User Guide
QAD Production Scheduler

QAD Production Scheduler Overview
Using QAD Production Scheduler

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Contents

About This Guide

This book is divided into two chapters:

- “QAD Production Scheduler Overview” on page 5
- “Using QAD Production Scheduler” on page 29

To familiarize yourself with the deployment architecture, refer to the installation guide.

Other Documentation

- For an overview of new QAD Production Scheduler features and software updates, see the *Release Notes*.
- For QAD ERP software installation instructions, refer to the appropriate installation guide for your system.
- For information on installing and using QXtend Inbound, see *Technical Reference: QAD QXtend*.
- For information on using the QAD ERP software, refer to the *User Guides*.
- To view documents online in PDF format, see the *Documents on CD* and *Supplemental Documents on CD*. The CD-ROM media includes complete instructions for loading the documents on a Windows network server and making them accessible to client computers.

  Note Installation guides are not included on a CD. Printed copies are packaged with your software. Electronic copies of the latest versions are available on the QAD Web site.
- For information on installing and setting up Progress WebSpeed, see the Progress documentation.

Online Help

To view portions of this document in HTML format from within the QAD Production Scheduler application, click Help.

The browser-based help system includes a table of contents and index of fields, as well as a keyword search tool.

To display the information about a particular function, click User Interface in the table of contents, then select a function.

QAD Web Site

QAD's Web site provides a wide variety of information about the company and its products. You can access the Web site at:

http://www.qad.com

For users with a QAD Web account, product documentation is available for viewing or downloading from the QAD Online Support Center at:

http://support.qad.com/

You can register for a QAD Web account at the QAD Online Support Center. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Adobe Acrobat Reader.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Conventions

Menu References

This guide refers to multiple versions of the QAD ERP software. If menus were reorganized, differences in menu numbers are noted, when necessary, using this format:

User Maintenance (36.3.1; 36.3.18 before eB2.1)

The initial menu number identifies the program in the most recent release. The second menu number applies to the release specified and any earlier releases.

Typographic

This document uses the text or typographic conventions listed in the following table.

If you see:	It means:
`monospaced text`	A command or file name.
`italicized monospaced text`	A variable name for a value you enter as part of an operating system command; for example, *`YourCDROMDir`*.
`indented command line`	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

UNIX and Windows Conventions

This document supports the installation of QAD Production Scheduler for both UNIX and Windows platforms. Some steps are unique to a particular platform and are documented in separate sections and marked as UNIX or Windows only. In steps that are common to UNIX and Windows, UNIX file and path conventions are used when needed, unless otherwise noted. If you are installing on the Windows platform, substitute the drive letter and path conventions for your operating system.

CHAPTER 1

QAD Production Scheduler Overview

The following topics describe how QAD Production Scheduler lets you optimize your production schedules more efficiently.

Introduction

Note This version of QAD Production Scheduler works with multiple versions of QAD's enterprise resource planning (ERP) application. Because of product name changes involving MFG/PRO, this document uses QAD ERP as a generic term, except in instances where a specific version is required.

QAD Production Scheduler is a Web-based application that increases scheduling efficiency by leveraging QAD ERP system demand, supply, inventory, and MRP data from several reports, inquiries, and maintenance screens into a single screen. It can be used with the Work Orders, Advanced Repetitive, and Repetitive modules.

Note When this document discusses Advanced Repetitive and Repetitive, the convention used throughout is to refer to the functionality as *repetitive*. Where there is a difference—particularly in the way the modules deal with consuming schedules, as described in "Consumption Logic Limitation in Repetitive" on page 14—the specific module is identified. When the same menu item exists in both modules, this document uses the Advanced Repetitive menu location.

QAD Production Scheduler displays QAD ERP system supply, demand, inventory, and MRP in dynamic workbenches that support near real-time views of work order and repetitive production line scheduling data. The MRP planned orders imported from the ERP system are derived from traditional MRP planning parameters. With QAD Production Scheduler, the person responsible for scheduling can interact with production line and work order schedules and make changes where necessary. With work orders, the scheduler can update the status—as well as the release and due dates—of existing orders and create new orders for export to QAD ERP.

Note QAD Production Scheduler only considers orders for items that have Master Scheduled set to Yes in Item Master Maintenance.

To improve performance and provide a storage area for QAD Production Scheduler-specific data used during scheduling, the system uses a separate, synchronized data repository for loading data into the workbench and saving it for export to QAD ERP. This process is summarized in "Data Flow" on page 14.

Note Based on how often the system synchronizes data from the QAD ERP database with the QAD Production Scheduler data repository, the workbenches can provide a near real-time view of ERP system data. In the context of this document, the term “near real-time” is directly related to how often synchronization takes place.

User-configurable parameters control the number of days you can directly manage a scheduling period, as well as the future and historical periods available for schedule review. “Scheduling Periods” on page 12 describes how the system uses these values.

Event-based color coding lets you easily identify areas of concern. You can review and manipulate schedule and work order data, then export the updated information back to QAD ERP in the form of firm repetitive production schedules or revised and new work orders. “Workbench Visual Status Indicators” on page 11 summarizes how the system uses color codes.

Note QAD Production Scheduler does not interfere with the lean scheduling tools available. You can use these tools in the same QAD ERP environment as QAD Production Scheduler.

Running QAD Production Scheduler Functions

QAD Production Scheduler consists of five top-level applications. No menus are required; after log-in, just click a tab to launch the associated function. “Accessing QAD Production Scheduler” on page 21 describes this process.

Note Depending on the security setup, you may not be authorized to run all the functions, as described in “User Authorization” on page 26.

Fig. 1.1 Tabs

Available functions are:

- Repetitive Workbench. Use this workbench to view and update production line schedules. The next topic provides an overview of how the workbenches are used; for additional information on the user interface, see “Repetitive Workbench” on page 44.

- Work Order Workbench. Use this workbench to view daily summary information about work order quantities due, as well as drill down to individual work order and work order routing detail. You can update several elements of work order data—as well as create new work orders—before exporting your changes back to the ERP system. The basic structure of this workbench is similar to Repetitive Workbench; detailed information on the user interface is provided in “Work Order Workbench” on page 60.
- Configuration. Use Configuration to define system control settings and specify planning parameters for the sites you want to schedule. “Configuration” on page 30 provides details.
- Resource Maintenance. Use Resource Maintenance to define parameters specific to individual production lines and work center/machine combinations. “Resource Maintenance” on page 40 describes this function.
- Reports. This function—described in “Reports” on page 89—lets you generate reports on schedules and work orders currently in the QAD Production Scheduler data repository.

The screen also includes two icons in the top-right corner that control the following features:

Prompts you to close the browser window.

Important: Before you close the browser, be sure to save any changes you have made.

Displays online help, including a QAD Production Scheduler overview as well as descriptions of the individual functions.

Workbench Work Flow

The main components of QAD Production Scheduler are the two workbenches. This section provides an overview of how these workbenches are typically used. While both workbenches are similar in basic navigation, they vary considerably in how they calculate some common values, as well as the way you update data. For detailed information on each specific user interface, see:

- “Repetitive Workbench” on page 44
- “Work Order Workbench” on page 60

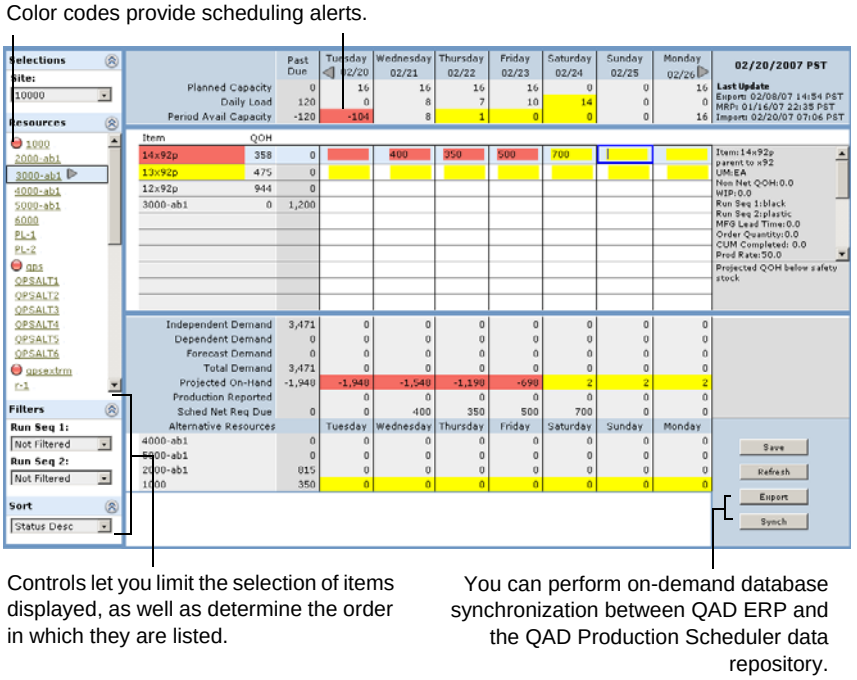


Fig. 1.2 Workbench Characteristics

Using a workbench, a scheduler can follow this process to perform a complete repetitive or work order scheduling business cycle from a single user interface:

1. Select a site and resource—production line or work center/machine—to be scheduled.

   The system loads production line schedules or work orders and other data for each item produced by the selected resource from the QAD ERP database and the QAD Production Scheduler repository.

2. Scan the workbench for visual indicators that identify capacity and projected on-hand shortages associated with items produced by the selected resource. Color codes are summarized in “Workbench Visual Status Indicators” on page 11.

3. To select an item for scheduling, click on the quantity for a specific date. The focus of the workbench changes to the selected item, displaying such information as current inventory, demand, and other resources that can produce the item.

Note Based on configuration settings, the system may automatically update the QAD Production Scheduler data repository in the background. The Refresh button lets you update the workbench view with the latest available data.

4 Make changes required to address issues:

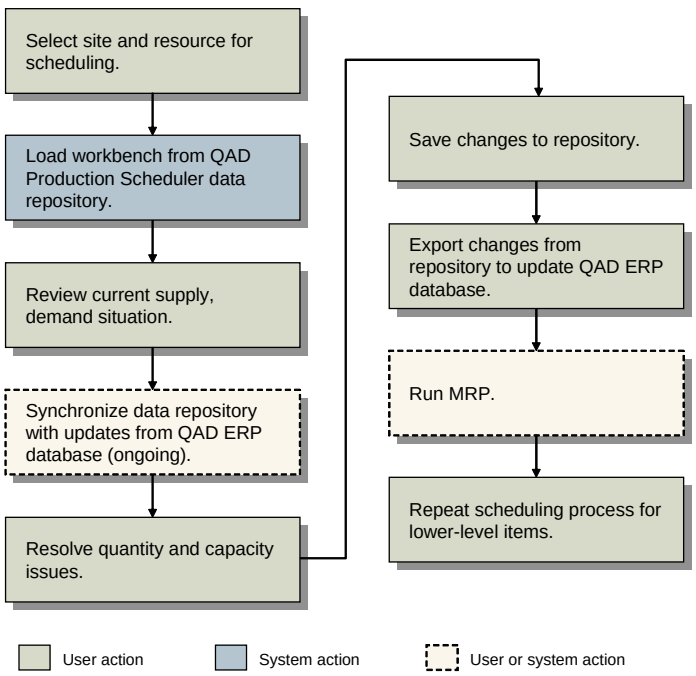
   a In Repetitive Workbench, directly update the scheduled quantity for the day.

   b In Work Order Workbench, double-click the daily total net quantity to access individual work order records.

5 Save your changes to the data repository and optionally export updated data to QAD ERP. Depending on configuration settings, the system can automatically run Net Change Materials Plan (23.1) to provide immediate planning updates to lower-level demand. You also can run one of the MRP programs directly in QAD ERP.

6 Repeat the process until capacity and quantity issues have been resolved for all resources.

Fig. 1.3
Workbench Work Flow



Workbench Visual Status Indicators

The workbenches display visual status indicators to direct the scheduler's attention to potential capacity and item shortage issues. Generally, the system displays status indicators based on two categories:

- Shortage warning status, which applies to daily load, available capacity, part number, scheduled quantity, projected quantity on-hand, and the resource list. Shortage warning status indicators can display in the following forms:
  - Low warning status (yellow shading) typically applies to non-critical potential shortages; for example, when the quantity on hand does not meet safety stock requirements.
  - High warning status (red shading) indicates a potentially critical capacity or item shortage problem; for example, when the projected on hand quantity is less than zero.
- Net due status, which applies to scheduled quantities, indicates which quantities have been reported as completed. It displays as follows:
  - A zero net-due status displays the cell content with strike-through text.
  - A non-zero net-due status displays as normal text.

Table 1.1 summarizes how these visual indicators are used in each area of the workbench. "Repetitive Workbench" on page 44 and "Work Order Workbench" on page 60 provide field-specific information.

Note The color indicator logic applies only to the items and data within the firm scheduling period—not the historical and future periods.

Table 1.1
Visual Indicator Summary

Area	Indicator	Meaning
Resource List		The resource includes one or more items with a potential scheduling problem.
Daily Load	Yellow	The load for the day exceeds capacity.
Period Available Capacity	Red	• Period available capacity is less than or equal to 0 for every day prior to this date. AND • Daily load is greater than capacity.
	Yellow	• Excess capacity for the day is consumed by a future shortage. • The system consumes excess capacity from a prior day.
Scheduled Quantity Grid	Red	Projected on-hand is less than 0.
	Yellow	Projected on-hand is less than safety stock value plus seasonal demand.
	~~Strike-through text~~	Net-due quantity for the day is 0, even if schedule or work order quantities still exist. **Note:** This indicator can be combined with color codes.
Projected On-Hand	Red	Projected on-hand is negative within firm schedule period.
	Yellow	Projected on-hand is less than safety stock plus seasonal demand.
Item Number	Various	A date within the firm schedule period for the item includes this indicator. Red supersedes yellow.

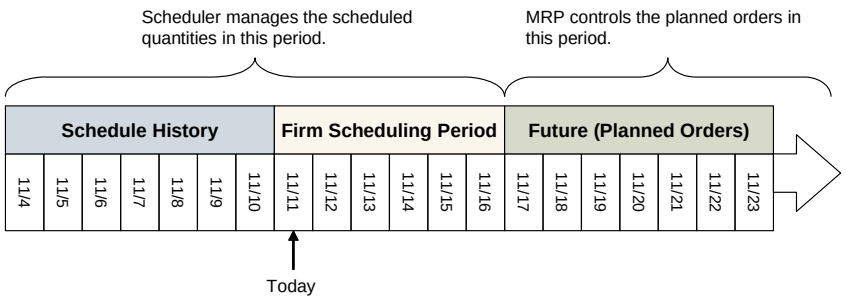
Scheduling Periods

QAD Production Scheduler gives you user-configurable control over near-term and past requirements while still allowing MRP to manage future scheduling periods. “Configuration” on page 30 describes how scheduling periods are defined.

Figure 1.4 shows a sample timeline. In this example, schedule period values for the production resource are set to the following:

- Firm Schedule Days: 6
- Historical Schedule Days: 7 (counting back, starting from yesterday)
- Future Schedule Days: 21

Fig. 1.4 Scheduling Period Example



The firm scheduling period is based on a rolling-window concept. For example, in Figure 1.4 the firm period includes today (November 11) and the subsequent 5 days through November 16, as specified in Configuration. When you access the same resource on November 12, the firm period will run through November 17; November 11 will move into the schedule history period.

As the firm scheduling period window moves forward, the system updates visual indicators as needed.

Note The system determines dates based on the server time zone specified in Configuration.

