



QAD Enterprise Applications  
Standard Edition

# Training Guide Production Scheduler

70-2958A  
QAD 2008 Standard Edition  
Database: Enterprise Edition - QMS  
Domain: train  
March 2009

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# **About This Course**

## Course Description

### Prerequisites

QAD Enterprise Applications - Basic ERP system components

- Demand Sources: Sales Orders, Safety Stock, Forecasts, DRP, Safety Stock, Work Orders
- Bills of Materials & Routings
- MRP: How MRP logic works and how item planning parameters, shop calendars, drive the planning system.
- Work Orders: releasing and production reporting.

Advanced Repetitive Module

- Production Lines
- Routing Setup, specific to Repetitive.
- Production Reporting
- Capacity Configuration (Shift Maintenance)

### Course Credit and Scheduling

This course is valid for [6x] credit hours. It is designed to be taught in [x] days.

### QAD Web Resources

From QAD's main site, you can access QAD's Learning or Support sites.

<http://www.qad.com/>

Chapter 1

# **The QAD Solution**

## QAD Enterprise Applications

Today - 6-10 reports% maintenance screens

- 1 Run demand reports for--
  - a Past Due
  - b Expedite
  - c New Planned Orders
- 2 Review MRP Detail Report for (demand/supply) details
- 3 3 Perform schedule adjustments
- 4 Run Capacity Requirements Planning (CRP)
- 5 Repeat process until satisfied

## QAD Production Scheduler

**QAD Production Scheduler**

workbench | Configuration | Resource Maintenance | Reports

**Selections**

Site: Not Specified

**Resources**

Planned Capacity  
Daily Load  
Cum Avail Capacity

**Filters**

Attribute 1: Not Filtered

Attribute 2: Not Filtered

Sort: Status Desc

2005-09-21 EDT

Last Update  
Export: 09/21/05 08:32 PDT  
MRP: 09/21/05 08:32 PDT  
Import: 09/21/05 09:12 PDT

Item	QOH	Past Due	Wed	Thu	Fri	Sat	Sun	Mon	Tue
Sales Demand									
Dependent Demand									
Forecast Demand									
Total Demand									
Projected On-Hand									
Production Reported									
Sched Net Req Due									

Alternative Resources

WARNING: Site is being synchronized by another process. End synchronizing site "bws1"  
Completed synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12  
Begin synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12  
Begin synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12  
Ready

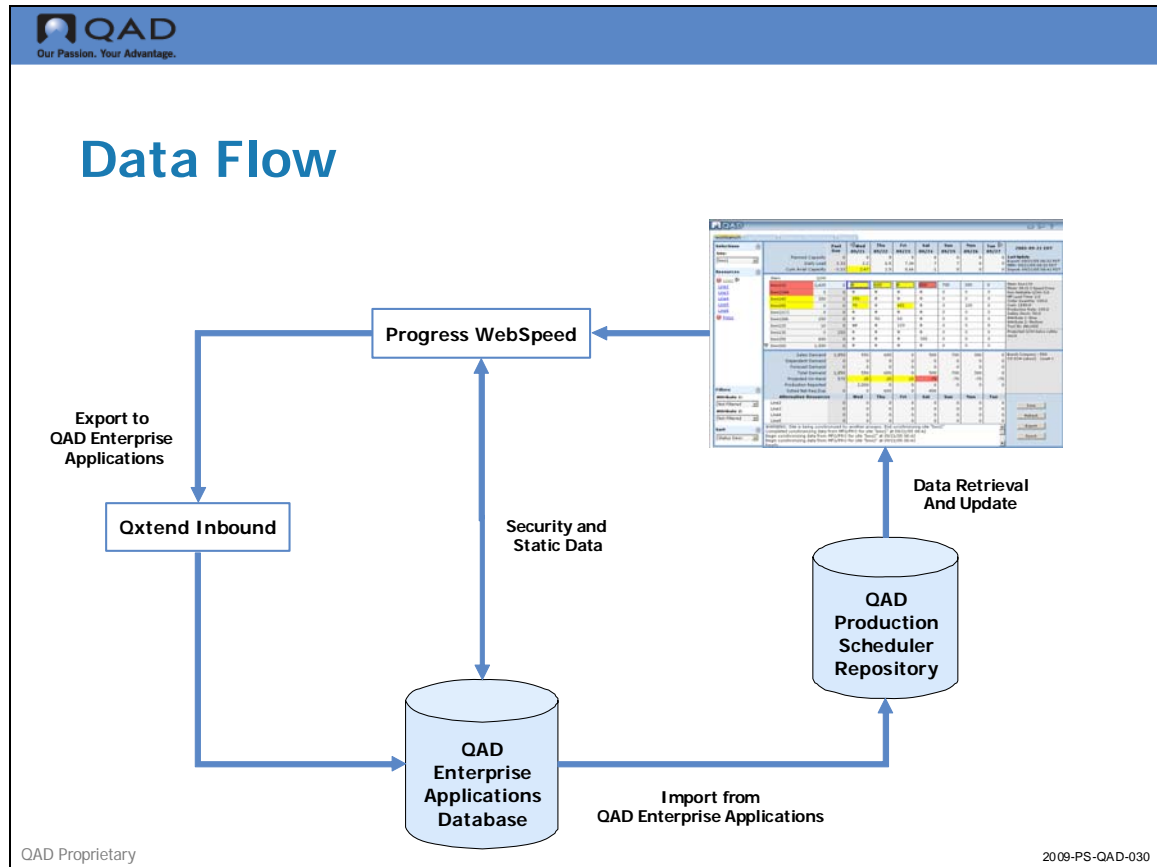
Save  
Refresh  
Export  
Synch

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Alternative - 1 screen to see and do all

- 1 Briefly scan each resource - req queues indicate issues on resource.
- 2 Perform schedule adjustments with real-time demand, supply and capacity visibility

## Data Flow



## Process Overview

The screenshot displays the QAD Process Overview application interface. At the top, the QAD logo and tagline 'Our Passion. Your Advantage.' are visible. The main window title is 'Process Overview'. Below the title bar, there are navigation tabs: 'workbench', 'Configuration', 'Resource Maintenance', and 'Reports'. The 'workbench' tab is active, showing a 'Selections' panel on the left with 'Site' set to 'Not Specified'. The main area contains a table with columns for 'Past Due' and days of the week (Wed, Thu, Fri, Sat, Sun, Mon, Tue). The table rows are categorized by 'Planned Capacity', 'Daily Load', and 'Cum Avail Capacity'. Below this, there is a 'Resources' section with a table listing 'Item' and 'QOH'. Further down, there are sections for 'Sales Demand', 'Dependent Demand', 'Forecast Demand', 'Total Demand', 'Projected On-Hand', 'Production Reported', and 'Sched Net Req Due'. A 'Filters' panel on the left allows filtering by 'Attribute 1' and 'Attribute 2', both currently set to 'Not Filtered'. A 'Sort' panel at the bottom left is set to 'Status Desc'. On the right side, there are buttons for 'Save', 'Refresh', 'Export', and 'Synch'. A status bar at the bottom of the window displays a warning: 'WARNING: Site is being synchronized by another process. End synchronizing site "bws1" Completed synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12 Begin synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12 Begin synchronizing data from MFG/PRO for site "bws1" at 09/21/05 09:12 Ready'. The bottom left corner of the window says 'QAD Proprietary' and the bottom right corner says '2009-PS-QAD-040'.

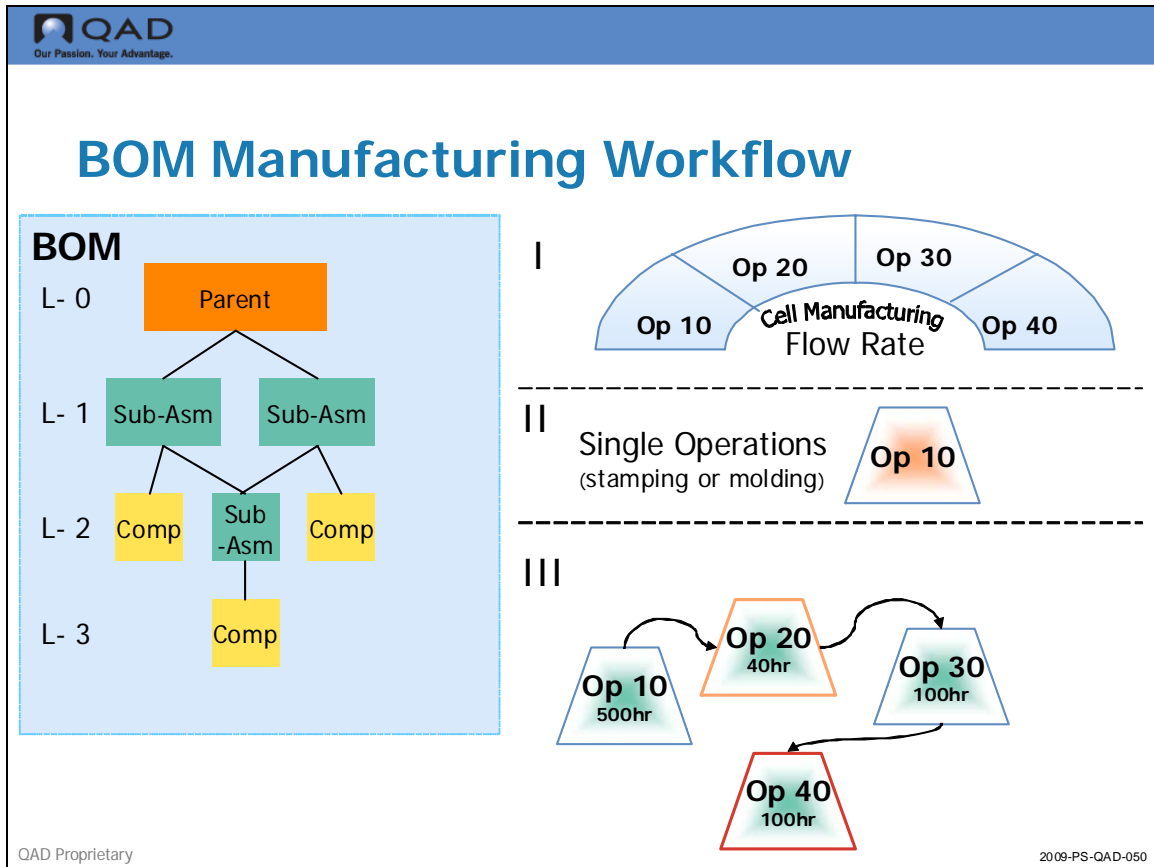
- 1 Near - Real time supply and demand information imported from QAD Enterprise Applications.
- 2 Each resource will display visual indicators. Make appropriate schedule adjustments.
- 3 Export Schedules to QAD Enterprise Applications.
- 4 (optional): Net change MRP to cycle through lower level planning.

## Manufacturing Environment

### QPS Production Environment Mapping

- How do you schedule the floor?
  - By department, cell, production line, work center, machine?
- What is the item run rate based on?
  - Cell throughput or operation run rates?
- Setup Resource Capacity
  - In machine hours?
  - In Labor hours?
  - Represents 1 machine or several machines?

