

QAD Online Help

QAD Online Help

Published date: 10/29/2025

Table of Contents

QAD Advanced Scheduling.....	7
QAD Advanced Scheduling's Objective.....	8
QAD Advanced Scheduling Orientation.....	10
QAD Advanced Scheduling Setup Menus.....	11
QAD Advanced Scheduling Organization Structure.....	13
Creating the Structure of a Site.....	14
Production Lines.....	16
Production Line Types and Attributes.....	18
Line Groups.....	20
Resources.....	22
Calendars and Line Availability.....	23
The QAD Advanced Scheduling Process.....	24
The QAD Advanced Scheduling Schedule List Window.....	25
Importing Data and Orders.....	26
Production Rates.....	28
Changeovers.....	29
Product Wheel Designer Overview.....	31
Product Wheels.....	33
Product Wheel Designer.....	35
Wheel Setup and Wheel Sessions.....	41
Setup Phase.....	43
Characteristics Phase.....	50
Families Phase.....	53
Allocation Phase.....	55
Design Phase.....	57
Review Phase.....	66
Inventory Simulation.....	68

Master Data.....	69
Maintain Organizations.....	70
Maintain Order Attributes.....	86
Maintain Sites.....	89
Maintain Line Types and Attributes.....	93
Maintain Areas.....	96
Maintain Lines.....	98
Maintain Resources.....	101
Maintain Line Groups.....	104
Maintain Units of Measure (UoM).....	108
Maintain Materials.....	111
Maintain Material Attributes.....	123
Maintain Material Types.....	126
Maintain Material Bills of Material and Resource Consumption Rules.....	129
Alternative BOMs.....	133
Material Co-Products and By-Products.....	137
Maintain Bills of Material.....	142
Maintain Changeovers.....	144
Maintain Production Rate Rules.....	151
Representing Production Rates.....	155
Maintaining the Product Wheel.....	157
Importing Product Wheels.....	163
Editing Existing Product Wheels Manually in QAD Advanced Scheduling.....	166
QAD Advanced Scheduling Import.....	170
Orders Import.....	172
Materials Import.....	174
Material Line Data Import.....	177

Production Rates Import.....	178
Consumption Rules: BOM Items Import.....	180
Consumption Rules: Resources Import.....	182
Unit Conversion Import.....	183
Lines Import.....	184
Wheels Import.....	185
Supply Chain Transaction Data Import.....	186
Forecast History and Scenario Import.....	188
Import Process: Column Mapping.....	189
Scheduling.....	191
Scheduling Basics.....	193
Creating/Loading Orders to Schedule.....	201
Creating an Individual New Order.....	202
Import New Orders from an External File.....	205
Using QAD Advanced Scheduling's Plan to Make.....	207
Run Plan to Make for an Individual Material.....	207
Maintain Saved Plan to Make Runs.....	210
Execute a Plan to Make Run.....	213
Creating and Implementing Automations.....	217
Changing the Cycle Lengths.....	221
Color-Coding the Schedule by Attribute.....	222
Scheduling Orders.....	225
Standard Scheduling.....	226
Product Wheel Scheduling.....	228
Moving Orders to Another Wheel Spoke.....	230
Drag-and-Drop Scheduling.....	231
Scheduling Periodic Changeovers.....	233
Keyboard Shortcuts.....	237

Maintaining, Editing, and Adjusting Orders.....	238
Maintain Orders.....	239
Batch Rounding.....	242
Undo and Save State Functions.....	245
Committing the Schedule and Sending to Manufacturing.....	251
Unscheduler, Uncommitting, and Removing Orders from Manufacturing.....	252
Completing Orders.....	253
Exporting the Schedule.....	254
Administration.....	255
Administer Organizations.....	256
Administer Users.....	261
How-to Articles.....	264
Move Orders to Another Line.....	266
Add a New SKU to the Wheel Design.....	267
Handle Obsolete Materials.....	275
Import Data.....	279
Defining Line Availability.....	294
How to Update Materials in Bulk using CSV and XLSX Files.....	298
Allow Changeover Rule Variations that are Selectable when Scheduling.....	302
Using the QAD Advanced Scheduling API.....	305
Defining a Planned Production Shutdown.....	307
Importing Materials Alongside Orders.....	310
Configure Formatted Export.....	312
QAD Adaptive: Production Scheduling.....	316
Integrations.....	317
Redzone Integration.....	318
QAD Advanced Scheduling Common Actions.....	320

Multi-Select.....	321
Nested Buttons.....	322
What's New.....	323
Index.....	324

QAD Advanced Scheduling

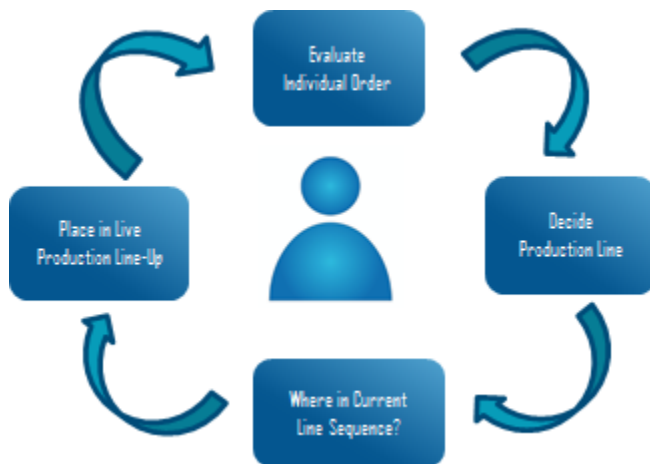
Below are articles and guides related to the **QAD Advanced Scheduling** product.

- [QAD Advanced Scheduling's Objective on page 8](#)
- [QAD Advanced Scheduling Orientation on page 10](#)
- [Product Wheels on page 33](#)
- [Product Wheel Designer on page 35](#)
- [Master Data on page 69](#)
- [QAD Advanced Scheduling Import on page 170](#)
- [Scheduling on page 191](#)
- [Administration on page 255](#)
- [How-to Articles on page 264](#)
- [QAD Advanced Scheduling Common Actions on page 320](#)

QAD Advanced Scheduling's Objective

The Scheduler's Challenge

- A planner is surrounded by events which require attention and careful response:
 - Evaluating orders as they arrive.
 - Deciding on the best production line and sequence to meet due dates.
 - Maintenance, staffing breakdowns, material availability, quality control issues, etc.
 - And more!



Scheduling with QAD Advanced Scheduling and Product Wheels

- With QAD Advanced Scheduling the scheduler smoothly manages exceptions while focusing on important issues and process improvement.
 - The planner imports data about production assets, materials, and orders.
 - QAD Advanced Scheduling offers both manual and automatic creation of a sequence that will maximize efficiency and meet due dates.
 - QAD Advanced Scheduling shows exceptions when due dates cannot be met.



The QAD Advanced Scheduling Background

- QAD Advanced Scheduling has been developed by a multi-functional team:
 - Planning and scheduling practitioners with many years of experience in world-class companies.
 - A technical design team using modern software design principles and tools.
- After observing Excel-based Product Wheel sequencing enablers in a variety of industries, it becomes clear that a better, more consistent, and more supportable scheduling tool than Excel is necessary.
- QAD Advanced Scheduling is a suite of functions that support planning and schedule creation/adjustment.
- QAD Advanced Scheduling is designed to remain simple while filling a niche between Excel and the expensive, complex supply chain planning software that is out of reach for many businesses.

QAD Advanced Scheduling Orientation

The following topics are meant to give you a quick orientation to the QAD Advanced Scheduling.

- [Product Wheel Designer Overview on page 31](#)
- [QAD Advanced Scheduling Setup Menus on page 11](#)
- [QAD Advanced Scheduling Organization Structure on page 13](#)
- [The QAD Advanced Scheduling Process on page 24](#)
- [The QAD Advanced Scheduling Schedule List Window on page 25](#)
- [Importing Data and Orders on page 26](#)
- [Production Rates on page 28](#)
- [Changeovers on page 29](#)

QAD Advanced Scheduling Setup Menus

The menus listed under the Setup heading on the left side of QAD Advanced Scheduling are used to create or maintain master data. See the [Master Data on page 69](#) section for specific master data work instructions for more detail.

Setup Menu Options • Organization: Master data for the overall organization. ◦ Planning features ◦ Time windows and time zones ◦ Order attributes ◦ Global line availability ◦ Global outages • Sites: The production sites within the organization. ◦ <u>Configurable here:</u> ▪ Areas, Line Groups, Lines, and Resources ▪ Line properties: ▪ Description and Type ▪ Per-line time windows, availability, and outages (if different from the organization default) ▪ Product Wheel sequencing ▪ Order export format customization • Materials: Contains the master data for materials. The following can be created and maintained here: ◦ Material Attributes ◦ Material Types	SETUP  Organization  Sites  Materials  Production Rates  Changeovers  Units of Measure

- Materials, including attribute values, Bill of Materials (BoM), preferred and alternate lines, and more
- Material exports
- **Production Rates:** Contains the master data for rates in Phenix including:
 - View and create production rates.
 - View consumption rates of BoM items and resources.
- **Changeovers** contains the rules that are used to calculate setup time and costs.
 - Create and edit changeover rules.
 - Test changeover rules.
- **Units of Measure** defines units of measure and set up conversions between them.

QAD Advanced Scheduling Organization Structure

A QAD Advanced Scheduling organization is made up of sites, areas, and lines. Additionally, there are line groups and resources. See the work instructions for [Maintain Organizations on page 70](#), [Maintain Sites on page 89](#), and [Maintain Line Types and Attributes on page 93](#) for more information.

- **Sites** are the production plants within an organization.
 - **Line groups** allow for planning of resources shared within the group and allocations, as well as easy visualization of related lines.
 - **Resources** are additional equipment or labor required for the production of certain products.
 - **Areas** allow for grouping of similar production lines. For example, in the screenshot below, the Appleton paper site has two areas, Converting and Papermaking.
 - **Lines** are the individual production lines. The Converting area of Appleton Paper has slitting, sheeting, and packing lines.

Areas in Site "Appleton"

+ Create Area

Code ↕	Description ↕	# Lines ↕
Converting	Converting	3
Papermaking	Papermaking	1

Lines in Area "Converting"

+ Create Line

Code ↕	Description ↕
Slit1	Slitter number 1
Sheet1	Sheeter number 1
Pack1	Packing Line 1

Creating the Structure of a Site

This is a short summary. For more information, see the work instruction [Maintain Sites on page 89](#).

The structure of a site is created or edited on the **Sites** page, accessed under the **Setup** heading in the left-side menu.

Sites

+ Create Site Line Types Line Attributes All Lines				
Site ID	Description	# Areas	Timezone	Actions
Middletown	Middletown Plant	5	America/New_York	Details

On this page you can create and view sites in the organization, as well as navigate to the **Line Types** and **Line Attributes** pages, where you can view, create, and edit an organization's line type and attributes.

Click on the site you wish to work on in your organization. This takes you to the site's details page.

Site: Middletown

[Sites](#) [Edit](#)

Site ID: Middletown

Description: Middletown Plant

Timezone: America/New_York

Summary: 5 areas, 14 lines, 5 line groups, 2 resources

Line Groups in "Middletown"

+ Create Line Group

Line Group ID	Description	Actions
Crewing	Crewing	Details Edit
Extruder Requirements	Frozen Food and Extruder Resource	Details Edit
Frozen Food	Frozen Food, Pasta, and Sauce	Details Edit
Pasta Planning	View of Production Lines and Pasta Requirement	Details Edit
Sauce Planning	Sauce Kitchen Planning	Details Edit

Resources in "Middletown"

+ Create Resource

Resource ID	Description	Actions
Crew	Production Staffing	Details Edit
Extruder	Pasta Extruder	Details Edit

Areas in Site "Middletown"

+ Create Area

Hint: Select an Area to interact with Lines within.

Area ID	Description	# Lines	Actions
Canning	Canning Area	3	Select Edit Edit
Frozen	Frozen Food Area	3	Select Edit Edit

Sites contain three internal structures: line groups, resources, and areas. For more information on these structures and what they do, see the subpages for them under [Maintain Sites on page 89](#). As an overview:

- **Line groups** group some combination of lines, materials, and resources to allow for group Wheel design, group planning and scheduling, multi-level scheduling, etc.
- **Resources** are additional items such as pieces of equipment or staff that are used to transform materials on a Line.
- **Areas** are structures for grouping similar lines together for organization and categorization purposes.

To create any of these structures, click on the **Create [Structure]** button. This button is at the top of the page if the site has none of the structure, and under the **[Structure] in Site** header otherwise.

To edit an existing line group or resource, click **Details** in the right “Actions” column of the structure’s entry, and then **Edit** at the top of the following page.

To edit an existing area, click on **Edit** in the right “Actions” column of the area’s entry.

To delete any of these structures, click on  in the right “Actions” column of the structure’s entry.

CAUTION Areas cannot be deleted if they contain lines. Delete every line in an area first.

Production Lines

This is a quick summary on the structure of lines in QAD Advanced Scheduling. For more detailed information, see the work instruction [Maintain Lines on page 98](#).

Production lines in QAD Advanced Scheduling are created within an area of a site. To create a new line, click on the area you want the line to be part of. Under the **Lines in Area** header that appears, click **Create Line** and enter the requested information about the new line.

Create Line

×

* Line ID

ID cannot be empty

Description

Alternate Names

Other names for this line

▼

Type

Q

Committed Window

—

0

+

(Using Organization Default)

Planning Window

—

0

+

(Using Organization Default)

Default Production Rate Efficiency

Using Organization Default

%

Fully-Loaded Cost of Runtime

\$

per minute

Default Manufacturing Variation

%

Speed

Schedule Adherence

Quantity Tolerance

Blank for organization default

%

Timing Tolerance

—

0

+

(Using Organization Default)

Save

Cancel

- The **Line ID** is the unique identifier of the line that it is most often referred to as.
- The **Description** gives more information about the line in plain words.
- **Alternate Names** are any other names or codes the line could be referred to as.
- The **Type** of line is chosen from a pull-down list of the line types available. Types are used to filter, sort, and categorize production lines.
- The **Committed Window** is the period of time in which QAD Advanced Scheduling will not automatically reschedule orders. This

is a firm zone to provide stability for production execution, changes within this window can only be made manually by the planner.

- The **Planning Window** is the period that QAD Advanced Scheduling will arrange in the best Product Wheel sequence during scheduling operations.
- The **Default Production Rate Efficiency** is a factor, expressed as a percentage, to adjust the production rate of materials produced on the line. For example, if you define this value as 80%, materials that have rates of 100 units per minute, 80 units per minute, and 50 units per minute will run at 80 units per minute, 64 units per minute, and 40 units per minute, respectively. There are two commonly used methods to define production rates. The first is a demonstrated rate, an output per unit of time that the line reliably achieves in practice. When using a demonstrated rate, the efficiency factor should be 100%. The second approach is to use a theoretical or nameplate rate, and factor it down or up based on the operating efficiency achieved in practice.

Note You do not have to specify a committed or planning window for the line unless it differs from the organization default. If no committed or planning windows are specified for the line, the organization default will be used.

- The **Fully-Loaded Cost of Runtime** is the value of the line running, per minute. For oversold lines, this is generally the marginal value of extra units you can sell. For non-oversold lines, this is the total savings from not needing to run the line.
- The **Default Manufacturing Variation** is the average variation between what was planned to be produced and what was actually produced on the line. This will be used for Wheel design and inventory simulation within QAD Advanced Scheduling's [Product Wheel Designer on page 35](#), unless overridden by a material-specific manufacturing variation (see [Maintain Materials on page 111](#) for more information on material-specific manufacturing variation).
- Other inputs in this window above the schedule Adherence section are **Line Attributes** belonging to the line type selected.
- **Quantity Tolerance** is a field used in production schedule achievement reporting that allows you to set an acceptable quantity tolerance for orders, expressed as a percentage, creating alerts if the completed quantity is less than the scheduled quantity minus the tolerance or greater than the scheduled quantity plus the tolerance.
- **Timing Tolerance** is a field used in production schedule achievement reporting that allows you to set a time tolerance for order completion, creating alerts if the order is completed earlier or later than the order's due date and time, plus or minus the tolerance.

Production Line Types and Attributes

Production line types and attributes are both created and maintained from the **Sites** page under the **Setup** header in QAD Advanced Scheduling's left side menu. For more detailed information, see the work instruction [Maintain Line Types and Attributes on page 93](#).

Line Attributes

To create or maintain line attributes, click **Line Attributes** at the top of the screen.

Next, click **Create** at the top of the screen to create a new attribute. If you want to edit a preexisting attribute, click **Edit** in the right "Actions" column of an attribute's entry instead.

In the window that opens, enter the **Name** of the attribute, and select the **Type** from the options "Operating-mode", "Number", "Text", "Picklist", and "Boolean".

Create an Attribute

×

* Name

* Type

Save

Cancel

Click  in the right "Actions" column of an attribute's entry to delete it.

Line Types

To create or maintain line types, click on **Line Types** at the top of the screen.

Next, click **Create** at the top of the screen to create a new line type. If you want to edit a preexisting line type, click **Edit** in the right "Actions" column of a type's entry instead.

In the window that opens, enter the **Name of the Line type**. Select the user-created line attributes to be included in the type, if any.

Create a Line Type



* Name of Line Type

Attributes

Select an attribute



Save

Cancel

Click  in the right “Actions” column of an attribute’s entry to delete it.

Line Groups

Line groups allow the flexible creation of scheduling views containing related lines and resources to provide a view of their interaction. The planner can jump between the lines in a line group and schedule any of them. For example:

- A line group could be created to show several lines with similar capabilities.
- A line group could contain the upstream lines that make intermediate products and the downstream lines that consume them.
- A line group could be created to show staffing requirements on a group of production lines and warn when staffing is over or under utilized.
- A line group could be created to show a production resource or tool (e.g. things like forming units, cutters, packaging units, or washout stations) that must be shared between multiple production lines, and conflicts when too many of the resources or tools are required.

This is a brief overview. For more information, see the work instructions [Maintain Resources on page 101](#) and [Maintain Line Groups on page 104](#).

Line groups are created or edited on a specific site's page. Select "Sites" under "Setup" in the left-side menu, and then select the site you wish to create the line group in.

To create a new line group within a site, click on the "Create Line Group" button. The button is at the top of the screen if the site has no line groups, and under the "Line Groups in [Site Name]" header otherwise.

To work on an existing line group, click on the "Details" button under the "Actions" column of the line group's entry:



Enter the information about the Line Group.

Create Line Group



* Line Group ID

Description

* GroupType

Members [Add Line](#)**Save**

Cancel

To delete a line group, click on the  button under the “Actions” column of the line group’s entry.

Resources

This is a short summary. For more information, see the work instruction [Maintain Resources on page 101](#).

To maintain resources, select “Sites” under “Setup” in the left-side menu, and then select the site of the resource.

To create a new resource within a site, click on the “Create Resource” button. The button is at the top of the screen if the site has no resources, and under the “Resources in [Site Name]” header otherwise.

To work on an existing resource, click on the “Details” button under the “Actions” column of the line group’s entry, and then “Edit” at the top of the page:

Actions



Enter information about the resource.

Create Resource ×

* Resource ID

Description

Save

Cancel

To delete an existing resource, click on the  button under the “Actions” column of the line group’s entry.

Calendars and Line Availability

Uptime in QAD Advanced Scheduling is the combination of availability and outages. These can be defined at the organization level, where they apply to all sites and lines, or they can be customized at the line level. To learn how to define availabilities and Outages, see the How-To article [Defining Line Availability on page 294](#).

In the example below, the line availability for the organization is on a five-day week, starting at 00:00 each morning and continuing for 24 hours.

Line Availability

+ Add Availability			
Description	Recurring	Summary	Actions
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00	Edit Delete

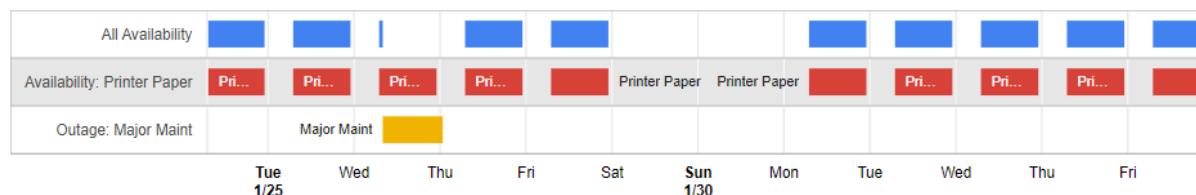
However, holiday outages have been scheduled to start on Sept 6 and Oct 11.

Outages

+ Add Outage			
Description	Summary		Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00		Edit Delete
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00		Edit Delete

Beneath the **Outages** section under the header **View** is a timeline of showing uptime, which is a combination of availability and outages.

View



The QAD Advanced Scheduling Process

The basic QAD Advanced Scheduling process is as follows. For more information, see [Scheduling on page 191](#).

- Review the current state of the line and manage exceptions.
- Import or create new production orders.
 - Orders can be imported from an ERP/MRP/Planning system or created in QAD Advanced Scheduling.
- Schedule the new orders.
 - QAD Advanced Scheduling has access to three automatic scheduling algorithms: Product Wheel scheduling, the Minimize Changeovers algorithm, and the Just in Time algorithm. If the user prefers manual scheduling, orders can be individually added to the schedule and scheduled to begin at a specified time.
 - If using Product Wheel scheduling, a Product Wheel must first be created. Reference the process outlined in the [Product Wheel Designer on page 35](#) section to learn more. Once a Product Wheel exists and Product Wheel Scheduling is selected, orders will be scheduled in the latest Product Wheel cycle that meets the order's due date. When capacity is insufficient in a cycle, orders will be advanced to earlier cycles.
- Review the schedule QAD Advanced Scheduling generates and any exceptions that have occurred.
 - Move/reschedule orders as necessary or desired. A variety of scheduling and adjustment tools and options are available in QAD Advanced Scheduling's scheduling menu. See [Scheduling on page 191](#) for more details.
 - If using Product Wheels and an order cannot be met while maintaining Wheel sequence, decide whether or not to break Wheel sequence and create an exception.
 - Select or enter reason codes for exceptions to document the action taken and provide data for process improvement.
- Export the schedule to the other systems and publish to the shop floor.

The QAD Advanced Scheduling Schedule List Window

This is what the QAD Advanced Scheduling schedule list window looks like.

Important information needed by the planners is visible:

- Product attributes (boxed in red)
- Setups/Changeovers (boxed in green)
- Status/Exceptions (boxed in blue)

☐ Order ID	Seq	Status	Material	Material Description	Color	Quantity	Due Date	Planned Start	Allergens	Sauce	Actions
☐ P029928	1:11	scheduled	1177	Product-1177-Description		8,000 Case	+ / - Feb 17, 00:00	Feb 09, 05:10	1,2,7	Lemon Sauce	Commit Unschedule ***
Changeover: Sauce (30ml) 2nd shift											
☐ P029927	1:14	scheduled	1176	Product-1176-Description		6,000 Case	+ / - Feb 17, 00:00	Feb 09, 12:20	1,2,7	Primavera Sau...	Commit Unschedule ***
Changeover: Height (10ml) 3rd shift											
☐ P029915	1:15	scheduled	1148	Product-1148-Description		1,000 Case	+ / - Feb 16, 00:00	Feb 09, 17:30	1,2,7	Primavera Sau...	Commit Unschedule ***

Scrolling vertically on the schedule allows you to see other scheduled orders in the same or upcoming production periods. Any unscheduled orders can be viewed by scrolling to the bottom of the window.

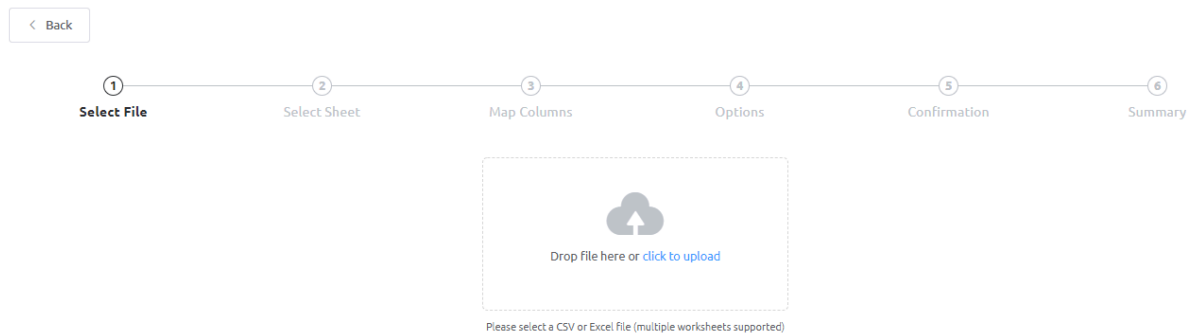
Scrolling horizontally on the schedule allows you to see additional product attributes, depending on what attributes have been assigned to each material in your QAD Advanced Scheduling organization.

Importing Data and Orders

See the article [Import Data on page 279](#) for a more detailed description of the import process. The process described can be applied to any of the available import options.

QAD Advanced Scheduling has a flexible import engine that can be used to import master data and transaction data.

All of the import functions use a common process that involves selecting a file, selecting a sheet within the file, mapping the columns in your spreadsheet to QAD Advanced Scheduling data, and confirming the import. A summary is created at the end.



The various types of data which can be imported into QAD Advanced Scheduling:

Import

Scheduling

Orders

Master Data

Materials

Material Line Data

Production Rates

Consumption Rules: BOM Items

Consumption Rules: Resources

Unit Conversion

Lines

Wheels

Supply Chain Transaction Data

All Demand and Supply Elements

Production Rates

This is a short summary. For more information, see the work instruction [Maintain Production Rate Rules on page 151](#).

Production rates are defined by rate rules. The rate rules can be broad or narrow; they can apply to all lines, a specific line, a filter for a group of similar lines, a material, or any combination of these entries. When QAD Advanced Scheduling needs to pick which production rate to apply, it will automatically select the most specific rate rule available.

If the rate rules are broad, and only defined by organization or by line, it may be easy to create them directly in QAD Advanced Scheduling. However, if the rates are specific to materials or combinations of materials and lines, they are best imported from a file using the import feature (see the How-To article [Import Data on page 279](#) for more information on the import process).

Production Rate Rules

+ Create Rule ± Export Production Rates ± Export All Rates (Advanced) Q Select a material to filter by Advanced Filter Material type: All Material Types Line: All Lines										
Type	Line (Site)	Line Filter	Material	Material ...	Rate	Efficiency	Fixed Duration	Start Date	End Date	Actions
Line Default	Sauce 1 (Middletown)				105 kg per minute					Edit
Line Default	Pasta 1 (Middletown)				50 kg per minute					Edit
Material Default			1001	ACME SP ...	20 Case per minute					Edit
Material Default			1001	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1001Z	New versi...	33 Case per minute					Edit
Material Default			1002	ACME ASL...	20 Case per minute	100%				Edit
Material Default			1003	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1004	Product-1...	7.6 Case per minute					Edit
Material Default			1005	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1006	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1007	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1008	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1009	ACME SP ...	20 Case per minute	100%				Edit
Material Default			1010	Product-1...	7.6 Case per minute					Edit
Material Default			1011	ACME SP ...	20 Case per minute	100%				Edit

Changeovers

This is a short summary. For more information, see the work instruction [Maintain Changeovers on page 144](#).

Changeovers in QAD Advanced Scheduling are defined by flexible, attribute-based *rules*. The primary elements involved in changeover rules are as follows:

1. **Name.** The name of a changeover in QAD Advanced Scheduling is important because it ensures that users are able to clearly define and later reference the circumstances under which the changeover occurs. Using more specificity rather than less in a changeover name is usually beneficial. For example, a changeover named “3.5mm thread to 2.5mm thread, 1in diam” is likely a more informative and useful name than “cap thread” when the changeover occurs at a site which manufactures beverage bottles.
2. **Rule Type.** You can choose from a list of different Rule Types available in QAD Advanced Scheduling. The Rule Type of a changeover determines what attributes/information QAD Advanced Scheduling will observe to identify when the changeover should apply. The various Rule Types are: Combination, Contaminant Clean, Default, Line Mode Change, Material Attribute Changed, Order Attribute Changed, Periodic, and Simple. These types will be covered in more depth in the work instruction [Maintain Changeovers on page 144](#).
3. **Time in Minutes.** This is the primary “cost” of the changeover - the amount of downtime a line will incur during the changeover.
4. **Additional Costs.** In addition to time lost, changeovers may incur scrap, cleaning materials, labor, or other costs.
5. **Priority.** QAD Advanced Scheduling assigns a priority value to its changeovers when they are established. The automatic priority value is based on the time cost of the changeover as well as any additional monetary costs, associated resource requirements, and the attributes/circumstances the changeover governs. QAD Advanced Scheduling uses the priority value of a changeover to determine which changeover will occur in circumstances where multiple non-additive changeovers are called for. It is possible to manually set a priority value for a changeover as well, allowing the user to ensure that certain changeovers are treated appropriately even despite lower numerical significance.

Periodic Changeovers

Periodic changeovers behave differently than changeovers with the other rule types. These changeovers are not related to the product changes on the line, but rather to the run time on the line. If such rules

are created, QAD Advanced Scheduling will create regular periodic changeovers inside the schedule with required periods. Examples of periodic changeovers are:

1. Regular inspection, cleaning, and lubrication.
2. Periodic thorough cleaning/washout regardless of the products being produced.

For more information on periodic changeovers, see [Scheduling Periodic Changeovers on page 233](#).

Additive Changeovers

By default, changeovers are assumed to occur in parallel. When two or more changeovers occur at the same time, the system will use the highest time, cost, or priority. *Additive changeovers* are an advanced option related to changeovers, but because they serve an extremely valuable function it is worth mentioning them as a fundamental part of changeover configuration. Marking a changeover as additive will allow QAD Advanced Scheduling to append the changeover to the end of any other changeover. For example, consider a fictional can production plant. In this plant, the machinery responsible for sealing cans with the appropriate lid can only be affixed to lines once all other line elements are properly configured. Thus, lid changeovers will always be represented when lid type changes - they **must** occur **after** any other changeovers. The lid changeover can be marked as additive in QAD Advanced Scheduling, which enables QAD Advanced Scheduling to call for the changeover even when a larger changeover is also called for at the same time.

Product Wheel Designer Overview

This is a short summary. More detail can be found in the [Product Wheel Designer on page 35](#) section.

QAD Advanced Scheduling's Product Wheel Designer is a sequential approach to designing an operating strategy to meet your organizational objectives. Every organization must balance the trade-off between three essential elements of strategy:

- Customer service
- Inventory
- Operating efficiency

QAD Advanced Scheduling uses a consistent data structure and set of master data throughout the design and scheduling process so that you can be confident that the operating strategy is achievable.

Through each step in the design process, algorithms and simulations are running in the background to calculate optimum production frequencies for each product, resulting changeover and efficiency impact, inventory required, and the total costs of the operating strategy.

The QAD Advanced Scheduling Product Wheel Designer takes you through the following steps:

1. **Setup:** Select organizational objectives; collect the data on customer service goals, cost of goods sold, and production and sales variability; choose the lines and materials to include in the design; validate the master data.
2. **Characteristics (QAD Advanced Scheduling Material Attributes):** Select the product characteristics (known as Material Attributes) that relate to changeovers and operating efficiency; sort these by importance; define an ideal sequence for all products assuming infinite capacity and no time constraints.
 - a. While the ideal sequence may not be executable in practice, it sets a benchmark for the remainder of the design process, and sections of the ideal will be used to sequence product families and individual production lines.
3. **Families:** Define product families based on material characteristics; outline a best sequence in which these families could be run; decide what order you actually want to run the families in.
4. **Allocation:** Allocate families and then products to production lines, with a view of products that will run well together, the capacity required to run each product, and the total capacity available on each line.
5. **Design:** Establish a per-line ideal sequence; calculate run frequencies and quantities to optimize efficiency, setting these values according to your cost/cash/service goals; allocate production to the cycles of

the Product Wheel; and make final changes to the Product Wheel sequence based on your knowledge of your scenario.

6. **Review:** Visualize the Product Wheel you've created, along with a broad range of other relevant data such as capacity utilization, inventory levels, and more.

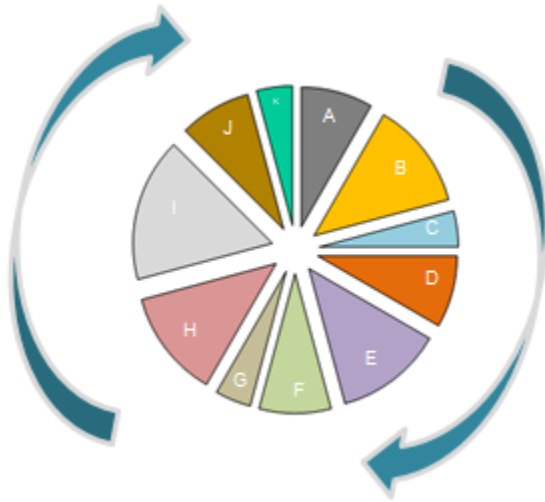
For an in-depth walkthrough, see [Product Wheel Designer on page 35](#).

Product Wheels

The Product Wheel Concept

- In brief, a Product Wheel is a regularly repeating sequence of production.
 - Product Wheels are comprised of one or more cycles. Each cycle takes some amount of time, expressed in days or weeks. When production is scheduled according to a Product Wheel, production will follow the Wheel's sequence, proceeding through each cycle, until all cycles are complete. The Wheel then repeats.
 - Cycle 1 → Cycle 2 → Cycle 3 → Cycle 4 → Cycle 1
- A Product Wheel provides a sequence of production for a designer-selected set of products for **one production line**. In other words, you will need 3 separate Product Wheels to acquire production sequences for 3 production lines.
- Product Wheels can be matched to business strategy by adjusting various elements of the Wheel Design. For example:
 - Short lead time, low inventory, and high responsiveness.
 - Optimize inventory, cost, and efficiency.
 - Maximize production efficiency and minimize capital investment.
- Additionally:
 - The Product Wheel is run as a pull system.
 - Low volume products may not be made on every cycle, which avoids unnecessary changeovers.
 - Make to order and make to stock items can be intermixed - the Wheel designer can adjust frequency of a material's appearance across Wheel cycles based on known or predicted demand.

Figure 1. Example of a Single-cycle Product Wheel



In the above image, each “slice” of the circle represents a material being produced. The sequence thus proceeds from A to J, with changeovers occurring between, and idle time represented by the final “.” slice.

Product Wheel Benefits

- Many businesses have successfully implemented Product Wheels.
 - On average, companies achieve a 15%+ improvement in efficiency by using Product Wheel sequencing.
 - The efficiency increase can be used in many ways to bring the benefit to the bottom line:
 - Capacity without investment.
 - Improved customer service.
 - Preventive maintenance.
 - Process improvement.
 - Reduced overtime.

Product Wheel Designer

Overview

Product Wheels balance the costs of transitions between products (typically dependent on the sequence of the products) and the cost of carrying inventory. QAD Advanced Scheduling provides algorithms that guide the user to setting up Product Wheels that minimize these costs by:

- Finding sequences of products that minimize transition costs
- Putting products into families that require minimum transition costs between family members
- Assigning family members to production facilities that keep transition costs low while recognizing capacity constraints
- Calculating the cost of cycle stock inventory based on how often and how much product is made. (The cost of carrying safety stock also adds to the annual inventory cost calculation.)
- Assigning run lengths and run frequencies that balance the costs of transitions with the costs of holding inventory
- Calculating the safety stock required to maintain target customer service levels

Tip This Product Wheel description assumes that most master data has been created in QAD Advanced Scheduling. To learn about creating the various pieces of master data in QAD Advanced Scheduling, please see the [Master Data on page 69](#) section.

Wheel Setup

Click on **General > Wheels** in the left-side menu to go to the **Wheel Setup** page. You will see alerts for how many lines in the organization do and do not have an active Wheel, entries for all current Wheel sessions in the organization, and a summary of all past, current, and future Wheel activations.

QAD ACME Frozen Foods (Sandbox) Matt Jones

GENERAL

- Schedules
- Production
- Capacity
- Inventory
- Plan to Make
- Automations
- Forecast
- Wheels**
- Import

SETUP

- Organization
- Sites
- Materials
- Production Rates
- Changeovers
- Units of Measure

DOCUMENTATION

Copyright © 2024 QAD Inc. All rights reserved.

Wheel Setup

4 lines have wheels
10 lines without a wheel

[+ Start New Session](#) [+ New Session from Current Wheels](#)

Filter: **Activated and In-Progress**

Description	Status	# Lines	# Materials	Date Created	Last Updated	Actions
sauce 2	Review	1	12	Nov 19, 2024 - 12:08	Nov 19, 2024 - 12:08	View > More Actions >
7 Day Line 3, 100% Efficiency, Lower Case Fill Rates	Review	3	96	Feb 08, 2022 - 10:31	Aug 04, 2024 - 18:26	View > More Actions >
5 Day at 120% Efficiency, 98% Fill	Review	3	96	Feb 08, 2022 - 07:02	Aug 04, 2024 - 18:26	View > More Actions >
5 Day at 100% Efficiency, 98% Fill	Active	3	96	Jul 08, 2021 - 18:03	Nov 19, 2024 - 13:01	View > More Actions >
7 Day Line 3, 100% Efficiency	No Longer Active	3	96	Nov 19, 2020 - 11:06	Aug 04, 2024 - 18:26	View > More Actions >
Pasta	Active	1	22	Sep 20, 2020 - 08:39	Aug 04, 2024 - 18:26	View > More Actions >

Wheel Activations

Filter by type: **All** Filter by area: **All**

Line ID	Becomes Active At	Wheel	Wheel Session	Start on Cycle	Activation Updated	Activation Created	Actions
Frozen1	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	Edit Remove
Frozen2	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	Edit Remove
Frozen3	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	Edit Remove
Pasta_1	Dec 05, 2021 - 11:58	1 cycles of 1 days	Pasta	Cycle 1	Dec 05, 2021 - 11:58	Dec 05, 2021 - 11:58	Edit Remove

In order to utilize Product Wheels, you will first have to design one or more Wheels in a “Wheel Session”. This is simply the name for the process of designing the Product Wheel in QAD Advanced Scheduling.

Pressing the “Start New Session” will begin a new Wheel Session, beginning with a window in which you can name the session:

Wheel Session



Please describe this session

Cancel

OK

If you want to work on an existing session, click the “View” button to the right of the named session. You will be taken to the most recent screen of the Wheel Session that was being worked on.

Roadmap to Building a Product Wheel

QAD Advanced Scheduling guides you through the process of designing one or more Product Wheels. Once you’ve established the session you will be taken to the first step of the Product Wheel design process, and you can see a timeline outlining the process near the top of the screen. The timeline displays the “phases” of the process, and hovering over a phase will open a list of the steps in that phase. You can use the timeline to navigate the process, both forwards and backwards, by clicking on a step of your choice. However, you can proceed through the process in

the intended order by using the button with the “>” indicator as well as the name of the step you’ll be navigating to. Once a step is complete, it will be colored green to indicate that fact. Finally, users may stop the process anywhere and return later to the step they know needs to be updated.

Units and Limits: Test



Product Wheel Design Phase Overview

During “Setup”, the user inputs/reviews and organizes data used for calculating changeover costs and inventory carrying costs. Products (“materials”) have “characteristics” such as special contents, requirements for processing (people and equipment), physical properties, etc. that must be changed or eliminated (cleaned) from the production line during a product change. The user also picks what materials and lines should be considered in the Wheel session (e.g., what products to make a sequence for and which lines those sequences apply to) in the Setup phase.

In the “Characteristics” phase the user ranks the relative importance (“priorities”) of attributes of the products chose in the Setup phase. In this case, “importance” generally refers to how impactful the attributes are on production efficiency - in other words, how impactful they are on changeovers. You also utilize QAD Advanced Scheduling’s “minimize changeovers” algorithm in the “Set Ideal Sequence” step to obtain a “perfect world” sequence for the products you chose to involve in the Wheel design session. This “perfect world” scenario assumes that all products are to be run on a single line with infinite capacity; this allows QAD Advanced Scheduling to generate a “best target” for efficiency which, although nearly impossible to achieve, lets it make intelligent decisions on how to get as close to the “best target” as possible. It is in this phase that the EPQ annual cost (Economic Production Quantity) is calculated. Campaign lengths (and cycle stock) are set using the EPQ equation for each product. Safety stock is calculated using QAD Advanced Scheduling’s simulation and optimization algorithms.

The “Families” phase involves creating groups of materials that run well together. Such groups often have naturally lower changeover costs because the materials in the group possess similar attributes and therefore don’t require as intensive changeovers. Not all materials must be a part of a material family. Once material families are established, QAD Advanced Scheduling then maps out an ideal sequence based on material families rather than individual materials. Just like the earlier, “perfect world” ideal sequence, the family ideal sequence is implicitly run on a single line and has no capacity constraints. In the next step the user is asked to determine what sequence families should actually run

in. This offers users the chance to make any changes to the family ideal sequence that may be based on real-world knowledge rather than on data.

Next is the “Allocation” phase. This phase is where the materials selected for the Wheel design session are assigned to one of the lines that has been selected for the Wheel design session. Users first assign families to lines, then any remaining individual materials to lines. QAD Advanced Scheduling will only allow a material to be assigned to a line if the material has a compatible run rate for that line. Additionally, the tool shows users how much capacity is being used on each line during these steps to help the user make more informed allocation decisions.

The last phase, “Design”, is the phase in which users can make in-depth choices about what they want to accomplish with their Product Wheels. First is the creation of a “line ideal sequence”. Much like the earlier ideal sequences, this step aims to minimize changeovers; however, at this point, QAD Advanced Scheduling creates a per-line ideal sequence, recognizing the materials that were allocated to each line and the capacity constraints of each line. Afterward comes the Frequencies and Wheel Length step. This step is where the user determines the duration of the Product Wheel is for each line, in weeks or days, depending on the choice of time unit. Bearing in mind that each line’s Product Wheel is made up of a number of cycles, the user can view the materials in a Wheel for one line and choose how often the Wheel’s sequence will call for a material to enter production. Setting a material to run every cycle will involve more frequent changeovers related to that material, but will keep inventory lower and stable. Setting a material to run every 4 cycles will offer a reduction in changeovers, but it will have higher and more variable inventory. The user must consider their demand and production circumstances, and then set a frequency for every material on each line in the Wheel design session. After making these choices, the user needs to decide in which cycle of a Wheel a material is first produced. In concert with the production frequency, this determines the rhythm of production for a material. For example, if a Product Wheel for a production line has 4 cycles, and each cycle is one week long, then a material could begin in cycle 1, 2, 3, or 4. If the material is a 1 week frequency, then no matter which cycle it begins in it will run in all cycles; but if the material is a 2 week frequency, then it will only run in every other cycle. Thus, starting it in cycle 1 will mean it is only ever produced in cycles 1 and 3. Choosing which cycle a material is allocated to can help manage capacity, as you can try to begin materials in different cycles so that production remains as consistent across weeks as possible, regardless of what materials are actually being made in a given week. Finally, QAD Advanced Scheduling gives users the chance to make any final adjustments to the Product Wheels that have been designed. The user can change the sequence to their liking, using their production scenario expertise to tweak the Wheels further toward their goals.

Annual Cost Calculations

QAD Advanced Scheduling provides internal cost calculations during the Wheel design process. Cost calculations are shown in the upper right

ACTIVE: Wheel Sequence: 5 Day at 100% Efficiency, 98% Fill

< Allocate Materials to Wheel Cycles Review >

	EPQ Q	Family Assigned Q	Line Assigned Q	Sequence Assigned Q
Annual Cost	\$4,334,356	\$4,577,852	\$4,291,825	\$5,087,780
Average Inventory	553,935 Case	599,447 Case	534,892 Case	600,469 Case
	10.2 days	11 days	9.8 days	11 days

Setup ✓

Characteristics ✓

Families ✓

Allocation ✓

Design ✓

Review ✓

Annual Costs - info

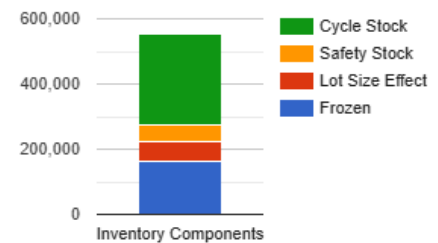
The annual costs shown are calculated as the user progresses through the Product Wheel designer steps. Calculations change as the analysis get progressively more detailed. Each cost has a “magnifying glass” icon next to it. Hover the mouse on this icon to see a window with detail about the cost calculation (shown below):

Simulation Results

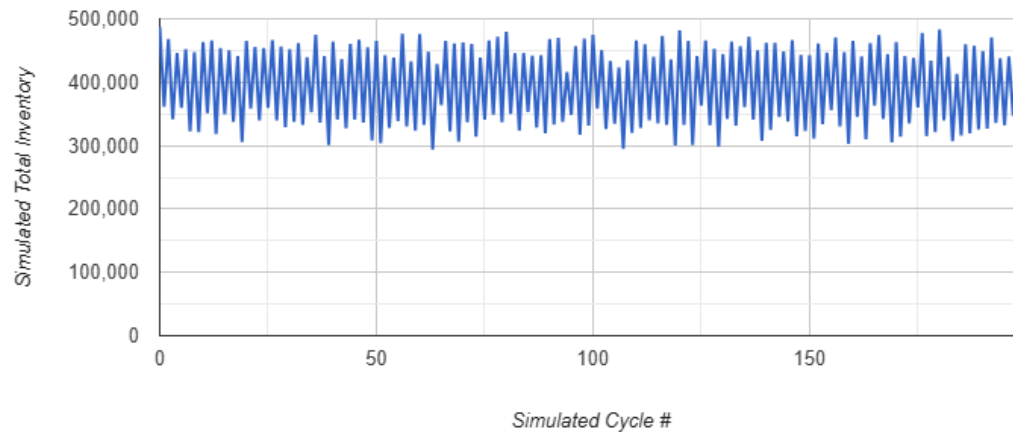
The **EPQ** simulation uses the ideal sequence as configured in the **Characteristics** section in order to estimate changeover costs as if all materials are produced on a single continuous sequence. EPQ is used to calculate frequency.

Cost of Carrying Available Inventory	\$1,935,855
Cost of Carrying Frozen Inventory	\$818,464
Cost of Changeovers	\$1,580,037
Total Cost	\$4,334,356

Safety Stock	0.9 days	51,140 Case
Cycle Stock	5.1 days	278,903 Case
Lot Size Effect	1.1 days	60,821 Case
Frozen Inventory	3 days	163,071 Case
Average Inventory	10.2 days	553,935 Case



P95 Available Inventory	472,424 Case



[Download Details](#)

These details can also be exported to an Excel file by clicking on "Download Details" in the window.

Wheel Setup and Wheel Sessions

The Wheel Setup page allows you to review your current Wheel designs in a given organization. Think of them like scenarios, where you can have active and inactive versions. Note that there are filtering options to find sessions in different stages: activated and in-progress, activated, in-progress, and archived.

Wheel Setup

4 lines have wheels

10 lines without a wheel

+ Start New Session

+ New Session from Current Wheels

Filter: **Activated and in-Progress**

Description	Status	# Lines	# Materials	Date Created	Last Updated	Actions
7 Day Line 3, 100% Efficiency, Lower Case Fill Rates	Review	3	96	Feb 08, 2022 - 10:31	Nov 16, 2023 - 10:05	View More Actions
5 Day at 120% Efficiency, 98% Fill	Review	3	96	Feb 08, 2022 - 07:02	Oct 16, 2023 - 13:31	View More Actions
5 Day at 100% Efficiency, 98% Fill	Active	3	96	Jul 08, 2021 - 18:03	Nov 17, 2023 - 09:09	View More Actions
7 Day Line 3, 100% Efficiency	No Longer Active	3	96	Nov 19, 2020 - 11:06	Sep 19, 2023 - 10:47	View More Actions
sauce	No Longer Active	1	12	Sep 20, 2020 - 08:59	Sep 19, 2023 - 10:49	View More Actions
Pasta	Active	1	22	Sep 20, 2020 - 08:39	Sep 19, 2023 - 10:49	View More Actions

Wheel Activations

Filter by type: **All**

Filter by area: **All**

Line ID	Becomes Active At	Wheel	Wheel Session	Start on Cycle	Activation Updated	Activation Created	Actions
Frozen1	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	⌵ Edit 🗑 Remove
Frozen2	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	⌵ Edit 🗑 Remove
Frozen3	Jul 13, 2022 - 00:00	4 cycles of 7 days	5 Day at 100% Efficiency, 98% Fill	Cycle 1	Jul 12, 2022 - 13:40	Jul 12, 2022 - 13:40	⌵ Edit 🗑 Remove
Pasta1	Dec 05, 2021 - 11:58	1 cycles of 5 days	Pasta	Cycle 1	Dec 05, 2021 - 11:58	Dec 05, 2021 - 11:58	⌵ Edit 🗑 Remove

When you have completed a Wheel design, it can be activated immediately (provided there are no orders scheduled at the time of activation) or activated on a future date.

To begin a new Wheel design, there are two options: start a new or blank session, or start an editable copy of one of the current Wheels.

The View button will allow you to explore any of your Wheel session.

The More Actions button will open a list with the following options:

View

Update Description...

New Version

Create Copy...

Archive

Recalculate Saved Values

Compare...

- Viewing the Wheel design, beginning at the last step that was being worked on.

- Updating or changing its description.
- Creating a new version. This choice will archive the old version of the Wheel design, copy it, and allow you to make changes to the copy.
- Creating a copy will create a copy, but without archiving the original version. You can choose to keep the original version while making changes, and activate the new version when ready.
- Archiving a Wheel session removes it from the displayed list, although it can still be viewed by using the filter by type to select archived Wheels.
- Recalculate saved values updates your Wheel design when the master data that it is based on changes in production. At a minimum it will result in recalculating the inventory simulation, and the production frequency recommendations may change. Changes to things like attributes, changeover times, run rates, and materials could require re-defining families, redefining the ideal sequence, and reallocating products to lines and cycles.
- Compare data from two completed Wheel sessions to each other.

Wheel Activations

The lower panel shows which Wheel sessions are active and the dates of activation. Activations can be edited or removed.

Editing will allow you to change the start or activation date, and the first cycle:

Activate Wheels

×

Activate Cycles On Date

2022-07-13

Start on Cycle

Cycle 1

Save

Cancel

Setup Phase

The Setup phase is where you input essential Product Wheel-related information that is not covered in the general information brought in elsewhere.

Select Units and Limits

The screen shown below is the Select Units and Limits step. Wheels are developed using the following input data:

- **Base Frequency unit (day or week):** Choose whether to use days or weeks as the time unit for wheel design. Your choice should match the shortest expected repetition period. If you expect to run the same product more than once within a week, days may be the best choice. If production frequencies are normally expressed in weeks (produce every week, every two weeks, every four weeks, etc.) then weeks may be the best choice.
- **Planning lead time (days).** This value is used during the inventory simulation to recognize that the time at risk includes the production cycle plus the time required to plan production and order components.
- **Frozen inventory time (days).** This value accounts for inventory that has been produced but is not available to cover customer orders, for example, quality inspection, microbial tests, or handling lead time to stage the product for shipment.
- **Annual inventory carrying cost (percentage):** note that this value is multiplied by the COGS (Cost of Goods Sold) for each product (finished or semi-finished) to calculate the cost of holding a unit of inventory. The value will be used to recommend cycle lengths that minimize overall cost by balancing changeover losses with inventory carrying costs. A higher holding cost will recommend shorter production cycles, and smaller values will recommend longer cycles.
- **Fully loaded cost of runtime (dollars/minute).** Setup times (discussed later) are calculated and then multiplied by this value to calculate setup costs. Note that this runtime cost will be applied to all lines chosen during the upcoming Select Lines step.

Units and Limits: Example Wheel Session

Select Lines >

1 Setup 2 Characteristics 3 Families 4 Allocation 5 Design Review

Base frequency unit: Day Week

The planning lead time is about: 3 days

The frozen inventory (goods receipt or quality time) is about: 0 days

The annual inventory cost of carry is about: 25 %

For a line, the fully-loaded cost of runtime is about: \$ 20 per minute

The unit of measure for inventory is: case

Amount of inventory space available: 0 (No limit set)

Default Coefficient of Variation: 20 % based on period: month

Default Manufacturing Variation: 20 %

Operating Efficiency: 100 %

The default desired fill rate for orders is: 99 %

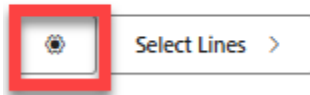
Automatically reduce estimated changeover time based on: ☐ likelihood of production

- Enter the primary unit of measure for inventory. Note that this unit is used later on when assigning a production rate.
- When there is an overall limit on inventory cost or space, you may enter the maximum amount, expressed in the base unit of measure. This will make the limit visible during the design process and when reporting the Wheel design's statistics. It can be used to optimize for cycle lengths that will fit within the available inventory.
- Default coefficient of variation for the forecast error and the period on which the forecast values and coefficient of variation are based. The coefficient of variation, or CV, is a nondimensional number, expressed as a decimal or percentage, equal to the standard deviation divided by the mean. It allows for comparing the demand variability of products with different demand levels.
- Default manufacturing variation in percent. Used in the inventory fill rate simulation, since the reliability of production execution will affect fill rates.
- Global efficiency of production for production governed by the Wheel(s). Used in the inventory simulation, products or lines with high production efficiencies will tend to be more reliable, and will have a different profile of variation than products with low production efficiencies.
- Target fill rate as a percentage of the quantity ordered.

Wheel session configuration

Note that it is possible to configure the session you are working in from the Units and Limits step by clicking on the “gear” button at the top of the screen.

Units and Limits: Example Wheel Session



When you select the gear button, the following screen will appear. It allows you to edit the Wheel session's description, recalculate saved values, or remove the session.

Wheel Group: Example Wheel Session



Description: Example Wheel Session

Created At: Nov 25, 2024 - 14:16

Status: Select Lines

Lines: 0

Materials: 0

Select Lines

The next step in the Setup phase is to select the lines to be included. Click the checkbox for the lines you wish to select, then press the Save button that appears at the top of the screen to confirm your choices. In Product Wheel design, you will allocate products to lines with a view of the capacity required, capacity available, and changeover losses. The set of lines you choose within a Wheel session should be capable of running similar products. For example, it would not make sense to mix lines that bottle liquids with lines that bottle tablets or capsules. A smoother process would be achieved with a Wheel session for the bottling lines and a Wheel session for the tablets and capsules.

Select Lines: Example Wheel Session

< Units and Limits

1
Setup ▼

2
Characteristics ▼

3
Families ▼

4
Allocation ▼

5
Design ▼

Review

0 lines selected

Types:

All ▼

Sites:

A

☐	Name	Type	Site	Description
☐	Can1	Can	Middletown	Canning Line 1
☐	Can2	Can	Middletown	Canning Line 2
☐	Can3	Can	Middletown	Canning Line 3
☐	Dry1	Dry	Middletown	Dry packaging line 1
☐	Dry2	Dry	Middletown	Dry packaging line 2
☐	Dry3	Dry	Middletown	Dry packaging line 3
☐	Dry4	Dry	Middletown	
☐	Dry5	Dry	Middletown	
☐	Dry6	Dry	Middletown	
☐	Frozen1	Frozen	Middletown	Frozen packaging 1
☐	Frozen2	Frozen	Middletown	Frozen packaging line 2
☐	Frozen3	Frozen	Middletown	Frozen Packaging Line 3

Line Availability

After the Select Lines the next step is the Line Availability. By default, Wheel designs are based on the average current availability from each line's calendar. However, when you anticipate changes in line availability or want to test scenarios with different line availability, you can customize or create new availabilities for use only in a given Wheel design session. This process is similar to creating availabilities during organization setup. You can choose whether to edit or customize a default availability that will apply to all lines, or to customize the availability for each individual line.

Select Materials

Next is the Select Materials step. You must choose which materials will be included in the Product Wheels. Make sure to select only materials which can run on the lines you selected in the Select Lines step! You can utilize filters on this page to more easily find the materials you want to select. Simply select the materials you wish to include in the Wheel session by clicking the corresponding checkboxes. Once you have selected all the materials you want to include, remember to press the Save button that will appear at the top of the screen to confirm your choices.

Select Materials: Example Wheel Session

[< Line Availability](#)
[& Attributes](#)
[Select Components >](#)

① Setup ▾ ② Characteristics ▾ ③ Families ▾ ④ Allocation ▾ ⑤ Design ▾ Review

31 materials selected.

Types: Frozen ▾ [Advanced Filter Q X](#)

Material	Color	Default Line	Material Description	Material Type	Min. Order Amo...	Order Amount L...	Max. Order Amo...	Max Inventory L...	Safety Inventory...	Meat	Pasta
☒	1001	Frozen1	ACME SP NONE NONE MTS NR...	Frozen	2,000 Case	1,000 Case		1,411 Case	495 Case	Pork	None
☒	1002	Frozen1	ACME ASIAN BLND MTS MED ...	Frozen	2,000 Case	1,000 Case		2,735 Case	106 Case	Pork	Blend
☒	1003	Frozen1	ACME SP RED S NONE MTS W...	Frozen	2,000 Case	1,000 Case		5,659 Case	1,044 Case	Lamb Beef	None
☒	1005	Frozen1	ACME SP SPECI BRN RICE MTS ...	Frozen	2,000 Case	1,000 Case		8,073 Case	1,433 Case	Lamb	Brown
☒	1006	Frozen1	ACME SP BUFFA ELB MTS MED ...	Frozen	2,000 Case	1,000 Case		9,935 Case	2 Case	Pork	Elbow
☒	1007	Frozen1	ACME SP SPECI BRN RICE MTS ...	Frozen	2,000 Case	1,000 Case		11,576 Case	3,036 Case	None	Brown
☒	1008	Frozen1	ACME SP PRIMA FETT MTS NR...	Frozen	2,000 Case	1,000 Case		13,892 Case	1,270 Case	None	Fettua
☒	1009	Frozen1	ACME SP PRIMA FETT MTS ME...	Frozen	2,000 Case	1,000 Case		15,066 Case	1,029 Case	Pork	Fettua
☒	1011	Frozen1	ACME SP RED S FETT MTS WDE...	Frozen	2,000 Case	1,000 Case		17,218 Case	1,266 Case	Lamb	Fettua
☒	1014	Frozen1	SS CAN SPECI FRD RICE MTO N...	Frozen	2,000 Case	1,000 Case		1,411 Case	0 Case	None	Fried
☒	1017	Frozen1	ACME SP ALFRE NONE MTS ME...	Frozen	2,000 Case	1,000 Case		2,735 Case	914 Case	Lamb, Beef	None

Select Components

In this step we can assign resources or component materials that will be consumed during Product Wheel-governed production. Such resources or components defined here will be visible in later steps.

Select Components: Example Wheel Session

[< Select Materials](#)
[Material Data Completeness >](#)

① Setup ▾ ② Characteristics ▾ ③ Families ▾ ④ Allocation ▾ ⑤ Design ▾ Review

You can optionally choose **critical components and resources** to be visible in your wheel design. Selected items will be visible as columns on other steps.

[Add Component or Resource](#)

Q ⊞

Material Data, Changeover Rule, and Production Rate Completeness

Before completing the Setup phase users have an opportunity to make sure that other data relevant to Product Wheel design is accurate and complete. Three steps in the Setup phase cover this process: Material Data Completeness, Changeover Rule Completeness, and Production Rate Completeness. In brief, each of these steps will tell you what information is established in QAD Advanced Scheduling. You can check that information to see if everything necessary is in place, and can even make some updates from these steps.

In the Material Data Completeness step, the various types of data required to construct a Product Wheel are checked and listed. A green symbol to the right indicates that all materials selected have specific data entered on an individual basis. A yellow warning symbol indicates that some or all of the materials do not have individual values entered, and the default value will be used. For example, it's common to use defaults

for the inventory holding cost percentage and manufacturing variation. A red symbol indicates that one or more materials lack specific and default data. You may still choose to proceed, but some calculations will not be performed.

Material Data Completeness: Example Wheel Session

< Select Components
Import Material Data
Changeover Rule Completeness >

1 Setup
2 Characteristics
3 Families
4 Allocation
5 Design
Review

The following information is needed to design Product Wheels. By the way, you can load additional or more accurate information at any time. Legend:

- These fields have material-specific values.
- Provide these values to customize the defaults provided earlier in the Setup section.
- Provide these material fields before continuing as they are essential to the design.

Material Fields: [Export Missing Data](#)

Forecast - for estimating capacity requirements of each SKU	100%
Cost of Goods Sold (COGS) - for computing optimal production period	100%
Production Rate - for calculating capacity requirements	100%
Frozen Inventory Time (goods receipt or quality time)	0%
Manufacturing Variation	0%
Max. Order Amount	0%
Inventory Carrying Cost	100%
Forecast CV (coefficient of variability)	100%
Customer Order Lead Time	100%
Planning Lead Time	100%
Plant Shelf Life	100%
Target Fill Rate	100%
Min. Order Amount	100%
Order Amount Increment	100%

In Changeover Rule Completeness, any changeovers related to the lines or materials selected for the Wheel session are included. You can check them to make sure that they are accurate or make edits to the changeover rules.

Changeover Rule Completeness: Example Wheel Session

< Material Data Completeness
Modify Changeover Rules
Production Rates Completeness >

1 Setup
2 Characteristics
3 Families
4 Allocation
5 Design
Review

Please ensure that changeovers rules for the lines are present. [Click here](#) to modify.

