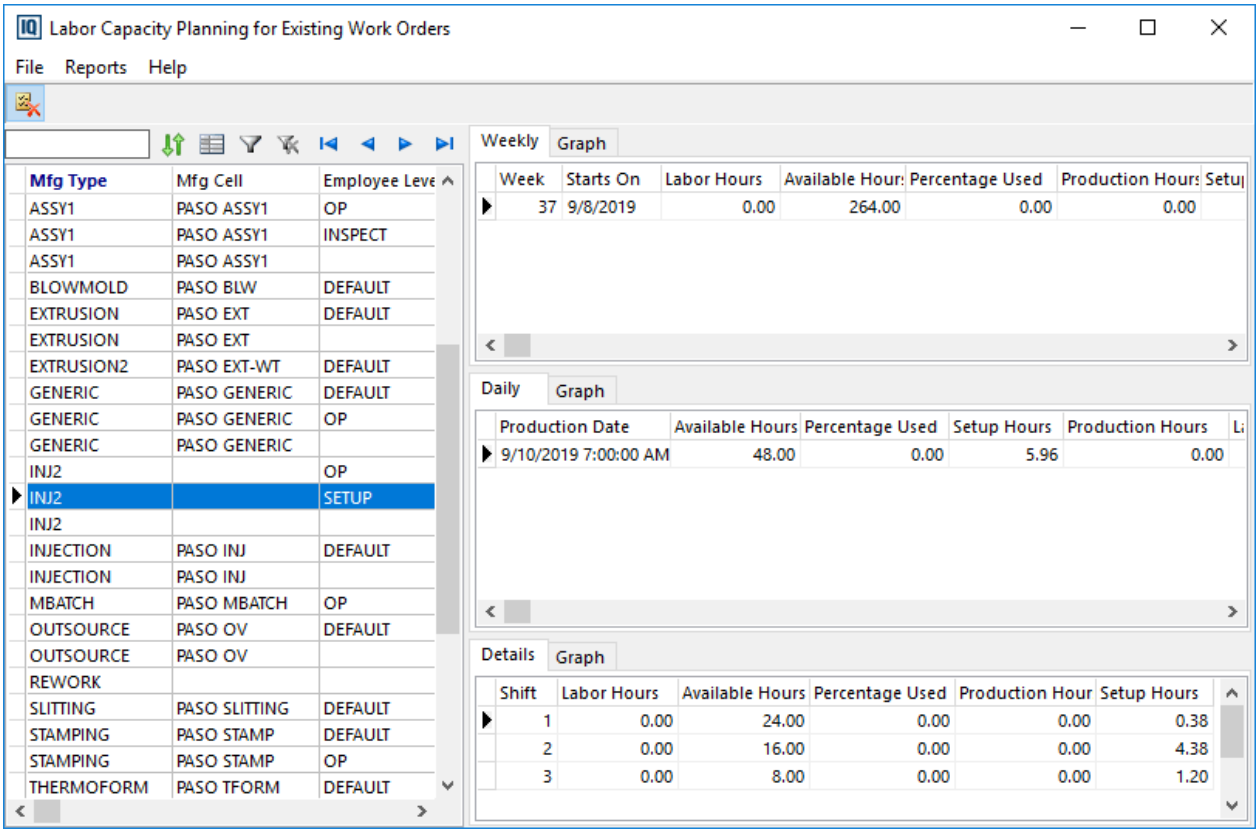
  3rd position BOM2 (different Auxiliary Equipment than BOM1)

  4th position BOM3 (same Auxiliary Equipment as BOM2)

Using the scheduling example above:

- Since BOM1 is scheduled beneath downtime, the system will use the SU1 and Aux SU1 from BOM1 (no teardown).
- BOM2 will look at the auxiliary equipment for BOM1, since it is not the same, the system will use the teardown from BOM1 and the SU1 and Aux SU1 from BOM2.
- Since BOM3 uses the same auxiliary equipment as BOM2, the calculation for BOM3 will use the Aux SU 2 hours and no teardown hours.

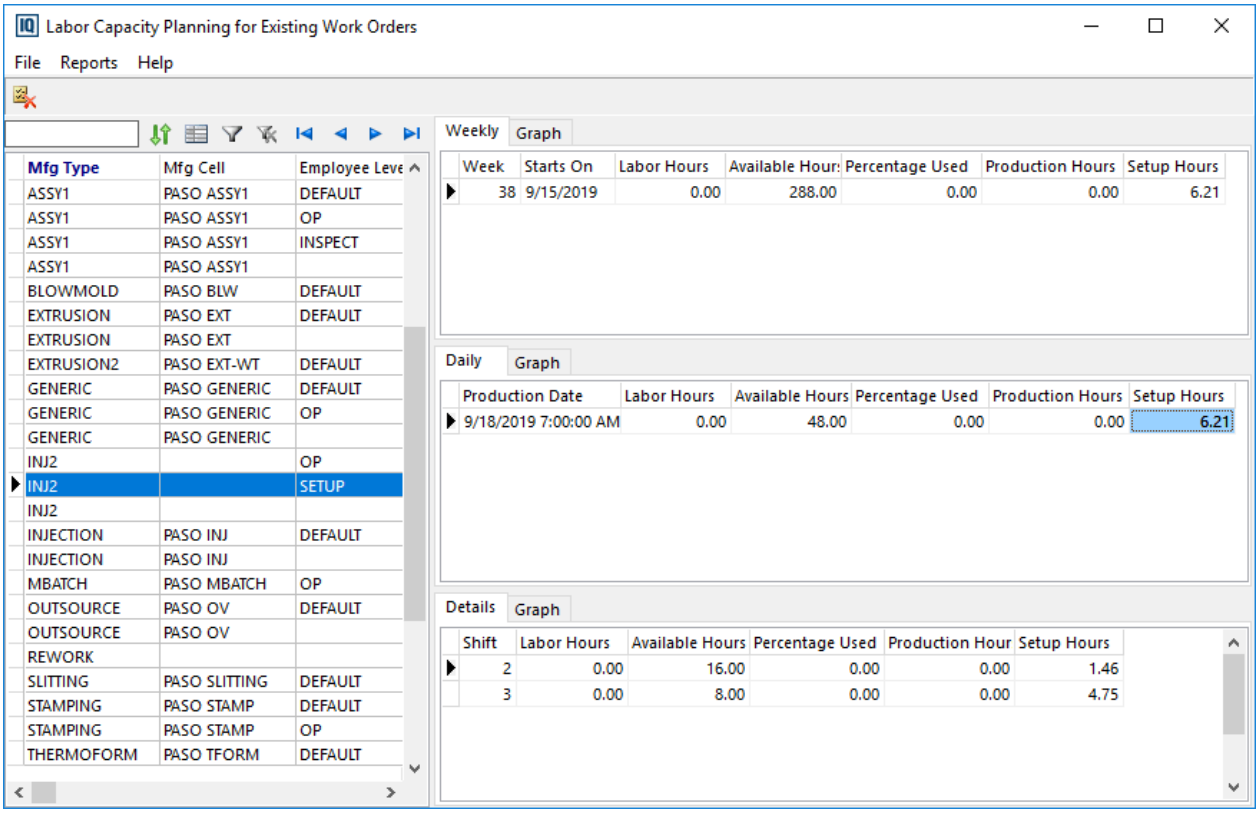
BOM	SU1	SU2	AUX SU1	AUX SU2	TEARDOWN	PROD HRS	# of OP Oper	Oper# of SU	TD for CALC	SU1+AuxSU1+TD	TOTAL SU Hrs
BOM1	1.25	0.33	3	0.57	2	1	1	0.5		4.25	2.13
BOM2	1.11	0	2	0.56	1	1	0.75	0.75	2	5.11	3.83
BOM3	0	0	2	0.56	1	1	0	0		3	0
	2.36	0.33	7	1.69	4	3	1.75	1.25		12.36	5.96