Although you can adjust the number of firm days at the resource level, QAD Production Scheduler gives you site-level control over the total planning window:

- You can use Configuration to define the overall planning horizon as needed for each site. “Configuration” on page 30 describes how to specify these values.
- When you specify Firm Schedule Days for an individual resource in Resource Maintenance, the system automatically adjusts Future Schedule Days for that resource up or down so that Firm Schedule

Days + Future Schedule Days always reflects the initial site-level future period. This feature is described in “Resource Maintenance” on page 40.

This way, the system ensures that the total number of schedule days is always the same for the entire site, while still giving you flexibility in the number of days you want to control for each resource.

Consumption Logic Limitation in Repetitive

QAD Production Scheduler does not consider the Repetitive consumption logic settings defined in Repetitive Control (18.24). Instead, it follows the consumption logic used by Advanced Repetitive, based on the CUM reported value. The schedule is consumed using FIFO (first-in, first-out) logic; the oldest scheduled quantity found is consumed first. For excess completions, the schedule is consumed into the future until all excess quantities have been consumed.

In Repetitive, the Consume Back and Start of Week settings in Repetitive Control (not available in Advanced Repetitive Control, 18.22.24) could result in QAD Production Scheduler potentially displaying past due open quantities that require completion—while QAD ERP shows no past due open quantities. If your Repetitive environment uses those fields to control consumption logic, you must manage any past due open scheduled quantities in QAD Production Scheduler the same way Advanced Repetitive users do. When past due open scheduled quantities are no longer to be considered, remove them manually in Repetitive Workbench. This keeps the two systems synchronized, since in QAD ERP these past due open scheduled quantities are automatically removed according to the Repetitive consumption logic settings.

Data Flow

QAD Production Scheduler uses data in two separate databases:

- The main QAD ERP production database. This stores static setup data, as well as dynamic work order and schedule records that can be exported, modified in QAD Production Scheduler, and then imported back into QAD ERP.

- The QAD Production Scheduler data repository. This database includes a variety of data—control settings, for example—that is maintained independent of QAD ERP, as well as synchronized QAD ERP data stored in the repository for performance considerations.

Based on control settings, the system extracts data from QAD ERP and transfers it to QAD Production Scheduler automatically at a specified frequency. You can run the data extraction manually by clicking the Synch button from the workbenches. “Configuration” on page 30 describes how to define control settings.

The workbenches let you export updated repository data back to QAD ERP on demand.

The system uses two tools—Progress WebSpeed and QAD QXtend Inbound—to communicate data between the two databases.

See the installation guide for information.

Importing QAD ERP Data into QAD Production Scheduler

The system extracts two types of data from the QAD ERP database for synchronization with the QAD Production Scheduler data repository:

- Static data: Data that does not change frequently, such as MRP item planning parameters, production resource setup data, and calendars.
- Dynamic data: Data that changes by the hour or minute, such as inventory balances, demand quantities, MRP planned orders, production reported, and completed quantities against work orders.

Note The synchronization process only considers items for which there is existing supply and/or demand. Other items do not display on the workbench.

The synchronization process includes two components:

- Synchronize the repository with updated QAD ERP data automatically—at intervals specified in the site Configuration record—or manually from the workbenches by clicking Synch. This queues a request for the system to run the background synchronization process.

Note Particularly when you are scheduling work orders, you can take some steps to avoid performance issues. “Optimizing Synchronization Performance” on page 61 provides information.

- Synchronize the repository with the workbench. When you select a site and resource in the workbench, the system loads the latest repository data. However, this data can be outdated if the repository is synchronized with QAD ERP—either automatically or manually—during a workbench session. Click Refresh to update the workbench with the latest available repository data.

Limitation on Synchronizing Repetitive Schedules

When you use Repetitive Workbench, a workaround is required to get correct results under a specific set of circumstances: If scheduled quantities are entered into QAD ERP Schedule Maintenance beyond the QAD Production Scheduler firm days, those future scheduled quantities will not be seen in QAD Production Scheduler after synchronization. Only planned orders display in the future window. Note that this has no negative impact on either system. During export back to the ERP database, those future scheduled quantities remain intact; they are not overwritten by the values that display in the workbench.

To make these orders synchronize correctly in both systems, just make the Firm Days equal to the number of days you want to schedule in QAD ERP. For example, if you schedule 60 days in QAD ERP, then make the QAD Production Scheduler Firm Days = 60. This will ensure all scheduled quantities that exist in the ERP application are seen in QAD Production Scheduler.

Exporting QAD Production Scheduler Data to QAD ERP

You can update the QAD ERP database by exporting data from the QAD Production Scheduler data repository.

Click Export from the workbenches to queue a request for the system to send previously unexported repository changes to QAD ERP. The export process updates QAD ERP by updating or creating firm repetitive production line schedules or work orders to match those in the repository.

Each schedule and work order record in the repository includes a Modified field indicating whether it needs to be exported. When you export records for a site, the system selects records with this field set to Yes. Use Reports to view the current value of this field for specified records. This function is described in “Reports” on page 89.

Note You can also mark for export records not previously exported for a site by clicking Export All Schedules in the site Configuration record. This can be a useful feature in resolving synchronization issues—as described in “Export All Schedules” on page 40.

Depending on the value of Execute Net Change MRP in the site Configuration record, QAD ERP can automatically run Net Change Materials Plan (23.1) on data export for the site being scheduled. Along with eliminating the need to do that manually, this feature provides an additional benefit. When you update production schedules, unless someone runs MRP or Schedule Explosion (18.22.2.4), production personnel cannot report production. The value of this feature is to not only drive changes upstream in your supply chain—but also to ensure that production reporting is not stopped because of unexploded production schedules.

Important Exporting firm schedules from QAD Production Scheduler does not prevent MRP from generating planned orders at lower levels. For example:

1. MRP suggests a planned order of 100 parts for a finished good.
2. Using QAD Production Scheduler, you reduce the planned quantity to 60 as a firm scheduled quantity.
3. When MRP runs, it creates a new planned order for 40 pieces in the background. This is because MRP knows that 100 pieces are needed, so it will always plan for the 100 regardless of what you execute.
4. In the background, this subsequently drives demand through the lower levels of the finished goods BOM for this MRP-planned quantity of 40.

This is standard QAD ERP logic; QAD Production Scheduler does not change it. To prevent MRP from creating unwanted planned orders within the firm scheduling period, define a time fence for the item using QAD ERP Item-Site Planning Maintenance (1.4.17) or Item Master

Maintenance (1.4.1). For example, a time fence of 4 days prevents MRP from creating planned work orders from today through the next 3 days into the future. This gives the scheduler full control over how lower-level item planning is influenced by parent item demand.

Repetitive Workbench Export Issue

If you unable to successfully update QAD ERP using the Export function from Repetitive Workbench, there may be a problem with the background export processes. When it detects a problem with the export, the system displays a message. The processing logs, which track detailed messages related to the background processes, include information that can be useful in resolving the problem.

A typical way to address this issue is to stop and restart the background processes using the following scripts:

- `stopall.QPS`
- `startall.QPS`

These scripts are located in *`QPSInstallDir`*. For Windows, use the QAD QPS stop and start icons from the Start menu.

More information on background processes is provided with the installation and conversion instructions.

Locking Records

Two users accessing the same resource at the same time could cause data integrity problems. QAD Production Scheduler avoids this issue by locking data repository resource records when they are loaded into the workbench. For example, if user A has production line 1000 on the Repetitive Workbench, the system displays an error message if user B tries to access line 1000.

Note This does not prevent two users from simultaneously scheduling the same site—only the same resource.

The system keeps the resource locked until the user either saves the changes and clicks Export on the workbench, or closes QAD Production Scheduler. As long as the user is still in the application, any resources they have accessed during that session stay locked. Since the system

clears locks when the user closes the session, saved changes can be exported by a subsequent user. This helps assure that updates stay synchronized between the databases.

To determine whether a lock is still set without accessing a resource from the workbench, you can:

- Access the resource in Resource Maintenance. The Locked By field indicates if a user has the resource locked.
- Run a report that includes the resource in the selection criteria. A user ID displays in the Locked By column if the resource is locked.

In some cases, you might need to unlock a resource manually. Access it in Resource Maintenance and click Unlock Resource. See “Resource Maintenance” on page 40.

Note The button is enabled only when Locked By has a value.

Background Process Administration

System administrators use scripts to start the processes that manage system or user-initiated requests to synchronize and export data.

See the installation guide for information on launching background processes.

Each startup script verifies that its associated background process is not already running against the same database set. It does this by searching the log directory for a file that includes a system-assigned process ID for the specific background process; for example:

```
QADERPInstallDir/qps/logs/QPS/autosynch.QPS.pid
```

If it finds this file, the script checks for an active process that has the recorded ID:

- If one exists with an active process, the script displays a message and aborts.
- If the file exists but no process with the same ID is active, a message recommends that you delete the ID file.

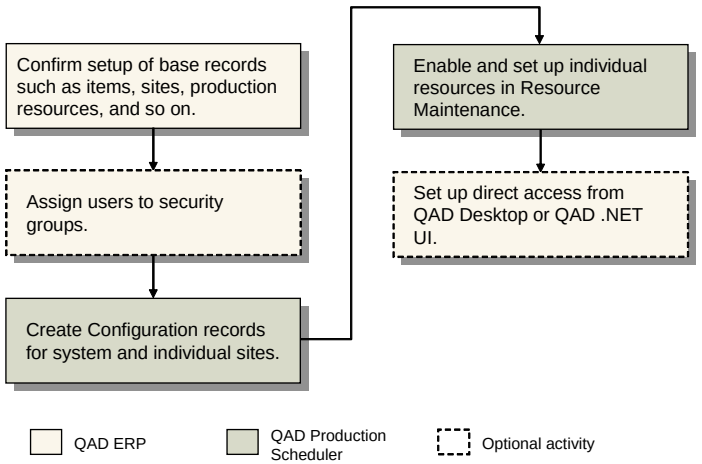
Note When you delete a `.pid` file, be sure that it does not represent active processes. If it does, the script will no longer prevent duplicate processes from starting up.

Setup

Before you use QAD Production Scheduler, set up the following kinds of data:

- QAD ERP base and transactional data, as well as optional security groups
- QAD Production Scheduler Configuration records
- QAD Production Scheduler Resource Maintenance records
- If you use QAD Desktop or .NET UI, an optional shortcut to QAD Production Scheduler

Fig. 1.5
Setup Work Flow



Setting Up QAD ERP

No special setup tasks are required in QAD ERP. QAD Production Scheduler uses the same data required when you use one of the repetitive modules or work orders; for example, sites, locations, items, product structures, production lines, work centers, machine codes, and routings.

Additionally, QAD Production Scheduler uses transactional supply and demand data from sales orders, forecasts, work orders, MRP planned orders, and so on. These are the same transactions typically used in scheduling tasks within QAD ERP.

Note If you plan to control access to individual functions within QAD Production Scheduler, you should also define QAD ERP security groups. “User Authorization” on page 26 details this process.

If you control site access in QAD ERP, QAD Production Scheduler uses existing QAD ERP site security records. No further setup is required. See “Domain and Site Security” on page 27.

Entering QAD Production Scheduler Configuration Settings

Click the Configuration tab to enable sites for scheduling and access fields used to control system behavior, such as the number of days in the planning horizon. “Configuration” on page 30 describes this function.

You define global settings that apply system wide, as well as site-specific settings. Each site must be enabled before you can schedule resources for it.

Defining QAD Production Scheduler Resources

Click the Resource Maintenance tab to enable individual production lines and work center/machine combinations and specify several resource-specific control parameters, as described in “Resource Maintenance” on page 40.

Each production line or work center/machine must be enabled before you can schedule it.

Accessing QAD Production Scheduler

QAD Production Scheduler provides two access methods:

- Direct access
- Through URL shortcuts in QAD Desktop or QAD .NET UI, version 2.5 or later

During log-in, the system controls access based on user information defined in QAD ERP. Depending on the security setup, it can also limit authorization to run specific QAD Production Scheduler functions.

Additionally, the system enforces site security defined in QAD ERP. In versions that support multiple domains, it also controls domain-level security.

Direct Access

Your system administrator should provide a URL for the HTML page that accesses QAD Production Scheduler. Enter the URL in Internet Explorer to view the log-in screen.

Important You must have Internet Explorer version 6 or higher, as well as Java Runtime Environment (JRE) version 1.4.2_07 or higher, to use QAD Production Scheduler.

Enter a valid QAD ERP user ID and password in the log-in screen.

QAD Desktop Access

When you use the QAD Desktop user interface for QAD ERP, you can access QAD Production Scheduler by setting up a bookmark on the My Desktop menu:

1. Log in to QAD Desktop using your QAD ERP log-in ID and password.
2. Navigate to the My Desktop menu.
3. Click Add Bookmark to launch Menu URL Maintenance; then add the following information:
   a. Your user ID.
   b. The URL of the HTML page you use to access QAD Production Scheduler. Typically, the syntax of the URL references a log-in page followed by the page that displays after successful log-in.

      For example, the following is a correctly formatted URL:

      http://coli49.qad.com:4949/scheduler/login.html?url=qps.html
   c. A description, which the system displays as the bookmark label; for example, QAD Production Scheduler.
   d. Leave GIF File Name blank.

4 Save the record and click the My Desktop menu to refresh it. The newly added URL displays with a globe icon.

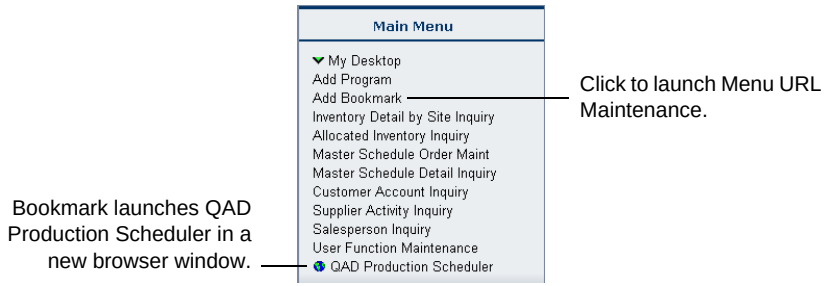


Fig. 1.6 Sample My Desktop Menu

5 Click the link to launch the QAD Production Scheduler log-in screen in a new Internet Explorer window.

QAD .NET UI Access

When you use the QAD .NET user interface, you can access QAD Production Scheduler by adding a shortcut on the Favorites menu.

Note This feature is only available in QAD .NET version 2.5 or higher.

1 Log in to the QAD .NET UI.

2 In a browser window, access the QAD Production Scheduler log-in screen.

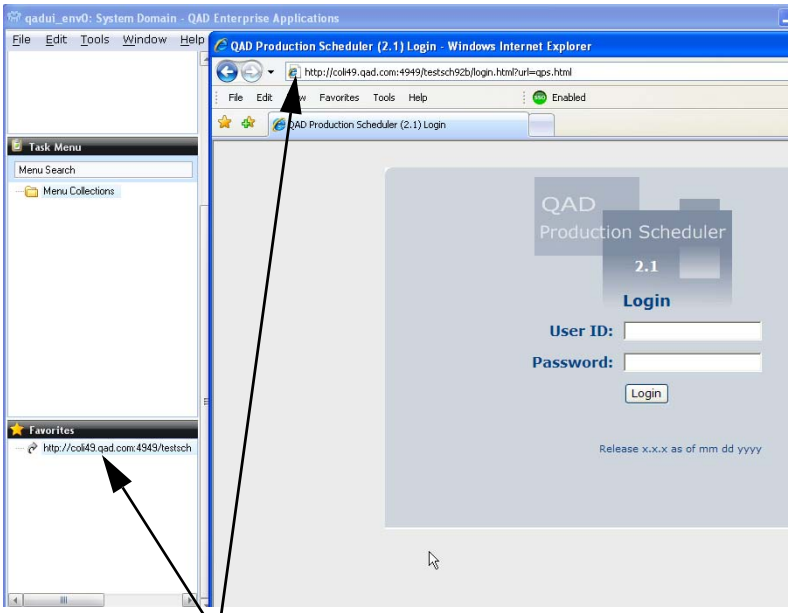
3 Arrange the application windows on your screen so that you can see both the browser Address bar and the Favorites panel in the .NET UI menu.