Name	Priority (Highest Applies)	Rule Type	Cost	Time for Wheel Design	Resource Used	Attribute
Allergen Clean	10.00	Contaminant Clean	240 mins	240 mins	N/A	Allergens
Sauce	9.00	Material Attribute Changed	30 mins	30 mins	N/A	Sauce
Width	8.00	Material Attribute Changed	20 mins	20 mins	N/A	Width group
Height	7.00	Material Attribute Changed	10 mins	10 mins	N/A	Height group
Sauce 48 Hour Sanitization	6.57	Periodic	60 mins	60 mins	N/A	Not attribute controlled
Pasta Kitchen	6.00	Material Attribute Changed	30 mins	30 mins	N/A	Pasta Type
Sauce Kitchen	6.00	Material Attribute Changed	20 mins	20 mins	N/A	Sauce Base

Production Rates Completeness displays all production rates related to the materials selected for the Wheel session. Similar to Changeover Rule Completeness, you can review the rates or edit them on this page.

Production Rates Completeness: Example Wheel Session

< Changeover Rule Completeness

⌂ Modify Rate Rules

Prioritize Columns >

1

2

3

4

5

Setup

Characteristics

Families

Allocation

Design

Review

Please ensure that rate rules for the lines and materials are present. [Click here](#) to modify.

Type	Line (Site)	Line Filter	Material	Material Description	Rate	Efficiency	Fixed Duration	Start Date	End Date
Material Default			1001	ACME SP NONE NO...	20 Case per minute				
Material Default			1001	ACME SP NONE NO...	20 Case per minute	100%			
Material Default			1001Z	New version of Pro...	33 Case per minute				
Material Default			1002	ACME ASIAN BLND ...	20 Case per minute	100%			
Material Default			1003	ACME SP RED S NO...	20 Case per minute	100%			
Material Default			1004	Product-1004-Descr...	7.6 Case per minute				
Material Default			1005	ACME SP SPECI BR...	20 Case per minute	100%			
Material Default			1006	ACME SP BUFFA EL...	20 Case per minute	100%			
Material Default			1007	ACME SP SPECI BR...	20 Case per minute	100%			
Material Default			1008	ACME SP PRIMA FE...	20 Case per minute	100%			
Material Default			1009	ACME SP PRIMA FE...	20 Case per minute	100%			
Material Default			1010	Product-1010-Descr...	7.6 Case per minute				
Material Default			1011	ACME SP RED S FET...	20 Case per minute	100%			

Characteristics Phase

After the Setup phase is complete you move on to the Characteristics phase. This is a short phase consisting of only 2 steps.

Prioritize Columns

In this step, using your knowledge of the production process, consider which attributes are most important. Rearrange the boxes representing the important attributes, bringing them to the left to make them easier to find. Your choices will carry over to the next step of evaluating the ideal sequence.

Prioritize Columns: Example Wheel Session

< Production Rates Completeness
Import Material Data
Ideal Sequence >

Setup
2 Characteristics
3 Families
4 Allocation
5 Design
Review

Prioritize material attributes that are most important to changeover cost, equipment capability, and are most important to production in general. For important attributes that are not loaded, please import or enter this data now.

40/40 columns selected.

Drag to reorder. Click to toggle on or off.

1: Allergens	2: Meat	3: Pasta Type	4: Sauce	5: Sauce #	6: Gluten Free	7: Brand	8: Division	9: Canadian	10: MTO/MTS	11: Total Shelf Life	12: Customer Shelf Life	13: Plant Shelf Life	14: Pallet Cs Ct
15: Heavy Blend	16: Rice	17: Contains Hard to Process material	18: Crew	19: Line Change Indicator	20: Width group	21: Height group	22: Extruder	23: Portable Mixer	24: Heavy mixer	25: Ribbon mixer	26: Sauce Mixing Stations required		
27: Equipment 1 needed	28: # Equip 2	29: Special Eq 1	30: Measured Drop	31: Second Measured Drop	32: Heavy Sauce	33: Light Sauce	34: Sprinkle topping	35: Hand Place	36: Special Eq 2	37: Water	38: Longest Leadtime		
39: Sauce Base	40: Business Importance												

Ideal Sequence

There are two ways to use this screen: self-guided, using nested graphical sorting, or a one-touch optimization to find the best sequence. Before taking any actions, note the *Summary* provided just above the sequence window. It displays how many minutes of changeovers occur in the present version of the ideal sequence and the cost of those changeovers.

Self Guided Optimum Sequence:

To use the self-guided method, hold down the shift key and select one or more column headers in sequence. The system will perform a nested graphical sort to find the most efficient sequence, given the priority of the attributes that you manually selected. Note that you don't need to move exactly from right to left or left to right. The numbers that appear show the sequence in which the graphical sort will be performed.

Important: you must save the resulting sorted sequence to calculate and display its changeover times and costs in the summary.

This manual process allows you to test and explore which attributes and combinations of attributes are important. It's often used in multi-functional meetings to generate ideas for changeover improvement and to understand the impact of product characteristics.

Automated Optimum Sequence:

The automated process can be executed by pressing the Minimize Changeovers button at the top of the screen. The system will find the best or least cost changeover path. This is a version of the Travelling Salesperson problem, which attempts to find the shortest route between a set of cities. The problem has been known for years to be difficult or impossible to solve. For that reason, for many products and attributes it may take the system some time to calculate a solution. **Remember to save the result to see the changeover time and costs in the summary.**

While the ideal sequence may not be executable in practice, since the products must be spread across multiple lines, it is a benchmark of cost, inventory, and service. The sequences you develop here will carry over as a starting point for the sequences on the individual lines.

Ideal Sequence: Example Wheel Session

< Prioritize Columns
Attributes
Minimize Changeovers
Export
Setup Material Families >

✔
Setup

②
Characteristics

③
Families

④
Allocation

⑤
Design

⌂
Review

This ideal sequence is the first rough sequence and serves as a benchmark for the later sequences and as being the basis for subsequent specific sequences.

● Click on column headings to sort. Use the Shift key and click on additional column headings to sort by multiple attributes. Individual materials can be moved by dragging in the left column.

Summary: Total changeovers: **1310 minutes / \$26,200 Q.**

Material	Color	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Canadian	MTO/MTS	Total Shelf Life	Customer She...	Plant Shelf Life
Allergen Clean (240m, \$4,800) Q.														
1001		Al, MLK, EGG	Pork	None	None			Acme Special		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1002		Al, MLK, EGG	Pork	Blend	Asian Sauce	20		Acme		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1003		Al, MLK, EGG	Lamb, Beef	None	Red Sauce	23		Acme Special		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1005		Al, MLK, EGG	Lamb	Brown Rice	Special Sauce	32		Acme Special		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1006		Al, MLK, EGG	Pork	Elbows	Buffalo Sauce	16		Acme Special		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1007		Al, MLK, EGG	None	Brown Rice	Special Sauce	31		Acme Special		no	MTS	547	182	
Sauce (30m, \$600) Q.														
1008		Al, MLK, EGG	None	Fettuccine	Primavera Sau...	35		Acme Special		no	MTS	547	182	
Widely (20m, \$400) Q.														

EPQ: Q

Annual Cost **\$490,920**

Average Inventory **99,265 case**

5.4 days

Colors: [Select](#)

The minimize changeovers button will appear in several steps throughout the remainder of the Wheel design process, since the ideal sequence may be different once you have assigned specific products to a line or cycle. Simply remember that when you press the Minimize Changeovers button, you will also need to save the change with the blue Save button that appears near the top of the screen before you can see the results.

Ideal Sequence: Example Wheel Session

[< Prioritize Columns](#)
[Attributes](#)
[Minimize Changeovers](#)
[Export](#)
[Setup Material Families >](#)

EPQ ⓘ
 Annual Cost **\$490,920**
 Average Inventory **99,265 case**
5.4 days



This ideal sequence is the first rough sequence and serves as a benchmark for the later sequences and as being the basis for subsequent specific sequences.

❶ Click on column headings to sort. Use the **Shift** key and click on additional column headings to sort by multiple attributes. Individual materials can be moved by dragging in the left column.

Summary: Total changeovers: **1090 minutes / \$21,800 Q.**

Colors: [Select](#)

Material	Color	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Canadian	MTQ/MTS	Total Shelf Life	Customer She...	Plant Shelf Life
1001		Al, MLK, EGG Allergen Clean (340m, \$4,800) ⓘ	Pork	None	None			Acme Special		no	MTS	547	182	
1006		Al, MLK, EGG Sauce (30m, \$600) ⓘ	Pork	Elbows	Buffalo Sauce	16		Acme Special		no	MTS	547	182	
1003		Al, MLK, EGG Sauce (30m, \$600) ⓘ	Lamb, Beef	None	Red Sauce	23		Acme Special		no	MTS	547	182	
1011		Al, MLK, EGG Height (10m, \$300) ⓘ	Lamb	Fettuccine	Red Sauce	8		Acme Special		no	MTS	547	182	
1002		Al, MLK, EGG Sauce (30m, \$600) ⓘ	Pork	Blend	Asian Sauce	20		Acme		no	MTS	547	182	
1005		Al, MLK, EGG Sauce (30m, \$600) ⓘ	Lamb	Brown Rice	Special Sauce	32		Acme Special		no	MTS	547	182	
1007		Al, MLK, EGG Width (20m, \$400) ⓘ	None	Brown Rice	Special Sauce	31		Acme Special		no	MTS	547	182	
		Sauce (30m, \$600) ⓘ												

Between the two above photos we have used the Minimize Changeovers button to automatically reduce changeovers in a frozen food production organization. It has saved us 220 minutes and \$4,400!

Manual Adjustments:

You can also manage or adjust the sequence manually by using the dotted “grips” in the first column to click and drag a given material to a different position in the sequence. Often this is used when some of the costs of changeovers are unknown, or when there are several changeovers that may be equal on cost, but have a best sequence in practice.

When you are done making adjustments, this ordering of all products for minimum changeover cost is now ready for the “Families” step.

Families Phase

“Families” of products are typically products that have ingredients, preferred production lines, and/or process methods in common – and (most importantly) have relatively small changeover costs between the members of the family.

Setup Material Families

The first step in the phase involves defining material families. To begin with, none of the materials you selected to include in the Wheel session are allocated to families. Use your knowledge of the production scenario and the listed attributes to identify products that are similar, select them using checkboxes, and then add them to material families by using the “move” button on the right. You can either name a new family or assign the materials to any existing family. Created families will be displayed on screen along with statistical information about the family such as forecasted monthly hours of production. In the screenshot below, 4 different material families have been created focused largely around the Allergen attribute.

Setup Material Families: Example Wheel Session

< Ideal Sequence
Attributes
Family Ideal Sequence >

1
Setup

2
Characteristics

3
Families

4
Allocation

5
Design

Review

A family is set of materials that have similar properties such that changeover costs are minimal within a family and major changeovers are reserved for transitions between families.

Family Name	Materials	Weekly Forecast	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Canadian	MTQ/MTS	Total Shelf Life	
Unallocated	0	0 hours												
MLK, EGG	9	30.4 hours	MLK, EGG	Pork, Lamb, Beef, L	None, Elbows, Fett	None, Buffalo Sau	0, 8, 16, 20, 23, 31	<blank>	Acme Special, Acrr	<blank>	no	MTS	547	Remove
MLK, EGG, PNT	10	30.8 hours	MLK, EGG, PNT	Pork, None, Lamb	Penne, None, Fett	Primavera Sauce, f	14, 22, 31, 34, 35, 1	<blank>	Acme Special, Sho	<blank>	no, Yes, No	MTS, MTD	365, 547	Remove
MLK, EGG, PNT, WHI	9	30.4 hours	MLK, EGG, PNT, W	Lamb, Beef, None	Macaroni, None, h	Alfredo Sauce, Noi	0, 2, 15, 16, 25, 26	<blank>	Shop Smart, Acme	<blank>	Yes, no, No	MTQ, MTS	365, 547	Remove
MLK, SSM	3	15 hours	MLK, SSM	Lamb, Beef, Pork, L	None, Fettuccine	Alfredo Sauce, Buf	10, 13, 14	<blank>	Shop Smart, Acme	<blank>	Yes, no	MTQ, MTS	365, 547	Remove

Filter materials by: Select
 Colors: [Select](#)

☐	Material	Material Description	Family	Color	Weekly Forecast	Allergens 1 ↑	Meat 2 ↑	Pasta Ty... 4 ↑	Sauce 3 ↑	Sauce #	Gluten Free	Brand	Division	Can	
☐	1008	ACME SP PRIMA FETT MTS NR...	MLK, EGG		5 hours	MLK, EGG	None	Fettuccine	Primavera Sau...	35		Acme Special		no	Move
☐	1007	ACME SP SPECI BRN RICE MTS ...	MLK, EGG		4.2 hours	MLK, EGG	None	Brown Rice	Special Sauce	31		Acme Special		no	Move
☐	1011	ACME SP RED S FETT MTS WDE...	MLK, EGG		6.7 hours	MLK, EGG	Lamb	Fettuccine	Red Sauce	8		Acme Special		no	Move
☐	1005	ACME SP SPECI BRN RICE MTS ...	MLK, EGG		2.5 hours	MLK, EGG	Lamb	Brown Rice	Special Sauce	32		Acme Special		no	Move

EPQ Q
Family Assigned Q

Annual Cost
\$1,134,025
\$1,279,930

Average Inventory
134,459 case
153,821 case

7.4 days
8.4 days

Family Ideal Sequence

The primary difference between the Family Ideal Sequence and the earlier Ideal Sequence step is that you will create ideal sequences within the material families that you just created in the Setup Material Families step. However, if your families closely follow the important attributes of the ideal sequence, this step may provide little, if any, improvement over the ideal sequence. Its impact will be greatest when the families break up or disrupt the ideal sequence.

Sequence Families:

You will first see the material families listed - after clicking on a family, you will see its sequencing screen. The Minimize Changeovers button can be found on the sequencing screen. When all families have their ideal sequence defined, the step is complete, and QAD Advanced Scheduling will be able to calculate a family assigned annual cost and average inventory.

Family Ideal Sequence: Example Wheel Session

< Setup Material Families
Minimize Changeovers
Export
Sequence Families >

EPQ Q: Family Assigned Q:
 Annual Cost **\$1,134,025** **\$1,279,930**
 Average Inventory **134,459 case** **153,821 case**
 7.4 days **8.4 days**

Setup ✓
Characteristics ✓
Families ③
Allocation ④
Design ⑤
Review

Family Name	Description	# Materials	Changeover Count	Changeover Time	Avg. Changeover	Actions
MLK, EGG		9	8	200 mins	22.2 mins	Sequence
MLK, EGG, PNT		10	9	190 mins	19 mins	Sequence
MLK, EGG, PNT, WH T		9	8	170 mins	18.9 mins	Sequence
MLK, SSM		3	2	50 mins	16.7 mins	Sequence

Family Ideal Sequence MLK, EGG: Example Wheel Session

Back
Minimize Changeovers
Reset to Ideal Sequence
Export

EPQ Q: Family Assigned Q:
 Annual Cost **\$1,134,025** **\$1,279,930**
 Average Inventory **134,459 case** **153,821 case**
 7.4 days **8.4 days**

Setup ✓
Characteristics ✓
Families ③
Allocation ④
Design ⑤
Review

Common Values: "Canadian"="no", "MTO/MTS"="MTS", "Total Shelf Life"="547", "Customer Shelf Life"="182", "Pallet Cs Ct"="150", "Allergens"="MLK, EGG", "Contains Hard to Process material"="no", "Crew"="10", "Line Change Indicator"="1"

Priorities (drag to re-order, click to hide/show):

1-Allergens
2- Meat
3- Pasta Type
4- Sauce
5- Sauce #
6- Gluten-Free
7- Brand
8- Division
9- Canadian
10- MTO/MTS
11- Total Shelf Life
12- Customer Shelf Life
13- Plant Shelf Life
14- Pallet Cs Ct
15- Heavy Blend
16- Rice
17- Contains

Summary: Total changeovers: **200 minutes** Q. Colors: [Select](#)

Material	Color	Meat	Pasta Type	Sauce	Sauce #	Brand	Heavy Blend	Rice	Width group	Height group	Extruder	Portable Mixer	Heavy mixer	Ribbon mixer
1007		At: None	Brown Rice	Special Sauce	31	Acme Special	-	-	Wide	Low	N	-	-	-
		Width (20in, \$400) Q.												
1005		At: Lamb	Brown Rice	Special Sauce	32	Acme Special	-	-	Narrow	Low	N	-	-	-
		Sauce (30in, \$400) Q.												
1001		At: Pork	None	None		Acme Special	-	-	Narrow	Medium	N	-	-	-
		Sauce (30in, \$400) Q.												
1003		At: Lamb, Beef	None	Red Sauce	23	Acme Special	Y	-	Wide	Medium	N	-	Y	-

Allocation Phase

The allocation phase centers around determining which materials will be produced on which lines during Product Wheel-governed production.

Allocate Families to Line

The Allocate Families to Lines step is relatively straightforward. Any material families you have created will be listed on the screen. By selecting the families, you can assign them to one or more of the production lines that are included in the Wheel session. QAD Advanced Scheduling provides capacity and runtime information on this screen to help the user avoid overloading any production lines.

Allocate Families to Lines: Example Wheel Session

< Sequence Families
⌂ Attributes
Allocate Materials to Lines >

	EPQ Q	Family Assigned Q
Annual Cost	\$1,134,025	\$1,274,068
Average Inventory	134,459 case	153,783 case
	7.4 days	8.4 days

Setup ✓
Characteristics ✓
Families ✓
4
5
Review

This step allows rough allocation of a family to one or more lines. This is the basis for the following step which allows granular allocation.

0 unallocated families.

Line ID	Usage	Weekly Runtime	Available	Site	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Canadian	MTO/MTS	Total Shelf
Unallocated		0 hours													
Frozen1	89%	106.7 hours	120 hours	Middletown	MLK, EGG, MLK, E	None, Lamb, Pork,	Brown Rice, None,	Special Sauce, Nor	0, 2, 8, 10, 13, 14, 1	<blank>	Acme Special, Acr	<blank>	no, Yes, No	MTS, MTO	365, 547

Filter families by: All Families

☐	Family	Allocation	Weekly Runtime	Frequency	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Canadian	
☐	MLK, EGG	Frozen1 (100%)	30.4 hours	2.2 weeks	MLK, EGG	None, Lamb, Pork,	Brown Rice, None,	Special Sauce, Nor	0, 8, 16, 20, 23, 31,	<blank>	Acme Special, Acr	<blank>	no	Move
☐	MLK, EGG, PNT	Frozen1 (100%)	30.8 hours	0.1 weeks	MLK, EGG, PNT	Pork, None, Lamb,	Penne, None, Fett,	Primavera Sauce, S	14, 22, 31, 34, 35, :	<blank>	Acme Special, Sho	<blank>	no, Yes, No	Move
☐	MLK, EGG, PNT, WHT	Frozen1 (100%)	30.4 hours	0.3 weeks	MLK, EGG, PNT, W	Lamb, Beef, None,	Macaroni, None, I,	Alfredo Sauce, No	0, 2, 15, 16, 25, 26,	<blank>	Shop Smart, Acme	<blank>	Yes, no, No	Move
☐	MLK, SSM	Frozen1 (100%)	15 hours	2.6 weeks	MLK, SSM	Lamb, Beef, Pork, L	None, Fettuccine	Alfredo Sauce, Buf	10, 13, 14	<blank>	Shop Smart, Acme	<blank>	Yes, no	Move

You can also split a family between lines by using the **“To Multiple”** option under **“Move”**. Specify the lines you want to use and the percentage split (must add to 100), then press **“Save”**.

Allocate a Family to multiple Lines

☒ Run on Frozen1

☐

☒ Run on Frozen2

☐

☒ Run on Frozen3

☐

Unallocated

Allocate Materials to Lines

The Allocate Materials to Lines step is next in the Allocation phase. Any materials that have not already been allocated in the Allocate Families to Lines step now need to be allocated. You can also use this step as a method for making small allocation adjustments if some of your lines are too heavily burdened for your liking - just bear in mind that this may instigate additional changeovers. The method for allocating individual materials is the same as for allocating material families.

Allocate Materials to Lines: Example Wheel Session

< Allocate Families to Lines
Attributes
Export
Line Ideal Sequence >

	EPQ Q	Family Assigned Q	Line Assigned Q
Annual Cost	\$1,134,025	\$1,274,068	\$1,127,998
Average Inventory	134,459 case	153,783 case	131,651 case
	7.4 days	8.4 days	7.2 days

Setup
Characteristics
Families
4 Allocation
 5 Design
 Review

Family Allocation Score: 100%Q. There are 0 unallocated materials.

Line ID	Usage	Weekly Forecast	Available	Site	Materials	Families	Weekly Changeo...	Weekly Runtime	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand
Unallocated		0 hours				0	0 hours	0 hours							
Frozen1	93%	114.1 hours	120 hours	Middletown	31	MLK, EGG, MLK,	7.4 hours	106.7 hours	MLK, EGG, MLK, E	Pork, Lamb, Beef, L	None, Elbows, Fett	None, Buffalo Sau	0, 2, 8, 10, 13, 14, 1	<blank>	Acme S

Filter materials by: All Materials Colors: Select

☐	Material	Material Description	Family	Line ID	Color	Weekly Forecast	Frequency	Weekly Changeo...	Weekly Runtime	Allergens	Meat	Pasta Type	Sauce	
☐	1001	ACME SP NONE NONE MTS NR...	MLK, EGG	Frozen1		0.5 hours	5 weeks	0.1 hours	0.4 hours	MLK, EGG	Pork	None	None	Move
☐	1006	ACME SP BUFFA ELB MTS MED ...	MLK, EGG	Frozen1		3.6 hours	1.7 weeks	0.2 hours	3.3 hours	MLK, EGG	Pork	Elbows	Buffalo Sauce	Move
☐	1003	ACME SP RED S NONE MTS W...	MLK, EGG	Frozen1		1.8 hours	1.7 weeks	0.2 hours	1.7 hours	MLK, EGG	Lamb, Beef	None	Red Sauce	Move
☐	1011	ACME SP RED S FETT MTS WDE...	MLK, EGG	Frozen1		7.2 hours	1.9 weeks	0.5 hours	6.7 hours	MLK, EGG	Lamb	Fettuccine	Red Sauce	Move
☐	1002	ACME ASIAN BLND MTS MED ...	MLK, EGG	Frozen1		0.9 hours	2.3 weeks	0.1 hours	0.8 hours	MLK, EGG	Pork	Blend	Asian Sauce	Move
☐	1005	ACME SP SPECI BRN RICE MTS ...	MLK, EGG	Frozen1		2.8 hours	2.8 weeks	0.3 hours	2.5 hours	MLK, EGG	Lamb	Brown Rice	Special Sauce	Move
☐	1007	ACME SP SPECI BRN RICE MTS ...	MLK, EGG	Frozen1		4.7 hours	2.1 weeks	0.5 hours	4.2 hours	MLK, EGG	None	Brown Rice	Special Sauce	Move

Once all materials are allocated to a line the “Line Allocated” annual cost and average inventory are calculated. These are calculated based on the same type of “coordinated replenishment” algorithm used for Families, except now the changeover costs apply to the sequences on each line – summed together. Average inventories will likewise be calculated using the calculated product campaign frequencies on each line – with average line inventories summed and displayed on the top right of the screen.

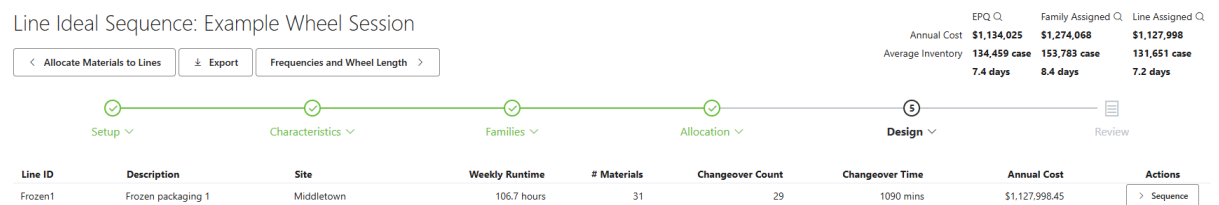
Design Phase

The Design phase presents users with choices for controlling the details of the Product Wheels being designed. Ultimately, the steps in this phase enable the user to refine the Wheels toward specific priorities or goals (e.g. inventory stability, maximized customer service, optimal efficiency, and so on).

Line Ideal Sequence

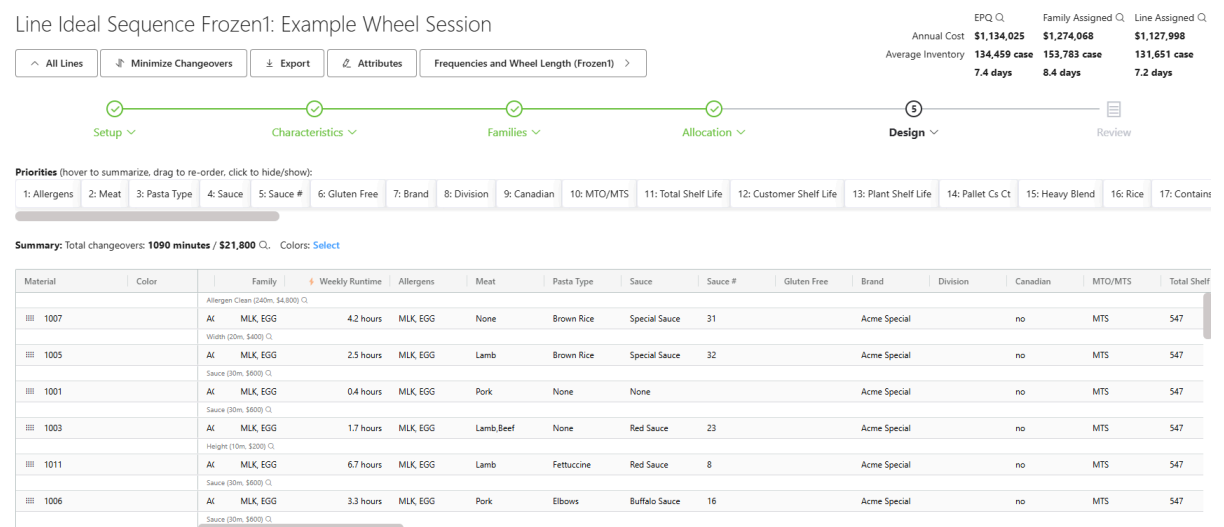
The “**Line Ideal Sequence**” step involves creating a sequence for each individual line involved in the Wheel session. The image below displays the main screen of the step. Here you can select a line to create a sequence for.

Line Ideal Sequence: Example Wheel Session



After pressing the “Sequence” button on the right side of a production line you will be shown an editable list of the products that are allocated to that line. This screen has the same features as the previous ideal sequence screen. You can perform manual nested graphical sorting. You can use the “Minimize Changeovers” button at the top of the screen, or you can make manual edits. We recommend using the “Minimize Changeovers” button to find the best sequence automatically.

Line Ideal Sequence Frozen1: Example Wheel Session



After you’ve made any necessary changes you can move on to the next step.

Frequencies and Wheel Length

After you've created the line sequences the next step is to set the production frequencies in the **"Frequencies and Wheel Length"** step. You will see all of the lines in the Wheel session listed on the screen, and you should address each one.

Frequencies and Wheel Length: Example Wheel Session

[Line Ideal Sequence](#)
[Optimize](#)
[Export](#)

EPQ Q Family Assigned Q Line Assigned Q Sequence Assigned Q
 Annual Cost \$1,134,025 \$1,274,068 \$1,127,998 \$0
 Average Inventory 134,459 case 153,783 case 131,651 case case
 7.4 days 8.4 days 7.2 days

Setup Characteristics Families Allocation Design Review

Line ID	Site	Needs Attention	# Materials	Wheel Length	# Cycles	Cycle Length	Actions
Frozen1	Middletown	Yes	31			1 week	Setup

First, select the line you wish to define frequencies for by pressing the white "Setup" button next to the target line. If you are defining frequencies for the first time or new materials have been added to the Wheel, a red "Needs Attention" indicator will make clear that frequencies are missing.

Frequencies and Wheel Length Frozen1: Example Wheel Session

[Line Ideal Sequence \(Frozen1\)](#)
[All Lines](#)
[Attributes](#)
[Export](#)

EPQ Q Family Assigned Q Line Assigned Q Sequence Assigned Q
 Annual Cost \$1,134,025 \$1,274,068 \$1,127,998 \$0
 Average Inventory 134,459 case 153,783 case 131,651 case case
 7.4 days 8.4 days 7.2 days

Setup Characteristics Families Allocation Design Review

Please select a frequency for every material. Double-click on "Selected Frequency" cells to set or use the actions button.

Colors: [Select](#)

☐ Material	Material Description	Color	Selected Frequency	Family	Family Suggested Fr...	Line EPQ Frequency	Weekly Runtime	Runtime at Selected F...	Actions
☐ 1007	ACME SP SPECI BRN RICE MTS ...		Unspecified	MLK, EGG	2.2 weeks	2.1 weeks	4.2 hours		> Set Frequency
☐ 1005	ACME SP SPECI BRN RICE MTS ...		Unspecified	MLK, EGG	2.2 weeks	2.8 weeks	2.5 hours		> Set Frequency
☐ 1001	ACME SP NONE NONE MTS NR...		Unspecified	MLK, EGG	4.5 weeks	5 weeks	0.4 hours		> Set Frequency
☐ 1003	ACME SP RED S NONE MTS W...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	1.7 hours		> Set Frequency
☐ 1011	ACME SP RED S FETT MTS WDE...		Unspecified	MLK, EGG	2.2 weeks	1.9 weeks	6.7 hours		> Set Frequency
☐ 1006	ACME SP BUFFA ELB MTS MED ...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	3.3 hours		> Set Frequency
☐ 1002	ACME ASIAN BLND MTS MED ...		Unspecified	MLK, EGG	4.5 weeks	2.3 weeks	0.8 hours		> Set Frequency
☐ 1008	ACME SP PRIMA FETT MTS NR...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	5 hours		> Set Frequency
☐ 1009	ACME SP PRIMA FETT MTS ME...		Unspecified	MLK, EGG	2.2 weeks	1.4 weeks	5.8 hours		> Set Frequency
☐ 1031	ACME SP PRIMA PENNE MTS ...		Unspecified	MLK, EGG, P...	0.1 weeks	0.8 weeks	5.8 hours		> Set Frequency
☐ 1020	ACME SP PRIMA PENNE MTS ...		Unspecified	MLK, EGG, P...	1.7 weeks	1.7 weeks	1.7 hours		> Set Frequency
☐ 1037	SS CAN PRIMA NONE MTO NR...		Unspecified	MLK, EGG, P...	3.5 weeks	2.4 weeks	0.4 hours		> Set Frequency
☐ 1028	SS CAN PRIMA FETT MTO NRW...		Unspecified	MLK, EGG, P...	0.9 weeks	0.9 weeks	5 hours		> Set Frequency

Pressing setup brings up the screen for selecting line frequencies. You can see what frequencies are currently set, or red "Unspecified" indicators if a material does not yet have a frequency. You can set frequencies for one or more materials by selecting them using checkboxes on the left and then pressing the blue "Select Frequency" text to the right. You will see a list of options to choose from for frequencies:

☒ Material	Material Description	Color	Selected Frequency	Family	Family Suggested Fr...	Line EPQ Frequency	Weekly Runtime	Runtime at Selected F...	Actions
☒ 1007	ACME SP SPECI BRN RICE MTS ...		Unspecified	MLK, EGG	2.2 weeks	2.1 weeks	4.2 hours		Set frequency
☒ 1005	ACME SP SPECI BRN RICE MTS ...		Unspecified	MLK, EGG	2.2 weeks	2.8 weeks	2.5		
☒ 1001	ACME SP NONE NONE MTS NR...		Unspecified	MLK, EGG	4.5 weeks	5 weeks	0.41		Family suggested frequency
☒ 1003	ACME SP RED 5 NONE MTS W...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	1.71		Family suggested frequency (round to power of 2)
☒ 1011	ACME SP RED 5 FETT MTS WDE...		Unspecified	MLK, EGG	2.2 weeks	1.9 weeks	0.71		Line EPQ frequency
☒ 1006	ACME SP BUFFA ELB MTS MED ...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	0.31		Line EPQ frequency (round to power of 2)
☒ 1002	ACME ASIAN BLND MTS MED ...		Unspecified	MLK, EGG	4.5 weeks	2.3 weeks	0.81		Enter frequency
☒ 1008	ACME SP PRIMA FETT MTS NR...		Unspecified	MLK, EGG	2.2 weeks	1.7 weeks	0.51		Every period
☒ 1009	ACME SP PRIMA FETT MTS ME...		Unspecified	MLK, EGG	2.2 weeks	1.4 weeks	0.81		Every other period
☒ 1031	ACME SP PRIMA PENNE MTS ...		Unspecified	MLK, EGG, P...	0.1 weeks	0.8 weeks	0.8 hours		
☒ 1020	ACME SP PRIMA PENNE MTS ...		Unspecified	MLK, EGG, P...	1.7 weeks	1.7 weeks	1.7 hours		
☒ 1037	SS CAN PRIMA NONE MTO NR...		Unspecified	MLK, EGG, P...	3.5 weeks	2.4 weeks	0.4 hours		
☒ 1028	SS CAN PRIMA FETT MTO NRW...		Unspecified	MLK, EGG, P...	0.9 weeks	0.9 weeks	5 hours		

Selecting Frequencies

The options allow you to use a predetermined frequency or set your own. First, some context about setting frequencies:

It is usually impractical to produce any individual material on its own. For example, when producing a product containing allergens, like peanuts, you should produce all of the peanut products for a given period together, as the line must be cleaned thoroughly after every peanut run.

For this reason, we recommend using the two options for family suggested frequencies. These options use algorithms developed at the Universities of Cornell and Waterloo to calculate an optimum frequency for each family, and sub frequencies for each product within the family.

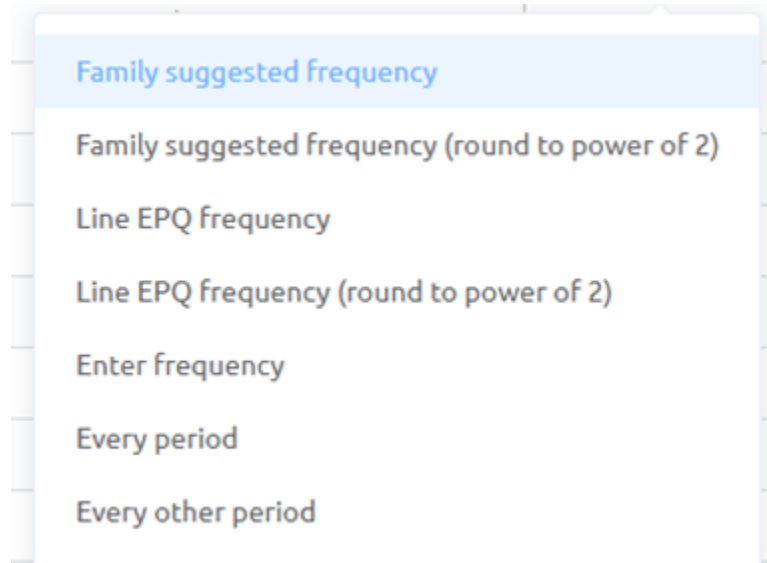
The family suggested frequencies will calculate unrounded frequency calculations that will be hard to execute in practice. For example, running a product every 4.3 days or 3.7 weeks. It will be hard to create repeating schedules and Product Wheels with the unrounded values. And the human mind doesn't relate well to cycles that repeat on unusual frequencies.

We recommend using the Family Suggested Frequency rounded to the power of 2. This will result in cycle lengths of even weeks or days, that can easily be harmonized into Product Wheels and repeating cycles. The mathematicians that developed the algorithms provided a proof that the rounded result will always be within 6% of the absolute optimum, and in most cases it is within much less. We usually find that it is hard to beat the cost and inventory of the Family Suggested Frequency rounded to the power of 2.

When setting frequencies, consider that longer frequencies increase production efficiencies and reduce manufacturing cost, with a trade off of higher inventories and longer response times. Shorter frequencies result in lower inventories and faster response times, with a trade off in production efficiency. Every business must manage these tradeoffs when developing its operating strategy.

Throughout the process of setting cycle times and production strategy, the system shows you the results of a simulation of thousands of trials using your current choices. It is a goal seeking simulation that finds the inventory required to reliably execute the chosen sequences and frequencies while delivering the selected case fill rates.

The options you can choose from for setting frequencies are as follows:



Family Suggested Frequency

The “family suggested frequency” is calculated using the “coordinated replenishment” algorithm referenced earlier. The “power of 2” feature means that all frequencies have a common multiple - this makes assigning production cycles more feasible than using the optimum frequency for every material. For instance, products to be run every 1.9, 2.3, and 5 days on the same line would be difficult or impossible to schedule. Products running every 2 days, 4 days, and 8 days can be readily scheduled. And recall that the proofs say that the loss is less than 6%, and in practice it’s usually much less.

The “Line EPQ frequency” is a simple EPQ (economic production quantity) calculation based on the estimated changeover costs on the line. A heuristic is used to estimate changeover cost. In cases where line allocation has eliminated some or all major changeovers, this type of frequency is preferred to the “Family suggested” frequency.

Design Considerations

Sometimes you may see long suggested frequencies because the product has low volume or a high setup cost (or both). In most cases, we do not recommend frequencies longer than 16 weeks. When there is a very long frequency, it may cause the “Frequencies and Wheel Length” screen to show “Needs Attention” with a red box for the line where the problem occurs. In cases where the suggested frequencies are extremely long or extremely short, you can sometimes make intelligent frequency

decisions and design choices to circumvent the problem. Perhaps the long-frequency products should be converted from make to stock to make to order. You can provide frequent opportunities to make them in the Wheel cycles, corresponding to their order lead time, but the product will be skipped in any cycle without orders.

The checkbox for “automatically reduce estimated change over time based on the likelihood of production,” found in the setup menu, is for cases where a product is ordered infrequently, but when it is ordered, it carries a short customer order lead time. This allows more opportunities to make the product than its demand can support, expecting some to be skipped. For example, consider a product that is ordered four times a year on average but has a 15-day order lead time requirement. It must have a production opportunity every two weeks, but it’s unlikely to incur 26 changeovers per year. This checkbox would enable QAD Advanced Scheduling to avoid calling for too many changeover products based on the “four times a year” forecast. In a way, this option allows the user to treat some production as “Make to Order” instead of “Make to Stock”. We recommend always enabling this checkbox - it has no impact on products produced on regular cycles, and gives a better cost and inventory projection for products that are ordered irregularly.

Generally, it’s recommended to have a maximum of 8 cycles in your Product Wheel, but the most effective Wheels are 4 cycles or fewer.

When you are finished setting frequencies for your products, you can return to the frequency overview menu by pressing “^ All Lines”.

The Optimize Feature

At the top of the Frequencies and Wheel Length screen you will see a button labeled “Optimize”. Pressing this button will bring up a window with a table that shows all of the materials in the Wheel as well as their average inventory. The aim of this feature is to allow the user to assign frequencies while viewing inventory requirements. There are also buttons at the top of the window - Most Efficient and Most Efficient with Inventory Space - which will automatically assign frequencies to items based on the criteria you chose.

Allocate Materials to Wheel Cycles Frozen1: Example Wheel Session

[Frequencies and Wheel Length \(Frozen\)](#)
[All Lines](#)
[Auto-Assign](#)
[Attributes](#)
[Wheel Sequence \(Frozen\)](#)

EPQ Q Family Assigned Q Line Assigned Q Sequence Assigned Q
 Annual Cost **\$1,134,025** **\$1,274,068** **\$1,127,998** **\$1,452,368**
 Average Inventory **134,459 case** **153,783 case** **131,651 case** **145,035 case**
7.4 days **8.4 days** **7.2 days** **7.9 days**

Setup Characteristics Families Allocation **Design** Review

The wheel is **4 weeks** long with **4 cycles**. Each cycle is **1 week**.

Cycle #	Allocated	Cycle Forecast	Available	Materials	Cycle Changeovers	Cycle Runtime	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Can
Cycle 1	172%	206 hours	120 hours	31	21 hours	185 hours	MLK, EGG, MLK, EC	None, Lamb, Pork	Brown Rice, None	Special Sauce, Nor	0, 2, 8, 10, 13, 14, 1	<blank>	Acme Special, Acr	<blank>	no, Y
Cycle 2	33%	39.5 hours	120 hours	8	4.5 hours	35 hours	MLK, EGG, PNT, M	Pork, None, Lamb	Penne, Fettuccine	Primavera Sauce, S	0, 15, 25, 30, 31, 3	<blank>	Acme Special, Sho	<blank>	no, Y
Cycle 3	159%	190.3 hours	120 hours	25	18.6 hours	171.7 hours	MLK, EGG, MLK, EC	None, Lamb, Lamit	Brown Rice, None	Special Sauce, Red	0, 2, 8, 10, 13, 14, 1	<blank>	Acme Special, Sho	<blank>	no, Y
Cycle 4	33%	39.5 hours	120 hours	8	4.5 hours	35 hours	MLK, EGG, PNT, M	Pork, None, Lamb	Penne, Fettuccine	Primavera Sauce, S	0, 15, 25, 30, 31, 3	<blank>	Acme Special, Sho	<blank>	no, Y

Filter materials by: Colors: [Select](#)

☐	Material	Material Description	1st Cycle	Frequency	Color	Cycle Forecast	Family	Cycle Changeovers	Cycle Runtime	Family Suggested...	Line EPQ Frequen...	Allergens	
☐	1007	ACME SP SPECI BRN RICE MTS ...	Cycle 1	2 weeks		12.3 hours	MLK, EGG	4 hours	8.3 hours	2.2 weeks	2.1 weeks	MLK, EGG	Move
☐	1005	ACME SP SPECI BRN RICE MTS ...	Cycle 1	2 weeks		5.3 hours	MLK, EGG	0.3 hours	5 hours	2.2 weeks	2.8 weeks	MLK, EGG	Move
☐	1001	ACME SP NONE NONE MTS NR...	Cycle 1	4 weeks		2.2 hours	MLK, EGG	0.5 hours	1.7 hours	4.5 weeks	5 weeks	MLK, EGG	Move
☐	1003	ACME SP RED S NONE MTS W...	Cycle 1	2 weeks		3.8 hours	MLK, EGG	0.5 hours	3.3 hours	2.2 weeks	1.7 weeks	MLK, EGG	Move
☐	1011	ACME SP RED S FETT MTS WDE...	Cycle 1	2 weeks		13.5 hours	MLK, EGG	0.2 hours	13.3 hours	2.2 weeks	1.9 weeks	MLK, EGG	Move

By selecting one or more materials using their corresponding checkboxes you can then use the blue “Move” text on the right side of the screen to adjust the cycle allocation for those materials. You can see relevant information, such as the current cycle allocation, cycle forecast, and cycle allocation percentage, on the screen. You can also use the “Auto-Assign” button at the top of the screen to automatically balance the cycles as closely as possible. Bear in mind once more that changing cycle allocation will likely result in alterations to changeover occurrence.

Allocate Materials to Wheel Cycles Frozen1: Example Wheel Session

[Frequencies and Wheel Length \(Frozen\)](#)
[All Lines](#)
[Auto-Assign](#)
[Attributes](#)
[Wheel Sequence \(Frozen\)](#)

Annual Cost **\$1,274,068** **\$1,127,998** **\$1,458,637**
 Average Inventory **153,783 case** **131,651 case** **145,035 case**
8.4 days **7.2 days** **7.9 days**

Setup Characteristics Families Allocation **Design** Review

The wheel is **4 weeks** long with **4 cycles**. Each cycle is **1 week**.

Cycle #	Allocated	Cycle Forecast	Available	Materials	Cycle Changeovers	Cycle Runtime	Allergens	Meat	Pasta Type	Sauce	Sauce #	Gluten Free	Brand	Division	Can
Cycle 1	99%	119.3 hours	120 hours	19	14.3 hours	105 hours	MLK, EGG, MLK, EC	Lamb, Pork, None	Brown Rice, Penne	Special Sauce, Prin	0, 2, 10, 13, 14, 15	<blank>	Acme Special, Sho	<blank>	no, Y
Cycle 2	99%	118.7 hours	120 hours	18	10.3 hours	108.3 hours	MLK, EGG, MLK, EC	None, Pork, Lamb	Brown Rice, None	Special Sauce, Nor	0, 8, 14, 15, 16, 23	<blank>	Acme Special, Sho	<blank>	no, Y
Cycle 3	99%	119.2 hours	120 hours	18	14.2 hours	105 hours	MLK, EGG, MLK, EC	Lamb, Pork, None	Brown Rice, Penne	Special Sauce, Prin	0, 2, 10, 13, 14, 15	<blank>	Acme Special, Sho	<blank>	no, Y
Cycle 4	99%	118.3 hours	120 hours	17	10 hours	108.3 hours	MLK, EGG, MLK, EC	None, Lamb, Beef	Brown Rice, None	Special Sauce, Red	0, 8, 14, 15, 16, 20	<blank>	Acme Special, Acr	<blank>	no, Y

Filter materials by: Colors: [Select](#)

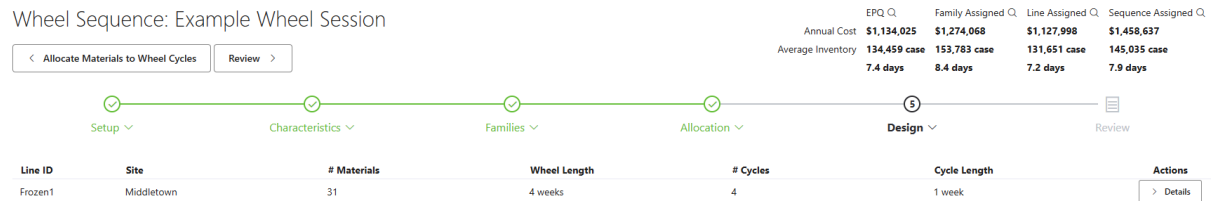
☐	Material	Material Description	1st Cycle	Frequency	Color	Cycle Forecast	Family	Cycle Changeovers	Cycle Runtime	Family Suggested...	Line EPQ Frequen...	Allergens	
☐	1002	ACME ASIAN BLND MTS MED ...	Cycle 4	4 weeks		3.8 hours	MLK, EGG	0.5 hours	3.3 hours	4.5 weeks	2.3 weeks	MLK, EGG	Move
☐	1017	ACME SP ALFRE NONE MTS ME...	Cycle 3	4 weeks		3.8 hours	MLK, EGG, P...	0.5 hours	3.3 hours	3.5 weeks	2.1 weeks	MLK, EGG, PNT	Move
☐	1007	ACME SP SPECI BRN RICE MTS ...	Cycle 2	2 weeks		12.3 hours	MLK, EGG	4 hours	8.3 hours	2.2 weeks	2.1 weeks	MLK, EGG	Move
☐	1001	ACME SP NONE NONE MTS NR...	Cycle 2	4 weeks		2.2 hours	MLK, EGG	0.5 hours	1.7 hours	4.5 weeks	5 weeks	MLK, EGG	Move
☐	1003	ACME SP RED S NONE MTS W...	Cycle 2	2 weeks		3.8 hours	MLK, EGG	0.5 hours	3.3 hours	2.2 weeks	1.7 weeks	MLK, EGG	Move

Ideally the allocation percentage for each cycle will be under 100% at the end of your adjustments. If this cannot be done, it may be worth revisiting frequency assignment to address the issue.

Wheel Sequencing

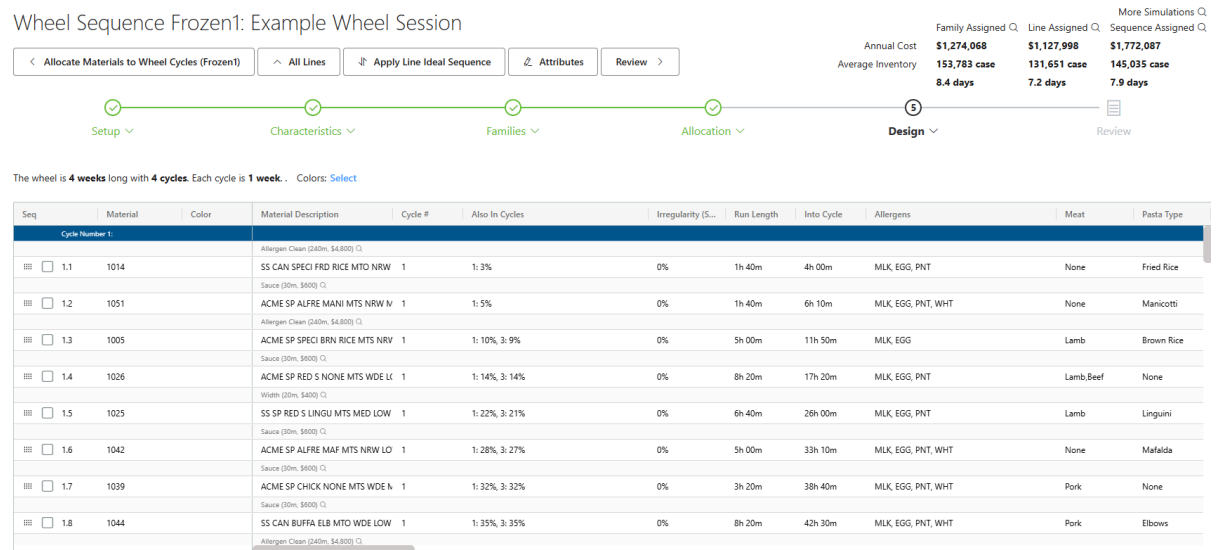
The final step in the Design phase is **“Wheel Sequencing”**. This step serves as the user’s opportunity to make any final changes to the Wheel, either for optimization or to account for factors that are not represented well in data.

Wheel Sequence: Example Wheel Session



After selecting a specific line by using the “Details” button on the right side of the screen, important information like Wheel lengths, number of cycles, and cycle lengths are shown on the following page along with details about the materials and any changeovers:

Wheel Sequence Frozen1: Example Wheel Session



As a loose summary, the individual products, the cycles where they run, the percent utilization that they represent on the line for the campaigns when they run, as well as run length and expected time into the cycle when they will run are all displayed in this step. You can manually change the sequence of products by using the field of dots next to each item to click and drag/drop the items into your preferred sequence.

The “Irregularity (Std. Dev.)” column visible in this step is an important piece of information. This column shows whether the time between campaigns for a given material is expected to be nearly equal between campaigns or to vary. The closer the value is to 0%, the more consistent the time between repetitions of the material will be. If there is significant “irregularity,” more safety stock will be needed to meet fill rate requirements and avoid stocking out. Significant irregularity could occur if a product

is scheduled in all of the line's cycles, but other products vary widely in demand from cycle to cycle. Significant irregularity could also come about if a given product is scheduled in only two of a line's four cycles – but it's scheduled in adjacent cycles (e.g. cycles 1 and 2) rather than every other cycle (a circumstance that is usually avoided due to the loss of symmetry and balance, but might occur due to capacity constraints).

The "In Cycles" column shows in which cycle(s) the product is made and the percentage of hours into the first cycle when that product starts. The "Irregularity (Std. Dev.)" is calculated from this value. If the product starts at the same time in each cycle (not looking at demand/production variability), then the irregularity should equal 0%.

Review Phase

Once sequences are set the Wheel is complete and ready for the Review phase, which consists of only a single step. This step provides an overview of the Wheels by line and allows you to activate the Wheels – putting their structure into the scheduling system.

Review: Example Wheel Session

< Wheel Sequence **✓ Activate All** ⚙ Export

	EPQ Q	Family Assigned Q	Line Assigned Q	Sequence Assigned Q
Annual Cost	\$1,134,025	\$1,274,068	\$1,127,998	\$1,772,087
Average Inventory	134,459 case	153,783 case	131,651 case	145,035 case
	7.4 days	8.4 days	7.2 days	7.9 days

Setup ✓ Characteristics ✓ Families ✓ Allocation ✓ Design ✓ Review

1 line has scheduled orders. Activation is possible after the last scheduled order only. For immediate changes, unschedule orders first.

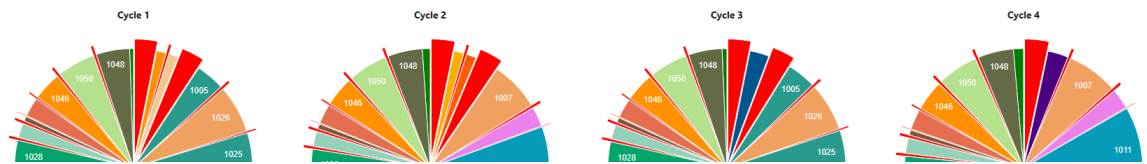
Line ID	Site	# Materials	Wheel Length	# Cycles	Cycle Length	Has Orders
Frozen1	Middletown	31	4 weeks	4	1 week	Yes

Overview - Wheels

Colors: [Select](#)

Lines: [Frozen1](#)

The wheel is 4 weeks long with 4 cycles. Each cycle is 1 week.



You can scroll down the page and view a variety of statistics relating to the Wheel. You can also use the “Overview - Wheels” section to view different Wheels and color code them.

The “Activate All” button can be found at the top of the screen. The designed Product Wheels will not be available to use for scheduling until this button is used to activate them. After pressing the “Activate All” button a window will appear that allows you to determine the date on which the Product Wheel will become available for scheduling, as well as the cycle on which the Wheel will start.

Activate Wheels



Activate Cycles On Date

2025-03-04

Start on Cycle

Cycle 1

☒ Also update Default Line of materials now☐ Also update Safety Stock of materials now

Activate All

Cancel

Important Note that a Product Wheel cannot be activated during a timeframe in which there are scheduled orders. If you attempt to do so, the earliest date available for activation will be the earliest date at which there are no additional orders scheduled. Once a Wheel has been activated, you can perform scheduling actions that utilize the Wheel.

Inventory Simulation

If a Product Wheel cannot be reliably completed, it's not a Product Wheel, and the result will not be a regularly repeating sequence of production. Therefore, setting safety stock to an appropriate level is essential to a successful Product Wheel implementation.

The amount of safety stock is influenced by demand variation, production frequency, lot size, and manufacturing variation. Because of the significant number and complexity of factors, it is difficult to solve for combine variability with equations. As a result, and because of the large amount of computing power required, QAD Advanced Scheduling instead approaches the topic via simulation. During Product Wheel design, an inventory simulation with thousand of trials is always running in the background.

The simulation progresses through various levels of refinement as you refine your Wheel design. At first it's an ideal recommendation based on the master data for each product. Then constraints of assigning products to families, assigning families to production lines, balancing capacity between production lines, selecting production frequencies, and balancing capacity across Wheel cycles are introduced.

In each week of the simulation, QAD Advanced Scheduling looks at the current inventory and average demand. When inventory is projected to be below safety, it plans production on the designed cycle and with the designed quantity. Then the manufacturing variation and demand variation act. Manufacturing variation, if not zero, means you don't make exactly the quantity that your plan called for. Demand variation means you don't ship exactly what was expected. If safety stock is too low, you will run out of product and your customer service will be lower than target. If the safety stock is too high, the service level will be higher than the target. Over the course of the design process the revises its simulations thousands of times. It gradually adjusts the safety stock until the selected safety stock results in the required service level, then reports the safety stock and other statistics.

Master Data

This section contains instructions for maintaining master data in QAD Advanced Scheduling. Use the list of pages at the left or below to open the page for a specific item.

For new sites and organizations, the data should be entered by starting at the top of the list and working to the bottom.

Many of the data elements can be imported from spreadsheets or reports created by ERP systems. See [Import Data on page 279](#).

[Maintain Organizations on page 70](#)

- [Maintain Order Attributes on page 86](#)

[Maintain Sites on page 89](#)

- [Maintain Line Types and Attributes on page 93](#)
- [Maintain Areas on page 96](#)
- [Maintain Lines on page 98](#)
- [Maintain Resources on page 101](#)
- [Maintain Line Groups on page 104](#)

[Maintain Units of Measure \(UoM\) on page 108](#)

[Maintain Materials on page 111](#)

- [Maintain Material Attributes on page 123](#)
- [Maintain Material Types on page 126](#)
- [Maintain Material Bills of Material and Resource Consumption Rules on page 129](#)
 - [Alternative BOMs on page 133](#)

[Maintain Changeovers on page 144](#)

[Maintain Production Rate Rules on page 151](#)

- [Representing Production Rates on page 155](#)

[Maintaining the Product Wheel on page 157](#)

- [Importing Product Wheels on page 163](#)
- [Editing Existing Product Wheels Manually in QAD Advanced Scheduling on page 166](#)

Maintain Organizations

Purpose

Maintain an organization's data.

Prerequisites

The organization has been created by someone with administrative access.

Organization Edit Information

On the left side of the screen, choose the **Organization** tab under the Setup heading to navigate to the Organization menu.

Organization: ACME Frozen Foods

Edit

Default Schedule Export Preferences

Order Attributes

Integrations

Description: Sandbox copy of Standard Frozen Demo. Standard Frozen Demo for Matt Exploration.

Committed Window: 3 days

Planning Window: 60 days

Timezone: America/New_York

Default Unit of Measure: Case

Line Availability

+ Add Availability

Description	Recurring	Summary	Actions
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00	Edit

Outages

+ Add Outage

Description	Summary	Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00	Edit
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00	Edit

Many of the Organization’s configurable options are available in the edit window opened by clicking the Edit button at the top of the page.

Below are the descriptions of the various settings groups available in the organization editing window.

General Information and Defaults

- Here you can edit the organization's data. The options are:

- Name:** Name of the organization.
 - External ID:** Another option for identifying the organization.
 - Organization Group:** the Group in which the organization can be located - *only editable by system administrators.*
 - Type:** Type of organization: Sandbox or Production - *only visible to system administrators.*
 - Allowed Domains:** Defines which users will be able to view/access the organization according to the domain of their registered email (e.g., "gmail.com", "qad.com") - *only visible to system administrators.*
 - Description:** Description of the organization.
 - Timezone:** Organization's timezone.
 - Set this timezone for all sites:** A checkbox for instantly standardizing the timezone for all sites in an organization.
 - Default Unit of Measure:** Default unit of measure for the organization.
 - Default Committed Window:** Number of days for which orders should be committed. Triggers message in scheduling

Edit Organization

* Name

External ID

* Organization Group

* Type

Allowed Domains

Allowed Domain	Domain
Allowed Domain 1	zinata.com
Allowed Domain 2	phenixscheduling.com
Allowed Domain 3	qad.com

[Add Allowed Domain](#)

Description

* Timezone

☐ Set this Timezone for All Sites

Default Unit of Measure

Default Committed Window days ☐ The schedule is expected to

Scheduling Time Fence days ☐ When automatically schedul

Default Planning Window days ☐ The schedule is expected to

Default Production Rate Efficiency

Default Start of Day (local time)

Default Shift Length (Using Automatic Shift Length)

Allow Run to Extend into Downtime up to minutes

Low Inventory Warning (Percent of Safety)

to commit orders that are inside the committed zone.

- **Scheduling Time Fence:**
When automatically scheduling, don't place orders in cycles that end within this number of days of the present.
- **Default Planning Window:**
Number of days for which a schedule will be created.
- **Default Production Rate Efficiency:** The default percent of entered production rates that should be used to get the "actual" run rates.
- **Default Start of Day (local time):** The time considered to be the start of a day, in the local time.
- **Default Shift Length:**
Optional. The default length of a shift. If not specified, QAD Advanced Scheduling will use Automatic Shift Length.
- **Allow Run to Extend into Downtime up to:** Enables you to set how long into downtime a run of an item can extend to complete it. Allows for planned overtime to prevent pauses in the middle of a run.
- **Low Inventory Warning (Percent of Safety):** When inventory for an item hits this percent of its safety stock, QAD Advanced Scheduling will show a low inventory warning.
- **Pegging Tolerance:**
Optional. Input as a percentage value from

0 to 100. Affects order pegging in the organization. If materials from an upstream order are left over after usage by some downstream order, they can be pegged to more than one downstream order provided that the left over quantity exceeds the set percentage of the total amount required by the additional downstream order(s).	

Wheel Break Reasons & Schedule Adherence

- Wheel Break Reasons:** Here you can define how QAD Advanced Scheduling will respond to items scheduled out of Wheel sequence:
 - Disabled:** Enables user to turn off prompt for reason that appears when moving an order out of its Wheel sequence.
 - Allow free-form entry of reasons:** Enables users to type in custom reasons for breaking Wheel sequence. If unchecked, users will have to choose from a list of predefined possible reasons.
 - Add Possible Reason:** Creates a new predefined reason that users can select when moving a product out of Wheel sequence.
- Schedule Adherence:** Schedule adherence is a measure of comparison for the designed schedule versus what actually ran. A calculated value is visible in the Production Workbench:
 - Compare to Schedule Made in Advance:** Determines how far back QAD Advanced Scheduling will look to compare a given day's actual production.
 - Quantity Tolerance:** Allows user to set an acceptable level of deviation from the designed schedule in terms of actual manufactured quantity. A warning will be delivered if the deviation is exceeded.

Wheel-break Reasons

When an order is placed out of wheel sequence, the reason is collected. You can

Disabled ☐

Allow free-form entry of reasons ☒

 *Possible Reason 1	Emergency Order
 *Possible Reason 2	Capacity Balancing
 *Possible Reason 3	Insufficient Materials
 *Possible Reason 4	Machine breakdown/behind schedule
 *Possible Reason 5	Inadequate Staffing
 *Possible Reason 6	Ingredient Issue
 *Possible Reason 7	Overselling/Underselling Forecast
 *Possible Reason 8	Improve Schedule

Add Possible Reason

- **Timing Tolerance:** Allows user to set an acceptable level of deviation from the designed schedule in terms of run duration. A warning will be delivered if the deviation is exceeded.

