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Implementation and User's Guide

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Oracle Rapid Planning Implementation and User's Guide, Release 12.2

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Preface

Intended Audience

Welcome to Release 12.2 of the *Oracle Rapid Planning Implementation and User's Guide.*

Casual User and Implementer

See Related Information Sources on page x for more Oracle E-Business Suite product information.

Documentation Accessibility

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Related Information Sources

Integration Repository

The Oracle Integration Repository is a compilation of information about the service endpoints exposed by the Oracle E-Business Suite of applications. It provides a complete catalog of Oracle E-Business Suite's business service interfaces. The tool lets users easily discover and deploy the appropriate business service interface for integration with any system, application, or business partner.

The Oracle Integration Repository is shipped as part of the Oracle E-Business Suite. As your instance is patched, the repository is automatically updated with content appropriate for the precise revisions of interfaces in your environment.

Online Documentation

All Oracle E-Business Suite documentation is available online (HTML or PDF).

- **Online Help** - Online help patches (HTML) are available on My Oracle Support.
- **PDF Documentation** - See the Oracle E-Business Suite Documentation Library for current PDF documentation for your product with each release. The Oracle E-Business Suite Documentation Library is also available on My Oracle Support and is updated frequently.
- **Release Notes** - For information about changes in this release, including new features, known issues, and other details, see the release notes for the relevant product, available on My Oracle Support.

Oracle Advanced Planning Command Center User's Guide

This guide describes Oracle Advanced Planning Command Center. It unifies all the Advanced Planning applications, such as Demand Management, Real-Time Sales and Operations Planning, Strategic Network Optimization, Advanced Supply Chain Planning, Distribution Requirements Planning, and Inventory Optimization. It provides a unified user interface and a single repository for all data. Its flexibility allows users to access data from external supply chain planning applications and make it available for

reporting and analysis within a unified user interface based on Oracle Business Intelligence - Enterprise Edition (OBI-EE).

Oracle Advanced Supply Chain Planning Implementation and User's Guide

Oracle Advanced Supply Chain Planning provides information about supply chain planning. Oracle Rapid Planning and Oracle Advanced Supply Chain Planning share many features.

Oracle Bills of Material User's Guide

This guide describes how to create various bills of materials to maximize efficiency, improve quality and lower cost for the most sophisticated manufacturing environments. By detailing integrated product structures and processes, flexible product and process definition, and configuration management, this guide enables you to manage product details within and across multiple manufacturing sites.

Oracle Collaborative Planning Implementation and User's Guide

This guide describes the information that you need to understand and use Oracle Collaborative Planning to communicate, plan, and optimize supply and demand information for trading partners across the supply chain.

Oracle Configurator Developer User Guide

This guide contains product documentation for the Oracle Configurator Developer user, including an appendix of information about Oracle Configurator runtime user interface behavior. It describes how to build a configuration model by adding Model structure, defining rules, and creating a UI.

Oracle Demand Planning User's Guide

This guide describes how to use Oracle Demand Planning, an Internet-based solution for creating and managing forecasts.

Oracle Demantra Demand Management User's Guide

This guide describes the information you need to understand and use Oracle Demantra Demand Management.

Oracle Demantra Integration Guide

This guide describes technical information about integrating Demantra with other software applications.

Oracle Demantra Sales and Operations Planning User's Guide

This guide describes the information you need to understand and use Oracle Demantra Sales and Operations Planning.

Oracle Demantra User's Guide

This guide describes the foundation information you need to understand and use Oracle Demantra products.

Oracle Global Order Promising Implementation and User's Guide

This guide describes how to use Oracle Global Order Promising for sophisticated, fast, accurate, and flexible order promising.

Oracle Inventory User's Guide

Oracle Inventory provides setup information for Oracle Rapid Planning.

Oracle Inventory Optimization User's Guide

This guide describes the comprehensive Internet-based inventory planning solution that enables you to determine when and where to hold your inventories across the supply chain to achieve the desired customer service levels.

Oracle Order Management User's Guide

This guide describes the necessary information that you need to use and comprehend managing your orders.

Oracle Rapid Planning Installation Guide

This explains what you need to do to install Oracle Rapid Planning.