Example when BOMs are Not Scheduled:

When work orders are not scheduled the system assumes they are not running back to back. In the example below none of the work orders are scheduled so the Setup Hours is the sum of SU1, AUX SU1, TEARDOWN (from BOM) for all BOMs with work orders with a promise date in the same week.

BOM	SU1	SU2	AUX SU1	AUX SU2	TEARDOWN	PROD HRS	# of OP Oper	Oper# of SU	SU1+AuxSU1+TD	TOTAL SU Hrs
BOM1	1.25	0.33	3	0.57	2	1	1	0.5	6.25	3.13
BOM2	1.11	0	2	0.56	1	1	0.75	0.75	4.11	3.08
BOM3	0	0	2	0.56	1	1	0	0	3	0
	2.36	0.33	7	1.69	4	3	1.25	1	13.36	6.21



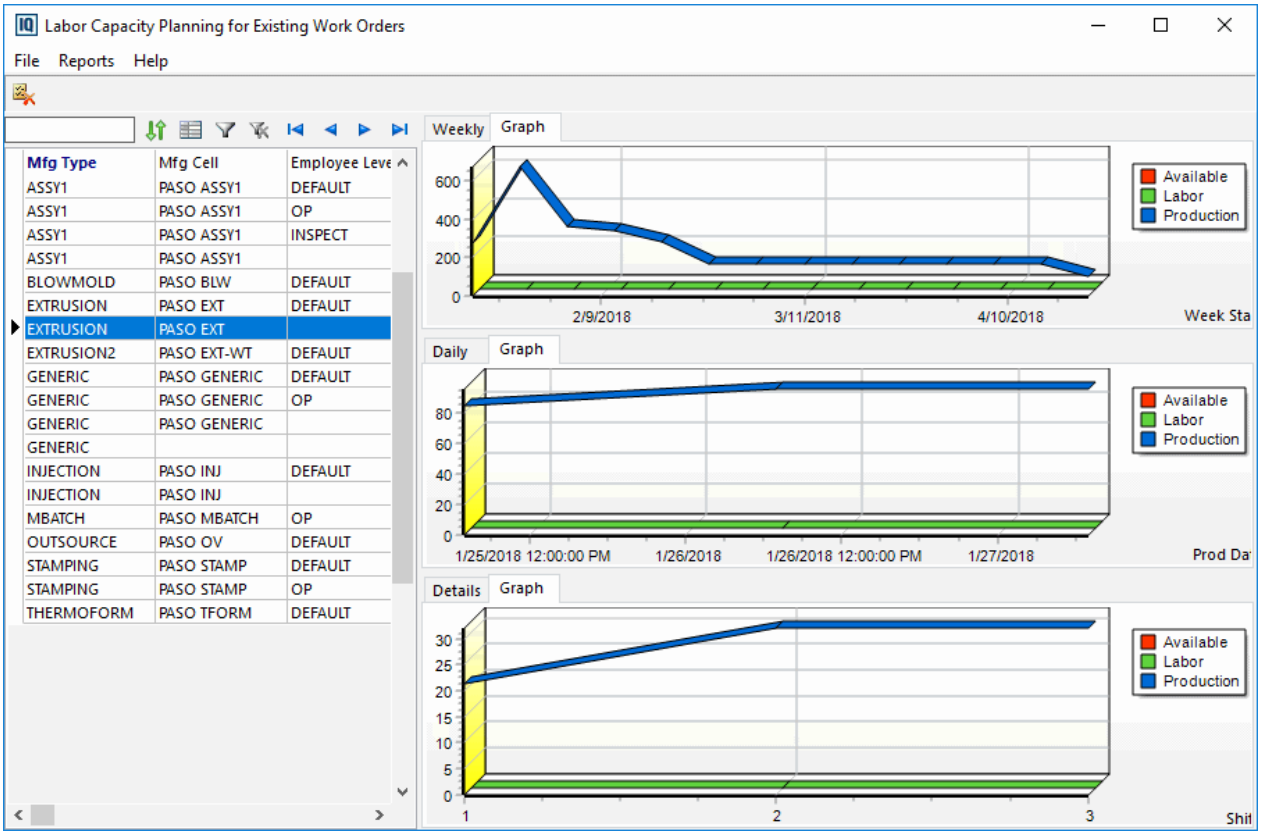
Note: If employee labor is assigned on the BOM the setup type should also be assigned in order to see setup hours in labor capacity. If you assign employee types but do not have a labor type of Setup attached to the BOM setup hours will not display in Labor Capacity.