Schedule Adherence

Compare to Schedule Made in Advance

Quantity Tolerance

Timing Tolerance

Features

- Here you can access a series of checkboxes that allows a user to enable or disable certain features in the organization - *only visible to system administrators.*
 - **QAD Advanced Scheduler:**
Deactivates certain feature flags, adjusting which aspects of QAD Advanced Scheduling are available to users of this organization. Specifically, it adds the General tab under the *Setup* heading on the left. It also disables feature flags related to Plan to Make and forecasting. Import options are also adjusted accordingly - *only visible to system administrators.*
 - **QAD Scheduler:**
Similar to the above, this feature activates/deactivates feature flags, adjusting which aspects of QAD Advanced Scheduling are available to users of this organization. Specifically, it adds the General tab and removes the Units of Measure tab under the *Setup* heading on the

Features

QAD Advanced Scheduler ☐

QAD Scheduler ☐

Wheel Authoring ☒

Inventory ☒

Plan to Make ☒

Plan to Make should not run "Plan to Buy" on ☐

materials with no line

Automations ☒

Forecast ☒

Capacity Workbench ☒

Production Workbench ☒

Schedule Adherence ☒

Formatted export using template files ☒

Production Versions ☐

left. It also disables feature flags related to Product Wheels, Plan to Make, forecasting, custom exports, and schedule adherence. Import options are also adjusted accordingly - *only visible to system administrators*.

- **Wheel Authoring:** Enable the Product Wheel Authoring dashboard and features. Adds the “Wheels” item under “General” in the left-side menu.
- **Inventory:** Enable inventory tracking and planning. Adds the “Inventory” item under “General” in the left-side menu.
- **Plan to Make:** Enable QAD Advanced Scheduling’s planned order creation capability. Adds the “Plan to Make” item under “General” in the left-side menu.
- **Plan to Make should not run “Plan to Buy” on materials with no line:** Prevent the Plan to Make process from adding material to inventory via purchase if the materials to be

purchased cannot run on any lines.

- **Automations:** Enables the Automations tab, where users can create automated chains of Plan to Make and Scheduling actions.
- **Forecast:** Enable QAD Advanced Scheduling's forecast creation tool. Adds the "Forecast" item under "General" in the left-side menu.
- **Capacity Workbench:** Enable the Capacity Workbench. Still in development. Adds the "Capacity" item under "General" in the left-side menu. Note that Default Committed Window (days) and Default Planning Window (days) must not be 0 for the Capacity Workbench data to calculate.
- **Production Workbench:** Enable the Production Workbench. Still in development. Adds the "Production" item under "General" in the left-side menu.
- **Formatted export using template files:** Enables QAD Advanced

Advanced: Use actual due dates. Should be ☒ checked normally. Uncheck to use end of cycle

due dates.

Deprecated, BOM 1 Export, should be ☐ unchecked. When exporting orders, also include orders for BOM item 1 consumption.

Advanced: When exporting orders, use BOM ☐ item PV to calculate batch sizes and alternate.

Require site for some imports. Should be on ☐ by default. Exists for legacy reasons.

Enable PhenixGPT Access ☒

Use new BOM data structure ☐

Use Site Specific Materials ☐

Disable Schedule Undo. Should be unchecked ☐ to allow undoing

Auto-adjust order quantity based on wheel ☐ schedule vs due date

Scheduling to use unique export format, specified by template files.

- **Production Versions:** Enables a Production Version page and an attribute/column in scheduling. Designed to assist integration with ERPs that require production versioning.
- **Advanced, use actual due dates:** Checked by default. Uncheck to use the end of cycles for the due date.
- **BOM 1 Export:** Deprecated, should be unchecked. When selected, the export will include orders for bill of material items.
- **When exporting orders, use BOM item PV to calculate batch sizes and alternate:** Usually left unchecked. Doesn't function if Production Versions flag is unchecked. Uses production versions to assist with BOM item handling.
- **Require site for some imports:** Should be on by default. Forces

some types of imports to require mapping of the Site field.

- **Enable PhenixGPT access:**
Deprecated.
Previously enabled access to an early AI assistant model.
- **Use new BOM data structure:** Not yet fully implemented.
- **Use Site Specific Materials:** Not yet fully implemented.
- **Disable Schedule Undo:** Should be unchecked. If checked, removes the undo button from the Schedules menu.
- **Auto-adjust order quantity based on wheel schedule vs due date:** Automatically adjusts order quantities when orders are scheduled before their due dates, to minimize inventory and synchronize QAD Advanced Scheduling with the MPS system. See [Adjusting Order Quantity for Wheel Sequence](#) for more information.

Order Import

- This section is where you enter mapping information for order import mapping. Allows the user to map fields from your system to the standard Advanced Scheduling statuses:
 - **Unscheduled:** Planned Order, which had not been scheduled yet and does not have planned start and end dates and times assigned. Will be scheduled by Advanced Scheduling algorithms.
 - **Scheduled:** Planned Order that had been scheduled and has planned start and end dates and times assigned. Can be rescheduled by Advanced Scheduling algorithms.
 - **Committed:** An order that has been firmed by the scheduler and should not be changed by the automated features of Advanced Scheduling.
 - **Manufacturing:** an order that is authorized for production. It should not be changed by either the scheduler or the automated features.
 - **Complete:** An order that has been produced or completed, the resulting stock should be in inventory, and it should be excluded from the schedule.
 - **Cancelled:** An order that has been cancelled (deleted) without production and should to be excluded from the schedule.

Order Import

Import status mapping: Unscheduled

unscheduled

Import status mapping: Scheduled

scheduled

Import status mapping: Committed

committed

Import status mapping: Manufacturing

manufacturing

Import status mapping: Complete

completed

Import status mapping: Cancelled

cancelled

Advanced: Custom Attribute Pattern

Save

Cancel

- **Custom Attribute Pattern (Advanced):** Advanced configuration of order status. Generally not needed for the typical user.
- Import file value for each status should be defined here. These can be values coming from an ERP system or something simple like a repeat of the Advanced Scheduling order status (e.g. “unscheduled” for Unscheduled). Also note that multiple values can be listed, as long as they are separated by a comma and a space (e.g., “unscheduled, standby”).

Click on Save to save changes to the organization.

Schedule Export Preferences

Clicking **Schedule Export Preferences** opens a short list with two options: Configure Export Columns and Configure Formatted Export. These options allow you to control the information and format of the export files obtained from QAD Advanced Scheduling.

Selecting Configure Export Columns will open the following window:

Schedule Export Preferences ×

Label for Column	Type of Mapping	Parameter	Actions
Order ID	Column	Order ID	+ ↻ 🗑
Status	Column	Status	+ ↻ 🗑
Material	Column	Material	+ ↻ 🗑
Material Description	Column	Material Description	+ ↻ 🗑
Quantity	Column	Quantity	+ ↻ 🗑
Planned Start	Column	Planned Start	+ ↻ 🗑
Planned End	Column	Planned End	+ ↻ 🗑
Run Length	Column	Run Length	+ ↻ 🗑
Due Date	Column	Due Date	+ ↻ 🗑

The above image shows the default configuration. Each entry, or row, in the window represents a column in the export file.

- **Label for Column:** This is the header of the column in the export file.
- **Type of Mapping:** How QAD Advanced Scheduling should represent the data in the column. The option selected here affects the other inputs:
 - **Column:** Column in export file will contain the same values as the column selected from the **Parameter** drop-down.
 - **Static:** Column in export file will contain the value entered in the **Parameter** entry for every row.
 - **Formatted:** Column in export file will contain the formatted value entered in the **Parameter** entry.
 - **Actions:**
 - : Add a new entry/column, below the entry for the current column.
 - : Delete the entry, removing the column for the export.

Selecting Configure Formatted Export will open the following window:

Edit Formatted Export



Formatted export disabled. Add a template file to enable.

Label

Template File



Drop file here or [click to upload](#)

Select an Excel file. Refer to the default file as an example.

The window has the following options:

- **Label:** You can determine what title will be displayed in the formatted export
- **Template File**
 - **Download Default:** Downloads a copy of the default export file. Allows you to obtain the baseline export file to which you can quickly make edits and be reasonably confident that the changes will still import properly.
 - **Use Default:** Allows you to quickly reset the formatted export to the default format for QAD Advanced Scheduling.
- **Upload field:** Allows you to upload a .XLSX or .CSV file that QAD Advanced Scheduling can read and reference as the new template for exports.

Order Attributes

Order attributes can be used to create custom fields that contain additional instructions or information about an order. The fields in the order attribute can be a number, a text entry, a choice from a picklist, or a calculated expression. See work instruction for [Maintain Order Attributes on page 86](#).

Line Availability

Default line availability for the organization can be maintained here. All lines and resources without a customized availability will follow this line availability. For instructions on how to define the line availability, see the How-To Article [Defining Line Availability on page 294](#).

Maintain Order Attributes

Purpose

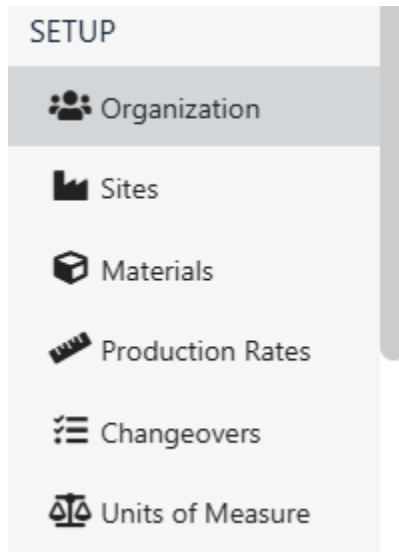
Maintain order attributes to provide additional information about an order.

Information

Order attributes can be entered as a number or text, selected from a picklist, or calculated based on a formula.

Steps

1. Select the menu path **Setup > Organization**.



2. Click on **Order Attributes** under the header. This will take you to the Order Attributes page.

Order Attributes

[< Back to Organization](#)
[+ Create](#)

Name 	Type 	Actions
No Data		

3. To create a new order attribute, click on **Create**.
4. To edit an existing order attribute, click on **Edit** in the Actions column of an existing order attribute.
 - a. Editing or creating an order attribute will open the same window:

Create an Attribute



* Name

* Type

Inherit

☐

Initialize with material attribute of the same name

Save

Cancel

- b. Enter the **Name** of the order attribute.
- c. Select the **Type** of the attribute from the following options:
 - A **Text** entry.
 - A **Number** entry.
 - **Calculated** from a formula.
 - If **Calculated**, enter the expression used to calculate the order attribute value:

Expression

(order.quantity.value > 3000) ? "LARGE" : "NORMAL"

Some examples will also be displayed in the window.

- Selected from a **Picklist**.
 - If **Picklist**, choose whether to restrict values to only those specified, or to allow others. Also enter the selections for the Picklist.

☒ Allow other values


* Value 1

Run to plus or minus one bundle.



* Value 2

Run exact quantity.



* Value 3

Run to time.



- d. Select if the attribute should **Inherit** its value, or initialize its value with the value of the order's material's attribute of the same name.
5. To delete an order attribute, click .

Maintain Sites

Purpose

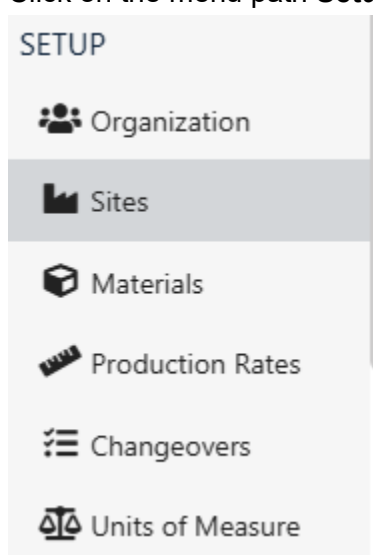
Create and maintain the structure of production sites, areas, and lines. The site represents a production plant, areas allow you to organize the lines within the site. Lines and line groups are the machines or processing units that are scheduled and sequenced in Phenix.

Prerequisites

An organization to contain the site has been created.

Sites

1. Click on the menu path **Setup > Sites** to open the Sites screen.



Sites

+ Create Site ↶ Line Types ↶ Line Attributes 🔍 All Lines				
Site ID	Description	# Areas	Timezone	Actions
Middletown	Middletown Plant	5	America/New_York	> Details

- If you want to create a new site, click on **Create Site** at the top of the screen.

Create a Site

* Site ID

Description

* Timezone

America/New_York

Save

Cancel

- **Site ID:** The unique identifier of the site.
 - **Description:** The plain words description of the site.
 - **Timezone:** The timezone the site is in. Select from the drop-down.
2. Clicking on a site in the table or choosing **Details** in the Actions column will open the site's page.
 - a. Displays the site's details, and its areas, line groups, resources, and lines for review.
 - b. For more on a site's page, see **Individual Sites** section below.
 3. Additional functionalities found on the **Setup > Sites** screen:
 - a. Click on **All Lines** at the top of the screen to display the list of all lines and line groups defined in every site of the organization.
 - i. Lists each line with areas, types, and attributes.
 - b. Click on **Line Types** at the top of the screen to create, edit or delete line types.
 - c. Click on **Line Attributes** to create, edit or delete line attributes.
 - i. For more information on line types and line attributes, see [Maintain Line Types and Attributes on page 93](#).

Important Both line types and line attributes can be also created, edited, or deleted in the "Lines in Area" menu. See [Maintain Line Types and Attributes on page 93](#) for more information.

Attention Deleting an existing site is only possible on the site's page. See **Individual Sites** section below for more information.

Individual Sites

1. On the **Setup > Sites** page, click on a site entry to go to its page.

Site: Middletown

< Sites Edit

Site ID: Middletown

Description: Middletown Plant

Timezone: America/New_York

Summary: 5 areas, 14 lines, 5 line groups, 2 resources.

Line Groups in "Middletown"

+ Create Line Group

Line Group ID	Description	Actions
Crewing	Crewing	> Details 
Extruder Requirements	Frozen Food and Extruder Resource	> Details 
Frozen Food	Frozen Food, Pasta, and Sauce	> Details 
Pasta Planning	View of Production Lines and Pasta Requirement	> Details 
Sauce Planning	Sauce Kitchen Planning	> Details 

Resources in "Middletown"

+ Create Resource		
Resource ID	Description	Actions
Crew	Production Staffing	> Details 
Extruder	Pasta Extruder	> Details 

Areas in Site "Middletown"

+ Create Area			
Hint: Select an Area to interact with Lines within.			
Area ID	Description	# Lines	Actions
Canning	Canning Area	3	Select  Edit 
Dry	Dry Packaging	6	Select  Edit 
Frozen	Frozen Food Area	3	Select  Edit 
Pasta	Pasta Making	1	Select  Edit 
Sauce	Sauce Making	1	Select  Edit 

- To edit the Site's details, on the Site's page, click **Edit**.

Edit a Site

* Site ID

Description

* Timezone

America/New_York 

Save

Cancel

- A window will open with the same entries as when creating a site on the Sites page. See above for quick definitions of these entries.
- Areas, lines, resources, and line groups can all be created, maintained, and deleted on this page. See the sections below for more details on each.

Attention Deleting an existing site is only possible when it is empty, i.e. does not contain any areas and lines. If the site is not empty, there is no delete or remove button. After deleting all lines and all areas, a red **Remove** button will appear at the top of the screen. Note that it is not necessary to delete all line groups and resources in order to be able to delete the site.

Areas

See [Maintain Areas on page 96](#) for the work instruction on creating and maintaining areas.

Lines

See [Maintain Lines on page 98](#) for the work instruction on creating and maintaining production lines.

Resources

See [Maintain Resources on page 101](#) for the work instruction on creating and maintaining resources.

Line Groups

See [Maintain Line Groups on page 104](#) for the work instruction on creating and maintaining line groups.

Maintain Line Types and Attributes

Purpose

Create line attributes and assign attributes to created line types, to facilitate creating desired lines in the organization's sites.

Prerequisites

The organization has been created.

Note Line Types and Line Attributes

Line types and line attributes are used in assigning products to lines during the Product Wheel design process. They are a useful reference to the scheduler after design when orders need to be moved across lines.

Line types and line attributes are flexible way to describe the characteristics of a line that are relevant to scheduling and sequencing. For example, line types might be mixing, encapsulation, compression, coating, packaging, canning, bottling, ..., etc. Line attributes further define the capabilities of the line, for example, a bottling line that can fill 0.5 to 2.0 liters bottles, a canning line for #10 cans, or a packaging line that wraps large count packages.

Steps for Accessing Line Types and Attributes

The pages for creating and maintaining line attributes and line types can be accessed through two routes.

1. On the **Setup > Sites** screen, by clicking the buttons **Line Types** or **Line Attributes**.
2. On an individual site's page. An area must already be created in the site. Click one of the area's entries to make the **Lines in Area** section appear. The **Line Types** and **Line Attributes** buttons can be found here.

Line Attributes

1. Click **Line Attributes**. This will take you to the line attributes page.

Line Attributes

< Back to Sites

+ Create

Name	Type	Actions
Speed	Text	↻ Edit

2. To create a new line attribute, click **Create**.
3. To edit an existing line attribute, click **Edit** under the right "Actions" column of the attribute's entry.
4. Whether creating or editing a line attribute, a window with the same entries will open.

Create an Attribute



* Name

* Type

Save **Cancel**

- **Name:** The name of the attribute.
 - **Type:** The type of the attribute. Chosen from the following options:
 - **Operating-mode:** Indicates the mode of operation of the line.
 - **Number:** For numerical attributes of the line.
 - **Text:** For text-based attributes of the line.
5. To delete a Line Attribute, click  under the right “Actions” column.

Line Types

1. Click **Line Types**. This will take you to the line types page.

Line Types

Back to Sites

Create

Name	Attributes	Actions
Can	Speed	Edit
Dry	Speed	Edit
Frozen	Speed	Edit
Pasta		Edit
Sauce		Edit

2. To create a new line type, click **Create**.
3. To edit an existing line type, click **Edit** under the Actions column of the line type's entry.
4. Whether creating or editing a line type, a window with the same entries will open.

Create a Line Type



* Name of Line Type

Attributes

Save **Cancel**

- **Name of Line Type:** The name of the line type.

- **Attributes:** The attributes that belong to and define the line type. Select all desired attributes from the drop-down, or search and select.
5. To delete an existing line type, click  under the Actions column of the line type's entry.

Maintain Areas

Purpose

Create and maintain the areas within QAD Advanced Scheduling.

Note Areas

Areas are a way of organizing lines within your site. For example, you can make an area for mixing units, processing, coating, packing, labeling, and so on.

Areas are different from line groups. Areas are for organization structuring purposes only and do not control scheduling behavior. Line groups allow for flexible grouping of lines and resources for the planning and the scheduling of multiple lines. See [Line Groups on page 20](#) for more information.

Also note that Areas are site-specific. Multiple areas can have the same name as long as they are in different sites, and the lines they contain will remain distinct.

Prerequisites

An organization and a site have been created in QAD Advanced Scheduling.

Areas

Areas are created on an individual site's page. From the menu path **Setup > Sites**, select the entry of the site you wish to use.

Once the site has at least one area, the **Areas** header will appear.

Areas in Site "Middletown"

[+ Create Area](#)

Hint: Select an Area to interact with Lines within.

Area ID	Description	# Lines	Actions		
Canning	Canning Area	3	Select		
Frozen	Frozen Food Area	3	Select		
Dry	Dry Packaging	6	Select		
Sauce	Sauce Making	1	Select		
Pasta	Pasta Making	1	Select		

1. Creating an area:
 - a. If no areas exist in the site, the **Create Area** button is white and at the top of the screen.
 - b. If at least one area exists in the site, the **Create Area** button is blue and under the **Areas in Site [Site Name]** header. Both will open the following window:

Create Area



* Area ID

Area ID

Description

Area description

Save

Cancel

- **Area ID:** The unique identifier of the area.
 - **Description:** The plain words description of the area.
2. Maintain an area:
 - a. Under the **Areas in Site [Site Name]** header, find the area you want to maintain, and click **Edit** in the Actions column.
 - i. A window will open with the same entries as when creating an area.
 3. Delete an area:
 - a. Under the **Areas in Site [Site Name]** header, find the area you want to delete, and click  in the Actions column.
 - b. An area can only be deleted if it contains no lines. If an area has lines, the  will be grayed out. Delete all lines before deleting the area.

Maintain Lines

Purpose

Create and maintain lines within a production area of QAD Advanced Scheduling.

Prerequisites

An organization has been created, a site has been created within the organization, and an area has been created within the site. Desired line types and attributes have been created.

Note Lines are Site-Specific

Note that lines established in QAD Advanced Scheduling are specific to the site in which they are created. This means that multiple lines can have the same Line ID if they are in different sites!

Steps

Lines

1. Click on the area you want to maintain the lines of. This will make the header **Lines in Area [Site Name]** appear.

Lines in Area "Frozen"

+ Create Line 🔗 Line Types 🔗 Line Attributes			
Line ID 	Type 	Description 	Actions
Frozen1	Frozen	Frozen packaging 1	Details 
Frozen2	Frozen	Frozen packaging line 2	Details 
Frozen3	Frozen	Frozen Packaging Line 3	Details 

- a. Under this header are buttons for **Line Types** and **Line Attributes**. These allow you to create, edit, or delete line types and line attributes from inside the site's page. See [Maintain Line Types and Attributes on page 93](#) for more information.
2. To create a line, click **Create Line**.
 3. To edit an existing line, click **Details** in the Actions column of the line's entry, and then click **Edit** at the top of the screen.
 4. Whether creating or editing, a window with the same entries will open:

Create Line



* Line ID ID cannot be empty

Description

Alternate Names

Type

Committed Window (Using Organization Default)

Planning Window (Using Organization Default)

Default Production Rate Efficiency %

Fully-Loaded Cost of Runtime \$ per minute

Default Manufacturing Variation %

Speed

Schedule Adherence

Quantity Tolerance %

Timing Tolerance (Using Organization Default)

Save

Cancel

- **Line ID:** Name or ID of the Line. What the Line will generally be referred to as in other pieces of Master Data.
- **Description:** The plain words description of the Line.
- **Alternate Names:** Optional. Other names that can be used for the line.
- **Type:** Select the type of line from the drop-down list. Options are Line Types already created. See [Maintain Line Types and Attributes on page 93](#) for more information.
- **Committed Window:** Number of days, hours, and minutes from now in which orders should be committed. Leave at zero to use the organizational default.
- **Planning Window:** Number of days, hours, and minutes from now in which orders will be automatically planned by QAD Advanced Scheduling. Leave at zero to use the organizational default.
- **Default Production Rate Efficiency:** The percent of ideal production rate the line runs at, on average. Leave blank to use organization default.
- **Fully-Loaded Cost of Runtime:** The full cost of running the line per minute. This is used in the Wheel Designer.

- **Default Manufacturing Variation:** Default manufacturing variation or production error. This is used in the Wheel Designer and can be overwritten on the material level.
 - **Additional Line Attributes:** If the chosen Line Type has assigned Line Attributes, each will appear at the bottom of the window. In the image above, the Speed field is one such attribute.
 - **Quantity Tolerance:** A deviation, in percentage, from the intended production for the line that is considered acceptable. Quantities falling outside the listed percentage will trigger an alert.
 - **Timing Tolerance:** A deviation, in hours, from the intended production run duration that is considered acceptable. Run durations falling behind or exceeding the planned run duration by greater than the chosen amount will trigger an alert.
5. To edit an existing line, click the entry of the line, and then click **Edit** at the top of the screen.
 6. To delete a line, find the entry of the line, and then click  in the Actions column.

Customizing Line Availability

1. Click **Details** in the Actions column of the line's entry. This will take you to the line's details page.

Frozen3 Details



Line ID: Frozen3

Description: Frozen Packaging Line 3

Type: Frozen

Site: [Middletown](#)

Area: Frozen

Timezone: America/New_York

Availability

Using global schedule

[View Global Schedule](#)

[+ Customize](#)

2. Click **Customize** next to the header **Availability**. A copy of the organization's default line availability will be shown.
 - a. **Note:** At this point, even if no changes are made, the line is following its own, custom availability. If changes are made to the organization's default line availability, they will not be reflected in the custom line availability (unless a global outage is created).
 - i. To uncustomize the line availability and return to using the organization's default, click **Uncustomize** next to the **Availability** header.
3. To learn how to customize the line availability, see the How-To article [Defining Line Availability on page 294](#).

Maintain Resources

Purpose

To maintain resources to enable creation of resource planning line groups.

Note Resources are used to plan usage of equipment, staffing, or other items that are needed to produce certain products.

Prerequisites

An organization and a site must be created.

Resources

Resources are created and maintained on the individual site's page.

1. Creating a resource:
 - a. If no resources exist in the site, the **Create Resource** button is white and at the top of the screen.
 - b. If at least one resource exists in the site, the **Create Resource** button is orange and under the **Resources in [Site Name]** header.
 - c. Enter the resource ID and the description, and then click **Save**.
 - d. Once a resource is created, a unit of measure with the same name as the resource ID will be created on the **Setup > Units of Measure** page. This unit will be used to track resource usage during scheduling.
 - e. If the resource has an upper or lower limit on how many can be used at one time, this must be set in the resource's availability. See item (c) under maintain and customize a resource below.
2. Maintain and customize a resource:
 - a. Under the **Resource in Site [Site Name]** header, find the resource you want to maintain, and click **Details** in the Actions column. This will take you to the resource's details page.

Resource: Crew Details



Line ID: Crew

Description: Production Staffing

Site: [Middletown](#)

Timezone: America/New_York

Availability

Using global schedule

[View Global Schedule](#)

[+ Customize](#)

- b. To maintain the resource itself, click **Edit** at the top of the page.
- c. By default, the resource will be using organization's default availability (see [Maintain Organizations on page 70](#)). However, there are some additional inputs needed for each of these

availabilities for the resource. Click the **Customize** button next to the **Availability** header.

- i. After clicking **Customize**, you will see availabilities and outages identical to those created on the organization level. Click on the **Edit** button in the Actions column of one of the availabilities.

Edit Availability: Crew - Production Staffing

* Description

Recurring ☒ [Unselect for a one-off availability](#)

Start time

End time

* Days of the week ☒ [mon](#) ☒ [tue](#) ☒ [wed](#) ☒ [thu](#) ☒ [fri](#)

☐ [sat](#) ☐ [sun](#)

Usage Target Min Value

Usage Target Max Value

Usage Target Unit of Measure

* Every # weeks:

* Effective start

When does this availability pattern start

Effective end

When does this availability pattern end (optional)

- ii. This is identical to the Edit or Create Availability window when creating an availability elsewhere in QAD Advanced Scheduling, only with three unique inputs:
 - **Usage Target Min Value:** The minimum amount of the resource that must be used at any given time. Usually must be set to zero.
 - **Usage Target Max Value:** The maximum amount of the resource that can be used at any given time. Represents

the number of available machines, the current amount of staff, etc.

- **Usage Target Unit of Measure:** The unit of measure of the usage target. Select the unit with the same name at the resource from the drop-down list.
- d. If the resource's availability differs from the organization's default, you can customize it here. For instructions, see the How-To Article [Defining Line Availability on page 294](#).
3. Delete a resource:
 - a. Under the **Resource in Site [Site Name]** header, find the resource you want to delete, and click  in the Actions column.
 4. Maintain material resource consumption:
 - a. Material resource consumption is maintained on the **Setup>Materials** page. See [Maintain Material Bills of Material and Resource Consumption Rules on page 129](#) for more information.

Maintain Line Groups

Purpose

To maintain line groups and associated master data to enable resource planning and/or allocation scheduling.

Prerequisites

An organization and a site must be created, as well as all lines to be included in the line group must be created.

If the line group is of the resource planning type, all required resources must also be created.

Line Groups

Important Line Group vs. Area

Line groups are a scheduling tool. They help you visualize the schedule and resources for multiple lines at once. For example, you could keep track of the upstream lines that feed into a frozen dinner line, the frozen dinner line itself, and the crew required to operate all at once with an appropriately configured line group.

Line groups are different from areas. Areas are for organization structuring purposes only and do not control scheduling behavior. Line groups allow for flexible grouping of lines and resources for the planning and the scheduling of multiple lines. See [Line Groups on page 20](#) for more information.

Also note that line groups are site-specific. This means that line groups can only contain lines (and resources) from the site in which they are created.

Note Line Group Types

There are two types of line groups: Resource Planning and Allocation.

A **Resource Planning** line group allows the tracking and planning of resources required to produce materials on the lines. This type of line group is used for average scheduling purposes, for example in cases where you simply want to see multiple production lines at the same time. This is therefore the more common type of line group. In slightly more advanced use cases, the resources tracked by the group could be special equipment (case packers, extruders, etc.), or additional operators available to share between the lines, or other similar concepts. We can see how many given resources are needed within a line group at any moment and when the required amount of a resource exceeds what is available.

An **Allocation** line group is designed to manage one common manufacturing scenario. The line group contains several lines of the same line type, all of which can produce the same materials. An Allocation line group allows splitting one production order for a given product between

all lines in the group. Often these are downstream lines connected to the same upstream line that can be also included in the group. Usually, a Product Wheel would be designed for the feeding line, and then another Wheel would apply to all the downstream lines. Then, when orders are imported for the **group** (rather than for the line), they can be allocated across the downstream members. The QAD Advanced Scheduling will not only split original order between packing lines but will also create production order for the feeding line and synchronize it with packing lines. This helps to simplify multi-level scheduling scenarios. This type of line group is less common.

1. Creating a line group:

- a. If no line groups exist in the site, the **Create Line Group** button is white and at the top of the screen.
- b. If at least one line group exists in the site, the **Create Line Group** button is orange and under the **Line Groups in [Site Name]** header.
- c. Both will open the following window:

Create Line Group
×

* Line Group ID

Description

* GroupType

GroupType ▼

Members
Add Line

Save

Cancel

- **Line Group ID:** The unique identifier of the line group.
- **Description:** The plain-words description of the line group.
- **Group Type:** The type of line group. Choices are **Resource Planning** and **Allocation**. See line group types info panel above for more information.
- **Members:** Click the blue **Add Line** button to add another member to the line group, and then select the member from the drop-down that appears.

Members

Select Line or Resource ▼

^
v
🗑

Add Line

2. Maintain a line group:

- a. Under the **Line Groups in Site [Site Name]** header, find the line group you want to maintain, and click **Details** in the Actions column. This will take you to the line group's details page.

Line Group: Frozen Food Details

[< Site](#)
[& Edit](#)
[> Schedule](#)

Line ID: Frozen Food
 Description: Frozen Food, Pasta, and Sauce
 Site: [Middletown](#)
 Timezone: America/New_York
 Group Type: Resource Planning

Group Members

Role	ID	Type	Description
Schedule	Pasta 1	Pasta	Pasta Line 1
Schedule	Sauce 1	Sauce	Sauce Line 1
Schedule	Frozen1	Frozen	Frozen packaging 1
Schedule	Frozen2	Frozen	Frozen packaging line 2
Schedule	Frozen3	Frozen	Frozen Packaging Line 3
Summation of Output	Crew		Production Staffing

Actions

> View Line
> View Line
> View Line
> View Line
> View Line
> View Line

- i. Click **Edit** at the top of the page. A window with the same entries as when creating a line group will open.
3. Delete a line group:
 - a. Under the **Line Groups in Site [Site Name]** header, find the line group you want to delete, and click  in the Actions column.

Note Line groups, unlike areas, can be deleted even if some members are assigned to it. The members will not be deleted.

Scheduling Line Groups

Once a line group of either type is created and members assigned, you can begin scheduling for the entire line group.

On the **General>Home** page, in addition to entries for the lines in the organization, you will see entries for the line groups, denoted by the  icon next to the name:

Schedules

* Export Schedules		* Export Line Statistics		Filter by status: All					Filter by type: All		Filter by area: All		Filter by site: All	
☐	Line ID	Site	Utilization	Utilization by cycle	Orders	Needs Attention	Overdue	Actions						
☐	Crewing	Middletown							Schedule		Details			
☐	Extruder Requirements	Middletown							Schedule		Details			
☐	Frozen Food	Middletown							Schedule		Details			
☐	Pasta Planning	Middletown							Schedule		Details			
☐	Sauce Planning	Middletown							Schedule		Details			
☐	Can1	Middletown	0%		0 orders				Schedule		Details			
☐	Can2	Middletown	0%		0 orders				Schedule		Details			

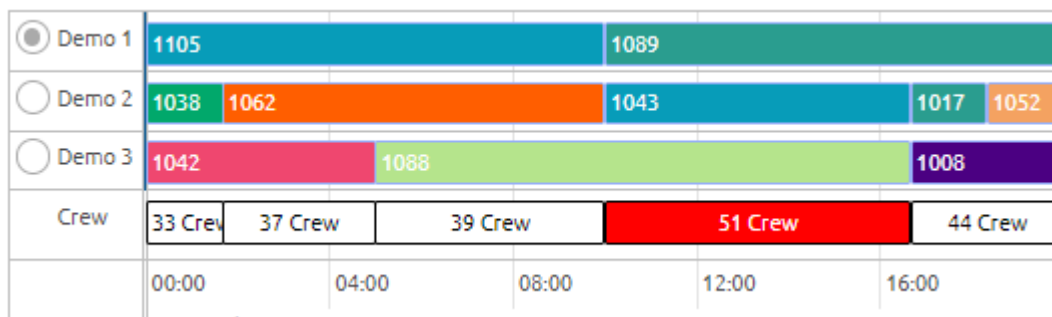
Clicking on one of these entries will take you to a scheduling page that shows all members on the timeline.

Clicking on the “Frozen Food” entry will show all lines that are members of the resource line group:

Frozen Food (Middletown) Schedule: Frozen1



Each line in the resource planning group is shown in the timeline. There is also a row for any resources in the group, showing how much is used at any given time, summed across all the lines. If at any time the schedule requires more of the resource than the **Usage Target Max Value** (see the [Maintain Resources on page 101](#) work instruction to see how to set that value), then the box on the timeline will turn red:



This alerts the scheduler to any potential issue with resources in their schedule.

A box on the timeline will also turn red if the resource is needed during an outage for that resource.

Click the radio (circular) button next to one of the lines to change the list view of the schedule to that line.

Maintain Units of Measure (UoM)

Purpose

To create new units of measure for materials and resources as well as to maintain conversion factors from one unit to another.

Prerequisites

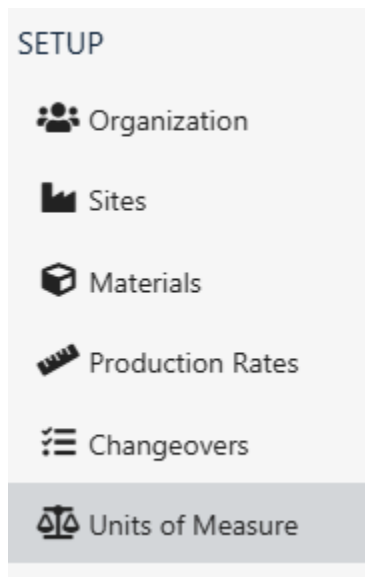
The organization must be created, but does not have to be fully configured.

Note If a unit of measure is to be used for a material (order quantity, etc.) then it must be defined before use.

If a unit of measure is for a resource, then it does not have to be created before the resource. If the resource is created first, a UoM with the same name will be created automatically. See [Maintain Resources on page 101](#) for more information on creating resources.

Steps

1. Click on the menu path **Setup>Units of Measure** to open the units of measure screen.



Units of Measure

[+ Add](#)

Name	Actions
Case	Remove
kg	Remove
Crew	Remove
Extruder	Remove
asdf	Remove

[+ Create Conversion](#)
[± Export](#)

From: All
 To: All
[Advanced Filter](#)

From	To	Conversion Ratio	Material	Preview	Actions
Case	Case	1		1 "Case" equals 1 "Case"	Edit Remove
kg	kg	1		1 "kg" equals 1 "kg"	Edit Remove

- To create a new unit of measure, click on **Add** at the top of the screen, and enter the name of the new UoM.

New Unit of Measure
×

Please enter a name

Cancel
Add

- To delete a unit of measure, click on **Remove** in the Actions column of the UoM's entry.
- Create any conversions between the new UoM and the existing UoM(s) by clicking **Create Conversion** under the **Conversions** header.
- Edit existing conversions by clicking **Edit** in the Actions column of the conversion's entry.
 - Creating or editing a conversion opens a window with the same layout:

Create a Unit Conversion
×

Convert from

km, inches, pounds...

To

miles, cm, kg...

Material

Q Blank for any

* Conversion Ratio

1.6, 1000, 0.77...

Preview: 1 <to> equals <ratio> <from>

Save
Cancel

- **Convert from:** The UoM to convert from.
- **To:** The UoM to convert to.
- **Material:** If the conversion applies only to a particular material, enter the material's unique identifier. Leave blank to apply to all materials.
 - If there is a conversion that applies to all materials and other conversions for specific materials, the general

conversion will apply to all materials that do not have a specific conversion.

- **Conversion ratio:** The amount of the “from UoM” that is equal to one “to UoM”.
 - b. Conversions can also be created by using QAD Advanced Scheduling’s import option **Unit Conversion**. See the How-To article [Import Data on page 279](#) to learn more about the import process, and [Unit Conversion Import on page 183](#) for more on the import mapping options of the Unit Conversion import.
6. To delete an existing conversion, click **Remove** in the Actions column of the conversion’s entry.

Note

A conversion in QAD Advanced Scheduling works both ways. If QAD Advanced Scheduling has a conversion from cases to pallets, it **does not** need another conversion from pallets to cases.

QAD Advanced Scheduling can do multistep conversions. If there is a conversion from cases to pallets, and then a conversion from pallets to truckload, QAD Advanced Scheduling can automatically convert from cases to truckload.

Testing Conversions

Make use of the **Test Conversions** section of the page to see how QAD Advanced Scheduling uses the conversions it has and ensure they are entered properly.

Test Conversion

Value	Unit	Value	Unit	Material
	Select 		Select 	Q Material

Maintain Materials

Purpose

Create or maintain materials in QAD Advanced Scheduling.

Prerequisites

Material types and attributes have been created. See [Maintain Material Attributes on page 123](#) and [Maintain Material Types on page 126](#).

Note Material Types and Attributes

Material attributes are used to determine the time and cost of most setups in QAD Advanced Scheduling, and can also be used for other reporting and information purposes during planning and scheduling.

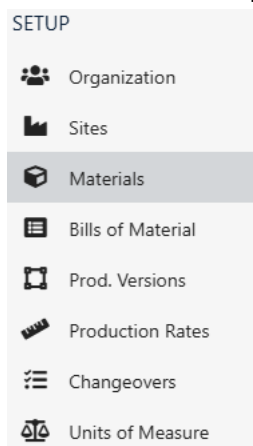
Material types allow for the grouping of materials by shared attribute categories. Material attributes are assigned to material types, and when a material is created, its type determine what attributes it has.

Materials

Note Materials are site specific. This means that created materials are not automatically created for all sites in an organization. This allows users to differentiate between sites and the materials produced therein more easily.

Materials Page

1. Click on the menu path **Setup > Materials**.



2. This page shows you all materials currently in the QAD Advanced Scheduling organization.

Materials

+ Create Material

Material Types

Material Attributes

Export Materials

Q Select a material to filter by

Advanced Filter

Setup Alerts: All

Type: All

Site:

Status: Active

☐	Material	Site	Alerts	Last Updated	Default Line	Material Description	Material Type	Min. Order Amount	Order Amount In...	Max. Order Amou...	
☐	1	Middletown	3 info alerts		Sauce 1	Buffalo Sauce	Sauce	3,000 kg	3,000 kg		> Details
☐	1001	Middletown	2 info alerts		Frozen1	ACME SP NONE NONE MTS ...	Frozen	2,000 Case	1,000 Case		> Details
☐	1002	Middletown	2 info alerts		Frozen1	ACME ASIAN BLND MTS MED...	Frozen	2,000 Case	1,000 Case		> Details
☐	1003	Middletown	2 info alerts		Frozen1	ACME SP RED S NONE MTS ...	Frozen	2,000 Case	1,000 Case		> Details
☐	1004	Middletown	2 info alerts			Product-1004-Description	Dry	100 Case			> Details
☐	1005	Middletown	2 info alerts		Frozen1	ACME SP SPECI BRN RICE MT...	Frozen	2,000 Case	1,000 Case		> Details

3. To create a new material, click **Create Material** at the top of the page.
 - a. See **Material Data Definitions** below for more on the material data inputs.
4. To create and edit material types, click **Material Types**. For more on material types, see [Maintain Material Types on page 126](#).
5. To create and edit material attributes, click **Material Attributes**. For more on material attributes, see [Maintain Material Attributes on page 123](#).
6. To obtain a file containing information about the materials in your organization, press the chevron next to the Export Materials button. You will be given a list of export choices:
 - a. Clicking **Export Materials** will download a .XLSX (Excel) file containing all materials in the organization and their data to your computer.
 - b. Clicking **Export Production Rates** will download a .XLSX (Excel) file containing all production rates in the organization to your computer.
 - c. Clicking **Export BOM Consumption Items** will download a .XLSX (Excel) file containing all BOM consumption rules in the organization to your computer.
 - d. Clicking **Export Resource Consumption Items** will download a .XLSX (Excel) file containing all resource consumption rules in the organization to your computer.
 - e. Clicking **Export Material Line Data** will download a .XLSX (Excel) file containing information about the preferred line data for each material to your computer.
 - f. Clicking **Export Setup Alerts** will download a .XLSX (Excel) file containing alert information about the materials you have established in the organization - for example, warnings about the a missing production rate - to your computer.
7. Use the **search bar** above the materials display to search materials by entering the material ID or description.
8. Use the blue **Advanced Filter** text to open a filtration window that lets you set conditions to filter by, such as filter by material type or by compatible line.

9. Use the **Setup Alerts** drop-down menu to filter materials according to the type of alert they have at present.
10. Use the **Material Types** drop-down menu to filter by material type.
11. Use the **Site** drop-down menu to filter by the site at which materials are present.
12. Use the **Status** drop-down menu to filter displayed materials by whether they are active or archived.

Material Details Page

1. On the materials page, click on a material's entry or on the **Details** button to the right of the entry to go to that material's details page.

1001 (Middletown): ACME SP NONE NONE MTS NRW MED

Specific production rates not present.

This material is present in the wheel for line Frozen1 (Middletown).

This material is missing a Base Unit of Measure.

Material ID: 1001

Site: Middletown

Description: ACME SP NONE NONE MTS NRW MED

Type: Frozen

Default Line: Frozen1 (Middletown)

Can run on lines: [Frozen1 \(Middletown\)](#)

Appears on Wheel Spokes: [Frozen1](#): 4.2

Custom Attributes

Brand: Acme Special

Canadian: no

MTO/MTS: MTS

Total Shelf Life: 547

Customer Shelf Life: 182

Pallet Cs Ct: 150

2. To see variants of the material that may be present at other sites in the organization, click the Alternate Sites drop-down menu and select the desired alternate site.
3. To edit the material, click **Edit** at the top of the screen.
 - a. For more information on the data entries here, see **Material Data Definitions** below.
4. Create a copy of the material by clicking **Make a Copy** at the top of the screen. This will open a window similar to the window opened by clicking Edit, the difference being that the Material ID field will be blank. Enter a unique material ID and make any other changes.
 - a. If it's desirable to copy over production rates, BOM item consumption, specific conversions, and the material's position in any existing Product Wheel sessions, make sure the following boxes are checked at the bottom of the window:

- ☒ **Copy Production Rates**
- ☒ **Copy BOM Items and Consumption Rates**
- ☒ **Copy Conversions**
- ☒ **Copy Position in Wheel Sessions**

- b. Click **Make a Copy** to create the copied material
5. To archive a material, on the material's details page, click **Archive** at the top of the screen. Note that at present, only one material can be archived at a time and archived materials cannot be viewed or unarchived without developer support. For more information, see [Handle Obsolete Materials on page 275](#).
6. To view the demand and supply overview and inventory projection of the material, click **Inventory**.
7. Below the Edit, Make a Copy, and Archive buttons, the Material's current data is displayed in sorted groups:

Material ID: 1001

Site: Middletown

Description: ACME SP NONE NONE MTS NRW MED

Type: Frozen

Default Line: Frozen1 (Middletown)

Can run on lines: [Frozen1 \(Middletown\)](#)

Appears on Wheel Spokes: [Frozen1](#): 4.2

Planning

Min. Order Amount: 2,000 Case

Order Amount Increment: 1,000 Case

Max. Order Amount:

Frozen Inventory Time (goods receipt or quality time):

Maximum Wait Time:

Minimum Wait Time:

Max Inventory Level: 1,411 Case

Safety Inventory Level: 311 Case

Downstream Relationship:

Yield Factor (percent):

Scrap Factor (percent):

Scrap Factor (fixed):

Lot Size: Lot for Lot (default)

Custom Attributes

Brand: Acme Special

Canadian: no

MTO/MTS: MTS

Total Shelf Life: 547

Customer Shelf Life: 182

Pallet Cs Ct: 150

Allergens: MLK, EGG

Meat: Pork

Sauce: None

Sauce #: 0

Pasta Type: None

Contains Hard to Process material: no

Heavy Blend: -

Rice: -

Crew: 10

Line Change Indicator: 1

Width group: Narrow

Height group: Medium

Extruder: N

Portable Mixer: -

8. Below this, under the header **Production Rate Rules**, all production rate rules that apply to the material are displayed. Production rates can also be created via the menu path **Setup>Production Rates**. For more information, see [Maintain Production Rate Rules on page 151](#).

Production Rate Rules

+ Create Rule								
Type	Line (Site)	Material	Rate	Efficiency	Fixed Duration	Start Date	End Date	Actions
Material Default		1001	20 Case per minute					
Material Default		1001	20 Case per minute	100%				
Line Default	Sauce 1 (Middletown)		105 kg per minute					
Line Default	Pasta 1 (Middletown)		50 kg per minute					

- a. To create a new material-specific production rate rule, click **Create Rule**.
 - b. To edit a production rate, click **Edit** under the Actions column.
 - c. To delete a production rate, click  under the Actions column.
 - d. **Note:** This section shows all production rates that **could** apply to the material. This means that all production rates specified to a line but not to a material will be shown here, even if the material will not be run on that line.
9. Next, under the header **Bills of Material**, all BOMs established for the production of the material are displayed. These BOMs contain consumption rules that indicate the amount of each component required to produce a specific amount of the material. For more information on maintaining BOM item consumption rules, see [Maintain Material Bills of Material and Resource Consumption Rules on page 129](#).
 10. The header **Co-/By-Product Production Rules** contains a section wherein the user can establish any Co- or By-Products that the production of the material generates. for more information on Co-/By-Products, see [Material Co-Products and By-Products on page 137](#).
 11. **Resource Consumption Rules**, shows which resources and how much of them are needed to produce this material. For more information on maintaining BOM item consumption rules, see [Maintain Material Bills of Material and Resource Consumption Rules on page 129](#).
 12. **Conversions** allows the user to set unit conversions specific to the material whose details page you are on.
 13. The final header, **Consumed by**, shows any materials that use this material as a component.

Material Data Definitions

Note Materials in QAD Advanced Scheduling can be created manually, as show on this page, or en masse using QAD Advanced Scheduling's import functionalities. To learn more about QAD Advanced Scheduling's import functionalities, see the How-To article [Import Data on page 279](#).

The data entries when creating or editing a material in QAD Advanced Scheduling fall into four categories. Definitions are given by each category.

General Identification Info

Create a Material ×

* Material ID

Description

External ID

* Site

Type

Co-/By-Product Type

Dependent Requirements

Base Unit of Measure

Rounding Unit of Measure

- **Material ID:** Material code. Should be the same as in the ERP system, if that is being used. Used by QAD Advanced Scheduling to recognize the material for production rates, Product Wheel design, order creation, etc.
- **Description:** The plain words description of the material. Often displayed by QAD Advanced Scheduling alongside material ID for user ease.
- **External ID:** An additional ID field that exists to make it easier to match materials across different software. For example, if a material is labeled differently in the user's ERP than it is in QAD Advanced scheduling, the ERP label could be entered in this field.
- **Site:** The name of the site at which the material will be created. Required so as to delineate differences between sites in a single organization.
- **Type:** The material type, chosen from user-defined types created in QAD Advanced Scheduling. Determines what material attributes the material has. See the work instruction for [Maintain Material Types on page 126](#) and [Maintain Material Attributes on page 123](#) for more information.
- **Co-/By-Product Type:** Only appears if the Co-/By-Product feature flag is turned on in organization options. Enables the user to define whether a material is a Standard Material, a Base Process, a Co-Product, or a By-Product. A brief summary is provided below; see
 - Options:
 - A **Standard Material** is not treated any differently in terms of production. It can run on lines, consume other materials, be consumed during production, and so on.
 - A **Base Process** is a material that can run on lines, and can consume other materials, but cannot *be consumed* by other production.

- A **Co-Product** and a **By-Product** are materials that cannot run on lines by themselves, but are created when their assigned Base Process runs. They can also be consumed by other production.
- **Dependent Requirements:** This parameter defines how QAD Advanced Scheduling creates dependent requirements for upstream lines, necessary for multi-level scheduling. It is maintained for upstream component materials only.
 - Options:
 - **Leave Blank:** Blank is only available for materials that are not listed BOM items of other materials.
 - **Create:** QAD Advanced Scheduling creates dependent requirements for the material. To create production orders plan to make for the material must be run. This will create and schedule orders for the material.
 - **Create and Schedule:** When scheduling consuming material, QAD Advanced Scheduling creates orders for the consumed material on the upstream line and schedules them. Use this if the upstream line should be scheduled according to its own Wheel or otherwise independently from the feeding line.
 - **Create and Link:** When scheduling consuming material, QAD Advanced Scheduling creates orders for the consumed materials and schedules them in sync with the production orders for consuming material. Use this when the upstream line must be synchronized with the consuming line.
 - Warning. It is strongly recommended to use the same value of this parameter for all materials produced on the same upstream line. Its value should be defined by the operating strategy for this line.
- **Base Unit of Measure:** Used to choose a unit that the material will automatically assume if there is none specified alongside the material ID. For example, if you set the base unit of measure to Case and then import a file that contains this material ID but doesn't outright list the unit, QAD Advanced Scheduling will treat the unit as Case. You can only choose units that have been established in the Units of Measure menu.
- **Rounding Unit of Measure:** Used to choose a unit that will be set in the consumption and cumulative consumption columns on the scheduling screen, as well as in the batch rounding dialogue window.

Planning:

Planning

Frozen Inventory Time		days
Maximum Wait Time		Select Period
Minimum Wait Time		Select Period
Max Inventory Level	Enter a value	Select Unit
Safety Inventory Level	Enter a value	Select Unit
Downstream Relationship	Select	
Yield Factor (percent)		%
Scrap Factor (percent)		%
Scrap Factor (fixed)	Enter a value	Select Unit
Lot Size	Lot for Lot (default)	

- **Frozen Inventory Time:** Entering a number in this field will set a quantity of days during which completed production of this product will be tracked, but not yet available for release to fulfill customer orders.
- **Maximum Wait Time:** Entering a number in minutes in this field will enable QAD Advanced Scheduling to display a warning if a dependent material is scheduled to finish production before an upstream order is completed.
- **Max Inventory Level:** Reference level for maximum inventory that should be on hand. Enter the value and then select the unit from the drop-down.
- **Safety Inventory Level:** The target inventory level. Inventory should never be **planned** to be below this level, although it should drop below minimum in practice due to variability. Enter the value and then select the unit from the drop-down.
- **Downstream Relationship:** Determines when the material will be automatically scheduled with respect to its downstream dependencies.
 - Options:
 - **Start to Start:** Scheduling times will be considered valid as long as this material starts production before the downstream material starts production.
 - **End to Start:** Scheduling times will be considered valid as long as this material ends production before the downstream material starts production.
 - **End to End:** Scheduling times will be considered valid as long as this material ends production before the downstream material ends production.
- **Yield Factor (percent):** Takes numerical input from 0 to 100. Reflects the percentage of material that is considered "viable" or "usable". This percentage will be applied to order quantities after production

for manually created or imported orders, or applied to make sure the desired item quantity is obtained for orders created via Plan to Make.

- **Scrap Factor (percent):** Takes numerical input from 0 to 100. Reflects the percentage of material which is scrap, or "extra", and should be removed from inventory. Order quantity will be increased by this percentage to impact inventory calculation.
- **Scrap Factor (fixed):** Takes numerical input. Increases order quantity by the specified amount, always in the Base Unit of Measure for the material.
- **Lot Size:** This parameter allows the user to have the material preemptively combine with other like materials during production created by plan to make or automation. These orders are placed into "buckets" of adjacent consumption.
 - Options:
 - **Lot for Lot:** The default value. This material will not be automatically grouped into buckets of adjacent production.
 - **Daily Lot:** The material will be grouped into a bucket of adjacent production when produced by plan to make or automation. The bucket will encompass a timeframe defined by the timezone of the site at which the material is being produced and the start of day of that site.
 - **Weekly Lot:** The material will be grouped into a bucket of adjacent production when produced by plan to make or automation. The bucket will encompass a timeframe defined by the organization's start of the week, the timezone of the site at which the material is being produced, and the start of day of that site.

Production Line Assignment

Production Line Assignment

Default Line

Line	Q Automatic	
BOM	Any (System Managed) ▼	
Minimum Order Amount	Enter a value	Select Unit ▼
Order Amount Increment	Enter a value	Select Unit ▼
Maximum Order Amount	Enter a value	Select Unit ▼

[Add Alternate Line](#)

By default, only one set of entries will be displayed under this header, for the preferred or default line. Click **Add Alternate Line** to add another line the material could run on. Each line has the following entries:

- **Line:** The line ID of the preferred production line.

- **BOM:** This field allows the user to choose which BOM is used by the material when produced on the preferred line.
- **Minimum Order Amount:** The minimum amount of the material made every time the material is run on the line. In ERP systems this is typically called minimum lot size or minimum batch size. Enter the value and then select the unit from the drop-down.
- **Order Amount Increment:** The increment amount of a production order of a material, used if more than the minimum order amount is needed. In ERP systems this is often called rounding value. Enter the value and then select the unit from the drop-down.
- **Maximum Order Amount:** The maximum amount of the material that can be made when the material is run on the line. In ERP systems this is typically called maximum lot size or maximum batch size. Enter the value and then select the unit from the drop-down.
- **Add Alternate Line:** Pressing this button will add another set of input fields identical to those listed above. This allows the user to define additional preferred lines, for use in cases when the material cannot run on its first preferred line for some reason.

Attributes

Custom Attributes

Meat	
Pasta Type	
Sauce	Select a value
Sauce #	- +
Gluten Free	
Brand	
Division	
Canadian	
MTO/MTS	
Total Shelf Life	- +
Customer Shelf Life	- +

The attributes present in this section are user-defined. Which attributes are shown depends on the material type selected in the **Type** entry above.

For more on material attributes, see [Maintain Material Attributes on page 123](#).

Wheel Authoring

Wheel Authoring

Inventory Carrying Cost (annual)				%
Demand		Select Unit	per	Select Period
Demand Coef. of Variability		%	based on period	Select Period
Cost of Goods Sold (COGS)	\$	per	Select Unit	
Customer Order Lead Time				days
Planning Lead Time				days
Plant Shelf Life				days
Target Fill Rate				%
Manufacturing Variation				%

These entries are for data used in Wheel design. To learn more about Product Wheels and QAD Advanced Scheduling's Product Wheel designer, see [Product Wheel Designer on page 35](#).

- **Inventory Carrying Cost (annual):** The cost of holding and storing the material, as a percentage of the total inventory annually. Enter as an integer (i.e. if the Inventory Carrying Cost is 0.5 or 50%, enter 50).
- **Demand:** The average expected sales forecasted over the coming months. Enter the value, the unit, and then select the period of the forecast. Not used in scheduling, only in the Wheel Designer.
- **Demand Coef. of Variability:** Expected coefficient of variability of the forecast given above. The coefficient of variability is the standard deviation divided by the average. Enter the value as an integer (i.e. if the Coefficient of Variability is 0.5 or 50%, enter 50), and then select the period.
- **Cost of Goods Sold (COGS):** The standard cost of one unit of the material. Enter the value and then select the unit. Used in the Wheel Design process to define optimal production frequency.
- **Customer Order Lead Time:** The average number of days between the date a customer places the order and the order shipping date. Used in safety stock calculation and inventory simulation in the Wheel designer. Longer customer order lead time allows for safety stock reduction, as it provides additional time for the planner and the plant to react.
- **Planning Lead Time:** A minimum number of days from the moment demand change is recognized until a production order can be created or changed. Used in safety stock calculation and inventory simulation. Planning lead time typically covers frozen zone, where production schedule changes are not allowed, but can be longer based on the plant operating strategy, capacity situation, or materials availability. Longer planning lead time will require higher safety stock.
- **Frozen Inventory Time:** Amount of time after completion of production an amount of the material is available to customers.

Covers goods receipt processing time and quality hold time. Used in safety stock calculation and inventory simulation. Longer goods receipt processing time will require higher safety stock.

- **Plant Shelf Life:** A number of days between manufacturing date and product expiry date. Used in the Wheel Design process as well as in inventory simulation to evaluate the probability of a product becoming obsolete. Shorter shelf life will require more frequent production.
- **Target Fill Rate:** The target percentage of volume delivered to customers vs. volume ordered. It should be expressed as an integer (i.e. if the target is 98% or 0.98, enter 98).
- **Manufacturing Variation:** Coefficient of variation of the ratio of produced quantity to planned quantity for all individual orders. Used in safety stock calculation and inventory simulation in the Wheel designer. Higher manufacturing variation requires more safety stock. This number must be expressed an integer (i.e. if Manufacturing Variation is 20% or 0.2, enter 20).

Maintain Material Attributes

Purpose

Material attributes are used to define the characteristics of a material. The material's characteristics can be used to determine the degree of difficulty and cost of changeovers and setups.

Prerequisites

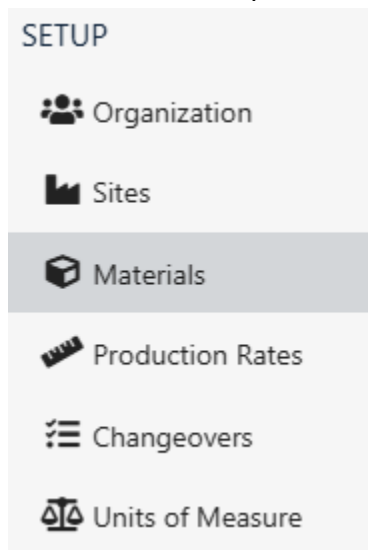
An organization must be created, but does not have to be fully configured.

Note Material Types

Material types define the required attributes that should be entered for a given material. See [Maintain Material Types on page 126](#) for more information.

Steps

1. Click on the menu path **Setup>Materials**.



2. This is the Materials page.

Materials

+ Create Material

Material Types

Material Attributes

Export Materials

Q Select a material to filter by

Advanced Filter

Setup Alerts: All

All

Material	Alerts	Last Updated	Default Line	Material Type	Min. Order Amount	Order Amount Incr...	Max. Order Amount	Max Inventory Level	Safety Inventory Le...	Meat	Pasta	
1	2 info alerts		Sauce 1	Bl Sauce	3,000 kg	3,000 kg						> Details
1001	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		1,411 Case	495 Case	Pork	None	> Details
1002	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		2,735 Case	106 Case	Pork	Blenc	> Details
1003	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		5,659 Case	1,044 Case	Lamb,Beef	None	> Details
1004	1 info alert			Pr Dry	100 Case					None	None	> Details
1005	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		8,073 Case	1,433 Case	Lamb	Brow	> Details

3. Click on **Material Attributes** to go to the Material Attributes page.

Material Attributes

< Back to Materials
+ Create

Name	Type	Actions
# Equip 2	Number	↶ Edit ✖
Allergens	Contaminants	↶ Edit ✖
Brand	Text	↶ Edit ✖
Business Importance	Picklist	↶ Edit ✖
Canadian	Text	↶ Edit ✖
Contains Hard to Process material	Picklist	↶ Edit ✖
Crew	Number	↶ Edit ✖
Customer Shelf Life	Number	↶ Edit ✖
Division	Text	↶ Edit ✖
Equipment 1 needed	Text	↶ Edit ✖
Extruder	Picklist	↶ Edit ✖
Gluten Free	Text	↶ Edit ✖
Hand Place	Number	↶ Edit ✖
Heavy Blend	Text	↶ Edit ✖
Heavy Sauce	Text	↶ Edit ✖

4. To create a new attribute, click on **Create**.
5. To edit an attribute, click **Edit** under the right “Actions” column.
6. Creating or editing an attribute opens up windows with nearly the same entries:

×

Create an Attribute

* Name

* Type Select ▼

Save

Cancel

- **Name:** The name of the attribute.
- **Type:** The attribute type, chosen from the following options:
 - **Number:** For numerical quantity attributes.
 - **Text:** For text value attributes.
 - **Contaminants:** For attributes with asymmetric changeovers. Adding a contaminant requires no or little changeover, but removing a contaminant requires a long and expensive changeover. For more about this, [Maintain Changeovers on page 144](#).
 - **Picklist:** For attributes that generally have one of a set of values. Adds the following entries to the window:

* Type

☒ Allow other values ☐ Specify Colors

 *Value 1

- **Allow other values:** If unchecked, limits attribute values to those created here.
 - **Specify Colors:** If checked, allows user to specify what color is for the value when the schedule is color-coded by the attribute.
 - **Value Entry:** Enter the value of the picklist option here. Click **Add List Option** to add a new option to the picklist. Reorder options by clicking and dragging the . Delete the option by clicking .
 - **Boolean:** For attributes that are binary (having two states). Can be set to true or false.
 - **Multi-Picklist:** Similar to picklist, but can have multiple values from the picklist.
 - **Quantity:** Similar to number, but is accompanied by a unit.
7. To delete an existing attribute, click  under the Actions column.