Do Not Use Database Tools to Modify Oracle E-Business Suite Data

Oracle STRONGLY RECOMMENDS that you never use SQL*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle E-Business Suite data unless otherwise instructed.

Oracle provides powerful tools you can use to create, store, change, retrieve, and maintain information in an Oracle database. But if you use Oracle tools such as SQL*Plus to modify Oracle E-Business Suite data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle E-Business Suite tables are interrelated, any change you make using an

Oracle E-Business Suite form can update many tables at once. But when you modify Oracle E-Business Suite data using anything other than Oracle E-Business Suite, you may change a row in one table without making corresponding changes in related tables. If your tables get out of synchronization with each other, you risk retrieving erroneous information and you risk unpredictable results throughout Oracle E-Business Suite.

When you use Oracle E-Business Suite to modify your data, Oracle E-Business Suite automatically checks that your changes are valid. Oracle E-Business Suite also keeps track of who changes information. If you enter information into database tables using database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL*Plus and other database tools do not keep a record of changes.

1

Overview: Rapid Planning

Rapid Planning Implementation and User's Guide: Parts

It has three parts:

- Overview: An overview of the Value Chain Planning suite, the Rapid Planning product, and the relationship between the Rapid Planning product and the Advanced Supply Chain Planning product.
- Implementation: The process to implement Rapid Planning. It includes how to use Rapid Planning to simulate solutions to late-breaking issues since the last Advanced Supply Chain Planning run.
- Plan Analysis: The user interface views that you use to analyze and execute plan results and how to perform late demand diagnosis.

You also need:

- *Oracle Value Chain Planning Collections Implementation Guide*
- *Oracle Rapid Planning Installation Guide*

Value Chain Planning Suite

See: *Oracle Value Chain Planning Collections Implementation Guide*, Overview of Value Chain Planning Suite.

Planning Server Architecture

The planning server works with source (execution) systems. It receives supply and demand execution information from the source systems and releases supply orders to the execution systems.

Rapid Planning

Overview

You can create and launch plans in Oracle Rapid Planning. Analyze the results and release recommendations to the execution system.

You can also use Oracle Rapid Planning simulation. Copy and re-generate plans to:

- Create alternative scenarios
- Simulate them
- Compare metrics to help select the best one

Collections

Data comes to the planning server through the collections process.

Simulation Sets

After the collected data is in the planning server, you can use it to run a baseline supply plan.

You can copy the baseline plan as simulation plans and modify them to create alternative scenarios, for example, disable a component and change the working days.

You can change data individually or by using a mass update. Store your changes in simulation sets and apply them to the simulation plans.

Rapid Planning Solver

The planning solver is the engine that performs the planning process.

Rapid Planning Workbench

Use the Rapid Planning workbench to:

- View plan inputs
- Simulate changes
- Create, manage, and launch plans

  It contains analytic displays and drill-down capabilities.

More than one planner can work on the same plan at the same time

Plan Comparison Analytics

You can see key performance indicators and metrics:

- For one plan
- Compared among multiple plans
- For your favorites, for example, resources and suppliers

Use them to choose the best plan to use from among the alternative scenarios.

Embedded Analytics

Oracle Rapid Planning provides analysis for key business decisions, for example, clear-to-build analysis and late demand diagnosis.

Using the clear-to-build analysis and simulation, you can:

- Determine which orders have all their material so that you can release them to production.
- Identify which critical orders you need to pull in to meet service level or revenue targets, and identify what changes you need to make to the schedule to manufacture them.

Using late demand diagnosis and constraint details, you can drill from a late order to the root cause then to actions to solve the issue.

Translate decisions into actions

You can release plan recommendations, for example, changed purchase orders, work orders, and transfer orders, to the execution system.

Integration with Oracle e-Business Suite

The data that Rapid Planning needs is part of the collected data that is common to all Oracle e-Business Suite Value Chain Planning Products.

You use the Rapid Planning Workbench to release recommendations and publish data from Rapid Planning to the e-Business Suite execution products.

Planning Solver

The planning solver is the engine that performs the planning process.

Since it emphasizes quickly solving issues and processing simulations, its plans' results may not be the same as Oracle Advanced Supply Chain Planning plans' results.