4 Drag-and-drop the QAD Production Scheduler URL from the browser into the Favorites panel.

5 Optionally, right-click the new shortcut, select Rename, and enter a descriptive name for the URL.

6 Double-click the link to launch the QAD Production Scheduler log-in screen in an Internet Explorer window.

Fig. 1.7
Adding Favorite to QAD .NET UI



Drag from browser to Favorites to create shortcut.

User Authentication

When you access QAD Production Scheduler directly or from QAD Desktop, you are prompted to enter your QAD ERP user ID and password.

Note The currently installed release identifier displays at the bottom of the screen.

Fig. 1.8
Log-in Screen

The system controls system access by authenticating the user ID and password against QAD ERP user master table (usr_mstr) records. User records are defined in User Maintenance (36.3.1; 36.3.18 before eB2.1).

Custom Password Authentication Program

If your QAD ERP environment uses a custom Progress routine to authenticate passwords, you can write a program that lets the QAD Production Scheduler log-in procedure use the same logic.

The program must be called `sxlgpswd.p`, and it must reside in a directory called `custom` at same level as the QAD Production Scheduler installation directory. If the log-in routine does not find `custom/sxlgpswd.p`, it uses standard password authentication logic.

The program must have the following signature:

```
define parameter buffer usr_mstr for usr_mstr.
define input parameter ip-Password as character no-undo.
define output parameter op-passwordValid as logical no-undo.
```

Where:

The value of `ip-Password` is the password value from the QAD Production Scheduler log-in screen.

When `op-passwordValid` is `yes`, validation is successful.

When `op-passwordValid` is `no`, validation fails.

Note The value of `ip-Password` is not encrypted.

User Authorization

Optionally, the system administrator can control which users are authorized to access specific functions. The Configuration Global Settings record—described under “Configuration” on page 30—includes Scheduler Group and Administrative Group fields. The system limits authorization to run QAD Production Scheduler functions to members of groups included in comma-separated lists in those fields.

- Scheduler Group: Authorized to access the workbenches and Resource Maintenance
- Administrative Group: Authorized to access Configuration

When no groups are specified, all users are authorized for the associated functions.

Note All users are authorized to access Reports regardless of whether security groups are used.

If you attempt to access an unauthorized function, the system displays an Access Denied message.

Assigning Users to QAD ERP Groups

The way you assign users to groups in QAD ERP depends on the version you are using:

- MFG/PRO eB2 or earlier, enter a comma-separated list in the Groups field of User Maintenance (36.3.18). Group names are not validated.
- In later versions, define groups in User Group Maintenance (36.3.4). You can then assign users to them (by domain) either in that same program or in User Maintenance (36.3.1).

Default Initial Screen

The system determines the initial screen that displays based on the user’s assigned QAD ERP security group, as well as the groups listed in the Scheduler Group and Admin Group fields in the Configuration Global Settings record.

- If no groups are specified in either field, all users start on the workbench screen specified as described in “Initial Workbench” on page 32.
- If Scheduler Group has values, members of those groups start on the specified initial workbench screen.
- If Admin Group has values, members of those groups start on the Configuration screen, unless they are also members of a Scheduler Group.
- Users not falling in one of those categories start on the Reports screen.

From the default initial screen, if a user clicks a tab they are not authorized to access, the system displays an Access Denied message.

Domain and Site Security

QAD Production Scheduler enforces security settings defined in QAD ERP to control access to sites and—where applicable—domains.

With all versions of QAD ERP, the system uses records defined in Site Security Maintenance (36.3.15; 36.3.16 before eB2.1). If the logged-in user does not have access to a site based on those records, the site does not display on selection lists in the workbenches, Configuration, or Resource Maintenance.

Note All users can run reports on sites regardless of security settings.

Important If you set up site security, be sure that the user ID associated with QXtend has access to all sites. Otherwise, you cannot export data from QAD Production Scheduler to QAD ERP.

Additionally, in environments domains, the system controls access based on domains assigned to users in User Maintenance (36.3.1). Sites in domains not associated with the user record cannot be selected in QAD Production Scheduler functions.

CHAPTER 2

Using QAD Production Scheduler

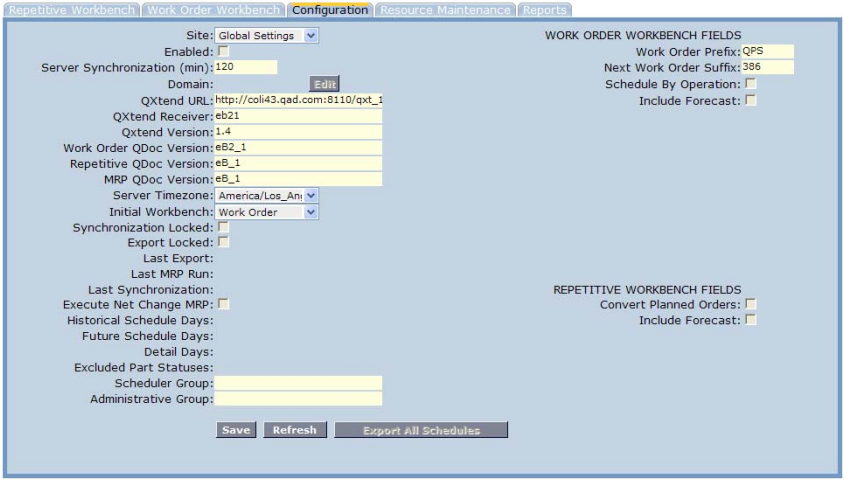
The following topics describe how to use the features of QAD Production Scheduler. For basic information on the product, see “QAD Production Scheduler Overview” on page 5.

Configuration

Use the fields on the Configuration tab to control several aspects of QAD Production Scheduler behavior. You must set up two kinds of records:

- A global settings record that specifies some system-wide values.
- Site-specific records that include some values specified only on the site level. Each site to be scheduled must have a site-specific record with Enabled selected.

Fig. 2.1
Configuration



Site. Use this field to specify the level of control associated with the current Configuration record:

- Select Global Settings to specify certain settings that apply to QAD Production Scheduler as a whole.
- Select a valid site from the list to define values that apply to that site only. The list is initially populated the first time you synchronize data between QAD ERP and the QAD Production Scheduler repository. When new sites are created in QAD ERP, the system adds them to the list the next time synchronization is run.

Note Only the auto-synchronization process, which runs as specified in Server Synchronization (min), detects new QAD ERP sites. Running the site-specific manual synchronization process from the workbenches does not add new sites to QAD Production Scheduler.

The site selection list is limited to sites that you can access based on security records defined in Site Security Maintenance (36.3.15; 36.3.16 before eB2.1). Additionally, if you are in a multiple-domain environment, the system only displays sites in domains that you can access based on settings in User Maintenance (36.3.1).

Enabled. Specify whether this site can be scheduled using QAD Production Scheduler. When this option is not selected (the default), the system does not load QAD ERP scheduling data for this site into the QAD Production Scheduler repository, and you cannot select the site in the workbenches.

This field does not apply to the Global Settings record; each site must be individually enabled.

Important When you initially enable a site and save your changes, you must log out of QAD Production Scheduler before accessing the site on the workbenches. Otherwise, it does not display on the workbench Site drop-down list.

Server Synchronization (min). This field serves two purposes.

For the Global Settings record, it determines how often the system automatically checks for new sites in QAD ERP. This is required when you are enabling sites in QAD Production Scheduler. Sites are available on the Site selection list only after this automatic synchronization process has run.

In individual site records, this value determines how often the system automatically synchronizes the QAD Production Scheduler repository with the QAD ERP database. For new sites, the default is the Global Settings value; the minimum is 1.

You can run this process manually in the workbenches by clicking Synch.

The system adds this value to the time the previous autosynchronization event ended to determine when synchronization should run again. For example, if it is set to 30 and the first event starts at 10:30 and finishes at 10:36, the next synchronization will start at 11:06. In determining these times, the system disregards manual synchronizations run from the workbenches.

Note When you set this field to a relatively small value—less than 10 minutes—you should consider the level of system performance impact you are willing to incur. For example, setting it to 1 minute means that you can expect server performance to degrade because the synchronization process will be virtually continuous. You must decide whether the value added is worth the performance impact in your particular situation.

During training, implementation, and test, you might set Server Synchronization in the 1 to 5-minute range to avoid the need for frequent manual synchronization. However, in a production environment, consider a value between 10 and 30 minutes—depending on the number of production lines and items being scheduled.

Server Timezone. Select the timezone associated with the server where QAD Production Scheduler is running. For example, the system bases the time at which daily schedules move in and out of the controllable window on this time zone. Additionally, database synchronization events are logged based on this time zone.

This is a Global Settings value only; it applies to all sites. The field is disabled in site-specific records.

Initial Workbench. Select the workbench—Repetitive or Work Order—that is in focus when authorized workbench users log in to QAD Production Scheduler.

Synchronization Locked. When this field is selected, synchronization is in process for this site, and users cannot request another synchronization.

The field may remain selected when a connection problem occurs during synchronization, and the locked setting was not cleared. Deselect it to clear the locked condition.

This is a site-specific setting only. The field is disabled in the Global Settings record.

Export Locked. When this field is selected, export is in process for this site, and users cannot request another export.

The field may remain selected when a connection problem occurs during export, and the locked setting was not cleared. Deselect it to clear the locked condition.

This is a site-specific setting only. The field is disabled in the Global Settings record.

Last Export. The system displays the last date and time data was exported for this site from the data repository to QAD ERP. This applies only to site-specific records.

Last MRP Run. The system displays the last date and time MRP was automatically run for this site. This applies only to site-specific records.

Note This field only tracks instances when Net Change Materials Plan (23.1) was run automatically based on the Execute Net Change MRP value. Running MRP directly in QAD ERP does not update it.

Last Synchronization. The system displays the last date and time the data repository was updated with data from QAD ERP for this site. This applies only to site-specific records.

Execute Net Change MRP. For each site, specify whether the system automatically runs Net Change Materials Plan (23.1) for the site after data is exported from the QAD Production Schedule data repository.

Note The system limits the MRP run to the site performing the export.

By default, this option is selected for new site records. You cannot access it for the Global Settings record.

Important If your Net Change MRP typically runs for longer than about 15 minutes, QAD recommends that you do not enable this automatic feature. Instead, execute Net Change Materials Plan from the QAD ERP menu as required. This will ensure that workbench export functions do not become unavailable for an extended length of time.

Historical Schedule Days. For each site, specify the number of days of schedule history available for viewing in QAD Production Scheduler. Although these days are outside the firm planning period, quantities on historical days can be updated from the workbenches and exported back into QAD ERP. For example, you can use this method to delete past-due quantities that are no longer needed by setting repetitive quantities to zero or closing work orders.

Valid values are 1–150.

This field is not enabled in the Global Settings record.

Note If this value is updated and saved, logged-in users must end their sessions and log in again to see the modified planning horizon.

Future Schedule Days. For each site, specify the total number of days of future data that are available for viewing in the workbenches. Valid values are 0–510. This sets the default for the future days value in Resource Maintenance.

In Repetitive Workbench, you can update only the number specified in the Firm Schedule Days field in Resource Maintenance. Schedules for future days are still considered under the control of MRP.

For example, if this field is set to 30 and Firm Schedule Days is 10, the workbench displays 40 days of scheduling data starting with today. However, you can only update the first 10 days.

In Work Order Workbench, you can update work orders in the future period.

Note You should carefully define the length for the future window that is meaningful in your business. Each additional day included in the future window may impact system performance.

This field is not enabled in the Global Settings record.

Detail Days. For each site, specify the number of additional days of data—based on MRP detail records—to be displayed in the workbenches. Information about sales orders, forecast, and seasonal demand displays for this number of days as described in:

- “(10) Demand Details” on page 57 for Repetitive Workbench
- “(10) Demand Details” on page 76 for Work Order Workbench

Valid values are 0–90. Leave the default 0 to display details only for the selected date.

Note In the workbenches, this value is relative to the current date. For example, if Detail Days is 5 and you select an item scheduled for the current day, you will see demand details for today and the next 5 days. However, if you select a day later in the week, you will see additional supply and demand information only for dates within 5 days of *today*—not within 5 days of the selected date.

This field is not enabled in the Global Settings record.

Note If this value is updated and saved, logged-in users must end their sessions and log in again to see the modified planning horizon.

Excluded Part Statuses. For each site, enter an optional, comma-separated list of status codes associated with items at this site that you do not want to schedule using QAD Production Scheduler. In QAD ERP, status codes are created in Item Status Code Maintenance (1.1.5) and assigned to items in Item Master Maintenance (1.4.1) or Item Data Maintenance (1.4.3).

Example Define OBS and INACT codes and assign them to obsolete or inactive QAD ERP items. Then enter the codes in this field.

When synchronizing QAD ERP item data with the QAD Production Scheduler repository, the system disregards all items with one of the specified status codes.

To schedule an item previously excluded by this list, either remove the code from the list or change the item's code in QAD ERP. Next time the repository is synchronized, it will pick up the item.

This field is not enabled in the Global Settings record.

Scheduler Group. Specify an optional, comma-separated list of QAD ERP security groups whose members are authorized to access the workbenches and Resource Maintenance. When the field is blank, all users can access these programs. "User Authorization" on page 26 describes how security groups are used.

This field is enabled only when Global Settings is selected. It is disabled on site-specific records.

Administrative Group. Specify an optional, comma-separated list of QAD ERP security groups whose members are authorized to access Configuration. When the field is blank, all users can access that function.

This field is enabled only when Global Settings is selected. It is disabled on site-specific records.

Schedule by Operation. When this option is selected for a site, work order routing operation start and due dates can be different from the work order release and due dates. This setting is significant to the way

orders display in Work Order Workbench: work orders are placed in the supply grid based on the due dates of individual operations, rather than the work order due date.

This field is not enabled in the Global Settings record.

When this option is selected for a site, during synchronization, the system sets the operation start and due dates in QAD Production Scheduler to the same dates as the work order routing records. If the order has a status of P (planned order created by MRP), the system runs Recalculate Capacity Plan (24.1) to determine operation-level dates for just the specific work order, then sets the operation start and due dates in the QAD Production Scheduler data repository based on the results.

Clear the check box to schedule by work order date; this is the default value. In this case, during synchronization the system sets the operation start and due dates to the work order release and due dates, respectively. When you modify a date field in the workbench work order detail—either for an operation or for the work order—the system automatically updates the equivalent work order or operation date to match. If an order has multiple operation records, when you click Save, the system updates all operation dates to match the work order dates.

Important If you change this setting for a site, modified dates do not display in the workbench until site records are synchronized. After running the manual synchronization from the workbench, be sure to click Refresh to display the latest dates.

If your manufacturing environment uses the same resource to support multiple routing operations for repeated processing, this setting may have an effect on the way orders display in Work Order Workbench. “Work Centers with Multiple Operations” on page 84 describes this scenario.

The following fields control whether the system assigns numbers to orders created in Work Order Workbench, which are then associated with the QAD ERP work order when the new order is exported. They have no effect on repetitive schedule processing. You can access them only on the Global Settings record.

Work Order Prefix. Optionally specify up to three characters to be added to the system-generated sequence number to make up the work order number for orders created in the Work Order Workbench.

Next Work Order Suffix. Optionally enter the next number to be assigned to a work order created in the Work Order Workbench. When this is 0 (the default), the system does not assign a work order number. When you enter a starting value, QAD Production Scheduler increments it by one each time a new order is created, then displays the latest value in this field.

Note QAD Production Scheduler assigns the work order number only; the work order ID is a system-generated sequence number assigned by QAD ERP.