Maintain Material Types

Purpose

Material types define the attributes and their order for a material.

You can change the sequence in which the attributes appear when creating or maintaining a material type.

For example, a food product might require attributes for its ingredients and allergens, a bottle might require attributes for its shape and size, and a closure might require attributes for its material and color.

Prerequisites

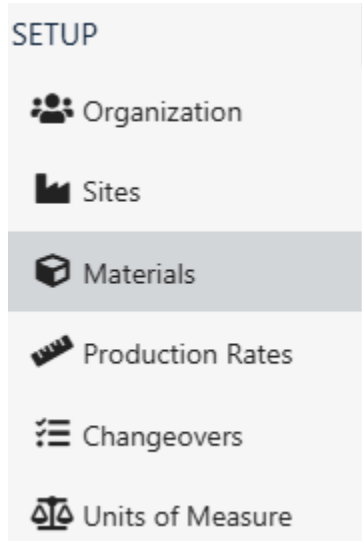
The material attributes to be used must first be created. See [Maintain Material Attributes on page 123](#) for more information.

Note Assigning Material Types

The material type is assigned to a material by the user when it is created or maintained. Entering or changing the material type causes the appropriate attributes for the material type to be displayed in the material create/edit window in the specified sequence. See [Maintain Materials on page 111](#) for more information.

Steps

1. Click on the menu path **Setup > Materials**.



2. This is the Materials page.

Materials

+ Create Material

Material Types

Material Attributes

Export Materials

Advanced Filter

Setup Alerts

All

All

Material	Alerts	Last Updated	Default Line	Material Type	Min. Order Amount	Order Amount Incr...	Max. Order Amount	Max Inventory Level	Safety Inventory Le...	Meat	Pasta
1	2 info alerts		Sauce 1	Bk Sauce	3,000 kg	3,000 kg					
1001	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		1,411 Case	495 Case	Pork	None
1002	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		2,735 Case	106 Case	Pork	Blend
1003	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		5,659 Case	1,044 Case	Lamb,Beef	None
1004	1 info alert			Pr Dry	100 Case					None	None
1005	1 info alert		Frozen1	AK Frozen	2,000 Case	1,000 Case		8,073 Case	1,433 Case	Lamb	Brown

3. Click on **Material Types** to go to the Material Types screen.

Material Types

Back to Materials		+ Create
Name	Attributes	Actions
Dry	# Equip 2, Allergens, Brand, Canadian, Contains Hard to Process material, Crew, Customer Shelf Life, Division, Equipment 1 needed, Extruder, Gluten Free, Hand Place, Heavy Blend, Heavy Sauce, Heavy mixer, Height group, Light Sauce, Line Change Indicator, MTO/MTS, Measured Drop, Meat, Pallet Cs Ct, Pasta Type, Plant Shelf Life, Portable Mixer, Ribbon mixer, Rice,	Edit

- To create a new material type, click **Create**.
- To edit an existing material type, click **Edit** in the Actions column of the material type's entry.
 - Whether creating or editing a material type, nearly identical windows will open. See **Create or Edit a Material Type** below.
- To delete an existing material type, click  in the Actions column of the material type's entry.

Creating or Editing a Material Type

Create a Material Type

* Name of Material Type

Attributes [Add Attribute](#)[Save](#)[Cancel](#)

- Enter the name of the material type in the textbox. Examples include Frozen, Dry, Canned, Bottle, etc.

2. Click **Add Attribute** to add an attribute to the material type. Select a desired attribute from the drop-down list of previously created attributes.

Create a Material Type ×

* Name of Material Type

Name cannot be empty

Attributes  

Equip 2

Allergens

Brand

Business Importance

Canadian

Contains Hard to Process material

Crew

Customer Shelf Life

Extruder,

Gluten Free,

Hand Place,

Heavy Blend,

Heavy Sauce,

Heavy mixer,

Height group

3. Repeat to add all desired attributes to the material type.
4. Once all attributes have been added, they can be re-sequenced by clicking the  next to the attribute and moving it to the desired spot.
 - a. **Note:** The order the attributes are displayed here is the order they will appear when creating or editing a material of this type.
5. To delete an attribute from the material type, click  next to the attribute.
6. Click **Save** when you are finished.

Maintain Material Bills of Material and Resource Consumption Rules

Purpose

Maintain BOM (Bill of Material) item and resource usage for materials.

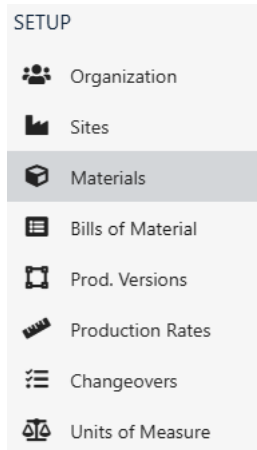
Prerequisites

Resources and materials that serve as BOM items are already created. The materials that use the resource(s) and/or BOM items are already created. See [Maintain Resources on page 101](#) for more information on creating and maintaining resources. See [Maintain Materials on page 111](#) for more information on creating and maintaining materials.

Steps

Note Material BOM item or resource consumption rules can be created or maintained manually or using QAD Advanced Scheduling's import functionalities **Consumption Rules: BOM Items** and **Consumption Rules: Resources**. This article covers the manual method. To learn about QAD Advanced Scheduling's import option, see the How-To article [Import Data on page 279](#).

1. Click on the menu path **Setup > Materials** Note that BOM items can also be viewed in the **Setup > Bills of Material** menu; however, this article will describe how to view them through the Materials menu.



2. Find the material whose consumption rules to be edited. Click on the material's entry.
3. Scroll down on the material's details page to find two headers: **Bills of Material** and **Resource Consumption Rules**.

Bills of Material

Note Bills of Material

BOM items and consumption rules allow the user to track and report the cumulative consumption of critical components and intermediates. They are also used to create dependent requirements and eventually

production orders for intermediates in the multi-level planning and scheduling.

Bills of Material

Export All
Create BOM

#	BOM Name	Site	Line	External ID	Effective start	Effective end	Actions
1	Default	Middletown	Any Line				View Edit Copy Export Default

- To create a new Bill of Material, click **Create BOM**.
- To export all Bills of Material, click the **Export All** button.
- To view the consumption rules of a BOM, click **View**.
- To edit a BOM and the consumption rules it contains, click **Edit** under the Actions column.
 - For more information on the data entries when creating or editing a BOM consumption rules, see **BOM Consumption Rule Data Definitions** below.
 - For more information on Alternative BOMs, see [Alternative BOMs on page 133](#).
- To copy an existing BOM, click **Copy**.
- To export data on a single BOM, click **Export** for the desired BOM.
- To delete a consumption rule, click  under the Actions column.

BOM Consumption Rule Data Definitions

Edit BOM
×

Add Rule
Restore Unsaved

Name: Default
External ID: External ID
Line: Any Line
Effectivity Start: Select an effective start date
Effectivity End: Select an effective end date

#	Consumed Material	Consumption Type	Quantity / Rate	External ID	Line	Scrap Factor (percent)	Scrap Factor (fixed)
1	102 (Middletown)	By Produced...	Consumed: 1 kg Produced: 1 Case	External ID	Any Line	%	Enter Select Unit
3	31 (Middletown)	By Produced...	Consumed: 1 kg Produced: 1 Case	External ID	Any Line	%	Enter Select Unit

Save
Cancel

Note that at the top of the Edit BOM window there are filtration options to help narrow down the Bills of Material displayed.

- Component Item Number:** The numbering under the # column of the BOM items table. Used to order BOM item and resource components of materials so that the same component item number is the same type of BOM item or resource for all materials. This allows for easy viewing of BOM item and resource consumption on the schedule.
 - Example:** If all materials are frozen meals and have a sauce BOM item, a pasta BOM item, and use the resource 'staff', then you can set the sauce to component item 1, pasta to component item 2, and staff to component item 3.

Note It may be helpful to number component items in a way that allows the user to quickly add or substitute items. For example, items could be initially numbered 10, 20, 30, and so on. This way, if new BOM items are involved, they can be added into the component item number listing without disruption (e.g., add a new item as component number 11 or 21).

- **Material Being Consumed:** The material ID of the material being consumed.
- **Consumption Type:** One of two options: **By Produced Amount** (default) and **Constant Rate**. Entries vary depending on type selected; see below for definitions of these entries.
- **Quantity/Rate:** The rate at which a BOM item is consumed and at which the produced item is produced. Changes depending on selected Consumption Type.
- **External ID:** Optional. A field that allows the user to associate the consumed BOM item with an identifier used outside QAD Advanced Scheduling. Useful for tracking materials between systems/softwares.
- **Line:** If the consumption rule applies on a specific line, enter the line ID here.
- **Scrap Factor (percent):** The percentage by which the order quantity will be increased in inventory to represent scrap or extra material produced. When set in a BOM Item Consumption Rule, this value overwrites a Scrap Factor set for a material.
- **Scrap Factor (fixed):** The numeric value by which the order quantity will be increased in inventory to represent scrap or extra material produced. Unit can be set, but uses Base Unit of Measure for the material by default. When set in a BOM Item Consumption Rule, this value overwrites a Scrap Factor set for a material.

If Consumption Type is **By Produced Amount**:

- **Consumed Quantity:** Amount of the consumed material used. Enter the value and then select the unit.
- **Produced Quantity:** Amount of the material that will be produced.

If Consumption Type is **Constant Rate**:

- **Rate per Unit:** The consumed quantity per one unit of time of production. Enter the value and then the unit for both the quantity value and the time.

Resource Consumption

Note Resource Consumption Rules

Resource consumption rules allow you to track and report the cumulative use of critical components. They also allow you to view, on the schedule, how much of a resource is in use at any given time, and alerts you if the

use of a limited resource exceeds allowed levels. For more information on resources themselves, see [Maintain Resources on page 101](#).

Resource Consumption Rules

± Export All					
#	Resource	Description	Usage	Line	Actions
2	Crew (Middletown)	Production Staffing	10 Crew per minute		☐ Availability ☒ Edit ☐
+ Create Rule					

1. To export all Resource Consumption Rules for a material, click **Export All**.
2. To create new Resource Consumption Rules or edit existing ones, click **Add or Edit Rules**; see **Resource Consumption Rule Data Definitions** below.
3. To check the availability of an existing resource, click **Availability**.

Resource Consumption Rule Data Definition

Resource Consumption Rules

+ Add Rule

#	Resource	Consumption Type	Quantity / Rate	External ID	Line
2	Crew (Middletown) Production Staffing	Constant Ra...	Resource Usage: 10	External ID	Any Line

Save Cancel

- **Add Rule:** Allows the user to add another Resource Consumption Rule.
- **Component Item Number:** The numbering under the # column of the BOM items table. Used to order BOM item and resource components of materials so that the same component item number is the same type of BOM item or resource for all materials. This allows for easy viewing of BOM item and resource consumption on the schedule.
 - **Example:** If all materials are frozen meals and have a sauce BOM item, a pasta BOM item, and use the resource staff, then you can set the sauce to component item 1, pasta to component item 2, and staff to component item 3.
- **Resource:** The resource ID of the resource being used.
- **Consumption Type:** One of two options: **Constant Rate** (default) and **By Produced Amount**. Entries vary depending on type selected; see below for definitions of these entries.
- **Quantity/Rate:** Fields that allow for the entry of the amount of resource consumed or occupied. These fields vary depending on which option was chosen for Consumption Type.

- **External ID:** Optional. A field that allows the user to associate the consumed BOM item with an identifier used outside QAD Advanced Scheduling. Useful for tracking materials between systems/softwares.
- **Line:** If the consumption rule applies on a specific line, enter the line ID here.

If Consumption Type is **Constant Rate**:

- **Resource Usage:** The amount of the resource being consumed.

If Consumption Type is **By Produced Amount**:

- **Consumed Quantity:** Amount of the resource used. Enter the value and then select the unit of the resource.
- **Produced Quantity:** Amount of the material that will be produced. Enter the value and then select the unit of the resource.
- : Only present if more than one resource consumption rule is included. Deletes the consumption rule for which it is selected.

Alternative BOMs

Overview

QAD Advanced Scheduling offers users the ability to define multiple BOMs that a given material might use. These alternative BOMs can therefore represent different component options. Moreover, alternative BOMs can be set to apply only to specific lines to represent differences in requirements between lines. Finally, a default BOM can be set that will automatically apply if none more specific are chosen.

Creating and Managing Alternative BOMs

Alternative BOMs must be enabled via a feature flag in the organization editing menu. Once the feature flag is enabled, you will see the following in the details menu for a specific material:

BOM Items and Consumption Rules

 Export Default (Any Line) ▼ + Create BOM ▼ 

Line: Any Line

#	Consumed Material	Description	Produced Amount	Consumed Amount	Line	Actions
1	102 (Middletown)	Brown Rice	1 Case	1 kg		 Edit 
3	31 (Middletown)	Special Sauce	1 Case	1 kg		 Edit 
						+ Create Rule

A few new buttons have been added.

- **BOM selection drop-down menu:** Allows the user to choose which BOM is being displayed and whether each BOM is line-specific or not.
- **Create BOM:** Allows the user to create a new BOM, either from scratch or by copying the currently chosen BOM. Creating a new BOM displays the following window:

Create BOM



* Name

Enter a name

Line

Any Line

Save

Cancel

Use the Name field to label the new BOM, and the Line field to choose if the new BOM should be restricted to a specific line.

- : Allows the user to edit the currently selected BOM.

When at least one Alternative BOM has been created, a few extra buttons appear:

BOM Items and Consumption Rules

Export

Alt BOM 1 (Frozen1 - Mid

+ Create BOM

Make Default

Line: Frozen1 (Middletown)

#	Consumed Material	Description	Produced Amount	Consumed Amount	Line	Actions
1	102 (Middletown)	Brown Rice	1 Case	1 kg		Edit
3	31 (Middletown)	Special Sauce	1 Case	1 kg		Edit
						+ Create Rule

- **Make Default:** Allows the users to set the currently selected BOM as the default BOM. Only functions if the selected BOM is not the default.
- : Allows the user to delete the currently selected BOM. Does not function if the currently selected BOM is the default.

Note that line specificity can be set at the BOM level, or at the consumption rule level within the BOMs. In cases where both are set, the BOM-level line specification will take precedence. In other words, if a BOM is set to Line 1 and its consumption rules are set to Line 2, the BOM will function only on Line 1.

Importing and Utilizing Alternative BOMs

Alternative BOMs are assets that can be utilized throughout Advanced Scheduling. Alternative BOMs can be interfaced with in the following areas:

- **Importing Consumption Rules: BOM Items**
 - Alternative BOMs can be imported. When doing so, users should map BOM name, whether it is the default BOM, line specifier if any, rate identifier, and rule line filter.

Importing Consumption Rules: BOM Items using sheet "ERP Orders"

[< Back](#)
[Ignore Unmapped](#)
[Continue >](#)

Select File ✓
 Select Sheet ✓
 Map Columns 3
 Options 4
 Confirmation 5
 Summary 6

How is consumption defined? By Produced Amount Suggest Mappings Remove All Mappings + Load saved import

Actions	Column Name	Example Values	Mapping
Edit Mapping	Material ID	1001, 1002, 1003	"Produced Material Identifier" ×
Edit Mapping	Description	Product-1001-Description, Product-1...	
Edit Mapping	Material Type	Frozen, Frozen, Frozen	
Edit Mapping	Due Date	2025-01-25, 2025-01-25, 2025-01-25	
Edit Mapping	ERP Order	500, 1000, 2000	
Edit Mapping	Order Unit	Case, Case, Case	
Edit Mapping	Comments	...	

[Ignore Unmapped](#)
[Continue \(6 unmapped\) >](#)

"Consumed Quantity Unit" Required
 "Produced Quantity Value" (optional, default 1)
 "Produced Quantity Unit" (optional)
 "BOM Name" (unmapped or blank implies default BOM)
 "BOM Line Identifier" (optional)
 "BOM is Default" (if "Y", "Yes", or "true", will override BOM Name and assign rule to the default BOM) Required
 "Rule Line Identifier" (optional)
 "Site" Required
 "Rule Line Filter" (optional)
 "Rate Identifier" (optional, advanced)

- Scheduling**

- The schedule list window can now display a column called "BOM used". As the name suggests, this column will display which BOM a given order is utilizing. This column can be enabled via the Configure → Columns menu path in the scheduling menu.

108: Resource 2 Cumulative	109: Resource 3	110: Resource 3 Rate/min	111: Resource 3 Consumption	112: Resource 3 Cumulative	113: Resource 4	114: Resource 4 Rate/min	115: Resource 4 Consumption	116: Resource 4 Cumulative
117: Resource 5	118: Resource 5 Rate/min	119: Resource 5 Consumption	120: Resource 5 Cumulative	121: Resource 6	122: Resource 6 Rate/min	123: Resource 6 Consumption	124: Resource 6 Cumulative	125: Resource 7
126: Resource 7 Rate/min	127: Resource 7 Consumption	128: Resource 7 Cumulative	129: Resource 8	130: Resource 8 Rate/min	131: Resource 8 Consumption	132: Resource 8 Cumulative	133: Resource 9	134: Resource 9 Rate/min
135: Resource 9 Consumption	136: Resource 9 Cumulative	137: Resource 10	138: Resource 10 Rate/min	139: Resource 10 Consumption	140: Resource 10 Cumulative	141: BOM Used	142: BOM Item 1	143: BOM Item 1 Cumulative
144: BOM Item 2	145: BOM Item 2 Cumulative	146: BOM Item 3	147: BOM Item 3 Cumulative	148: BOM Item 4	149: BOM Item 4 Cumulative	150: BOM Item 5	151: BOM Item 5 Cumulative	152: BOM Item 6
153: BOM Item 6 Cumulative	154: BOM Item 7	155: BOM Item 7 Cumulative	156: BOM Item 8	157: BOM Item 8 Cumulative	158: BOM Item 9	159: BOM Item 9 Cumulative	160: BOM Item 10	161: BOM Item 10 Cumulative
162: Frozen Inventory Time (goods receipt or quality time)								

- When creating an order, users can set which BOM the order will follow. Note that if the BOM selected is not compatible with the line the order is placed on, Advanced Scheduling will issue a warning. If the user continues without change, the order will be created, but will be automatically moved to a line compatible with the chosen BOM.

Create an Order

Order ID

* Material

* Quantity

Select Unit

* Run Length

minutes

Keep Run Length ☐ 

Start

*Leave blank to auto-schedule

End

Due Date

BOM

Order Description

Changeover Crew

Material Co-Products and By-Products

Co-Products and By-Products

In some production scenarios, additional materials are yielded during the course of production that are not specifically put on lines themselves. It is important to track these additional materials both because it improves overall efficiency and because such materials are often useful. To facilitate this tracking and management, QAD Advanced Scheduling offers the ability to establish **Co-Products** and **By-Products**, as well as **Base Process** materials.

Classifying the material as a **Co-Products**, **By-Products**, or **Base Process** governs the degree to which it can be managed in scheduling operations and production, and additionally adds clarity regarding what is produced. To this end, **Co-Products** and **By-Products** are, in essence, the same type of classification. They represent materials that are not themselves put into production, but are obtained when other materials (usually **Base Processes**) are produced. **Co-Products** and **By-Products** can therefore be produced and even be consumed by production processes, but cannot run on lines or consume other materials. Meanwhile, a **Base Process** can run on lines and can consume other materials, but cannot be consumed. Thus, the expected use case is that an organization which has **Co-Products** and/or **By-Products** would establish a **Base Process** material, then create and assign **Co-Products** or **By-Products** as appropriate to that **Base Process**. An example follows:

Imagine a production plant that creates orange juice. The plant has presses into which it places large quantities of oranges. The **Base Process** is simply juice production - the oranges will be pressed and juice will be obtained. However, the plant usually obtains juice with and without pulp. These are both legitimate products, and so it fits that the plant would want to classify them properly for further tracking and management. Juice with pulp and juice without pulp could both be **Co-Products** of the juicing **Base Process**. The plant also wants to track the remaining output of the juicing process such as seeds, rinds, etc. It therefore makes sense to define seeds, rinds, and so on as **By-Products** of the juicing **Base Process** since these items are not going to be sold or otherwise utilized. With these classifications set, the juicing **Base Process** is kept simple while its output in **Co-Products** is rendered in more detail; the juice types can be packaged, mixed, or put to other use. Meanwhile, the **By-Products** can be reviewed to glean some insight into production (perhaps the overall quantity of rind is increasing proportional to the expected quantity of juice - this might indicate that oranges are drying out or getting smaller) and then discarded.

Establishing Co-Products and By-Products

Co-Products and By-Products can be defined when creating or editing a Material. The process is as follows.

1. Use the Create Material button at the top of the Materials menu or the Edit button at the top of the details page for a specific material to open the material creation/editing window.

Materials

+ Create Material Material Types Material Attributes Export Materials Select a material to filter by					
Material	Site	Alerts	Last Updated	Default Line	Material Description
1	Middletown	3 info alerts		Sauce 1	Buffalo Sauce
1001	Middletown	2 info alerts		Frozen1	ACME SP NONE NONE MTS ...
1002	Middletown	2 info alerts		Frozen1	ACME ASIAN BLND MTS MED...
1003	Middletown	1 info alert		Frozen1	ACME SP RED S NONE MTS ...
1004	Middletown	1 info alert			Product-1004-Description
1005	Middletown	1 info alert		Frozen1	ACME SP SPECI BRN RICE MT...
1006	Middletown	1 info alert		Frozen1	ACME SP BUFFA ELB MTS ME...
1007	Middletown	1 info alert		Frozen1	ACME SP SPECI BRN RICE MT...

1001 (Middletown): ACME SP NONE NONE MTS NRW MED

< Materials
Alternate Sites
Edit
+ Make a Copy
Archive
> Inventory

Specific production rates not present.

This material is present in the wheel for line Frozen1 (Middletown).

This material is missing a Base Unit of Measure.

Material ID: 1001

Site: Middletown

Description: ACME SP NONE NONE MTS NRW MED

Type: Frozen

Preferred Line: Frozen1 (Middletown)

Can run on lines: [Frozen1 \(Middletown\)](#)

Approved Wheel Cycles: Frozen1: 12

Brand: Acme Special

Canadian: no

MTO/MTS: MTS

Total Shelf Life: 547

Customer Shelf Life: 182

Pallet Cs Ct: 150

Alternate MK: FCC

2. In the material cration/editing window that appears, note the Co-/By-Product Type drop-down menu. Clicking the drop-down menu will populate a list of options:

Create a Material ×

* Material ID

Description

External ID

* Site

Type

Co-/By-Product Type

Dependent Requirements

Base Unit of Measure

Rounding Unit of Measure

Maximum Wait Time minute (-s)

Max Inventory Level

Safety Inventory Level

The options are as follows:

- a. **Standard Material:** This option allows the material to function without constraint by the Co-/By-Product functionality in QAD Advanced Scheduling. Materials defined as a Standard Material will be able to run on lines, consume other materials, and be consumed.
 - b. **Base Process:** This option sets the material to act as a Base Process. The material will therefore be able to run on lines and consume other materials, and other materials will not be able to consume it.
 - c. **Co-Product:** This option sets the material to act as a Co-Product. This means that it cannot run on lines or consume other materials, but other materials can consume it. This option serves the same functionality as By-Product, simply differing in label for clarification purposes.
 - d. **By-Product:** This option sets the material to act as a By-Product. This means that it cannot run on lines or consume other materials, but other materials can consume it. This option serves the same functionality as Co-Product, simply differing in label for clarification purposes.
3. With the material set as a Standard Material, Base Process, Co-Product, or By-Product, proceed through the material creation process as normal. When the material is saved it will be treated as the selected option. Note that Co-/By-Product type can be set via import as well. When importing materials from a flat file, simply ensure that a "Co-/By-Product type" column exists in the flat file. It can then be mapped to the "Co-/By-Product type" field in the column mapping step of the import process.
 4. Once the materials are established, the user must define the Co-/By-Product production rules. This enables QAD Advanced Scheduling to automatically track production of Co-/By-Products alongside their

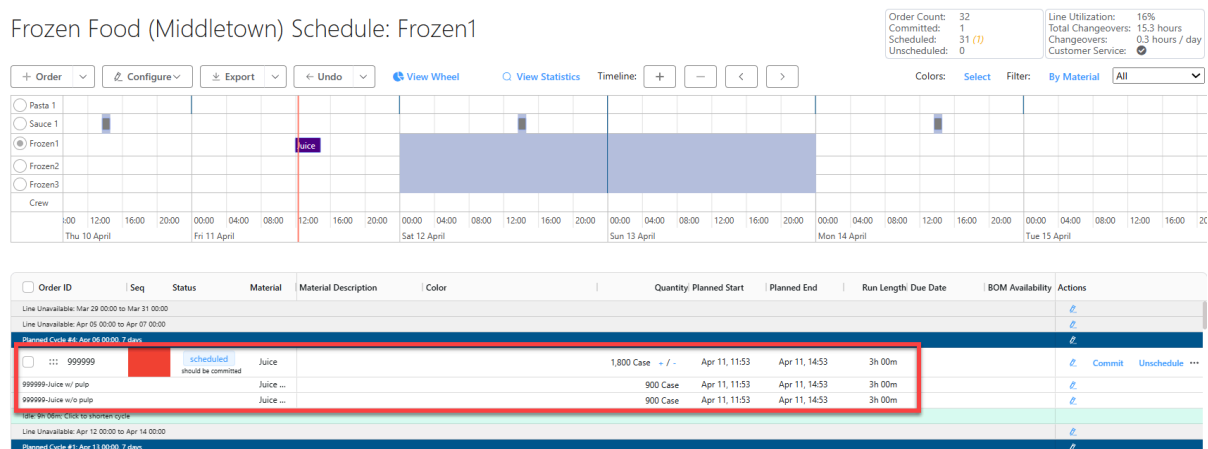
Frozen Food (Middletown)

☐ Pasta 1
☐ Sauce 1
☒ Frozen1
☐ Frozen2
☐ Frozen3
☐ Crew

☐ Columns
☐ Line Frozen Food
☐ Line Pasta 1
☐ Line Sauce 1
☐ Line Frozen1
☐ Line Frozen2
☐ Line Frozen3
☐ Show Wheel Spokes
☒ Show Changeovers
☐ Show Shifts
☒ Show Co-Products
☒ Show By-Products
☒ Show Header
☒ Show Timeline
☒ Show Timeline Controls

☐ Order ID
 Line Unavailable:
 Line Unavailable:
 Planned Cycle #4
☐ ... 95
 999999-Juice w/
 999999-Juice w/
 Idle: 9h 06m; Click
 Line Unavailable:
 Planned Cycle #1
 Idle: 120h 00m; Click
 Committed Wine
 Line Unavailable:

Frozen Food (Middletown) Schedule: Frozen1



Maintain Bills of Material

Overview

The Bills of Material menu offers a consolidated location to view the bills of material (BOMs) and bills of resource (BORs) associated with each material in the organization. This menu enables users to quickly check this information for multiple materials without the surplus information on each material that is found in the Materials menu.

Summary

The Bills of Material menu appears similar to the following:

Bills of Material

* Export ▾		Q. Select a material to filter by		Site: Middletown ▾	Type: All ▾	Show: All ▾	Contains: Q. Select a material or resource to filter by
Material	Site	Material Description	Material Type	Last Updated	BOMs	BORs	
1	Middletown	Buffalo Sauce	Sauce		0	0	> Details
1001	 Middletown	ACME SP NONE NONE MTS NRW MED	Frozen		0	1	> Details
1002	 Middletown	ACME ASIAN BLND MTS MED MED	Frozen		1	1	> Details
1003	 Middletown	ACME SP RED S NONE MTS WDE MED	Frozen		1	1	> Details
1004	Middletown	Product-1004-Description	Dry		0	0	> Details
1005	 Middletown	ACME SP SPECI BRN RICE MTS NRW LOW	Frozen		1	1	> Details
1006	Middletown	ACME SP BUFFA ELB MTS MED LOW	Frozen		1	1	> Details
1007	 Middletown	ACME SP SPECI BRN RICE MTS WDE LOW	Frozen		1	1	> Details
1008	 Middletown	ACME SP PRIMA FETT MTS NRW HIGH	Frozen		1	1	> Details
1009	 Middletown	ACME SP PRIMA FETT MTS MED HIGH	Frozen		1	1	> Details
101	Middletown	Blend	Pasta		0	0	> Details
1010	Middletown	Product-1010-Description	Dry		0	0	> Details

The features of this menu are as follows.

- **Export:** The option that allows the user to retrieve a flat file containing information about the items listed in the Bills of Material menu. Clicking the Export button will offer the option to export either BOM consumption items or Bills of Resource.
- **Filtration Options:** The user can quickly find specific materials by making use of the filtration options present at the top of the Bills of Material menu. The user can search for a specific material identifier, search for items that contain a specific material or resource, or limit displayed materials by site or material type, as well as filter to include or exclude BOMs or BORs.
- **Material List:** The list of materials present in the organization. This list contains columns that display summarizing information on each material, including:
 - Material ID
 - Site
 - Material Description
 - Material Type
 - Date of Most Recent Update
 - Number of BOMs

- Number of BORs
- **The Details button:** A button present in the row of each material in the list. This button will take the user to a screen showing a more detailed summary of the BOMs and BORs for the selected material.

The Details page in the Bills of Material menu appears as follows:

1005 (Middletown): ACME SP SPECI BRN RICE MTS NRW LOW

< Bills of Material

⚙ Export BOM Items and Co-/By-Products

Bills of Material

⚙ Export All

+ Create BOM

#	BOM Name	Site	Line	External ID	Effective start	Effective end	Actions
1	Default	Middletown	Any Line				View Edit Copy Export Default

Resource Consumption Rules

⚙ Export All

#	Resource	Description	Usage	Line	Actions
2	Crew (Middletown)	Production Staffing	10 Crew per minute		Availability Edit + Create Rule

This screen offers the same options as those found on the details page within the Materials menu, minus excess material details. To learn what each option on this page is and how to use it, view [Maintain Material Bills of Material and Resource Consumption Rules on page 129](#).

Maintain Changeovers

Purpose

To maintain the rules that QAD Advanced Scheduling uses to calculate the duration and cost of changeovers or setups.

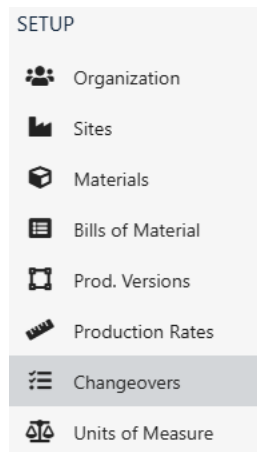
Prerequisites

Material attributes created and assigned to material types. Materials created, assigned a material type, and attributes filled out.

Steps

Note Changeovers are site specific. This means that created changeovers are not automatically created for all sites in an organization. This allows users to differentiate between sites and the changeovers involved at each.

Click on the menu path **Setup>Changeovers**.



This is the changeovers page, where you can create and edit an organization's changeovers.

Changeover Rules

1. Changeover rules define the changeovers that are seen in scheduling and the Product Wheel designer.
 - a. To create a new Changeover Rule, click **Create** under the Changeover Rules heading.
 - b. To edit an existing changeover rule, click **Edit** in the Actions column of the changeover rule's entry.
 - c. Creating or editing a changeover rule opens a window with the same inputs, which vary by rule type. See **Changeover Rule Inputs** below for more information.

Create a Changeover Rule ×

Name

Site

* Rule Type

* Time in Minutes

Additional cost \$

Advanced ☐ Check to set advanced options.

2. To export information about existing changeover rules, click **Export Changeovers** under the Changeover Rules heading.
3. To copy an existing changeover rule (to create redundancies or subsequently edit to make a slightly different changeover), click **Copy** in the Actions column of the Changeover rule's entry.
4. To delete an existing changeover rule, click  in the Actions column of the Changeover rule's entry.

Changeover Rule Inputs

General Inputs

- **Name:** The label for the changeover. Typically, it is good practice to include information that describes what is being changed (e.g., Bottle Threading 2.5mm to 1.5mm).
- **Rule Type:** The general category of the rule. Choose from following options:
 - **Combination:** A changeover rule which is a combination of several other changeover rules. This allows multiple changeovers to apply consecutively, instead of the standard QAD Advanced Scheduling process of using the longest changeover and assuming other changeovers will occur during the same timeframe.
 - **Contaminant Clean:** The changeover works on attributes of type "Contaminant". If the list of contaminants of the "from" product is a subset of the list of contaminants of the "to" product, no specific cleaning is required. However, if some contaminants of the "from" product are not in the list for the "to" product, the rule will be triggered. One of the more commonly used rule types.
 - **Default:** The rule occurs between products if no other rules do, and can be configured to occur after a certain amount of production has occurred.
 - **Line Mode Change:** A rule triggered by a line attribute changing.

- **Material Attribute Changed:** Triggered when the value of the previous material's attribute is different from the value of the next material's attribute.
- **Order Attribute Changed:** Triggered when the value of the previous order's attribute is different from the value of the next order's attribute.
- **Periodic:** Changeover is not triggered by orders and materials, but always occurs after a specified period of time.
- **Run Sequence:** Allows the user to designate a material attribute as a run sequence indicator. That material attribute can then be checked to see if materials are following the sequence outlined by the material attribute, and call a changeover if not.
- **Simple:** For special case changeovers that do not fall under the other categories.
- **Time in Minutes:** The length of time, in minutes, the changeover is expected to take.
- **Additional Cost:** Optional. The extra cost associated with the changeover, not from loss of production.

Combination Rule Type Inputs

- **Rules:** Search for an existing changeover rule to add to the combination rule. Use the "+ Add" button to add more fields with which to add further changeover rules to the combination rules.

Contaminant Clean Rule Type Inputs

- **Contaminants material attribute:** Select Attribute from list of user-created Material Attribute (of type "contaminant") that contains the contaminant list the changeover applies to.
- **Labeled contaminants material attribute:** Optional. Exists to allow for circumstances in which a production scenario may label materials to have contaminants, even if they may not actually have those contaminants, and call or not call the changeover as a result. For example, a material may have only milk but be labeled to contain milk and nuts. If a prior material has nuts, the changeover is not actually called. Likewise, if no nuts are used prior, and the next item is not labeled to contain nuts, the changeover is also not called.

Default Rule Type Inputs

- No unique input options.

Line Mode Change Rule Type

- **Select attribute:** Select from the list of user-created Line Attributes of type "Operating-mode" that contains the values that trigger the changeover. (For more information on Line Attributes, see [Maintain Line Types and Attributes on page 93](#).)

Material Attribute Changed Rule Type

- **Material attribute to apply this to:** Select Attribute from list of user-created Material Attributes (of any type) that contains the values that trigger the changeover.

Order Attribute Changed Rule Type

- **Select order attribute:** Select Attribute from list of user-created Order Attributes (of any type) that contains the values that trigger the changeover.

Periodic Rule Type

- **Default time between (hours):** The number of hours after one instance of the changeover after which another instance should occur.
- **Maximum time between (hours):** The number of hours after one instance of the changeover after which the next instance *must* occur.

Run Sequence

- **Run sequence material attribute:** The material attribute that should be checked by the rule to see if materials are running in sequence.
- **Trigger changeover from no entry (blank) to a sequence number:** A checkbox that determines whether the changeover should trigger when moving from a material that doesn't have an entry for the designated Run Sequence material attribute to one that does. Can be used simultaneously with the option below.
- **Trigger changeover from a sequence number to no entry (blank):** A checkbox that determines whether the changeover should trigger when moving from a material that has an entry for the designated Run Sequence material attribute to one that doesn't. Can be used simultaneously with the option above.
- *note:* At least one of the two checkbox options above should be checked for every Run Sequence changeover. If not, the system may try to "skip" the Run Sequence changeovers by moving from a material with a value to a material without a value over and over.

Simple Rule Type

- No unique input options.

Advanced Options (All Optional)

Note Many of the advanced options in changeover rule creation are shared across multiple types. For example, all changeover rule types have access to the priority override advanced option. To avoid redundancy, advanced options will only be fully described the first time they are encountered.

- **Priority Override:** Determines what priority the changeover is. If multiple changeovers could apply between two items, QAD Advanced

Scheduling will assume the lower priority changeover will occur within the time set aside by the higher priority changeover. Leave blank to apply a default priority based on changeover length

- **Allow Changeover to be Additive:** Classifies a changeover that can be appended to other changeovers. See [Changeovers on page 29](#) for more details on additive changeovers.
- **Customize Time for Wheel Design:** Use when the changeover should be used differently in Wheel Design than it should be in other scheduling approaches.
- **Consumed Resource:** The Resource used when the changeover occurs.
- **Add New “Line” Condition:** Creates a new configuration box that allows you to control what influence the production line has over this changeover rule. The options within are:
 - **Apply/Don’t Apply:** Allows the user to set the rule to apply if conditions match the second setting, or not apply if conditions match the second setting.
 - **Name/Type/Attribute:** Allows the user to set what characteristic of the production line is being checked. For each of these options, a text field will appear allowing the user to find a specific line, line type, or attribute. If “Attribute” is selected, the user can set a specific value for the attribute.
 - **Remove Condition:** Deletes the condition from the rule.
- **Add New “Order” Condition:** Works similarly to Add New “Line” Condition, save that order attributes are checked instead.
 - **Apply/Don’t Apply:** Allows the user to set the rule to apply if conditions match the second setting, or not apply if conditions match the second setting.
 - **Attribute:** Allows the user to set what characteristic of the order is being checked. Once chosen, two text fields will appear, allowing the user to find a specific order attribute to check as well as a value for that attribute.

Note When applying advanced conditions such as “Add new ‘Line’ Condition” (or any others, including the Material From and Material To conditions described below), QAD Advanced Scheduling aims to use the following logic: conditions within the same type (i.e., all “Line” Condition) will subscribe to OR logic, while conditions across types (e.g. a “Line” Condition and a “Material From” Condition) will use AND logic.

Advanced Options for the Combination Rule Type

- **Add New “Material From” Condition:** Similar to “Add New ‘Line’ Condition”, save that it concerns materials rather than production

lines. More specifically, this setting checks the material *before* the changeover would occur for the specified characteristics.

- **Apply/Don't Apply:** Allows the user to set the rule to apply if conditions match the second setting, or not apply if conditions match the second setting.
- **Name/Type/Attribute:** Allows the user to set what characteristic of the material is being checked. For each of these options, a text field will appear allowing the user to find a specific material, material type, or material attribute. If "Attribute" is selected, the user can set a specific value for the attribute.
- **Add New "Material To" Condition:** Similar to "Add New 'Line' Condition", save that it concerns materials rather than production lines. More specifically, this setting checks the material *after* the changeover would occur for the specified characteristics.
 - **Apply/Don't Apply:** Allows the user to set the rule to apply if conditions match the second setting, or not apply if conditions match the second setting.
 - **Name/Type/Attribute:** Allows the user to set what characteristic of the material is being checked. For each of these options, a text field will appear allowing the user to find a specific material, material type, or material attribute. If "Attribute" is selected, the user can set a specific value for the attribute.

Advanced Options for the Contaminant Clean Rule Type

- **In order to remove this contaminant:** Allows the user to define which specific contaminant the changeover will remove.
- **Production Cleans Contaminants:** Only appears when a value is entered in the "Labeled contaminants material attribute (optional)" field. Checking this box will cause Advanced Scheduling to consider the changeover to remove allergens.

Advanced Options for the Default Rule Type

- **Also apply when material unchanged:** Allows the user to enforce the changeover even when the prior and following order are producing the same material.

Advanced Options for the Line Mode Change Rule Type

- **From mode (blank for any):** Allows the user to define the line mode that should exist prior to the changeover for the changeover to go into effect. Can be left blank to allow the changeover to accept any prior line mode.
- **To mode (blank for any):** Allows the user to define the line mode that should exist after the changeover for the changeover to go into effect. Can be left blank to allow the changeover to accept any following line mode.

Test Changeovers

To ensure changeovers are created properly or to check which changeover will be called in certain circumstances, you can make use of the **Test Changeovers** section of page.

Test Changeovers

Line

No rule found.

Q

From material

Q

To material

Q

[> Get Changeover Rule](#)

Select the line from the drop-down. Select the “From material” and the “To material”. Click **Get Changeover Rule**. The rule QAD Advanced Scheduling will apply will appear on the right.

Test Changeovers

Line

Q Frozen1 (Middletown)

From material

Q 1001

To material

Q 1005

[> Get Changeover Rule](#)

Total Changeover Time: 30 mins

From Material: 1001
To Material: 1005

Rule 1 of 1

Rule Name: **Sauce**

Rule Type: Material Attribute Changed

Time: 30 minutes

From Material Attribute: None
To Material Attribute: Special Sauce

Maintain Production Rate Rules

Purpose

To maintain the rules that determine the production rates QAD Advanced Scheduling will use when calculating the run time of orders.

Prerequisites

The organization has been created, but does not have to be fully configured.

If any production rates are specific to certain production lines, the line must be created.

If any production rates are specific to certain materials, the material must be created.

Note Production Rate Rules

Production rates in QAD Advanced Scheduling can vary in their specificity. A production rate can apply to a specific line, a specific material, both, or neither. In situations where multiple production rates can apply, the more specific production rates will override the less specific ones.

QAD Advanced Scheduling ranks production rate specificity as follows:

1. Production rate with a material and a Line.
2. Production Rate with a material only.
3. Production Rate with a line only.
4. Production Rate without a material or a line.

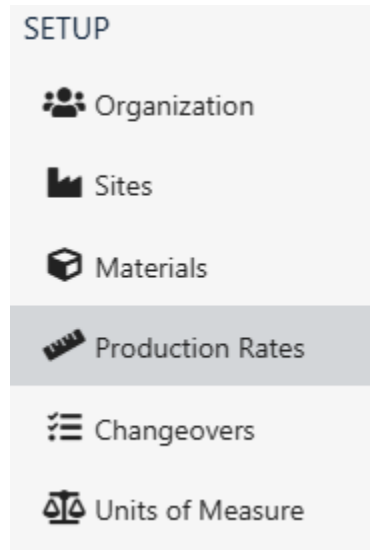
Note The production rate rule entered may not be the “actual” rate used. This depends on the **efficiency** used with the rule, and how you choose to represent rates in QAD Advanced Scheduling. For more information, see [Representing Production Rates on page 155](#).

Note Production Rates are site specific. This means that created production rates are not automatically created for all sites in an organization. This allows users to differentiate between sites and the production rates therein more easily.

Steps

Note Production rates can be created and updated manually or by using QAD Advanced Scheduling’s import function **Production Rates**. While this article only covers manual creation and maintenance, if your organization has many production rates by line or by material, it is recommended to import them from an external file. See [Import Data on page 279](#) for more information on QAD Advanced Scheduling’s import functionalities.

1. Click on the menu path **Setup>Production Rates**.



- a. Alternatively, production rate rules can be maintained as described in the [Maintain Materials on page 111](#) section.
2. This is the production rate rules page.

Production Rate Rules

+ Create Rule ± Export Production Rates ± Export All Rates (Advanced) Select a material to filter by Advanced Filter Material type: [All Material Types] Line: [All Lines]										
Type	Line (Site)	Line Filter	Material	Material ...	Rate	Efficiency	Fixed Duration	Start Date	End Date	Actions
Line Default	Sauce 1 (Middletown)				105 kg per minute					↻ Edit
Line Default	Pasta 1 (Middletown)				50 kg per minute					↻ Edit
Material Default			1001	ACME SP ...	20 Case per minute	100%				↻ Edit
Material Default			1001	ACME SP ...	20 Case per minute					↻ Edit
Material Default			1001Z	New versi...	33 Case per minute					↻ Edit
Material Default			1002	ACME ASL...	20 Case per minute	100%				↻ Edit

3. To create a new production rate rule, click **Create Rule**.
 - a. See **Production Rate Rule Data Definitions** below for more information.
4. Edit an existing production rate by clicking **Edit** in the Actions column of the production rate's entry.
 - a. See **Production Rate Rule Data Definitions** below for more information.
5. Delete an existing production rate by clicking  in the Actions column of the production rate's entry.
6. Clicking **Export Production Rates** will download a .XLSX (Excel) file containing all production rates in the organization to your computer.
7. Clicking **Export All Rates (Advanced)** will download a .XLSX (Excel) file containing **all** rates: production rates, BOM item consumption rates, and resource consumption rates.
8. Use the **search bar** above the production rates display to filter the display to only those that are specific to a material of your choosing.
9. Use the blue **Advanced Filter** text to open a filtration window that lets you set material and line filtration conditions.

10. Use the **Material Type** drop-down menu to filter rates by material type.
11. Use the **Filter** drop-down menu to filter the current display of production rates to only those that are specific to that line or line group.

Production Rate Rule Data Definitions

When creating or editing a production rate, a window will open with the same data inputs.

Create a Production Rate Rule ×

Material Being Produced

Site

Rate per

Duration

Default Rate Efficiency %

Effectivity Start

Effectivity End

Line

Line Filter:

- **Material Being Produced:** Optional. The material the production rate applies to. Leave blank if the production rate can apply to any material.
- **Rate/Unit per Time:** The ideal rate of production, the unit of that production, and the unit of time (minute, hour, or day). Enter the value and then select the unit.
- **Duration:** Optional. Can be used to set a fixed duration for a material's production run, along with order sizes for which this duration is applicable.
- **Default Rate Efficiency:** Optional. The percentage of the ideal rate production is expected to run at. Given as an integer. If left blank, the line's efficiency will be used. If the line's efficiency is also not specified, the organization's efficiency will be used.
- **Effectivity Start:** Optional. Allows the user to select a date from which the rate will become active.
- **Effectivity End:** Optional. Allows the user to select a date after which the rate will become inactive.

- **Line:** Optional. The line the production rate applies to. Leave blank or as “Any Line” if the production rate can apply to any line.

Note If both a time-based rate and a fixed duration-based rate are maintained, any orders using the rate rule will have a duration calculated from the sum of the time-based rate and the fixed duration-based rate.

Representing Production Rates

Purpose

To explain the different methods of representing the production rates of lines in QAD Advanced Scheduling.

Prerequisites

The organization is created. The production lines are created. The units of measure are created.

Production Rate Representation

"Expected" Rates

In the Wheel designer and in scheduling, QAD Advanced Scheduling calculates an “expected” rate for the material, and then uses that rate to calculate the length of production. The “expected” rate is calculated from two pieces of information: the *production rate rule* that applies, and the *efficiency* that applies.

Production rate rules are items created in QAD Advanced Scheduling, viewable under the menu path **Setup > Production Rates**. These can be created manually in QAD Advanced Scheduling, or imported using QAD Advanced Scheduling’s import functionality. Production rate rules can be general, line-specific, material-specific, or material-line-specific. When calculating the “expected” rate, QAD Advanced Scheduling chooses the most-specific production rate rule that would apply. For more on production rate rules, see [Maintain Production Rate Rules on page 151](#).

The efficiency is a parameter that can be set in several places.

1. An organization default efficiency can be set on the page **Setup > Organization** by clicking the **Edit** button (see [Maintain Organizations on page 70](#) for more information on editing organizations). This efficiency applies to all situations within the organization, but is overridden by other efficiencies set elsewhere.
2. A line default efficiency can be set when creating or editing a line (see [Maintain Lines on page 98](#) for more information on creating and editing lines). This efficiency overrides the organization default, applying to all situations that occur on that line, and is overridden by efficiencies set for production rate rules.
3. A production rate rule efficiency can be set when creating or editing a production rate rule (see [Maintain Production Rate Rules on page 151](#) for more information on creating and editing production rate rules). This efficiency applies only to situations where the production rate rule does, and overrides all other efficiencies set elsewhere.

QAD Advanced Scheduling calculates the “expected” rate by multiplying the production rate rule by the efficiency. For example, if the production rate rule is 20 cases/minute, and the efficiency is 80%, the “expected” rate is 16 cases/minute.

Methods of Representation

There are two primary ways to represent actual, real-world production rates in QAD Advanced Scheduling.

- **Method 1: Set Production Rate Rules to Demonstrated Rate, Efficiency to 100%**

The simplest method of representation is to create or import into QAD Advanced Scheduling Production rate rules with values equal to the demonstrated rate, the rate the lines run at on average. Then, make sure the organization default efficiency is set to 100% (if this has never been changed, it will already be 100%), and make sure no lines or production rate rules have a more specific efficiency given.

- **Method 2: Set Production Rate Rules to Ideal Rate, Efficiency to Percent of Ideal**

This is the more complex but likely more accurate method. Create or import into QAD Advanced Scheduling production rate rules with values equal to the ideal rate, the rate the line would run at in ideal circumstances, with no unexpected stoppages, line breakdowns, etc. Then, set the efficiency (on any of all of the levels necessary) to the percent of the ideal rate the lines are expected or have been demonstrated to run at.

This allows for easier, more flexible adjustments to the “expected” rate. With this method, if lines begin running more effectively, rather than having to recalculate the demonstrated rate and recreate every production rate rule, all you have to do is increase the efficiency to match.

In addition, since efficiencies in QAD Advanced Scheduling can be set to over 100%, this method is not limited by the ideal rate given. This means that this method can be used to represent learning curves for staff on the line (efficiency increases over time for new products), changes to more effective procedures, and more.

Note A “demonstrated” production rate includes unplanned downtimes, whereas an “expected” rate does not include unplanned downtimes.

Maintaining the Product Wheel

There are three methods of creating and maintaining Products Wheels in QAD Advanced Scheduling:

- Using the Product Wheel designer. This is the recommended method of creating and editing Wheels, particularly if you are creating the Wheel from scratch. For more information on this method, go to [Product Wheel Designer on page 35](#).
- Import Product Wheels into QAD Advanced Scheduling from a file. Use this method if the Wheel is created elsewhere to bring it into QAD Advanced Scheduling from use. See [Importing Product Wheels on page 163](#) for more information on this method.
- Maintain Product Wheels manually, without using the [Product Wheel Designer on page 35](#). This method is generally not recommended; while sometimes faster than using the Wheel Designer, it is less flexible, and provides no statistics on the impact of any changes you make on efficiency, throughput, etc. See [Editing Existing Product Wheels Manually in QAD Advanced Scheduling on page 166](#) for instructions on this process.

A Product Wheel is a regularly repeating sequence of production. The Product Wheel data in QAD Advanced Scheduling describes the sequence in which products will be made and the target yield or average quantity of each product to be produced in a normal Wheel cycle. The actual quantities to be produced in each cycle are dependent on either external orders (such as from an ERP system) interfaced with QAD Advanced Scheduling, or will be calculated by QAD Advanced Scheduling based on demand and inventory using QAD Advanced Scheduling's Plan-To-Make functionality.

A Product Wheel might be the same on every cycle, or it may go through a repeating pattern of several linked cycles where the higher volume products are made on every cycle and the lower volume products are made less frequently. In this case, cycle 1 would be the sequence of products on the first time through, cycle 2, the sequence on the second, cycle 3 the sequence on the third, ...

The Product Wheel's spokes are the products made during a Wheel revolution.

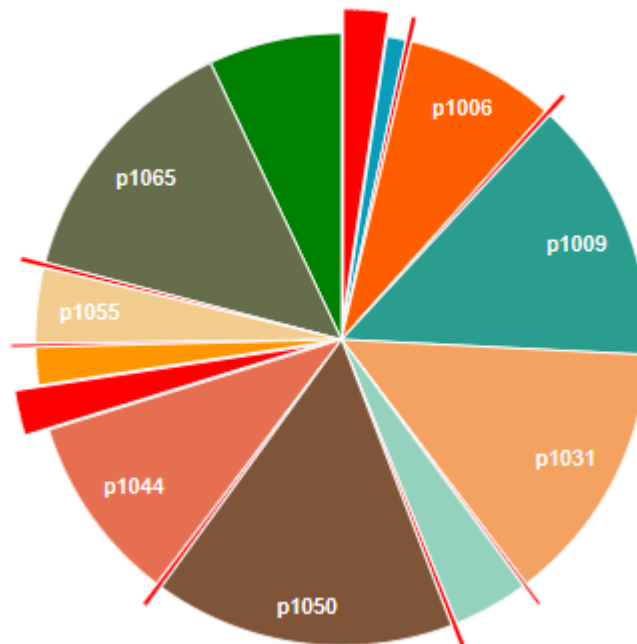
Simple One Cycle Wheel Example

The Product Wheel below, shown in both list and graph form, is a simple one cycle Wheel, where the same 10 products, or spokes, are always made every 7 days.

The wheel is **1 week** long with **1 cycle**.

Seq	Material	Material Description	Cycle #	Also In Cycles	Irregularity (S...	Run Length	Into Cycle
Cycle Number 1:							
Contaminant Clean (240m, \$4,800) for 'Allergens'							
1.1	p1001		1	1: 0%	0%	1h 40m	0m
Material Attribute Changed (30m, \$600) for 'Sauce'							
1.2	p1006		1	1: 1%	0%	13h 20m	1h 40m
Material Attribute Changed (30m, \$600) for 'Sauce'							
1.3	p1009		1	1: 10%	0%	23h 20m	15h 00m
1.4	p1031		1	1: 26%	0%	23h 20m	38h 20m
Material Attribute Changed (20m, \$400) for 'Width Group'							
1.5	p1020		1	1: 43%	0%	6h 40m	61h 40m
Material Attribute Changed (30m, \$600) for 'Sauce'							
1.6	p1050		1	1: 47%	0%	26h 40m	68h 20m
Material Attribute Changed (30m, \$600) for 'Sauce'							
1.7	p1044		1	1: 66%	0%	16h 40m	95h 00m
Contaminant Clean (240m, \$4,800) for 'Allergens'							
1.8	p1070		1	1: 77%	0%	3h 20m	111h 40m
Material Attribute Changed (20m, \$400) for 'Width Group'							
1.9	p1055		1	1: 79%	0%	6h 40m	115h 00m
Material Attribute Changed (30m, \$600) for 'Sauce'							
1.10	p1065		1	1: 84%	0%	23h 20m	121h 40m
End of Wheel							

Cycle 1

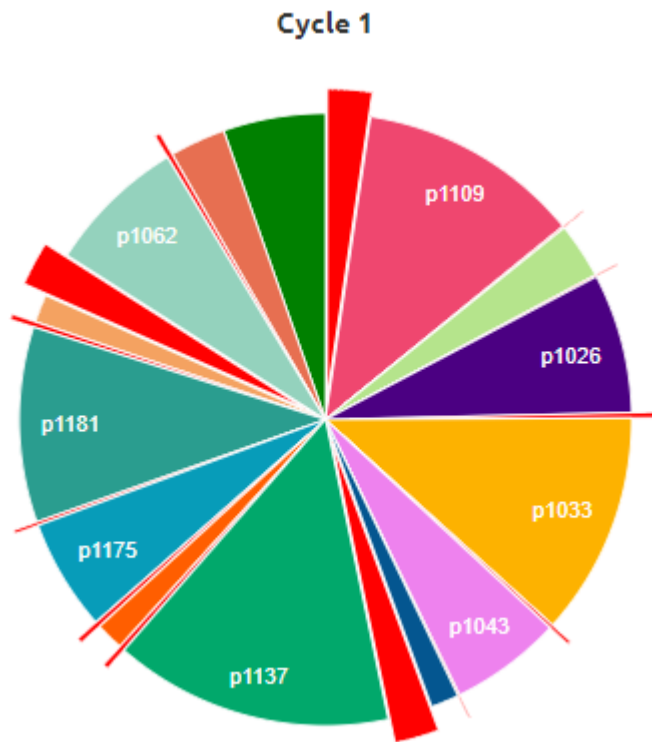


Two Cycle Wheel Example

The line below has two cycles, each one week long. Cycle 1 has 13 products or spokes, cycle 2 has 15 products or spokes. It would take 2 weeks to make every product at the site, however, the highest volume products can be made on every cycle, or once per week. Lower volume products can be made every two weeks, and distributed among the cycles to equalize volume.

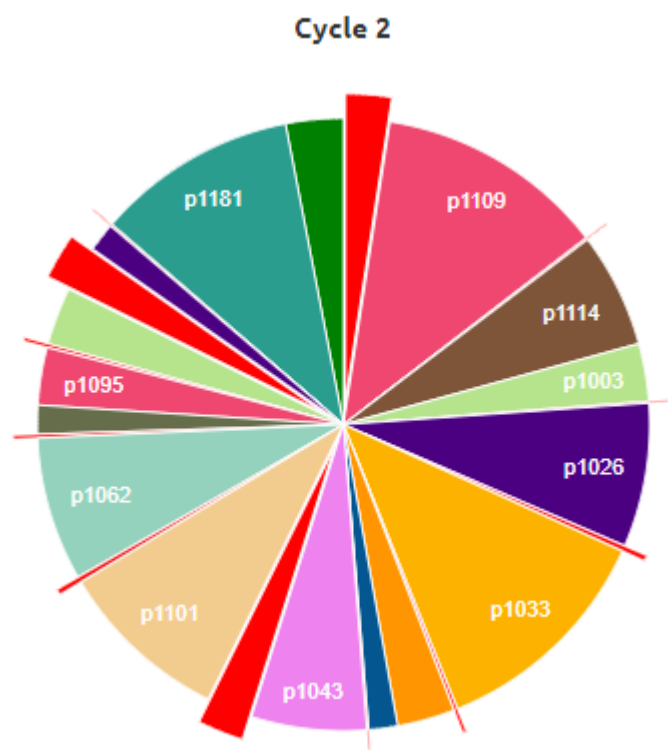
The wheel is **2 weeks** long with **2 cycles**. Each cycle is **1 week**.

Seq	Material	Material Description	Cycle #	Also In Cycles	Irregularity (S...	Run Length	Into Cycle
Cycle Number 1:							
		Contaminant Clean (240m, \$4,800) for 'Meat'					
☐ 1.1	p1109		1	1: 0%, 2: 0%	0%	20h 00m	0m
		Material Attribute Changed (10m, \$200) for 'Height Group'					
☐ 1.2	p1003		1	1: 14%, 2: 21%	3%	5h 00m	20h 00m
		Material Attribute Changed (10m, \$200) for 'Height Group'					
☐ 1.3	p1026		1	1: 17%, 2: 24%	3%	12h 30m	25h 00m
		Material Attribute Changed (30m, \$600) for 'Sauce'					
☐ 1.4	p1033		1	1: 26%, 2: 33%	3%	20h 00m	37h 30m
		Material Attribute Changed (20m, \$400) for 'Width Group'					
☐ 1.5	p1043		1	1: 40%, 2: 52%	6%	10h 00m	57h 30m
		Material Attribute Changed (10m, \$200) for 'Height Group'					
☐ 1.6	p1038		1	1: 47%, 2: 50%	2%	2h 30m	67h 30m
		Contaminant Clean (240m, \$4,800) for 'Allergens'					
☐ 1.7	p1137		1	1: 48%	0%	25h 00m	70h 00m
		Material Attribute Changed (30m, \$600) for 'Sauce'					
☐ 1.8	p1172		1	1: 66%	0%	2h 30m	95h 00m
		Material Attribute Changed (30m, \$600) for 'Sauce'					
☐ 1.9	p1175		1	1: 67%	0%	10h 00m	97h 30m
		Material Attribute Changed (20m, \$400) for 'Width Group'					
☐ 1.10	p1181		1	1: 74%, 2: 88%	7%	17h 30m	107h 30m
		Material Attribute Changed (30m, \$600) for 'Sauce'					
☐ 1.11	p1185		1	1: 86%	0%	2h 30m	125h 00m
		Contaminant Clean (240m, \$4,800) for 'Allergens'					
☐ 1.12	p1062		1	1: 88%, 2: 69%	9%	12h 30m	127h 30m
		Material Attribute Changed (30m, \$600) for 'Sauce'					
☐ 1.13	p1097		1	1: 97%	0%	5h 00m	140h 00m



The wheel is **2 weeks** long with **2 cycles**. Each cycle is **1 week**.

Seq	Material	Material Description	Cycle #	Also In Cycles	Irregularity (S...	Run Length	Into Cycle
Cycle Number 2:							
Contaminant Clean (240m, \$4,800) for 'Meat'							
☐ 2.1	p1109		2	1: 0%, 2: 0%	0%	20h 00m	0m
Material Attribute Changed (10m, \$200) for 'Height Group'							
☐ 2.2	p1114		2	2: 14%	0%	10h 00m	20h 00m
☐ 2.3	p1003		2	1: 14%, 2: 21%	3%	5h 00m	30h 00m
Material Attribute Changed (10m, \$200) for 'Height Group'							
☐ 2.4	p1026		2	1: 17%, 2: 24%	3%	12h 30m	35h 00m
Material Attribute Changed (30m, \$600) for 'Sauce'							
☐ 2.5	p1033		2	1: 26%, 2: 33%	3%	20h 00m	47h 30m
Material Attribute Changed (20m, \$400) for 'Width Group'							
☐ 2.6	p1017		2	2: 47%	0%	5h 00m	67h 30m
☐ 2.7	p1038		2	1: 47%, 2: 50%	2%	2h 30m	72h 30m
Material Attribute Changed (10m, \$200) for 'Height Group'							
☐ 2.8	p1043		2	1: 40%, 2: 52%	6%	10h 00m	75h 00m
Contaminant Clean (240m, \$4,800) for 'Meat'							
☐ 2.9	p1101		2	2: 59%	0%	15h 00m	85h 00m
Material Attribute Changed (30m, \$600) for 'Sauce'							
☐ 2.10	p1062		2	1: 88%, 2: 69%	9%	12h 30m	100h 00m
Material Attribute Changed (20m, \$400) for 'Width Group'							
☐ 2.11	p1052		2	2: 78%	0%	2h 30m	112h 30m
☐ 2.12	p1095		2	2: 79%	0%	5h 00m	115h 00m
Material Attribute Changed (20m, \$400) for 'Width Group'							
☐ 2.13	p1071		2	2: 83%	0%	5h 00m	120h 00m
Contaminant Clean (240m, \$4,800) for 'Allergens'							
☐ 2.14	p1149		2	2: 86%	0%	2h 30m	125h 00m
Material Attribute Changed (10m, \$200) for 'Height Group'							
☐ 2.15	p1181		2	1: 74%, 2: 88%	7%	17h 30m	127h 30m
End of Wheel							



Importing Product Wheels

Purpose

To import a Product Wheel file into QAD Advanced Scheduling.