Planning Method

The Planning Solver plans order-by-order based on demand priority.

Once the Planning Solver has planned an order, it locks the resources and material that it used so that other orders cannot use them. It rarely disturbs the plan for a higher priority order in the service of a lower priority order.

The Planning Solver attempts to minimize plan nervousness – small changes in input data causing large changes to output.

Unconstrained and Constrained Plans

You can run rapid plans that are:

- Unconstrained: You have unlimited capacity.
- Constrained – enforce capacity constraints: Capacity constraints take precedence over demand due dates.

Key Features

The Planning Solver plans:

- Alternates: Bills of material, components, and resources
- Effectivities: Component and process
- End item substitution
- Order modifiers
- Safety stock and safety lead time
- Coproducts and by-products
- Firm orders
- Planning time fence
- Calendars: Manufacturing, shipping, and carrier
- Supplier capacity

It does not plan:

- Hub and spoke planning
- Minimum transfer quantity

- Aggregate resources
- Sequence dependent setups
- Shelf life

Planning Process

Run Collections

Collections run periodically based on business requirements.

The frequency of collection depends on how many and how critical are the transactions that you post in the e-Business Suite execution system. Oracle recommends that you run either a targeted collection or a complete collection on a daily basis.

Plan Options

Before solving a plan, you set plan options. They control:

- Plan behavior
- The organizations
- The demands

There are some plan options that default from profile options.

Launch Plan

The Plan launch process starts the planning solver. It takes the data from the planning server, nets supplies, and schedules them.

You can plan in these modes:

- With snapshot: The solver retrieves collected data from the planning server. Use it for a complete re-plan or when the collected data is changed since the last re-plan.
- Without snapshot: The solver does not retrieve collected data from the planning server. Use it to re-plan after changes that you make in Rapid Planning Workbench.
- Incremental planning: The solver does not retrieve collected data from the planning server. It freezes certain demands and supplies before netting.

When you launch plans with the option to save it to archive, you can analyze it in the APCC dashboards.

Plan Analysis

Review APCC Demand and Supply Dashboards and RP metrics and KPIs on the Rapid Planning Workbench.

You can compare simulations with the baseline plan to help find the best scenario to release to the execution system.

Review and accept the plan recommendations and reschedules.

Release to Execution System

You or the planning solver can release planned orders and reschedule schedule receipts for make, buy, and transfer items to the e-Business Suite execution system. The release process creates purchase requisitions, work orders, and transfer orders. The reschedule process changes work orders, purchase requisitions, and purchase orders.

Implementation Steps Summary

To start using Rapid Planning, you use this process.

1. **Architecture**

   You can use a centralized or decentralized deployment. You need to understand the architecture and technical options.

2. **Sizing Template**

   To size, use the ESG Reference Architecture sizing tool. You answer questions and it suggests a hardware and software configuration.

3. **Installation and Configuration**

   You need to install and configure software in support of Oracle Rapid Planning.

4. **Collections**

   This brings the input data that the solver needs from the execution system.

5. **Integrations**

   You can integrate Rapid Planning with other Oracle products:

   - Oracle Advanced Supply Chain Planning
   - Oracle Demantra Demand Management
   - Oracle Demantra Sales & Operations Planning
   - Oracle Advanced Planning Command Center

- Oracle Inventory Optimization
- Oracle Global Order Promising

6. **Plan Definition and Modeling**

   You must decide whether to use unconstrained or constrained plans and set the plan options.

7. **General Features**

   You evaluate Rapid Planning features and decide whether to use them. For example:

   - Safety Stock
   - Fixed Days Supply
   - Enforce Sourcing Splits
   - Clear To Build
   - Demand Pull-ins, Upside Processing, and Order Priorities
   - Phantoms
   - Flow Manufacturing
   - Daily Bucketing
   - Firm Supplies
   - Creating Supplies
   - Alternate Supplies
   - Bottleneck Resource Planning
   - Substitution
   - Supplier Capacity
   - Planning Time Fence
   - Configure to Order
   - Default Order Sizing

8. **User Interface Modeling**

The views, actions, exceptions, and metrics in Rapid Planning are the tools for your planners. Become familiar with them and decide on your processes.