An additional field is used only for repetitive schedules. It does not apply to work orders.

Convert Planned Orders. Specify whether planned orders for repetitive production schedules at each site should be converted to firm scheduled orders when they move into the firm scheduling period. When this option is selected, the system converts planned work order scheduled quantities found in the QAD Production Scheduler repository to firmed repetitive scheduled quantities. This process runs only once a day, during the first synchronization with QAD ERP. After the new schedule is exported and MRP is executed, the planned work orders are removed from QAD ERP.

This option is selected by default. It does not apply to the Global Settings record.

One field is provided twice, in separate sections of the Configuration screen, to control the way forecasts are displayed. You can control this feature independently for each workbench, based on the field's value in Work Order Workbench Fields and Repetitive Workbench Fields.

Include Forecast. For the specified site, select this option to have the Total Demand field in the respective workbench include quantities entered in QAD ERP Forecast Maintenance (22.1).

When the field is not selected (the default), the projected on-hand balance in the workbench excludes forecast demand. The system does not consider forecast demand when determining if projected on-hand requires an alert indicator.

Note The workbench Forecast Demand field displays the QAD ERP forecast value regardless of this setting. This field determines only whether the number is included in the calculated totals.

You cannot set this option for the Global Settings record.

Important If you update this field, you must click Synch, then Refresh in the appropriate workbench before you can see the change take effect.

The following fields are related to QXtend Inbound (QXI), the product used to load the QAD ERP database with updated information from the QAD Production Scheduler repository. They identify QXI connection data. See the QAD QXtend documentation for information on that product.

The way you access and use these fields varies with your version of QAD ERP. After updating these fields, click Save to update the repository with your changes. Click Refresh to reset the fields to the last saved values.

Fig. 2.2
QXtend Inbound Data Fields in QAD ERP with Domains

Domain. For version eB2.1 and later, the system displays the domain associated with the selected site. It is determined when the site is added to the data repository during synchronization and cannot be edited. This field does not apply to the Global Settings record in domain-capable versions of QAD ERP—not all sites have to be in the same domain—or to any records in pre-eB2.1 versions.

QXtend URL and Receiver. In non-domain versions of QAD ERP, use the Global Settings record to specify the fully-qualified URL and name of the QXtend receiver. The field is display-only for site records.

In later QAD ERP versions, each domain uses a different receiver. Click the Edit button next to the Domain field for any site. A pop-up frame displays that lets you specify domain-specific values.

Important The QXtend Receiver value is case sensitive. Make sure it matches exactly the value specified as part of the QXtend setup.

Note You only need to update these fields for one site in each domain. The system automatically extends the values to all other sites in the domain.

QXtend Version. Enter the version of QXtend that is installed. Valid values are:

1.2 for any version prior to 1.4; for example, 1.2.1.4, 1.2.1.6

1.4 for QXtend 1.4

1.5 for QXtend 1.5

QDoc Versions. The Global Settings record includes three fields the system uses to identify which versions of the QAD-provided QXtend Inbound QDocs are used during export to QAD ERP:

- Work Order QDoc contains updated and new work orders.
  - For MFG/PRO eB, enter eB_1.
  - For later versions, enter eB2_1.
- Repetitive contains updated repetitive production line schedules. Enter eB_1 for all versions.
- MRP identifies the site for which Net Change Materials Plan is automatically run after export finishes, based on the value of Execute Net Change MRP in the site configuration record. Enter eB_1 for all versions.

Note The base portion of the number (eB, for example) does not necessarily match your version of QAD ERP; it represents the *earliest* version that uses the QDoc. If the QDoc has not been updated for later QAD ERP releases, later releases continue to use the original version. The other part of the version number (_1) represents a sub-version—allowing companies to distinguish their own customized QDocs from the QAD-provided ones.

Configuration also includes command buttons to control the following features:

Save. Click this button to commit your updates to the data repository.

Refresh. Click this button to reset all fields to the most recently saved values.

Export All Schedules. When you are using Repetitive Workbench, click this button to indicate that all unexported, saved production line schedules within the historical and firm windows for all resources in this site should be marked for export.

This button applies only to site records; it is disabled for the Global Settings record.

Note This feature is useful only when repetitive schedule quantities exist in QAD Production Scheduler and not in QAD ERP. It has no impact on work orders.

Resource Maintenance

Use Resource Maintenance to specify a number of parameters for QAD ERP resources that produce QAD Production Scheduler-controlled items.

Based on the setting of the Resource Type field, you can set up or update records for:

- Repetitive production lines
- Work center/machine combinations used as resources in routing operations for work orders

Note You must individually enable all resources that you want to schedule. However, with the exception of the Resource Enabled field, you can accept the default values. You can just select that field and click Save for each resource unless you want to change a default.

Important After enabling resources using this function, access the site in the workbench and click Synch to import item information associated with the resource from QAD ERP to the QAD Production Scheduler data repository.

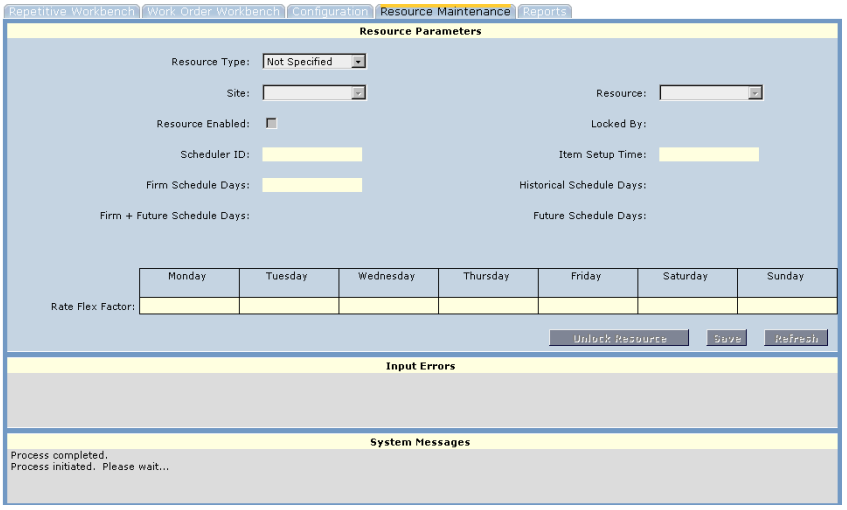


Fig. 2.3
Resource Maintenance

Resource Type. Specify whether you want to access resource records for production lines or work centers. This value controls the type of resources that display in the Resource selection list.

Site. Select a site that is scheduled using QAD Production Scheduler. The selection list displays all the sites that are enabled in Configuration, subject to access restrictions defined in Site Security Maintenance (36.3.15 in eB2.1 and above; 36.3.16 in earlier versions). Additionally, if you are in a multiple-domain environment, the system only displays sites in domains that you can access based on settings in User Maintenance (36.3.1).

Resource. Select a production line or work center/machine that is scheduled using QAD Production Scheduler. The selection list is based on the setting of Resource Type:

- Production Line: All repetitive production lines available for the specified site.
- Work Center: All work center/machine combinations defined for routing operations. This includes operations that specify a work center but no machine code.

Note Routing definitions in QAD ERP are not site-specific; work centers and machines are associated with a site—based on the work order value—only when work order routings are created. When you use Resource Maintenance to associate a work center/machine with a

site and enable the resource, you let QAD Production Scheduler synchronize the data repository with QAD ERP work order routing records that reference specific site/work center/machine combinations.

Resource Enabled. Select this option to allow this resource to be scheduled on the workbench.

Locked By. This is a display-only field. If a user ID displays, it indicates that either someone has accessed this resource during an in-progress workbench session, or a system problem created a stranded lock record. “Locking Records” on page 18 describes how the system uses locks.

To clear a stranded record, click Unlock Resource at the bottom of the data input area.

Scheduler ID. Optionally enter the ID or name of the scheduler responsible for planning this resource. In the Reports program, you can select a scheduler ID to limit the output to resources planned by this scheduler.

Item Setup Time. Optionally enter, in decimal hours, the time needed to set up a repetitive production line. If entered, the system uses this value to calculate the daily load displayed in the workbench.

Note This field cannot be updated when Resource Type is Work Center.

Firm Schedule Days. Enter the length of the firm planning window for this resource. Valid values are 1–150; the default is 5. When you update it, the system adjusts the Future Schedule Days field as needed to make the sum of the two fields equal Firm + Future Schedule Days.

This number cannot be greater than the value of Firm + Future Schedule Days. This feature lets you control the overall length of the planning window at the site level using the Future Days setting, while providing some flexibility between resources.

Beginning with the current day, you can control the schedule for this many days by updating scheduled quantities or work orders as needed. When you export data to QAD ERP, the system updates the schedules or work orders as specified.

The workbenches display a bold vertical line to divide firm days from future days.

Historical Schedule Days. The system displays the Historical Schedule Days value from the site Configuration record.

Future Schedule Days. By default, the system displays the Future Days value from the site Configuration record. When you change Firm Days, the system adjusts this number to make the sum of the two fields equal Firm + Future Schedule Days.

Firm + Future Schedule Days. The system displays the total of the Firm Schedule Days value and Future Schedule Days field in the Configuration record for the site. For new Resource Maintenance records, the default is the Future Days value.

Rate Flex Factor. Optionally enter a positive or negative percentage used to adjust the run rate for all items on this resource. You can apply different percentages for each day of the week. If entered, the system uses this value to calculate the daily load displayed in the workbenches.

Valid values are from –99.99% to 999%.

The screen also includes display areas that show messages related to data input errors and system status. Additionally, use three command buttons to control the following features:

Unlock Resource. Click this button to clear the locked status of the resource record. This button is enabled only when a user ID appears in the Locked By field. “Locking Records” on page 18 describes how the system uses locks.

Note Before you clear a lock, be sure that it has not been created by someone currently updating this resource on the workbench. If you do clear the lock in that situation, you would allow two users to access the same record simultaneously.

Save. Click this button to commit your updates to the data repository.

Refresh. Click this button to reset all fields to the most recently saved values.

Repetitive Workbench

Use Repetitive Workbench to view and update production line schedules used with the Repetitive and Advanced Repetitive modules.

The system uses visual status indicators such as color-coding to alert you to potential scheduling issues that require your attention. For information on how visual indicators are used, see the descriptions of the individual fields. Additionally, Table 1.1, “Visual Indicator Summary,” on page 12 summarizes color-coding and other visual indicators used in the workbench.

You can adjust scheduled quantities as needed to address projected quantity-on-hand shortages. When the system determines that requirements can be met, it refreshes the screen to clear the indicator.

Similarly, you can address capacity conflicts by moving scheduled quantities to different dates or assigning them to alternate resources.

Important The workbench includes a Save command at the bottom of the screen that lets you save your updates to the QAD Production Scheduler data repository. “(12) Commands” on page 58 describes the functions of the Save command. To avoid potential loss of workbench changes because of problems with WebSpeed or other elements of the communication infrastructure, you should save your work frequently.

Figure 2.4 uses numbers to identify the various frames that make up the workbench. The text following the figure describes how each frame is used.

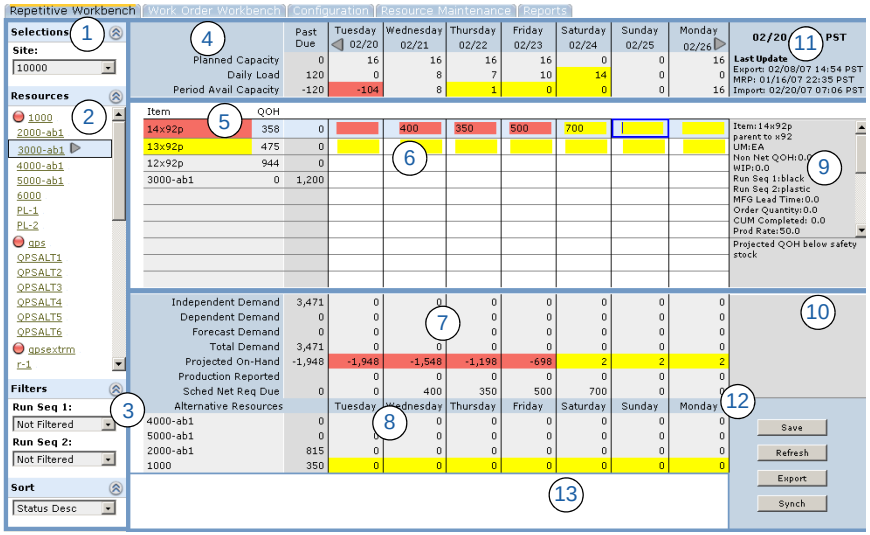


Fig. 2.4 Repetitive Workbench Overview

(1) Selection Frame

Begin using the workbench by selecting a site for scheduling.

Site. Select the site for which you want to schedule resources.

The selection list is limited to sites that you can access based on security records defined in Site Security Maintenance (36.3.15; 36.3.16 before eB2.1). Additionally, if you are in a multiple-domain environment, the system only displays sites in domains that you can access based on settings in User Maintenance (36.3.1).

Important If you have just enabled a site in Configuration, you must log out of QAD Production Scheduler before it is available for selection.

(2) Resources Frame

This frame displays the list of repetitive production lines that are available for scheduling at the selected site. Click on a production line to see the items available for scheduling.

Important If you have just enabled the site using Configuration, you must click Synch to allow the system to import the production line resources from QAD ERP to the QAD Production Scheduler data repository. Otherwise, the production lines do not display in the Resources frame. You should also click Synch after enabling production lines in Resource Maintenance to make resource and item data available.

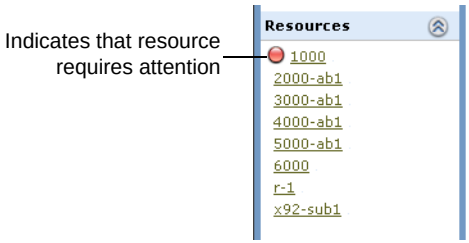
Once resources are enabled, they display even if they are not currently used to produce any items in the QAD Production Scheduler repository. When you select such a resource, no items display. If you click Refresh, you may see a `null` error message. Exit from the current resource and synchronize the site. If any items are produced by the production lines for that site, they will be added to the repository, and the items will display when you again select the resource.

Depending on the number of production lines at the site and the number of items available, a brief pause may occur while the system loads data from the repository when you select a site or a production line. This can also happen when you click on a scroll arrow to display more records.

The system displays a red indicator next to production lines that are primary resources for items that require attention because of quantity-on-hand issues.

Note If an item can be produced on more than one production line, the indicator does not display for alternate lines. For example, item 100 can be scheduled on production lines A and B, and A is the primary line. If there is a negative projected on hand, only production line A shows the indicator.

Fig. 2.5
Resource Alert Indicator



Note If you resolve the problem by adjusting the schedule on the production line where it occurs, the system immediately clears the indicator. However, if you resolve it by adjusting the schedule on an alternate resource, the indicator does not clear until you click Save.

Avoiding Data Access Conflicts

To avoid potential data conflicts that could result if two users access the same resource, the system locks a resource for the individual user when it is selected on the workbench. The lock clears for saved records only when the user who modified them clicks Export or exits from the application by closing the browser.

However, an exception can take place when a user saves, exports, and then does not exit from the resource. In this case, the lock is not re-created. It is then possible for another user to access the resource (the system creates the lock based on the second user's ID)—so that two schedulers have the same production line on the workbench. If the first user makes more changes and saves before the second user, the second user's changes to the schedules would be overwritten in the repository.

If your environment has multiple schedulers who typically work with the same production lines, you can use one of these methods to avoid this situation:

- Always select a different resource after exporting. You can then go back to the original resource to reset the lock; the system will display a message if someone else has it on the workbench.
- Save after exporting. This also resets the lock on the current resource.