Prerequisites

All materials and lines are already created in QAD Advanced Scheduling.

Design the Product Wheel, including the cycle length, number of cycles, the material numbers for the spokes in each cycle, and their sequence within the cycle.

Steps

Create a Wheel Import File

1. The import needs the following information for each spoke in each cycle: line identifier, cycle number, and material identifier.
2. Each entry (or row) in the import file represents one spoke of the Wheel.
 - All spokes (or rows in the file) must be grouped first by line, and then, within the line, by cycle number.
 - If lines or cycles are interspersed with each other, the import will fail.
 - Spokes within a cycle must be listed in the order they're meant to run.
 - You may have additional columns in the file; the columns here are the only required ones. Additional columns will go unmapped and will be ignored in the import process.

Line	Material	Cycle Number
Line 1	1006	1
Line 1	1001	1
...	...	...
Line 1	1126	1
Line 1	1002	2
Line 1	1001	2
Line 1	1009	2
...	...	...
Line 1	1059	2
Line 2	1181	1
Line 2	1172	1
...	...	...

Note Export a Product Wheel to Create a Template

If there is already an existing Wheel for the Line in QAD Advanced Scheduling, and you would like to make simple changes to the Wheel, it is recommended to export the current Wheel, edit the file, and then use the file for the import.

To export a line's Wheel:

1. Click the menu path **Setup>Sites**. Click **All Lines** at the top of the page.
2. Select the line for which you want to maintain the Product Wheel.
3. Click **View Active Wheel**.
4. Click **Export**.
5. The line's current Product Wheel will be exported to your PC as a .XLSX (Excel) file. Open the file, edit the rows as desired, and save your changes. Use the file with the subsequent instructions to import the update.

Import a New or Updated Wheel Design into QAD Advanced Scheduling

Note For a step-by-step, in depth guide of QAD Advanced Scheduling's general import process, see the How-To article [Import Data on page 279](#).

1. Click on the menu path **General > Import**.
2. Under the header **Master Data**, click **Wheels** to import a Product Wheel.
3. Click on **New Import**.
4. Drag and drop the Wheel import file into the box, or select "click to upload" to search for the file on your PC.
5. If the file has multiple sheets, select the one containing the Wheel design, then click **Continue**.
6. Click on  next to the entry for the columns in the sheet for line identifier, cycle number, and material identifier, and select the proper mapping option for the drop-down.
7. When the three required fields have been mapped, click on **Ignore Unmapped** to ignore any remaining unnecessary fields in your spreadsheet.
8. Click **Continue**, and then **Confirm Import**.
9. You will be prompted that your import finished and completed successfully.

Import Finished

The import completed successfully.

1 entities processed.

- a. Any errors that occur will be displayed. An error means the import has failed. If necessary, correct any incorrect data in your spreadsheet then rerun the import. If the error was a mapping problem, you can remap any fields that were incorrectly mapped.

Editing Existing Product Wheels Manually in QAD Advanced Scheduling

Purpose

To manually maintain Product Wheels in QAD Advanced Scheduling. This could be a first-time entry, maintenance of an imported Product Wheel, or update of an existing Product Wheel.

Note It is generally recommended to maintain Wheels either in the [Product Wheel Designer on page 35](#) (if there is no existing Wheel or the Wheel was originally created in the Wheel Designer), or by [Importing Product Wheels on page 163](#) (if the Wheel is maintained outside of QAD Advanced Scheduling), rather than this method. It is **especially** recommended that this method is not used to create a Wheel from scratch.

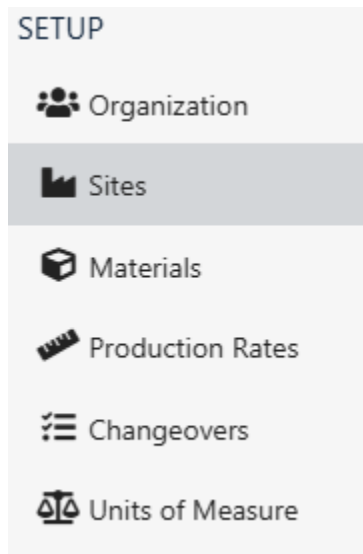
Prerequisites

The line the Wheel is for has been created. All materials that are to be part of the Wheel have been created.

Note It is recommended that any changes you intend to make/the Wheel you wish to create from scratch have already been planned and decided on. This method does not offer the statistics on the impact of the Wheel change on efficiency and throughput, unlike the Wheel designer.

Step

1. Use the menu path **Setup > Sites** to go to the Sites page. Click **All Lines** at the top of the page to view the production lines.



All Lines

< Sites							Advanced Filter Filter by type: All Filter by site: All	
Line Identifier	Site	Area	Description	Type	Speed		Actions	
Crewing	Middletown		Crewing				Details	
Extruder Requirements	Middletown		Frozen Food and Extruder Resource				Details	
Frozen Food	Middletown		Frozen Food, Pasta, and Sauce				Details	
Pasta Planning	Middletown		View of Production Lines and Pasta Requirement				Details	
Sauce Planning	Middletown		Sauce Kitchen Planning				Details	
Can1	Middletown	Canning	Canning Line 1	Can	High		Details	
Can2	Middletown	Canning	Canning Line 2	Can			Details	
Can3	Middletown	Canning	Canning Line 3	Can			Details	
Dry1	Middletown	Dry	Dry packaging line 1	Dry			Details	
Dry2	Middletown	Dry	Dry packaging line 2	Dry			Details	
Dry3	Middletown	Dry	Dry packaging line 3	Dry			Details	
Dry4	Middletown	Dry		Dry			Details	
Dry5	Middletown	Dry		Dry			Details	
Dry6	Middletown	Dry		Dry			Details	
Frozen1	Middletown	Frozen	Frozen packaging 1	Frozen	High		Details	
Frozen2	Middletown	Frozen	Frozen packaging line 2	Frozen			Details	
Frozen3	Middletown	Frozen	Frozen Packaging Line 3	Frozen			Details	

- Select the line for which you want to maintain the Product Wheel.
 - As required, you can filter the list of lines by type of line using the **Filter by type** drop-down.
- This is the line's details page.

Frozen1 Details

< Lines

⚙ Edit

⚙ Schedule Export Preferences ▾

> View Active Wheel ▾

> Schedule

Line ID: Frozen1Speed: High

Description: Frozen packaging 1

Type: Frozen

Site: Middletown

Area: Frozen

Timezone: America/New_York

Availability

[Uncustomize](#)[+ Add Availability](#)

Description	Recurring	Summary	Actions
24x5	mon, tue, wed, thu, fri	Start: 00:00, Length: 24:00	Edit Delete

Outages

[+ Add Outage](#)

Description	Summary	Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00	

- Click on **View Active Wheel** at the top of the screen. This will take you to the page showing the line's current Wheel, if it has one.

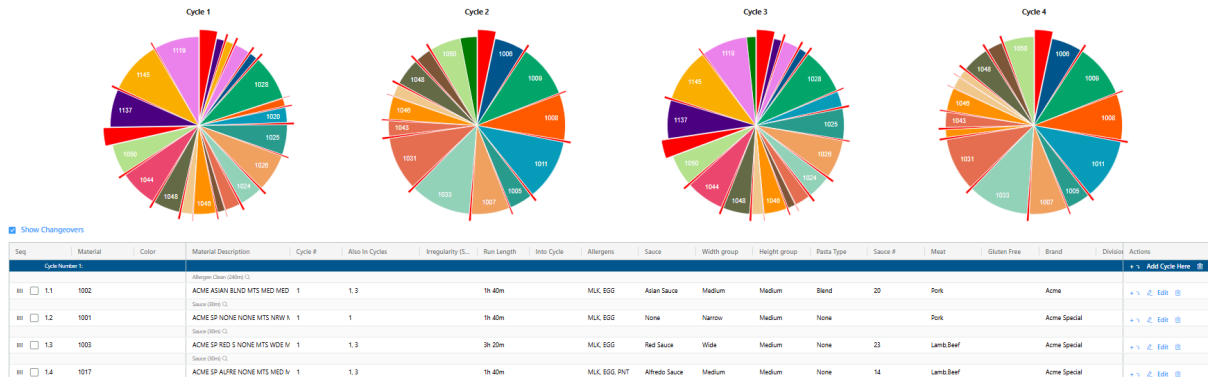
Active Wheel for Frozen1 since 07/13/2022

[Line](#)
[Edit](#)
[Columns](#)
[Export](#)

Active Wheel for Frozen1 since 07/13/2022

There are orders scheduled during the period this wheel is active. Changes made will apply immediately which may have unintended effects when adding or removing cycles, for major changes, unschedule orders first.

The wheel is 4 weeks long with 4 cycles. Each cycle is 1 week.

Colors: [Select](#)

- Click **Edit** to change the cycle length and the note/name of the Wheel.
 - Click **Columns** to change which and what order the columns of the Wheel display are shown in.
 - Click **Export** to export a .XLSX (Excel) file containing the active Wheel to your computer.
 - Uncheck the box **Show Changeovers** to remove the rows in the Wheel display that note what changeovers occur and their length.
5. **Creating New Spokes and Cycles in the Wheel.**
- Click  in the Actions column of a spoke's entry in the Wheel display to add a new spoke to the Wheel below the given spoke.
 - Click  in the Actions column of a cycle's entry in the Wheel display to add a new spoke to the Wheel at the start of that cycle.
 - Both methods will open the following window. Select the material to be run in the new spoke.

Create a Spoke

* Material

Q

Save

Cancel

- To create a new cycle in the middle of the Wheel, click **Add Cycle Here** in the Actions column of a cycle's entry. This will create a new cycle header below the given cycle's header.
 - Note:** This will put all spokes in a given cycle to be moved to the new cycle. Please be sure to return spokes to their intended cycle after creating a new cycle this way.

- d. To create a new cycle at the end of the Wheel, click **Add Cycle Here** in the Actions column of the “End of Wheel” entry at the bottom of the Wheel display.
6. **Editing Wheel Spokes in the Wheel.**
- a. To edit a Wheel spoke, click **Edit** in the Actions column of a spoke’s entry.

Edit Spoke

×

* Material

Q 1002

Save

Cancel

7. **Deleting Spokes and Cycles in the Wheel.**
- a. To delete a spoke, click  in the Actions column of a spoke’s entry.
 - b. To delete a cycle, click  in the Actions column of a cycle’s entry.
 - **Note:** A cycle cannot be deleted if it is the only cycle.
8. **Reordering Spokes in the Wheel.**
- a. To reorder spokes, click the  symbol and drag to the desired location.
 - i. You can move multiple spokes at once by selecting multiple orders with [Multi-Select on page 321](#) and then dragging the orders to the desired location.

QAD Advanced Scheduling Import

In this section you will find definitions for all mapping options in each of QAD Advanced Scheduling's various imports. Links to the definitions are below.

Scheduling Imports

[Orders Import on page 172](#): Definitions for bringing in orders for scheduling, such as from an ERP system.

Master Data

[Materials Import on page 174](#): Definitions for bringing in master data on material attributes.

[Material Line Data Import on page 177](#): Definitions for defining which materials should run on which lines.

[Production Rates Import on page 178](#): Definitions for importing the rate at which materials run.

[Consumption Rules: BOM Items Import on page 180](#): Definitions for defining a material's Bill of Materials for production.

[Consumption Rules: Resources Import on page 182](#): Definitions for setting how much of certain resources a material needs for production.

[Unit Conversion Import on page 183](#): Definitions for creating conversion rules between different units of measure.

[Lines Import on page 184](#): Definitions for importing line data.

[Wheels Import on page 185](#): Definitions for importing an already created Wheel.

Production Version Import: Only available if the Production Versions feature flag is enabled.

Supply Chain Transaction Data

[Supply Chain Transaction Data Import on page 186](#): Definitions for all generalized supply chain transaction imports.

All Demand and Supply Elements Imports: Definitions for import options specific to this type of import, if any exist.

Inventory: Definitions for import options specific to this type of import, if any exist.

Forecast: Definitions for import options specific to this type of import, if any exist.

Customer Orders: Definitions for import options specific to this type of import, if any exist.

Purchase Orders: Definitions for import options specific to this type of import, if any exist.

Transfer: Definitions for import options specific to this type of import, if any exist.

Transfer In: Definitions for import options specific to this type of import, if any exist.

Production: Definitions for import options specific to this type of import, if any exist.

Forecast

Forecast History and Scenario Import on page 188: Definitions for imports related to QAD Advanced Scheduling's forecasting tool.

Orders Import

Here you will find definitions for all standard mapping options in QAD Advanced Scheduling's order import. This import is used to bring in orders from an outside system that must be scheduled, such as those from an ERP system.

For more information on importing orders, see [Import New Orders from an External File on page 205](#).

Definitions

Material Identifier: The unique identifier of the material the order is for.

Quantity Value: The amount ordered.

Quantity Units: The order's unit of measure. If a material's Base Unit of Measure is defined, this field can be left blank in the imported file.

New Attribute: Creates a new order attribute. Commonly used for processing notes. Order attributes can also be created in "Organization", under "Setup" in the left-hand menu of QAD Advanced Scheduling.

Order Identifier: Optional. The unique identifier of the order. If specified, forces QAD Advanced Scheduling to use the order identifier specified in the import file.

Status: Optional. Indicates if the orders should be created as an unscheduled order, a scheduled order, a committed order, a completed order, or a canceled order. Default is unscheduled. You can read more about this on the [Maintain Organizations on page 70](#) page. This option can be used to import ERP orders that were scheduled and/or firmed in ERP with the respective status.

Description: Optional. The plain description of the order.

Due Date: The date the order must be completed or else be considered overdue. Required except when order is brought in with status "committed" or "scheduled", and has a scheduled date.

Line Identifier: The line the order should be filled on. Overrides the Wheel routing, if present. Order can still be moved from this line in scheduling.

Site Identifier: The site at which the order should be run.

Import Scheduled Date: When an order is brought in with status "committed" or "scheduled", this date is required to determine where to place it in the schedule.

Import Priority in Day: If several orders are brought in with status "committed" or "scheduled", and have the same import scheduled date, this value is used to determine the sequence in which the orders are scheduled, from lowest to highest.

BOM to Use: Selects which BOM the order will rely on for the material it is producing. If left unmapped, QAD Advanced Scheduling will automatically choose the default BOM.

Custom Pattern: Advanced. A complex method of configuring an order. Not necessary for most situations.

Material Identifier	Quantity Value	Quantity Units	Status	Description	Due Date	Line Identifier	Import Scheduled Date
1003	4,000	Case		Product-1003-Description	4/21/2022		
1109	16,000	Case		Product-1109-Description	4/21/2022	Line01	
1014	1,000	Case	committed	Product-1014-Description			3/25/2021

In the example above, the first two lines are unscheduled orders. These will appear on QAD Advanced Scheduling's Scheduling page in the bottom "Unscheduled" section of the list view.

The third line is a committed order. It will be brought in and placed on the schedule at the "Import Scheduled Date". If other orders are scheduled, they will be placed around the order and will not shift it from its location in the schedule. A committed order must be uncommitted to be rescheduled.

Materials Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's materials import.

For more information on materials in QAD Advanced Scheduling, see [Maintain Materials on page 111](#).

Definitions

Material Identifier: The code by which the material is referred.

Description: The plain words description of the material.

New Attribute: Creates a new material attribute, immediately defined by user input. Useful for quickly adding attributes to QAD Advanced Scheduling that are in an import file but were not previously established in the materials menu.

Default Line Identifier: The default line the material is produced on. Can also be specified in [Material Line Data Import on page 177](#).

Material Type: The category of item the material is, i.e. a "Frozen" item, or a "Paper" item. Defines what attributes a material has. Material types and attributes are created in materials, under setup in QAD Advanced Scheduling's left-hand menu.

Order Amount Minimum Value: The minimum amount of the material produced when run.

Order Amount Minimum Unit: The unit of the minimum amount of the material produced when run.

Order Amount Increment Value: The lot size of the material.

Order Amount Increment Unit: The lot size unit of the material.

Dependent Requirements (Advanced): Advanced. Affects behavior when this material is used in the BOM of another material. Typically not needed.

Base Unit of Measure: A unit that should be applied to the material whenever no unit is specified.

Rounding Unit of Measure: The unit that for the consumption and cumulative consumption columns on the scheduling screen, as well as the batch rounding dialogue window.

Maximum Wait Time (minutes): The amount of time allowed between an upstream material's end time and a downstream material's start time, where QAD Advanced Scheduling will issue a warning if the value is exceeded.

Co-/By-Product Type: Determines whether a material is a Standard Material, Base Process, Co-Product, or By-Product.

Base Process/Formula (for Co-/By-Products only): If a material is listed as a Co- or By-Product,

Yield Factor Percent (100 = 100%): The percentage of a material's quantity that is actually usable. Use this option if the yield factor in the import file is given as an integer, where 100 means 100%.

Yield Factor Percent (1 = 100%): The percentage of a material's quantity that is actually usable. Use this option if the yield factor in the import file is given as a number with a decimal, where 1 means 100%.

Scrap Factor Percent (100 = 100%): A percentage by which a material's quantity is increased, in inventory, to account for scrap produced. Use this option if the yield factor in the import file is given as an integer, where 100 means 100%.

Scrap Factor Percent (1 = 100%): A percentage by which a material's quantity is increased, in inventory, to account for scrap produced. Use this option if the yield factor in the import file is given as a number with a decimal, where 1 means 100%.

Scrap Factor Value (fixed): A numeric amount by which a material's quantity is increased, in inventory, to account for scrap produced.

Scrap Factor Unit (fixed): The unit associated with a fixed scrap factor value. Should be set to the material's base unit of measure.

Max Inventory Value: The maximum amount of the material that can be stored at one time.

Max Inventory Unit: The unit of the maximum amount of the material that can be stored at one time.

Safety Inventory Value: The value of the amount of inventory of the material that should be kept on hand at all times.

Safety Inventory Unit: The unit of the amount of inventory that should be kept on hand at all times.

Inventory Carrying Cost Percent Annually (100 = 100%): The cost of holding and storing the material, as a percentage of the total inventory annually. Use this option if the carrying cost in the import file is given as an integer, where 100 means 100%.

Inventory Carrying Cost Percent Annually (1 = 100%): The cost of holding and storing the material, as a percentage of the total inventory annually. Use this option if the carrying cost in the import file is given as a number with a decimal, where 1 means 100%.

Forecast Value: Average forecast over the forecast period.

Forecast Unit: The unit of the forecasted material (cases, pallets, etc.)

Forecast Period: The time period of the forecast (week, month, etc.)

Forecast CV Percent (100 = 100%): The coefficient of variability (CV) of the forecast. The CV is the standard deviation divided by the mean. Use this option if the forecast CV in the import file is given as an integer, where 100 means 100%.

Forecast CV Percent (1 = 100%): The coefficient of variability (CV) of the forecast. The CV is the standard deviation divided by the mean. Use this option if the forecast CV in the import file is given as a number with a decimal, where 1 means 100%.

Forecast CV Period: The time period of the forecast CV. Generally the same as the forecast period.

COGS Value: The cost of goods sold (COGS). The direct cost of producing the material. Also sometimes known as “cost of sales”.

COGS Unit: The unit of the cost of good sold.

Customer Order Lead Time: Time between when a customer places an order to when they receive the material, in days.

Planning Lead Time: The time between when an order of the material is received to when it's scheduled to be manufactured, in days.

Plant Shelf Life: The amount of time an item can be held at the production plant before it can no longer be sold.

Target Fill Rate Percent (100 = 100%): The target percentage of orders of the material that are fulfilled completely and on time. Use this option if the target fill rate in the import file is given as an integer, where 100 means 100%.

Target Fill Rate Percent (1 = 100%): The target percentage of orders of the material that are fulfilled completely and on time. Use this option if the target fill rate in the import file is given as a number with a decimal, where 1 means 100%.

Frozen Inventory Time: The time between the production of the material and it's availability in stock.

Manufacturing Variation Percent (100 = 100%): The percent difference between the intended amount of the material to be produced, and the actual amount produced. Given as an integer between 0 and 100.

Manufacturing Variation Percent (1 = 100%): The percent difference between the intended amount of the material to be produced, and the actual amount produced. Given as a as a number with a decimal, where 1 means 100%.

Material Line Data Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's material line data Import. This import is what allows you to set the default line a material can run on, the priority of other lines it could run on, and the minimum planned run amount and its increment for that line.

If you set a line-specific order amount minimum or order amount increment, it will override those values given in the [Materials Import on page 174](#) when an order of the material is on the line.

Definitions

Material Identifier: The material whose line data is being given.

Line Identifier: The line the material can be run on.

Site Identifier: The site at which the material is run.

Assignment Priority: The priority in which the material should be assigned to the line. Given as an integer of 1 or more. A priority of 1 indicates the default line for the item. The default line can also be designated with the default line identifier mapping option of the [Materials Import on page 174](#).

Order Amount Minimum Value: The minimum amount of the material to be run on the line.

Order Amount Minimum Unit: The unit of the minimum order amount.

Order Amount Maximum Value: The maximum amount of the material to be run on the line.

Order Amount Maximum Unit: The unit of the maximum order amount.

Order Amount Increment Value: The amount the planned production would increment over the minimum amount on the line.

Order Amount Increment Unit: The unit of the order amount increment.

Production Rates Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's production rates import. This allows you to import the rates of production. QAD Advanced Scheduling requires production rates to be per minute.

Production rates can have varying specificity. More specific rates override more general rates. The specificity of the rates and their definitions are ranked below:

1. Material-Line Specific (material and line specified)
2. Material Specific (material specified, line not specified)
3. Line Specific (material not specified, line specified)
4. General (neither material nor line specified)

For more information on production rates, see [Maintain Production Rate Rules on page 151](#).

Definitions

Material Identifier: Optional. The unique identifier of a material, used for a rate specific to a material.

Production Rate Value: The numerical value of the rate, per minute.

Production Rate Unit: The unit of measure of the rate.

Line Identifier: Optional. The identifier of a line, used for a rate specific to a line.

Production Rate Period (defaults to "per minute"): Defines the unit of time by which the rate is measured. Acceptable entries are "minute", "hour", and "day". If unmapped, defaults to minute.

Effectivity Start Date: The date at which the production rate takes effect.

Effectivity End Date: The date at which the production rate ceases to be in effect.

Line Site: Optional, unless Line Identifier is mapped. Determines which site the line for the production rate is at.

Default Efficiency Percent (100=100%): The percent of the production rate value that the line is expected to run at. Use this option if the default efficiency in the import file is given as an integer, where 100 means 100%. See [Representing Production Rates on page 155](#) for more information on how to use efficiency to represent expected rates.

Default Efficiency Percent (1=100%): The percent of the production rate value that the line is expected to run at. Use this option if the default efficiency in the import file is given as a number with a decimal, where 1 means 100%. See [Representing Production Rates on page 155](#) for more information on how to use efficiency to represent expected rates.

Line Filter: Optional. Sets the production rate to apply to lines matching the filter.

Rate Identifier: Optional. Advanced. The ID QAD Advanced Scheduling will use to identify the rate. Specifying this will force QAD Advanced Scheduling to update the rate with that ID, if it exists. Generally not used.

Consumption Rules: BOM Items Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's Consumption Rules: BOM Items Import. This type of import defines which materials, and which amounts, are needed to produce another material. An item used to create a material must also be brought in as a material in QAD Advanced Scheduling.

If a material has more than one BOM item, a separate row must be created for each in the import file.

For more information on BOM Items, see [Maintain Materials on page 111](#).

Definitions

Produced Material Identifier: The material that uses the consumed material in its production.

Consumed Material Identifier: The material used to produce the desired material.

Consumed Quantity Value: The amount of the consumed material used to make the produced material.

Consumed Quantity Unit: The unit of the consumed material used.

Produced Quantity Value: Optional. The amount of produced material created by the amount of consumed material. Default value of 1.

Produced Quantity Unit: Optional. The unit of the produced quantity. If not specified, uses organization default.

Component Item Number: Used to order BOM item and resource components of materials so that the same component item number is the same type of BOM item or resource for all materials. This allows for easy viewing of BOM item and resource consumption on the schedule.

Line Identifier: Optional. The line this consumption rate applies to. If unspecified, applies on all lines the material is produced on.

Line Site: Optional, unless line identifier is mapped. Determines which site the line for the production rate is at.

Line Filter: Optional. Sets the consumption rate to applies on lines matching the filter.

Rate Identifier: Optional. Advanced. The ID QAD Advanced Scheduling will use to identify the rate. Specifying this will force QAD Advanced Scheduling to update the rate with that ID, if it exists. Generally not used.

Scrap Factor Percent (100 = 100%): A percentage by which a material's quantity is increased, in inventory, to account for scrap produced. Use this option if the yield factor in the import file is given as an integer, where 100 means 100%.

Scrap Factor Percent (1 = 100%): A percentage by which a material's quantity is increased, in inventory, to account for scrap produced. Use this option if the yield factor in the import file is given as a number with a decimal, where 1 means 100%.

Scrap Factor Value (fixed): A numeric amount by which a material's quantity is increased, in inventory, to account for scrap produced.

Scrap Factor Unit (fixed): The unit associated with a fixed scrap factor value. Should be set to the material's base unit of measure.

Consumption Rules: Resources Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's Consumption Rules: Resources import. This is where you bring in data on which resources and the amount of resources needed to produce the materials.

For more info on resources, see [Resources on page 22](#) for a quick reference, or [Maintain Resources on page 101](#) for a longer discussion.

Definitions

Produced Material Identifier: The material that uses the resource in its production.

Resource Identifier: Identifier of the resource used by the material's production.

Amount of Resource Consumed: Amount of resource used to produce the material.

Component Item Number: Optional. Used to order BOM item and resource components of materials so that the same component item number is the same type of BOM item or resource for all materials. This allows for easy viewing of BOM item and resource consumption on the schedule.

Line Identifier: Optional. The line this consumption rate applies to. If unspecified, applies on all lines the material is produced on.

Line Site: Optional, unless line identifier is mapped. Determines which site the line for the production rate is at.

Line Filter: Optional. Sets the consumption rate to apply to lines matching the filter.

Rate Identifier: Optional. Advanced. The ID QAD Advanced Scheduling will use to identify the rate. Specifying this will force QAD Advanced Scheduling to update the rate with that ID, if it exists. Generally not used.

Unit Conversion Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's Unit Conversion import. If materials can be considered in multiple units (e.g. cases and pallets), then it is strongly recommended to create a unit conversion between the two.

QAD Advanced Scheduling can perform multi-step conversions. For example, if there is a conversion between "kilograms" and "cases", and a conversion between "cases" and "pallets", QAD Advanced Scheduling can convert from "kilograms" to "pallets" without needing a conversion between them.

Unit conversions can be general (no material specified) or specific (material specified). If both exist, a specific conversion will override a general conversion.

For more information on unit conversion, see [Maintain Units of Measure \(UoM\) on page 108](#).

Definitions

From Unit: The unit converted from.

To Unit: The unit converted to.

Ratio: The amount of "from unit" equal to 1 "to unit".

Conversion Identifier: Optional. Advanced. The ID QAD Advanced Scheduling uses internally to identify the conversion. Specifying this will force QAD Advanced Scheduling to update the conversion with that ID, if it exists. Generally not used.

Material Identifier: Optional. The material this conversion applies to. Overrides a conversion between the same units that does not specify a material.

Lines Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's lines import. This allows for mass creation of lines in QAD Advanced Scheduling without having to create each manually. To learn more about how QAD Advanced Scheduling defines and uses lines, see [Maintain Lines on page 98](#) and [Maintain Line Types and Attributes on page 93](#).

Definitions

Line Identifier: The identifier of the line being created/updated.

New Attribute: Allows you to create a line attribute if you did not do so before. Will create a line attribute but will not add the attribute to the line type.

Area Identifier: The identifier of the production area the line belongs to.

Description: The plain-English description of the line.

Line Type: The type of the line. The line type must already be defined.

Default Production Rate Efficiency (100=100%): Causes any rates on the line to run at this percent of the rate's value. Use this option if the efficiency in the import file is given as an integer, where 100 means 100%.

Default Production Rate Efficiency (1=100%): Causes any rates on the line to run at this percent of the rate's value. Use this option if the efficiency in the import file is given as an integer, where 1 means 100%.

Wheels Import

Here you will find definitions for all mapping options in QAD Advance Scheduling's Product Wheels import. If you have a Product Wheel external to QAD Advance Scheduling you would like to use, this is where you import it. Note that the imported Wheel will overwrite the active Wheel for the line. Also note that importing a Wheel will not create a Wheel session in the Wheel designer. If you wish to view the Wheel in the Wheel designer, select "Create Session from Current Wheels" in the "Wheels" section under the General heading in QAD Advance Scheduling's left hand menu.

Wheel import assumes the data is given with cycles grouped and materials within cycles in Wheel order. The import will fail if cycles are interspersed with each other.

For more info on the Product Wheels concept, see [Product Wheels on page 33](#). For more on QAD Advance Scheduling's Product Wheel Designer, see [Product Wheel Designer on page 35](#).

Cycle #: The numerical value of the cycle.

Line Identifier: The line the Wheel applies to.

Material Identifier: The material in the Wheel.

Site Identifier: The site at which the Wheel applies.

Supply Chain Transaction Data Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's various Supply Chain Transaction Data Imports.

Note The Supply Chain Transaction Data imports technically consist of 7 different import types: Inventory, Forecast, Customer Orders, Purchase Orders, Transfer, Transfer In, and Production. These can be imported individually, or all of these can be imported at once via the All Demand and Supply Elements import.

All imports in this section share the same mapping options. The general definitions are below, and more specific definitions follow those as needed.

General Definitions

Material Identifier: The ID of the material being affected.

Quantity Value: The amount of the material in the transaction.

Quantity Units: The unit of the material in the transaction.

Date: The date the transaction applies/is needed.

Site: The location affected by the element.

Record Identifier: Optional. Advanced. The ID QAD Advanced Scheduling will use to identify the record. Specifying this will force QAD Advanced Scheduling to update the record with that ID, if it exists. Generally not used.

Notes: Optional. Available in the forecast, transfer, production, inventory, and all demand and supply elements imports. A text field for anything that should be kept track of by the scheduler in QAD Advanced Scheduling.

Specific Definition/Clarifications

All Demand and Supply Elements

This option allows for the import of multiple supply chain transaction types at once, with one import.

Type: The element being imported. Chosen from: inventory, production, forecast, transfer, purchase order, customer order.

Inventory

Quantity Value: The amount of inventory of the material. Inventory will be shown as this amount combined with the amount produced before this, either from the schedule or from the "Production" import option.

Purchase Orders Import

Vendor: Optional. The source the material is purchased from. Takes the place of the "Notes" mapping option of the other supply chain transaction imports.

Customer Orders Import

Date: The due date of this order.

Customer: Optional. The customer who placed the order. Takes the place of the “Notes” mapping option of the other supply chain transaction imports.

Transfer In

Origin: Optional. The site or other location from which materials were brought to the destination site.

Production

Start of Production: Defines the day and time at which the production order will begin.

End of Production: Defines the day and time at which the production order will end.

Run Length in Minutes: Optional - if used, End of Production is no longer required. Defines how long the production order will last.

Forecast History and Scenario Import

Here you will find definitions for all mapping options in QAD Advanced Scheduling's forecast history import and forecast scenario import. These imports are related to QAD Advanced Scheduling's forecasting feature. The history import brings in data on the past demand of a material to use to generate a forecast using AWS forecasting. The scenario import brings in a forecast created previously for viewing and comparison.

Definitions

History

Material Identifier: The material the history is for.

Start of Timeseries Data: The first column containing dates and values of the forecast.

Scenario

Material Identifier: The material the scenario is for.

Start of Timeseries Data: The first column containing dates and values of the scenario.

Forecast Type: Optional. The type of the forecast scenario being imported, or the algorithm used to generate it.

Import Process: Column Mapping

This page describes the Column Mapping step of the QAD Advanced Scheduling import process. While the column mapping step is ultimately not very complicated, its presentation and the logic behind how you complete the step may be initially confusing.

The step boils down to this: you are trying to bring some information from an outside file into QAD Advanced Scheduling. QAD Advanced Scheduling expects to have certain types of information, and can handle more types of information beyond that, but it doesn't know what the types of information you are sharing equate to in terms of what it expects to have. Therefore, you go through the column mapping process to tell QAD Advanced Scheduling what information you are providing QAD Advanced Scheduling, in its own terms. QAD Advanced Scheduling can even “remember” this step, so you won't have to re-map columns with every import as long as your file is same format or minimally different.

When you first reach the column mapping step you will see several columns and rows on your screen similar to the following:

Importing Materials using sheet “Frozen Materials”

< Back

Ignore Unmapped

Continue >

1 Select File

2 Select Sheet

3 Map Columns

4 Confirmation

5 Summary

Suggest Mappings

Remove All Mappings

+

Load saved import

Actions	Column Name	Example Values	Mapping	Unmapped Fields
Edit Mapping	Material	1001, 1002, 1003	"Material Identifier" ✕	New Attribute Description Default Line Identifier Material Type Order Amount Minimum Value Order Amount Increment Value Order Amount Increment Unit Order Amount Maximum Value Order Amount Maximum Unit Dependent Requirements (advanced) Base Unit of Measure Safety Inventory Value Max Inventory Unit Meat Pasta Type Sauce Sauce # Gluten Free Brand
Edit Mapping	Material Description	Product-1001-Description, Product-1002-Description, Product-1003-Description		
Edit Mapping	Material Type	Frozen, Frozen, Frozen		
Edit Mapping	Min. Order Amount	2000, 2000, 2000		
Edit Mapping	Order Amount Unit	Case, Case, Case	"Order Amount Minimum Unit" ✕	
Edit Mapping	Order Amount Increment	1000, 1000, 1000		
Edit Mapping	Order Amount Increment	Case, Case, Case		
Edit Mapping	Safety	3500, 3500, 3500	"Safety Inventory Value" ✕	
Edit Mapping	Safety Units	Case, Case, Case	"Safety Inventory Unit" ✕	
Edit Mapping	Width	Narrow, Medium, Wide	"Width group" ✕	
Edit Mapping	Height	Medium, Medium, Medium	"Height group" ✕	

You will always be presented with the Actions, Column Name, Example Values, and Mapping columns. The number of rows presented will depend on the file you are using for the import process; if using an Excel file, for example, more columns in the Excel file will result in more rows in QAD Advanced Scheduling.

The Actions column will always hold an “Edit Mapping” button for each row, which may be green to indicate that it has been assigned a mapping already. A white button means that no mapping is assigned, a yellow button means that the mapping process is incomplete, and a red button means that the mapping conflicts with another mapping (e.g., both items share a mapping).

The Column Name column in QAD Advanced Scheduling refers to the columns in the file you are importing from. Using the picture above as an example, the Column Name column suggests that the file you are using for the import has columns called “Material”, “Material Description”, “Material Type”, “Min. Order Amount”, and so on.

The Example Values column exists to help you determine what mapping should be assigned to a given column. It shows you what data is present in a few of the cells of the column with the name described in the Column Name column. Again using the image above as a reference, QAD Advanced Scheduling is indicating that for cells in a column named “Material”, values such as 1001, 1002, and 1003 are present. Using this information, we can judge what that column should be mapped to (in this case, Material identifier).

Finally, the Mapping column is the column wherein you tell QAD Advanced Scheduling what type of information it expects to have equates to the label in the Column Name column. The array of choices depends on the type of import you are performing (e.g., Orders, Material Master Data, Inventory, etc.), but you can fill this column either by dragging and dropping mappings from the array on the right or by using the Edit Mapping button on the left.

Scheduling

Scheduling is the process of defining the start and end times of each job over the selected period of time. The term *sequencing* is related - in the context of scheduling, sequencing means “defining the order in which all the jobs will be produced”. These terms are often used interchangeably. Indeed, defining start times for each job automatically defines the order in which they are made; and if all jobs are put into a specific sequence, defining the start time of the sequence will be enough to define the start and end times of all subsequent orders.

Below is a description of the various work instructions and work instruction categories for QAD Advanced Scheduling.

[Scheduling Basics on page 193](#)

An overview of Scheduling in QAD Advanced Scheduling and the QAD Advanced Scheduling Scheduling Screen.

[Creating/Loading Orders to Schedule on page 201](#)

Information on and work instructions for the various methods of creating or loading orders into QAD Advanced Scheduling for scheduling.

[Changing the Cycle Lengths on page 221](#)

Work Instruction for changing the cycle start date, start time, and length.

[Color-Coding the Schedule by Attribute on page 222](#)

Work instruction on how to color-code the schedule by attribute.

[Scheduling Orders on page 225](#)

Work instructions for the various methods of scheduling and sequencing orders in QAD Advanced Scheduling.

[Maintaining, Editing, and Adjusting Orders on page 238](#)

Work instructions for the various methods of maintaining orders.

[Committing the Schedule and Sending to Manufacturing on page 251](#)

Once a portion of the schedule has been finalized, committing the order fixes it at the time given, and prevents it from being rescheduled. Committed orders can then be set as manufacturing, which is a higher degree of commitment that indicates that the production floor has been given the green light to produce the order at the scheduled time.

[Unscheduling, Uncommitting, and Removing Orders from Manufacturing on page 252](#)

Removing orders from manufacturing enables interaction with orders. Uncommitting orders allows them to be rescheduled. Unscheduling orders removes them from the schedule and places them back in the Unscheduled section of the scheduling screen.

[Exporting the Schedule on page 254](#)

Work instruction for exporting a schedule from QAD Advanced Scheduling.

Scheduling Basics

Requirements

Scheduling in QAD Advanced Scheduling requires the following:

- Established master data for Sites, Lines, Materials, Production Rates, Changeovers, and Units of Measure (see the [Master Data on page 69](#) section of the documentation for work instructions on creating and maintaining all pieces of master data in QAD Advanced Scheduling).
- Orders with the material to be produced, quantity required, and due date defined. Orders in QAD Advanced Scheduling can be of any status: planned, production, process, committed, etc.

Additionally, the following may assist your scheduling efforts:

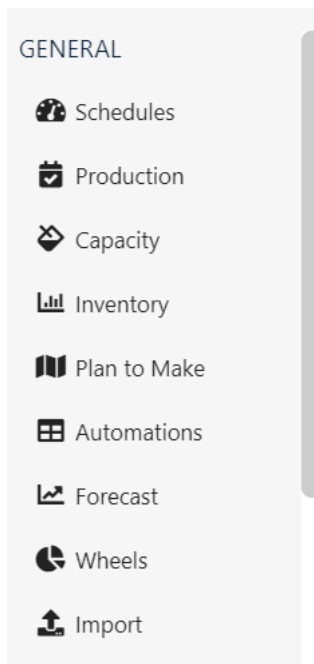
- A Product Wheel for each line with its Cycles, and Spokes (see the [Product Wheel Designer on page 35](#) section of the documentation for work instructions on creating a Product Wheel).
- Line groups configured to make lines and the resources they consume easily visible (See the [Line Groups on page 20](#) page to learn more).
- Plan to Make runs and Automations designed for and tailored to your production scenario to quickly call for and manage production orders (See the [Using QAD Advanced Scheduling's Plan to Make on page 207](#) and [Creating and Implementing Automations on page 217](#) pages to learn more).

Scheduling

Once the requirements have been met orders can be scheduled in QAD Advanced Scheduling. This is done on the Scheduling screen, which is navigated to from the Home screen.

Schedules: Navigation and Overview

To navigate to the Scheduling overview screen, click on the menu path **General > Schedules**.



Schedules

✚ Export Schedules

✚ Export Line Statistics

Filter by status:

All

Filter by type:

All

Filter by area:

All

Filter by site:

All

☐	Line ID	Site	Utilization	Utilization by cycle	Orders	Needs Attention	Overdue	Actions
☐	≡ Crewing	Middletown						Schedule Details
☐	≡ Extruder Requirements	Middletown						Schedule Details
☐	≡ Frozen Food	Middletown						Schedule Details
☐	≡ Pasta Planning	Middletown						Schedule Details
☐	≡ Sauce Planning	Middletown						Schedule Details
☐	Can1	Middletown	0%		0 orders			Schedule Details
☐	Can2	Middletown	0%		0 orders			Schedule Details
☐	Can3	Middletown	0%		0 orders			Schedule Details
☐	Dry1	Middletown	0%		0 orders			Schedule Details
☐	Dry2	Middletown	0%		0 orders			Schedule Details
☐	Dry3	Middletown	0%		0 orders			Schedule Details

The Scheduling overview screen shows all lines and line groups in the organization, as well as a summary of each line's current situation.

To export the schedule or line statistics for one or more lines or line groups, select the checkbox next to the desired lines, and then click the **Export Schedules** or **Export Line Statistics** at the top left.

When one or more lines or line groups are selected, a "More" button appears on the screen. This button enables the user to perform additional actions with the selected items such as change the cycle length.

To filter the table by status, line type, or production area, use the drop downs at the top right.

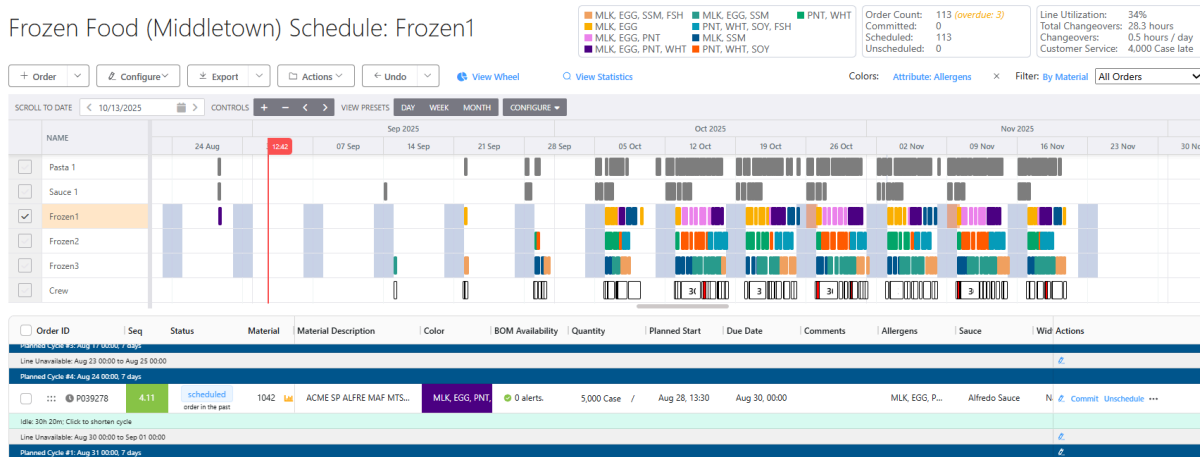
In the table:

- **Line ID** is the name of the line or line group.

- **Site** is the site at which the line or line group is located.
- **Utilization** is the percent of the line's available time (in the planning window) during which it is running.
- **Utilization by Cycle** is a breakdown of the utilization for each upcoming cycle for the line.
- **Orders** is how many orders are on the line.
- **Needs Attention** is how many orders currently have a warning associated with them; sometimes the warning is just that the order should be committed, is below the minimum order amount for the product, is overdue, etc.
- **Overdue** is how many orders on the line are currently scheduled to finish after their due date.
- **Actions** holds buttons for additional actions. Clicking **Schedule** will take you to the line's scheduling page. Clicking **Details** will take you to the line or line group's Details page (for more information on these pages, see [Maintain Lines on page 98](#) and [Maintain Line Groups on page 104](#)).

Scheduling Screen: Overview

On the Scheduling screen, click the line or line group to view the schedule.



The scheduling screen is made of three sections: the **Header**, the **Timeline** (or Gantt Chart), and the **Schedule List Window**.

Header

The header consists of three sections: the buttons above the timeline, the upper right statistics windows, and the color-coding and filtering tools on the right. These buttons and interface elements vary depending on whether you are viewing a line group's schedule or an individual line's schedule.

Buttons

- On Both Individual and Line Group Scheduling Screens:
 - **Order:** Allows you to create a new order. See [Creating/Loading Orders to Schedule on page 201](#) for more information. Clicking the chevron on the button will allow you to create an impromptu downtime instead of an order.
 - **Configure:** Allows you to control the information presented on the screen; the “Columns” option reached through this button enables the user to rearrange, hide, or show the columns of the **Schedule List Window**, while the “Layout” option offers the ability to adjust the size of the rows in the Gantt Chart.
 - **Export:** Exports the schedule to a flat file such as an .XLSX (Excel) or .CSV file. Clicking the chevron on the button will allow you to export data about any unscheduled orders.
 - **Undo:** Reverts the most recent action taken in the schedule. See [Undo and Save State Functions on page 245](#) for more information. Clicking the chevron on the button will allow you to pick an action from a list of recent actions and revert the schedule to before that action.
- On Individual Line Scheduling Screen:
 - **Line Group:** Moves user to the scheduling screen for the line group which the individual line is a member of.

Upper Right Statistics Windows

Of the two statistics windows, the lefthand window displays the total orders on the line, how many of those orders are overdue, how many are scheduled, how many are committed, and how many are unscheduled.

Order Count:	160 (overdue: 3)
Committed:	0
Scheduled:	160 (1)
Unscheduled:	0

The righthand statistics window displays line utilization and customer service statistics. On the individual line screen, these statistics are for the line. On the line group screen, these are for the line whose schedule is currently being viewed in the **Schedule List Window**.

Line Utilization:	75%
Total Changeovers:	70 hours
Changeovers:	1.2 h / day
Customer Service:	14,000 Case late

Clicking on the righthand statistics window opens a window that displays more detailed statistics.

For the Planning Period (Frozen2)

Description:

Period: Oct 31, 14:04 - Dec 27, 13:04
 Changeovers: **70 hours**
 74 minutes / day
 Length: 57 days
 Utilization: 75%
 Uptime: 983 hours
 17.2 hours / day
 Run time: 669.4 hours
 11.7 hours / day
 Customer Service: 14,000 Case late
 31,694 Case days late

By Planned Cycle

	<u>Cycle 1:</u>	<u>Cycle 2:</u>	<u>Cycle 3:</u>	<u>Cycle 4:</u>
Start:	Oct 26, 00:00	Nov 02, 00:00	Nov 08, 00:00	Nov 15, 00:00
Changeover Time:	0.5 hours	0 hours	7 hours	9.8 hours
Length:	7 days	7 days	7 days	7 days (+2.4 hours)
Utilization:	5%	2%	53%	108%
Cycle Time:	168 hours	144 hours	168 hours	168 hours
Scheduled Downtime:	48 hours	48 hours	48 hours	48 hours
Available Capacity:	120 hours	96 hours	120 hours	120 hours
Run Time:	5 hours	1.7 hours	56.7 hours	120 hours
Changeovers:	• Sauce: 1	• Allergen Clean: 1	• Allergen Clean: 1 • Sauce: 6 • Width: 1	• Allergen Clean: 1 • Height: 2 • Sauce: 8

Download Details downloads an .XLSX file containing these statistics.

Save Current Schedule State will ask for a name and then save the schedule as it is. You can then use the **View and Manage Saved Stats** button to restore the schedule at a later time, or to compare its statistics with those of another saved schedule. See [Undo and Save State Functions on page 245](#) for more information.

When the Schedule is being color-coded, another box displaying the color key is displayed in this section of the header as well.

■ MLK, EGG	■ MLK, EGG, SSM	■ PNT, WHT
■ MLK, EGG, PNT	■ MLK, EGG, SSM, FSH	■ PNT, WHT, SOY
■ MLK, EGG, PNT, WHT	■ MLK, SSM	■ PNT, WHT, SOY, FSH

Color-coding and Filtering Tools

- **Colors:** Allows color-coding the schedule by material attribute values. See [Color-Coding the Schedule by Attribute on page 222](#) for more information.
- **Filter:**
 - **By Material:** Filters the schedule to show only orders of the entered material, or orders of materials that use the entered material as a BOM item.
 - **Drop-Down:** Allows user to filter only orders that need attention, such as orders that should be committed, are overdue, etc.

Timeline/Gantt Chart

The **Timeline** displays the orders for the line (or lines and resources for a line group), with orders displayed as colored boxes with widths corresponding to run length. The orange vertical line denotes the present date/time.

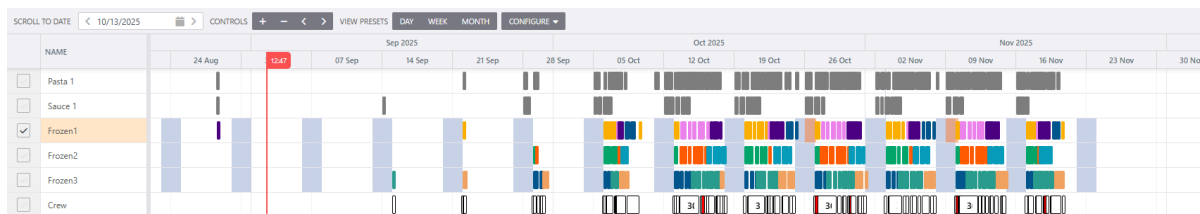
The Timeline can be scrolled to the left or right by clicking and holding the mouse left or right while hovering over the dates at the top of the display; alternatively, the < and > buttons can be used to scroll left or right. Similarly, the Timeline can be zoomed in or out using a mouse scroll wheel while hovering over the Timeline, or by using thing + and - buttons at the top of the display. Finally, the timeline can be shifted to an exact date by using the "SCROLL TO DATE" entry field. A date can be typed in or selected after clicking the small calendar icon in the field.

The timeline can be instantly set to a certain level of zoom by pressing the "Day/Week/Month" buttons, which will zoom in or out to show the corresponding period of time visually.

The configure button allows the user to control how order pegging is displayed in the timeline or how idle time in schedules is handled after drag-and-dropping orders.

On a line group screen, selecting the checkbox next to a line's name on the left side of the Timeline will swap the **Schedule List Window** and the statistics windows to that of the chosen line.

Clicking on an order in the Timeline will move the **Schedule List Window** to that order. Orders can also be dragged and dropped to different locations in the Timeline.



Note that the timeline is capable of showing additional information when the user is utilizing Line Groups. See [Maintain Line Groups on page 104](#) to learn more about establishing and configuring line groups. As displayed in the image above, line groups can display additional resources such as Crew to allow for easier tracking. If lines in the line group are producing materials which feed into materials on other lines, a line group will display order pegging: colored lines connecting a selected order with any orders that they feed into or consume.

Schedule List Window

The list view gives a detailed look at the current schedule.

☐ Order ID	Seq	Status	Material	Color	Planned Start	Planned End	Run Length	Rate/min	Rate/hour	Due Date	Q	Actions
Planned Cycle #1: Mar 20 01:00, 7 days												
Changeover: Meat (240m)												
☐ P004062	1.3	scheduled	1009	Primavera	Mar 20, 01:00	Mar 20, 12:40	11h 40m	20 Case	1,200 Case	Mar 21, 00:00	14,000 Case	Commit Unschedule ...
☐ P004139	1.4	scheduled	1031	Primavera	Mar 20, 12:40	Mar 21, 00:20	11h 40m	20 Case	1,200 Case	Mar 22, 00:00	14,000 Case	Commit Unschedule ...
Changeover: Width (20m)												
☐ P004091	1.5	scheduled	1020	Primavera	Mar 21, 00:40	Mar 21, 03:10	2h 30m	20 Case	1,200 Case	Mar 22, 00:00	3,000 Case	Commit Unschedule ...
Changeover: Sauce (30m)												
☐ P004129	1.6	scheduled	1044	Buffalo	Mar 21, 03:40	Mar 21, 12:00	8h 20m	20 Case	1,200 Case	Mar 23, 00:00	10,000 Case	Commit Unschedule ...
Changeover: Allergen Clean (240m)												

Column Header

The grey/off-white row containing words that describe what the columns mean for each order.

Cycle Header

The dark blue row that indicates the start of a cycle in a Product Wheel for the line being shown. Gives the Cycle Number, the start date and time, and the length of the cycle.

To change the start date, time, and length of the cycle, click in the right "Actions" column.

Changeover Entry

Indicates where a changeover occurs in the schedule. Gives the name of the changeover and its length in minutes. If more detailed information is relevant, you can hover over the magnifying glass icon to see that information.

For more information on changeovers, see [Maintain Changeovers on page 144](#).

Order Entry

There are two sets of items that are always displayed on an order's entry:

On the left, the checkbox, the grip/field of dots  for drag and drop, Order ID, Seq value (indicating wheel cycle and spoke), order status, and Material ID are always displayed.

On the right, the “Actions” column is always displayed. What actions are available for a given order depends on the status of the order.

In between these, columns displaying extra information about the order and it's material are displayed. These columns can be scrolled through with the horizontal scroll bar at the bottom of the **Schedule List Window**, and can also be reordered, shown, or hidden using the Columns option found by clicking the Configure button in the **Header**.

The Scheduling Horizon

The QAD Advanced Scheduling scheduling horizon consists of three zones:

1. A **committed zone**, where orders are not automatically rescheduled. This zone extends from the current date and time out by a set amount defined by the Committed Window, which is configured as a default for the Organization (see [Maintain Organizations on page 70](#)) or set uniquely for a line (see [Maintain Lines on page 98](#)).
2. A **planning zone**, where orders can be scheduled by any of the available methods. See [Scheduling Orders on page 225](#) for more information on the various methods of scheduling in QAD Advanced Scheduling.
3. An **unscheduled zone**, where orders arrive before they are scheduled. Such orders can be found by scrolling down to the bottom of the Schedule List Window. See [Creating/Loading Orders to Schedule on page 201](#) [Creating/Loading Orders To Schedule](#) for more information on the various methods by which orders are created.

Creating/Loading Orders to Schedule

Before scheduling in QAD Advanced Scheduling, orders must be created or otherwise brought into QAD Advanced Scheduling. There are several methods for this.

[Creating an Individual New Order on page 202](#)

Orders can be created individually via several methods on the scheduling screen. This method is only recommended if a few orders are being added; if many orders need to be created or loaded into QAD Advanced Scheduling, it is recommended you use the next method.

[Import New Orders from an External File on page 205](#)

QAD Advanced Scheduling's flexible Import functions can be used to bring in many orders at once. Orders can be brought in as unscheduled orders, as scheduled orders with a specific day of production, as committed or firmed orders, as completed orders, or even as canceled orders. This method is recommended if QAD Advanced Scheduling is being used in conjunction with an ERP, MRP, or similar system, or if a bulk of orders need to be brought in at once.

[Using QAD Advanced Scheduling's Plan to Make on page 207](#)

If QAD Advanced Scheduling has sufficient supply chain transaction data, its Plan to Make feature can be used to generate orders. Plan to Make is the QAD Advanced Scheduling name for Product Wheel-aware Master Production Scheduling (MPS) or Material Requirements Planning (MRP). Plan to Make creates orders for finished products, intermediates, or component materials to maintain their inventories above their safety stock level based on forecasts, customer orders, and other supply chain transaction.

Creating an Individual New Order

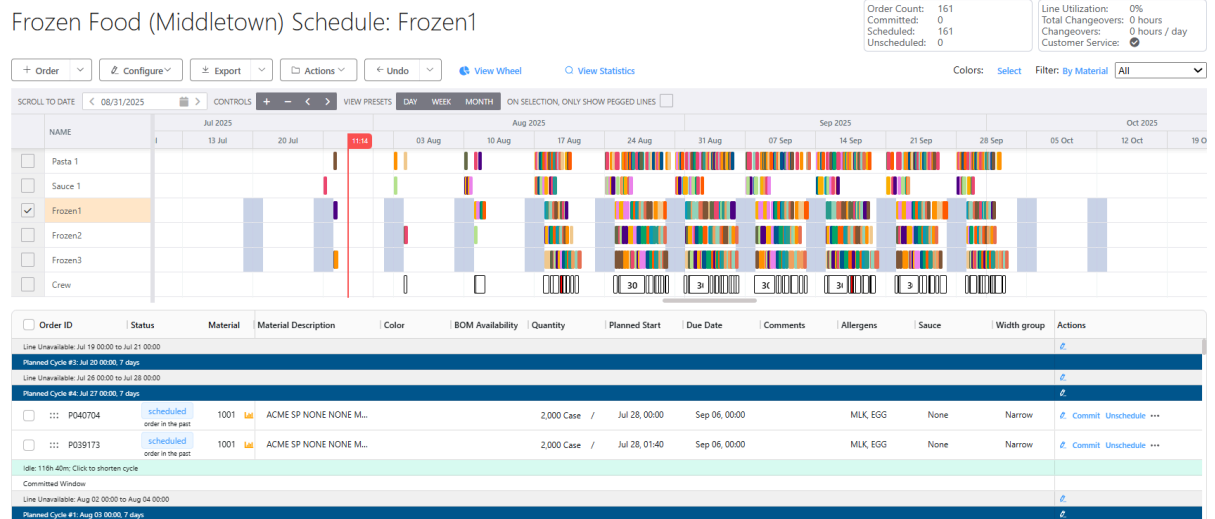
Purpose

To manually create individual new orders for production.

Prerequisites

The material in the order and the line it is to be run on must be defined in QAD Advanced Scheduling.

Steps



There are two ways to create individual new orders on the scheduling screen.

Method 1: For Creating Unscheduled or Wheel Scheduled Orders

1. Click on **+ Order** at the top of the page.
2. The following window will open:

Create an Order

✕

Order ID

* Material

* Quantity

* Run Length

Keep Run Length ☐ ☒

Start *Leave blank to auto-schedule

End

Due Date

BOM [Customize](#)

Order Description

Changeover Crew

[Create](#) [Create and Schedule](#) [Cancel](#)

- **Order ID:** The unique ID of the Order. Often from an external system. Leave blank to have QAD Advanced Scheduling generate an order number.
- **Material:** The Material ID of the Material being ordered.
- **Quantity:** The amount of the Material being ordered. Enter the value and then select the appropriate unit from the drop-down. This field is tied to the Run Length field.
- **Yield Quantity:** Only appears when the material selected for the order has a Yield Factor associated. The actual usable quantity of the material obtained from production. This field is tied to the Quantity field.
- **Run Length:** The duration of the production run for the order. Enter the amount of time in minutes that the run will be active. This field is tied to the Quantity field.
- **Start:** The day and time at which the production run for the order will begin. This field is tied to the End field and the Run Length field. If this field is filled, the created order will be immediately scheduled accordingly when it is saved.
- **End:** The day and time at which the production run for the order will end. This field is tied to the Start field and the Run Length field. If this field is filled, the created order will be immediately scheduled accordingly when it is saved.

- **Due Date:** The date the order must be completed by.
 - **BOM:** The specific BOM for the material that the order calls for. Enables user to choose from among existing alternative BOMs to determine which will be referenced. Only displayed if the feature flag "Allow order specific BOMs" is enabled. The adjacent blue "Customize" text allows the user to define a BOM specific to the order being created/edited, similar to how it would be done on a material's Details page.
 - **Order Description:** Optional. A quick description of the order.
 - Following these are any order attributes created for the Organization. See [Maintain Order Attributes on page 86](#) for more information.
3. Click **Create** to create the order as an unscheduled order. Click **Create and Schedule** to create the order and have QAD Advanced Scheduling place it in the schedule in the latest cycle that will meet the due date.

Method 2: Creating Orders After an Existing Scheduled Order

1. Find an existing scheduled order after which a new order should follow in the Schedule List Window. Click ... in the right "Actions" column of the order's entry row, and then click **Create New Order Here** in the menu that opens.
 - a. This method will only create scheduled orders, and specifically will always slot the order in after the selected order, whether it fits the Wheel sequence or not.
2. The same order creation window will open, containing the same fields as those displayed in the image for Method 1.

Import New Orders from an External File

Purpose

To import new orders to be scheduled into QAD Advanced Scheduling.

Prerequisites

All materials must be already created in QAD Advanced Scheduling, have a preferred line assigned, and have a production rate at least on the preferred line.

Steps

If you do not have one, get or generate a file to import from. This file can be downloaded from your ERP/MRP/Planning system, or generated in Excel.

At a minimum, the file should include the Material ID, the order quantity, the order's Unit of Measure, and Due Date for each order.

If the orders were generated by an external system, it may be helpful to include the external system's order number in the import.

If you wish to also import scheduled or committed orders, it is necessary to add at least two more columns: Order Status and Import Scheduled Date (if all orders in the file are "scheduled" or "committed", you do not need Due Date, though it is still recommended). If multiple orders have the same Import Scheduled Date, then you also need Import Priority In Day to tell QAD Advanced Scheduling what sequence the orders run.