9. **Simulations**

   You can simulate unanticipated events in the business environment and respond to them. By comparing multiple simulation plans with the baseline plan, you can make the best decision for execution.

10. **Best Practices**

    To have best performance of your Rapid Planning functions, attend to Oracle recommendations.

2

Implementation: Rapid Planning and Advanced Supply Chain Planning

Implementation Decision

You can use either or both of Oracle e-Business Suite's products for supply planning--Rapid Planning and Advanced Supply Chain Planner (ASCP). Here is some information about the key features of each. Use it to make sure you have the capabilities that your business needs.

Questions	Answers
Do you need supply planning that considers material and resource constraints to make a feasible supply plan?	Yes
Can you work with day level planning and not detailed scheduling?	Yes
Does your customer supply chain have many constraints and levels?	No
Do you want to do multiple simulations to solve planning issues?	Yes
Do you work to satisfy demands based on order priority?	Yes

If your business answers are like these, Rapid Planning should suit. If not, consider using Advanced Supply Chain Planning for baseline planning and Rapid Planning for simulating solutions to pressing planning issues.

This table compares functions of Rapid Planning and Advanced Supply Chain Planning.

Business Requirement	Rapid Planning	Advanced Supply Chain Planning
Detailed scheduling, for example, process manufacturing	Daily buckets	Monthly to minute buckets
Distribution planning requirements, for example, fair share	No	Yes
Project netting	No	Yes
Customer specific sourcing rules	Limited	Yes
Shelf life requirements	Does not exclude supply when expiration occurs within the plan horizon	Yes
Plan comparisons	Yes	Limited
Simulation of alternate planning solutions	Yes	No
Editing plan inputs—demand, supply, and master data (Demand, Supply and Master Data)	Yes	Demand only
Analytics	Yes	No
Support for sales and operations planning process	Yes	No

These are features that are available to you in Advanced Supply Chain Planning but not Rapid Planning:

- Hub and spoke planning
- Peg supplies by demand priority
- Plan to request, promise, and schedule start dates

- Selecting sales order ship methods
- Supplier flexfences
- Alternate resources for setup and run groups
- Prior and next resources
- Resource firming
- Batch resources
- Flow manufacturing
- Carrier capacity
- Sequence dependent setups
- Engineering change order use-up effectivity dates
- Forecast expiration
- Planned inventory points
- Distribution planning
- Repetitive manufacturing
- Ignore phantom routings
- Simultaneous and alternate resource pairs
- Oracle Project Manufacturing integration
- Oracle Process Manufacturing integration
- Constrained-Enforce demand due date
- Oracle Shop Floor Management integration
- Oracle Complex Maintenance, Repair, and Overhaul integration
- Cross-instance planning
- Cost-based optimization

3

Implementation: Architecture

Step 1: Architecture

You can use a centralized or decentralized deployment. You need to understand the architecture and technical options.

Technical

The first release of Rapid Planning was a patch on top of release 12.1.1. The first official eBusiness Suite release containing Rapid Planning is 12.1.3.

Oracle Rapid Planning works with:

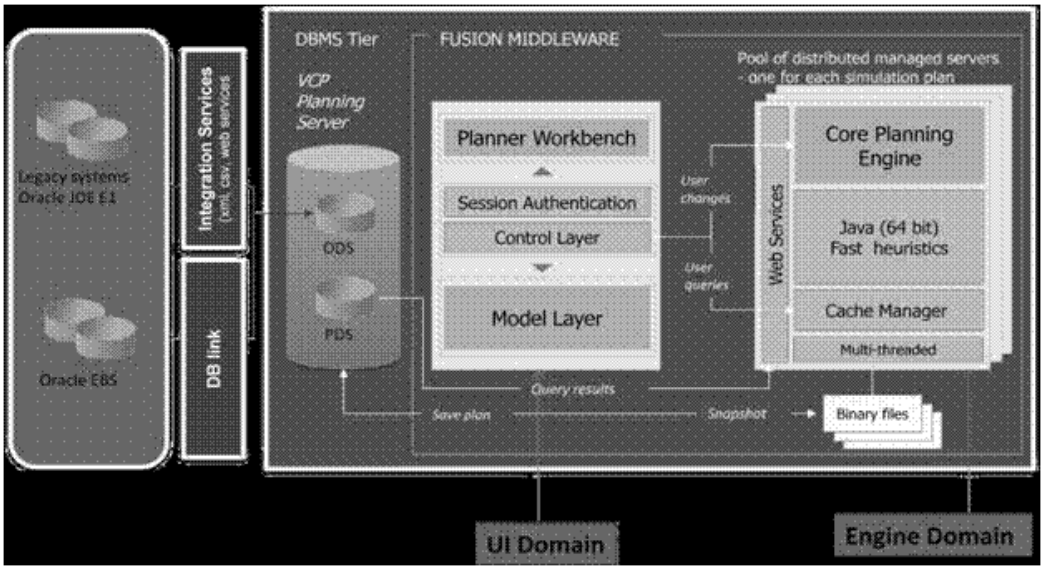
- Other Oracle Value Chain Planning products (destination) including Oracle Demantra
- Oracle E-Business Suite execution (source) products
- Oracle JD Edwards EnterpriseOne execution (source) products
- Third-party execution (source) systems

To find out the source and destination releases that work together, see Oracle Rapid Planning Release Notes. Navigate to Oracle E-Business Suite Documentation Web Library, Release 12.1 or Release 12.2. Click tab VCP and navigate to region Value Chain Planning Release Notes.

If the release notes say that certain versions of source and destination systems work together, it means that:

- Rapid Planning works in that configuration
- Collections to Rapid Planning works in that configuration

This graphic shows the Rapid Planning engine.



Oracle WebLogic Server

You deploy Rapid Planning in two domains of the WebLogic Server:

- User interface: ADF components, for example faces and business components.
- Engine: Multiple managed servers that you can scale to handle as many plans as you need.

  They communicate using web services.

Rapid Planning stores completed plans as binary files in the WebLogic Server. When you close a plan, the binary files remain. When you re-open a plan, Rapid Planning loads the data into the user interface.

You request Rapid Planning to save completed plans to the database. Use the Save Plan action.

When you save the plan, Rapid Planning selectively flushes records into the database. For example, it flushes the records from the Supply/Demand view that display in the view to table msc_supplies. The Cache Manager of the Rapid Planning solver eliminates duplicates in the database.

Database Design

Rapid Planning uses the same base tables as Advanced Supply Chain Planning.

It does not use all of the tables that Advanced Planning uses.

There are Rapid Planning-specific columns in some tables, for example, those that Clear to build and Demand Pull-in use.

Functional

Simulation Data Flow

While you perform Rapid Planning simulations, the plan data is in memory and not available in the base tables.

Updates that you make in the Rapid Planning UI, for example, demand priorities and demand due dates, go into memory as well.

Once you save a plan:

- Rapid Planning flushes the simulation data, for example, updates, planned orders, and exceptions, into the base tables.
- You can query it

Regenerative Planning

The data flow of regenerative plans or plans run with snapshot is similar to Advanced Supply Chain Planning.

The Plan ID is the reference for which data belongs to which plan. Records have Plan ID after you save the plan.

Architecture and Deployment Configurations

See *Oracle Value Chain Planning Collections Implementation Guide*, Architecture.

To find patches, installation instructions, and an upgrade matrix, see *MyOracleSupport* note 746824.1: *12.x - Latest Patches and Installation Requirements for Value Chain Planning (aka APS Advanced Planning & Scheduling)*.

Profile Options

This table shows the Oracle Rapid Planning profile options.

Profile Name	Default Value	Values	Description
MSC: Rapid Planning Consume Forecast with No Demand Class	Null	Within Each Bucket, After Consuming Demand Class Specific Forecast, Null	This profile option specifies the order that the forecast consumption process should use to consume forecast entries when some of them have a demand class and some of them do not have a demand class. Valid values are:- Within Each Bucket: Consume forecast entries for the day on the sales order; it consumes entries with matching demand class first, then entries with no demand class. Then, it consumes forecast entries within the backward and forward consumption days; for each day, it uses matching demand class first, then no demand class- After Consuming Demand Class Specific Forecast: The forecast consumption process starts by consuming forecast entries for the day on the sales order with matching demand class only. Then, it consumes forecast entries within the backward and forward consumption days with matching demand class only. If there is a remaining

Profile Name	Default Value	Values	Description
			sales order quantity, it repeats the process against forecast entries with no demand class, first on the day on the sales order, then within the backward and forward consumption days.