For each level of the BOM, describe the Manufacturing workflow.



III – where company schedules against any item bottleneck operation. Example: Schedule operations 20 & 40

## Mix Mode Scheduling Methods

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### Mixed Mode Scheduling Methods

**Bill of Material**

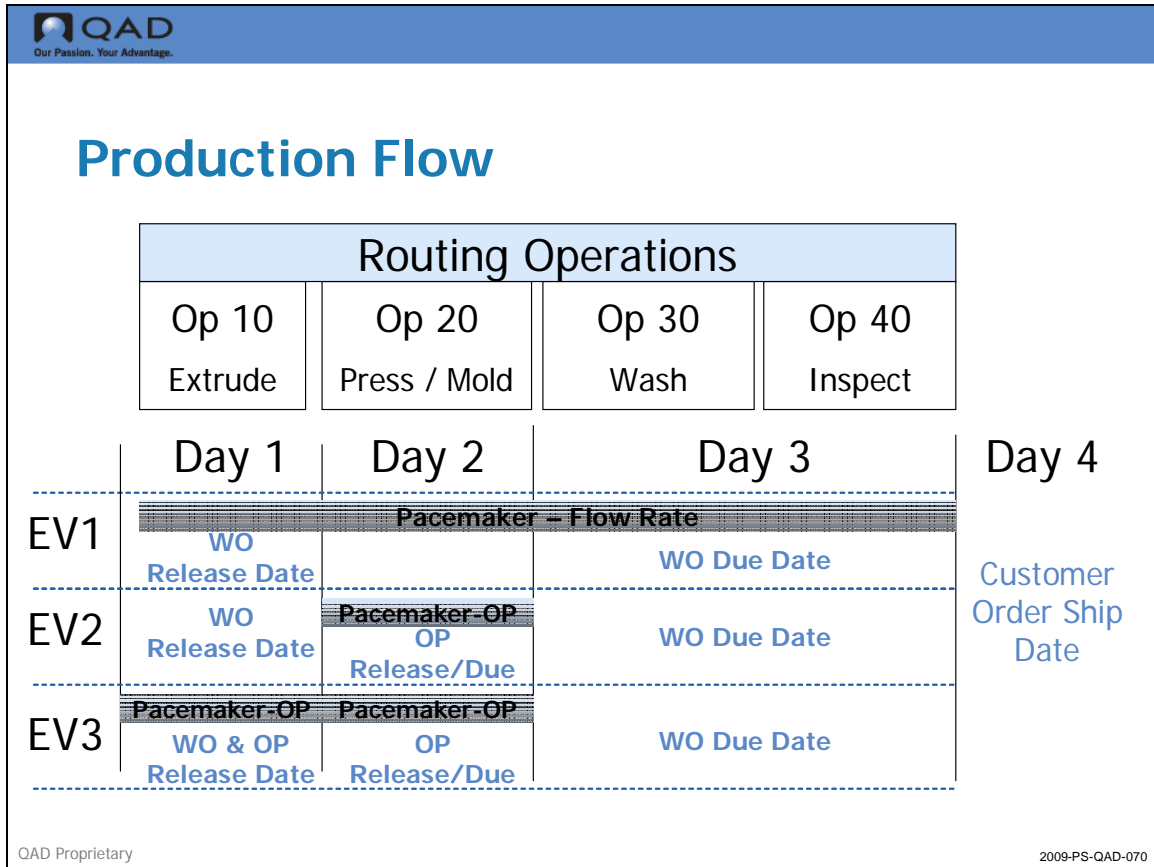
L-0	Parents	60 %	QPS Repetitive / Work Order
		40 %	Level Mix / Kanban
L-2	Sub-Assemblies	80 %	Kanban
		20%	QPS Repetitive / Work Order
L-3	Stamp/Mold	10 %	Kanban
		90 %	QPS Repetitive
L-4	Materials	20 %	Kanban / KV
		30 %	VMI / SV
		50 %	MRP/Supplier Schedules

QAD Proprietary 2009-PS-QAD-060

QAD Tools: Level Mix - Kanban - Qad Production Scheduler

## Production Flow

### Multi-Day production process, Schedule operation and WO Due/Release Dates 1



## Application Fundamentals

### Background Processes

#### Auto Firm

- Runs once a day
- Shifts schedules into new horizon

#### Auto Synchronization

- Runs based on site configuration settings
- Retrieves data from QAD Enterprise Applications into QPS repository

#### Manual Synchronization

- Initiated by user request (selection of Synch button)
- Retrieves data from QAD Enterprise Applications into QPS repository

#### Manual Export

- Initiated by user request (selection of Export button)
- Updates QAD enterprise Applications with schedule quantities & optionally runs MRP net change

## QPS Training Approach

### Output is only as good as the input

- For many customers today, their MRP systems have low integrity. The reason? Underutilization. Why? Information silos make the information difficult to comprehend and tools for managing and interacting with the data are not sufficient.
- This class will help change this reality: The focus is not on learning QPS, but learning how to optimize QAD Enterprise Applications to move your planning & scheduling to a new level.
  - Learning how QPS works, 30% of training.
  - Learning how to optimize QAD Enterprise Applications through QPS visibility, 70% of training.

## Exercise

### VMWARE

- 1 Start VMWARE
- 2 Select QAD Production Scheduler (QPS) Image
- 3 Open Internet Explorer
- 4 In the address bar enter: <http://qaddemo/>
- 5 Save address as a Favorite for future use.
- 6 Start QAD Enterprise Applications Desktop (2.8.0.3)
- 7 Launch a new session of Internet Explorer
- 8 In the address bar enter: <http://qaddemo/>
- 9 Start QAD Production Scheduler
- 10 If performing test/exercises on QAD demo center VM-Ware, base QAD Enterprise Applications setup has been completed. This base setup includes basic item, BOM, routing, site and location setups used during exercises.
- 11 Demo Center VM-Ware image for training - QAD Enterprise Applications data setup in QAD Enterprise Applications eB2 SP9 (600).
- 12 Qxtend Server login/password is demo-admin/qad. Connection for QPS is demo/qad and that userid is also in QAD Enterprise Applications.

### Adding the QPS WorkBench URL as a Desktop Favorites Link

- 1 LAUNCH QPS
- 2 Get to URL for QPS
  - a 1 Select URL by left click
  - b Copy URL by right click
- 3 LAUNCH Desktop
  - a login: User ID: Demo, Password: QAD
  - b > Top Level
  - c > My Desktop
  - d > Add a bookmark
  - e User ID = \*
  - f URL = <ctrl-v> to paste URL
  - g Description = 'QAD Production Scheduler' or 'QPS'

## Instructions for Accessing CHUI on the VMware Image

- 1 Start VMware image.
- 2 Put pointer in VMware window, single left click.
- 3 A list of menu options for the image will be displayed.
- 4 Enter M to access list of QAD Enterprise Applications environments.
- 5 Enter 600 to access QAD Enterprise Applications environment for this image.

## Training Material Notes

- These materials are in a beta format and have not been reviewed, edited or used in any prior training sessions to date.
- Each training sections, currently (1-9) contain lessons independent of one-another. If problems occur where you are unable to complete a particular section, this will NOT impact your ability to complete other lessons successfully.
- The power point presentation has been imbedded in this training guide for your convenience.
- The base data setup used for each of the lessons is NOT currently available in this document.

## QPS Initialization

Configure and enable QPS to run against your QAD Enterprise Applications production site.

### Business Issues:

- People do not have time to learn and configure new and complex systems.
- Training is time consuming and expensive – systems need to be intuitive and easy to learn.

### Value Points:

- **MINIMAL SETUP:** *If you have setup QAD Enterprise Applications with items and routings, QPS is immediately ready to use. For our customers currently using QAD Enterprise Applications, once QPS is installed, it can be used immediately with virtually no setup required.*

## Global Configuration

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# Global Configuration

Repetitive Workbench | Work Order Workbench | **Configuration** | Resource Maintenance | Reports

Site: Global Settings

Enabled:

Include Forecast:

Server Synchronization (min): 120

Domain:

QXtend URL: http://col30.qad.com:52000/axt

QXtend Receiver: eb21

Server Timezone: America/Los\_An...

Synchronization Locked:

Export Locked:

Last Export:

Last MRP Run:

Last Synchronization:

Execute Net Change MRP:

Historical Schedule Days:

Firm Schedule Days:

Future Schedule Days:

Detail Days:

Excluded Part Statuses:

Scheduler Group:

Administrative Group:

WORK ORDER WORKBENCH FIELDS

Work Order Prefix: QPS

Next Work Order Suffix: 100


REPETITIVE WORKBENCH FIELDS

Convert Planned Orders:

Save completed

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## Site Configuration


Our Passion. Your Advantage.

# Site Configuration

Repetitive Workbench
Work Order Workbench
Configuration
Resource Maintenance
Reports

Site:

Enabled:

Include Forecast:

Server Synchronization (min):

Domain:  Edit

QXtend URL:

QXtend Receiver:

Server Timezone:

Synchronization Locked:

Export Locked:

Last Export:

Last MRP Run:

Last Synchronization:

Execute Net Change MRP:

Historical Schedule Days:

Firm Schedule Days:

Future Schedule Days:

Detail Days:

Excluded Part Statuses:

Scheduler Group:

Administrative Group:

**WORK ORDER WORKBENCH FIELDS**

Work Order Prefix: QPS

Next Work Order Suffix: 100

**REPETITIVE WORKBENCH FIELDS**

Convert Planned Orders:

Save
Refresh
Export All Schedules

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2009-PS-QAD-120

## Enable QAD Enterprise Applications Resources

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### Enable QAD Enterprise Applications Resources

Repetitive Workbench | Work Order Workbench | Configuration | **Resource Maintenance** | Reports

**Resource Parameters**

Resource Type: Work Center  
 Site: QPS  
 Resource: Not Specified  
 Resource Enabled:   
 Scheduler ID:   
 Firm Schedule Days:   
 Firm + Future Schedule Days:   
 Locked By:   
 Item Setup Time:   
 Historical Schedule Days:   
 Future Schedule Days:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Rate Flex Factor: <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Unlock Resource | Save | Refresh

**Input Errors**

**System Messages**

Process completed.  
Process initiated. Please wait...

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- 1 If not using VMWARE image, see QAD Enterprise Applications data setup section of this document for this exercise section.
- 2 QPS Configuration – setup the Global Configuration.

## Exercise

1 How does the Server Synchronization time impact QPS at the Global Settings level?

### **Annotation 1** Discussion point

Tab / [Frame]	Field/Prompt/[Button]	Input Value [Key]	Expected Results
Configuration	Site	Global Settings	
	Server Synchronization	999	
	Domain [Edit]		Edit button is not enabled in non-domain QPS - QAD Enterprise Applications versions
	QXtend URL		Defined during technical installation
	Server Time Zone		Defined during technical installation
	Scheduler Group		<blank>
	Administrative Group		<blank>
	Work Order Prefix	QPS	
	Work Order Suffix	100	
	Save		

### **QPS Configuration – Verify Site “QPS” settings are correct.**

2 What are the right settings for a production environment for the Server Synch, History Days, Future Days? Does it really matter?