Highlighting any week displays the details of the week in the lower two grids.

From the daily section, you can drill down to view actual work order information by double clicking on a line.

Graph Format

The labor capacity can also be viewed in a graph format by clicking on the graph tab in the three sections. Following is an example of this screen:



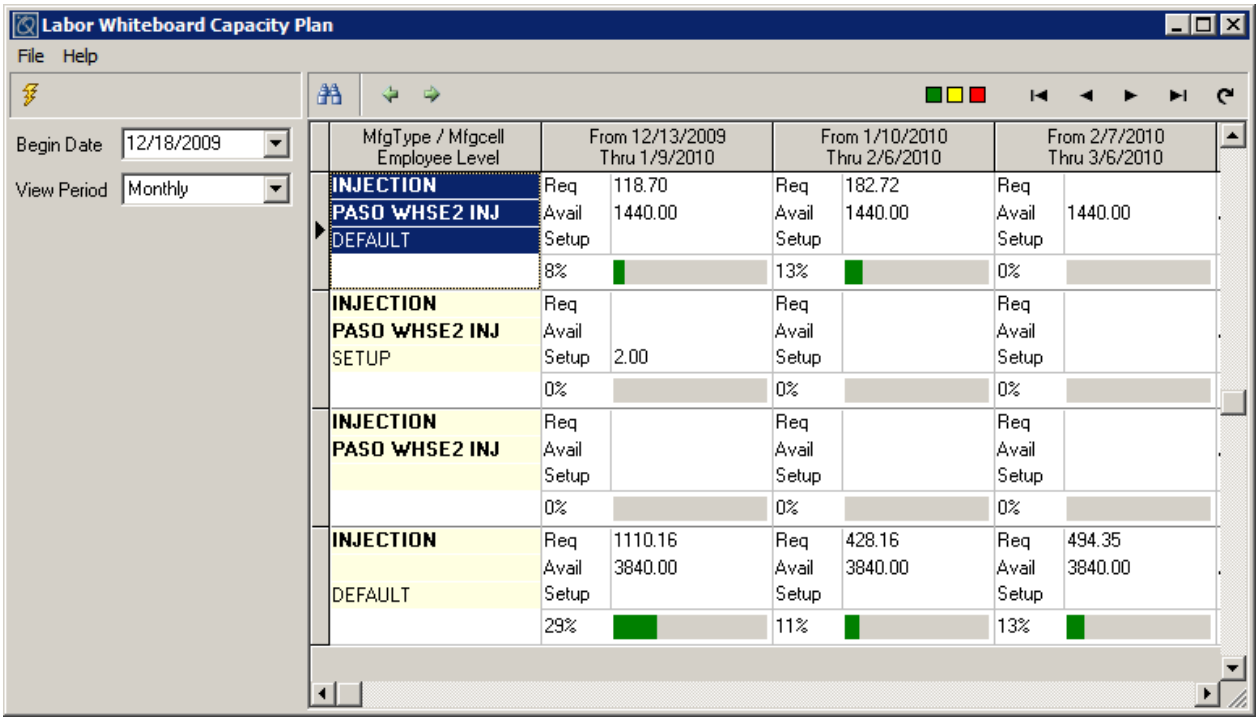
Labor Whiteboard Capacity Plan

The Labor Whiteboard Capacity Plan tool is graphical representation of the labor capacity. This will display the labor capacity for each MFG Type and Employee Level combination, and optionally include MFG Cell for a specified date and view period. The information is filtered based on the EPlant the user is logged into.

Set Query

The desired query can be set by choosing an option from the File menu.

- Mfg Type + Mfg Cell + Employee Level - This is the default method and includes all columns.
- Mfg Type + Employee Level - With this option selected the form will not include Mfg Cells.



- To use this tool first select a **Begin Date** using the drop down calendar. This date defaults to the current system date.

- Select the desired **View Period** from the drop down list (Monthly, Weekly, or Daily). The system will always display five columns based on the view period (five weeks, five days, or five months). In Monthly and Weekly view, the first 'From Date' starts on the first day of the week based on the Begin Date. In Daily view the first 'From Date' will equal the selected Begin Date.

- Next, select the **Apply Criteria** button.

The screen will display the labor capacity for each MFG Type, MFG Cell and Employee Level combination graphically. Each period will show a bar graph based on the percentage used. The color of the bars is dictated by the Capacity Whiteboard Thresholds entered in Scheduling Parameters.

- **Green** - If the % Available <= the 'Available' Threshold.
- **Yellow** - If the % Available > the Available Threshold and <= the 'Booked' Threshold.
- **Red** - Red indicates the labor type is overbooked.

Each period also shows the required hours, available hours, and the percentage used as numerical values.

Note: If no values are established in the threshold fields the system will use 100% to determine the color coding.

Future Hours - The last column displays the number of future hours outside of the selected view period.

Other Options:

Search - Select the search button to find a labor type.

Move Forward or Back - Use the move buttons to move forward or backwards. It will move forward or back four weeks, one week, or one day depending on the view selected.

MPS - Master Production Scheduling

Overview

This section describes the basics of setting the MPS system within EnterpriseIQ. MPS stands for Master Production Scheduling, a method of viewing time phased data pertaining to a part number. This can include demand (forecast, sales order and dependent), current work orders (firmed, generated, manual) and projected on hand balances (availability). Using MPS can help avoid shortages, costly expediting, and inefficient allocation of resources.

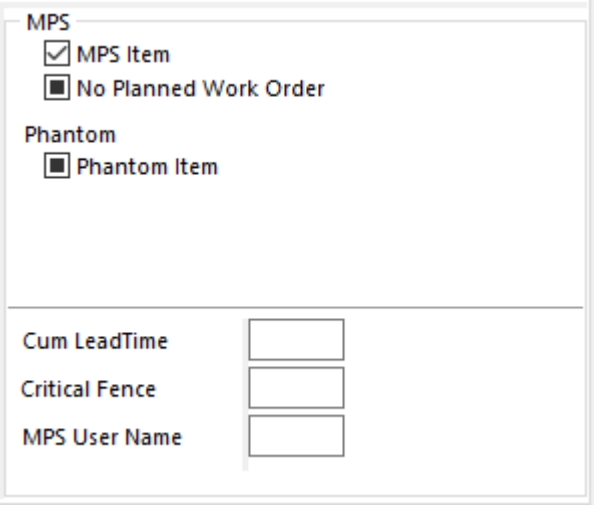
The system supports this information to be setup by part number. However, not all part numbers should be included in this system. Generally, only those items that are final products are normally associated with the MPS. This is because scheduling these items will also affect the manufacturing and purchasing of the lower level components, negating the need to directly include these in the MPS system.