Profile Name	Default Value	Values	Description
MSC: Rapid Planning Group Planned Orders	None	None, Demand Level, Item Level	Determines if the planning solver groups planned orders of the same type. It: • Groups buy from and transfer from planned orders if the planned orders have the same start and end dates. • Does not group make at planned orders. • Respects order modifiers. Valid values are: • None: Planned orders are not combined • Demand Level: Combine planned orders for a single item demand • Item Level: Combine all planned orders for an item

Profile Name	Default Value	Values	Description
MSC: Sourcing Variance Tolerance	0.05	Positive number <= 1	Use this profile option to specify the tolerance that you allow between sourcing percentages and the actual percentages in a split sourcing window. If the difference is outside the tolerance, the planning solver issues exception message Sourcing split percentage violated.
MSO: Sourcing Allocation Window	7	Positive integer	Use this profile option to divide the planning horizon in to windows. In each window, the planning solver plans to meet the split sourcing percentages.
Rapid Planning Weblogic Server Home	Null	For example, `/slot/xyz/abc/WLS/11gNN/WLS_Home`	The path of the Oracle Rapid Planning Weblogic server home.

Profile Name	Default Value	Values	Description
Released WIP Jobs: Consider in Clear to Build	No	Yes/No	Use this profile option to instruct the planning solver whether to calculate clear to build for released discrete jobs. Valid values are: • Yes: Calculate clear to build for released discrete jobs • No: Do not calculate clear to build for released discrete jobs
Safety Stock Lead Time Method	Safety Stock Percent	Do not compute safety stock, Use Safety Stock Percent, Use Safety Stock Quantity	Use when you want to calculate safety stock by quantity. **Note:** The Safety Stock Method is set to MRP PLANNED PERCENT.

Oracle Rapid Planning uses the MSC: profile options that you set on the Plan Options > Advanced tab. See Plan Options.

The planning solver uses these technical profile options. These are not included in the Plan Options > Advanced tab:

- MSC: 64 Bit Planner Platform
- MSC: Debug Mode
- MSC: Enable 64 Bit snapshot
- MSC: Hour UOM
- MSC: Snapshot Workers

- MSC: Wait Time to Obtain Lock on Table or Partition for Snapshot Delete Worker (seconds)

These are other profile options that the planning solver uses. See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*:

- MRP: Plan Revenue Discount Percent
- MRP: Plan Revenue Price List
- MSO: Inventory Carrying Costs Percentage

4

Implementation: Sizing Template

Step 2: Sizing Template

To size, use the ESG Reference Architecture sizing tool. You answer questions and it suggests a hardware and software configuration.

Overview

To size your hardware and software configurations, use the ESG Reference Architecture sizing tool. You answer questions and it estimates what you need so that performance of your VCP applications is appropriate to match your expected volume.

The tool is based on standard, recommended practices and does not account for specialized or highly customized solutions. There can be performance dependencies on custom applications or on applications outside of the scope of the components the sizer questions and that have significant impact on system configuration. For example, a:

- Custom application deployed on a machine hosting a standard component
- Backend application that sends data or messages in bursts of communication with a remote application and blocks the execution of automation processes.

You and your Oracle account team are responsible for deciding whether to implement the architecture proposed by the sizing tool.

You need to re-plan your size needs for as your plan size approaches the maximum limit of the resources that your system supports.

Implementation

See *My Oracle Support* note 1301231.1: *How to Get System Sizing Help for Value Chain Planning (VCP) Applications*

See *Oracle Rapid Planning Installation Guide, System Requirements*.

Input

The input details for Rapid Planning are similar to other Value Chain Planning applications with these differences:

- The middle tier sizing for Rapid Planning plans is critical. Review it carefully to make sure that you have adequate resources to run each plan successfully.
- All input parameters play an important part in the sizing. The Item-Organization combinations information is critical because it gives the sizer a sense of the plan data volume.
- A 32-bit operating system may be too small and will not likely scale in production.