Tab / [Frame]	Field/Prompt/[Button]	Input Value [Key]	Expected Results
Configuration	Site	QPS	We are setting the Synch to 999 due
	Enabled	checked	to a current defect found in the synch code
	Include Forecast	checked	The next version of VMWARE you receive will have this corrected
	Server Synchronization	999	
	Execute MRP	checked	
	Convert Planned Orders	not checked	
	Historical Schedule Days	15	
	Firm Schedule Days	5	
	Future Schedule Days	60	
	Detail Days	30	
	Exclude Part Status		
	Save		

### **QPS Resource Maintenance- enable the QAD Enterprise Applications resource (workcenter/machine) to be scheduled in QPS.**

3 Firm Window – how do you determine what it should be?

### **Annotation 2** Discussion point

4 How does setup time impact the Work Order Workbench?

**Annotation 3** Discussion point

Tab / [Frame]	Field/Prompt/[Button]	Input Value [Key]	Expected Results
Resource	Resource Type	Work Center	
Maintenance	Site	QPS	
	Resource	ZPress	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

## Demand Visibility

### Business Issues:

- No easy way in QAD Enterprise Applications to identify new demand. Schedulers spend countless hours reviewing standard or customized reports to determine if their production schedules satisfy demand.
- Late shipments and expediting due to delays in recognizing and responding to new demand, and changes in demand.

### Value Points:

**VISIBILITY:** System monitors demand and supply and prompts the scheduler with visual indicators when supply does not satisfy demand, *BY EXCEPTION*. Visibility to Demand \*real time!

Routing ID	Operation	Work Center	Machine	Machines Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
Wo 1000-5000	10	ZPress		1	0	0	0	2	01	

[See QAD Enterprise Applications Data Setup if not using VMARE....](#)

### Customer service enters a new sales for an item.

The scheduler's job is to ensure the new customer order can be satisfied. QPS will provide immediate visibility to the scheduler or new demand and will visually prompt the user if action needs to be taken.

Tab / [Frame]	Field / Prompt / [Button]	Input Value / [Key]	Expected Result
	Order	SO1000	
	Sold-to	1006000	
	Ln		1
	Item	WO1000	
	Qty Ordered	400	
	Due Date	<today - 2>	
	Ln		2
	Item	WO1000	
	Qty Ordered	500	
	Due Date	<today + 2>	
	Ln		3
	Item	WO1000	
	Qty Ordered	900	
	Due Date	<today + 6>	

Tab / [Frame]	Field / Prompt / [Button]	Input Value / [Key]	Expected Result
	Go		
	End		

**Find open sales orders (items) to schedule using traditional QAD Enterprise Applications sales reports.**

Sales Order Print (7.1.3) Find open sales orders (items) to schedule using traditional QAD Enterprise Applications sales reports.

Our QPS site has no records at this point, so run the report for all sites to simulate what the QAD Enterprise Applications sales report could look like in a real environment having potentially thousands of records.

**Question:**

- 1 How effective is this report for a scheduler’s use?

**Annotation 4 Discussion point**

Tab / [Frame]	Field / Prompt / [Button]	Input Value / [Key]	Expected Result
	Output	Page	

**Find Open Customer Sales Orders Using QPS**

Tab / [Frame]	Field / Prompt / [Button]	Input Value / [Key]	Expected Result
Selections	Site	QPS	Synchronization is has been set to run every 1 minute to pull in the supply/demand information from QAD Enterprise Applications. Resource “ZPress” should be highlighted in red.
WorkOrder	Synch		
Workbench	Resource	“ZPress”	Item WO1000 should be highlighted in red.

**Questions:**

- 1 How does the scheduler know there is a problem on a particular resource which needs to be addressed?

**Annotation 5 Discussion point**

QPS will provide the scheduler with immediate demand visibility of finished good level items, even prior to running MRP.

QPS displays the past due demand as well as future demand, including the demand details.

- 2 How does the Firm Schedule Days setting impact visibility to the scheduler notifying them of supply/demand issues?

**Annotation 6 Discussion point**

- 3 How big of impact do you think this new demand visibility will impact our customers ability to deliver on-time and reduce scheduling effort over existing processes, tools and reports?

**Annotation 7** Discussion point



Chapter 2

# **Understanding the Workbench Scheduling Fundamentals**

## Business Issues:

- Schedulers need a tool to effectively and efficiently view planned work orders and release them from a single point of entry.
- Schedulers need a tool to immediately visualize the impact of to capacity and customer delivery performance during production scheduling.

### Value Points:

**Visibility:** QPS displays all work orders for an item in a single view. Over 100 business rules are working behind the scenes to ensure the work orders are displayed in the most effective and informative manner to eliminate the need for the scheduler to do TRADITIONAL research and inquiries.

**What-if Scheduling:** QPS allows the scheduler to immediately recognize the implications of scheduling changes before committing to them. Over 100 business rules are deployed to manage the dynamic “what-if” scheduling capabilities.

## Some of the Business Rules

### QPS Managing What You See Depending on WO Status “Window”

(SYSTEM) QPS Work Order Workbench

Features & Use Cases	History - Firm WINDOW on selected resource	Future WINDOW on selected resource
PQOH	Excludes work order status “P” and “C” The PQOH should always be in SYNC with QAD Enterprise Applications after doing the following: 1. All work orders are a status greater than “P” 2. Schedule Export 3. MRP Regen (23.2) 4. QPS Synch	Excludes work order status “C” The PQOH should always be in SYNC with QAD Enterprise Applications after doing the following: 1. Schedule Export 2. MRP Regen (23.2) 3. QPS Synch
Production Reported	Displays the QTY reported on the WO using (16.11), (16.12), (16.13) transactions. It does not show OPERATIONAL reported QTY.	
Flex Rate Factor	History Window - Rate Flex Factor does not apply. Firm Window - Rate Flex Factor applies	Rate Flex factor CAN APPLY but there is no business need for it.
Sched Net Required Due	The Work Order Sched Net Req Due shall be based on the “lesser” of the work order Open Scheduled QTY, or the operation open scheduled QTY.	Same as left
Sched Net Required Due	Excludes work order status “P” and “C”	Excludes work order status “C”

### What-if scheduling Dynamic Work Bench Calculations

Rules for Work Order Status Change.

User Action & System State Work Order Status Changed	History - Firm WINDOW on selected resource	Future WINDOW on selected resource
P->C	Supply Field "+/strikethrough"	Supply Field "Strikethrough", PQOH, SNRD, Daily Load, Alternate Resources (Period Avail Capacity-NA)
C->P (Only possible if user hasn't saved after changing from a "P" status)	Supply Field "-/strikethrough"	Supply Field "-.", PQOH, Sched Net Req Due, Daily Load, Alternate Resources (Period Avail Capacity-NA)
P->F,B,E,A,R	Supply Field "+", PQOH, Sched Net Req Due, Daily Load, Alternate Resource	No System Change
F,B,E,A,R->P (Only possible if user hasn't saved after changing from a "P" status)	Supply File "-.", PQOH, SChed Net Req Due, Daily Load, Alternate Resource	No System Change
F,B,E,A,R ->	No System Change	No System Change
F,B,E,A,R ->C	Supply Field "Strikethrough", PQOH, Sched Net Req Due, Daily Load, Alternate Resources, Period Avail Capacity, "Past Due Column factors the lesser of the WO or Op open QTY"	Same as left - excluding PAC
C ->F,B,E,A,R	PQOH, Sched Net Req Due, Daily Load, Alternate Resources, Period Avail Capacity.	Same as left - excluding PAC

## Exercise: Visualize Planned Orders

Routing Profile for items used in this exercise

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
Wo	10	ZPress		1	0	0	0	2	01	

### Visualize Planned orders

Discover how QPS provides concise and clear visibility to MRP planned work orders.

Update the Shop Calendar so that MRP plans work orders on Saturdays & Sundays.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
Work Day	Saturday	Yes	
	Sunday	Yes	
	Go		
	End		

Run MRP to generate Planned Work Orders. This will create work order per the sales demand from the prior section.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

View Planned Orders in QPS

QPS displays the planned orders generated by MRP.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Synch Refresh	QPS	
Selections	Site	Not Selected	
	Site	QPS	
	Resource	“ZPress”	
Supply Grid	WO1000 <today>	Double Click	

1 After running MRP, why is QPS item still highlighted in red?

**Annotation 8** Discussion point

- 2 How does the Firm Scheduling Period impact Daily Load inside vs. outside the Firm Scheduling Period?

**Annotation 9** Discussion point

- 3 How does the Detail Days field setting provide for work order detail visibility?

**Annotation 10** Discussion point

## Exercise: Dynamic WB calculations

### Dynamic WB calculations

The QPS workbench supports dynamic calculation logic to allow the scheduler to perform “what-if” scheduling scenarios and to immediately visualize the impact their actions make.

Tab / [Frame]	Field / prompt / [Button]	Input Value / [Key]	Expected Result
Supply Grid	WO1000 <today>	Double Click	Work Order Detail Frame appears. 3 work orders should display in the “P” status.

### Change the status of the first work order to “F”

then back to “P”

then back to “F”.

- 1 How did the WB calculations respond regarding the capacity, PQOH, visual indicators?

**Annotation 11** Discussion point

- 2 How did the WB calculations respond regarding the capacity, PQOH, visual indicators?

**Annotation 12** Discussion point

Change the third work order status to “R”.

- 3 How did the WB calculations respond regarding the capacity, PQOH, visual indicators?

**Annotation 13** Discussion point

- 4 What did you notice as the difference in changing the second work order to “R” vs. the third work order?

**Annotation 14** Discussion point

Chapter 3

# **Capacity Awareness & Management**

## Business Issues

- Little visibility to capacity and load on a day to day. This can lead to late shipments, cost overruns, over and under resource staffing.
- Unable to see how changes to the production schedule will impact capacity – currently this might be done as a rough estimate and guess “in the mind of the scheduler.”

### Value Points:

**Capacity Visibility:** QPS display the work center capacity and load for all items scheduled across the resource. This provides the scheduler full visibility to justify the need for overtime, allocating new resources, or the need to move the customer due date.

- What-if Scheduling: QPS dynamically calculate work order load when changing the work order status, quantity, run/setup times without having to go to a different report screen to view scheduling changes.
- The shop floor will run significantly smoother and customer delivery performance will improve with this new level of visibility.