The scope of this section is to describe how to set the system up, how it behaves and basic interpretation of data.

MPS Initial Setup

The inventory module maintains the relationship between the part and the MPS system. Locate the part of interest and click on the Manufacturing tab.

Click the MPS Item check box. This links the part to the MPS engine. Note below the field information within the MPS box.



MPS Item	Check this box if you want this item to be in the MPS (Master Production Schedule).

No Planned Work order	For MPS items only, this option may be checked to prevent the system from generating a planned work order when demand is present. A message stating, 'arinvt_id = xxxxx demand is negated by no_plan_wo switch', will display in the EnterpriseIQ MRP Engine in the Note field informing the user that a work order was not generated because the MPS item has this box checked. Keep in mind that NO work order will be created for an item with this option checked even if demand is present. Also no dependent demand will have a work order created either. The user will have to create a manual work order for items that have this option checked, and then once update schedule is run the system will generate planned work orders for any dependent demand.
Phantom Item	Check this box if you want this item to be a Phantom Item. A phantom item is a product that is consumed in a higher bill of material. If this is checked the inventory level will never go negative when being consumed unless the Drive Phantom Negative check box is selected. Instead the components of the phantom item will be removed. This particular part number is typically considered a non-stocked item. When an item is made phantom on the manufacturing tab in inventory, another check box will appear '**Drive Phantom Negative**'. If this is checked, dispositioning will take from the phantom item and take inventory negative rather than pulling from the phantom's components.
Cum LeadTime	Informational only. This is how long it will take to produce this item if there is zero on hand. The total of the longest lead times per operation. This is a free form field, not currently used by EnterpriseIQ. It should be noted that EnterpriseIQ calculates a similar value when generating the must start dates for work orders, and does not use the value stored here.
Critical Fence	This is visible in MPS->Time Phase Data and is informational only. It can be used by planners to recognize when they might transform a planned work order into a firm work. The MPS engine does not use this value. This is a value in days when the status of the MPS item becomes critical. Users can enter a value in the 'Manufacturing Planning Fence' in BOM->Options->Miscellaneous Parameters->Scheduling tab for the system to provide an exception message ('Firm Up Work Order at Time Fence') to alert a user to address the work order for the item.
MPS User Name	This free form field simply identifies the person interested in this data, and is used only for grouping purposes when viewing the results of the MPS evaluation.

As mentioned earlier, you will generally only want to include the highest level items, those that can cause bottlenecks in the plant. Adding all parts to the system will not only slow it down but will generate information that has no practical value.

Update Schedule for MPS

When Update Schedule is run, it will evaluate all parts linked to the MPS system and their work orders. The Update Schedule process does not calculate the Time Phase Data, but it will update the generated item exceptions on the main MPS form for review and to take action. The system will potentially output a series of exception messages indicating recommended courses of action. These messages are described below.

For further analysis the user can review the specific time phase data for an item. After running update schedule select the calculator speed button in MPS to update the Time Phase Data. See Time Phase Data for more information.

Note: When MPS reports are run a procedure called 'Populate Time Phase Data' is executed prior to printing that will recalculate the Time Phase Data to insure the reports contain up to date information.

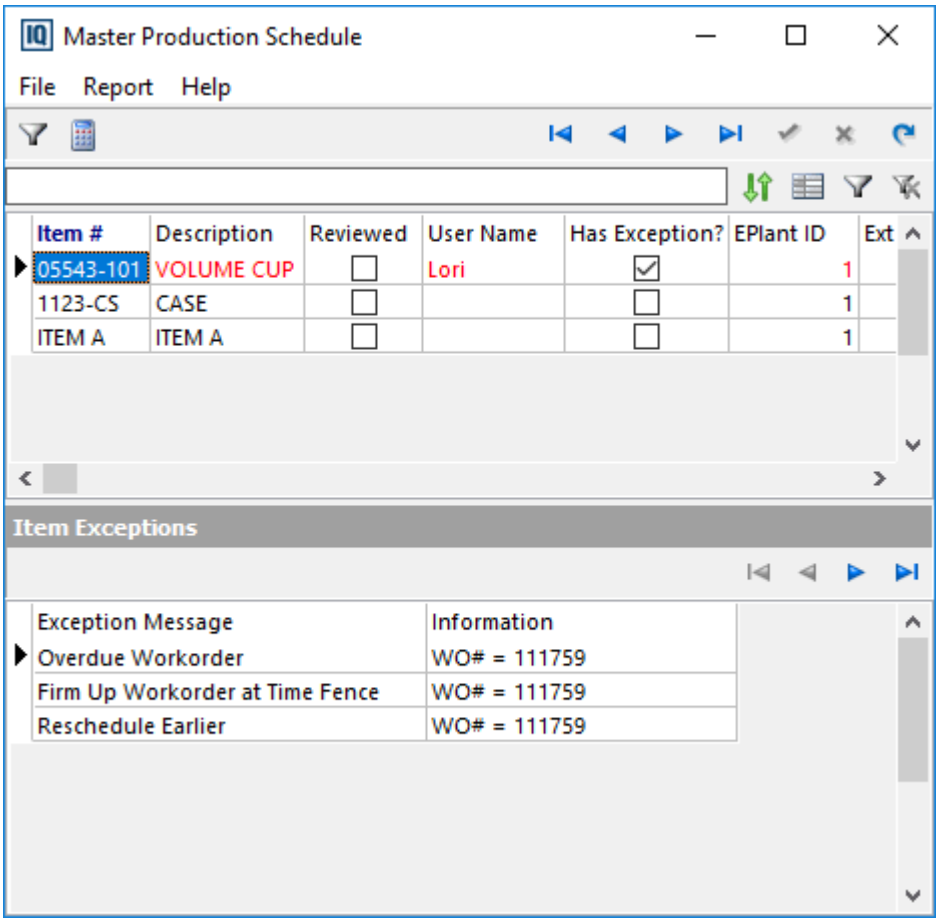
Work Order Refresher

EnterpriseIQ uses four kinds of work orders. The MPS engine generally works with the Planned and Firm work orders, but also considers manual and forecast work orders. Here is a brief review:

Planned	Work orders generated by the Update Schedule Function. These work orders are generally subject to change each time Update Schedule is run.
Firm	Planned work orders can be made Firm. Update Schedule will not change a firm work order. However, it will take the work order into account when determining additional manufacturing requirements.
Manual	A free form work order, not generated by the system. Update Schedule does not modify manual work orders.
Forecast	Based on demand entered in the Forecast module. Update Schedule can generate work orders based on forecasted demand, without actual sales order demand. The system will generate work orders for forecast demand if the 'Generate Work orders' parameter setting in Forecast is checked.

MPS Form

With the items checked and Update Schedule recently run, access the MPS module from the EIQ Launcher Bar. The following form will appear:



The top grid lists all items that have been included in the MPS system, whether there is action to be taken or not. The items are color coded for quick evaluation. Those items in black have no activity demanding your current attention, items in red have exceptions.

Below is a field listing for the top section:

Item #, Class, Rev, EPlant	The item number, class, revision and EPlant from inventory.
Description and Extended Description	The description and extended description of the item.
Reviewed	A check box to designate whether the item has been reviewed. To mark this double click on the box. Note: This box will automatically be unchecked when update schedule is run.

User Name	The user name assigned to the item on the Manufacturing tab in inventory in the MPS section. (This cannot be overridden).
Recalc Date	The date and time time phase data was last calculated.
Has Exception?	This will display Y if there are exceptions for the item.

Possible Exception Messages in MPS

This information appears in the lower section of the first MPS screen as well as on a tab on the Time Phase Data screen.

Reschedule Earlier	The system has found that the work order should be moved to an earlier time in order to meet the demand, which is normally either a shipping demand or a dependent demand
Reschedule Out	The system has found that the demand has shifted to a later time frame. The recommended action would be to move the work order to a later time.
Cancel	No demand exists for the item, the recommended action is to cancel the work order
Overdue Work order	This message indicates the work order is late, based on the calculated must start date, but that inventory exists to cover the demand. Therefore, while it is late, there is no demand to actually move the work order to an earlier date.
Firm Up Work Order at Time Fence	This message is intended for the master scheduler, indicating that the work order can be transferred from a Planned Work Order to a Firm Work Order. This is informational only, as EnterpriseIQ does not require that planned work orders be converted to firm work orders before actual production.

Jump To Work Order

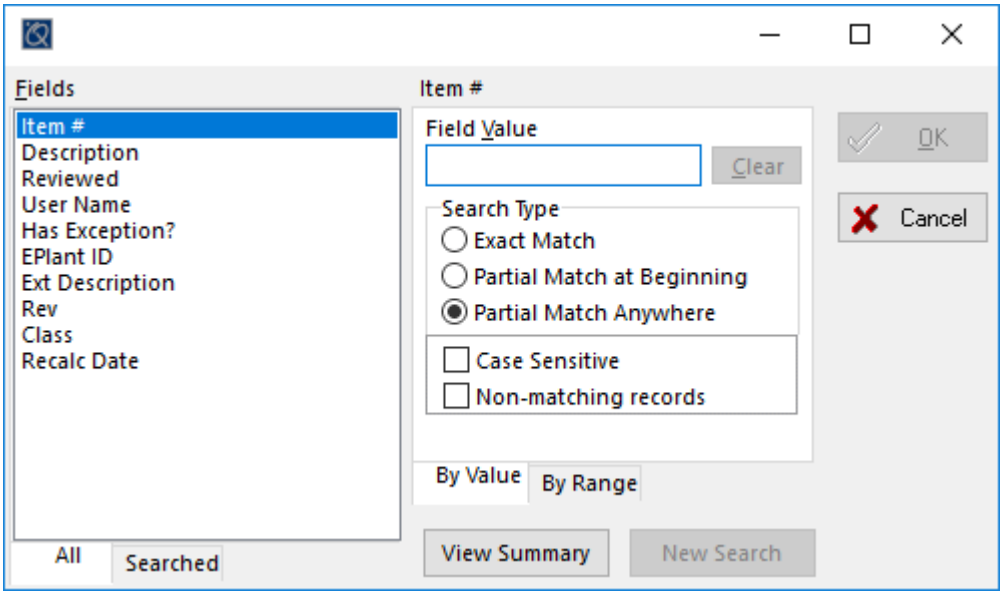
You can jump to the work order by highlighting any of the exception messages, right clicking and selecting Jump to Work Order.

You can manipulate the work order accordingly, but you must re-run Update Schedule before the changes are noted on this form.

Sorting and Filtering in MPS

To help search for a particular item, the user may change the way the items are sorted either by clicking on the header of the field to sort by, or right clicking and choosing one of the sort options (Item No, Description, Reviewed, User Name, or Exception).

The list may also be narrowed (filtered) to help in the search for a particular item. Click on the **Filter** button and choose which field to filter on, then choose a field value based on partial match or exact match. The screen below shows the options available for filtering the list of MPS items:

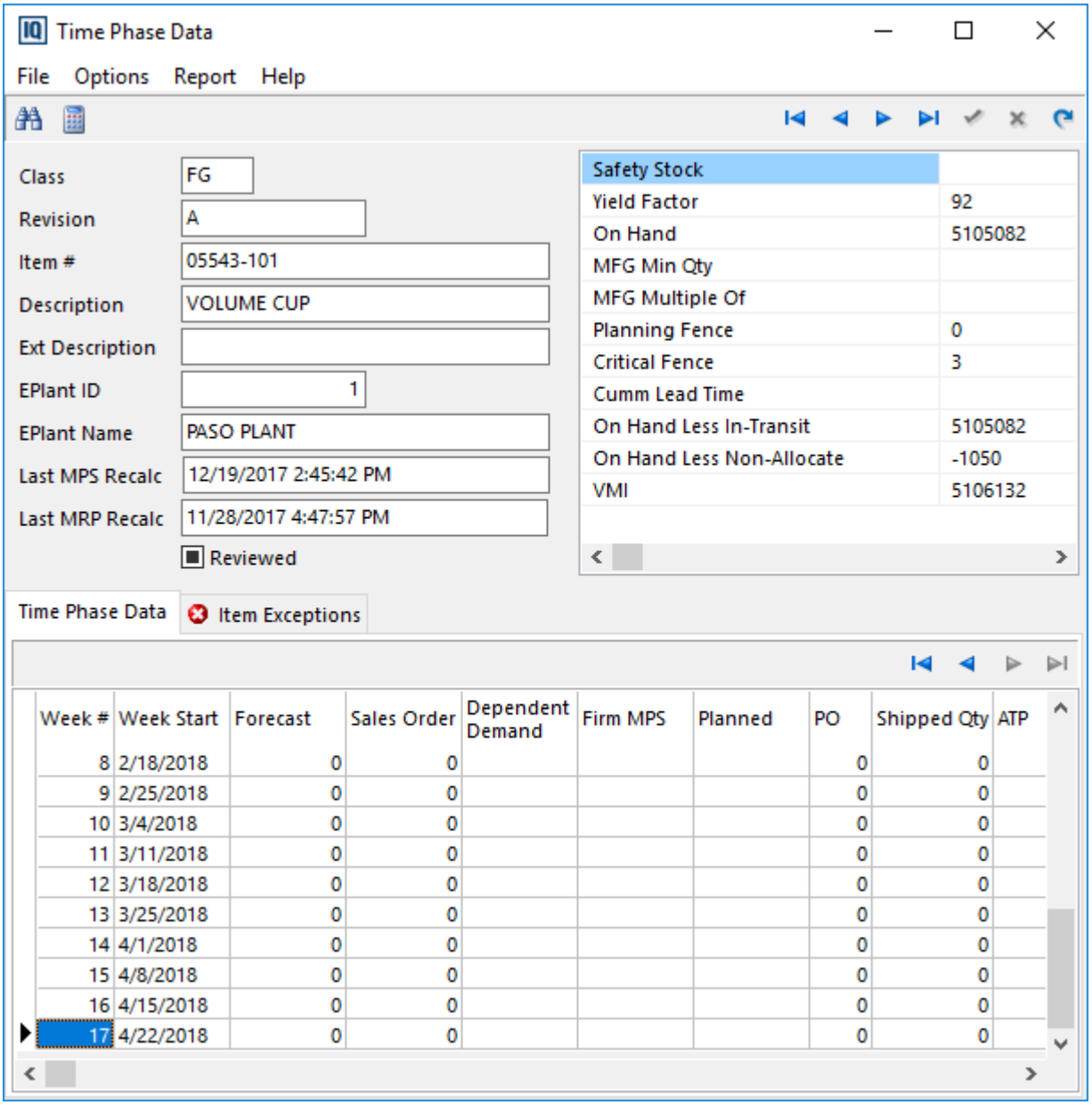


Calculate Displayed Items Time Phase Data (TPD)

Select the calculator button to calculate the Time Phase data for all of the displayed items. Users can double click an item in the list to access the Time Phase Data for a specific item. A confirm message stating, 'Last time the Time Phase Data was calculated on x/xx/xxxx xx:xx:xx AM or PM, Would you like to recalculate now?' will appear. Select Yes to calculate the Time Phase Data or No to not calculate. The recalculation process updates the Time Phase Data to the latest information from the demand and supply of the item. This confirm pop up message includes a 'Do not show next time' check box that can be checked so the message does not display.

Note: If Update Schedule is running the user will receive a warning stating, "Update Schedule is currently running. TPD will need to be recalculated after update schedule is finished."

The MPS **Time Phase Data** form will then appear.



Note: Only items with the MPS item check box will be visible in the MPS Time Phase Data form.

Below is a field listing for the top section:

Class	Inventory class of the item.
Revision	Item's revision.
Item #	The item number from inventory.

Description **Extended Description**	The description and extended description of the item.
EPlant ID **EPlant Name**	The EPlant ID and EPlant name associated to the item.
Last MPS Recalc	The date and time time phase data was last calculated.
Last MRP Recalc	The date and time MRP was last calculated.
Reviewed	This box can be checked if the MPS information has been reviewed. This in informational only.
Safety Stock	This is the value in the Reorder Point field found in inventory. Informational Only.
Yield Factor	The yield factor is equal to 1 - the scrap% found in the BOM for the item.
On Hand	The On Hand quantity in inventory. This does not include Non-Conforming items, but it will include Non-Allocatable.
MFG Min Qty	This displays the MFG Min Qty value associated to the item. This value is entered on the Manufacturing tab in the Inventory module. (See Manufacturing for more details).
MFG Multiple Of	This displays the MFG Multiple Of value associated to the item. This value is entered on the Manufacturing tab in the Inventory module. (See Manufacturing for more details).
Planning Fence	This option is only used in Master Planning Scheduling (MPS). The 'Manufacturing Planning Fence' is the time frame in days when you want the system to warn you to address an issue about an item. For instance, if the Manufacturing Planning Fence is set for 15 days, and the order is due within that time frame, through Master Planning Scheduling, the user will get a message to make the work order firm and release it to the floor. However, if a 'Default Planning Fence' is set the work order will be marked firm automatically if scheduled within the planning fence. The 'Manufacturing Planning Fence' is entered for the BOM under Options/Miscellaneous Parameters/Scheduling tab/Manufacturing Planning Fence. See Miscellaneous Parameters in BOMs.
Critical Fence	The critical fence information entered for the item in Inventory on the Manufacturing tab. This is informational only. It can be used by planners to recognize when they might transform a planned work order into a firm work. The MPS engine does not use this value.
Cumm Lead Time	The cumulative lead time information entered for the item in Inventory on the Manufacturing tab. Informational Only - The total of the longest lead times per operation. This is a free form field, not currently used by EnterpriseIQ.
On Hand Less In-transit	On Hand - On Hand in 'In Transit' location.
On Hand Less Non-Allocate	On Hand - On Hand marked as Non-Allocate.
VMI	The quantity in VMI location(s).