(3) Filters/Sorting Frame

Optionally, you can limit the items displayed in the workbench to those matching one or two filter criteria. You also can specify the sort order in which items are displayed.

Run Seq 1, 2. Specify a run sequence code associated with items you want to schedule in the workbench.

If you select a run sequence value, the system limits workbench display to items that have that value specified in the Run Sequence 1 or Run Sequence 2 field in Item-Site Planning Maintenance (1.4.17) or Item Master Maintenance (1.4.1).

Note If you enter values in both fields, items must be associated with both values to be displayed on the workbench.

Sort. Specify the primary order in which the system displays items in this workbench session. You can sort items by status, due date, or item number.

- Status Desc (the default): List items by the severity of the status indicator associated with them. For example, all items with a red indicator because of a negative projected quantity on hand are displayed first.
- Item ID Asc: List items in ascending alphanumeric order by item number.
- Due Date Asc: List items based on when they have work orders due, starting with the earliest due date.

Note When you choose to sort by due date, the system bases the sort on the entire scheduling period specified for the production line, including historical and future dates, as well as the firm window.

If you have made changes in the workbench without saving them and you attempt to change a filter or the sort order, the system displays a message. Click OK to continue by discarding your changes; click Cancel to return to the current contents of the workbench so you can save your changes as needed.

(4) Load/Capacity Frame

This frame includes load and capacity information for the selected resource on each day of the 7-day display window, starting with the current day. Click the right or left arrow to scroll to the next or previous 7-day period.

When you update a quantity inside the firm or historical scheduling window in the schedule grid, the system recalculates load and capacity information and updates this frame, including status indicators as appropriate.

Note Scrolling updates both this frame and the item schedule grid. The horizontal scroll arrows let you display additional future and historical days, depending on configuration settings. “Scheduling Periods” on page 12 describes how these periods are used.

The frame includes the following fields:

Planned Capacity. This column displays the daily calculated capacity (in hours) of this line based on production line capacity parameters. It does not include past-due capacity; the Past Due column is always set to 0 (zero).

For each repetitive production line, capacity is calculated as follows, based on setup data imported from QAD ERP:

*(Repetitive Shift Hours Available, adjusted for Downtime and Holiday Calendar) * Efficiency Factor*

Where:

- Available hours, downtime, and efficiency factor are from Shift Maintenance (18.22.1.22).
- Holiday calendar is from Holiday Maintenance (36.2.1).

Note Capacity for the current workday is not consumed as the day progresses. It is possible for the system to indicate there is capacity available for the current day even though it has actually been consumed. This situation is not addressed in the current phase of QAD Production Scheduler.

Daily Load. The system displays the calculated load for this line for this day, as well as any past-due quantity.

If the calculated daily load is greater than capacity, the cell displays with yellow shading.

Daily load is calculated as follows:

*Daily Load = Sum of (Net Quantity Due * Item Run Rate / (1 + Rate Flex Factor)) + Setup Time*

Where:

- Run rate (in hours per piece) is from Production Line Maintenance (18.22.1.1).

- Flex rate factor and setup time are from QAD Production Scheduler Resource Maintenance. For historical daily load, the rate flex factor is 0 (zero).

The way the net quantity due is calculated depends on the day's relative location on the planning schedule:

- For firm and historical days, it includes the net required due for all scheduled quantities.
- For future days, it includes all planned order quantities.

Period Avail Capacity. This field provides a cumulative view of available capacity by day during the firm schedule period, based on the ability to apply excess capacity on one day to meet the excess requirements of another day. This is the primary indicator of overall capacity constraints. It shows the scheduler potential capacity shortages over a period of days.

Note Period available capacity is applicable only within the firm scheduling window. The field is set to 0 (zero) for historical and future days.

The system calculates period available capacity using the following steps:

a The system starts from the current system date by setting the period available capacity to capacity minus current and past daily load.

b The calculation is then carried forward from the current system date.

c If the result is negative, any excess period available capacity from previous days is consumed, starting from the closest day, until either the period available capacity is no longer negative or all previous days' excess capacity is consumed.

d The system continues with this logic until it reaches the end of the firm window.

e Past-due period available capacity is calculated by subtracting the past-due daily load from zero.

Based on the calculated results, the system uses the following color indicators to identify period available capacity issues:

- Red shading: All prior daily excess capacity has been consumed, and the period available capacity is still negative.
- Yellow shading: Excess capacity exists, but some or all of it is consumed by a future shortage. This can also indicate that period available capacity is not equal to capacity minus daily load; the system has consumed some excess capacity from another day.
- Unshaded: No shortage exists, and the period available capacity is the difference between capacity and daily load—no excess capacity is consumed by future shortages.

(5) Item List

The system displays a grid including each item that can be produced on the selected resource—sorted by item number, scheduled due date, or item status—including the current quantity on hand and any past-due quantity. Vertical scroll arrows let you display additional items.

Note The synchronization process, which populates the QAD Production Scheduler with QAD ERP data, only considers items for which there is existing supply and/or demand. Other items do not display on the workbench.

Visual indicators in the item field reflect the highest-priority situation for a day within the firm scheduling period. For example, if the projected on-hand for the item is negative for one day in the period, while another day's quantity is just less than safety stock, the item number cell is shaded red to reflect the more critical issue.

(6) Schedule Grid

The system displays the current item quantity requirement for each of 7 days, beginning with the current day. When you select an item by clicking a daily schedule cell, the entire row is highlighted in blue; quantities within the firm scheduling window are shown with a dark border. Additional visual indicators include the following codes to call your attention to potential issues:

Red shading: The projected on-hand quantity for the day is less than zero.

Yellow shading: The projected on-hand quantity for the day is less than the safety stock value specified in QAD ERP item-site or item master data plus seasonal demand.

Quantity in ~~strike-through~~ text: The scheduled quantity net-due for the day is zero.

When you make a change that remedies the problem, the system updates the cell to remove the color indicator.

The display includes firm and planned quantities for each day in the firm window, as well as the specified historical and future periods. In addition to the firm window, you can update quantities in the historical schedule—for example, to cancel a net-due quantity for a previous day that is no longer needed.

Dates later than the firm window are considered to be under the control of MRP; you cannot modify quantities for those dates on repetitive schedules.

The quantity scheduled is calculated differently depending on the day's position on the overall schedule:

- For each firm and historical day, displays the total of all scheduled quantities.
- For each future day, displays the sum of all planned orders.

Note If you update quantities in QAD ERP Schedule Maintenance, the future period in Repetitive Workbench may not display the actual amounts scheduled. Adjust the Firm Days value to match the number of days in the future that you schedule in QAD ERP to avoid this situation. See "Limitation on Synchronizing Repetitive Schedules" on page 16 for more information.

Navigation Shortcuts

While you can use the mouse to click anywhere within the schedule grid, the following keyboard navigation shortcuts are available:

- Press Tab to move forward to the next day.
- Press Shift-Tab to move back to the previous day.
- Press the down arrow to move down to the next item.
- Press the up arrow to move up to the previous item.

Note Keyboard shortcuts are available only within the 7-day, 10-item window currently displaying. To display additional days or items, you must click the horizontal or vertical scroll arrows.

Saving Your Changes

To save your changes to the QAD Production Scheduler repository, export the new schedules from the repository to QAD ERP, refresh the workbench from the repository, or synchronize the repository with updates from QAD ERP, click the appropriate command. “(12) Commands” on page 58 describes how the commands are used.

Note When you change the site and the system detects unsaved changes in the schedule grid, you are prompted to save your changes. If you change the resource, filter, or sort order without saving changes, the system displays a prompt. You can discard your changes by clicking OK; otherwise, click Cancel, then Save.

(7) Supply/Demand Frame

When an item is highlighted, the system displays the following associated data:

Past Due (Demand). The system displays past-due totals by demand type.

Note This includes all past-due demand for the item—not just demand from the specified historical period.

Independent Demand. The system displays independent demand from QAD ERP for the selected item.

This quantity includes confirmed sales orders, DRP orders, and type 3 (required ship schedule) customer schedules.

Note All demand values match quantities shown in MRP Detail Inquiry (23.16).

Dependent Demand. The system displays additional demand from QAD ERP based on dependent demand from parent-level items for the selected item.

Forecast Demand. The system displays the net balance of current forecast demand from QAD ERP for the selected item.

QAD ERP stores forecasts by week. The workbench shows the entire forecast for the week on one day.

Total Demand. The system calculates the total demand for the selected item:

Sales Demand + WO Demand + Forecasted Demand

Note Depending on the Include Forecast setting in Configuration, forecast may not be included in the total.

Projected On-Hand. The system displays the real-time projected inventory on hand for the item.

Note The projected on-hand calculation includes firm scheduled quantities from alternate resources for the item.

Production Reported. The system displays the real-time production reported quantities for the item on all production lines.

Note When reporting production includes backflushing inventory to a non-nettable inventory location, QAD Production Scheduler does not display the reported quantity. This limitation has no effect on workbench calculations.

This data is displayed for each item starting from the current date through *n* days of history, where *n* is the value specified for the configuration. After *n* days, production reported data is no longer refreshed or displayed.

This number is derived from QAD ERP transaction history records.

Sched Net Requirements Due. The system displays the net required quantity due:

Total Quantity Scheduled, including prior scheduled quantities – Cumulative Quantity Reported

Note A negative net-due quantity is mathematically possible and can display in the workbench if a specific and rare set of transaction sequences takes place. However, this is an anomaly and not a concept recognized by QAD ERP. If you see a negative number in this column, export the schedule, then synchronize the repository. This should clear the negative number.

(8) Alternative Resources Frame

When the selected item can be produced on more than one production line, the system displays the item's other resources in this frame.

Note Alternative resources for an item are defined in Production Line Maintenance.

This frame provides visibility into other resources that might be available to help resolve capacity issues on the production line currently being scheduled. The daily schedule field is shaded yellow if the daily load exceeds capacity.

(9) Item Data Frame

When you select an item, the system displays several types of item and production information, as well as messages related to status indicators and sources of demand.

Item. The number and description of the selected item.

Unit of Measure. The unit of measure used for stocking and planning this item.

Non-Nettable QOH. The current quantity on hand that is not considered in MRP planning calculations. Typically, non-nettable inventory has quality issues or is reserved for special use.

WIP. The total work-in-process quantity included on all cumulative orders for this item. This value includes input and output queues; it excludes scrap and reject WIP quantities. Negative WIP quantities are included in the total. A negative number in this field can indicate a potential problem with the QAD ERP WIP and inventory balances.

Example Although there are actually 70 pieces in WIP, a production reporting error leads to WIP quantities of –50 in the operation 10 output queue and +70 in the operation 30 output queue. This displays as 20 in the WIP field. However, when the 70 pieces are moved out of WIP, QAD Production Scheduler displays total WIP of –50. This alerts the scheduler that QAD ERP needs to be corrected to avoid incorrect inventory balances and costs.

MFG Lead Time. The manufacturing lead time defined in Item-Site Planning Maintenance (1.4.17) or Item Master Maintenance (1.4.1).

Order Quantity. The standard production quantity defined in QAD ERP item-site or item master records.

Cum Completed. The cumulative production quantity reported as completed for the selected item.

Production Rate. The production rate specified in QAD ERP Production Line Maintenance for the selected item.

Safety Stock. The safety stock quantity for the selected item defined in QAD ERP item-site or item master records.

Safety Time. The number of days of safety time specified for the item in QAD ERP item-site or item master records. MRP adjusts actual need dates by this value as protection against late deliveries.

Run Seq 1, 2. The system displays up to two run sequence codes associated with this item in the Run Sequence 1 and 2 fields in QAD ERP item-site or item master records.

Note You can use filters to limit the items shown in the workbench based on these values. “(3) Filters/Sorting Frame” on page 47 describes how filters are used.

Tool ID. The tool ID associated with this item in QAD ERP Production Line Maintenance.

Ord Pol. The order policy specified for the item in QAD ERP item-site or item master records. This value determines the method MRP uses to plan orders for this item.

Order Period. The order period specified for the item in QAD ERP item-site or item master records. This is the length of the planning period MRP uses when Order Policy is POQ (period order quantity).

Time Fence. The time fence specified for the item in QAD ERP item-site or item master records. This is the number of days inside of which MRP does not replan this item.

Min Order. The minimum quantity that can be placed on a single order for this item, as specified in QAD ERP item-site or item master records.

Ord Mult. The order multiple specified for the item in QAD ERP item-site or item master records. When Order Policy is POQ (period order quantity) or LFL (lot for lot), MRP rounds net requirements for the item up to the next multiple of this number.

Yield %. The yield percentage specified for the item in QAD ERP item-site or item master records.

Cum LT. The total cumulative lead time for the item from QAD ERP item-site or item master records.

Reorder Point. The inventory level at which this item should be reordered, from QAD ERP item-site or item master records.

Buyer/Planner. The user ID of the buyer/planner specified for the item in QAD ERP item-site or item master records.

Plan Orders. An indication of whether MRP creates planned orders for this item, from QAD ERP item-site or item master records.

MRP Required. The current value of the system-maintained MRP Required field in the QAD ERP item-site or item master record. When this is Yes, the system has detected a change in such things as product structure, inventory, or transactional records that requires the item to be replanned.

Messages. This area displays messages related to such things as status indicators; for example, if you select an item that has a projected negative on-hand quantity, the system summarizes the reason for the indicator.

(10) Demand Details

When you select an item in one of the daily schedule fields, the system displays information about the components of the demand, such as sales order/line numbers and quantities or seasonal demand. This display is based on MRP detail records. If the Detail Days field in Configuration is zero, the displayed demand only includes the selected day. Otherwise, this frame also lists demand for the specified number of subsequent days.

(11) Last Update Frame

Based on the selected resource, the system displays reference information regarding the latest synchronization-related events.

Export. Last time/date the schedule was exported to QAD ERP.

MRP. Last time/date QAD Production Scheduler initiated Net Change MRP in QAD ERP.

Import. Last time/date the QAD Production Scheduler data repository was synchronized with updates from QAD ERP.

(12) Commands

Use these buttons to execute the following commands:

Save. Click to commit your changes to the QAD Production Scheduler data repository.

Note Save does not update QAD ERP; you must also click Export.

Refresh. Click to reset the workbench with the latest data from the QAD Production Scheduler data repository for the currently selected site and resource. If the workbench includes unsaved changes, you are prompted to save.

Export. Click to export updates from the QAD Production Scheduler data repository to the QAD ERP database. “Exporting QAD Production Scheduler Data to QAD ERP” on page 16 describes this process.

Note If QAD ERP is not correctly updated during export, the background processes may need to be restarted. See “Repetitive Workbench Export Issue” on page 18 for information.

Synch. Click to submit a command that synchronizes the QAD Production Scheduler repository with updated data from the QAD ERP database. You can use this command to override the automatic server synchronization value specified in Configuration.

The processes that perform the export and synchronization functions run continuously in the background, responding to user requests. Depending on current system activities, synchronization may not occur immediately. Status messages indicate when the process begins and ends. Additionally,

the appropriate date/time field is shaded in the Last Update frame while the update is taking place. The system modifies the date/time field when the process finishes.

Note In some circumstances, these background processes may be stopped—during system backup, or when a server is shut down for some reason. If the processes are not running, export or synchronization will not take place until they are restarted. For example, when you click Export, the window at the bottom of the workbench displays a message that the process has been initiated—the request to the background process has been submitted. If the system pauses for more than a brief period before starting the export, the background process may not be running. Subsequent Export commands result in a message saying that a request has already been submitted. When this happens, you should confirm that the background processes are running.

See the installation guide for information on launching background processes.

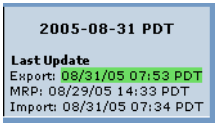


Fig. 2.6
Update-In-Progress Indicator

(13) System Messages

The system displays the current state of the workbench, such as update-in-progress messages. For example, Figure 2.7 shows a sequence of messages indicating a successful export and system-initiated MRP run.