## Day-to-Day Capacity Awareness

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# Day-to-Day Capacity Awareness

- 1  
 Run MRP 23.2
- 2  
 Run CRP 24.1 to calculate the work order load – operation release and due dates.
- 3  
 Review the work center load on the

Work Ctr	Machine	Site	Start	End Date	D/W/M/P	Per Col	Output		
1030		qps	03/23/06		W	1	terminal		
Description: INSPECTION, ALL SITES				Run Crew: 1.000					
Department: 30				Mach/Wk Ctr: 1.000					
Queue Time: 1.0				Wait Time: 0.0					
				Mach/Op: 1					
Past									
			03/23/06	03/30/06	04/06/06	04/13/06	04/20/06	04/27/06	
			03/22/06	03/29/06	04/05/06	04/12/06	04/19/06	04/26/06	05/03/06
Workdays	0	5	5	5	5	5	5	5	
Work Ctr Cap	0	40	40	40	40	40	40	40	
Work Ctr Load	0	0	0	0	0	0	0	0	
Cap Less Load	0	40	40	40	40	40	40	40	
Cumulative	0	40	80	120	160	200	240		

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## Manage Day to Day Capacity Overloads

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### Capacity Overloads

**1a** For each item scheduled on the overloaded work center, run 23.16 to determine which work order could be moved.

**1b** Change the work center capacity to adjust for overtime Shop Calendar

**2** Update the work order in 16.1

**3** Run CRP 24.1 to calculate the work order load – operation release and due dates.

**4** Review the work center load on the

Work Ctr	Machine	Site	Start	End Date	D/W/M/P	Per Col	Output
1030		qps	03/23/06		W	1	terminal

Description: INSPECTION, ALL SITES	Run Crew: 1.000
Department: 30	Mach/Wk Ctr: 1.000
Queue Time: 1.0	Wait Time: 0.0
	Mach/Op: 1

	Past	03/23/06	03/30/06	04/06/06	04/13/06	04/20/06	04/27/06
Workdays	0	5	5	5	5	5	5
Work Ctr Cap	0	40	40	40	40	40	40
Work Ctr Load	0	0	0	0	0	0	0
Cap Less Load	0	40	40	40	40	40	40
Cumulative	0	40	80	120	160	200	240

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## QPS Day to Day Capacity Awareness and Management

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# QPS Day to Day Capacity Awareness and Management

Resource Capacity

Load

Period Available Capacity

View demand sources for prioritization

Modify Work Order Status, Quantity, Due Date, Run/Setup Time.

The screenshot displays the 'Work Order Workbench' interface. At the top, a summary table shows capacity metrics for the week of 03/23/2006. Below this, a grid shows the load for item 'mmug1050' across the days. A 'Filters' section on the left allows for refining the data. The bottom section, 'Work Order Detail', provides specific information for work order 67236, including quantity (1,360), status (Released), and due date (03/24/2006).

Item	QOH	Past Due	Thu 03/23	Fri 03/24	Sat 03/25	Sun 03/26	Mon 03/27	Tue 03/28	Wed 03/29
Planned Capacity	0	8	8	8	8	8	8	8	8
Daily Load	10	0	15.6	0	0	0	0	0	0
Period Avail Capacity	-10	-2	-7.6	8	8	8	8	8	8

Item	QOH	Thu 03/23	Fri 03/24	Sat 03/25	Sun 03/26	Mon 03/27	Tue 03/28	Wed 03/29
mmug1050	-10	0	0	0	0	0	0	0

	Independent Demand	Dependent Demand	Forecast Demand	Total Demand	Projected On-Hand	Production Reported	Sched Net Req Due
mmug1050	250	0	0	250	-260	0	0

WO ID	Op	WO Qty Ord	WO Status	Op Resource	Op Start	Op Due	Seq	Op Open	Op WIP	Op Rjct	Op Comp
67236	10	1,360	R	2Press	03/22/2006	03/24/2006	0	1,360	0	0	0

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2009-PS-CA&M-050

## Planned Capacity

**Planned Capacity**

	Past Due	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
Planned Capacity	0	8	8	8	8	8	8	8
Daily Load	1	0	5	0	0	0	0	0
Cum Avail Capacity	-1	7	3	8	8	0	0	0

Item	QOH	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
bws10	425	100	500	0	0	0	0	0

**Shift Maintenance**

**Holiday Maintenance**

**Calendar Maintenance**

**Production Lines**  
**Repetitive**

**Work Centers**  
**/Machines**  
**Work Order**  
**Workbench**

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## Period Avail Capacity

QAD Enterprise Applications CUM Capacity calculation in QAD Enterprise Applications – designed for mid to long term capacity projections.

QPS Period Capacity calculation, designed for short term, daily capacity calculation.

- Logic supports any scheduling method/approach
  - Discrete work orders -
  - Repetitive schedules –
- Based on the concept of the PERIOD capacity periods:
  - Isolates the capacity constraint to a specific day.
  - Combines the concept of the net capacity and Period capacity in a single calculation.
  - Past due load and current daily load does not distort future capacity due to untimely production reporting.
  - Supports scheduling the PRODUCTION date or DUE date.

## Daily Load

		Past Due	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
Planned Capacity	0	8	8	8	8	8	8	8	
Daily Load	1	0	5	0	0	0	0	0	
Period Avail Capacity	-1	7	3	8	8	0	0	0	


  

Item	QOH								
bws10	425	100	0	500	0	0	0	0	0

500pieces x Item Run Rate 100 (hr) + 0 (hr) Setup = 5 (hrs) Daily Load

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## Comparing Old / New Formula



### Comparing Old / New Formula

	Past	1	2	3	4	5	Total Extra Capacity
Capacity:	0	8	8	8	8	8	
Load:	1	0	7	9	10	6	
MFG/PRO Traditional CUM Capacity	-1	7	8	7	5	7	7
QPS(Period avail capacity)	-1	5	0	0	0	2	7

	Past	1	2	3	4	5	Total Extra Capacity
Capacity:	0	8	8	8	8	8	
Load:	0	0	0	0	0	0	
MFG/PRO Traditional CUM Capacity	0	8	16	24	32	40	40
QPS(Period avail capacity)	0	8	8	8	8	8	40

	Past	1	2	3	4	5	Total Extra Capacity
Capacity:	0	8	8	8	8	8	
Load:	0	0	0	20	0	0	
MFG/PRO Traditional CUM Capacity	0	8	16	4	12	20	20
QPS(Period avail capacity)	0	4	0	0	8	8	20

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### How To Manage Capacity Issues With QPS

Schedule on Alternate Resources in QPS

- Resource A is over capacity, schedule item on Resource B

Increase Resource Capacity

- Add an extra shift or increase resource hours
  - Repetitive Production Lines– Shift Maintenance (18.1.22)
  - Work Order Work Centers/Machines – Calendar Maintenance (36.2.5)

Increase Production Rate

- Add more personnel to the resource in increase the item’s run rate.
  - Repetitive – Increase Flex Rate Factor in QPS
  - Work Orders – Increase Flex Rate Factor in QPS
  - Work Orders – Increase the item run rate on the QPS work order.

## Period Avail Capacity (part 1 of 3)

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## Capacity – Period Avail Capacity (part 1 of 3)

	Past Due	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
Planned Capacity	0	8	8	8	8	8	8	8
Daily Load	1	0	5	0	0	0	0	0
Period Avail Capacity	-1	7	3	8	8	0	0	0

Item	QOH								
bws10	425	100	0	500	0	0	0	0	0

Value: Scheduler can see that past due load is consuming today's capacity.

Real Life: It is possible this past load (1 hour) is from delays in reporting production.

Note: Planned Capacity for today(Thu) is 8 hours; this capacity is not consumed by actual time – planned capacity is distorted TODAY.

**Formula:**  
- (Past Due Load of 1 hour + 8 hour capacity today) = 7 hours Period Avail Capacity today.

Formula:  =

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Period Avail Capacity (part 2 of 3)

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## Capacity – Period Avail Capacity (part 2 of 3)

	Past Due	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
Planned Capacity	0	8	8	8	8	8	8	8
Daily Load	1	0	5	0	10	0	0	0
Period Avail Capacity	-1	7	3	6	0	0	0	0

Item	QOH								
bws10	425	100	0	500	0	1,000	0	0	0

Value: Scheduler can see the 1000 pieces scheduled overloads Sunday; however, if the job is started on Saturday, there is no capacity issue.

*Formula:*

- Sunday (8 hours capacity – 10 hours daily load) = - 2 hours OVERLOAD.
- Period Capacity calculation consumes 2 HOURS of extra capacity on Saturday, assuming the job can be started earlier resulting in 6 hours capacity remaining on Saturday.

Formula: Input = Output

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## Period Avail Capacity (part 3 of 3)

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## Capacity – Period Avail Capacity (part 3 of 3)

	Past Due	Thu 10/27	Fri 10/28	Sat 10/29	Sun 10/30	Mon 10/31	Tue 11/01	Wed 11/02
Planned Capacity	0	8	8	8	8	8	8	8
Daily Load	1	0	18	0	10	0	0	0
Period Avail Capacity	-1	0	-3	6	0	0	0	0

Item	QOH								
bws10	425	100	0	1,800	0	1,000	0	0	0

Value: Scheduler can see the 1800 pieces has caused a capacity shortage of 3 hours on Friday, even if the job is started on Thursday.

Schedulers Options:

- Finish Friday's job on Saturday - Saturday has 6 hours of extra capacity.
- Add capacity on Thursday to start job earlier.
- Add capacity on Friday to complete job on time.
- Move job to an alternate resource.

*Formula:*

- Sunday (8 hours capacity – 10 hours daily load) = - 2 hours OVERLOAD.  
 Period Capacity calculation consumes 2 HOURS of extra capacity on Saturday, assuming the job can be started earlier resulting in 6 hours capacity remaining on Saturday.

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## Exercise: Capacity Awareness & Management

### Routing Profile for items used in this exercise

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
XBender	10	XBender	1	1	0	0	0	4	.01	

### QAD Enterprise Applications Setup Prerequisites

If not using VMWARE image, see QAD Enterprise Applications data setup section of this document.\

Enable two new resources in QPS to schedule.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	ZBender1	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	ZBender2	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

### 5 Create a sales order with two items due on the same day.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SO200	
	Sold-to	1006000	
	Ln Item	WO300	
	Qty Ordered	1200	
	Due Date	<today + 2>	
	Ln		
	Item	WO400	
	Qty Ordered	1200	
	Due Date	<today + 2>	
	Go		
	End		

Run MRP to generate work orders

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

### Release the work orders in QPS and review the load.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Selections	Site	Not Specified	This allows a view of the new enabled resources
	Site	QPS	
	Resource	XBender/1	
Supply Grid	WO300 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the "P" status.
Work Order Detail	WO Status	"R"	
	Save		
Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Supply Grid	WO400 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the "P" status.
Work Order Detail	WO Status	"R"	
	Save		NOTE: A defect - the items should not be highlighted in yellow since there is no safety stock (zero PQOH is causing issue)

## Questions

1 What is the capacity impact?

**Annotation 15** Discussion point

The normal working day is 8 hours; however, <today +1> we can schedule some additional overtime to increase our capacity.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	Work Center	XBender	
	Machine	1	
	Reference	<today + 1>	
Reference	Start	<today + 1>	
	End	<today = 4>	
	Daily Hours	4	
	Go		
	End		

View the impact of the capacity change in QPS

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Synch		Run the synch if you don't want to wait up to 60 seconds.
	Refresh		Updates the screen with the latest Shop Calender changes made in QAD Enterprise Applications

2 What is the capacity impact?

**Annotation 16** Discussion point

**Increase the work center Flex Rate to reduce load.**

Increasing the work center Flex Rate means you are able to increase the run rate or throughput of your production. Equally, decreasing the Flex Rate reduces the run rate or throughput of your production.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Resource Type Site	Work Center QPS	
Resource Maintenance	Resource	XBender/1	
Rate Flex Factor	<today + 1>	25.0%	
	Save Synch		
Work Order Workbench	Refresh		Screen should display new load values including the rate flex factor.