If desired, the Line Identifier of the Line the order should be run on may be specified. If not specified, the order will be put on a line with a Product Wheel containing the order's material. If a Line Identifier is specified, the site must then also be specified in a new column.

Additional columns may be included in the file that are helpful in understanding, creating, or reviewing the import file, such as Material Description. These columns will simply not be imported during the import process.

An example of the structure of an import file is below. For more information on each possible data field of the Order Import process, see [Orders Import on page 172](#).

Material ID 	Quantity Value	Quantity Units	Status	Material Description	Due Date	Line Identifier	Import Scheduled Date	Import Priority in Day
1003	4,000	Case		Product-1003-Description	4/21/2022			
1109	16,000	Case		Product-1109-Description	4/21/2022	Line01		
1014	1,000	Case	committed	Product-1014-Description			3/25/2021	1
1031	14,000	Case	committed	Product-1031-Description			3/25/2021	2

Once the import file has been downloaded or generated, follow the steps in the How-To article [Import Data on page 279](#) to bring them into QAD Advanced Scheduling.

Using QAD Advanced Scheduling's Plan to Make

Purpose

Plan to Make is the QAD Advanced Scheduling name for Product Wheel-aware Master Production Scheduling (MPS) or Material Requirements Planning (MRP).

Plan to Make creates orders for finished products, intermediates, or component materials to maintain their inventories above their safety stock level, and places the orders in their product wheel sequence.

Plan to Make can be run for a single material type or for all material types in a batch mode. See [Maintain Material Types on page 126](#) for more information.

For products that are not assigned to a Product Wheel, and are not Product Wheel sequenced, Plan to Make will create orders and schedule them according to the Just in Time algorithm to meet their due dates. In such cases, the date when inventory is projected to fall below safety stock is treated as the due date .

Plan to Make can be run for individual sites, for all sites across an organization, or just for a specific line group.

Prerequisites

QAD Advanced Scheduling must have transaction data for the Plan to Make materials:

- Starting inventory
- Demand
- Supply elements

Link to Instructions

- [Run Plan to Make for an Individual Material on page 207](#)
- [Maintain Saved Plan to Make Runs on page 210](#)
- [Execute a Plan to Make Run on page 213](#)
- [Creating and Implementing Automations on page 217](#)

Run Plan to Make for an Individual Material

Purpose

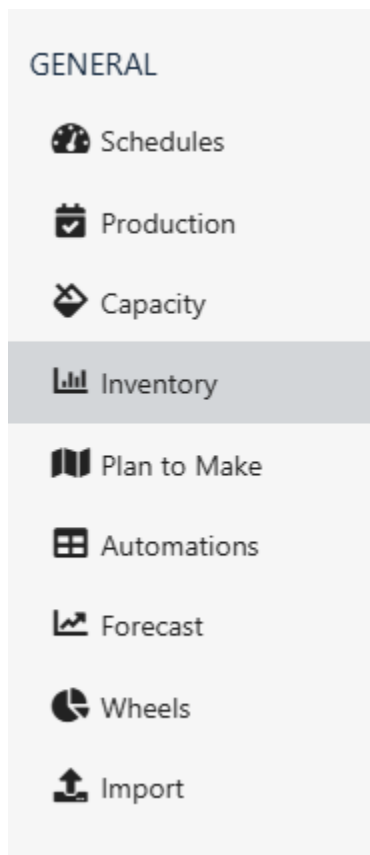
Create a Master Production Schedule (MPS) or Material Requirements Plan (MRP) for an individual material. The orders created will maintain inventory above safety stock and be placed in their Product Wheel sequence. For materials that are not in a Product Wheel, the orders created will be scheduled with the Just in Time algorithm to maintain their inventory above safety stock.

Prerequisites

Demand, inventory, and supply elements for the material have been imported into QAD Advanced Scheduling.

Steps

1. Go to the Material's inventory page. This can be accessed one of two ways:
 - a. Click on the menu path **General > Inventory** in QAD Advanced Scheduling's left side menu to go to the inventory page. Once there, click on the desired material's entry.



- b. Anywhere in QAD Advanced Scheduling where the Material ID is shown, hover over the ID and click **Inventory** in the pop-up.

Material: 1180

SS CAN BBQ S W RIB MTO NRW HGH

Type: Frozen

Line: Frozen3

Brand: Shop Smart

Canadian: Yes

MTO/MTS: MTO

Inventory 

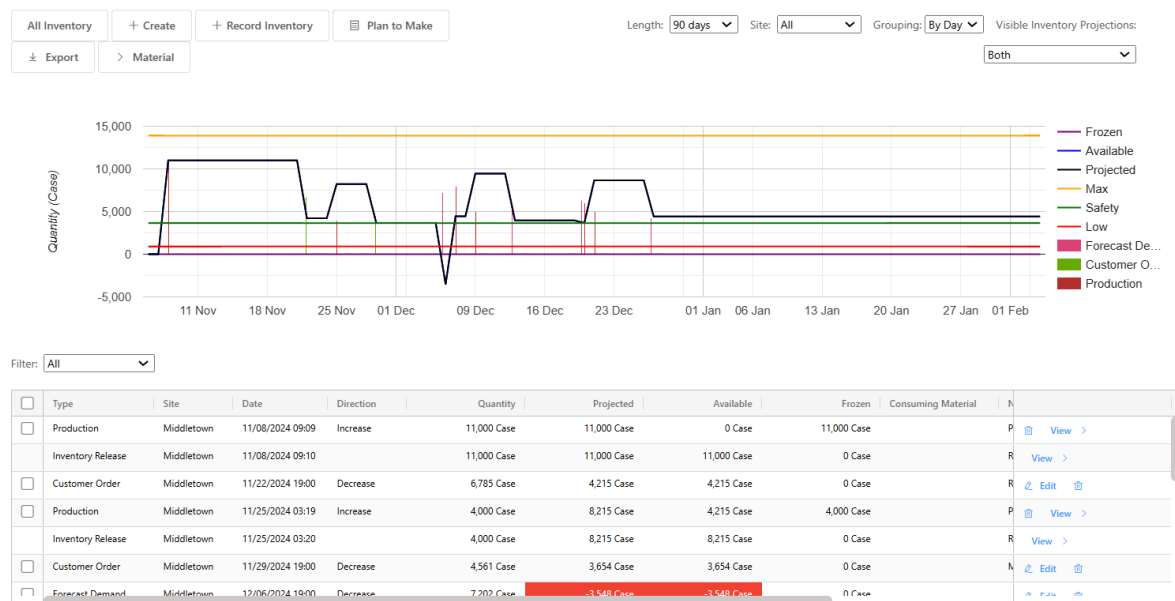
Below Low (Oct 28, 14:03)

Below Zero (Dec 06, 19:00)

Below Zero (Dec 20, 19:00)

2. A window with the Material's inventory graph and transaction list will open:

Inventory: 1180: SS CAN BBQ S W RIB MTO NRW HGH



3. Click on **Plan to Make** at the top of the page/window to start a Plan to Make Run.

- Select **All Sites** for the Plan to Make run to run for all Sites in the Organization, or select an Individual Site to have the run only affect the one Site. Click on **Continue**.

Plan to Make for 1180: SS CAN BBQ S W RIB MTO NRW HGH

< Back Continue >



Orders will be suggested when projected inventory goes below the configured safety level:

- ☒ All Sites
☐ Middletown: Middletown Plant

- Review the proposed changes to the plan and click on **Execute** to start the run.

Plan to Make for 1180: SS CAN BBQ S W RIB MTO NRW HGH

< Back Execute >



☒	Order Due Date	Material	Material Description	Operation	Quantity	Scheduling Date
☒	11/22/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	11,000 Case	~~11/08/2024 09:00~~ → 11/22/2024 19:00
☒	11/29/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	4,000 Case	~~11/25/2024 03:19~~ → 11/29/2024 19:00
☒	12/06/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	8,000 Case	~~12/07/2024 02:20~~ → 12/06/2024 19:00
☒	12/13/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	5,000 Case	~~12/09/2024 04:00~~ → 12/13/2024 19:00
☒	12/20/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	6,000 Case	~~12/20/2024 23:00~~ → 12/20/2024 19:00
☒	12/27/2024 19:00	1180	SS CAN BBQ S W RIB MTO NRW HGH	Change	5,000 Case	~~12/21/2024 03:10~~ → 12/27/2024 19:00

- After the changes process, click on **Continue** to return to the inventory list and view the updated inventory plan.

Maintain Saved Plan to Make Runs

Purpose

Create, delete, or maintain saved Plan to Make runs by material type.

Note If you expect to run Plan to Make on the same materials and at the same sites with some frequency, it is recommended to create a saved Plan to Make run so that the run can be executed with the push of a button.

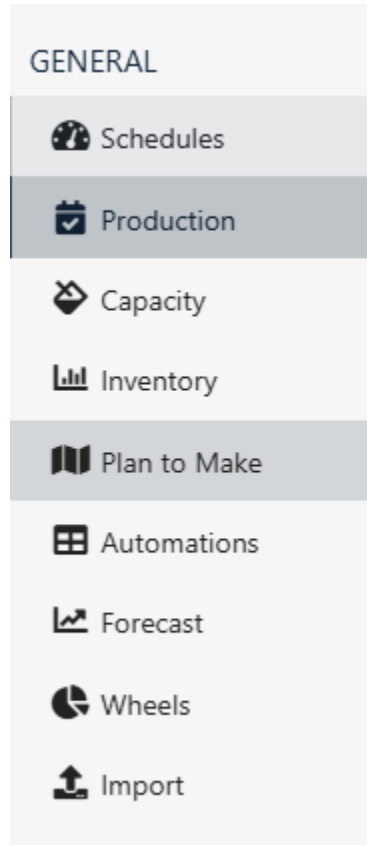
Note that it is only possible to save a Plan to Make run that affects *all materials*, or *every material of a single type*. Saved Plan to Make for a single material can only be accomplished via the Automations menu.

Prerequisites

Material types have been created. See [Maintain Material Types on page 126](#).

Steps

- Click on the menu path **General > Plan to Make**.



Plan to Make

[New Plan to Make Run](#) [+ New Saved Plan to Make Run](#)

Start	All Pasta at Middletown	
Start	All Sauce at Middletown Latest run 11/07/2024 11:50 in a minute	
Start	All Frozen at Middletown Latest run 11/07/2024 11:46 in a minute	

Past Runs

Label	Status	Started	Duration	Completed	Type	Result
All Sauce at Middletown	Completed	11/07/2024 11:49	a minute	11/07/2024 11:50	Saved	Applied plan with 438 items. Q
All Pasta at Middletown	Failed	11/07/2024 11:46	a few seconds		Saved	No result summary Q
All Frozen at Middletown	Completed	11/07/2024 11:45	a minute	11/07/2024 11:46	Saved	Applied plan with 501 items. Q

- Click on **New Saved Plan to Make Run** at the top of the page.
- Select the material type that the saved run will cover.

New Saved Plan to Make Run

1

Select Materials

2

Select Scope

3

Select Options

4

Summary

Select material type to consider:

☒ All Materials
☐ Dry
☐ Frozen
☐ Can
☐ Sauce
☐ Pasta

- Select **All Sites** for the Plan to Make run to run for all sites in the organization, select an individual site to have the run only affect the one site, or select a line group to have the run affect only a single line group. Click **Save**, and then **Continue** to return to the Plan to Make page.

New Saved Plan to Make Run

✓

Select Materials

2

Select Scope

3

Select Options

4

Summary

Select Sites to Consider

☒ All Sites
☐ Middletown: Middletown Plant

Or, Select Line Group to Consider

☐ Crewing (Middletown)
☐ Extruder Requirements (Middletown)
☐ Frozen Food (Middletown)
☐ Pasta Planning (Middletown)
☐ Sauce Planning (Middletown)

- Choose what strategy should be used to schedule the new orders in this saved run. This will default to Product Wheel scheduling if a Product Wheel exists, then to Minimize Changeovers if no Product Wheel Exists. Whichever strategy is chosen will be displayed in the "Past Runs" list, as well as under the saved run on the main screen.

New Saved Plan to Make Run

< Back Save >

✓ Select Materials ✓ Select Scope ③ Select Options ④ Summary

Select Scheduling Strategy

☒ Auto

☐ Minimize Changeovers

☐ Just In Time

☐ Wheel

6. The saved run is now visible as a button on the page, above the **Past Runs** header.
 - a. To run the Saved Run, click the blue **Start** button.
7. To delete a saved run, click  next to the Saved Run's entry.

Execute a Plan to Make Run

Purpose

To run Plan to Make in batch mode by material type for an entire site, organization, or line group.

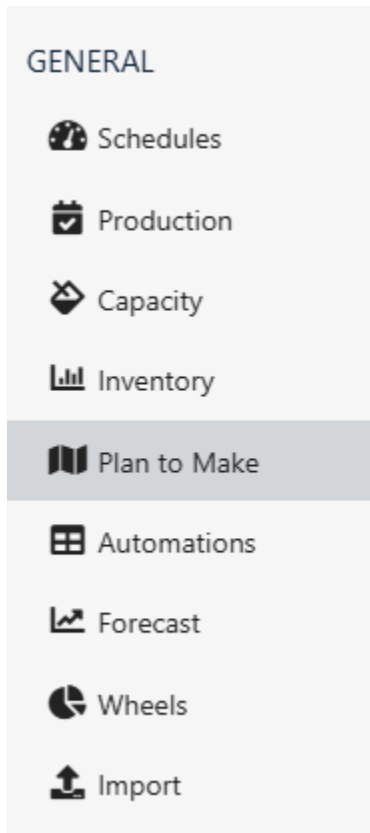
Prerequisites

All material data for the materials of the Type to be run has been imported. All supply chain transaction data that involve these Materials has also been loaded.

If executing a saved Plan to Make run, the saved run must be created. See [Maintain Saved Plan to Make Runs on page 210](#) for more information.

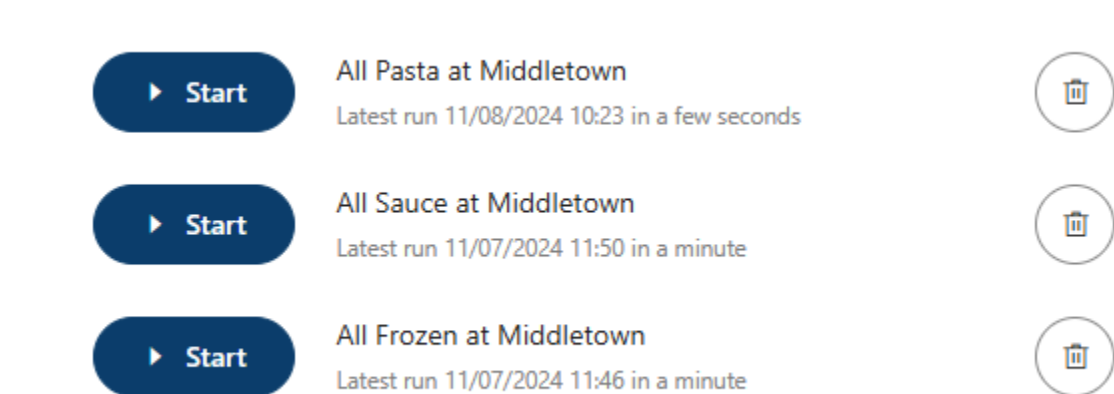
Instructions

Click on Plan to Make in the left-hand menu.



Execute a Saved Plan to Make Run

1. Click **Start** next to the desired saved Plan to Make Run.



2. The saved run's entry will now show the run's progress:

⚙️
Running (30%)

▶ Start

▶ Start

All Pasta at Middletown

Started 11/08/2024 11:07. Running for a few seconds

×

All Sauce at Middletown

Latest run 11/07/2024 11:50 in a minute

🗑️

All Frozen at Middletown

Latest run 11/07/2024 11:46 in a minute

🗑️

- The system will show that the run is complete and the history of past runs.

Execute a New Plan to Make Run

- Click **New Plan to Make Run** at the top of the page.

Plan to Make

New Plan to Make Run
+ New Saved Plan to Make Run

▶ Start

▶ Start

▶ Start

All Pasta at Middletown

All Sauce at Middletown

All Frozen at Middletown

Latest run 11/08/2024 11:07 in a few seconds

Latest run 11/07/2024 11:50 in a minute

Latest run 11/07/2024 11:46 in a minute

🗑️

🗑️

🗑️

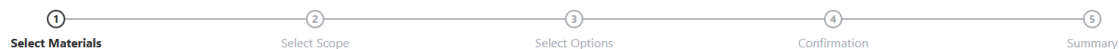
Past Runs

Label	Status	Started	Duration	Completed	Type	Result
All Pasta at Middletown	Completed	11/08/2024 11:07	a few seconds	11/08/2024 11:07	Saved	Applied plan with 218 items. Q
All Pasta at Middletown	Completed	11/08/2024 10:22	a few seconds	11/08/2024 10:23	Saved	Applied plan with 218 items. Q

- Select the material type to include in the run.

Plan to Make

< Back
Continue >



Select material type to consider:

- ☐ All Materials
☐ Dry
☒ Frozen
☐ Can
☐ Sauce
☐ Pasta

3. Select **All Sites** for the Plan to Make run to run for all sites in the organization, select an individual site to have the run only affect the one site, or select a line group to have the run only affect one line group. Click **Continue**.

Plan to Make

< Back
Continue >

✔ 2 3 4 5

Select Materials
Select Scope
Select Options
Confirmation
Summary

Select Sites to Consider

☒ All Sites

☐ Middletown: Middletown Plant

Or, Select Line Group to Consider

☐ Crewing (Middletown)

☐ Extruder Requirements (Middletown)

☐ Frozen Food (Middletown)

☐ Pasta Planning (Middletown)

☐ Sauce Planning (Middletown)

4. Choose what strategy should be used to schedule the new orders. This will default to Product Wheel scheduling if a Product Wheel exists, then to Minimize Changeovers if no Product Wheel Exists. Whichever strategy is chosen will be displayed in the "Past Runs" list.

Plan to Make

< Back
Continue >

✔ ✔ 3 4 5

Select Materials
Select Scope
Select Options
Confirmation
Summary

Select Scheduling Strategy

☒ Auto

☐ Minimize Changeovers

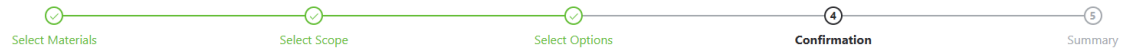
☐ Just In Time

☐ Wheel

5. Confirm that the creation of new orders and the changes suggested for existing orders are acceptable, and click **Execute** to have QAD Advanced Scheduling apply the plan.

Plan to Make

< Back **Execute** >

Scheduling Strategy: **Auto**

☒	Order Due Date	Material	Material Description	Operation	Quantity	Scheduling Date
☒	09/06/2025 00:00	1001 (Middletown)	ACME SP NONE NONE MTS NRW MED	Change	2,000 Case	08/25/2025 03:49 → 09/06/2025 00:00
☒	08/30/2025 00:00	1002 (Middletown)	ACME ASIAN BLND MTS MED MED	Change	2,000 Case	08/18/2025 01:39 → 08/30/2025 00:00
☒	09/06/2025 00:00	1002 (Middletown)	ACME ASIAN BLND MTS MED MED	Change	4,000 Case → 2,000 Case	09/01/2025 03:19 → 09/06/2025 00:00
☒	09/13/2025 00:00	1002 (Middletown)	ACME ASIAN BLND MTS MED MED	Change	2,000 Case	09/29/2025 01:39 → 09/13/2025 00:00
☒	10/04/2025 00:00	1002 (Middletown)	ACME ASIAN BLND MTS MED MED	New	2,000 Case	10/04/2025 00:00
☒	08/30/2025 00:00	1003 (Middletown)	ACME SP RED S NONE MTS WDE MED	Change	3,000 Case	08/26/2025 11:19 → 08/30/2025 00:00
☒	09/13/2025 00:00	1003 (Middletown)	ACME SP RED S NONE MTS WDE MED	Change	4,000 Case → 2,000 Case	09/09/2025 20:49 → 09/13/2025 00:00

6. QAD Advanced Scheduling will alert you to how many orders have been created, or how many errors occurred, if any.

Plan to Make

Continue >



Applied plan with 503 items.

After the Run

Once a Plan to Make run has been finished, you can immediately see the orders created or adjusted in the schedule.

Creating and Implementing Automations

Purpose

Establish preset sequences of scheduling and plan-to-make operations to allow for consistent, faster, and smoother handling of both of these production aspects.

Prerequisites

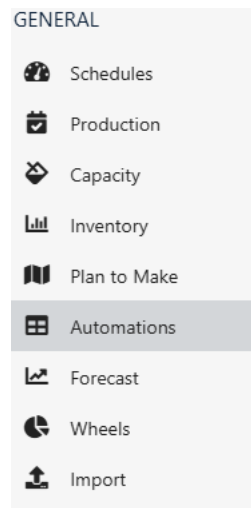
- Product master data for sites, lines, materials, production rates, changeovers, and units of measure (see the [Master Data on page 69](#) section of the documentation for work instructions on creating and maintaining all pieces of master data in QAD Advanced Scheduling).
- Orders to produce with the material, quantity, and due date. Orders in QAD Advanced Scheduling can be of any status: planned, production, process, committed, etc.

What is Automation?

In QAD Advanced Scheduling, automation allows users to create multi-step plans that schedule currently unscheduled orders, combine orders that call for identical materials, begin plan-to-make production for materials near their safety stock levels, move production off of downtime, balance capacity across lines, and split orders.

Instructions

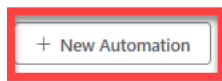
Click on the menu path **General > Automations** menu in the left-hand menu.



Creating an Automation

1. At the upper left corner of the menu, press the “+ New Automation” button.

Automations



2. The following window will appear:

Here you can name the automation to make it easy to recognize, add more steps to the automation, and customize each step of the automation. The possible types of automation steps are as follows:

Schedule: A step of this type will compose a schedule for *all* unscheduled orders on a line of your choice, using a scheduling function of your choice (e.g. Schedule with Wheel or Just in Time). You can also enable the automation to reschedule orders that have already been scheduled (but not those which are marked as committed or manufacturing).

Combine Adjacent Orders of Same Material: As the name implies, this automation type will consolidate any orders in your schedule which are both consecutive and producing the same material. This is useful for simplifying the presentation of your schedule and will help avoid introduction of unnecessary changeovers when further changes to the schedule are made.

Plan to Make: This automation type enables the user to quickly create multiple orders, frequently to fulfill Bill of Materials requirements or increase inventory. The step can be configured to create orders for a single material or all materials of a certain type, and can also be restricted to the scope of a single line, a line group, a single site, or all sites. The scheduling algorithm and planning window for the operation can also be configured.

Move Off Downtime: This automation type enables the user to push orders on a specific line or in a specific line group off of downtime. When utilized in combination with other automation types, Move Off Downtime should be run after Plan to Make and Scheduling operations and before Combine Adjacent Orders operations.

Capacity Level: Only functions for line groups. After choosing a target line group, the automation will balance existing orders across lines in the line group, respecting capacity constraints. The user can choose what scheduling algorithm is used when orders are balanced across the lines.

Split Orders: Enables user to break orders into smaller orders according to whether those orders run across multiple days, across multiple shifts, or across downtimes. The user can also define a time horizon across which the newly split orders will be scheduled. This occurs on a user-specified per-line basis.

Bear in mind that most after selecting any of the above automation types the step will be populated with additional fields to fill. For example, selecting Schedule will populate the step with fields that ask the user to pick a line on which to place any unscheduled orders, choose a scheduling type, and decide whether or not to reschedule any existing already-scheduled orders.

Once you have designed an automation, save it with the orange Save button. A new Start button with the name of the automation you created will be added to the main automation screen:

Automations

+ New Automation

Start

Automation if all supply chain transactions are loaded
Latest run 04/04/2025 13:37 in a few seconds.



Past Runs

Automation Name	Status	Started	Duration	Completed	Result

3. You can initiate your automation by using the “Start” button, and the actions you have outlined therein will be carried out.

Automation Use Strategies

Commonly, the options for an automation step will have a logical flow to them. For example, if you know you are going to have a schedule already established, you might set the first step of an automation to Plan to Make. On the other hand, setting Plan to Make as the first step of an automation won’t produce any results if there are no scheduled orders or loaded customer demand to build off of. Likewise, if you have orders loaded but not yet scheduled, using Schedule as the first step makes sense since neither Plan to Make nor Combine Adjacent would have any effect without orders scheduled.

When designing automations, think through the process to determine what the impact of each step will have and evaluate whether that meets your interim or end goals for production. You can create multiple automations to serve various purposes, such as when you are making a schedule from scratch, adding more orders to a schedule, or refining a schedule.

After Utilizing an Automation

Once your Automation is complete, you can check its performance by visiting your Scheduling menu and observing whether orders have been added, scheduled, combined, or moved.

Changing the Cycle Lengths

Sometimes, the starting date for the first cycle will not be as desired or expected. In other cases of high or low demand, the user may want to extend or shorten a given cycle.

The cycle length is shown in the blue header above each cycle in the schedule list window:

Planned Cycle #4: Jun 14 00:00, 14 days

1. To change the length of a cycle, click on the pencil icon in the cycle header.
2. Select the date and time the cycle should start, and enter a new cycle length in days.
3. Click on “Confirm” to accept the new cycle length.
4. The start of the next cycle will be pushed out or pulled in as appropriate.

Edit Planned Cycle

×

Date  2024-11-08 00:00

Length (days) 7

Desired Length (days) 1

☐ Apply Length to Later Cycles

Confirm

Cancel

Color-Coding the Schedule by Attribute

Purpose

To demonstrate how color-coding the QAD Advanced Scheduling schedule works.

Prerequisites

Orders have been scheduled.

Steps

1. Go to the scheduling screen for a line or line group.
2. In the header, below the statistics boxes, find **Colors: Select** and click **Select**.
3. The following window will open:

Select Colors Using



Color orders by production and consumption of materials within type:

Dry

Frozen

Can

Sauce

Pasta

Or, color orders by resource consumption:

Crew

Extruder

Or, color orders by the value of this material attribute:

Or, color only orders of a certain material:

Or, color by order status, warnings, or a specific warning:

Order Status

Overdue

Any Inventory Alerts

Below Zero

Below Low

Below Safety

Above Max

Any BOM Alerts

BOM Below Zero

BOM Low

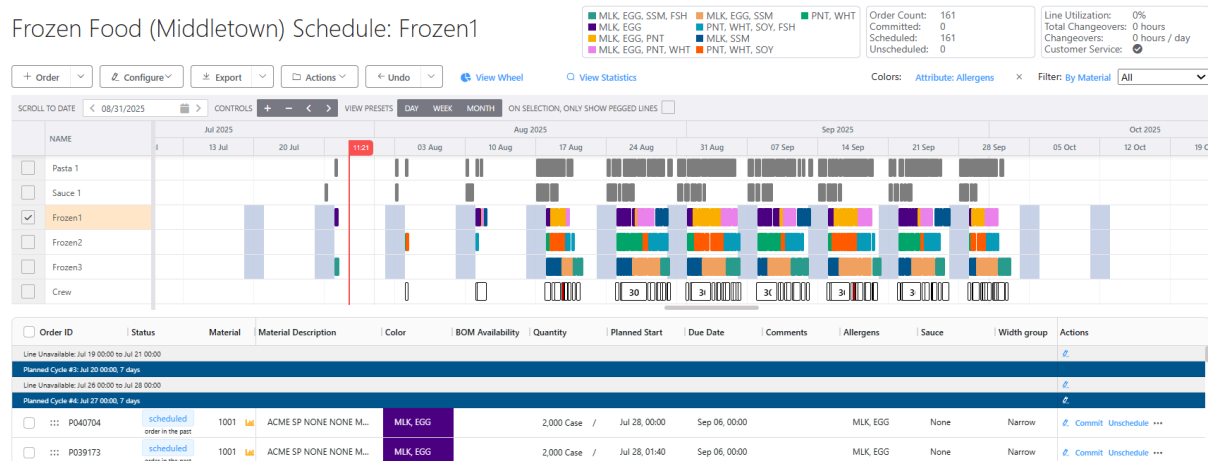
BOM Above Max

Hint: Enable the column **Colors** in order to see colors on the schedule table.

- To color-code within a material type, select the material type in the upper section.
- To color-code by resource consumed, select the resource in the upper section.

- c. Enter and select a material attribute in the first text field to color-code by material attribute value.
 - d. Enter and select a specific material in the second text field to color-code by material.
 - e. Choose a button from the last section to color-code by status or warning.
4. A color key will appear in the upper right of the header, and the schedule in both the Timeline and the List View will be color-coded.

Frozen Food (Middletown) Schedule: Frozen1



The above image is an example of a schedule that is color-coded by allergen.

Note Setting the Colors

By default, QAD Advanced Scheduling uses an automatic color assignment to the values of the attribute selected. However, colors may be specified for material attributes of type **Picklist**. For more information, see [Maintain Material Attributes on page 123](#).

Scheduling Orders

There are many scheduling features in QAD Advanced Scheduling. Below are the common ones as well as work instructions for their use.

[Standard Scheduling on page 226](#)

QAD Advanced Scheduling provides multiple methods for adding unscheduled orders to the schedule, as well as for rescheduling orders that are already scheduled.

[Product Wheel Scheduling on page 228](#)

QAD Advanced Scheduling can automatically schedule orders, placing orders into the latest available cycle that will meet the due date (if possible). This is often a good first step when many unscheduled orders have been imported.

[Moving Orders to Another Wheel Spoke on page 230](#)

Work instruction for moving orders quickly to another Wheel spoke for the material.

[Drag-and-Drop Scheduling on page 231](#)

Orders in QAD Advanced Scheduling can be rearranged via drag-and-drop scheduling. This work instruction provides more details on this function.

[Scheduling Periodic Changeovers on page 233](#)

Work instruction on how to handle scheduling periodic changeovers.

[Keyboard Shortcuts on page 237](#)

Keyboard shortcuts to perform several common commands for scheduling.

Standard Scheduling

Purpose

Utilizing QAD Advanced Scheduling's built-in scheduling algorithms to automatically position orders on the production sequence.

Prerequisites

Orders have been created or imported and are capable of running on at least one line.

Overview

QAD Advanced Scheduling offers three different scheduling algorithms (sometimes referred to as scheduling approaches or scheduling strategies) that can be used to quickly place orders in the production sequence. These algorithms are:

- **Product Wheel Scheduling:** This scheduling algorithm adheres to the sequence outlined in a line's Product Wheel. Only functions when a Product Wheel has been designed for the line being considered, and only for materials which are included in the Product Wheel. The algorithm will naturally prioritize whatever the Product Wheel was designed to prioritize, such as maximum throughput, consistent inventory levels, or some other element of production.
- **Minimize Changeovers:** This scheduling algorithm aims to reduce the total amount of downtime due to changeovers by placing orders next to orders producing materials that are as similar as possible.
- **Just in Time:** This scheduling algorithm aims to place each order in production sequence such that it completes just before its due date. In other words, this algorithm prioritizes controlling inventory and meeting order quantities.

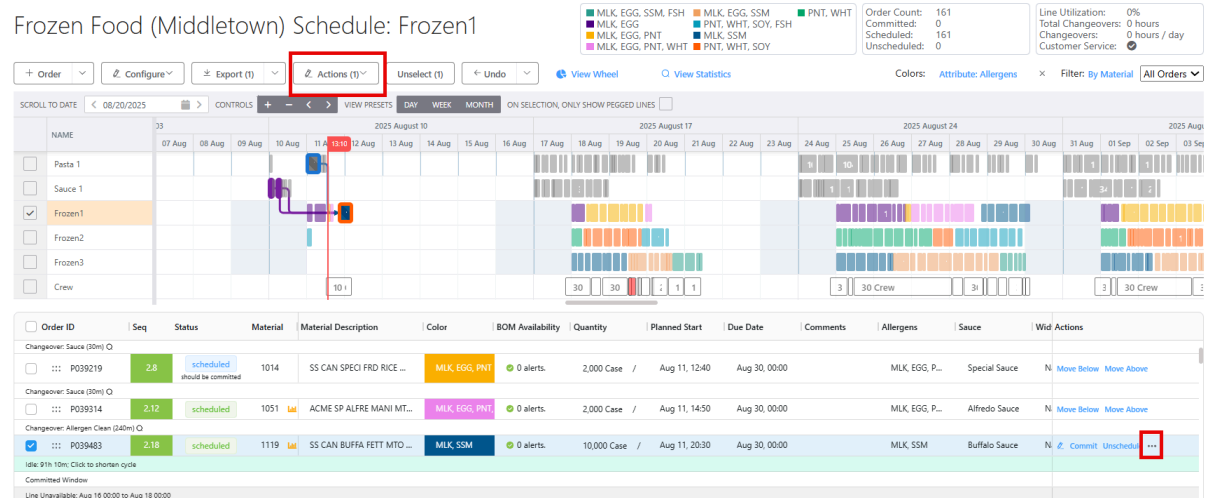
Any of these algorithms or combinations thereof can be suitable for an organization depending on what the goals for any given set of orders are. However, it is usually best practice to maintain a single scheduling strategy on each line. For example, if an organization has 3 lines producing frozen foods and wants to ensure that these lines are maximally efficient, the lines might be scheduled with Minimize Changeovers. If an upstream sauce line feeds into the frozen lines, that sauce line might be scheduled with Just in Time to ensure that the downstream lines always have the materials they need.

Steps

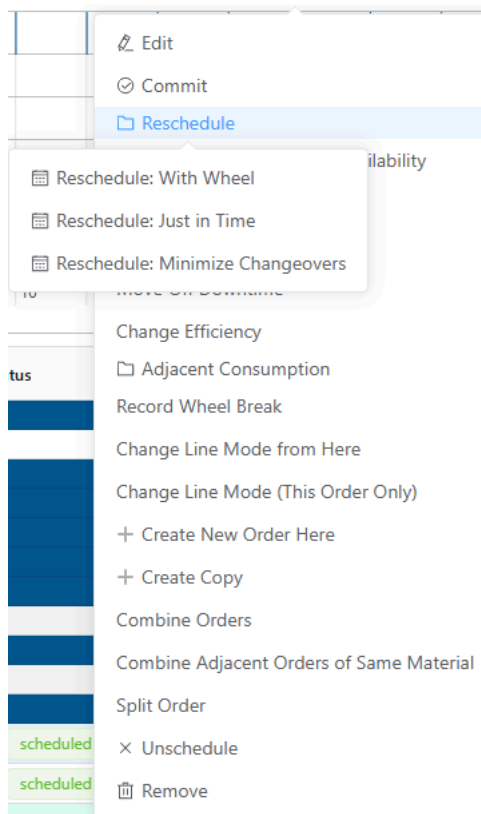
Orders can be quickly scheduled via buttons in two primary locations.

1. First, select all orders that should be scheduled. See [Multi-Select on page 321](#) for instructions on how to quickly select many materials.
2. Next, press either the Actions button above the timeline or the three dots next to an order to open the list of Three Dot Functions.

Frozen Food (Middletown) Schedule: Frozen1



- Pressing either of these buttons will open a list of possible actions. Find the foldered option that says "Schedule" or "Reschedule" depending on whether the selected orders are unscheduled or scheduled at present. Press the "Schedule" or "Reschedule" option to open the list of available scheduling algorithms and choose whichever is appropriate.



The selected orders will then be scheduled according to the selected algorithm.

Product Wheel Scheduling

Purpose

To instruct QAD Advanced Scheduling to schedule new orders in Product Wheel sequence.

Note

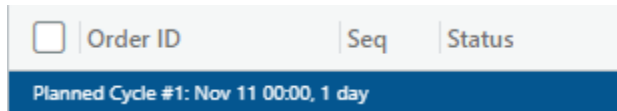
This is recommended as your first step when bringing in new orders, provided you have Wheels designed. Using Product Wheel sequence gives a good starting point from which to refine the schedule.

Prerequisites

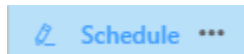
Orders have been created or imported. A Product Wheel exists for a given line.

Steps

1. On the Scheduling screen, locate one or more unscheduled orders identified by their green or blue “Scheduled” icon in the Status column of the schedule list window. Select the order or orders you wish to schedule by clicking their corresponding check boxes.
 - a. To select multiple orders, see [Multi-Select on page 321](#).
 - b. To select all orders select the “Select all in group” checkbox to the left in the header row.



2. In the right-side “Actions” column, next to the order(s) you’ve selected, click “Schedule”.



You can also use the white “Actions” button above the Gantt Chart/Timeline to open a list of actions, among which will be the option “[Re]Schedule: With Wheel”.

- a. QAD Advanced Scheduling will place the orders in Product Wheel sequence in the latest cycle that will meet the order's due date(s).
3. If you want to schedule the selected orders into a specific Wheel cycle, locate the cycle in which you want to schedule them and click “Schedule in Cycle” to the right in the blue cycle header.



Note Warning Messages

If a material is on a line that does not have a Product Wheel, but the material is included in a Product Wheel on another line, you can send that material to the other line to engage in Product Wheel scheduling. Simply use the “three dots” icon to the right of the material or the Actions button above the Gantt Chart/Timeline to send the material to the line of your

choice. If you are working in a line group that contains the target line, you can also drag-and-drop the material to the correct line in the Gantt Chart/Timeline.

Moving Orders to Another Wheel Spoke

Purpose

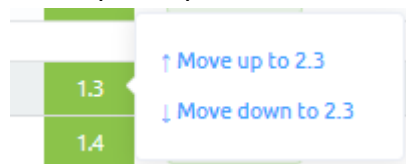
To move orders to another Wheel spoke where the material is run.

Prerequisites

Orders have been scheduled according to a Product Wheel.

Steps

1. In the schedule list window, find the order you want to move.
2. Hover the cursor over the number in the colored box in the **Seq** column of the schedule. The order must call for a material that is in a Product Wheel to display a number in the colored box.
3. A small window will open, showing the immediately prior and subsequent spokes the order's material is in.



- a. Click **Move up to [spoke number]** to move it to the prior spoke. Click **Move down to [spoke number]** to move it to the subsequent spoke.

Note Spoke Numbers

Spoke numbers are used to quickly note where in a Wheel a spoke lives. The first digit denotes the cycle the spoke falls in, while the second (after the period) denotes where in the cycle's sequence the spoke falls.

For example, spoke number 2.3 means it is the third spoke in the second cycle of the Wheel.

Drag-and-Drop Scheduling

Purpose

To move orders to another date or time on the same line.

Note Types of Drag and Drop

Drag and drop scheduling can be done in either the schedule list window or the Gantt chart timeline at the top of the scheduling screen. Working in the schedule list window gives more information about the orders you are moving and enables more precision. Working on the Gantt chart gives a sense of the time scale involved and a more wholistic understanding of how the move impacts the schedule.

Prerequisites

Orders are scheduled on the line.

Steps

Moving Orders in the Schedule List Window

1. Select the order or orders to be moved.
 - a. To learn how to select multiple orders, see [Multi-Select on page 321](#).
2. Click and hold your mouse button on the field of dots  just to the right of the check boxes.
 - a. A hand icon will appear to confirm that you can begin to move the selected order(s). While dragging the order(s), the icon will change to a four-way arrow.
3. Drag the order(s) up or down to the new location.
4. If moving these orders breaks the Wheel sequence, a window will pop up asking for a reason, either by selecting from a list of options or by typing into a text field (dependent upon organization settings). Enter the reason and select "Move".

Confirm Move out of Wheel Sequence



Are you sure you want to move out of wheel sequence? Please provide a reason:

Move

Cancel

Moving Orders in the Gantt Chart Timeline

1. Click on the order(s) to be moved. Selected orders will be highlighted with a bold border and striped interior.
 - a. To learn how to select multiple orders, see [Multi-Select on page 321](#).
2. Hold down the left mouse button and drag the order(s) to the new location.
3. Release the mouse button to move the order(s).

Note Closing Order Gaps

If moving orders creates a gap in the schedule, you can automatically close the gap by double clicking on the first order after the gap.

Scheduling Periodic Changeovers

Purpose

To schedule periodic changeovers fulfilling specific business requirements.

Prerequisites

Periodic changeover rule(s) created on top of all scheduling prerequisites. For more information, see [Maintain Changeovers on page 144](#).

Note Periodic changeovers are usually not related to a product change on a line, but rather to regular maintenance procedures to be performed on the line after a certain period of time. If such rules are created, QAD Advanced Scheduling will create periodic changeovers inside the schedule with the given periods. Examples of periodic changeovers are:

1. Regular inspection, cleaning and lubrication.
2. Periodic thorough cleaning/washout regardless of the products being produced.

Steps

1. Once a periodic changeover rule is defined on the **Setup>Changeovers** page, QAD Advanced Scheduling will create them automatically as part of the scheduling algorithm.
2. Run the scheduling process as per the standard procedure. Periodic changeovers will be automatically created and inserted in the schedule, starting from the time of scheduling and concluding after the end of the first planned cycle (indicated by a dark blue header in the schedule list window) after the final scheduled order. This means that the first periodic changeover will be created at the start of the scheduling run even if there are no orders for the day. After that, periodic changeovers will follow the timing specified in the changeover rule.
 - a. Example: The image below displays the end of the last scheduling period that contains orders. There is one periodic changeover between the last scheduled order and planned cycle end and one more after the planned cycle end:

Changeover: Height (10m)												
☐		P020149	1.20	scheduled	1147	4,000 Case	+ / -	6.0,1,2,3	Wide	High	SC Sauce	May 10
										May 07, 05:00	May 07, 08:20	3h 20m
Changeover: Width (20m)												
☐		P020104	1.21	scheduled	1081	2,000 Case	+ / -	6.0,1,2,3	Narrow	High	SC Sauce	May 10
										May 07, 08:40	May 07, 10:20	1h 40m
Idle: 3h 18m; Click to remove												
Changeover: Periodic (240m) 1 168 hours 1 168 hours										May 07, 13:38	May 07, 17:38	4h 00m
Line Unavailable: May 08 06:00 to May 10 06:00												
Planned Cycle #2: May 09 06:00, 7 days												
Line Unavailable: May 12 02:00 to May 12 06:00												
Changeover: Periodic (240m) 1 168 hours										May 14, 13:38	May 14, 17:38	4h 00m

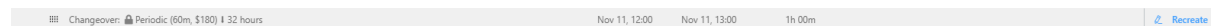
3. Carefully review all periodic changeovers created during the scheduling run, starting at the top of the orders list. If needed, change their position in the orders list to provide the best compliance with manufacturing requirements and, if possible, make them coincide with

one of the bigger changeovers. This can be done either by editing changeover using the pencil button to the right of the changeover entry in the schedule list window, or by using the drag-and-drop method (see details below).

4. If moving the changeover creates too much time between it and the next periodic changeover, you can tell QAD Advanced Scheduling to regenerate and slot in all subsequent periodic changeovers. On the schedule, go to the next periodic changeover after the one moved, click on **Recreate** to the right of that changeover's entry. QAD Advanced Scheduling will delete the changeover and all subsequent ones, and recreate new ones that follow the time between changeovers.
 - a. Note: Be sure to not click **Recreate** on the changeover manually moved, as this will reset the move and return it to its previous position.
5. If it is necessary to clean up the changeovers and restart:
 - a. Unschedule all orders. Only the periodic changeovers will still be on the schedule.
 - b. Click **Recreate** on the first periodic changeover in the list. This will delete all of the periodic changeovers and recreate them at the proper intervals.

Summary of changeovers properties

Periodic changeovers appear similar to the below image in the schedule list window:

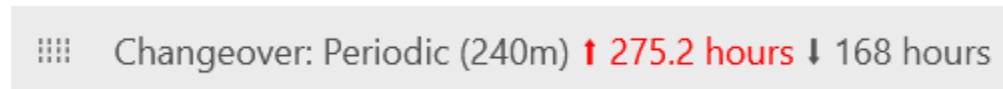


the elements of this periodic changeover indicator are described in detail below:

Move Icon: Click this to move the changeover by drag-and-drop.

Name, Duration, and Cost: Shows changeover name, duration in minutes, and cost in dollars.

Time to Next and Previous Changeover: Shows the time between this changeover and the previous one, and then the time between this changeover and the next one. Red numbers indicate the time between is longer than the maximum time allowed by the Changeover Rule. Click on the arrows next to the times to jump to previous or following Periodic changeover.



Start and End time: Shows on what date and at which time changeover starts and ends.

Changeover Duration: The length of the changeover, in hours and minutes.

Pencil button: Pressing on this button opens a window for editing the changeover start date and time. 

Recreate: Clicking on this link will recreate changeovers started from the one on which the link is clicked.

Complete: This only appears if the changeover's start and end time have passed. Deletes respective changeover from the list of orders and timeline.

Periodic Changeover Actions

Edit periodic changeover: Press the pencil button. A new form will open, which shows changeover start date/time, length in minutes, and end date/time. Only the start date and time can be changed. Use this action to indicate precise date/time of changeover start.

- This is the most precise way to move a Periodic changeover to a specific place in the schedule. Using drag-and-drop in the schedule can move the changeover to a different place, but does not allow you to start it at a specific time. Using drag-and-drop on the timeline allows you to change as well set exact start and end times (but not duration), but it can be difficult to achieve full precision.

Recreate periodic changeovers: If all orders are unscheduled, this can be used to delete all existing Periodic changeovers. Just click on Recreate for any of them. If there are at least some scheduled orders, this can be used when a Periodic changeover was moved to a different place in the schedule. To restore the default time between Periodic changeovers, click on Recreate on the moved Periodic changeover, and all changeovers after it will be recreated with default time between them.

- Manual adjustments to Periodic changeovers must be used to find the optimal place for them in the schedule in line with the site operating strategy. The Recreate function will help to adjust timings of the rest of Periodic changeovers after manual changes to the schedule to reduce amount of manual work.

Complete periodic changeover: Press the Complete action in order to delete Periodic changeover in the past.

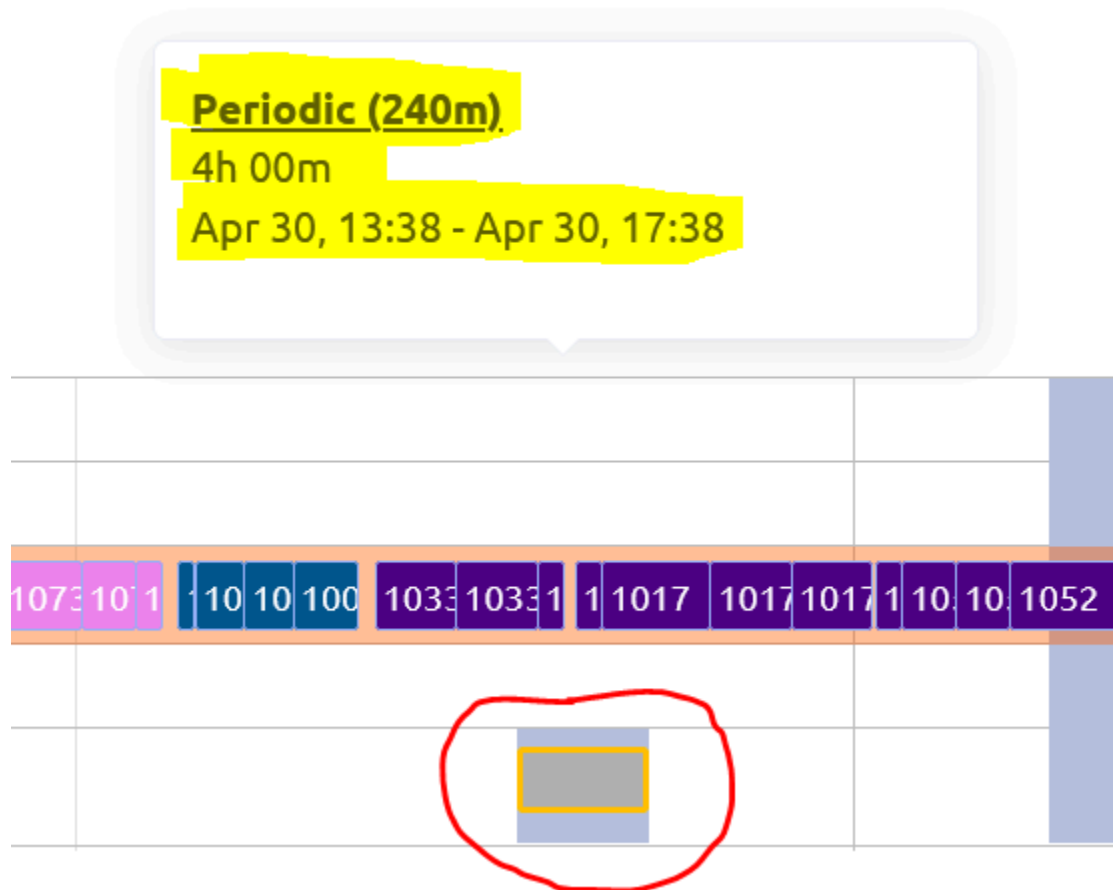
- This action is only available for Periodic changeovers in the past. This is a simple way to delete a few changeovers in the past, rather than unscheduling all orders, deleting all Periodic changeovers, and scheduling again.

Drag-and-drop periodic changeover in the schedule list window: Use the mouse to drag-and-drop a Periodic changeover up or down the orders list in the schedule to find the optimal place for it.

- If a Periodic changeover is dropped between two consecutive orders, it will be inserted between them without any time gaps and the schedule between the new and old positions of Periodic changeovers will be respectively adjusted. However, if a Periodic changeover is

placed within downtime which exceeds changeover duration, that changeover will be dropped within the downtime at some point which cannot be changed using this drag-and-drop method.

Drag-and-Drop periodic changeovers on the timeline: Select a Periodic changeover which has to be rescheduled in the orders list. It will be then selected on the timeline as well. Use the mouse to move left or right on the timeline to put it into the desired place.:



- Contrary to the previous method, this will allow you to select any time for the changeover's start. Bear in mind that using drag-and-drop on the timeline could be difficult to select a very precise time, so it would make sense to make a general change using drag-and-drop and then eventually make a more specific correction by using the Edit Periodic changeover action.

Keyboard Shortcuts

QAD Advanced Scheduling supports the following keyboard shortcuts. Before pressing the key, either click on the single order or select the multiple orders you want to operate on.

Shortcuts and their Functions

S or Shift+S: Schedule the order(s).

C or Shift + C: Commit the order(s).

U or Shift + U: Uncommit or unschedule the order(s).

E or Shift + E: Edit a single order.

N or Shift + N: Create a new order here.

M or Shift + M: Create a copy of this order here.

R or Shift + R: Reschedule the order(s).

A, Shift + A, X, or Shift + X: Clear the selection, or, if an order is focused on, select all orders with the same order status (committed, scheduled, unscheduled, etc.)

D: Delay the order by a number of minutes.

Shift+D: Delay the order to start of next line availability.

Space: Select or unselect the row that has focus.

Arrow Up or Down: Move focus up or down.

Ctrl + Z: Undo the most recent scheduling action.

Maintaining, Editing, and Adjusting Orders

Here you will find work instructions on how to maintain, edit, and adjust orders in QAD Advanced Scheduling.

- [Maintain Orders on page 239](#)
- [Batch Rounding on page 242](#)
- [Undo and Save State Functions on page 245](#)

Maintain Orders

Purpose

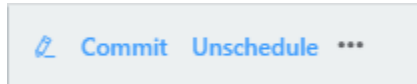
To maintain existing orders in the QAD Advanced Scheduling scheduler

Prerequisites

Orders have been created.

Steps

1. Choose the orders that you wish to work on.
 - a. To select a single order, click on the order or the checkbox to the left of the order.
 - b. To select multiple orders, use QAD Advanced Scheduling's [Multi-Select on page 321](#) options.
 - c. To select all orders, click on the select-all-in-group checkbox.
2. To the right of the selected order, or the first of the selected orders, under the "Actions" column, you will see something like the following:



- a. : Opens a window to allow you to edit the order(s). Not available when order is committed.
 - i. Notably, a unique option appears in the order editing window only when an order is committed: "Completed Quantity". This is a linked slider and numerical entry field that allow a user to specify how much of an order has been produced at a given time. Inputting a value on the slider or numerical entry field will cause a new column with "Completed Quantity" to appear in the Schedule List Window, and the order on the Gantt Chart will take on a partially shaded display. Both display changes reflect how much of the order has been completed. If the Completed Quantity is set to 100%, the order will be completed.
- b. **Commit/To Manufacturing/Complete:** Button is **Commit** when the scheduled order(s) is/are not committed, and will commit the order(s). Button is **To Manufacturing** when the scheduled order(s) is/are committed, and will label the order(s) as Manufacturing. Button is **Complete** when the scheduled order(s) is/are labeled as Manufacturing, and will complete the order(s) and remove them from the schedule.
- c. **Unschedule/Uncommit/Not Manufacturing:** Button is **Unschedule** when scheduled order(s) is/are not committed, and will unschedule the order(s). Button is **Uncommit** when the scheduled order(s) is/are committed, and will uncommit but not unschedule the order(s). Button is **Not Manufacturing** when the scheduled order(s) is/are labeled as Manufacturing, and will

remove the order(s) from Manufacturing but will not uncommit or unschedule the order(s).

- d. **...**: Opens the extra actions menu, also known as the “three dot functions”:
- i. **Delay to Start of Next Line Availability**: Immediately moves selected order(s) to start after the next downtime. Not available if order is committed.
- ii. **Insert Delay Before**: Delays the selected order(s) and all subsequent orders. The delay can be set so that the selected order(s) start at a specific time, or can be defined by entering a number of minutes, hours, and days to delay by. Not available if order is committed.
- iii. **Move to Another Line**: Moves an order to another line in the organization, provided the material that the order calls for has a production rate for the target line. The user can move a scheduled order directly into the schedule, at the end of the corresponding production period on the new line, or can move the order over as an unscheduled order on the target line. Not available if order is committed.
- iv. **Move off Downtime**: Pushes an order and all subsequent orders back to ensure that the order does not run on any recognized downtime in the schedule. Only functions if the selected order(s) are on downtime. Not available if order is committed.
- v. **Change Efficiency**: Changes efficiency of selected order(s). Drag the slider or enter a new efficiency rate and press “Confirm”. Note that the efficiency change always remembers the initially defined production rate of the material being called for, and will always be a percentage of that initially defined production rate. Not available if order is committed.
- vi. **Adjacent Consumption**: Opens a list of BoM items or Resources that are used by the selected order(s) and other adjacent orders in the schedule. Use of the BoM Item or Resource can be adjusted to ensure that “round” quantities are used. Not available if order is committed. For more information, see [Batch Rounding on page 242](#). Not available if order is committed.
- vii. **Show Downstream Consumption**: Opens a window that displays any orders scheduled in the future that will consume the selected item. The window can be used to round production of the selected item similar to the process described in [Batch Rounding on page 242](#).
- viii. **Show Upstream Production**: Opens a window that displays any materials being consumed by the selected item, how much of each is required, and any orders producing those consumed materials that are feeding into the selected item.

- ix. **Export:** Exports selected order(s). Select the type of file that you want to export and click on “Download Schedule”.
 - i. To export all orders, click on “Export” at the top of the page, select the file type and click on “Download the Schedule” rather than using the three dot function.
- x. **Record Wheel Break:** Make a note of why an order has been moved out of wheel sequence.
- xi. **Create New Order Here:** Opens a menu to allow the creation of a new order at that spot in the schedule. For more information on creating an order, see [Creating an Individual New Order on page 202](#).
- xii. **Create a Copy:** Creates an editable copy of the selected order(s). Not available if order is committed.
- xiii. **Split Order:** Splits selected order(s) into two or more separate orders. Order amount of each resulting order can be selected. Not available if order is committed.
- xiv. **Combine Adjacent Orders of the Same Material:** Will condense multiple orders calling for the exact same material into a single order. Not available if order is committed.
- xv. **Reschedule:** Offers another method for utilizing each of the three automatic scheduling algorithms to reschedule the order. Not available if order is committed.
- xvi. **Remove:** Cancels the order, removing it from the schedule. Not available if order is committed.

The status of the order (scheduled, committed, or manufacturing) adjusts the availability of these functions. Where indicated, the function is not available for committed orders; the three-dot functions are never available for orders labeled as Manufacturing.

Note Be advised that the majority of the scheduling actions described on this page can also be accessed via the Actions button above the Gantt Chart/Timeline.

Batch Rounding

Overview

Many processes have batch rounding requirements on their components or upstream production facilities. For example, these components or facilities may make use of mixing tanks, transport containers or trucks, large rolls of components, kettles for preparing foods, or formulas that are validated for certain amounts, etc. In other words, these components can only be produced in set quantities, or these facilities may require a certain level of production to function.

Batch rounding allows a user to select a downstream product, find adjacent orders that share the same component materials or upstream items, and adjust the downstream production so that it consumes as much upstream material as the upstream components or facilities requires.

The steps of the batch rounding process are to:

1. Select an order containing the upstream component to be batch rounded.
2. Select which component to round.
3. Select the adjacent orders that will be adjusted to account for the rounded component.
4. Review the total consumption.
5. Round production up or down to meet the batch size restrictions.

Detail

1. Select an order containing the upstream component to be batch rounded. The example below shows 3 consecutive runs of products with Primavera Sauce as a component. The sauce must be made in lot size increments in the upstream kitchen.

☐ Order ID	Seq	Status	Material	Material Description	Color	Quantity	Planned Start	Planned End	Run Length	Due Date	BOM Availability	Actions
☐ P043898	3.12	scheduled	1162	GEN NONE NONE MTS M...		10,000 Case	May 28, 16:30	May 29, 00:50	8h 20m	May 31, 00:00		Commit Unschedule ...
Changeover: Sauce (30m) O												
☐ P043897	3.13	scheduled	1161	SS CAN PRIMA RICE MTD ...		7,000 Case	May 29, 01:20	May 29, 07:10	5h 50m	May 31, 00:00	0 alerts	Commit Unschedule ...
Changeover: Height (10m) O												
☐ P043903	3.14	scheduled	1176	SS CAN PRIMA MLT-G SP...		5,000 Case	May 29, 07:20	May 29, 11:30	4h 10m	May 31, 00:00	0 alerts	Commit Unschedule ...
Changeover: Height (10m) O												
☐ P043891	3.15	scheduled	1148	SS CAN PRIMA MACARNI ...		2,000 Case	May 29, 11:40	May 29, 13:20	1h 40m	May 31, 00:00	0 alerts	Commit Unschedule ...
Changeover: Sauce (30m) O												

- a. To select an order, click on the three-dot scheduling functions for the order that you want to select:
2. Select “Adjacent Consumption of...” the component to be used for batch rounding.
 3. Select the adjacent orders to include.

Adjust Consumption of Material "34: Primavera Sauce" to Minimum and Increments

Production of "34" must be at least 3,000 kg and increments of 3,000 kg.

Add 1,000 kg or remove 2,000 kg to get to the next increment.

Production of **14,000 kg** is not compatible with the increment.

	Order ID	Material	Description	Quantity	Round Up	Round Down	Consumption	Actions
☒	P043897	1161 (Middletowr	SS CAN PRIMA RICE M	7,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	7,000 kg	Add After Add Before
☒	P043903	1176 (Middletowr	SS CAN PRIMA MLT-G	5,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	5,000 kg	Add After
☒	P043891	1148 (Middletowr	SS CAN PRIMA MACAR	2,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	2,000 kg	Add After

Total Consumption: **14,000 kg**

Save and Close

Cancel

< Previous

Next >

- Review the total consumption. Round production up or down to meet the batch size restrictions on the total consumption of the selected orders.

Adjust Consumption of Material "34: Primavera Sauce" to Minimum and Increments

Production of "34" must be at least 3,000 kg and increments of 3,000 kg.

Add 1,000 kg or remove 2,000 kg to get to the next increment.

Production of **14,000 kg** is not compatible with the increment.

	Order ID	Material	Description	Quantity	Round Up	Round Down	Consumption	Actions
☒	P043897	1161 (Middletowr	SS CAN PRIMA RICE M	7,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	7,000 kg	Add After Add Before
☒	P043903	1176 (Middletowr	SS CAN PRIMA MLT-G	5,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	5,000 kg	Add After
☒	P043891	1148 (Middletowr	SS CAN PRIMA MACAR	2,000 Case + / -	+ 1,000 Case ...	- 2,000 Case ...	2,000 kg	Add After

Total Consumption: **14,000 kg**

Save and Close

Cancel

< Previous

Next >

Note that "Next" and "Previous" buttons in the bottom right of the batch rounding dialogue window can be used to navigate to the next set of orders that have batch-roundable upstream consumption. Additionally, new orders for materials that consume the same resource material can be added to the schedule from the adjacent

consumption window by using the Add Before and Add After buttons in the Actions column.

5. Click on apply to round the selected orders.

Undo and Save State Functions

Overview

The scheduling tools in QAD Advanced Scheduling include multiple methods of reversing decisions or resetting the schedule to previously defined conditions. These methods allow the user to quickly correct mistakes, or to safely experiment with various decisions to see how the schedule is impacted.