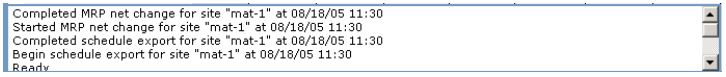


Fig. 2.7
Sample Messages

Work Order Workbench

Use Work Order Workbench to view and update existing work orders, as well as create new ones.

The system uses visual status indicators such as color-coding to alert you to potential scheduling issues that require your attention. For information on how visual indicators are used, see the descriptions of the individual fields. Additionally, Table 1.1, “Visual Indicator Summary,” on page 12 summarizes color-coding and other visual indicators used in the workbench.

You can adjust individual work order quantities and dates as needed—or add new orders—to address projected quantity-on-hand shortages. When the system determines that requirements can be met, it refreshes the screen to clear the indicator.

You also can assign orders to other available work center/machine combinations to resolve capacity issues.

Important The workbench includes a Save command on the work order detail frame that lets you save your updates to the QAD Production Scheduler data repository. To avoid potential loss of workbench changes because of problems with WebSpeed or other elements of the communication infrastructure, you should save your work frequently.

Work Order Routings

When synchronizing data with QAD ERP, QAD Production Scheduler looks for QAD ERP work orders that have routings with operations that use enabled resources.

In the workbench, you can update information at the work order routing operation level—including the operation release and due dates—to serve as additional planning information to use in shop-floor operations. However, the current version of QAD Production Scheduler does not export work order routing detail records back to QAD ERP. This has the following potential effects:

- If you use Work Order Dispatch Report (16.18), the start and due dates of an operation will vary from the values in the QAD Production Scheduler data repository if you updated them in the

workbench. As an alternative, when you change the routing operation start or due dates in Work Order Workbench, you should generate an Excel report as described in “Reports” on page 89 and use that as the dispatch report.

- You can change the operation setup or run time in Work Order Workbench to modify capacity consumption. However, this does not update QAD ERP records used in costing. If you require setup and run times to be synchronized, you must also update the work order routing records in QAD ERP Work Order Routing Maintenance (16.13.13).

Optimizing Synchronization Performance

The process that synchronizes the QAD Production Scheduler data repository with work orders in the QAD ERP database extracts and loads a significant amount of QAD ERP data for individual work orders and work order operations. The number of work order records in QAD ERP has a direct impact on synchronization performance.

You should plan the way you set up QAD Production Scheduler, as well as administer the QAD ERP database, to avoid significant performance issues during synchronization.

- If half the work orders in your QAD ERP database are closed but have not been removed from the system, you will experience synchronization times of approximately double the optimum length. You should regularly use standard QAD ERP procedures to close work order accounting, then archive/delete unneeded orders.
- The length of the future planning window—specified as described in “Future Schedule Days” on page 34—has a direct impact on synchronization performance. Determine a realistic, meaningful length for the future horizon in your specific environment.

Joint Work Order Limitation

When you access work orders for a resource that produces co-products or by-products, Work Order Workbench displays all the orders included in the joint order set. The status and quantity of each order are the same as in QAD ERP.

However, the current version of QAD Production Scheduler does not synchronize workbench changes across the joint order set:

- If you change the status of a planned base process order to firm, the associated joint orders stay in planned status.
- If you update the quantity on a co-product order, the base process order quantity remains unchanged.

To correctly update all the orders with workbench changes, you must use QAD ERP's co-product/by-product processing functions:

1. Save your status and quantity changes in the workbench, then click Export.

   When the modified records are loaded into the QAD ERP database, the system updates the status of each order and recalculates quantities based on co-product/by-product relationship setup data.

2. Click Synch.

   The system imports the correct values for all orders in the joint set to the QAD Production Scheduler data repository.

3. Click Refresh. The adjusted values display in the workbench.

Workbench Elements

Figure 2.4 uses numbers to identify the various frames that make up the workbench. The text following the figure describes how each frame is used.

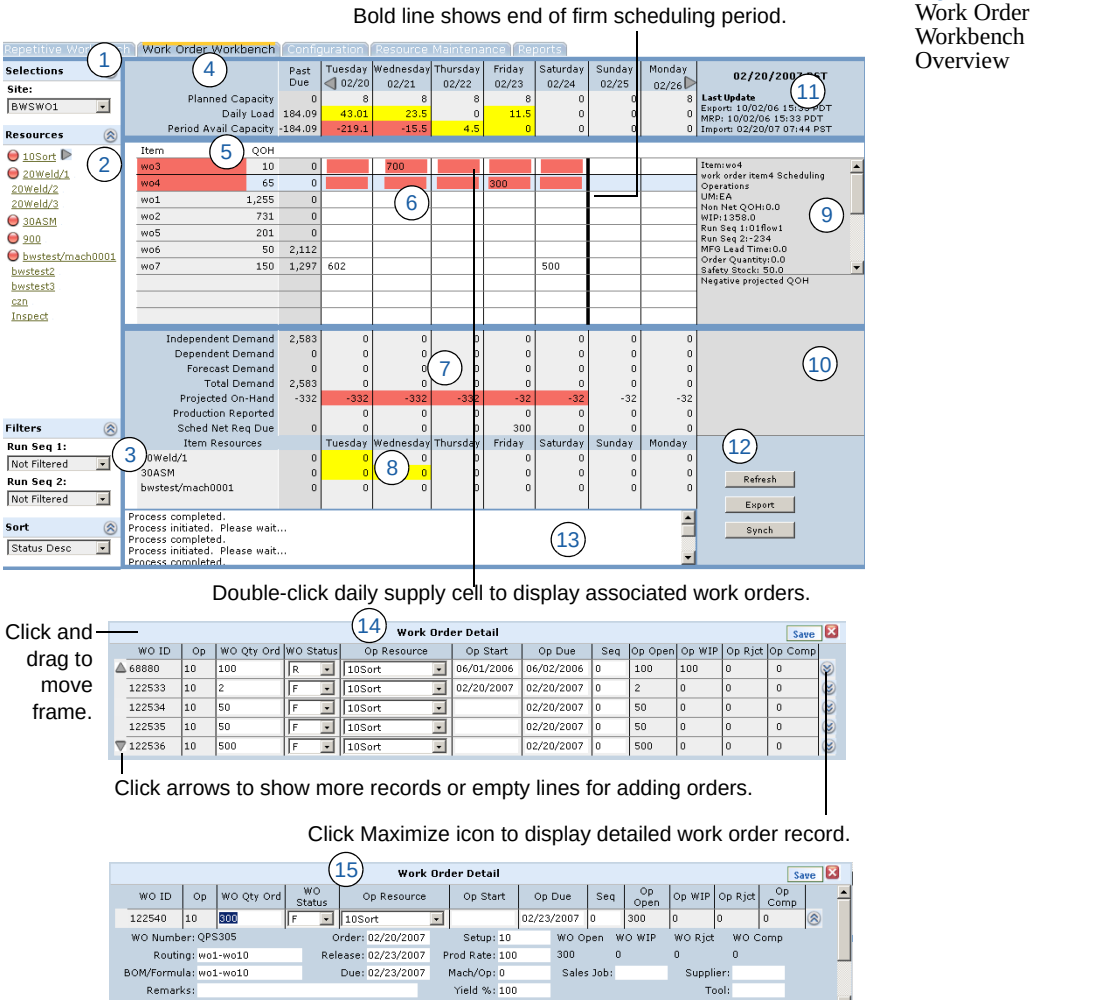


Fig. 2.8 Work Order Workbench Overview

(1) Selection Frame

Begin using the workbench by selecting a site for scheduling.

Site. Select the site for which you want to schedule work orders.

The selection list is limited to sites that you can access based on security records defined in Site Security Maintenance (36.3.15; 36.3.16 before eB2.1). Additionally, if you are in a multiple-domain environment, the system only displays sites in domains that you can access based on settings in User Maintenance (36.3.1).

Important If you have just enabled a site in Configuration, you must log out of QAD Production Scheduler before it is available for selection.

(2) Resources Frame

This frame displays the list of work center/machine resources that are available for scheduling at the selected site. Click on a resource to see the items that have work orders available for scheduling.

Important If you have just enabled the site using Configuration, you must click Synch to allow the system to import the work center/machine resources from QAD ERP to the QAD Production Scheduler data repository. Otherwise, they do not display in the Resources frame. You should also click Synch after enabling resources to make resource and item data available.

Once resources are enabled, they display even if they are not currently used by any of the work orders in the QAD Production Scheduler repository. When you select such a resource, no items display. If you click Refresh, you may see a `null` error message. Exit from the current resource and synchronize the site. If any QAD ERP work orders use the resource, they will be added to the repository, and the items will display when you again select the resource.

Depending on the number of resources enabled for the site and the number of items available, a brief pause may occur while the system loads data from the repository when you select a site or a resource. This can also happen when you click on a scroll arrow to display more records.

The system displays a red indicator next to work center/machine resources for items that require attention because of quantity-on-hand issues.

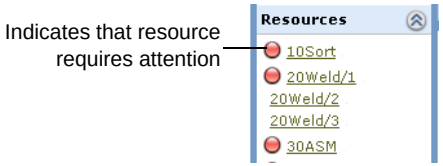


Fig. 2.9
Resource Alert Indicator

Avoiding Data Access Conflicts

To avoid potential data conflicts that could result if two users access the same resource, the system locks a resource for the individual user when it is selected on the workbench. The lock clears for saved records only when the user who modified them clicks Export or exits from the application by closing the browser.

However, an exception can take place when a user saves, exports, and then does not exit from the resource. In this case, the lock is not re-created. It is then possible for another user to access the resource (the system creates the lock based on the second user's ID)—so that two schedulers have the same resource on the workbench. If the first user makes more changes and saves before the second user, the second user's changes would be overwritten in the repository.

If your environment has multiple schedulers who typically work with the same work center/machine combinations, you can use one of these methods to avoid this situation:

- Always select a different resource after exporting. You can then go back to the original resource to reset the lock; the system will display a message if someone else has it on the workbench.
- Save after exporting. This also resets the lock on the current resource.

(3) Filters/Sorting Frame

Optionally, you can limit the items displayed in the workbench to those matching one or two filter criteria. You also can specify the sort order in which items are displayed.

Run Seq 1, 2. Specify a run sequence code associated with items you want to schedule in the workbench.

If you select a run sequence value, the system limits workbench display to items that have that value specified in the Run Sequence 1 or Run Sequence 2 field in Item-Site Planning Maintenance (1.4.17) or Item Master Maintenance (1.4.1).

Note If you enter values in both fields, items must be associated with both values to be displayed on the workbench.

Sort. Specify the primary order in which the system displays items in this workbench session. You can sort items by status, due date, or item number.

- Status Desc (the default): List items by the severity of the status indicator associated with them. For example, all items with a red indicator because of a negative projected quantity on hand are displayed first.
- Item ID Asc: List items in ascending alphanumeric order by item number.
- Due Date Asc: List items based on when they have work order operations due, starting with the earliest operation due date. If multiple items have operations due on the same date, the system uses non-zero Seq values (optionally specified in the Work Order Details frame) as a secondary sort key to determine the order in which items display

Note When you choose to sort by due date, the system bases the sort on the entire scheduling period specified for the resource, including historical and future dates, as well as the firm window.

If you have made changes in the workbench without saving them and you attempt to change a filter or the sort order, the system displays a message. Click OK to continue by discarding your changes; click Cancel to return to the current contents of the workbench so you can save your changes as needed.

(4) Load/Capacity Frame

This frame includes load and capacity information for the selected resource on each day of the 7-day display window, starting with the current day. Click the right or left arrow to scroll to the next or previous 7-day period.

Note A bold vertical line indicates where the firm planning period ends and the future period begins.

When you update work orders to change a total daily quantity inside the firm or historical scheduling window in the supply grid, the system recalculates load and capacity information and updates this frame, including status indicators as appropriate. This is also true if you change the daily quantity by moving an order to a different due date.

Note Scrolling updates both this frame and the work order supply grid. The horizontal scroll arrows let you display additional future and historical days, depending on configuration settings. “Scheduling Periods” on page 12 describes how these periods are used.

The frame includes the following fields:

Planned Capacity. This column displays the daily calculated capacity (in hours) of this resource. It does not include past-due capacity; the Past Due column is always set to 0 (zero).

For each resource, capacity is calculated as follows, based on setup data imported from QAD ERP:

Work Center/Machine Hours Available, adjusted for Downtime and Holiday Calendar

Where:

- Available hours and downtime are from Calendar Maintenance (36.2.5).
- Holiday calendar is from Holiday Maintenance (36.2.1).

Note Capacity for the current workday is not consumed as the day progresses. It is possible for the system to indicate there is capacity available for the current day even though it has actually been consumed. This situation is not addressed in the current phase of QAD Production Scheduler.

Daily Load. The system displays the calculated load for this resource for this day, as well as any past-due quantity.

If the calculated daily load is greater than capacity, the cell displays with yellow shading.

Daily load is calculated as follows:

*Daily Load =(((Net Scheduled Quantity Due * Run Rate) / Machines per Op) * Rate Flex Factor) + Setup Time*

Where:

- Net scheduled quantity due is the smaller of the work order open quantity or the operation quantity scheduled on that date.
- Run rate (in hours per piece), setup time, and Machines per Op are from Routing Maintenance (18.22.1.1). If Machines per Op is 0 (zero), the system uses 1 in the calculation.
- Rate flex factor is from Resource Maintenance. For historical daily load, the rate flex factor is 0 (zero).

The way the net quantity due is calculated depends on the day's relative location on the planning schedule:

- For firm and historical days, it includes the net required due for all work orders in any status other than Planned or Closed.
- For future days, only closed orders are excluded.

Note After production has been reported against a work order operation, setup time is no longer included in load calculations.

Period Avail Capacity. This field provides a cumulative view of available capacity by day during the firm schedule period, based on the ability to apply excess capacity on one day to meet the excess requirements of another day. This is the primary indicator of overall capacity constraints. It shows the scheduler potential capacity shortages over a period of days.

Note Period available capacity is applicable only within the firm scheduling window. The field is set to 0 (zero) for historical and future days.

The system calculates period available capacity using the following steps:

a The system starts from the current system date by setting the period available capacity to capacity minus current and past daily load.

b The calculation is then carried forward from the current system date.

c If the result is negative, any excess period available capacity from previous days is consumed, starting from the closest day, until either the period available capacity is no longer negative or all previous days' excess capacity is consumed.

d The system continues with this logic until it reaches the end of the firm window.

e Past-due period available capacity is calculated by subtracting the past-due daily load from zero.

Based on the calculated results, the system uses the following color indicators to identify period available capacity issues:

- Red shading: All prior daily excess capacity has been consumed, and the period available capacity is still negative.
- Yellow shading: Excess capacity exists, but some or all of it is consumed by a future shortage. This can also indicate that period available capacity is not equal to capacity minus daily load; the system has consumed some excess capacity from another day.
- Unshaded: No shortage exists, and the period available capacity is the difference between capacity and daily load—no excess capacity is consumed by future shortages.

(5) Item List

The system displays a grid including each item whose work order routing includes the selected resource, including the current quantity on hand and any past-due quantity. Vertical scroll arrows let you display additional items.

Note The synchronization process, which populates the QAD Production Scheduler with QAD ERP data, only considers items for which there is existing supply and/or demand. Other items do not display on the workbench.

Visual indicators in the item field reflect the highest-priority situation for a day within the firm scheduling period. For example, if the projected on-hand for the item is negative for one day in the period, while another day's quantity is just less than safety stock, the item number cell is shaded red to reflect the more critical issue.

(6) Work Order Supply Grid

The system displays the current total work order quantity for each of seven days, beginning with the current day. Each day's total consists of the sum of the order quantities for all work orders with *operation* due dates equal to that day.