3 What is a normal scenario “reason” for increasing the throughput?

**Splitting a work order and assigning it to an alternate resource.**

So far, we have increased the resource capacity 4 hours, and we have increased the Rate Flex Factor on 1 day by 25%. This has improved the capacity/load issue; however, based on projections, there still is not enough capacity to complete the final job which could cause us to miss our shipment.

Our final option is to split the job and move the job to an alternate resource. Normally, it may be best to move the entire job for sake of setup time; however, in this case, running the job across both machines does not incur additional setup costs.

Reduce the quantity of the original work order to 600 pieces and create a new work order for 600 pieces.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Supply Grid	WO400 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the "P" status.
Work Order Detail	For the 1st WO ID -> WO QTY Ordered	<?> 600	The original quantity was 1200.
Work Order Detail	Create a new WO ID		After these changes are made, the WB should look the same (PQOH, LOAD)
	WO Qty Ordered	600	
	Op Due	<today + 2>	etc. with exception to the new work order ID.
	WO Due	<today + 2>	
	Setup	0	
	Save		See Question! NOTE: There is a small memory calc defect which will calculate the load incorrectly. After the next two Steps, the load will be correct again.
	Synch		
	Refresh		See Questions!

- 4 What did the system do regarding the new work order and what did the system not do after SAVE?

**Annotation 17 Discussion point**

Move the new split work order to the alternate resource.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Work Order Detail	For the 2nd WO ID -> Resource Save	<?>Xbender/2	

- 5 What updates happened on Resource Xbender/1?

**Annotation 18 Discussion point**

Go to Xbender/2 to see if the new work order appears as you expect.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Resource	XBender/2	Note: A "routing update" coding change prior to VMware creation broke the code. After a refresh or synch, the work order is put back on the original resource this is by design



Chapter 4

# **Scheduling Work Orders and Reporting Production**

## Business Environment:

- Schedule the work order due date and release date. Do not schedule by operation.
- Capacity is defined per the pacemaker process maximum throughput.

### Business Issues & Objectives:

- Need visibility of the work orders to be scheduled.
- Need visibility of the work order status, such as quantity completed and WIP.

### Value Points:

**Work Order Status Visibility:** •System displays the work order completions. Know what is done, what is behind, immediately.

**Capacity Awareness:** Across the resources

### Scheduling the Work Order

Not an Operation

- Selecting the right work center/machine to schedule.
  - If an item has a routing with multiple operations and each operation has a unique work center/machine, in QPS, how do we choose the correct operation to represent “all operations”?

## Production Flow

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### Production Flow

Routing Operations			
Op 10 Extrude Run Rate (500)Hr	Op 20 10300 – Mill Run Rate (100)Hr	Op 30 Wash Run Rate (1000)Hr	Op 40 Inspect Run Rate (300)Hr
Day 1 WO Release Date	Scheduled operation Day 2	Day 3 WO Due Date	Day 4 Customer Order Ship Date

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2009-PS-SO & RP-040

Multi-day production process, Schedule Only the Work Order Due/Release Dates

If capacity management is important, choose the work center(s) which best represent your throughput and are commonly used on your outings.

## Production Flow

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# Production Flow

Routing Operations			
Op 10 Extrude Run Rate (500)Hr	Op 20 10300 – Mill Run Rate (100)Hr	Op 30 Wash Run Rate (1000)Hr	Op 40 Inspect Run Rate (300)Hr
Day 1 WO Release Date	Day 2	Day 3 WO Due Date	Day 4 Customer Order Ship Date

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2009-PS-SO & RP-050

Multi-day production process, Schedule Only the Work Order Due/Release Dates

If capacity is not a real concern, then choose the work center which is common to most parts you produce, such as inspection.

## Exercise: Scheduling Work Orders and Reporting Production

### Routing Profile for items used in this exercise

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
WOA310	10	10300		5	0	0	0	1	.01	

### QAD Enterprise Applications Setup Prerequisites

Enable the resource which represents the single or collective resources in which you schedule your work orders against.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource	Resource Type	Work Center	
Maintenance	Site	QPS	
	Resource	10300	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

- 1 How do you choose the routing operation/work center for scheduling work order release and due dates?

**Annotation 19** Discussion point

### Enter SO for an item...

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SOWOA310	
	Sold-To	1006000	
	Ln		1
	Item	WOA310	
	Qty Ordered	1000	
	Due Date	<today + 2>	
	Go		
	End		

Run MRP to create planned work orders for the new sales demand.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

**Schedule the new planned work order.**

**Note** Write down the work order ID for the next step.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Selections	Site	Not Specified	
	Site	QPS	
	Resource	10300	
Supply Grid	WOA310 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the “P” status.
Work Order Detail	WO Status	“R”	
	Save		
	EXPORT		Export the work order to QAD Enterprise Applications.

**Report against the work order.**

Never assume that once a work order is scheduled, that everything will go to plan. In our scenario, some quantities will be scrapped and the rest of the production will be put into QC hold so that it is non-nettable.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Work Order Receipts	ID	<enter WO ID>	
	Op	10	
	Employee	<any ID>	
	Qty Completed	1000	
	Qty	900	
	Scrapped Qty	100	
	Location	Nonnet	
Work Order Receipts	CLOSE WO	YES	
	Display Lot/Serial	No	
	Confirm Update	Yes	

Review impact of production reporting against work order in QPS.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Supply Grid	WOA310 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the “P” status.
	WO Qty Ordered	100	
Work Or Detail	WO Status	R	There is a known defect that when you add a wo QTY, the supply field does not currently update. When you REFRESH, the screen will be correct.
	OP Due	<today + 2>	
	WO Due	<today + 2>	

**2** How does the scheduler know the job has been completed?

**3** What is the item inventory, and WIP?

**4** Are there any new issues, and what should the scheduler do?

Schedule a replacement WO for scrapped materials.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Supply Grid	WOA310 <today>	Double Click	Work Order Detail Frame appears. 1 work order(s) should display in the "P" status.
	WO Qty Ordered	100	
Work Or Detail	WO Status	R	There is a known defect that when you add a wo QTY, the supply field does not currently update. When you REFRESH, the screen will be correct.
	OP Due	<today + 2>	
	WO Due	<today + 2>	
	Save		

**5** Did the problem (negative PQOH) go away once scheduled?

**6** For those companies that only wish to schedule the work order and don't care about the operation due date, why do we force them to schedule both the operation and work order due dates?

On your own time:

- 1 Change the status of the inventory back to nettable in QAD Enterprise Applications and once you do this, QPS should no longer show red for the item.
- 2 Review what you have learned in this lesson with some additional testing with the data on this resource.

## Business Environment

- The bottleneck operation needs to be scheduled offset to the work order due date.
- An item can be scheduled on multiple resources but should default on the primary resource.

### Business Issues & Objectives:

- System to provide automated operation scheduling off-sets. Looking for system to provide suggested operation due and release dates.
- Need a tool to visualize the impact of changing the WO due date and the Operation Release Date.

### Value Points:

**Work Order Status Visibility:** System displays the work order completions at the operation. Scheduler knows what is behind, immediately at the operational level.

**Capacity Awareness:** At the operation.

## Reporting Production

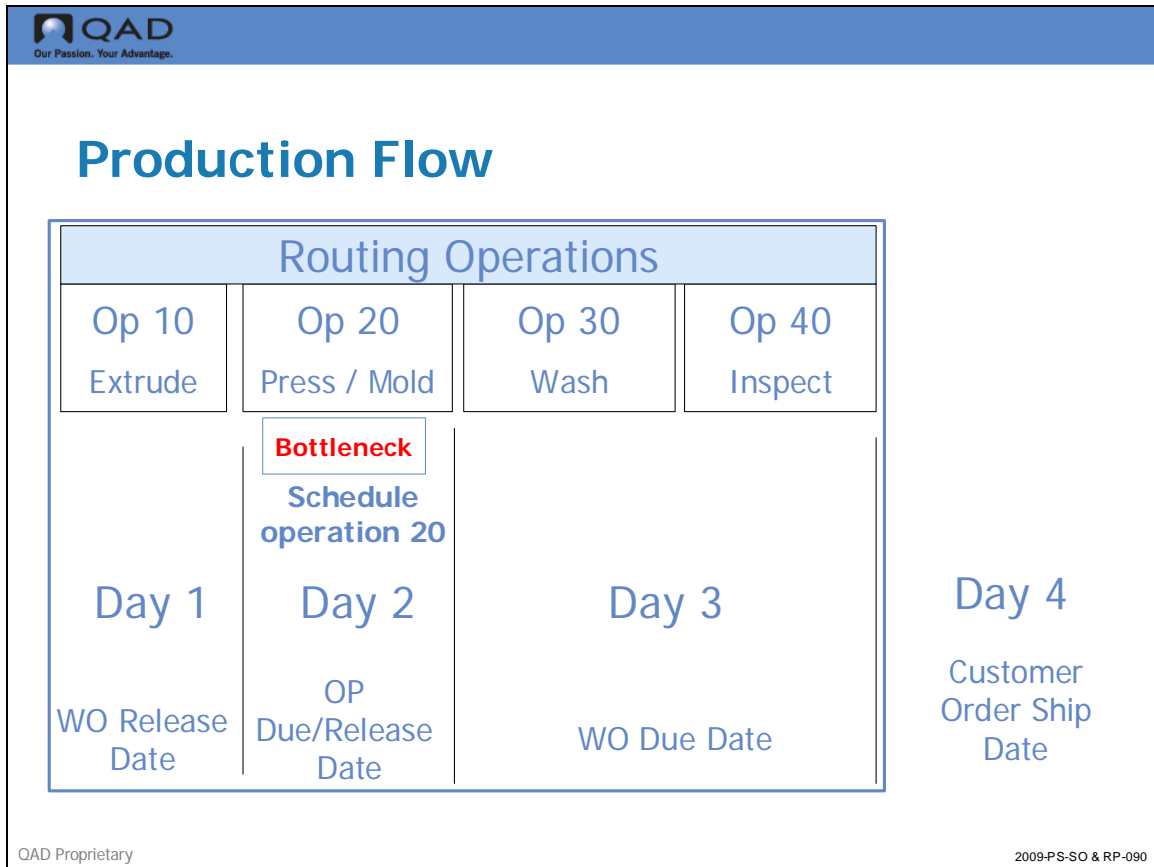
### Shop Floor Control

- Report at the Operation (17.1)
  - Report Labor
  - Report OP Reject (scrap)
  - Report OP Quantity Complete
- Work Order Receipt (16.11)
  - Report WO Scrapped
  - Report WO Quantity Complete
  - Assume materials have already been issued
- Work Order Receipt Backflush (16.12)
  - Report Scrapped
  - Report WO Quantity Complete
  - Backflush materials (issue/backflush)
- Work Order Operation Backflush (16.19)
  - Report Labor
  - Report OP Quantity Complete
  - Report WO Quantity Complete
  - Report WO Scrap
  - Backflush materials (issue/backflush)

## QPS Limitations on Operational Scheduling

- Moving the operation release/due dates of the one operation does not automatically move the subsequent or prior operations.
  - QPS will visually display the operation overlaps.