Time Phase Data

This tab illustrates the weekly supply, demand, available to promise and the running balance of the item. This information is completely based on the current sales order situation, the forecast, dependent demand (demand for this part based on another part consuming it) and availability. The number of weeks displayed is based on the scheduling scope in days set in the scheduling module under Options/Scheduling Parameters.

Adjusting the work orders on the finite schedule, then re-running Update Schedule will generate new information for additional evaluation.

Column field information for the Time Phase Data tab is as follows:

Week #	The actual number of the week based on a calendar year.
Week Start	The date of the first day of the week.
Projected Balance	The projected balance of items for the week. Use this field for a weekly ATP.
ATP	The quantity of items that are available to promise Based on total Demand. This is a running total. See below for more detail on how this is calculated.
Forecast	This is the amount of unconsumed forecast demand coming from the forecast module for the week. (Note: The system will only use the forecast data from the Production forecast, not the Sales Analysis forecasts). Note: Past due forecast demand will not be shown. This only applies to users licensed for the Forecast module.
Sales Order	This is the amount of demand coming from sales orders for the week. This information will appear as soon as the sales order is created and the time phase data recalculated. (ICT Ship Orders are not included).
Dependent Demand	This is the amount of demand coming from dependent work orders (demand for this part based on another part consuming it) for the week. (Dependent demand will still display for hard allocated components).
Firm MPS	This is the amount of supply coming from work orders marked firm for the week.
Planned	This is the amount of supply coming from work orders for the week. This amount includes Planned, Forecast, and Manual work orders not marked firm. These work orders do not have to be scheduled to be included in this amount.
PO	This is the amount of supply coming from open purchase orders.
Shipped Qty	The quantity shipped.

Jump To Information

From the top section users can jump to the default BOM or the Inventory item. If changes are made to the BOM or item for information that is displayed in the Time Phase Data screen, such as MFG Min Qty and Planning Fence, the updated information will display after selecting the calculator button.

You can right click on the lower section of this form to jump to forecast, sales order, demanding work order, planned work order and firm work order information. The information that will appear is based on the week that is currently highlighted.

- **Forecast** - This will take you directly to the Forecast module to the line in the Production forecast for the item for the month associated with the highlighted week. This only applies to users licensed for the Forecast module.
- **Sales Orders** - This will bring up a form listing the sales order information for the item. This information is related to the week highlighted. If the sales order delivery date is outside the time frame for the highlighted week, no sales order information will appear in the form. From this form the user can right click to jump to the actual Sales Order.
- **Dependent Work Orders** - This will bring up a form showing the dependent demand related to the highlighted week. This displays the parent work order(s) for this part including work order quantity in the top section. Right click and select Jump to Demand to view the time phase data for the parent item. The lower section displays the work order and quantity for the dependent item. A right click option to jump to the dependent item's work order is available.
- **Firm MPS Work Orders** - This will bring up a form showing any firm work orders for the highlighted week. If the form has a work order listed, the user can right click to jump to the actual work order or create a new firm work order. When choosing the Create New Firm WO a pop up screen asking for a quantity will appear. Enter in a quantity then the new work order will appear. This work order is a manual work order marked firm.
- **Planned Work Orders** - This will bring up a form showing the planned work orders associated with the highlighted week. Planned work orders are those created automatically by the system based on demand from sales orders, auto MRP, or forecast and manual work orders created by a user. The planned work orders for manufactured Outsourced MPS items are suppressed because the demand is fulfilled based on a PO, and would be overstated if not. From this form the user can right click to jump to the actual work order, or jump to the Schedule. When Jump to Schedule is selected the jump takes the user directly to the work order within the Scheduling module (or AssyTrack or FabTrack). If the work order is not scheduled, this option is grayed out.
- **POs** - This will bring up a form showing the open purchase orders for the item.
- **WO Management** - Select this option to view the WO Management tool. (See WO Management for details).

ATP (Available to Promise)

The ATP in MPS is calculated based on the supply and demand. The supply comes from On Hand, work orders, and PO's. The demand comes from sales orders, forecast data, and dependent demand.

The calculation is as follows:

(On Hand + Planned WO's + Firm WO's + PO's) - (Greatest (Sales Orders, Forecast) – Shipped + Dependent Demand).

Note: If the Exclude Forecast (Options menu) is checked, it will not be included in the ATP calculation.

The Inventory Availability module on the Sales Order tab of the launcher bar also has an available to promise field. The calculation for ATP in Inventory Availability is slightly different. By default it does not consider supply is available until the work order is scheduled and it does not reduce the ATP by the amount coming from forecast. The formula is as follows: (On Hand + Scheduled WO's) - (Backlog from Sales Orders). If the option 'Include Non-Scheduled Work Orders' is checked in Inventory Availability then the results between the two different ATP calculations will only differ by the Forecast quantity.

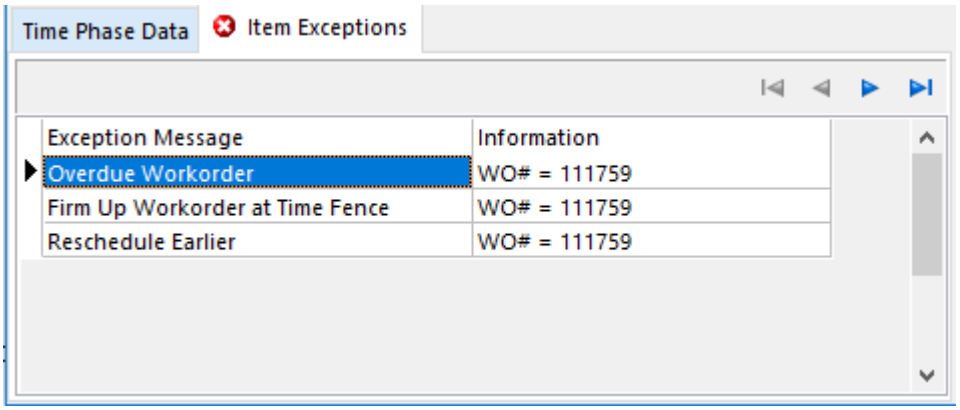
Note: Inventory in a Non-Conform location is considered available if the Allocatable box is checked when toggling to non conform.