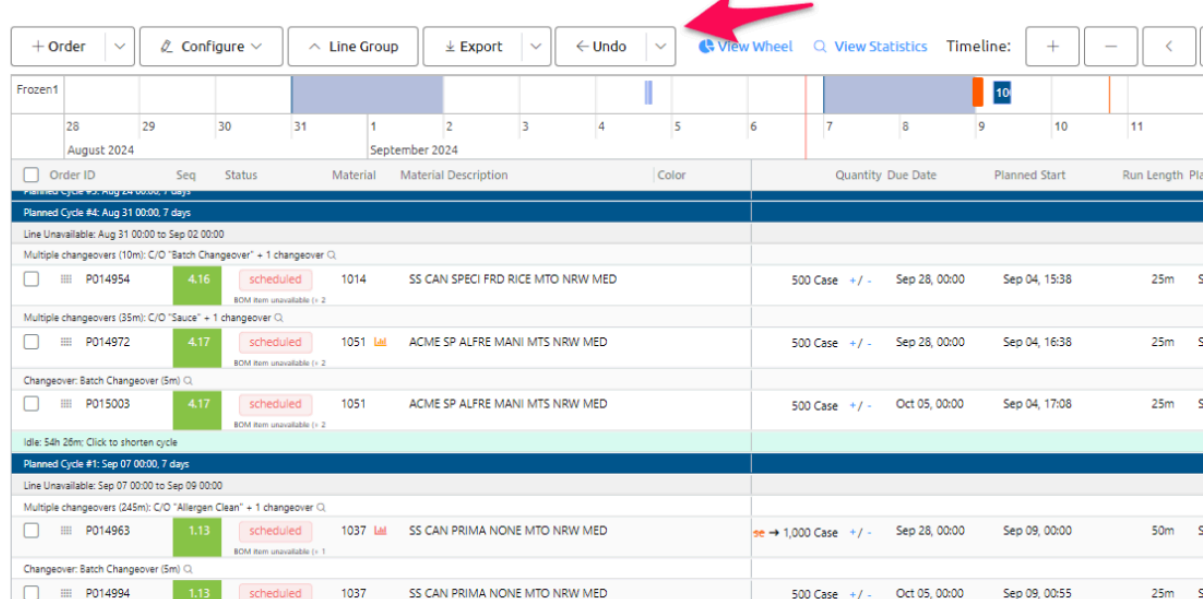
The first of these methods is the Undo button, which is used to immediately reverse the most recent scheduling action taken or a set of actions.

The second of these methods is the Save State feature, which can be used to record the schedule in a specific state to be referenced or restored later.

Undo

The undo button can be found in the header of the scheduling screen, to the right of the other buttons:

Frozen1 Schedule



Frozen1 Schedule									
+ Order	Configure	Line Group	Export	Undo	View Wheel	View Statistics	Timeline:	+	-
August 2024 September 2024									
Order ID	Seq	Status	Material	Material Description	Color	Quantity	Due Date	Planned Start	Run Length Plt
Planned Cycle #4: Aug 31 00:00, 7 days									
Line Unavailable: Aug 31 00:00 to Sep 02 00:00									
Multiple changeovers (10m): C/O "Batch Changeover" + 1 changeover									
☐	P014954	4.16	scheduled	1014	SS CAN SPECI FRD RICE MTO NRW MED	500 Case	+ / - Sep 28, 00:00	Sep 04, 15:38	25m S
BOM Item unavailable (> 2)									
Multiple changeovers (35m): C/O "Sauce" + 1 changeover									
☐	P014972	4.17	scheduled	1051	ACME SP ALFRE MANI MTS NRW MED	500 Case	+ / - Sep 28, 00:00	Sep 04, 16:38	25m S
BOM Item unavailable (> 2)									
Changeover: Batch Changeover (5m)									
☐	P015003	4.17	scheduled	1051	ACME SP ALFRE MANI MTS NRW MED	500 Case	+ / - Oct 05, 00:00	Sep 04, 17:08	25m S
BOM Item unavailable (> 2)									
Idle: 54h 26m: Click to shorten cycle									
Planned Cycle #1: Sep 07 00:00, 7 days									
Line Unavailable: Sep 07 00:00 to Sep 09 00:00									
Multiple changeovers (245m): C/O "Allergen Clean" + 1 changeover									
☐	P014963	1.13	scheduled	1037	SS CAN PRIMA NONE MTO NRW MED	se → 1,000 Case	+ / - Sep 28, 00:00	Sep 09, 00:00	50m S
BOM Item unavailable (> 1)									
Changeover: Batch Changeover (5m)									
☐	P014994	1.13	scheduled	1037	SS CAN PRIMA NONE MTO NRW MED	500 Case	+ / - Oct 05, 00:00	Sep 09, 00:55	25m S

Pressing the undo button (or using the keyboard shortcut - Ctrl+z) will prompt a confirmation window to appear. This window will list the action to be undone, and the undo can be confirmed or canceled by using the corresponding button.

Undo last scheduling action "Reschedule Orders: 70 orders using "Minimize Changeovers""



Are you sure you want to undo? All unscheduled orders will be lost.

Restore

Cancel

If you want to undo several actions, you can use the chevron portion of the undo button to open a short list. The list offers the "View Actions" option, which will open a screen displaying recent scheduling actions and the time at which those actions were taken:

Frozen1 Schedule

+ Order

Configure

Line Group

Export

Undo

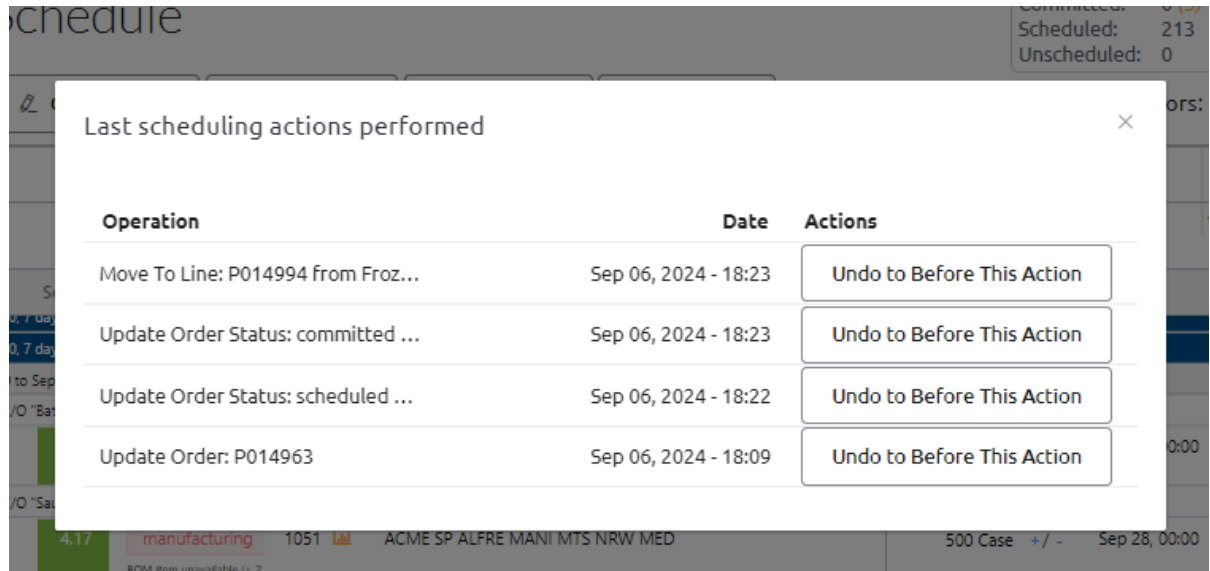
View

Frozen1											
	28	29	30	31	1	2	3	4		9	
	August 2024				September 2024						

Undo Last Action

View Actions

☐	Order ID	Seq	Status	Material	Material Description	Color
	Planned Cycle #3: Aug 24 00:00, 7 days					
	Planned Cycle #4: Aug 31 00:00, 7 days					
	Line Unavailable: Aug 31 00:00 to Sep 02 00:00					
	Multiple changeovers (10m): C/O "Batch Changeover" + 1 changeover					



Scheduling actions are recorded between 10 and 12 hours, dependent upon the quantity and complexity of scheduling actions taken. Once this timeframe has elapsed, the actions will be “discarded” from the tool’s memory and will no longer appear in the “View Actions” window.

A few other important aspects of the undo action are as follows:

- The undo action is itself considered a scheduling action. Therefore, repeatedly using the undo button or Ctrl+z shortcut will switch back and forth between undoing and redoing the most recent other action. The “View Actions” list must be used to undo actions taken more than 1 item previously.
- If the undo action would cause any errors to occur, the tool will cancel the undo action rather than perform it.

Save State

The save state feature can be accessed from the expanded statistics window in the upper right hand corner of the scheduling screen:

Frozen1 Schedule

Order Count: 217 (overdue: 46) | Line Utilization: 78%
 Committed: 0 | Total Changeovers: 98.6 hours
 Scheduling: 217 (18) | Changeovers: 1.8 h / day

+ Order | Configure | Line Group | Export

Frozen1

2024

Order ID | Seq | Status | Material | M.L. | Color | BOM Av

Planned Cycle #1: Jul 13 00:00, 7 days
 Planned Cycle #2: Jul 20 00:00, 7 days
 Line Unavailable: Jul 20 00:00 to Jul 22 00:00
 Manual Downtime: Test
 Idle: 9h 30m; Click to shorten cycle
 Planned Cycle #3: Jul 27 00:00, 7 days
 Line Unavailable: Jul 27 00:00 to Jul 29 00:00
 Idle: 12h 30m; Click to remove
 P013617 | 3.20 | scheduled | 1145 | Alt | 0 al
 Idle: 10h 45m; Click to shorten cycle
 Planned Cycle #4: Aug 03 00:00, 7 days
 Line Unavailable: Aug 03 00:00 to Aug 05 00:00
 Multiple changeovers (245m): C/O "Allergen Clean" + 1 changeover C
 P013593 | 4.10 | scheduled | 1008 | Alt | 0 al
 Idle: 17h 25m; Click to remove
 Multiple changeovers (35m): C/O "Sauce" + 1 changeover C
 P013595 | 4.11 | scheduled | 1011 | Alt | 0 al
 Multiple changeovers (35m): C/O "Sauce" + 1 changeover C
 P013590 | 4.12 | scheduled | 1005 | Alt | 0 al
 Multiple changeovers (25m): C/O "Width" + 1 changeover C
 P013592 | 4.13 | scheduled | 1007 | Alt | 0 al
 Multiple changeovers (35m): C/O "Sauce" + 1 changeover C
 P013604 | 4.14 | scheduled | 1033 | Alt | 0 al
 Multiple changeovers (35m): C/O "Sauce" + 1 changeover C
 P013603 | 4.15 | scheduled | 1031 | Alt | 0 al
 Idle: 8h; Click to remove

For the Planning Period

Description:

Period: Aug 16, 13:39 - Oct 11, 13:39
 Changeovers: 98.6 hours
 106 minutes / day
 Length: 56 days
 Utilization: 78%
 Uptime: 960 hours
 17.1 hours / day
 Run time: 652.9 hours
 11.7 hours / day
 Customer Service: 188,000 Case late
 768,979 Case days late

By Planned Cycle

Cycle 3:	Cycle 4:	Cycle 1:	Cycle 2:
Start: Jul 27, 00:00	Aug 03, 00:00	Aug 10, 00:00	Aug 17, 00
Changeover Time: 0 hours	9.3 hours	22.2 hours	10.4 hours
Length: 7 days	7 days	7 days (+3.6 days)	7 days (-2.1 days)
Utilization: 5%	37%	133%	101%
Cycle Time: 168 hours	168 hours	168 hours	168 hours
Scheduled Downtime: 48 hours	48 hours	48 hours	48 hours
Available Capacity: 120 hours	120 hours	120 hours	120 hours
Run Time: 5.8 hours	35 hours	137.1 hours	111.3 hour
Changeovers: None	• Allergen Clean: 2 • Batch Changeover: 2 • Packaging: 11 • Sauce: 8 • Width: 1	• Allergen Clean: 4 • Batch Changeover: 16 • Height: 2 • Packaging: 22 • Sauce: 12 • Width: 4	• Allergen Clean: 1 • Batch Changeover: 1 • Height: 1 • Packaging: 1 • Sauce: 10 • Width: 2

Download Details | Save Current Schedule State | View and Manage Saved Schedules

Using the "Save Current Schedule State" button will open a window that allows you to name and describe the current schedule. Once you have done so, press the orange "Save" button to record the schedule in its current revision, as well as its associated statistics:

Store Current Schedule State

* Name: Enter a name

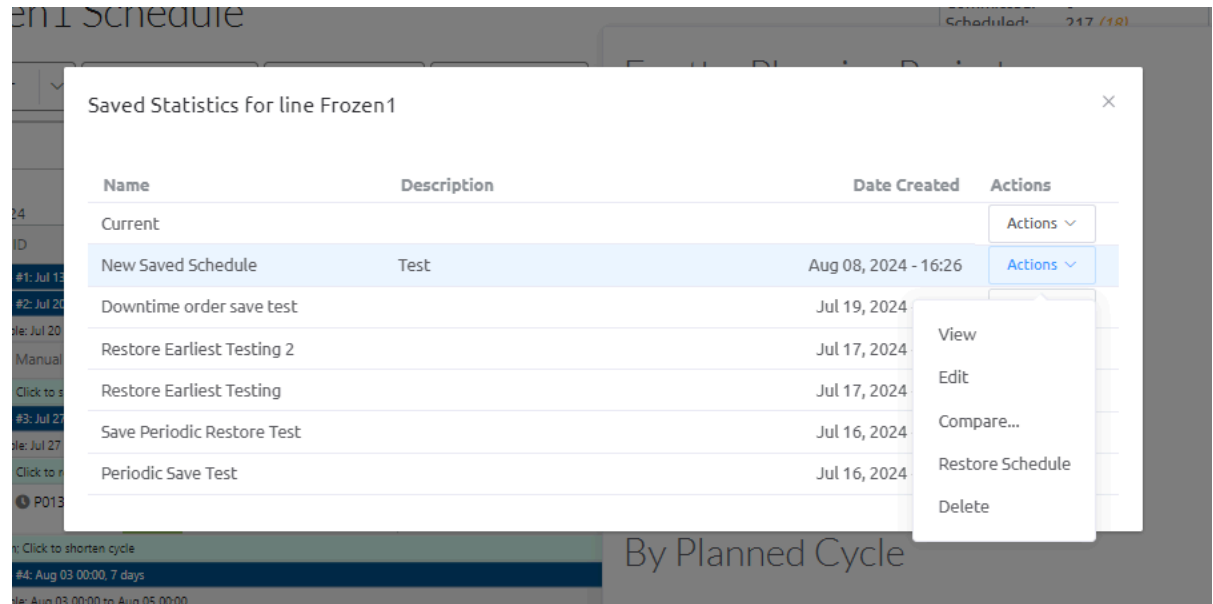
Description: Enter a description

Save Cancel

11.7 hours / day
 Customer Service: 188,000 Case late
 768,979 Case days late

Note that unscheduled orders are not saved as part of the "Save Current Schedule State" action.

Using the “View and Manage Saved Stats” button will open a window that displays any saved schedules by name, description, and date/time at which they were saved. There is also an “Actions” button for each saved schedule that allows interaction with the saved schedules:



The available actions in this window are as follows:

- **View:** allows the user to view the statistics associated with a saved schedule.
- **Edit:** allows the user to change the name and description of a saved schedule.
- **Compare:** allows the user to choose a second schedule or the current schedule and compare statistics.
- **Restore Schedule:** allows the user to instantly recreate the schedule as it was when it was saved. Note that:
 - changes to master data that have occurred in the meantime will likely impact the schedule – the schedule may not be restored to exactly the same state, particularly if run rates or changeovers have changed significantly in the meantime.
 - ad-hoc downtimes added to the schedule in the meantime may be replaced with any ad-hoc downtimes that existed when the schedule was saved.
- **Delete:** allows the user to remove the saved schedule from storage, making it inaccessible.

Using the restore schedule option will open a window that offers more information on what will occur. The same window also offers the user options regarding the schedule to be restored:

Restore schedule from "Schedule 1"



Are you sure you wish to restore the schedule? Please keep in mind that:

- All current orders on this line, regardless of status, will change
- Any unscheduled orders on this line will be lost
- If an order was moved to another line after this schedule was saved, a version of the order may still exist on that line
- Cycles will return to the state they were in when the schedule was saved.
- If production rates or line availability has changed since this schedule was saved, the orders may no longer fit; there's a chance some scheduled orders will be moved around in this case.

Restore earliest options:

- ☒ Restore all stored orders regardless of how far in the past
- ☐ Restore orders that run today or later
- ☐ Restore orders that start now or later
- ☐ Set date that should be the earliest orders are restored

 Select a date and time

- ☒ Keep current orders from before the start of the restore that don't interfere with the restored orders.

Restore

Cancel

Choosing the point from which to restore the schedule enables the user to quickly exclude orders that may have been completed already or otherwise become irrelevant to include in scheduling (e.g., canceled, indefinitely delayed, etc.). Note that there is also an option to keep any currently scheduled orders which come before the chosen "restore earliest" time, provided those orders do not interfere with other orders being restored.

Committing the Schedule and Sending to Manufacturing

Purpose

In the case of committing an order, to confirm that the short-term horizon of the schedule is ready for execution by the shop floor and should no longer be rescheduled. In the case of setting an order to manufacturing, to indicate that the schedule has been transmitted to the floor team and is expected to begin as outlined in the schedule.

Note

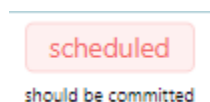
Committing an order is not permanent; orders can be uncommitted at any time. The same is true for orders set as manufacturing. For more information, see the work instruction [Unscheduler, Uncommitting, and Removing Orders from Manufacturing on page 252](#).

Prerequisites

Schedule Created.

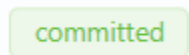
Note Committed Warning Message

QAD Advanced Scheduling allows you to configure a “committed window” and expects that orders inside this time window should be committed. The order's scheduling icon will turn red and a warning message will be generated.



Steps

1. In the left-side menu, under “General”, click “Schedules”, and then select the line or line group for which you want to schedule orders.
2. Select the order(s) to be committed. For selecting multiple orders, see [Multi-Select on page 321](#).
3. Click on “Commit” to the right of the selected order(s).
4. The order icon will change to green (unless there are other issues to be addressed) and say “committed”.



5. To set an order to manufacturing, an order must first be committed. Select the committed order to be set to manufacturing and click on “To Manufacturing” to the right of the selected order(s).

Unscheduler, Uncommitting, and Removing Orders from Manufacturing

Purpose

To unschedule, uncommit, or remove orders from manufacturing so that they can be automatically rescheduled, deleted, or changed by QAD Advanced Scheduling.

Prerequisites

A schedule has been created.

Steps

1. In the left-side menu, under "General", click "Schedules", and select the line or line group for which you want to schedule orders.
2. Select the target order or orders. To learn how to select multiple orders, see [Multi-Select on page 321](#).
3. Click on "Not Manufacturing" to the right of the selected order(s) to remove an order from manufacturing. Click on "Uncommit" to uncommit. Click on "Unschedule" to unschedule.
 - a. Orders must be removed from manufacturing before they can be uncommitted, and uncommitted before they can be unscheduled.
4. The order icon for orders removed from manufacturing will change to "committed". Depending on its location in the schedule there may be warning messages associated with it.
5. The order icon for uncommitted orders will change to "scheduled". Depending on its location in the schedule there may be warning messages associated with it.
6. The order icon for unscheduled orders will change to "unscheduled". Depending on its location in the schedule there may be warning messages associated with it.

Completing Orders

Purpose

To remove orders that have completed their production from the schedule, solidifying inventory impact.

Prerequisites

Orders have been scheduled and set to "Manufacturing" status.

Overview

QAD Advanced Scheduling allows users to set orders to a "Complete" status after they have been marked as "Manufacturing". Marking an order as Complete will remove the order from the schedule, and will clear any inventory transaction data relating to the specific production order being completed; the relevant quantity of material will simply be added to or subtracted from the on-hand inventory quantity as appropriate. In this way, users can easily keep track of produced materials while maintaining the clarity of their schedule.

Importantly, orders should only be marked as complete once they are "in the past" according to QAD Advanced Scheduling's scheduling menu. Completing orders in the future can lead to unexpected behavior and inventory tracking errors. Another good practice for completing orders is to ensure that orders are completed relatively soon after they are "in the past". This will help avoid conflicting inventory information between QAD Advanced Scheduling and other inventory tracking software, such as an ERP.

Process

Orders can be completed in one simple step once they have been set to "Manufacturing" status. Simply press the blue "Complete" text in the Actions column of the schedule list window.

Order ID	Seq	Status	Material	Material Description	Color	BOM Availability	Quantity	Planned Start	Due Date	Comments	Allergens	Sauce	Wid	Actions
Planned Cycle #1: Jul 20 00:00, 7 days														⌵
Line Unavailable: Jul 26 00:00 to Jul 29 00:00														⌵
Planned Cycle #4: Jul 27 00:00, 7 days														⌵
PD40704	42	Manufacturing	1001	ACME SP NONE NONE ML			2,000 Case	Jul 28, 00:00	Sep 06, 00:00		MLK, EGG	None	N	Complete Not Manufacturing ---
Idle: 11th 20m; Click to shorten cycle														
Line Unavailable: Aug 02 00:00 to Aug 04 00:00														⌵
Planned Cycle #1: Aug 03 00:00, 7 days														⌵

Exporting the Schedule

Purpose

To export the QAD Advanced Scheduling schedule for publication to the shop floor or download to an external planning or ERP system

Prerequisites

The schedule is complete.

Steps

From the Schedule Overview Screen

1. Go to the Schedule Overview screen.
2. Select the line or line group for which the schedule should be exported.
3. Click **Export Schedules** at the top of the page.
4. Choose the type of file that you want to export:
 - a. Excel (.xlsx)
 - b. Comma Separated Values (.csv)
5. Click on **Download Schedule** to download a file in the selected format.

From an Individual Line's Scheduling Screen

1. Go to the scheduling screen for an individual line.
2. To export only part of the schedule, select the desired orders using QAD Advanced Scheduling's [Multi-Select on page 321](#).
3. Click on **Export** at the top of the scheduling screen, or in the ... extra menu in the right "Actions" column, select **Export**.
4. Choose the desired type of file:
 - a. Excel (.xlsx)
 - b. Comma Separated Values (.csv)
 - c. Web page (.html)
5. Click on "Download Schedule" to download in your selected format.

It is important to note that files exported from QAD Advanced Scheduling will adhere to a default format unless otherwise specified. The format of the files obtained via the export feature can be controlled by utilizing QAD Advanced Scheduling's "formatted export" functionality. See [||/||/|](#) ← ADD XREF for more detail.

Administration

With administrative access a key user or administrator can:

- Create or invite users and manage their access or roles (see [Administer Users on page 261](#)).
- Create organizations, control access to them, and configure feature availability and settings (see [Administer Organizations on page 256](#)).

Administer Organizations

Purpose

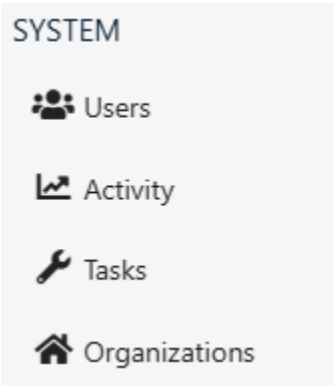
Create, edit, remove, copy, or join an organization. The organization is the highest level of data in QAD Advanced Scheduling.

Prerequisites

Organization administrator access to QAD Advanced Scheduling.

Steps

Select the menu path **System > Organizations**. This page can also be accessed by selecting your name in the top right and then choosing “**Membership**” from the short list that appears.



Organization Actions:

Organizations

+ Make Sandbox From Current

+ Create Organization

Internal/Testing

Created Date	Name	Organization Group	Type	Description	Actions
Oct 17, 2024	Test Organization for Multi-Site materials and lines	Internal/Testing	Production	Sandbox copy of 2024-09-06 Mac Demo. Sandbox copy of Acme Frozen Food Master Template for QAD Sales Demo. Copy of Acme Frozen Food Template for Multi Level Scheduling. 2024 Ma ster Copy for PW and Multi Level Scheduling Demo.	Edit Switch To

Creating an Organization

To create a completely fresh organization, click **Create Organization** at the top of the page. A new window will appear in which the user can enter the organization’s data.

To create a copy of your current Organization, select **Make Sandbox from Current**. Note that the new organization created will be of the Sandbox type rather than the Production type.

CAUTION When creating a new organization, the user will **not** automatically move to that organization. The user must manually swap to the new organization (see **Switching Current Organization** below).

Maintaining an Organization

To maintain and edit an existing organization, select **Edit** under the right “Actions” column of the organization’s entry. The desired data or settings can then be updated. The **Edit** button can also be found at the top of the Organization menu in QAD Advanced Scheduling.

Deleting an Organization

To delete an organization, select  under the right “Actions” column of the organization’s entry. Select **Confirm** to delete.

Note It’s not possible to delete the organization one is currently in. To delete the organization, first swap to a different organization.

Switching Current Organization

To switch the organization the user is in, select **Switch To** under the right “Actions” column of the desired organization’s entry.

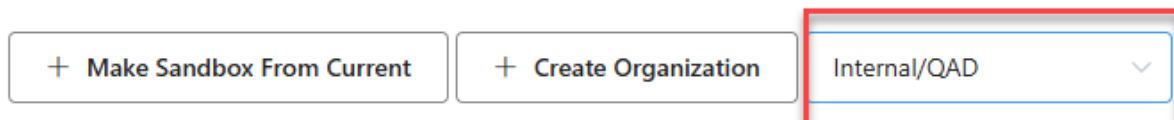
It’s possible to tell which organization is your current organization by looking at the “Actions” column, which will look like this:



Switching Current Organization Group

In QAD Advanced Scheduling, organizations can be placed into groups which serve as folders that keep them separate or distinct. A user can move between organization groups by using the drop-down menu at the top of the organization screen.

Organizations



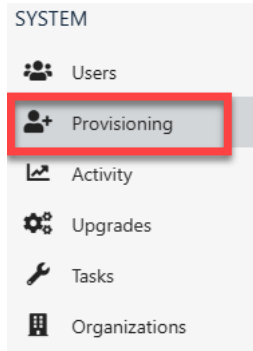
After clicking the drop-down menu, a list of all the organization groups that the user has access to will be visible. The user can switch to the organization group of their choice by selecting it from the list. Organizations in the destination group can then be edited, deleted, or switched to.

Organization Data

When entering the data for a new organization, or editing the data for an existing organization, the user will find the same options as one would editing an organization in the menu path **Setup>Organization**. See [Maintain Organizations on page 70](#) for more information about the organization data and options.

Provisioning

Administrators of Advanced Scheduling often need to quickly create new organizations or organization groups to prepare environments for use. This can aid in running demos, conducting training, or preparing a baseline organization for use in actual production scenarios, among other purposes. The Provisioning menus exist to support this need.



Once the user has reached the Provisioning menu the following will be visible: a button for creating a new template, any already existing templates, and run, edit, and delete buttons for any existing templates. To begin creating a new provisioning template, press the Create Template button.

Provisioning



The template creation window appears as follows:

Create Template
×

* Name:

Description:

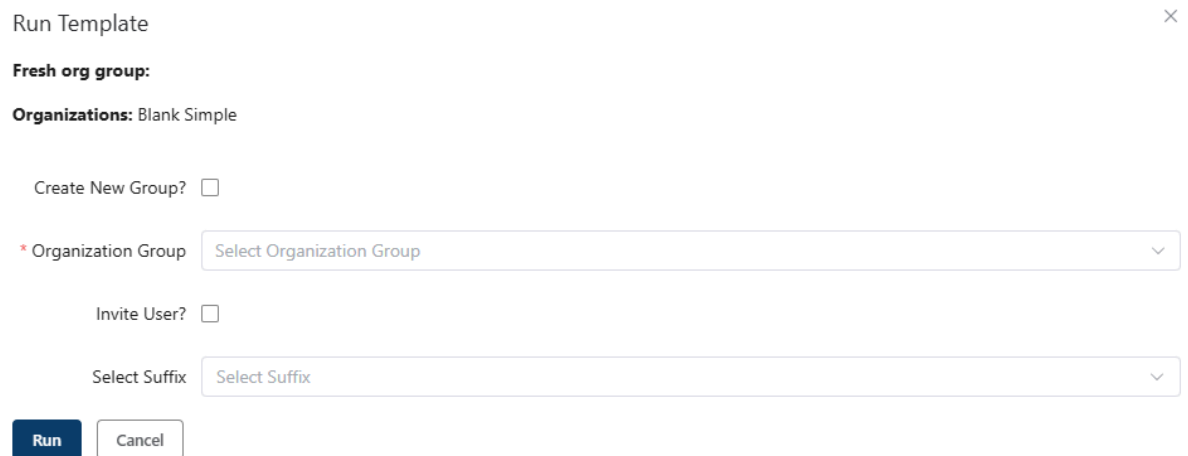
Organizations: + Add Organization

Create
Cancel

- **Name:** Allows the user to name the provisioning template. For example, if the template is intended to help set up a training environment, it could be named "Training setup".
- **Description:** Allows the user to write a description of the template, which can be used explain the purpose or content of the template.
- **Organizations:** Enables the user to pick which organizations will be copied when the template is run. Pressing the Add Organization button will add a drop-down menu from which the user can navigate through organization groups to a target organization. Pressing the

Add Organization button multiple times will enable selection of multiple target organizations.

Once a template has been created it can be run to create copies of each organization in the template. Running the template will either put the copies in a new organization group or an existing organization group, according to the user's choice. The run function can also invite new users. Press the blue Run button corresponding to a created template and the following window will appear:



Run Template

Fresh org group:

Organizations: Blank Simple

Create New Group? ☐

* Organization Group Select Organization Group

Invite User? ☐

Select Suffix Select Suffix

Run Cancel

- **Organizations:** A list of the organizations that will be created as part of the template run.
- **Create New Group?:** This checkbox determines whether the organizations created as part of the template run will be placed into a new organization group or an existing organization group.
- **Organization Group:** This field's function depends on whether the "Create New Group?" checkbox is checked or not. If the "Create New Group?" box is unchecked, this field will allow the user to navigate through a list of existing organization groups and locate one to place the new organizations in. If the box is checked, this field allows the user to name the new organization group that the new organizations will be placed in.
- **Invite User?:** Checking this checkbox enables the user to invite a new user to Advanced Scheduling at the same time that the template organizations are created. The new user will have access to the created organizations. After the checkbox is checked, the Name and Email fields will appear to enable the user to define what new user should be invited. Using this field will add a new option to the Select Suffix field described below.
- **Select Suffix:** This field allows the user to incorporate additional text into the name of the new organizations created by the template run. This improves clarity for users and reduces the likelihood of organization overlap. For example, if creating a new organization group, the user could add the suffix "John Smith" and all the new

organizations would have "John Smith" appended to their names to clarify that they are intended for use by John Smith. Likewise, if the new organizations are being added into an existing organization group, the user could add the suffix "Environment Setup" to ensure that any versions of the copied templates already in the organization group do not conflict with the newly created organizations. If used in tandem with Invite User, an option to create a copy of each templated organization for each newly invited user will appear.

Once the fields in the window are filled out, press the Run button to begin the process of copying the template organizations.

Administer Users

Purpose

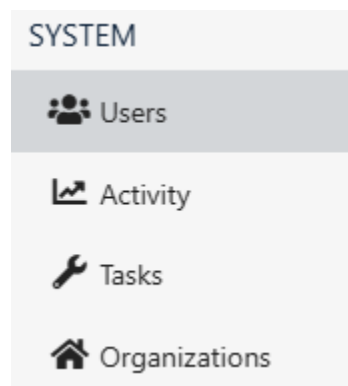
Create or maintain users and control user access to an organization

Prerequisites

Administrator access to QAD Advanced Scheduling.

Steps

Select the menu path **System > Users**.



Inviting New User

Invite User

×

* Name

Example

* Email

example@qad.com

Organization Group

Internal/Templates

▼

☐ Give access to the entire Organization Group

* Organization

Standard QAD Demo Template

▼

Invite

Cancel

To invite a new user, select **Invite User** at the top of the screen. Then enter the necessary information.

- **Name:** The username of the new user.
- **Email:** The new user's email. The email the user will receive the invite link to, and the email their QAD Advanced Scheduling account will be linked to.
- **Organization Group:** The organization group of the organization the user is being invited to.

- **Give access to the entire organization group:** Enables the invited user to navigate among the existing organizations in the organization group they are being invited to.
- **Organization:** The organization the user is being invited to.

Click **Invite** to invite the user.

Edit a User's Details and Available Actions

To edit a user's details and available actions, select **Edit** under the right "Actions" column of the User's entry. Note that editing a user's details requires the editing user to have organization administrator privileges. Additionally, note that not all options visible in the image below will be available to users.

Edit user "Example User" ✕

* Name

* Email

Admin ☐ Internal only: Super-admin

Feature Admin ☐ Internal only: Can modify feature flags of organizations they're a member of

Developer ☐ Can view API docs and use API

User Location Access Active Organization: Internal/Templates / Standard QAD Demo Temp... ▾

Organization Group ▾	Internal / Testing ▾	Organization Admin ✕ Scheduler ✕	Remove
Organization Group ▾	Simple ▾	Organization Admin ✕ Scheduler ✕	Remove

[+ Add Access](#)

[Save](#) [Cancel](#) [Deactivate](#)

- **Name/Email:** standard fields that enable an administrator to change a user's username or associated email.
- **Admin:** A field that provides the user with maximum permissions. Only available to QAD internal staff.
- **Feature Admin:** A field that provides the user with permissions to control feature availability in Advanced Scheduling organizations. Only available to QAD internal staff.
- **Developer:** A field that provides the user with access to the Advanced Scheduling API and API docs utilized for development purposes.
- **Active Organization:** The organization group and organization that the user is currently accessing.

The **User Location Access** field(s) bear further explanation. This is the main method by which user permissions can be controlled. The three elements of User Location Access are Scope, Target, and Permission Level. Explanation follows:

1. **Scope.** The extent of the user's access for the given permission. This can be:
 - a. An Organization Group
 - b. An Organization
 - c. A Site
 - d. An Area
 - e. A Line
2. **Target.** The specific instance of the scope chosen that the user will have permissions in. For example:
 - a. The name of the specific organization group. In the image above, the user has access to organization groups called "Internal / Testing" and "Simple".
 - b. The name of a site in the organization the user is currently active in.
 - c. The name of a line in the organization, site, and area the user is currently active in.
3. **Permission Level.** The level of functionality the user can access in the target. The various permission levels are as follows:
 - a. Organization Admin: Enables the user to administer other users in the organization/organization group. Importantly, this level of permission does not provide access to scheduling functionality and therefore must be assigned in tandem with another permission level to allow the target user to interact with the tool's scheduling features.
 - b. Scheduler: Enables the user to access all standard scheduling functionality in the target.
 - c. Execution: Enables the user to utilize the production workbench to perform operations on a line's schedule.
 - d. Viewer: Enables the user to see but not modify information in the target.

How-to Articles

[Move Orders to Another Line on page 266](#)

For capacity management it is sometimes necessary to move orders to another line:

[Add a New SKU to the Wheel Design on page 267](#)

In order to schedule the production of a new product via Product Wheel, the product needs to be added as master data and then added to the appropriate Wheel design. This guide covers both parts.

[Handle Obsolete Materials on page 275](#)

Sometimes materials may become obsolete in production scenarios. For example, if a product is discontinued, it may no longer be relevant to maintain in QAD Advanced Scheduling. This can be represented or addressed in several fashions.

[Import Data on page 279](#)

This article describes how to use QAD Advanced Scheduling's import tool step-by-step, and also how to resolve any conflicts that may have occurred in the Import.

[Defining Line Availability on page 294](#)

Line availability describes the timeframe(s) during which production on a line is or is not available. Availability can be set at a global level or customized at a per-line level. Lines must have some availability in order to produce materials.

[How to Update Materials in Bulk using CSV and XLSX Files on page 298](#)

When maintaining data for materials it is sometimes necessary to make many changes at once, such as when a new material attribute is defined or existing attributes have their conventions adjusted. When a large number of materials are established in QAD Advanced Scheduling, it is very time consuming to make such updates. However, by using a combination of export and import features, this task can be completed quickly.

[Allow Changeover Rule Variations that are Selectible when Scheduling on page 302](#)

[Using the QAD Advanced Scheduling API on page 305](#)

[Defining a Planned Production Shutdown on page 307](#)

Outages in availability, or planned shutdowns, are a common occurrence. These can be predefined in QAD Advanced Scheduling and will then be reflected in your schedule.

[Importing Materials Alongside Orders on page 310](#)

Move Orders to Another Line

For capacity management it is sometimes necessary to move orders to another line:

- To offload capacity from an overloaded line.
- To consolidate orders and increase a line's utilization.

Instructions

1. Schedule all of the lines involved in the move.
2. Select the order(s) to be moved.
 - a. To learn how to select multiple orders, see [Multi-Select on page 321](#).
3. Click on the three dots icon at the right-hand side of the schedule list window in the Actions column.
4. Select "Move to Another Line" from the list of options that appears.
5. In the window that pops up, select the line you wish to move the orders to.
6. Select how the orders will be moved:
 - a. "Place at end of the corresponding cycle" will move orders to the end of the cycle that contains their due date.
 - b. "Move to unscheduled" will move the orders to the unscheduled section of the lines scheduling page.
7. Click on "Confirm" to move the orders.

Note Note that if you are working in a line group that has both the starting line and the target line, you can drag-and-drop the material from one line to another in the Gantt Chart/Timeline.

Frequently Asked Questions

Question: The line has a line operating mode, and cumulative consumption is not correct after moving the orders. What do I do?

Answer: Review the line mode of the moved orders. Note that cumulative consumption resets when line mode changes.

Add a New SKU to the Wheel Design

In order to schedule the production of a new product via Product Wheel, the product needs to be added as master data and then added to the appropriate Wheel design. This guide covers both parts.

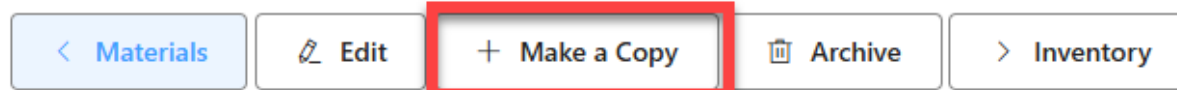
Note If you have several materials to add, create them all first (Step 1), before continuing to Step 2.

Instructions

Step 1: Create the Material

1. **If the material is similar to an existing material**, navigate to the existing material's details page via the Materials menu. Then, use the "Make a Copy" button at the top of the details page.
 - a. Press the "Make a Copy" button.

1001: ACME SP NONE NONE MTS NRW MED



- b. The standard material creation window will appear, though many fields will be filled because you are making a copy. Make any changes that are appropriate:
 - i. Enter a new name and description
 - ii. Change any settings related to the line or order details
 - iii. Adjust any attributes that differ
 - iv. Alter any Wheel-related settings such as forecast, COGS, and so on
 - c. Because the intent is to add the new material to an existing Product Wheel, ensure that the Conversions and Position in Wheel Sessions options boxes are checked when making the copy. If the Production Rates or BOM Items and Consumption Rates are the same, check the appropriate boxes; if not, you can uncheck them.

- ☒ Copy Production Rates
- ☒ Copy BOM Items and Consumption Rates
- ☒ Copy Conversions
- ☒ Copy Position in Wheel Sessions

Make a Copy

Cancel

- d. Press the Make a Copy button. You will be navigated to the details page for the new material.
2. **Or, if the material is quite different**, you can create an entirely new material.
 - a. Navigate to the Materials page and press the Create Material button
 - b. Enter appropriate master data
 - c. Enter BOM items including their rates if applicable
 - d. Check that there are no warnings on the material detail page
 - e. Navigate to the Production Rates page, locate the material you created, and enter relevant production rates
3. In either case, ensure that the new material has the correct material type, forecast, COGs, rates and material attributes.

Step 2: Create a new Wheel Design session from the previous one

1. Navigate to the “Wheels” page and identify the Wheel session to modify
2. Use the “More Actions” dropdown to select the “New Version” action, then press “New Version” in the confirmation window that appears.

Wheel Setup

4 lines have wheels

10 lines without a wheel

+ Start New Session + New Session from Current Wheels

Filter: Activated and In-Progress

Description	Status	# Lines	# Materials	Date Created	Last Updated	Actions
7 Day Line 3, 100% Efficiency, Lower Case Fill Rates	Review	3	96	Feb 08, 2022 - 10:31	Aug 04, 2024 - 18:26	View > More Actions
5 Day at 120% Efficiency, 98% Fill	Review	3	96	Feb 08, 2022 - 07:02	Aug 04, 2024 - 18:26	View > More Actions
5 Day at 100% Efficiency, 98% Fill	Active	3	96	Jul 08, 2021 - 18:03	Aug 04, 2024 - 18:26	View > More Actions
7 Day Line 3, 100% Efficiency	No Longer Active	3	96	Nov 19, 2020 - 11:06	Aug 04, 2024 - 18:26	View > More Actions
sauce	No Longer Active	1	12	Sep 20, 2020 - 08:59	Aug 04, 2024 - 18:26	View > More Actions
Pasta	Active	1	22	Sep 20, 2020 - 08:39	Aug 04, 2024 - 18:26	View > More Actions

Wheel Activations

Filter by type: All

Line ID	Becomes Active At	Wheel	Wheel Session	Start on Cycle	Activation Updated	Activation Created

New Version

Create Copy...

Archive

Recalculate Saved Values

Compare...

- When processing is complete, the new version of the Wheel Session will appear at the top of the list of Wheel Sessions; a version number will be added to the description.
- Navigate to the newly created session and choose “View”.

Step 3: Add the material to the new Wheel Design session

Navigate to the target Wheel Session by choosing “View”. We’ll be applying the new materials to several of the steps involved in the Wheel Design process. As an overview, these are the steps that we’ll visit:

- Setup → Select Materials
- Characteristics → Ideal Sequence
- Families → Setup Material Families **(If applicable)**
- Allocation → Allocate Materials to Lines
- Design → Line Ideal Sequence
- Design → Frequencies and Wheel Length
- Design → Allocate Materials to Wheel Cycles
- Design → Wheel Sequence
- Review

Here are the steps in detail:

- Navigate to the “Select Materials” step under the “Setup” phase.

ACTIVE: Select Materials: 5 Day at 100% Efficiency, 98% Fill

< Line Availability
 Attributes
Select Components >

✓
Setup ▾

✓
Characteristics ▾

✓
Families ▾

96
✓ Units and Limits

✓ Select Lines

✓ Line Availability

> Select Materials

✓ Select Components

✓ Material Data Completeness

✓ Changeover Rule Completeness

✓ Production Rates Completeness

Default Line	Material Description	Material Type	Min
Sauce 1	Buffalo Sauce	Sauce	
Frozen1	ACME SP NONE NONE MTS NR...	Frozen	
Frozen1	ACME ASIAN BLND MTS MED ...	Frozen	
Frozen1	ACME SP RED S NONE MTS W...	Frozen	
	Product-1004-Description	Dry	
☒ 1005	Frozen1 ACME SP SPECI BRN RICE MTS ...	Frozen	
☒ 1006	Frozen1 ACME SP BUFFA ELB MTS MED ...	Frozen	

- Select the new material(s) from the list of materials by using the corresponding checkbox. Then press Save at the top of the screen.

ACTIVE: Select Materials: 5 Day at 100% Efficiency, 98% Fill

Revert Save ✓

Setup ✓ Characteristics ✓ Families ✓ Allocation ✓

97 materials selected.

Material	Color	Default Line	Material Description
☒ 1189		Frozen3	ACME SP PRIMA NON
☒ 1191		Frozen3	ACME SP ALFRE LING
☒ 1192		Frozen3	ACME BUFFA BLND M
☒ 2201		Frozen1	ACME SP NONE NONE MTS NR...
☐ 2202		Frozen1	ACME ASIAN BLND MTS MED ...
☐ 2203		Frozen2	ACME SP RED S NONE MTS W...

Update materials

Are you sure you want to add 1 material? The following will be added: 2201.

Cancel OK

- If you are using material families: add the material to an appropriate material family using the “Setup Material Families” step under the “Families” phase. Then update the “Family Ideal Sequence” too, if applicable.

Setup Material Families: 5 Day at 100% Efficiency, 98% Fill

ence Attributes Family Ideal Sequence >

Annual Cost \$4,33
Average Inventory 553,8
10.2

Setup ✓ Characteristics ✓ Families ✓ Allocation ✓

materials that have similar properties such that changeover costs are minimal with materials are reserved for transitions between families.

Materials	Weekly Forecast	Allergens	Sauce	Meat	Pasta Type	Sauce #	Gluten Free
1	0 hours	MLK, EGG	None				
9	30.4 hours	MLK, EGG	Asian Sauce, Buffa	Pork, None, Lamb	Blend, Elbows, Noi	0, 8, 16, 20, 23, 31	<blank>
10	30.8 hours	MLK, EGG, PNT	Alfredo Sauce, Pri	Lamb, Beef, Pork, N	None, Penne, Fett	14, 22, 31, 34, 35, :	<blank>
9	30.4 hours	MLK, EGG, PNT, W	Alfredo Sauce, Asi	Lamb, Beef, Lamb	None, Macaroni, F	0, 2, 15, 16, 25, 26	<blank>

> Setup Material Families

Family Ideal Sequence

Sequence Families

- Navigate to the “Materials to Line Allocation” step under the “Allocation” phase and make the allocation. You can quickly find the new material(s) by setting the filter to “Unallocated”. Select the material(s) by using their corresponding checkboxes, then use the blue “Move” text to select which line the material(s) will be allocated to.

ACTIVE: Allocate Materials to Lines: 5 Day at 100% Efficiency, 98% Fill

< Allocate Families to Lines Attributes Export Line Ideal Sequence >

EPQ Q Family Assigned Q Line Assigned Q Sequence Assigned

Annual Cost \$4,303,046 \$4,577,852 \$4,291,998 \$5,087,780

Average Inventory 550,291 Case 599,447 Case 534,962 Case 600,469 Case

10.1 days 11 days 9.8 days 11 days

Setup Characteristics Families Allocation Design Review

Family Allocation Score: 96%Q. There are 1 unallocated materials.

Allocate Families to Lines

Allocate Materials to Lines

Line ID	Usage	Weekly Forecast	Available	Site	Materials	Families	Weekly Changeo...	Sauce	Width group	Height group	Meat	Pasta Type	Sau
Unallocated		0 hours			1	Unallocated	0 hours	MLK, EGG	None	Narrow	Medium	Pork	None
Frozen1	99%	119.2 hours	120 hours	Middletown	31	1,2, 1,2,3, 1,2,3,4	12.5 hours	MLK, EGG, MLK, Ei	Asian Sauce, Bufo	Medium, Narrow, 1	Medium, Low, Hig	Pork, None, Lamb	
Frozen2	92%	109.8 hours	120 hours	Middletown	31	3,4, 3,4,6, 3,4,6,8	10.3 hours	PNT, WHT, PNT, V	Alfredo Sauce, Buf	Medium, Narrow, 1	Medium, Low, Hig	Lamb, Beef, None	Unallocated
Frozen3	102%	122.7 hours	120 hours	Middletown	34	1,7, 1,2,7, 1,2,7,8	11.8 hours	MLK, SSM, MLK, Ei	Fajita Sauce, None	Wide, Medium, Na	High, Medium, Lov	Pork, Beef, None, P	Frozen1

Filter materials by: Unallocated Colors: Select

Material	Material Description	Family	Line ID	Color	Weekly Forecast	Frequency	Weekly Changeo...	Weekly Runtime	Allergens	Sauce	Width group	Height group	Meat	Pasta Type	Sau
2201	ACME SP NONE NONE MTS NR...	Unallocated			hours		0 hours		MLK, EGG	None	Narrow	Medium			

5. Now we'll go through each of the steps in the "Design" phase for the lines whose allocation was modified.

Hint: In the following steps, use similar materials as a guide or starting point for your decisions.

6. Navigate to the "Line Ideal Sequence" step under the "Design" phase and navigate to a line which at least one new material was added to by using the Sequence button on the right.

ACTIVE: Line Ideal Sequence: 5 Day at 100% Efficiency, 98% Fill

< Allocate Materials to Lines Export Frequencies and Wheel Length >

EPQ Q Family Assigned Q Line Assigned Q Sequence Assigned

Annual Cost \$4,303,046 \$4,577,852 \$4,355,198 \$4,882,217

Average Inventory 550,291 Case 599,447 Case 547,625 Case 600,469 Case

10.1 days 11 days 9.9 days 11 days

Setup Characteristics Families Allocation Design Review

Line ID	Description	Site	Weekly Runtime	# Materials	Changeover Count	Line Ideal Sequence	Frequencies and Wheel Length	Allocate Materials to Wheel Cycles	Wheel Sequence	Annual Cost	Actions
Frozen1	Frozen packaging 1	Middletown	111.7 hours	32	32					\$1,242,442.33	Sequence
Frozen2	Frozen packaging line 2	Middletown	99.6 hours	31	31					\$1,097,033.32	Sequence
Frozen3	Frozen Packaging Line 3	Middletown	110.8 hours	34	34					\$1,182,471.89	Sequence

7. Verify the new material is at the appropriate location at the sequence; you can use the Minimize Changeovers button to quickly ensure this, or manually move the material if you prefer to do so. Once the adjustment is made, press the Save button at the top of the screen to solidify the change.
- When saving, if there is a warning about applying the sequence to the "Wheel Sequence" step, read the message carefully. If in doubt, press the "Save ideal sequence only" button.
8. Repeat Steps 6 and 7 for each line until all lines to which new materials were allocated have been addressed.
9. Continue to the "Frequencies and Wheel Length" step.
10. On the Frequencies and Wheel Length step you will see that any lines to which new materials were assigned will be indicated in the "Needs Attention" column:

ACTIVE: Frequencies and Wheel Length: 5 Day at 100% Efficiency, 98% Fill

[< Line Ideal Sequence](#)
[Optimize](#)
[Export](#)

Setup ✓ Characteristics ✓ Families ✓ Allocation ✓

Line ID	Site	Needs Attention	# Materials	Wheel Length
Frozen1	Middletown	Yes	32	4 weeks
Frozen2	Middletown	No	31	4 weeks
Frozen3	Middletown	No	34	4 weeks

Select one of the lines that need attention. You will then see the list of materials on the line, along with their frequencies; the newly allocated material(s) will have their selected frequency marked as “Unspecified”. Assign a frequency for the new material(s) by selecting the corresponding checkboxes, then choosing the blue “Set Frequency” text on the right side of the screen and selecting a frequency of your choice:

ACTIVE: Frequencies and Wheel Length Frozen1: 5 Day at 100% Efficiency, 98% Fill

[< Line Ideal Sequence \(Frozen1\)](#)
[All Lines](#)
[Attributes](#)
[Export](#)

Annual Cost: \$4,577,852 Line Assigned Q: \$4,343,583 More Simulations (

Average Inventory: 599,447 Case 544,571 Case 600,469 Case

11 days 9.9 days 11 days

Setup ✓ Characteristics ✓ Families ✓ Allocation ✓ Design ✓ Review ✓

Please select a frequency for every material. Double-click on "Selected Frequency" cells to set or use the actions button. The wheel is 4 weeks long with 4 cycles. Each cycle is 1 week. [Edit](#).

Colors: [Select](#)

Material	Material Description	Color	Selected Frequency	Family	Family Suggested Fr...	Line EPQ Frequency	Weekly Run
☐ 1002	ACME ASIAN BLND MTS MED ...		2 weeks	1,2	2.3 weeks	5.8 weeks	0.8
☐ 1006	ACME SP BUFFA ELB MTS MED ...		2 weeks	1,2	2.3 weeks	3.1 weeks	3.3
☐ 1001	ACME SP NONE NONE MTS NR...		4 weeks	1,2	4.6 weeks	4.1 weeks	0.4
☐ 2201	ACME SP NONE NONE MTS NR...		Unspecified			1.7 weeks	5 hours

Family suggested frequency
 Family suggested frequency (round to power of 2)
 Line EPQ frequency
 Line EPQ frequency (round to power of 2)
 Enter frequency
 Every period
 Every other period

[Set Frequency](#)

- Once all materials have a frequency, continue to the “Allocate Materials to Wheel Cycles” step.
- Select one of the lines to which new materials have been allocated. Within the line, find the new material and verify it is in the appropriate cycles. You can move the materials manually by using the blue “Move” text. You can also use the “Auto-Assign” button at the top of the screen to automatically balance the cycles. Once this is done, repeat this process for each line to which new materials were allocated.

ACTIVE: Allocate Materials to Wheel Cycles Frozen1: 5 Day at 100% Efficiency, 98% Fill

< Frequencies and Wheel Length (Frozen1) > All Lines **Auto-Assign** < Attributes Wheel Sequence (Frozen1) >

Annual Cost \$4,577,852 \$4,343,583 \$5,151,301
 Average Inventory 599,447 Case 544,571 Case 610,155 Case
 11 days 9.9 days 11.1 days

Setup Characteristics Families Allocation Design Review

The wheel is 4 weeks long with 4 cycles. Each cycle is 1 week.

Cycle #	Allocated	Cycle Forecast	Available	Materials	Cycle Changeovers	Cycle Runtime	Allergens	Sauce	Width group	Height group	Pasta Type	Sauce #	Meat	Gluten Free
Cycle 1	110%	132.2 hours	120 hours	21	15.6 hours	116.7 hours	MLK, EGG, MLK, EC	Asian Sauce, None	Medium, Narrow, 1	Medium, High, Low	Blend, None, Fettu	0, 10, 13, 14, 15, 16	Pork, Lamb, Beef, A	<blank>
Cycle 2	97%	116.3 hours	120 hours	14	9.7 hours	106.7 hours	MLK, EGG, MLK, EC	Buffalo Sauce, Prin	Medium, Narrow, 1	Low, High, Medium	Elbows, Fettuccine	0, 2, 8, 14, 15, 16	Pork, None, Lamb	<blank>
Cycle 3	107%	128.3 hours	120 hours	19	14.9 hours	113.3 hours	MLK, EGG, MLK, EC	Asian Sauce, None	Medium, Narrow, 1	Medium, High, Low	Blend, None, Fettu	0, 10, 13, 14, 15, 16	Pork, Lamb, Beef, A	<blank>
Cycle 4	100%	120.3 hours	120 hours	16	10.3 hours	110 hours	MLK, EGG, MLK, EC	Buffalo Sauce, Prin	Medium, Narrow, 1	Low, High, Medium	Elbows, Fettuccine	0, 2, 8, 14, 15, 16	Pork, None, Lamb	<blank>

Filter materials by: All Materials Colors: Select

☐	Material	Material Description	1st Cycle	Frequency	Color	Cycle Forecast	Family	Cycle Changeovers	Cycle Runtime	Family Suggested...	Line EPQ Frequen...	Allergens	
☐	1002	ACME ASIAN BLIND MTS MED ...	Cycle 1	2 weeks		5.7 hours	1,2	4 hours	1.7 hours	2.3 weeks	5.8 weeks	MLK, EGG	> Move
☐	1006	ACME SP BUFFA ELB MTS MED ...	Cycle 2	2 weeks		10.7 hours	1,2	4 hours	6.7 hours	3.1 weeks	3.1 weeks	MLK, EGG	> Move
☐	1001	ACME SP NONE NONE MTS NR...	Cycle 1	4 weeks		2.2 hours	1,2	0.5 hours	1.7 hours	4.6 weeks	4.1 weeks	MLK, EGG	> Move
☐	2201	ACME SP NONE NONE MTS NR...	Cycle 1	2 weeks		10.2 hours		0.3 hours	10 hours	0 weeks	1.7 weeks	MLK, EGG	> Move

13. Continue to the “Wheel Sequencing” step. As per usual, review the sequence is appropriate on each line. Pay attention to the “Irregularity” column to ensure production is regular across cycles.

ACTIVE: Wheel Sequence Frozen1: 5 Day at 100% Efficiency, 98% Fill

< Allocate Materials to Wheel Cycles (Frozen1) > All Lines < Attributes Review >

Annual Cost \$4,303,046 \$4,577,852 \$4,343,583 \$5,151,301
 Average Inventory 550,291 Case 599,447 Case 544,571 Case 610,155 Case
 10.1 days 11 days 9.9 days 11.1 days

Setup Characteristics Families Allocation Design Review

The wheel is 4 weeks long with 4 cycles. Each cycle is 1 week. Colors: Select

Seq	Material	Color	Cycle #	Also In Cycles	Irregularity (S...	Run Length	Into Cycle	Allergens	Sauce	Width group	Height group	Pasta Type	Sauce #	Meat
Cycle Number: 1														
Allergen Clean (240m, \$4,800) Q														
III	☐ 1.1	1002	Al 1	1: 3%, 3: 3%	0%	1h 40m	4h 00m	MLK, EGG	Asian Sauce	Medium	Medium	Blend	20	Pork
III	☐ 1.2	1001	Al 1	1: 5%	0%	1h 40m	6h 10m	MLK, EGG	None	Narrow	Medium	None		Pork
No Changeover Q														
III	☐ 1.3	2201	Al 1	1: 7%, 3: 5%	1%	10h 00m	7h 50m	MLK, EGG	None	Narrow	Medium	None		Pork

14. Now we're ready to activate the new Wheel. Proceed to the “Review” phase. Depending on the scale of the changes you've made to the Wheel design, you may need to unschedule any existing orders before activating the Wheel. Once you are prepared, press the “Update Activation” button at the top of the screen.

ACTIVE: Review: 5 Day at 100% Efficiency, 98% Fill

< Wheel Sequence **Update Activation** Remove Activation Export

Annual Cost \$4,303,046 \$4,577,852 \$4,343,583 \$5,151,301
 Average Inventory 550,291 Case 599,447 Case 544,571 Case 610,155 Case
 10.1 days 11 days 9.9 days 11.1 days

Setup Characteristics Families Allocation Design Review

This session has been modified since activation. Use "Update Activation" to use the latest wheels on the lines.

Line ID	Site	# Materials	Wheel Length	# Cycles	Cycle Length	Has Orders
Frozen1	Middletown	32	4 weeks	4	1 week	Yes
Frozen2	Middletown	31	4 weeks	4	1 week	Yes
Frozen3	Middletown	34	4 weeks	4	1 week	Yes

15. You will be navigated back to the “Wheels” page once activation is complete. Your new Wheels will now be used next time you schedule!

Note If you make a mistake that is difficult to recover from or want to review old Wheel designs, you can always review Archived designs or even create a new active session from an old version.

Handle Obsolete Materials

There are multiple methods for rendering a material obsolete in QAD Advanced Scheduling. Removing or “Archiving” an old material is quite simple and is appropriate whenever it’s certain that a material won’t be put into production in the future. Similarly, for materials which may be going “dormant” or being changed enough that a “new version” should be created, users can create an “obsolete” material type and reassign the material in question to that type.

Archiving Instructions

1. Navigate to the materials menu by using the Materials tab on the left side of the screen.
2. Once on the materials menu, locate the material(s) to be archived and select them by using the checkboxes on the left side of the material list.
3. Press the "Archive Selected" button that appears near the top right of the list of materials.

Materials

	Material	Site	Alerts	Last Updated	Default Line	Material Description	Material Type	Min. Order Amount	Order Amount In...	Max. Order Amou...	
☐	1	Middletown	3 info alerts		Sauce 1	Buffalo Sauce	Sauce	3,000 kg	3,000 kg		> Details
☒	1001	Middletown	2 info alerts		Frozen1	ACME SP NONE NONE MTS ...	Frozen	2,000 Case	1,000 Case		> Details
☒	1002	Middletown	2 info alerts		Frozen1	ACME ASIAN BLND MTS MED...	Frozen	2,000 Case	1,000 Case		> Details

A confirmation window will appear. Press the Archive button in the confirmation window to complete the archiving process.

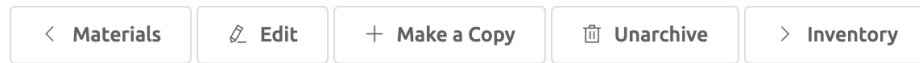
4. Individual materials can also be archived from their Details screen. Move to a material's details page by using the blue “Details” text on the right side of the screen.
5. Press the “Archive” button at the top of the screen.

1002: ACME ASIAN BLND MTS MED MED



6. A confirmation window will appear. Press the Archive button in the confirmation window to complete the archiving process.

999123: Oil Gummy # 10016



✖ This material is archived and cannot be used.

Creating an Obsolete Material Type Instructions

1. The initial component of creating an “Obsolete” material type is the same as creating any other material type. See the [Maintain Material Types on page 126](#) page for information.
 - a. Bear in mind that when establishing the Obsolete material type it's necessary to outline which material attributes fall under the umbrella of the type. In most cases, an Obsolete material type should contain all material attributes for materials in the organization; in this way, no information is lost when a material is reassigned to the Obsolete type, regardless of what material type it had beforehand.
2. Once the Obsolete material type is established materials can be reassigned to it whenever desired. To do so, first navigate to the materials menu.
3. Next, find the material that should be re-typed as Obsolete. Open its details page by using the blue “Details” text on the right side of the screen.
4. On the details page for the target material, use the “Edit” button at the top of the page to open a window with all the material’s data.

1002: ACME ASIAN BLND MTS MED MED



5. In the material editing window, locate the Type drop-down menu. After selecting the drop-down menu, the material’s type can be changed from whatever it was before to the new Obsolete type.

Edit Material

* Material ID

1002

Description

ACME ASIAN BLND MTS MED MED

Type

Q Frozen

Unarchiving

Materials can be unarchived from the material's details page. Simply use the Unarchive button at the top of the page to return the material to active status. Bear in mind that materials can only be unarchived one at a time.

Additional Considerations

1. If a material is present in a Wheel and needs to be made obsolete, it should usually be removed from the Wheel immediately after doing so. Navigate to the Wheels menu in QAD Advanced Scheduling, then select "View" for the Wheel Session(s) in which the now-obsolete material is included.
2. Navigate to the "Select Material" step in the Setup phase, then locate the now-obsolete material in the material list and deselect it by unchecking the checkbox. Press the Save button at the top of the screen once done.