## Production Flow



Multi-day production process, Schedule Operation and WO Due/Release Dates 1

## Exercise: Single Operations

### Routing Profile for items used in this exercise

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
WO1030	10	Extrude		1	0	0	0	2	.01	
	20	Mold	1	1	0	8	0	1	.01	
	30	Wash		1	0	0	0	0	.001	
	40	Inspect		1	0	8	0	0	.001	

QAD Enterprise Applications Setup Prerequisites

### New Resource

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	Mold	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

- 1 The routing has 4 operations, why only enable one of them?
- 2 Does it hurt to enable the others, and if I do, what is the value?

### Order Line Items

Enter 3 sales order line items.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SO1030	
	Sold-to	1006000	
	Ln		1
	Item	WO1030	
	Qty Ordered	50	
	Due Date	<today + 4>	
	Ln		2
	Item	WO1040	
	Qty Ordered	999	
	Due Date	<today + 4>	
	Ln		3
	Item	WO1050	
	Qty Ordered	600	
	Due Date	<today + 4>	

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Go		
	End		

Installed Base Item Maintenance (11.3.1) Run MRP to generate planned work orders for the new sales order demand.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Installed Base Inquiry (11.3.2) Run CRP to calculate the Operation Release & DUE DATES.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Installed Base Report (11.3.3) In QPS, view the new demand/supply for each of the items on the resource.

**Note** For each item, click – to view the summary information concerning the item and then double click to view the work order details.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Selections	Site	Not Specified	
	Site	QPS	
Resources	Mold	click	
Supply Grid	WO1030 <today>		
	WO1040 <today>		
	WO1050 <today>		


1 How did MRP calculate the work order release/due dates?

**Annotation 20** Discussion point

2 Why are the MRP release and due dates so different than the OP release and due dates?

**Annotation 21** Discussion point

### Work Order Release & Due Dates



## Work Order Release and Due Dates

							JUNE									
Setup	POQ	Safety Time	Pur LT	Min Order QTY	Order Multiple	DEMAND DUE DATE	3/29/2006	3/30/2006	3/31/2006	4/1/2006	4/2/2006	4/3/2006	4/4/2006	4/5/2006	4/6/2006	4/7/2006
A	1	▲				DEMAND Quantity								90	105	200
						WO DUE DATE										
						WO RELEASE DATE										
B	1	1	▲			DEMAND Quantity										
						WO DUE DATE										
						WO RELEASE DATE										
C	1	1	5	▲		DEMAND Quantity										
						WO DUE DATE										
						WO RELEASE DATE										
D	1	1	5	100	▲	DEMAND Quantity										
						WO DUE DATE										
						WO RELEASE DATE										
E	1	1	5	100	100	▲	DEMAND Quantity									
						WO DUE DATE										
						WO RELEASE DATE										
F	7	1	5	100	100	DEMAND Quantity										
						WO DUE DATE										
						WO RELEASE DATE										
G						DEMAND Quantity										
						WO DUE DATE										
						WO RELEASE DATE										

QAD Proprietary 2009-PS-SO & RP-100

How Does QAD Enterprise Applications Calculate The Work Order Release & Due Dates?

Run MRP to calculate the new MFG LT and using the updated MRP planning parameters.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Run CRP to recalculate the OP DUE & Release Dates.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
WO1030	10	Extrude		1	0	0	0	2	.01	
	20	Mold	1	1	0	8	0	1	.01	
	30	Wash		1	0	0	0	0	.001	
	40	Inspect		1	0	8	0	0	.001	

3 Release all of the work orders (1 work order per item)

Tab / [Frame]	Field / prompt / [Button]	Input Value / [Key]	Expected Result
Resource	Synch Mold/1 Refresh		
Supply Grid	WO1010 <today>	Double Click	
Work Or Detail	WO ID <?> WO Status Save	R	The Op due date should be prior to the wo due date There is a defect in the in-memory calculations. The PQOH does not appear correctly.
Tab / [Frame]	Field / prompt / [Button]	Input Value / [Key]	Expected Result
Supply Grid	WO1040 <today>	Double Click	
Work Or Detail	WO ID <?> WO Status Save	R	The Op due date should be prior to the wo due date
Tab / [Frame]	Field / prompt / [Button]	Input Value / [Key]	Expected Result
Supply Grid	WO1040 <today>	Double Click	
Work Or Detail	WO ID <?> WO Status Save	R	The Op due date should be prior to the wo due date
Tab / [Frame]	Field / prompt / [Button]	Input Value / [Key]	Expected Result
Supply Grid	WO1050 <today>	Double Click	
Work Or Detail	WO ID <?> WO Status Save	R	The Op due date should be prior to the wo due date In the next VMWARE, when you click on the red cell - no work order appears. We have indexed both on the Op due and WO due so a work order will appear in the future. For now, you must go to the OP DUE Date to see the work order.

**Questions:**

- 1 Do the work order & OP release dates and due dates look correct?
- 2 Are the results as you would expect?

**Annotation 22** Discussion point

Notice how the operation due date was calculated in the PAST... in our next section we will learn how to prevent the system from doing this. If the order was placed far enough in advance, this would generally not happen.

**Note** DUE TO THE IN-MEMORY CALCULATION DEFECTS RELATED TO WORK ORDER DUE DATES BEING RELEASED IN THE PAST, REFRESH THE SCREEN TO GET THE REAL PICTURE!!!! ADDITIONALLY, THE ITEMS ARE HIGHLIGHTED IN YELLOW, THIS HAS BEEN CORRECTED IN THE LATEST VERSION...

3 How do we manage the capacity issue?

4 Increasing capacity on the resource is not an option and we have no alternate resource – what can we do?

Filter the jobs by attributes.

Though we only have three items on our workbench, in a production environment there could be hundreds of work orders. Since we are overloaded with capacity, we could use the filter by attributes to find like items to schedule to reduce our load and improve efficiency.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Filters	Run Seq1	White	Screen should display only two items with the white attribute
	Run Seq1	Not Filtered	Screen displays all items again

#### Question:

5 In our environment color changes cause the most down time over die size changes. Based on the filter results, which of the three work orders/items should we move to the future to eliminate the capacity constraint?

Change the operation due date.

By changing moving the operation due date out, in most cases, this will cause the work order due to move out if there are no built in routing time buffers, i.e., Queue, Wait time.

Then change the work order due date by one day to account for moving the operation due date.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Supply Grid	WO1040 <today>	Double Click	
Work Order Detail	WO ID <first ID>		
	OP Due	<today + 4>	
	Save		

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	WO Due	<today +5>	
	Save		

**Questions:**

6 What happened when changing the routing operation due date vs. the work order due date?

7 How does this impact the customer delivery date?

## Customer Delivery

The customer delivery date must be moved. Customer service may wish to call the customer and notify them of the change if required. Update the sales order due date in QAD Enterprise Applications with a new order date based on the new work order due date for item “WO3050”. The customer would have to be notified of the order date change

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SO1030	
	Sold-To	100600	
	Ln		2
	Item	WO1040	
	Qty Ordered	1000	
	Due date	<today +5>	
	Go		
	Save		

- 1 View QPS to see the results.

The item should no longer be highlighted in red since the sales order due date now coincides with the work order due date.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Synch		
Resource	Mold		
	Refresh		
Supply Grid	WO3050 <today>	Click	

## Export Schedules

Export the schedules to QAD Enterprise Applications

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Export		

## Report Production - Business

Scenario: Production is reported when the operation is completed. Report only partial production for the operation for item WO1040.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
For Item WO1040	ID	<enter WO ID>	
	Op	20	
	Employee	<any ID>	2
	Qty Completed	600	
	Operation Complete	Yes	
	Previous Ops Complete	Yes	
	Go 2 times		
	Display Items being issued	No	
Work Order Receipts	Quantity	0	
	Scrapped Qty	0	
	Location	100	

1 View work order status in QPS and the inventory on-hand for the item.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Refresh		
Supply Grid	WO1040 <day?>	Double Click	View the Scheduled Net Required Due - Load. Note: QPS pulls in the QAD Enterprise Applications WIP/WO OPEN QTY/Scrap values. Why the OPERATION shows a negative WIP - is uncertain at this time. More investigation will be made on this to see what QAD Enterprise Applications does in the background regarding wip.
Work Or Detail	WO ID <first ID>		The Work order WIP should be 200. Note, QAD Enterprise Applications work orders displays WIP differently than repetitive.

### Question:

What is new resource load and how is the work order setup time part of load?

## Report the Work Order

Report the rest of the work order but this time, lets report at the last operation for item WO1040.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	ID	<enter WO ID>	
	Employee	<any ID>	
	Qty Completed	600	
	Go 2 times		
	Display Items Issued	No	
WO Receipts	Quantity	550	
	Scrapped Qty	50	
	Location	100	
	Work Order Status	C	Because this is the LAST operation, QAD Enterprise Applications will bring up the Work Order Receipts Frame to allow you to produce what will be put int inventory.

**Note** When you report with work orders, it is different than repetitive. The Quantity reported + scrapped is the total reported QTY.

1 View work order status in QPS and the inventory on-hand for the item.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Refresh		
Supply Grid	WO1030 <day?>	double Click	View the Scheduled Net Required Due - Load.
Work Order Detail	WO ID <first day>		

### Question:

What happened to the remaining quantity left open at operation 20?

Notice the WIP values of the operation and the work order. These are pulled from QAD Enterprise Applications WIP records.