When you select an item by clicking a daily cell, the selected cell is highlighted in blue. Additional visual indicators include the following codes to call your attention to potential issues:

Red shading: The projected on-hand quantity for the day is less than zero.

Yellow shading: The projected on-hand quantity for the day is less than the safety stock value specified in QAD ERP item-site or item master data plus seasonal demand.

Quantity in ~~strike-through~~ text: The scheduled quantity net-due for the day is zero.

To view work orders with operation due dates on a given day, as well as past-due and future orders for the item, double-click the cell. This lets you access details about the individual work orders, as described in "(14) Work Order Detail List" on page 78.

When you modify or add work orders to address the issues, the system updates the cell to remove the color indicator. Since this happens in real time, even when you do not save your changes, you can determine the effects of potential changes before actually updating the system.

The display includes quantities for each day in the firm window, as well as the specified historical and future periods.

The quantity shown is calculated differently depending on the day's position on the overall schedule:

- For each historical day, displays the total of all work order quantities with a status greater than Planned—including orders with a status of Closed.
- For each firm day, displays the total of all work order quantities except for orders with Planned status. For each individual order, the system uses the lesser of:
  - The work order quantity still open

    - The remaining quantity for the operation
- For each future day, displays the sum of all orders—again using the lesser of the open quantity and the operation quantity.

The Past Due column shows the total scheduled net requirements due for all open work orders—excluding those with Planned or Closed status—with operation due dates prior to the current date.

Navigation Shortcuts

While you can use the mouse to click anywhere within the schedule grid, the following keyboard navigation shortcuts are available:

- Press Tab to move forward to the next day.
- Press Shift-Tab to move back to the previous day.
- Press the down arrow to move down to the next item.
- Press the up arrow to move up to the previous item.

Note Keyboard shortcuts are available only within the 7-day, 10-item window currently displaying. To display additional days or items, you must click the horizontal or vertical scroll arrows.

Saving Your Changes

To save modified and new work orders to the QAD Production Scheduler repository, click Save in the Work Order Detail window.

Other commands are available at the bottom of the main workbench screen; if necessary, click the title bar on the Work Order Detail frame and move it to access the command buttons. To export updated and new work orders from the repository to QAD ERP, refresh the workbench from the repository, or synchronize the repository with updates from QAD ERP, click the appropriate command. “(12) Commands” on page 77 describes how they are used.

Note When you change the site or resource and the system detects unsaved changes to work order detail records, a message displays. Click OK to save your changes; click Cancel to stay on the current site or resource with unsaved changes still displayed. If you change the resource, filter, or sort order without saving changes, the system displays a similar message.

(7) Supply/Demand Frame

When an item is highlighted, the system displays the following associated data:

Past Due (Demand). The system displays past-due totals by demand type.

Note This includes all past-due demand for the item—not just demand from the specified historical period.

Independent Demand. The system displays independent demand from QAD ERP for the selected item.

This quantity includes confirmed sales orders, DRP orders, and type 3 (required ship schedule) customer schedules.

Note All demand values match quantities shown in MRP Detail Inquiry (23.16).

Dependent Demand. The system displays additional demand from QAD ERP based on dependent demand from parent-level work orders for the selected item, as well as scrap requirements.

Forecast Demand. The system displays the net balance of current forecast demand from QAD ERP for the selected item.

QAD ERP stores forecasts by week. The workbench shows the entire forecast for the week on one day.

Total Demand. The system calculates the total demand for the selected item:

Sales Demand + WO Demand + Forecasted Demand

Note Depending on the Include Forecast setting in Configuration, forecast may not be included in the total.

Projected On-Hand. The system displays the real-time projected inventory on hand for the item.

- Within the historical and firm windows, the projected on-hand calculation includes supply from work orders in all statuses other than Planned and Closed.
- For the future window, only closed orders are excluded from the calculation.

Note Excluding planned orders from the firm window enables the management-by-exception features offered by QAD Production Scheduler's visual indicators. Because the calculation is different in QAD ERP, you may see different results when you view data in MRP Detail Inquiry (23.16).

Production Reported. The system displays the real-time production reported quantities for the item.

Note When reporting production includes backflushing inventory to a non-nettable inventory location, QAD Production Scheduler does not display the reported quantity. This limitation has no effect on workbench calculations.

This data is displayed for each item starting from the current date through *n* days of history, where *n* is the value specified for the configuration. After *n* days, production reported data is no longer refreshed or displayed.

This number is based on quantities reported as completed, scrapped, and rejected in QAD ERP.

Sched Net Requirements Due. The system displays the net required quantity due, equal to the smaller of:

- The work order open scheduled quantity
- The operation open scheduled quantity

In the history and firm windows, the quantity includes all work orders except those in Planned or Closed status. In the future window, only closed orders are excluded.

The Past Due column shows the total quantity of all past due work orders in all statuses other than Planned and Closed.

(8) Item Resources Frame

When the selected item's routing operations include additional work center/machine combinations, the system displays these other resources in this frame.

This frame provides visibility into other resources that might be available to help resolve capacity issues on the resource currently being scheduled. The daily schedule field is shaded yellow if the daily load exceeds capacity. One way of dealing with this situation is to move order

quantities to other work centers by reducing the quantity on the original order, creating a new order for that amount, and assigning it to another resource.

(9) Item Data Frame

When you select an item, the system displays several types of item and production information, as well as messages related to status indicators and sources of demand.

Item. The number and description of the selected item.

Unit of Measure. The unit of measure used for stocking and planning this item.

Non-Nettable QOH. The current quantity on hand that is not considered in MRP planning calculations. Typically, non-nettable inventory has quality issues or is reserved for special use.

WIP. The total work-in-process quantity included on all cumulative orders for this item. This value includes input and output queues; it excludes scrap and reject WIP quantities. Negative WIP quantities are included in the total. A negative number in this field can indicate a potential problem with the QAD ERP WIP and inventory balances.

Example Although there are actually 70 pieces in WIP, a production reporting error leads to WIP quantities of –50 in the operation 10 output queue and +70 in the operation 30 output queue. This displays as 20 in the WIP field. However, when the 70 pieces are moved out of WIP, QAD Production Scheduler displays total WIP of –50. This alerts the scheduler that QAD ERP needs to be corrected to avoid incorrect inventory balances and costs.

MFG Lead Time. The manufacturing lead time defined in QAD ERP Item-Site Planning Maintenance (1.4.17) or Item Master Maintenance (1.4.1).

Order Quantity. The standard production quantity defined in QAD ERP item-site or item master records.

Safety Stock. The safety stock quantity for the selected item defined in QAD ERP item-site or item master records.

Safety Time. The number of days of safety time specified for the item in QAD ERP item-site or item master records. MRP adjusts actual need dates by this value as protection against late deliveries.

Run Seq 1, 2. The system displays up to two run sequence codes associated with this item in the Run Sequence 1 and 2 fields in QAD ERP item-site or item master records.

Note You can use filters to limit the items shown in the workbench based on these values. “(3) Filters/Sorting Frame” on page 65 describes how filters are used.

Ord Pol. The order policy specified for the item in QAD ERP item-site or item master records. This value determines the method MRP uses to plan orders for this item.

Order Period. The order period specified for the item in QAD ERP item-site or item master records. This is the length of the planning period MRP uses when Order Policy is POQ (period order quantity).

Time Fence. The time fence specified for the item in QAD ERP item-site or item master records. This is the number of days inside of which MRP does not replan this item.

Min Order. The minimum quantity that can be placed on a single order for this item, as specified in QAD ERP item-site or item master records.

Ord Mult. The order multiple specified for the item in QAD ERP item-site or item master records. When Order Policy is POQ (period order quantity) or LFL (lot for lot), MRP rounds net requirements for the item up to the next multiple of this number.

Yield %. The yield percentage specified for the item in QAD ERP item-site or item master records.

Cum LT. The total cumulative lead time for the item from QAD ERP item-site or item master records.

Reorder Point. The inventory level at which this item should be reordered, from QAD ERP item-site or item master records.

Buyer/Planner. The user ID of the buyer/planner specified for the item in QAD ERP item-site or item master records.

Plan Orders. An indication of whether MRP creates planned orders for this item, from QAD ERP item-site or item master records.

MRP Required. The current value of the system-maintained MRP Required field in the QAD ERP item-site or item master record. When this is Yes, the system has detected a change in such things as product structure, inventory, or transactional records that requires the item to be replanned.

Messages. This area displays messages related to such things as status indicators; for example, if you select an item that has a projected negative on-hand quantity, the system summarizes the reason for the indicator.

(10) Demand Details

When you select an item in one of the daily supply fields, the system displays information about the components of the demand due on that day, such as sales order/line numbers and quantities or seasonal demand. This display is based on MRP detail records. If the Detail Days field in Configuration is zero, the displayed demand only includes the selected day. Otherwise, this frame also may list demand for the specified number of subsequent days. “Detail Days” on page 34 provides more information.

(11) Last Update Frame

Based on the selected resource, the system displays reference information regarding the latest synchronization-related events.

Export. Last time/date data was exported to QAD ERP.

MRP. Last time/date QAD Production Scheduler initiated Net Change MRP in QAD ERP.

Import. Last time/date the QAD Production Scheduler data repository was synchronized with updates from QAD ERP.

(12) Commands

Important When you double-click a supply cell to access additional frames, as described in “(14) Work Order Detail List” on page 78, the work order detail frame initially covers this portion of the workbench. You can click the title bar and drag the frame as needed to access the command buttons.

Use these buttons to execute the following commands:

Refresh. Click to reset the workbench with the latest data from the QAD Production Scheduler data repository for the currently selected site and resource. If the workbench includes unsaved changes, you are prompted to save.

Export. Click to export updates from the QAD Production Scheduler data repository to the QAD ERP database. “Exporting QAD Production Scheduler Data to QAD ERP” on page 16 describes this process.

Synch. Click to submit a command that synchronizes the QAD Production Scheduler repository with updated data from the QAD ERP database. You can use this command to override the automatic server synchronization value specified in Configuration.

The processes that perform the export and synchronization functions run continuously in the background, responding to user requests. Depending on current system activities, synchronization may not occur immediately. Status messages indicate when the process begins and ends. Additionally, the appropriate date/time field is shaded in the Last Update frame while the update is taking place. The system modifies the date/time field when the process finishes.

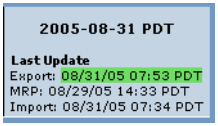
See the installation guide for information on background processes.

Note In some circumstances, these background processes may be stopped—during system backup, or when a server is shut down for some reason. If the processes are not running, export or synchronization will not take place until they are restarted. For example, when you click Export, the window at the bottom of the workbench displays a message that the process has been initiated—the request to the background process has been submitted. If the system pauses for more than a brief period

before starting the export, the background process may not be running. Subsequent Export commands result in a message saying that a request has already been submitted. When this happens, you should confirm that the background processes are running.

An additional command—Save—displays on the Work Order Detail frame. This button is described in “Save Command” on page 81.

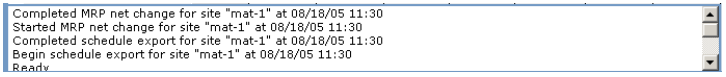
Fig. 2.10
Update-In-Progress Indicator



(13) System Messages

The system displays the current state of the workbench, such as update-in-progress messages. For example, Figure 2.7 shows a sequence of messages indicating a successful export and system-initiated MRP run.

Fig. 2.11
Sample Messages



(14) Work Order Detail List

When you double-click a cell in the daily supply grid, the system lists work orders for the associated item.

Important This frame displays on top of the Item Resources frame, as well as the Refresh, Synch, and Export buttons in the main workbench window. You can click the title bar to drag the detail list frame as needed to access the command buttons.

By default, the list starts with orders that have operation due dates on the selected day. To view past-due orders, click the up arrow on the left side of the Work Order Detail window. To show additional records for the current day or for future days—as well as to access a blank line for entering a new order—click the down arrow.

The sequence in which orders are listed depends primarily on their current status; the optional Seq value is used as an additional sort key in some cases:

- Planned (status P) orders always display first.
- Next, the system displays all orders other than Closed (status C) based on the specified Seq value, then by status code in the order F, B, E, A, R.
- Closed orders always display last.

You can update some fields directly in this frame. Changes applying to the work order itself update QAD ERP when they are saved and exported. However, changes to operation detail records are updated only in the QAD Production Scheduler data repository, as described in “Work Order Routings” on page 60.

To view additional fields described in “(15) Work Order Detail Records” on page 82, click the Maximize/Minimize chevron icon at the end of the record line.

To create a new work order, enter a value in the WO Qty Ord field on a blank line. Optionally, you can also fill in additional information about the order both on the summary line and by maximizing the record. When you click Save, the system adds the record to the QAD Production Scheduler data repository.

Note You must click Export to create the work order in QAD ERP.

WO ID. The system-generated work order ID from QAD ERP. You cannot update this field manually. If you enter a new work order, the system retrieves the next available number from QAD ERP.

Op. The routing operation number from the QAD ERP work order routing detail record. If you create a new work order, the system determines the operation based on the routing.

WO Qty Ord. The order quantity from the work order. If you update this, the quantity is updated in QAD ERP when you save your changes and export click Export.

Status. The current status of the work order in the data repository. With some restrictions—for example, you cannot change a firm order imported from QAD ERP back to planned—you can update the status as needed. When you save your changes and click Export, the system updates the QAD ERP work order with the new status.

You can create a new order with any status other than planned.

The status controls whether changes are allowed to existing work orders in the data repository or QAD ERP during synchronization and export. This is described in “Effects of Work Order Status” on page 86.

Resource. The work center/machine combination associated with the work order routing operation. For new orders, this defaults to the currently selected resource. You can change it to any enabled resource. The system moves the order to the new resource in the workbench.

Op Start. The date this routing operation is scheduled to begin this order. This defaults from QAD ERP Work Order Routing Maintenance (16.13.13). You can update this field for reference; additionally, if you run a report that includes this resource, the updated value displays as the operation start date. However, exporting a modified record does not update the value in Work Order Routing Maintenance.

Enter dates simply as MMDDYY or DDMMYY, depending on your language; for example, June 30, 2007, would be entered as 063007 for languages using American date formats, and 300607 for others. The system automatically fills in the slashes (/) and the first two digits of the year.

The system validates that this date falls within the overall scheduling horizon defined by Historical Schedule Days and Future Schedule days in the site Configuration record.

Note Depending on a setting in Configuration, the system may update the operation start and due date based on the work order release and due date. This feature is described in “Schedule by Operation” on page 35.

Op Due. The date this routing operation is scheduled to complete work on this order. This field also defaults from Work Order Routing Maintenance; changes are for reference only.

The system validates that this date falls within the overall scheduling horizon defined by Historical Schedule Days and Future Schedule days in the site Configuration record.

Seq. The relative sequence in which this order is listed. The default is 0 (zero). This value is used in two ways:

- When the Sort By field is set to Due Date Asc, the system lists items on the workbench based on work order operation due date. If multiple items have operations due on the same date, the system uses non-zero Seq values as a secondary sort key to determine the order in which items display.
- When listing work orders in the Work Order Details frame, the system lists records primarily by due date and status: P first, followed by F, B, E, A, and R, with C orders last. When you enter a Seq value, the system uses it as a secondary sort key to sequence orders with the same status code and due date.

Op Open. The quantity still open at this operation; calculated as:

Quantity Ordered – Op Completed – Op Rejected

Op WIP. The work-in-process quantity at this operation.

Op Rjct. The quantity reported as rejected for this operation.

Op Comp. The quantity reported as completed for this operation.

Save Command

Click this button to commit your changes to the QAD Production Scheduler data repository. This applies both to the top-level Work Order Detail frame and to the additional fields you view by maximizing a detail record line.

Note Save does not update QAD ERP; you must also click Export. Additional available workbench commands are described in “(12) Commands” on page 77.