ACTIVE: Select Materials: 5 Day at 100% Efficiency, 98



95 materials selected.

☐	Material	Color	Default Line	Material Description	Material
☒	1185		Frozen3	SS CAN RED S NONE MTO ME...	Frozen
☐	1186			Product-1186-Description	Can
☒	1187		Frozen3	ACME SP ALFRE MAF MTS WDE...	Frozen
☐	1188			Product-1188-Description	Can
☒	1189		Frozen3	ACME SP PRIMA NONE MTS N...	Frozen
☐	119		Pasta 1	Rigatoni	Pasta

- The now-obsolete material has been removed from the Wheel design. If the Wheel is active, it will need to be updated as described in [Add a New SKU to the Wheel Design on page 267](#).

Import Data

This article describes how to use QAD Advanced Scheduling's Import tool step-by-step, and also how to resolve any conflicts that may have occurred in the Import.

While most pieces of Master Data can be created one-by-one manually in QAD Advanced Scheduling, doing so is often infeasible or inefficient. Thus, QAD Advanced Scheduling supports a flexible importing tool that allows for quick and easy importing of material data, planned orders, supply chain transactions, and so on.

Note An organization must already be created before data can be imported.

Overview

Navigate to **General>Import** to find the Import page.

Import

Scheduling	
Orders	Last imported: Mar 26, 2024
Master Data	
Materials	
Material Line Data	
Production Rates	
Consumption Rules: BOM Items	
Consumption Rules: Resources	
Unit Conversion	
Lines	
Wheels	
Supply Chain Transaction Data	
All Demand and Supply Elements	Last imported: Nov 07, 2024
Inventory	Last imported: Mar 26, 2024
Forecast	
Customer Orders	
Purchase Orders	
Transfer	
Transfer In	
Production	
Forecast	
History	
Scenario	

Here you will see all of QAD Advanced Scheduling's import categories, as well as information on when the last category was imported, how many items were created or updated from that import, and whether any conflicts occurred.

QAD Advanced Scheduling's Import options are split into four categories:

- **Scheduling:** For importing orders for QAD Advanced Scheduling's scheduling function. Imported orders can be unscheduled or scheduled.
- **Master Data:** All imports necessary to create and maintain QAD Advanced Scheduling's master data, including material data, production rates, BOM items, and so on.
- **Supply Chain Transaction Data:** All imports necessary to create and maintain QAD Advanced Scheduling's records on inventory and other demand elements. These imports are necessary to make full use of QAD Advanced Scheduling's inventory and plan to make functionalities.
- **Forecast:** All imports necessary to utilize QAD Advanced Scheduling's forecast functionality.

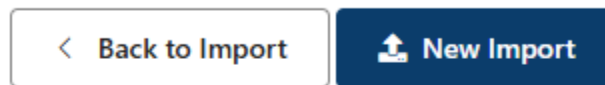
Instructions

Importing

This work instruction will display the process of importing **orders** from the **scheduling** category of imports. However, all of QAD Advanced Scheduling's imports follow the same general steps, so this article can be used for all of the imports.

1. First, select the type of import you want to begin from the list of options. You will be taken to a page which displays any past imports of the same type, and offers you the ability to begin a new import.

Import Orders



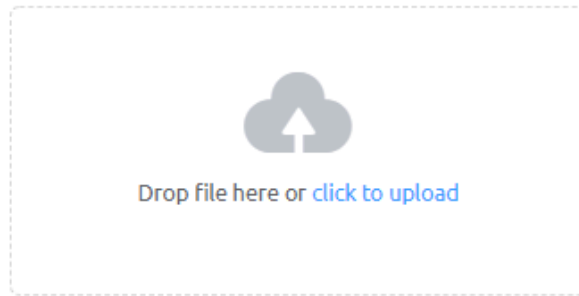
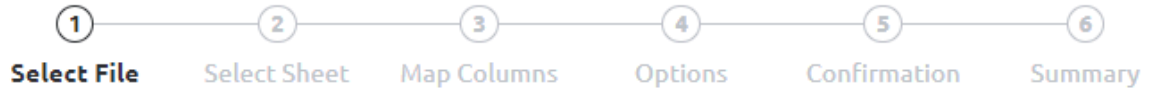
Past Imports

Date ▴	User ▴	Summary
Mar 26, 2024 - 17:07	Matt Jones	Created: 96
Mar 26, 2024 - 17:00	Matt Jones	Created: 96
Mar 22, 2024 - 13:17	Matt Jones	Created: 96
Mar 22, 2024 - 11:55	Matt Jones	Created: 96
Mar 22, 2024 - 11:45	Matt Jones	Created: 96

2. Select **New Import**. You will be taken to the **Select File** step.

Importing Orders

< Back



Please select a CSV or Excel file (multiple worksheets supported)

- Locate the file on your computer that has the data you wish to import. You can either use a comma separated values (.CSV) file, or a .XLSX file. The .XLSX file may contain multiple sheets.
- Here is a snippet from the .XLSX file we will be using in this article:

A1 Material

	A	B	C	D	E	F
1	Material	Due Date	Quantity	Unit	Customer	Site
2	1001	1/25/2025	253	Case	Dollar 1	Middletown
3	1002	1/25/2025	966	Case	Dollar 2	Middletown
4	1003	1/25/2025	1353	Case	Dollar 3	Middletown
5	1005	1/25/2025	2600	Case	Regional Grocer 1	Middletown
6	1006	1/25/2025	1340	Case	Regional Grocer 2	Middletown
7	1007	1/25/2025	5479	Case	Regional Grocer 3	Middletown
8	1008	1/25/2025	4147	Case	National 1	Middletown
9	1009	1/25/2025	8097	Case	National 2	Middletown
10	1011	1/25/2025	7273	Case	National 3	Middletown
11	1014	1/25/2025	637	Case	Mass Merch 1	Middletown
12	1017	1/25/2025	1151	Case	Mass Merch 2	Middletown
13	1020	1/25/2025	2204	Case	Mass Merch 3	Middletown
14	1024	1/25/2025	987	Case	Dollar 1	Middletown
15	1025	1/25/2025	4524	Case	Dollar 2	Middletown

- To select your file of choice, you can either locate the file and then drag and drop it into the central box, or you can click on the central box to open your file navigation which you can use to locate and select your file of choice.

- Once you have selected your file, if it is a .XLSX file with multiple sheets, you will be taken to the **Select Sheet** step. If you are importing from a .CSV file or a .XLSX file with only one sheet, you will skip this step.

Importing Orders using sheet "Customer Orders"

< Back

Continue >

1

2

3

4

5

6

Select File

Select Sheet

Map Columns

Options

Confirmation

Summary

Select Sheet to load:

☐ Starting Date

☐ All Demand and Supply Elements

☐ ERP Orders

☒ Customer Orders

☐ Forecast

☐ Beginning Inventory

☐ New Orders

☐ Wheel Material Parameters

Continue >

- Select the sheet with the data to be imported by clicking the corresponding bubble. In the above example "Customer Orders" is selected.
 - Note that once you select the sheet, the page header will now read "Importing Orders using sheet "[Sheet Name]":
 - Click **Continue** at the top or bottom of the page.
- Next is the **Map Columns** step.

Importing Orders using sheet "Customer Orders"

< Back

Ignore Unmapped

Continue >

1

2

3

4

5

6

Select File

Select Sheet

Map Columns

Options

Confirmation

Summary

Suggest Mappings

Remove All Mappings

+

Load saved import

Actions	Column Name	Example Values	Mapping
Edit Mapping	Material	1001, 1002, 1003	"Material Identifier" ✕
Edit Mapping	Due Date	2025-01-25, 2025-01-25, 2025-01-25	"Due Date" ✕
Edit Mapping	Quantity	253.2062603, 965.9155334, 1352.992828	"Quantity Value" (e.g "12 pallet" or "12") ✕
Edit Mapping	Unit	Case, Case, Case	"Quantity Units" (required if not "Case" and unit not included in value) ✕
Edit Mapping	Customer	Dollar 1, Dollar 2, Dollar 3	
Edit Mapping	Site	Middletown, Middletown, Middletown	

Unmapped Fields

New Attribute

"Order Identifier"

"Status"

"Description"

"Line Identifier"

"Site Identifier"

"Import Scheduled Date"

"Import Priority in Day"

"Custom Pattern (Advanced)"

"Material Description"

"Material Type"

New Material Attribute

Material "Meat"

Material "Pasta Type"

Material "Sauce"

Material "Sauce #"

Ignore Unmapped

Continue (2 unmapped) >

- Here you'll see a table with an entry for every column of data in the file/sheet you are importing from. Each entry contains the column's name, the values in the first three rows of that column, and what mapping option in QAD Advanced Scheduling it is currently mapped to.

- b. Columns with data pertinent to your import must be mapped so QAD Advanced Scheduling can process the import properly. You can map columns in several fashions:
 - i. Click **Edit Mapping** next to the first necessary column. This will open the mapping window:

Select mapping for column "Material"

"Material Identifier"

Example data:

1001

1002

1003

Accept Column Mapping

Ignore Column

Remove Mapping

Click in the text field to see a drop-down scrollable list of all possible mapping options, or type in the box to search for a particular mapping option. Then press "Accept Column Mapping" to complete the mapping for the entry you chose.

- ii. Click on the row for the entry you want to map. It will be highlighted in blue. Then click the unmapped field which you want to map to the entry to complete the mapping.

Actions	Column Name	Example Values	Mapping
Edit Mapping	Material	1001, 1002, 1003	"Material Identifier" ×
Edit Mapping	Due Date	2025-01-25, 2025-01-25, 2025-01-25	"Due Date" ×
Edit Mapping	Quantity	253.2062603, 965.9155334, 1352.992828	"Quantity Value" (e.g '12 pallet' or '12') ×
Edit Mapping	Unit	Case, Case, Case	"Quantity Units" (required if not "Case" and unit not included) ×
Edit Mapping	Customer	Dollar 1, Dollar 2, Dollar 3	
Edit Mapping	Site	Middletown, Middletown, Middletown	

- iii. Click and hold your mouse on an unmapped field from the "Unmapped Fields" area to begin dragging it. Drag it to the "Mapping" field of the table for an entry to which you want to map the unmapped field. Release your mouse button to complete the mapping.
- c. Mapped columns will turn green. You can also ignore individual columns by using the "Ignore Column" button found after pressing "Edit Mapping", and you can remove existing mappings either by using the "Remove Mapping" button found after pressing "Edit Mapping" or by pressing the small "x" next to the mapping name in the "Mapping" field for an entry.
 - i. Furthermore, you can ignore all unmapped columns by using the "Ignore Unmapped" button at the top of the page, remove

all mappings with the “Remove All Mappings” button, or have QAD Advanced Scheduling make mapping suggestions by using the “Suggest Mappings” button.

- d. For a more detailed explanation of column mapping, see [Import Process: Column Mapping on page 189](#).
- e. If you expect to import data with the same column names at a later point, you can save your mapping by clicking the **+** button next to the **Load Saved Import** drop-down and entering a name in the window that appears. Now you can skip the manual mapping process for similar import files by selecting the option from the **Load Saved Import** drop-down menu.

5 Confirmation 6 Summary

+

Load saved import ▼

Unmapped Fields	
⌵	New Attribute
⌵	"Order Identifier"
⌵	"Status"
⌵	"Description"
⌵	"Line Identifier"
⌵	"Site Identifier"
⌵	"Import Scheduled Date"
⌵	"Import Priority in Day"
⌵	"Custom Pattern (Advanced)"
⌵	"Material Description"
⌵	"Material Type"
⌵	New Material Attribute
⌵	Material "Meat"
⌵	Material "Pasta Type"
⌵	Material "Sauce"
⌵	Material "Sauce #"

- i. QAD Advanced Scheduling will also remember the last mapping used for this import type, and will automatically apply it to the next import of the same type. However, this will be overwritten by the next, different, mapping.
 - f. Once all **Edit Mapping** buttons are green or yellow, click the **Continue** button.
5. You will move on to the **Options** step. Note that the **Options** step varies in the options it presents depending upon the type of import you are performing. Thus, the options displayed in the image here are limited to imports of the Orders type.

Importing Orders using sheet “Customer Orders”

< Back Continue >

1 Select File
2 Select Sheet
3 Map Columns
4 Options
5 Confirmation
6 Summary

Options

☐ Delete existing uncommitted orders for selected lines
☐ Also delete existing committed orders for selected lines
☐ Also delete existing manufacturing orders for selected lines

☐ Create materials that do not already exist.

Filter by Line

Types: All Sites: All

☒	Name	Type	Site	Description
☒	Frozen1	Frozen	Middletown	Frozen packaging 1
☒	Frozen2	Frozen	Middletown	Frozen packaging line 2
☒	Frozen3	Frozen	Middletown	Frozen Packaging Line 3

- a. Under **Options** you may select what to do with the existing orders on the lines selected under **Filter by Line**.
 - i. Leaving both unchecked will leave existing orders on the line unaffected, and the new orders will exist alongside them.
 - ii. Checking **Delete existing uncommitted orders for selected lines** will delete any orders for the lines not marked “Committed”, even if they are scheduled. This allows you room to update orders that are currently in the Planning Window.
 - iii. Checking **Also delete existing committed orders for selected lines** will delete **both committed and uncommitted** orders on the lines. This allows you to basically start fresh on your schedule.
 - iv. Checking **Also delete existing manufacturing orders for selected lines** will delete **all existing orders**, regardless of their status. This allows you to completely start your schedule anew.
 - b. The “Create new materials if they do not already exist” option allows you to quickly define materials and assign attribute values immediately. This is usually not preferred because it is imprecise, but offers users a quick way to make any materials that have not already been defined.
 - c. Note that you can define which production lines your orders will be imported onto. If the orders being imported have their target lines listed in the import file, make sure all relevant lines are selected.
 - d. Click **Continue** once you are done.
6. QAD Advanced Scheduling will take you to the **Confirmation** step.

Importing Orders using sheet "Customer Orders"



Import Summary

• 192 items will be created.

- a. Here you can see how many items will be created by the import, or if an error is expected to occur.
 - i. Errors in import usually mean the import has failed. Check the error message, modify your import file or organization as necessary, and then try importing again from **Select File**.
- b. If you selected any "remove orders" checkboxes on the previous step, QAD Advanced Scheduling will give a warning about it on this page:

⚠ **Note:** Continuing will remove existing uncommitted orders on the affected lines (Frozen1, Frozen2, Frozen3).

⚠ **Note:** Continuing will remove all scheduled and committed orders on the affected lines (Frozen1, Frozen2, Frozen3).

⚠ **Note:** Continuing will remove ALL existing orders on the affected lines (Frozen1, Frozen2, Frozen3).
- c. QAD Advanced Scheduling has not created any of the items yet, only read and pre-processed them. If you leave this page without clicking **Confirm Import**, you will have to start the import process over.
- d. Click **Confirm Import** and wait for QAD Advanced Scheduling to process your data. This may take a few seconds to a minute, depending on how large your file is.
7. Once your items have been processed and created, QAD Advanced Scheduling will take you to the **Summary** Step.
 - a. Here QAD Advanced Scheduling will give a summary of how many items were created, how many items were updated, whether any conflicts arose, and whether any items errored.
 - i. Errors for specific items do not necessarily cause the entire import to fail. Error in the creation of an item only prevents that item from being created. All other items that do not error on creation will still be created. Check the error message, fix the erroring entries, and then retry the import from the **Select File** step.
 - b. If any conflicts arose, you will be given an option to go and resolve them here. See **Handling Conflicts** below for more.
8. Your import is now complete. You may now make use of the created items in any of QAD Advanced Sch

Handling Conflicts

QAD Advanced Scheduling's import is useful not only for creating items in the master data, but in updating and maintaining those items. However, QAD Advanced Scheduling will not simply overwrite old values with new values, but instead alert the user when conflicts occur between what is already in QAD Advanced Scheduling's data and what is being imported.

Here is an example: Assume that in the organization there are four frozen dinner materials. These materials are the same material type, with material attributes "Allergens", "Pasta Type", and "Sauce". The data currently in QAD Advanced Scheduling for these Materials is summarized below:

Material ID	Description	Allergens	Pasta Type	Sauce
1001	Frozen material 1001	1,2,3	Wheels	Red
1002	Frozen material 1002	1,2		Alfredo
1003	Frozen material 1003	1,2,3	Macaroni	Primavera

Note that Material 1002 has nothing listed for "Pasta Type". This could be for many reasons: an error in creating the import file, the data could not be found but the import was proceeded with anyway, and so on.

Time has passed since these materials were created, and the organization operator has decided it's time to update them. The recipe for material 1001 has changed and it no longer contains allergen 3. The Pasta Type for material 1002 has been identified as "Penne". It was realized that material 1003's Sauce is "Primavera", when actually it should be "Cheese".

We prepare an import file as follows. Cells with different values than what is currently in QAD Advanced Scheduling are marked red.

Material ID	Description	Allergens	Pasta Type	Sauce
1001	Frozen material 1001	1,2	Wheels	Red
1002	Frozen material 1002	1,2	Penne	Alfredo
1003	Frozen material 1003	1,2,3	Macaroni	Cheese

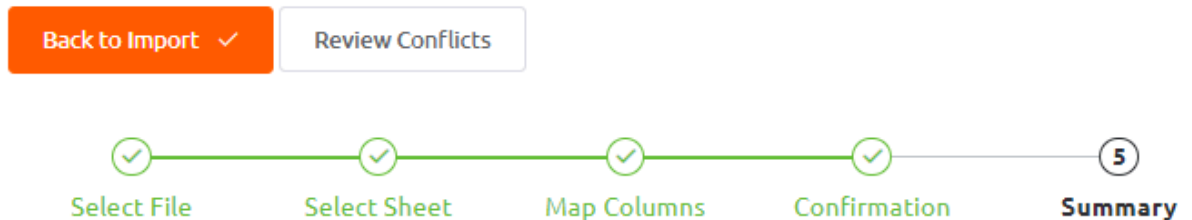
We follow the QAD Advanced Scheduling import steps as described above, using the import type **Materials**. We reach the **Confirmation** step, and we are given the following alert:

Import Summary

- 1 item will be updated.
- 2 items have conflicts; items with conflicts will not overwrite existing items.
- Conflicts:
 1. "1001" conflicts with existing entity: "Custom attribute: Allergens": currently "1,2,3" vs imported "1,2"
 2. "1003" conflicts with existing entity: "Custom attribute: Sauce": currently "Primavera" vs imported "Cheese"

Note that the change for material 1002 did not result in a conflict: this is because the "Pasta Type" for 1002 was blank before, and thus the new import does not require an overwrite to be added to the Material's Master Data.

Aware of these conflicts, we click **Confirm Import**. The summary page looks as follows:



Import Finished

The import completed successfully.

3 items processed:

- 1 item updated.
- 2 conflicts created.

It's time to resolve the conflicts. We click **Review Conflicts** to be taken to the import's details page (as seen in Step 1 of the **Importing** instructions. This page now contains a **Conflicts** section.

Import Materials

[< Back to Import](#)
[New Import](#)

Conflicts

[Overwrite Selected](#)
[Delete Selected](#)

☐	Date Created ▴ ▾	Unique Identifier ▴ ▾	Description	Actions
☐	Jan 27, 2022 - 18:03	1001	Frozen material 1001	View
☐	Jan 27, 2022 - 18:03	1003	Frozen material 1003	View

Past Imports

Date ▴ ▾	User ▴ ▾	Summary
Jan 27, 2022 - 18:03	Mia Nall	Updated: 1, Conflicts: 2

To manually review each conflict, select **View** under the right “Actions” column of the conflicts entry. A window will open comparing the values currently in QAD Advanced Scheduling against what was just imported. You can also edit or change the data of the conflicting item if you choose to.

Existing Entity

Material ID	1001	
Description	Frozen material 1001	
Type	Q Frozen	
Dependent Requirements	As a BOM item... ▾	
Max Inventory Level	Enter a value	Q Select Unit
Safety Inventory Level	Enter a value	Q Select Unit

Conflict

Material ID	1001	
Description	Frozen material 1001	
Type	Q	
Dependent Requirements	As a BOM item... ▾	
Max Inventory Level	Enter a value	Q Select Unit
Safety Inventory Level	Enter a value	Q Select Unit

Production Line Assignment

Preferred Line

Line	Q No Line	
Minimum Order Amount	500	Q case
Order Amount Increment	100	Q case
<button>Add Alternate Line</button>		

Attributes

Allergens	1,2,3
Pasta Type	Wheels
Sauce	Red

Production Line Assignment

Preferred Line

Line	Q No Line	
Minimum Order Amount	Enter a value	Q Select Unit
Order Amount Increment	Enter a value	Q Select Unit
<button>Add Alternate Line</button>		

Attributes

Allergens	1,2
Pasta Type	Wheels
Sauce	Red

Wheel Authoring

Inventory Carrying Cost (annual)	25	%

Wheel Authoring

Inventory Carrying Cost (annual)		%

At the bottom of the window are the following options:

Overwrite Existing	Import as New	Save Changes	Cancel

- **Overwrite Existing:** Updates the item with the values from the import, overwriting what was already in QAD Advanced Scheduling.

- **Import as New:** Creates a new item in QAD Advanced Scheduling with the values of the new import.
- **Save Changes:** Saves any changes you made to the conflicting item. Does not resolve the conflict.
- **Cancel:** Closes the window. Does not resolve the conflict.

To handle the conflicts in bulk, select the checkmarks of the conflicts you wish to handle, and then click **Overwrite Selected** to overwrite all conflicts with the new import, or **Delete Selected** to delete the new imported item and keep the values already in QAD Advanced Scheduling.

Conflicts

Overwrite Selected		Delete Selected		
☒	Date Created ↕	Unique Identifier ↕	Description	Actions
☒	Jan 27, 2022 - 18:03	1001	Frozen material 1001	View
☒	Jan 27, 2022 - 18:03	1003	Frozen material 1003	View

Defining Line Availability

Line availability describes the timeframe(s) during which production on a line is or is not available. Availability can be set at a global level or customized at a per-line level. Lines must have some availability in order to produce materials.

Line availability can be defined in two locations: on the **Setup > Organization** page as a default for the Organization, or customized for a specific line.

Either way, the process of defining the line availability is the same.

Note Line Availability

Line availability is additive. For example, a line availability could be created for weekdays, another for weekends. The merged availability is the sum of all line availability, minus outages.

Outages list exceptions to line availability - times when the line is down - and are subtracted from availability.

Line availability can be maintained at the organization level (as shown here), or customized at the line level to override the organization data.

Line-specific availabilities and outages are not visible on the organization page and must instead be handled at the details page for individual lines.

Process

The overall Line Availability of an organization is made of two parts: availabilities and outages.

Availabilites

Availabilities are created and maintained under the **Line Availability** header (on the organization page) or the **Availability** header (on the Line's page).

Line Availability

+ Add Availability			
Description	Recurring	Summary	Actions
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00	Edit

1. To create a new Availability, click **Add Availability**.
2. To edit an existing Availability, click **Edit** in the right "Actions" column of the Availability's entry.
3. Creating or editing an Availability opens a window with the same entries.

Edit Availability



* Description

24x5

Recurring



Unselect for a one-off availability

Start time

🕒 00:00

End time

🕒 00:00

* Days of the week



mon



tue



wed



thu



fri



sat



sun

* Every # weeks:

-

1

+

* Effective start

📅 2020-07-28

When does this availability pattern start

Effective end

📅 Blank for no end

When does this availability pattern end (optional)

Save

Cancel

- **Description:** Description of line availability or calendar.
- **Recurring:** Select this box to repeat the availability pattern with the frequency specified in the **Every # weeks** entry.
- **Start time:** Select the start time of the line availability.
- **End time:** Select the end time of the line availability.
- **Days of the week:** Select the days of the week on which availability is valid.
- **Every # weeks:** Sets availability to be valid every # of weeks. Setting as 1 has the availability valid every week, setting as 2 has the availability valid every other week, etc.
- **Effective start:** Starting date for the availability pattern.
- **Effective end:** End date for the availability pattern. If blank, there is no end date.

4.

To delete an existing Availability, click on  in the right “Actions” column of the Availability’s entry.

Outages

Outages are created and maintained under the Outages header.

Outages

+ Add Outage		
Description	Summary	Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00	Edit
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00	Edit

1. To create a new outage, click **Add Outage**.
2. To edit an existing outage, click **Edit** in the right “Actions” column of the outage’s entry.
3. Creating or editing an outage opens a window with the same entries.

Edit Outage

×

* Description

Labor Day

Global



Check to apply to customized line schedules too

* Date of Start

2021-09-06

* Start time

00:00

Multi-day ☐

* EndTime

00:00

Save

Cancel

- **Description:** Description of the outage.
- **Global:** Only available when creating an outage on the organization page. If checked, applies outage even if a line has a customized schedule.
- **Date of Start:** The date the outage starts.
- **Start time:** The time the outage starts.
- **Multi-day:** If checked, the outage will span more than one calendar day. The **End Date** field will appear.
- **Date of end:** The date the outage ends, if the Outage is multi-day.
- **End time:** The time the outage ends.
- Click on “Save” to save your outage.

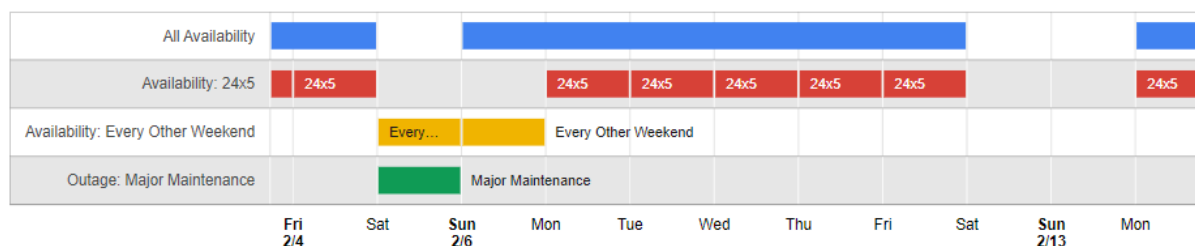
- To delete an existing Outage, click  in the right “Actions” column of the availability entry.

View

Below the **Outages** header you will find the header **View**. This section shows a timeline of the overall, actual availability, which is a combination of every created availability and outage.

- At the top in blue is a timeline of the overall, actual availability.
- The next rows show the availabilities.
- The outages are shown below those.

View



How to Update Materials in Bulk using CSV and XLSX Files

When maintaining data for materials it is sometimes necessary to make many changes at once, such as when a new material attribute is defined or existing attributes have their conventions adjusted. When a large number of materials are established in QAD Advanced Scheduling, it is very time consuming to make such updates. However, by using a combination of export and import features, this task can be completed quickly.

Note If you're looking for a general guide on using import, refer to [Import Data on page 279](#).

This guide will help you update many materials to save you from having to navigate within QAD Advanced Scheduling to each material one by one.

1. Exporting the Materials File

Note Skip this and the next step if you already have the data you need in a .CSV or .XLSX file.

Using the export functionality you can generate a .CSV or .XLSX file that contains your material data, including custom attributes. Because the export file is generated by QAD Advanced Scheduling, the process of importing it back into QAD Advanced Scheduling is simplified - the columns are automatically mapped.

1. First, navigate to the "Materials" page under "Setup"
2. Optional: Filter to the applicable material type if you only want to update a certain material type
3. Press the "Export Materials" button

Line Availability

+ Add Availability			
Description	Recurring	Summary	Actions
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00	Edit

2. Updating the Materials File

Edit the file in whatever way you wish. The columns are ordered like this:

1. The first few columns are some built-in attributes.
2. After this are as many or as few custom attributes as are present for the material or material type.
3. Next are other built-in attributes, for example, for Wheel authoring and inventory functionality.

Remember to save the file once you are done editing it!

Edit Availability



* Description

Recurring ☒ [Unselect for a one-off availability](#)

Start time

End time

* Days of the week ☒ mon ☒ tue ☒ wed ☒ thu ☒ fri
☐ sat ☐ sun

* Every # weeks:

* Effective start
 When does this availability pattern start

Effective end
 When does this availability pattern end (optional)

Scroll right for additional fields such as forecast, minimum/maximum order amounts, COGS, and so on.

Column numbers may vary in your case, depending on the number of custom attributes.

Related columns should be entered together. For example, the forecast value, forecast unit, and forecast period are all related and as a result all three columns should be filled if any of them are filled.

Outages

[+ Add Outage](#)

Description	Summary	Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00	🔍 Edit 🗑️
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00	🔍 Edit 🗑️

If you'd like to add a new custom attribute, feel free to create new columns for them. If you do so you'll need to map them in the following steps.

Note that by default, any changes made to values anywhere in the file will be uploaded when we upload the file in the next step.

To create new materials, add additional rows and fill in applicable values.

3. Importing the Materials File

The last step is to re-import the file with any changes you've made. Follow the general steps outlined in [Import Data on page 279](#) to do so. Make sure to use the updated version of your file.

When you use a template file created by QAD Advanced Scheduling, you'll notice that all columns are automatically mapped and usually can immediately "Continue" past this step.

If you'd like to not update values for a particular column, you can remove that column's mapping instead of including it and overwriting data. In this way you can use a combination of mapped and unmapped columns to selectively update only certain data!

In case you've added a new column to the import file, you'll need to define a new attribute to map that new column to. Find the appropriate unmapped entry in the Column Mapping step of the import process. You can press "Edit Mapping" and then select "New Attribute" from the list, or you can select "New Attribute" from the "Unmapped Fields" area. When you do so a new window will appear within which you can define the new attribute:

Edit Outage
×

* Description

Labor Day

Global
☒ Check to apply to customized line schedules too

* Date of Start

2021-09-06

* Start time

00:00

Multi-day
☐

* EndTime

00:00

Save

Cancel

Continue through the import wizard as usual.

4. Follow-up and Related Tasks

The following tasks may need to be done next.

4.a. Updating Production Rates or BOM Consumption

1. If you use per-material production rates, follow the same procedure with the “Export Production Rates” button.
2. If you use BOM Item or Resource Consumption, follow the same procedure with the “Export BOM Items” button accessed through the chevron next to the “Export Materials” button.

View

All Availability												
Availability: 24x5	24x5			24x5	24x5	24x5	24x5	24x5				24x5
Availability: Every Other Weekend		Every...		Every Other Weekend								
Outage: Major Maintenance			Major Maintenance									
	Fri 2/4	Sat	Sun 2/6	Mon	Tue	Wed	Thu	Fri	Sat	Sun 2/13	Mon	

Once you've made appropriate edits to these files you can re-import them using the import types of the same names.

4.b. Updating Product Wheels with new values

If you use Product Wheels, use the “Recalculate Saved Values” feature for each relevant Wheel session to update the calculations and simulations. This feature is described in [Wheel Setup and Wheel Sessions on page 41](#).

If any new materials were defined, you should include them in relevant Product Wheels. This process is described in [Add a New SKU to the Wheel Design on page 267](#).

Allow Changeover Rule Variations that are Selectible when Scheduling

The following guide walks through the steps to allow changeover variations to be selectable when scheduling, for example the number of crew available may change the length of the changeover available.

1. Configure order attribute
 - a. Navigate to Setup > Organization
 - b. Press the Order Attributes button
 - c. Create a new Order Attribute
 - i. Select type picklist
 - ii. Unselect “Allow other values”
 - iii. Press “Add Option” for each variation

Create an Attribute

* Name

* Type

☐ Allow other values

⚙️ *Value 1

⚙️ *Value 2

Inherit ☐ Initialize with material attribute of the same name

Save

Add Value

Cancel

iv. Press Save

2. Next, configure changeovers for the variations
 - a. Navigate to Setup > Changeovers
 - b. Create Changeover Rules referencing the variations in changeovers.
 - i. Example:

Changeover Rules

[+ Create](#) [± Export Changeovers](#)

Name	Priority (Highest Applies)	Rule Type	Cost	Time for Wheel Design	Resource Used	Attribute	Actions
3 Crew Contains Hard to Process...	12.97	Material Attribute Changed	120 mins	120 mins	3 Crew	Contains Hard to Process material	⌕ Edit
1 Crew Contains Hard to Process...	11.97	Material Attribute Changed	110 mins	110 mins	1 Crew	Contains Hard to Process material	⌕ Edit

- ii. For each variation, ensure the following is correct

- i. A descriptive name
- ii. Select the “Advanced” checkbox
- iii. Add a new Order Condition that applies if, for a given order, the new order attribute you created matches one of the defined order attribute values.

EditAChangeoverRule

Name: 3 Crew Contains Hard to Process material Change

Site: All Sites

* Rule Type: Material Attribute Change

* TimeInMinutes: 120

Additional cost: \$

Material attribute to apply this to: Contains Hard to Process material

Advanced ☒ Check to set advanced options for the changeover.

Priority Override: Blank for automatic priority based on rule time and complexity

Allow Changeover to be additive ☐ ☒ Changeover will still occur even if a higher priority changeover occurs.

Customize Time for Wheel Design ☐

Consumed Resource: Crew

* ResourceUsage: 3

ResourceUsageBufferTime: 0 minutes

Line

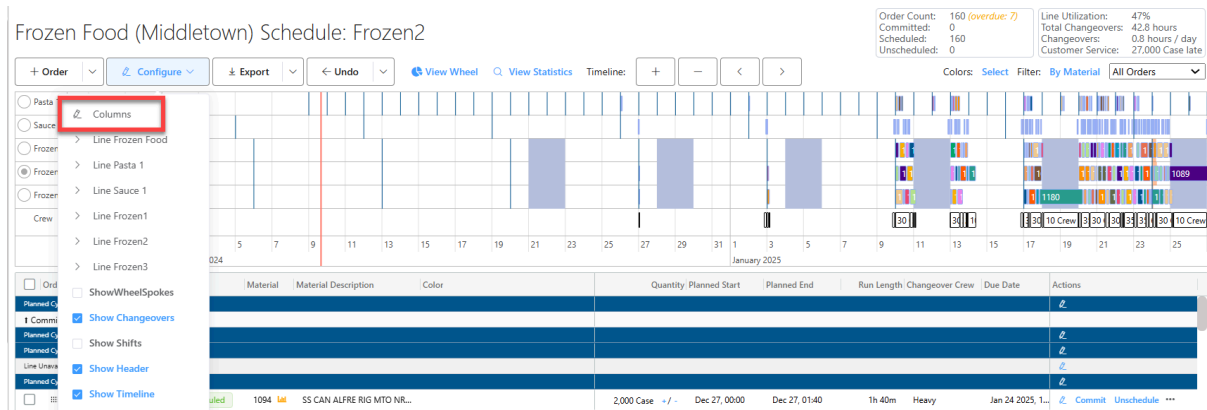
Add New "Line" Condition

Order

Condition 1

Apply if: Attribute Changeover Crew Heavy

3. Configure the schedule to show the rule
 - a. Configure columns for the line or line group you're using:



- b. Drag the Order Attribute created in step one to the appropriate place

Edit Columns

90/163 columns selected.

Drag to reorder. Click to toggle on or off.

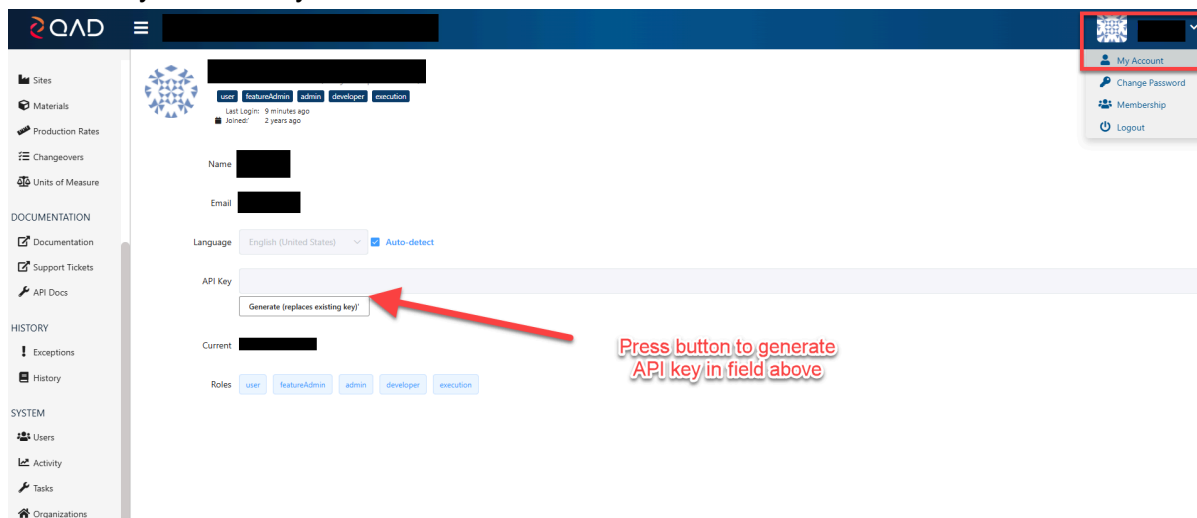
5: Quantity	6: Planned Start	7: Planned End	8: Run Length	9: Changeover Crew	10: Due Date	11: BOM Availability	12: Meat	13: Pasta Type	14: Sauce	15: Sauce #	16: Gluten Free
17: Brand	18: Division	19: Canadian	20: MTO/MTS	21: Total Shelf Life	22: Customer Shelf Life	23: Plant Shelf Life	24: Pallet Cs Ct	25: Allergens	26: Heavy Blend	27: Rice	28: Contains Hard to Process material
29: Crew	30: Line Change Indicator	31: Width group	32: Height group	33: Extruder	34: Portable Mixer	35: Heavy mixer	36: Ribbon mixer	37: Sauce Mixing Stations required	38: Equipment 1 needed	39: # Equip 2	
40: Special Eq 1	41: Measured Drop	42: Second Measured Drop	43: Heavy Sauce	44: Light Sauce	45: Sprinkle topping	46: Hand Place	47: Special Eq 2	48: Water	49: Longest Leadtime	50: Sauce Base	
51: Business Importance	52: Rate/min	53: Rate/hour	54: Rate/day	55: Efficiency	56: Import Scheduled Date	57: Import Priority in Day	58: Shifts	59: Changeover Total-Time (minutes)	60: Changeover Rules	61: Due-Date Without-Time	

- c. Double-click on a cell in the corresponding column in the schedule list window to adjust the value for this order. Select a value and press enter. Now the changeover criteria will be re-evaluated and the changeover will be updated.

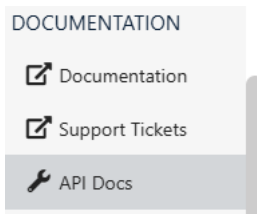
☐ Order ID	Seq	Status	Material	Material Description	Color	Quantity	Planned Start	Planned End	Run Length	Changeover Crew	Due Date	Actions
Planned Cycle #3: Dec 06 00:00, 7 days												
Committed Window												
Planned Cycle #6: Dec 13 00:00, 7 days												
Planned Cycle #1: Dec 30 00:00, 7 days												
Line Unavailable: Dec 21 00:00 to Dec 23 00:00												
Planned Cycle #2: Dec 27 00:00, 7 days												
☒	P041046	2.4	scheduled	1094	SS CAN ALFRE RIG MTO NR...	2,000 Case	- / -	Dec 27, 00:00	Dec 27, 01:40	1h 40m	Heavy	Jan 24 2025, 1
Idle: 22h 20m: Click to shorten cycle												
Line Unavailable: Dec 28 00:00 to Dec 30 00:00												
Idle: 96h 00m: Click to shorten cycle												
Planned Cycle #3: Jan 03 00:00, 7 days												
Changeover: Allergen Clean (240m) C												
☐	P040998	3.1	scheduled	1068	ACME SP ALFRE MAF MTS ...	3,000 Case	- / -	Jan 03 2025, 0...	Jan 03 2025, 0...	2h 30m	Light	Jan 24 2025, 1
Idle: 21h 30m: Click to shorten cycle												
Line Unavailable: Jan 04 00:00 to Jan 06 00:00												
Idle: 96h 00m: Click to shorten cycle												
Planned Cycle #4: Jan 10 00:00, 7 days												

Using the QAD Advanced Scheduling API

1. Getting access:
 - a. Email QAD Support and request your user credentials for QAD Advanced Scheduling be set to “developer.”
2. Generate your API Key:



3. Authenticating your requests:
 - a. Include the API key in apiKey header.
4. Viewing the API documentation:
 - a. Navigate to the appropriate menu by using the API Documentation tab in the left-side menu.



- b. Any API used by the UI can be used for integration (using API Key authorization). Use the “Try it out” buttons found within each item:

POST /api/imports/execute

lines

POST /api/lines/find

Returns lines

Parameters

No parameters

Request body

application/json

The filter to use to find lines.

Example Value | Schema

```
{
  "filter": {
    "advancedQuery": "string",
    "material": 0,
    "type": "string"
  }
}
```

Responses

Code	Description	Links
200		API link

5. If applicable, email QAD Support and request an integration user.

Defining a Planned Production Shutdown

Outages in availability, or planned shutdowns, are a common occurrence. These can be predefined in QAD Advanced Scheduling and will then be reflected in your schedule.

Note Most planned shutdowns are either for a day or two (for example, a public holiday), or for longer. The latter case requires an extra step.

Step 1: Define the outage at the organization or line level

Depending on whether the shutdown is at the plant level or line level, navigate to the configuration page, and add the outage. More information can be found here: [Defining Line Availability on page 294](#). Be sure to select the “Global” checkbox if it should apply to customized line availabilities too.

Organization: ACME Frozen Foods

Description: Sandbox copy of Standard Frozen Demo. Standard Frozen Demo for Matt Exploration.

Committed Window: 3 days

Planning Window: 60 days

Timezone: America/New_York

Default Unit of Measure: Case

Line Availability

+ Add Availability

Description	Recurring	Summary	Actions
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00	Edit

Outages

+ Add Outage

Description	Summary	Actions
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00	Edit
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00	Edit

Step 2: For long outages, assess the impact on planned cycles and adjust them if needed

Attention This step is not applicable to short outages.

Planned cycles are regularly repeating patterns of production, and when production is down for an entire planned cycle we can decide how to respond. Planned cycles appear on the schedule as dark blue rows.

Strategy 1: Delay the planned cycle during downtime

If we'd like the pattern of production to pause and resume after the downtime, then delay the affected planned cycle:

1. Edit the planned cycle that would start during the downtime using the pencil icon:

☐	Order ID	Status	Material	Material Description	Color		Actions
	Planned Cycle #1: Jun 10 00:00, 7 days						
	↑ Committed Window						
	Planned Cycle #2: Jun 17 00:00, 7 days						
	Planned Cycle #3: Jun 24 00:00, 7 days						
	Line Unavailable: Jun 25 00:00 to Jun 27 00:00						
	Planned Cycle #4: Jul 01 00:00, 7 days						
	Line Unavailable: Jul 02 00:00 to Jul 04 00:00						
	Planned Cycle #5: Jul 08 00:00, 7 days						

2. Delay the start date of the cycle to the end of the downtime

Edit Planned Cycle



Date

Length (days)

Desired Length (days)

Confirm

Cancel

2024 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
24	25	26	27	28	29	30
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Now OK

2,000 Case +/- Dec 27, 00:00 Dec 27, 01:40 1h

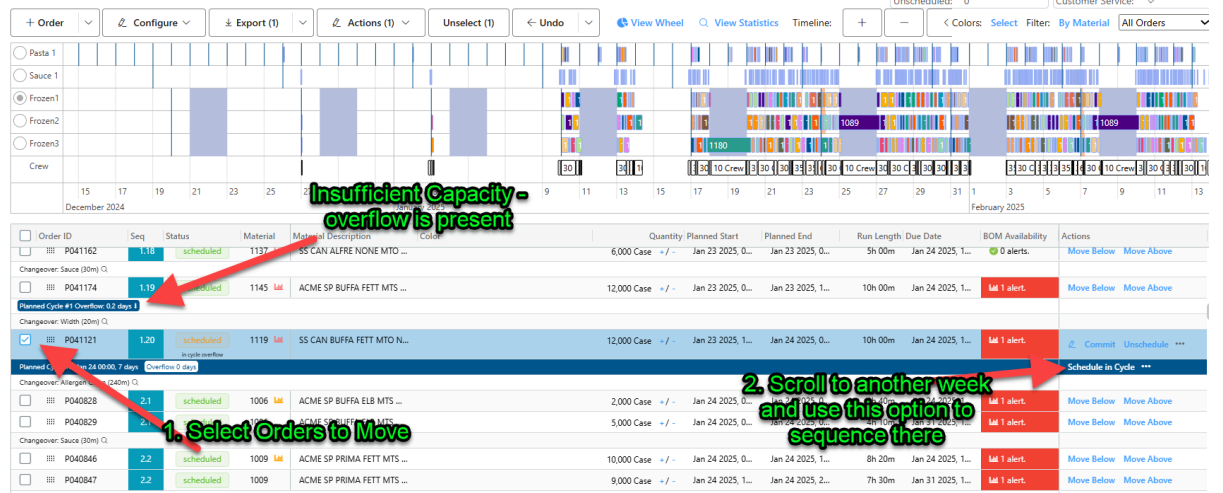
3. Save and schedule as usual

Strategy 2: Reschedule production on an ad-hoc basis that is due during the downtime

QAD Advanced Scheduling will place orders that are due in a target planned cycle even if that cycle has an insufficient capacity (or no capacity) . Because there is insufficient capacity, the orders will be placed in the “Overflow” zone to enable the scheduler to decide the best course of action.

In this case, the scheduler can select the orders, and move them elsewhere, for example using the “Schedule in Cycle” function.

Frozen Food (Middletown) Schedule: Frozen1



Importing Materials Alongside Orders

QAD Advanced Scheduling allows the import of new materials via the order import. This sub-import (accessed via the options step of the order import) is more limited than the material import, but can be more efficient depending on your situation.

What does your order import file have to include?

1. Material attributes for the materials you intend to create.
2. Each row/order in your import file with the same material must contain the same material attribute values as each other.
 - a. This means one row/order can't have a blank value in a material attribute column if another row/order with the same material has a value in that column.
3. If material type is given in the file, the type must already exist in QAD Advanced Scheduling .

How do I Import Materials Within the Order Import?

The process is largely the same as described in [Import Data on page 279](#), with a couple additional steps:

When mapping columns, you must also map the material values to be imported. For example, in the image below there are columns called "Width" and "Height" in the import file. These are material attributes; so, they should be mapped to material attributes that exist in QAD Advanced Scheduling. In this case, the correct mappings are "Material 'Width Group'" and "Material 'Height Group'".

Importing Orders using sheet "Customer Orders"

< Back
Ignore Unmapped
Continue >

1 Select File
2 Select Sheet
3 Map Columns
4 Options
5 Confirmation
6 Summary

Suggest Mappings
Remove All Mappings
+ Load saved import

Actions	Column Name	Example Values	Mapping
Edit Mapping	Material	1001, 1002, 1003	*Material Identifier* ×
Edit Mapping	Due Date	2025-01-25, 2025-01-25, 2025-01-25	*Due Date* ×
Edit Mapping	Quantity	253.2062603, 965.9155334, 1352.992828	*Quantity Value* (e.g '12 pallet' or '12') ×
Edit Mapping	Unit	Case, Case, Case	*Quantity Units* (required if not "Case" and unit not included in value) ×
Edit Mapping	Customer	Dollar 1, Dollar 2, Dollar 3	
Edit Mapping	Site	Middletown, Middletown, Middletown	*Site Identifier* ×
Edit Mapping	Width Group	Small, Medium, Large	Material "Width group" ×
Edit Mapping	Height Group	Small, Medium, Large	Material "Height group" ×

Ignore Unmapped
Continue (1 unmapped) >

- Material "Plant Shelf Life"
- Material "Pallet Cs Ct"
- Material "Allergens"
- Material "Heavy Blend"
- Material "Rice"
- Material "Contains Hard to Process material"
- Material "Crew"
- Material "Line Change Indicator"
- Material "Extruder"
- Material "Portable Mixer"
- Material "Heavy mixer"
- Material "Ribbon mixer"
- Material "Sauce Mixing Stations required"
- Material "Equipment 1 needed"
- Material "Equip 2"
- Material "Special Eq 1"
- Material "Measured Drop"

Note To map the material's description, please make sure you select **"Material Description"** from the mapping options. The option "Description" is the order description.

If the material attributes for the materials already exist in QAD Advanced Scheduling, they are listed in the mapping options as **Material “[Attribute Name]”**.

If you wish to create a new material attribute as part of this load, select **New Material Attribute** from the mapping options. The option New Attribute would create a new order attribute, not a new material attribute.

After mapping, on the options page, ensure the **Create materials that do not already exist**, checkbox is selected. If any material options other than the material identifier is selected, the box will be checked automatically.

Importing Orders using sheet “Orders”

< Back
Continue >

✓

Select File

✓

Select Sheet

✓

Map Columns

4

Options

5

Confirmation

6

Summary

Options

☐ Delete existing uncommitted orders for selected lines
☐ Also delete existing committed orders for selected lines
☐ Also delete existing manufacturing orders for selected lines
☒ Create materials that do not already exist.

From here, the process is the same as importing orders as normal.

Note If there is a conflict with the material sub-import, and the material is new, then the order will also be created as a conflict. After resolving the material conflict, you can then resolve the order conflict.

Configure Formatted Export

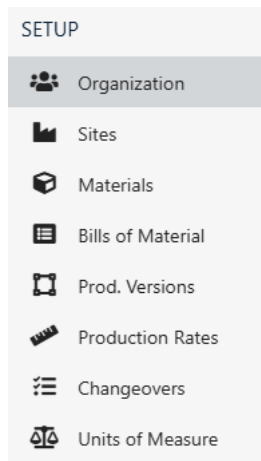
Purpose

To control the format of the files obtained when using QAD Advanced Scheduling's export feature. This can make it easier to manage such files when utilizing them alongside other files, or help standardize them with similar files maintained in the user's production scenario.

Steps

Note: In order to enable formatted exports, the appropriate feature must be enabled for the organization. If the option to begin the process as described below is not present, contact a QAD team member and request that the feature be enabled.

1. Navigate to the Organization menu by selecting the Organization tab on the left side of the screen.



2. Next, use the Default Schedule Export Preferences button at the top of the Organization menu to open a short drop-down list. Choose Configure Formatted Export from the list.

Organization: ACME Frozen Food

Edit
Default Schedule Export Preferences
Order Attributes
Integrations

Description: Sandbox Template for Multi Level Scheduling, 2024 Master Copy for PW and Multi Level Scheduling Demo.

Committed Window: Configure Export Columns

Planning Window: 60 days Configure Formatted Export

Timezone: America/New_York

Week Start: Sunday

Default Unit of Measure: Case

Line Availability

[+ Add Availability](#)

Description	Recurring	Summary
24x5	mon, wed, thu, fri, tue	Start: 00:00, Length: 24:00

Outages

[+ Add Outage](#)

Description	Summary
Global: Labor Day	Start: Sep 06 00:00, End: Sep 07 00:00
Canada Thanksgiving	Start: Oct 11 00:00, End: Oct 12 00:00

- A new window will appear offering several options related to the formatted export. QAD Advanced Scheduling has a built-in format which can be modified to meet the user's needs. The user must simply download the existing default export format, make changes, and then re-upload the modified version of the file. To begin this process, press the Download Default button.

Edit Formatted Export

Formatted export disabled. Add a template file to enable.

Label

Label to display when exporting. Defaults to "Formatted Excel".

Template File

Download Default

Use Default

Drop file here or [click to upload](#)

Select an Excel file. Refer to the default file as an example.

Save

Cancel

- After the file has been downloaded, open the file in Excel or another flat file-capable program. The file will appear generally as follows:

313

5. After making the desired changes to the export file, save it to an accessible location with a clear, descriptive name. Return to QAD Advanced Scheduling and use the "Drop file here or click to upload" box in the Edit Formatted Export window to select the newly saved export file.

Edit Formatted Export

Formatted export disabled. Add a template file to enable.

Label

Label to display when exporting. Defaults to "Formatted Excel".

Template File

Download Default

Use Default

Drop file here or [click to upload](#)

Select an Excel file. Refer to the default file as an example.

Save

Cancel

6. After setting the new export format, the file can be redownloaded for further editing at any time by using the "Download" button. Similarly,

the export format can be returned to the default by pressing the "Remove" button.

Edit Formatted Export ×

Formatted export enabled.

Label

Template File

 Download Default

× Remove

 Download



Drop file here or [click to upload](#)

Select an Excel file. Refer to the default file as an example.

Save

Cancel

QAD Adaptive: Production Scheduling

Production Scheduling - Overview

Production Scheduling refers to Advanced Scheduling tools and capabilities that are included with QAD Adaptive. Users of MSW/PSW and new users alike will find their QAD Adaptive experience bolstered by the powerful scheduling functions and easy-to-use order management interface made available through Production Scheduling.

Moving from MSW/PSW to Production Scheduling

While users of QAD Adaptive are not required to use to Production Scheduling, QAD encourages this transition. Among the significant functional uplift between MSW/PSW and Production Scheduling are the interactive Gantt chart, drag-and-drop scheduling, visualized product inter-dependencies, changeover modeling, and downtime management.

Integrations

Integrations Overview

QAD Advanced Scheduling has the ability to transmit data to and receive data from several different applications. The types of data which can be transmitted and received, as well as the methods for doing so, differ depending upon the application. In several cases these integrations are being further developed to offer improved functionality in the future.

Available Integrations

- **Redzone**

Redzone Integration

QAD Advanced Scheduling Integration with Redzone

Setup

Internal configurations must be made to activate the integration between QAD Advanced Scheduling and Redzone. Simply reach out to a QAD team member and request that the integration be enabled. Be prepared to offer information about your accounts with QAD Advanced Scheduling and Redzone to help the assisting QAD team member complete the configuration process.

After initial configuration is complete, data from Redzone can be imported into QAD Advanced Scheduling with the click of a button. The button in question is found at the top of the Organization menu in QAD Advanced Scheduling:


 A rectangular button with a light blue border and a light blue background. It contains a circular arrow icon followed by the text "Import Setup Data".

Integration Data

Redzone → Advanced Scheduling

Data that can be imported from Redzone into QAD Advanced Scheduling includes:

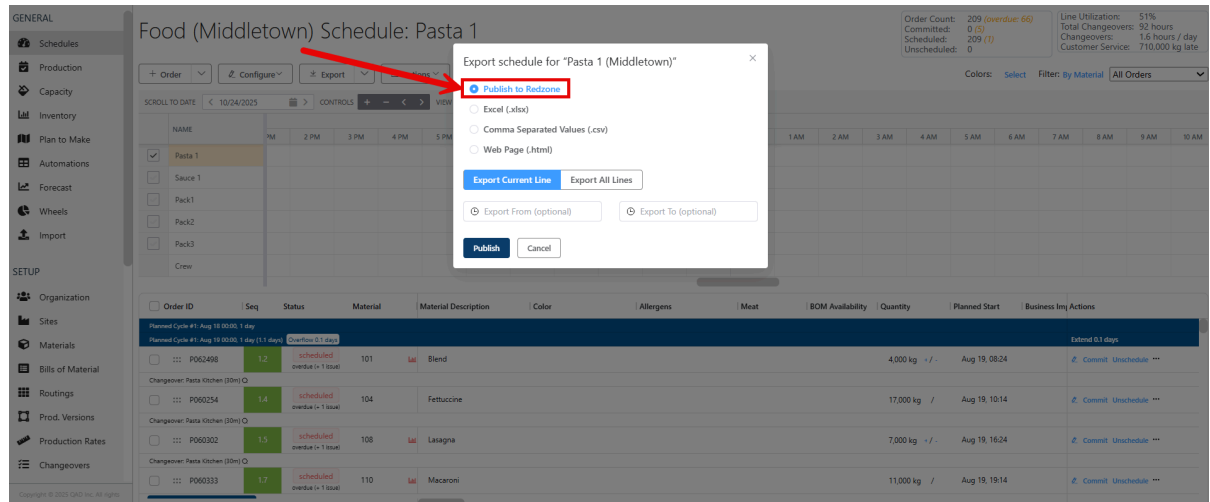
- Materials
- Locations
 - Locations in Redzone include production sites, areas within those sites, and lines within those areas. Locations imported from Redzone into QAD Advanced Scheduling will be deposited into a single new area and must be reassigned manually if required.
- Production Rates
- Units of Measure and Units of Measure Conversions

The above data types are imported into QAD Advanced Scheduling as part of the setup data import.

QAD Advanced Scheduling → Redzone

- Production Orders
 - At present, production orders linked between QAD Advanced Scheduling and Redzone must be sourced from QAD Advanced Scheduling.

Production Orders are exported from QAD Advanced Scheduling to Redzone by using the Export button in the Scheduling menu. An option to "Publish to Redzone" will be present in the Export options window:



How the Integration Works

QAD Advanced Scheduling reads identifying data from Redzone when importing or exporting data. This data is stored in QAD Advanced Scheduling's "External ID" field for the various types of data that can be transmitted between the two applications. It is therefore important not to alter or delete the values in the External ID fields once the integration has been configured, as doing so may result in errors or superfluous or duplicate data.

QAD Advanced Scheduling Common Actions

This is the category of small QAD Advanced Scheduling capabilities that allow you to schedule more quickly and efficiently, and design Product Wheels (when using **QAD Advanced Scheduling**).

Quick Guides

[Multi-Select on page 321](#)

[Nested Buttons on page 322](#)

Multi-Select

QAD Advanced Scheduling allows for multiple items to be selected at once, most notably in its scheduling menu.

In the schedule list window

Select a range of orders by selecting the first order's checkbox, holding the shift key on your keyboard, and selecting the last order's checkbox. All orders between and including the first selected order and the final selected order will be selected.

Select a non-consecutive set of orders by clicking each order's checkbox individually.

Note that these methods can be used on other screens where items are selected with a checkbox.

In the Gantt Timeline

Select a range of consecutive orders by clicking the first order's box, holding the Shift key, and selecting the last order's checkbox.

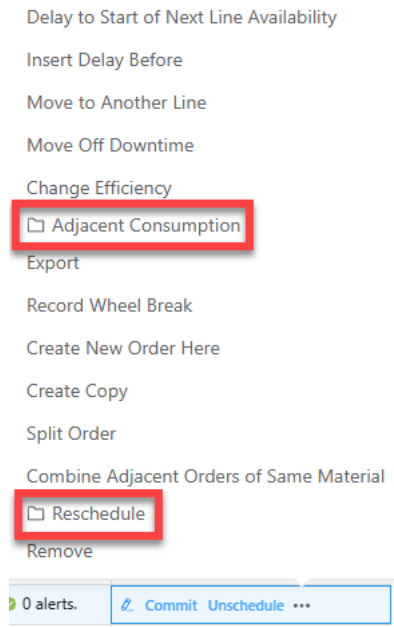
Select a non-consecutive set of orders by holding down the Ctrl key as you click each order's box.

Nested Buttons

QAD Advanced Scheduling presents available actions through drop-down menus that populate lists of buttons. In some cases, several similar actions are grouped together under a single "nested" button in order to save screen real estate.

How to Identify and Use Nested Buttons

Nested buttons can be found throughout Advanced Scheduling, but a large concentration of them are present on the Scheduling screen. After pressing a drop-down menu button and populating a list of buttons, a nested button will appear similar to the following image:



The small folder icon next to the text of the button indicates that there are buttons nested within. Choosing an option with this indicator will open a secondary list that contains only the nested buttons. The user can then choose the desired option from that secondary list.

What's New

This page provides a record of recent updates to QAD Advanced Scheduling. Advanced Scheduling receives regular updates; please regularly check the documentation for information on new and changed features.

Recent Updates

- Co- and byproducts are now available in QAD Advanced Scheduling. These are properties of a material that can be configured in the material creation or editing windows, provided the co- and byproduct feature flag is enabled in your organization.
- The Automations menu has been upgraded with enhancements to the Plan to Make step type and two new step types: Move Off Downtime and Capacity Level.
- The batch rounding dialogue in the Scheduling menu now allows the user to navigate between multiple groups of batch-roundable orders without exiting the dialogue.
- New organization and user administration features have been added. Organizations can now be created in groups by establishing provisioning templates, and users can now be defined with varying access levels at different scopes. See [Administer Organizations on page 256](#) and [Administer Users on page 261](#) for more information.
- Specific scheduling strategy can now be chosen when creating a Plan to Make run or defining a Plan to Make step in Automations.
- The ability to copy changeover rules has been added. This will allow users to duplicate a base changeover rule so that variants can be quickly created or so that different versions can be tested.
- The Scheduling screen has been upgraded by way of the introduction of the Bryntum Gantt chart, a new version with improved interactability and clearer, more in-depth visualization of schedules. See [Standard Scheduling on page 226](#) for more information.

Index

S

SRM Portal Overview 7, 8, 10, 11, 13, 14, 16, 18, 20, 22, 23, 24, 25, 26, 28, 29, 31, 33, 35, 41, 43, 50, 53, 55, 57, 66, 68, 69, 70, 86, 89, 93, 96, 98, 101, 104, 108, 111, 123, 126, 129, 133, 137, 142, 144, 151, 155, 157, 163, 166, 170, 172, 174, 177, 178, 180, 182, 183, 184, 185, 186, 188, 189, 191, 193, 201, 202, 205, 207, 207, 210, 213, 217, 221, 222, 225, 226, 228, 230, 231, 233, 237, 238, 239, 242, 245, 251, 252, 253, 254, 255, 256, 261, 264, 266, 267, 275, 279, 294, 298, 302, 305, 307, 310, 312, 316, 317, 318, 320, 321, 322, 323