Chapter 5

# **Scheduling Operations - Multi Bottleneck Operations**

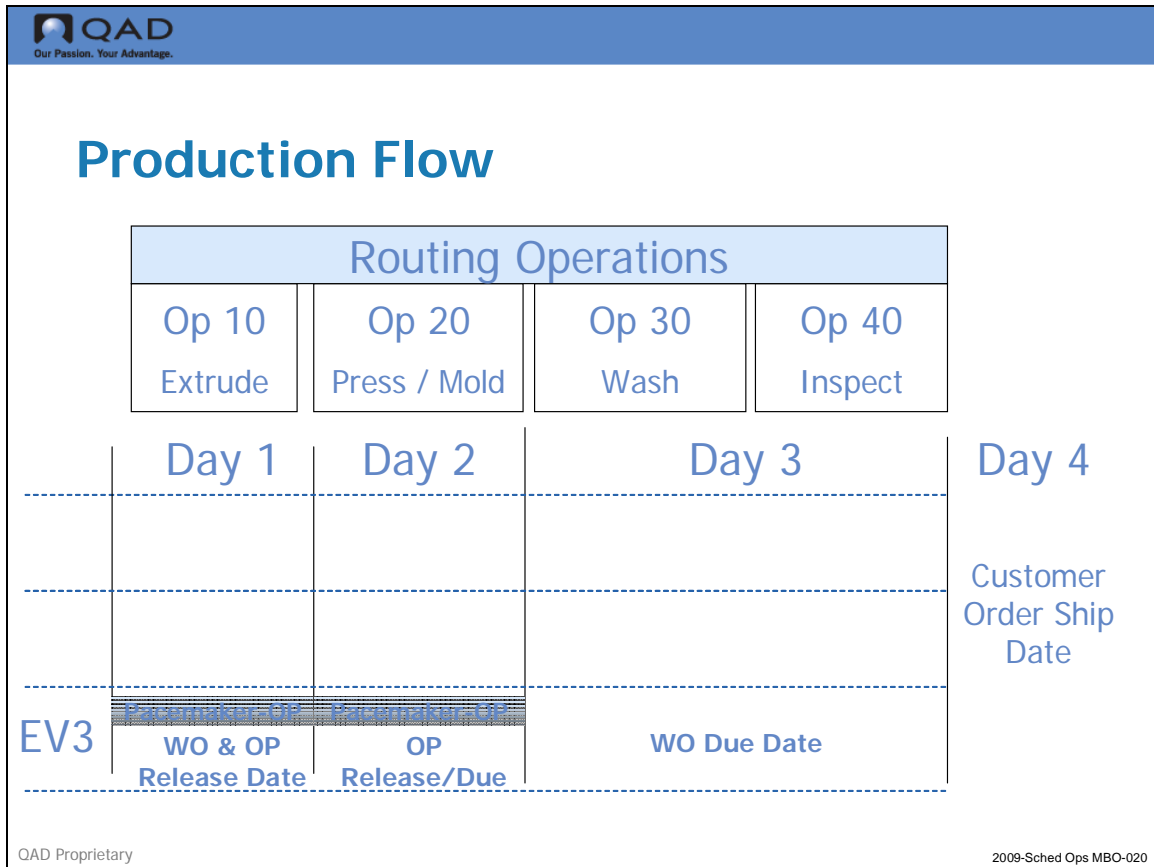
## Business Environment

Items belonging to product line Z-Cast require special processing across two resources with capacity constraints. If the jobs are not scheduled with enough lead time on the first bottleneck operation, it is highly probable that the second bottleneck operation could cause the order to be late.

### Business Issues & Objectives:

- Looking for system to provide automated operation scheduling off-sets of multiple bottleneck operations. Looking for system to provide suggested operation.
- Need a tool to visualize the impact of changing the WO due date and the Operation Release Date for multiple operations to ensure job completion timeliness.
- Need visibility of job status across multiple operations.
- A tremendous amount of efficiency is lost by not running like jobs together.

## Production Flow



Multi-day production process, Schedule Operation and WO Due/Release Dates

### QPS Limitations on Operational Scheduling

- Moving the operation release/due dates of the one operation does not automatically move the subsequent or prior operations.
  - QPS will visually display the operation overlaps.

## Exercise: Multi Bottleneck Operations

Routing ID	Oper	W/C	Mach	Mach Per Op	Overlap Units	Queue Time	Wait Time	Setup Time	Run Time	Move Time
WO500	10	Extrude		1	0	0	0	1	.01	
	20	Press	1	1	0	8	0	3	.01	
	30	Wash		1	0	0	0	.001	.001	
	40	Heat		1	1	8	0	0	.001	
	50	K-Gage		1	1	8	0	0	.001	

Setup a multi-bottle neck routing and configure QPS to schedule the bottlenecks.

### 1 QAD Enterprise Applications Setup Prerequisites

### 2 New resources....enable in QPS.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	Press	
	Enabled	<checked>	
	Firm Schedule Days	9	
	Save		

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	Heat	
	Enabled	<checked>	
	Firm Schedule Days	5	
	Save		

### Question:

- 1 Notice the Firm Schedule Days is set with different days for each resource. What is the impact of this?

### Annotation 23 Discussion point

Data correction: Change the item MFG LT to 1 day for item WO5000

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Item Number	WO500	
	Site	QPS	
Item Planning Data	MFG OT	1	
	Go (2) times		

Enter 3 sales order line items.

The first order is due outside of the firm scheduling period. The second order is within the firm scheduling period. The last order is due today.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SO5000	
	Sold-To	1006000	
	Ln		1
	Item	WO5000	
	Qty Ordered	400	
	Due Date	<today + 10>	
	Ln		2
	Item	WO5030	
	Due Date	<today + 7>	
	Ln		3
	Item	WO5060	
	Qty Ordered	500	
	Due Date	<today>	
	Go		
	End		

Run MRP – should generate 3 work orders.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Run CRP to calculate the routing operation release/due dates for the PLANNED work orders.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

View the planned work orders in QPS.

Review the operation due dates for the work orders due in future. Also review the corresponding operation release and due dates of the Heat Resource & Operation.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Selections	Site	Not Specified	
	Site	QPS	
Resource	Press	Click	
Supply Grid	Each Item <today>	Click	
		Double Click	
Work Order Detail	WO ID <first ID>		

**Questions:**

- 2 Why is one of the items, WO5000 not highlighted in red?
  
- 3 Why is item, WO5030 display a scheduled QTY on the Heat resource but not on PRESS?

QPS provides full visibility of the operations and quantities scheduled across each operation.

**MRP Planning Parameters**

Further Refinement of your MRP planning parameters to generate better data.

**Questions:**

- 1 How does QAD Enterprise Applications calculate the Operation Release and Due Dates vs. the work order release & due dates?

**Annotation 24 Discussion point**

View the operation due and release dates in QAD Enterprise Applications find the first operation start date and compare to the work order release date.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Item	WO5000	
	To Item	WO5000	
	Output	F	

- 2 How can we get the work order release and due dates to align better to the operation release and due dates and reduce OP CONFLICTS?

**Update Item Master Planning Parameters**

Update QAD Enterprise Applications item master planning parameters to generate more accurate operation and work order release and due dates.

Update the item’s Order QTY

The first step to getting MRP to generate accurate work order release and due dates is to ensure the release and due dates will be in alignment with your operation release and due dates. The Item's Order QTY is used for both costing and calculating the MFG LT. The Item's Order QTY should be the average order quantity produced for an item on given production run.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Item Planning Data	Item Number	WO500	
	Site	QPS	
	Order Qty	500	
	Go () Times		

Update the Item's MFG LT using the routing cost roll-up.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	Cost Set	Current	
	Item Number	WO5000	
	To	WO5000	
	Output	F	

Regenerate MRP to account for the new MFG LT for the item WO5000.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Run CRP again to account for the new work order & release dates.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

View results in QPS – verify the work order release and due dates are now in-line with the Operation Release and due dates.

The purpose of this exercise is to demonstrate that good QAD Enterprise Applications setups can significantly improve the suggested planned orders in QPS, especially when scheduling 1 or more operations. This can reduce the amount of manual effort to move these jobs around, if the data is correct dates are realistic in the first place.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Resource	Press	
	Refresh		
Supply Grid	WO500 <today>	Click	
Work Order	WO ID <first ID>	Double Click	
	Refresh		

For item WO5060 the system calculated a NON-FEASIBLE work order and operation release/due dates because the order was entered with a due date TODAY, not considering the MFG LT. It is not necessarily wrong the system had done this, but what if the scheduler would like QAD Enterprise Applications generate feasible work order release and due dates instead of NON-FEASIBLE?

### Question:

- 1 How can we prevent the system from planning operation release and due dates that are not feasible with regards to lead time?

Add a time fence to the item.

A second step to ensuring MRP generates accurate operation due/release dates is to define a time fence.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Item Number	WO5060	
	Site	QPS	
Item Planning Data	Time Fence	4	
	Order Qty	500	
	Go (2) times		

For item WO5060, we are adding a time fence so that MRP can not plan orders NEW work orders when the Sales order due Date is set prior to the CUM Lead Time.... This will ensure that work order and operation due dates can not be created with dates which can not be possibly manufactured against.

Regen MRP to account for the new Time Fence on the item.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Review the new work order and operation due dates for the items.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource	Press & Heat		

Notice that the order will not meet the due date, but this is realistic due to the necessary Lead Time. QAD Enterprise Applications is now planning with “reality” built in.

### Question:

- 2 What are the downstream benefits to defining these settings, such as Time Fences on lower levels of the planning process?

## Exercises on your time

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource	Press & Heat		

Release all the work orders and then refresh your screen. Compare what you seen on your Press resource to your HEAT Treat Resource.

Report Production at the WASH Operation. Operation 30 for one of the work orders.

View the WIP status on at the Heat Operation.

Schedule the second bottleneck operation HEAT...

Change the operation due date of the Heat Operation to be prior to the Press operation...

### Question:

1 Does QPS provide Operation conflict visibility? In what way?

**Annotation 25** Discussion point



Chapter 6

# **Scheduling Make to Order In a Forecasting Environment**

## Business Environment:

Forecasts are created for finished goods to generate planned orders which in turn will generate demand downstream throughout the item's BOM. The purpose of this is to ensure purchased components and possibly sub-assemblies are available for immediate consumption and use when the actual order is placed for the finished good.

### Business Issues & Objectives:

- MRP creates thousands of planned orders, however; the scheduler does not have immediate and clear visibility to discern between actual and forecast/safety stock/seasonal demand which is driving the order.
- Action message reports tell me I am late or need to release a planned order; however, I have no visibility as to why I am late or why the job needs to be released.
- Would like to move the environment from a push to a pull environment.

### Value Points:

**Demand Visibility:** Reduce the risks of scheduling the wrong jobs through the visibility of demand/supply information.

- Inventory Obsolescence reduced
- Inventory levels reduced
- Not using your raw materials and components on the wrong jobs.

## Exercise: Scheduling Make to Order in a Forecasting Environment

Enable the next scheduled resource in QPS.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource Maintenance	Resource Type	Work Center	
	Site	QPS	
	Resource	Mach10	
	Enabled	<checked>	
	Firm Schedule Days	9	
	Save		

Enter a forecast for an item.

This will drive planning within your BOM to ensure the right subassemblies and purchased components are available when an order is placed.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Item Number	WO600	
	Site	QPS	
	Year	<this year>	
	Week	<this week>	
	Forecast	500	
	Week	<next>	
	Forecast	2500	
	Week	<next>	
	Forecast	4000	
	Go		
End			

Enter Seasonal Demand for an item.

Seasonal demand is very similar to safety stock. It is safety stock with target start and end dates. It allows a company to build inventory over a period of time to ramp up for high demand periods where normal capacity could not meet demand. An example would be a producer of ice cream. They would start building their inventories in March in preparation for the summer months.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	Item Number	WO6000	
	Date	<today + 2>	
	Reference	<today + 2>	
	Seasonal Inventory	300	
	Site	QPS	
	Item Number	WO6000	
	Date	<today + 10>	
	Reference	<today + 10>	
	Seasonal Inventory	500	

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Go		
	End		

Run MRP – generate all the planned orders...