Options Menu

The On hand value may be adjusted by the quantity in In Transit, Non-Allocate locations if the 'On Hand Less InTransit' and/or the 'On Hand Less Non-Allocate' option(s) are checked in the Options menu in Time Phase Data.

- **On Hand Less InTransit** – If this option is checked, the on hand used when calculating an items time phase data will not include quantities In Transit.
- **On Hand Less Non-Allocate** – If this option is checked, the on hand used when calculating an items time phase data will not include Non-Allocated quantities.
- **Exclude Forecast** - If this option is checked, the system will hide the Forecast column and exclude forecast demand from the projected balance totals. This only applies to users licensed for the Forecast module.

Item Exceptions



This tab will display any exceptions for the item. The possible exceptions are as follows:

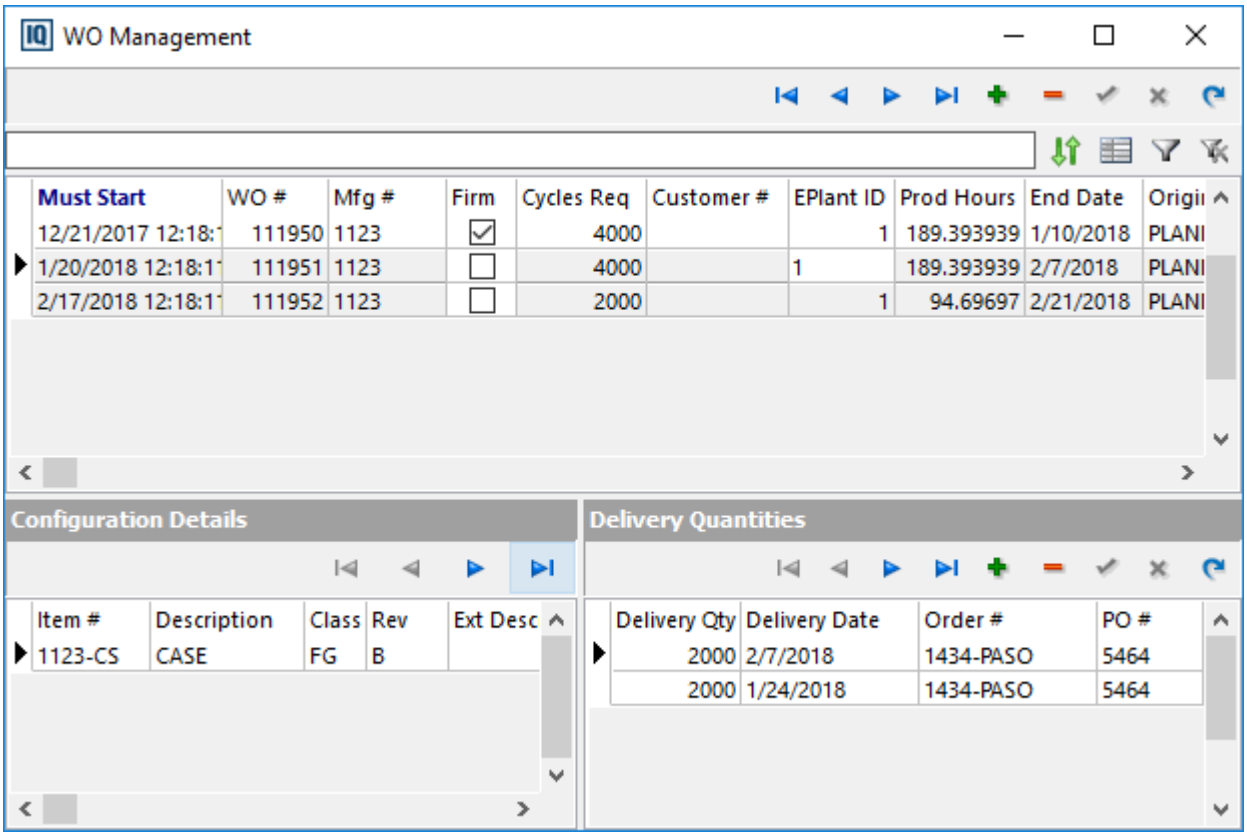
Reschedule Earlier	The system has found that the work order should be moved to an earlier time in order to meet the demand, which is normally either a shipping demand or a dependent demand

Reschedule Out	The system has found that the demand has shifted to a later time frame. The recommended action would be to move the work order to a later time.
Cancel	No demand exists for the item, the recommended action is to cancel the work order
Overdue Work order	This message indicates the work order is late, based on the calculated must start date, but that inventory exists to cover the demand. Therefore, while it is late, there is no demand to actually move the work order to an earlier date.
Firm Up Work Order at Time Fence	This message is intended for the master scheduler, indicating that the work order can be transferred from a Planned Work Order to a Firm Work Order. This is informational only, as EnterpriseIQ does not require that planned work orders be converted to firm work orders before actual production.

Users can right click and Jump to the Work order from this tab.

WO Management

The work order management tool allows users to manage the work orders for an item directly from MPS. Right click from the lower section of the Time Phase WO Management. A form will appear listing all of the work orders associated to the item.



The top grid shows the work order details including the Must Start date, MFG #, Cycles Req, the Origin, and more. Work orders marked firm appear in white, and non firm work orders are highlighted in gray.

The lower sections display the configuration details and delivery quantities for the highlighted work order.

The following capabilities are available from the WO Management form:

- Mark planned or manual WOs Firm.
- Change the dates and quantities of planned, firm WOs (they must be marked firm in order to make changes).
- Change the dated and quantities of manual WOs (they do not need to be marked firm).
- Create new manual work orders. (When creating a new manual work order the firm box will not be checked by default).
- Delete WOs.
- Add/Edit a Priority Note - If the work order is Firm or Manual the user can select the ellipsis button in the priority note field and enter the text. To add/edit the priority note without marking the work order firm, right click and Jump to the work order and change it from there. This is the same field that displays on the work order, in scheduling, and RealTime™.

Note: Once a planned work order is marked firm and then is toggled back to not firm, the system considers it a manual work order, therefore the user can edit it without having to mark it firm again.

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