(15) Work Order Detail Records

The following fields display when you maximize a record in the work order detail list.

WO Number. The number assigned to this work order. This number can be:

- On an existing order, brought in from QAD ERP during synchronization.
- Assigned by QAD Production Scheduler when you create a new order in Work Order Workbench. This is based on settings in the global Configuration record, as described in “Configuration” on page 30. If no number is assigned when the order is created, the export process uses settings in Work Order Control (16.24) to determine how it should be assigned in QAD ERP.

You cannot update this field.

Routing. The routing code for this work order; defaults from Work Order Maintenance. For orders created in Work Order Workbench, the default is blank. You cannot change the routing on a work order in any status other than P, F, or B.

BOM/Formula. The bill of materials or formula code for this work order; defaults from Work Order Maintenance. For orders created in Work Order Workbench, the default is blank. You cannot change the BOM code on a work order in any status other than P, F, or B.

Remarks. Enter optional remarks related to this work order; defaults from Work Order Maintenance.

Order. The date this order was entered; defaults from Work Order Maintenance. For orders created in Work Order Workbench, this defaults to blank. When you leave it blank and export the new order, the order date is set to the current date in QAD ERP.

The system validates that this date falls within the overall scheduling horizon defined by Historical Schedule Days and Future Schedule days in the site Configuration record.

Release. The date this order is scheduled for release for production; defaults from Work Order Maintenance. For orders created in Work Order Workbench, this defaults to blank. When you leave it blank and export the new order, the release date is set to the current date in QAD ERP.

The system validates that this date falls within the overall scheduling horizon defined by Historical Schedule Days and Future Schedule days in the site Configuration record. Additionally, if the release date is later than the due date, the system displays a warning. You can save this date in QAD Production Scheduler. However, QAD ERP does not allow the release date to be after the due date. When you click Export, an error message will display for the order.

Note Depending on a setting in Configuration, the system may update the work order release and due date based on the operation start and due date. This feature is described in "Schedule by Operation" on page 35.

Due. The date this order is scheduled for completion; defaults from Work Order Maintenance. For orders created in Work Order Workbench, this defaults to the current system date.

The system validates that this date falls within the overall scheduling horizon defined by Historical Schedule Days and Future Schedule days in the site Configuration record. Additionally, if the release date is later than the due date, the system displays a warning. You can save this date in QAD Production Scheduler. However, QAD ERP does not allow the release date to be after the due date; when you click Export, an error message displays for the order.

Setup. The time, in decimal hours, required to prepare the work center to carry out this operation; defaults from Routing Maintenance.

Prod Rate. The number of pieces per hour produced at this operation; defaults from Routing Maintenance (converted from hours/piece).

Yield %. The percentage of any order that is expected to be in usable condition after this operation; defaults from Routing Maintenance.

WO Open. The quantity that has not been reported as complete or rejected using Work Order Receipt (16.11).

WO WIP. The quantity that has been reported as work in process.

WO Rjct. The quantity that has been reported as rejected.

WO Comp. The quantity that has been reported as completed.

Mach/Op. The number of machines used for this work order at this routing operation.

Sales/Job. The sales/job number associated with this work order; defaults from Work Order Maintenance. Optional sales/job numbers can be assigned to such business documents as sales orders, purchase orders, and work orders, letting you track the progress of related activities as they move through the system.

Supplier. The supplier associated with a subcontract work order, if applicable; defaults from Work Order Maintenance.

Tool. An optional code identifying the tool that is normally used at this operation; defaults from Routing Maintenance.

Work Centers with Multiple Operations

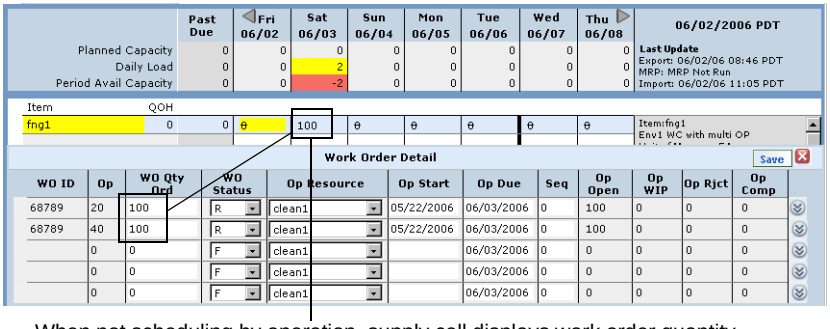
In some cell manufacturing environments, it is common for different operations within the same routing to be assigned to the same work center. For example, a cleaning operation may be used more than once during a single work order cycle.

In this scenario, the setting of Schedule by Operation in the site Configuration record can influence the way orders display in Work Order Workbench.

- When this option—described in “Schedule by Operation” on page 35—is *not* selected, all operation due dates for an order are the same as the work order due date. The supply cell total includes the work order quantity.
- When Schedule by Operation *is* selected, each operation can have its own due date. If the resource is used by two operations on the same work order routing and both operations are due on the same day, the supply cell total shows the total of the operation quantities due on that day. Since the order passes through the work center twice on the same day, the total includes it twice. However, load calculations are correct.

Example The following figures illustrate the effect of the Schedule by Operations setting.

In the first example, Schedule by Operation is not selected. Note that, although the Work Order Detail frame shows a single work order with two operations assigned to resource clean1 and the same due dates, each with a quantity of 100, the supply cell total is 100—the work order quantity.



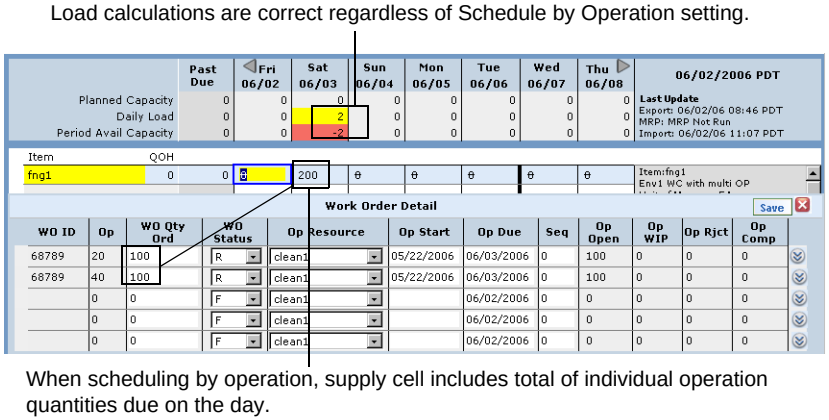
When not scheduling by operation, supply cell displays work order quantity.

Fig. 2.12
Schedule by Operation: Not Selected

Figure 2.13 includes the same data; however, in this case, Schedule by Operation has been selected in Configuration. The supply shows the total represented by all the operations using that resource on the due date; since the site is now being scheduled by operation, this equals 200 (100 for operation 20 + 100 for operation 40).

Note Daily Load and Period Available Capacity are the same in both figures. Since these calculations are based on the total run times of all operations passing through the resource, they are correct regardless of how the supply cell displays.

Fig. 2.13
Schedule by Operation: Selected



Effects of Work Order Status

QAD Production Scheduler applies a set of rules based on the work order status to determine whether the synchronization and export processes are allowed to update existing records in the QAD ERP database and the QAD Production Scheduler data repository. This prevents updated fields in one database from inadvertently being replaced by older values from the other.

Synchronization

When you click Synch, the system compares each work order's status code in QAD ERP with the equivalent value in the QAD Production Scheduler data repository. If the order has been updated and saved in Work Order Workbench since the last time changes were exported to QAD ERP, the system uses the logic shown in Table 2.1 to determine whether to update the work order record in the data repository with corresponding values from QAD ERP.

Only status code combinations marked Yes result in changes to QAD Production Scheduler data repository work order records.

Table 2.1 Synchronization Rules

QAD ERP WO Status	QAD Production Scheduler Repository WO Status						
	P	**F**	**B**	**A**	**E**	**R**	**C**
P	Yes	No	No	No	No	No	No
F	Yes	No	No	No	No	No	No
B	Yes	No	No	No	No	No	No
A	Yes	Yes	No	No	No	No	No
E	Yes	Yes	Yes	Yes	No	No	No
R	Yes	Yes	Yes	Yes	Yes	No	No
C	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Export

When you click Export, the system compares each work order's status code in QAD ERP with the equivalent value in the QAD Production Scheduler data repository. It uses the logic shown in Table 2.2 to determine whether to update the work order record in QAD ERP with corresponding values from the data repository.

Only status code combinations marked Yes result in changes to QAD ERP work order records.

Table 2.2 Export Rules

Repository WO Status	QAD ERP WO Status						
	P	**F**	**B**	**A**	**E**	**R**	**C**
P	Yes	No	No	No	No	No	No
F	Yes	Yes	Yes	No	No	No	No
B	Yes	Yes	Yes	No	No	No	No
A	Yes	Yes	Yes	Yes	No	No	No
E	Yes	Yes	Yes	Yes	Yes[a]	No	No
R	Yes	Yes	Yes	Yes	Yes[a]	Yes[a]	No
C	Yes	Yes	Yes	Yes	Yes	Yes	Yes

a. BOM and routing changes made in Work Order Workbench are not exported to QAD ERP in this case.

Table 2.3 identifies which fields in the Work Order Detail frame are updated in QAD ERP based on exported workbench changes.

Table 2.3
Updated QAD ERP Fields

Workbench Field	Updated in QAD ERP?
WO ID	Not applicable (read-only in workbench)
Op	Not applicable (read-only in workbench)
WO Qty Ordered	Yes
WO Status	Yes
Op Resource	No
Op Due	No
Seq	No
Op Open	Not applicable (read-only in workbench)
Op WIP	Not applicable (read-only in workbench)
Op Rjct	Not applicable (read-only in workbench)
Op Comp	Not applicable (read-only in workbench)
WO Nbr	Not applicable (read-only in workbench)
Routing	Yes
BOM/Formula	Yes
Remarks	Yes
Order Date	Yes
Release Date	Yes
Due Date	Yes
Setup	No
Prod Rate	No
Mach/Op	No
Yield %	Yes
WO Open	Not applicable (read-only in workbench)
WO WIP	Not applicable (read-only in workbench)
WO Rjct	Not applicable (read-only in workbench)
WO Comp	Not applicable (read-only in workbench)
Sales/Job	Yes
Supplier	Yes
Tool	No

Printing Work Orders

Although you can release work orders through Work Order Workbench by setting Status to R and then saving and exporting your changes, QAD Production Scheduler does not include a work order print function.

If you need physical copies of released work orders, you can continue to use QAD ERP to print them:

1. Schedule the work orders in Work Order Workbench by using a status code from F (firm) through E (exploded).
2. When you are ready to release orders, use Multiple WO Release/Print (16.7), limiting the selection to the status code you have used.

This lets you release and print all the work orders scheduled in QAD Production Scheduler in a single step.

Reports

Click the Reports tab on the QAD Production Scheduler main window to generate a report showing the current data repository contents for the selected resource type, site, resource, associated scheduler (as defined in Resource Maintenance), and range of schedule dates.

With the exception of Resource Type, which defaults to Production Line, all of the fields are optional; for example, you can view a report that includes all the production lines or work centers at a selected site by leaving Resource set to Not Specified.

Note You cannot select a resource if Site is set to Not Specified; in that case, the report includes all the production lines or work centers at all sites.

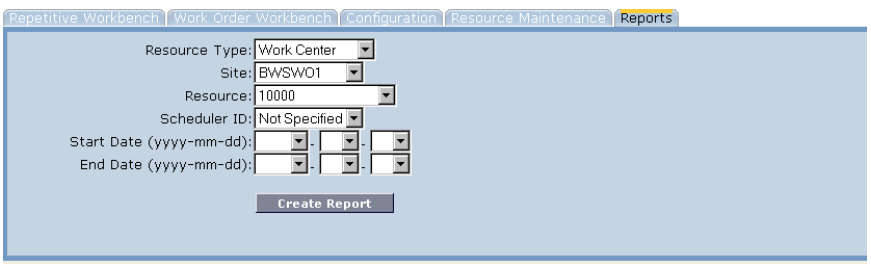


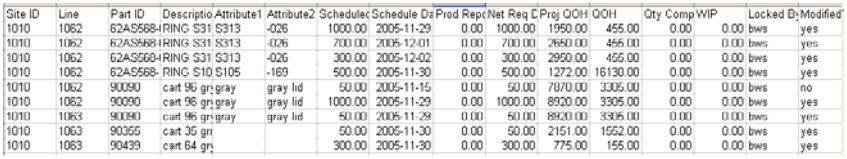
Fig. 2.14
Reports

When you click Create Report, you can:

- Review the report on the screen in Microsoft Excel.
- After accessing it in Excel, print it to a local or network printer.
- After accessing it in Excel, save it to a file. By default, the file is an Excel symbolic link (SYLK) named in the format `report[1].slk`, stored in a system-generated directory on the client computer. Using File|Save As on the Excel menu, save it to the location of your choice and give it a meaningful file name. For example, you might save it to a local or network directory as an Excel workbook with a file name based on the site and report date, such as `MFG_072705.xls`.

  Note If you do not have Microsoft Excel on the local machine, you can save the file without viewing it, then view it from another computer or with another application that can read SYLK files.

Fig. 2.15
Sample Report Output (Production Line)



Site ID	Line	Part ID	Descriptio	Attribute1	Attribute2	Scheduled	Schedule Da	Prod Repo	Net Req C	Proj QOH	QOH	Qty Comp	WIP	Locked By	Modified
1010	1062	62AS568-I	RING S31	S313	-026	1000.00	2005-11-29	0.00	1000.00	1950.00	455.00	0.00	0.00	bws	yes
1010	1062	62AS568-I	RING S31	S313	-026	700.00	2005-12-01	0.00	700.00	2650.00	455.00	0.00	0.00	bws	yes
1010	1062	62AS568-I	RING S31	S313	-026	300.00	2005-12-02	0.00	300.00	2950.00	455.00	0.00	0.00	bws	yes
1010	1062	62AS568-	RING S10	S105	-169	500.00	2005-11-30	0.00	500.00	1272.00	16130.00	0.00	0.00	bws	yes
1010	1062	90090	cart 96 gr	gray	gray lid	50.00	2005-11-15	0.00	50.00	7870.00	3305.00	0.00	0.00	bws	no
1010	1062	90090	cart 96 gr	gray	gray lid	1000.00	2005-11-29	0.00	1000.00	8920.00	3305.00	0.00	0.00	bws	yes
1010	1063	90090	cart 96 gr	gray	gray lid	50.00	2005-11-29	0.00	50.00	8920.00	3305.00	0.00	0.00	bws	yes
1010	1063	90355	cart 35 gr			50.00	2005-11-30	0.00	50.00	2151.00	1552.00	0.00	0.00	bws	yes
1010	1063	90439	cart 64 gr			300.00	2005-11-30	0.00	300.00	775.00	155.00	0.00	0.00	bws	yes

The report output for both resource types includes a variety of basic data that displays on the associated workbench, such as the site, production line or work center/machine identifier, item number, and so on. Other fields represent repository data that also displays on the workbench. For information, see the descriptions of the workbench fields under the following topics:

- “Repetitive Workbench” on page 44
- “Work Order Workbench” on page 60

The last two columns include information about the resource schedule record itself:

Locked By. When a resource is being viewed on the workbench, the system locks it so that no other users can load it. This prevents save conflicts in a multiple-user environment. If this field has a value, it indicates that:

- The record being reported has been accessed during a current workbench session, and the repository values shown are subject to change.

- A problem has resulted in a stranded lock record. You can use Resource Maintenance to clear the lock.

“Locking Records” on page 18 describes how the system uses locks.

Modified. When this is Yes, the record has been has been modified on the workbench and saved to the repository. It needs to be exported from the QAD Production Scheduler to QAD ERP.

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