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

View QPS workbench to view demand results.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Synch		
Resource	Mach 10		
	Refresh		
Supply Grid	WO600 <today>		The Item is no longer highlighted in red
Work Order Detail	WO ID <first ID>	Double Click	

The screenshot shows the QAD Master Schedule Summary Inquiry for item Wo6000. The header includes the QAD logo and the title 'Master Schedule Summary Inquiry'. The main content is a terminal-style window with the following data:

```

msmsiq.p 2+          22.18 Master Schedule Summary Inquiry          03/26/06
Item Number: Wo6000      Prep Item X10          MRP Req: No
Site: QPS                Mfg LT: 2          Plan Orders: Yes      Pur/Mfg:
QOH: 0.0                EA Pur LT: 0       Order Qty: 0          Min Ord: 0
Order Policy: POQ Safety Stock: 100      Yield%: 100.00%     Max Order: 0
Order Period: 1         Safety Time: 0     Time Fence: 0         Ord Mult: 0
    
```

	Past	03/26/06	03/27/06	03/28/06	03/29/06	03/30/06	03/31/06
Prod Fcst	0	0	0	0	0	0	0
Forecast	0	0	500	0	0	0	0
Sales Orders	0	0	0	0	0	0	0
Gross Reqs	0	0	0	0	0	0	0
Mstr Sched	0	100	500	300	0	0	0
Projected QOH	0	100	100	400	400	400	400
Avail Promise	0	100	500	0	0	0	0
Cumulative ATP	0	100	600	600	600	600	600
Seasonal Build	0	0	0	300	300	300	300

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Reference: Above is the QAD Enterprise Applications Master Schedule Summary Inquiry. Seasonal Demand has it's own row, however, in QPS, we are limited on space so it was decided that adding it to the Demand Detail Window would be an acceptable solution.

Modify the QPS Configuration to exclude Forecasts as "Demand"

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Configuration	Site	QPS	
	Include Forecast	<unchecked>	
	Save		

View QPS workbench after excluding forecast demand.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource	Synch		
	Mach 10		
Supply Grid	Refresh		
	WO600 <today>		The Item is no longer highlighted in red
Work Order Detail	WO ID <first ID>	Double Click	

**Question:**

- 1 How does forecast demand impact the calculations now?


Enter a sales order in QAD Enterprise Applications

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Order	SO6000	
	Sold-To	1006000	
	Ln		1
	Item	WO6000	
	Qty Ordered	400	
	Due Date	<today + 4>	
	Go		
	End		

Run MRP to generate new planned orders for the new sales demand.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

Go into QAD Enterprise Applications. Run the planned order report item WO6000

 QAD  
Our Passion. Your Advantage.

## Planned Order Report

```

23.12 Planned Order Report                               Date: 03/26/
Quality Products - DB 600                               Time: 05:59:

```

Buy Pln	P/M Order	ID	Qty Ordered	UM	Rel Date	Due Date
	03250005	404378	100.0	EA	03/24/06	03/26/06
	03260002	404396	100.0	EA	03/25/06	03/27/06
	03260003	404397	300.0	EA	03/26/06	03/28/06
	03260004	404398	400.0	EA	03/28/06	03/30/06
	03260005	404399	2,500.0	EA	04/01/06	04/03/06
	03260006	404400	200.0	EA	04/04/06	04/06/06
	03260007	404401	4,000.0	EA	04/08/06	04/10/06


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**Question:**

- 2 Assuming you do not know the original sources of demand, can anyone tell me which of the planned work orders should be released?

**Annotation 26** Discussion point

Go into QAD Enterprise Applications, run the action messages for item WO6000



## Activity Action Message Report

```

mrnprp02.p 2+                               23.7 Action Message Report
Page:      1                               Quality Products - DB 600
Site: qps
Item Number      P/M Date      Action Message Detail
-----
Wo6000           03/24/06  Release past due for Planned Order
  Prep Item X10  03/25/06  Release past due for Planned Order
Buyer/Planner:   03/26/06  Beginning available less than zero
                 03/26/06  Release due for Planned Order
                 03/28/06  Release due for Planned Order
                 04/01/06  Release due for Planned Order

```

QAD Proprietary
2009-PS-M to O-040

**Questions:**

- 3 Based on these action messages, can anyone tell me which of the planned work orders should be released, what is the limitation?
  
- 4 What do customers do today to figure out what they really need to schedule?
  
- 5 Based on the information provided in QPS, can you tell which planned work orders should be released?

**Annotation 27** Discussion point

Summarized: Because of the tremendous visibility both active, the screen prompting the scheduler as to which jobs they should schedule and passive – having all the MRP demand and supply information available, the scheduler can make fast and accurate decisions.

## Implementation Concepts

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# Implementation Concepts

▲ Option 1: Make to order for finished goods but make/purchase to “forecast” for lower level items.

Assuming no lead-time for any time.

	Mon	Tue	Wed	Thu	Fri	Sat
Parent	60S,40P					
Sub-Asm	100P					
Comp	100P					
Raw	100P					
	QPS Firm Scheduling Period			MFG-PRO MRP		

▲ Option 2: Make to order for finished goods, sub-assemblies and purchased components.

Parent Item Firm Window (4days) Assuming no lead-time for any time.

	Mon	Tue	Wed	Thu	Fri	Sat
Parent	60S				40P	
Sub-Asm	60P				40P	
Comp	60P				40P	
Raw	60P				40P	
	QPS Firm Scheduling Period			MFG-PRO MRP		

QAD Proprietary
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Option 1: Make to order for finished goods but make/purchase to “forecast” for lower level items.

Option 2: Make to order furnished goods, sub-assemblies and purchase components.

## MRP Planning

Product Structure Code Browse (13.2) How do you control MRP Planning at the lower level of the BOM? How do you transition your MRP system into a “pull-like” system vs. a push system?

### Question:

- 1 How can I get MRP to only generate demand for my lower level items based on only what I have scheduled at the part level? I do not wish for forecasts demand to create planned orders for my lower level items.

Go to QAD Enterprise Applications and turn the Time Fence for the item equal to the QPS Firm Scheduling Days setting.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Item Number	WO600	
	Site	QPS	
Item Planning Data	Time Fence	4	
	Go () times		

An item’s time fence should be generally equal to the CUM lead-time of the item or minimum, the item’s manufacturing lead time.

Release the work orders in QPS which are derived from non-forecast demand.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Synch		
Resource	Mach 10		
	Refresh		
Supply Grid	WO600 <today>		
Work Order Detail	WO ID <?>		Release the work order driven by sales demand.
	WO Statue	R	
	Save		
	Export		

Run MRP to regenerate the planned orders.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
	Site	QPS	
	To Site	QPS	
	Output	F	

### Question:

- 2 How do I know the QAD Enterprise Applications Firm Days setting worked?

Notice on the WB, the forecast and safety stock demand created planned work orders

Review QPS workbench after the export and synch process has completed.

No planned work orders should exist within the QAD Enterprise Applications time fence.

Tab / [Frame]	Field / prompt / [Button]	Input Value/ [Key]	Expected Result
Resource	???		
	Refresh		
Supply Grid	WO6000 <today>	Double Click	The item is no longer highlighted in red.
WO Detail			You should only See released work orders and no planned work orders within the QAD Enterprise Applications Time Fence.

There is one limitation to this approach: If forecast demand exists, and planned orders were created prior to the time fence, when those orders move within the time fence, MRP will only remove the planned orders if something triggers an MRP change for the item within the time fence. It is still possible that forecast demand can drive lower level planning; however, if there is reasonable activity on an item, the chances will be low. A defense against this is to remove the forecast demand that exists within the Time Fence. This will ensure that no planned orders are created unless driven from actual demand.

#### Question:

3 How will this impact all levels of the BOM with regards to planning?

**Annotation 28** Discussion point

## Filters and Sorts

### Workbench Filter and Sorting Logic

- Filter by item Attribute
  - Provides the ability aid in scheduling by item attributes for operational efficiency (reduction in machine setup)
- Sorting
  - Provides the ability to sort items by:
- Exclude Obsolete Items
  - Provides the ability to hide inactive items from the QPS workbench based on QAD Enterprise Applications Item Status

## System Security

### System Security and Authentication

- User Authentication - By Domain
- QPS Program Authorization
  - Scheduler Group: Authorized to access the workbench and Resource Maintenance.
  - Site Security
  - Administrative Group: Authorized to access Configuration
  - Reports: Can be accessed by any valid QAD Enterprise Applications user.

Chapter 7

# **Answers to Questions**

## Exercise Answers

Page 25

- 1 Discussion point
- 2 Performance can be impacted slightly. For every 30 days of future window, you may notice the synchronization process takes a bit longer. It does not however impact any Workbench performance – selecting resources, scheduling, exporting etc....
- 3 Discussion point
- 4 Discussion point

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- 1 Discussion point

Page 30

- 1 Discussion point
- 2 Discussion point
- 3 Discussion point

Page 33

- 1 Discussion point
- 2 Discussion point
- 3 Discussion point

Page 39

- 1 Discussion point
- 2 Discussion point
- 3 Discussion point
- 4 Discussion point

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- 1 Discussion point

Page 58

- 2 Discussion point
- 3 Discussion point

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- 4 Discussion point
- 5 Discussion point

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- 1 Discussion point

Page 68

- 2 Discussion point

Page 69

- 3 Discussion point
- 4 Discussion point
- 5 no – but it will once the non-net inventory is returned to good materials.
- 6 Discussion point

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- 1 Discussion point
- 2 Discussion point

Page 75

- 1 Discussion point
- 2 Discussion point

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- 1 they should be J
- 2 Discussion point

Page 79

- 3 Three orders due on the same date; however, there is not enough capacity to produce all three orders.
- 4 Change the operation due date.
- 5 Item WO3040, which has an attribute of red.

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- 6 The work order due date impacts PQOH. It is what MRP sees. Changing the Operation Due date impacts the resource load.
- 7 Discussion point

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- 1 Discussion point

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- 2 Because the due date is outside the firm scheduling days window.

- 3 Because, we set the firm day on Heat to be 5 days and Press we set it to be 9 days. So it is not really advised to have different dates, however, it doesn't really hurt anything.

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- 1 Discussion point
- 2 The routing cost role-up program.

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- 1 Set a time fence = to the MFG lead-time.

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- 2 A: Think of the scheduler who schedules the components, or the materials expeditors. They will no longer be getting messages to expedite material and production requests based on unrealistic PLANNED ORDER DUE DATES.... This seems so trivial, but in some environments, it can have a big impact!

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- 1 Discussion point

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- 1 Since the forecast is no longer considered "Demand" QPS excludes it from the PQOH calculation. Effectively, the scheduler won't be prompted to schedule an item with only Forecast Demand.

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- 2 Discussion point

Page 104

- 3 Based on the report below, I should release 3 work orders... QTY 100, QTY 100, QTY 300. However, I can't see what is driving my demand.
- 4 The famous 23.16 MRP DETAIL

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- 5 Discussion point

Page 107

- 1 Define a time Fence for the parent item.

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- 2 The planned order will now be outside the firm window.

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- 3 Discussion point