Output

The estimate is for running one plan on one managed server. If you want to run or load plans in parallel, multiply this estimate by the number of plans to calculate for the WebLogic server total memory required.

See *Oracle Rapid Planning Installation Guide*, System Requirements, Server Hardware Requirements, Multi-tier Solution.

For information on horizontal scaling, see *Oracle Rapid Planning Installation Guide*, Horizontal Scaling.

5

Implementation Installation and Configuration

Step 3 Installation and Configuration

You need to install and configure software in support of Oracle Rapid Planning.

Overview

Use installation and configuration involves:

- System requirements: The hardware, software, and network configurations that you need.
- Pre-configuration; Things that you need to do after you apply the patch and before installation.
- Domains: Creating, setting, deploying, and starting domains, servers, and applications.
- Managed servers: Performing actions on manages servers.
- Upgrades: Applying patches.
- Properties, scripts, backups, best practices, and troubleshooting: Miscellaneous things to do and know.
- Horizontal scaling: Installing and configuring when your managed servers span multiple machines.

Implementation

See *Oracle Rapid Planning Installation Guide*, Troubleshooting.

6

Implementation: Collections

Step 4: Collections

This brings the input data that the solver needs from the execution system.

Overview

The plan input data comes from the execution (source or transaction) systems to the planning server.

The data from collections can come from these source systems:

- Oracle E-Business Suite execution products
- Oracle JD Edwards EnterpriseOne execution products: Financials, Forecasting, Order Management, Procurement, Inventory, Manufacturing, Configurator
- Third-party systems

Implementation Decision

Questions	Answers
Do you use E-Business Suite as your source system?	Yes, use regular collections. No, use legacy collections.

Questions	Answers
Do you want an automated way that chooses the type and frequency of update or do you want to control these?	Automated, use continuous collections if your source system is E-Business Suite. You control, use standard collections, with modes: • Net-Change • Targeted • Complete Refresh

Implementation Steps

See *Oracle Value Chain Planning Collections Implementation Guide*. It includes information about the entities that the collection process collects.

For more information about Oracle:

- E-Business Suite execution products as a source of collected data, see *MyOracleSupport* note 746824.1: *12.x - Latest Patches and Installation Requirements for Value Chain Planning (aka APS Advanced Planning & Scheduling)*, Upgrade Matrix for VCP Products.

- JD Edwards EnterpriseOne execution products as a source of collected data, see *MyOracleSupport* note 1125094.1: Value Chain Planning Integration Documentation Library, Oracle E-Business Suite to EnterpriseOne, *Oracle Value Chain Planning Integration Base Pack 3.1 -- Implementation Guide*.

7

Implementation: Integrations

Step 5: Integrations

You can integrate Rapid Planning with other Oracle products:

- Oracle Advanced Supply Chain Planning
- Oracle Demand Planning
- Oracle Demantra Demand Management
- Oracle Demantra Sales & Operations Planning
- Oracle Advanced Planning Command Center
- Oracle Inventory Optimization
- Oracle Global Order Promising

Overview

Rapid Planning integrates with other E-Business Suite Value Chain Planning applications.

It does not integrate with:

- Oracle Process Manufacturing
- Oracle Project Manufacturing: Project, task, Seibel
- Oracle Shop Floor Management

Oracle Advanced Supply Chain Planning

You use Oracle Advanced Supply Chain Planning and Oracle Rapid Planning together to respond to unanticipated events between Advanced Supply Chain Planning runs.

See Simulating Plans from Oracle Advanced Supply Chain Planning.

Oracle Demand Planning

Use this product to develop consensus forecasts. You can use consensus forecasts to drive the supply plans.

However, you cannot do so if the plan is a baseline Oracle Advanced Supply Chain Planning plan. Use the consensus forecast to drive the Oracle Advanced Supply Chain Planning plan instead.

See also *Oracle Demand Planning Implementation and User's Guide*.

Oracle Demantra Demand Management

Use this product to develop consensus forecasts. You can use consensus forecasts to drive the supply plans.

However, you cannot do so if the plan is a baseline Oracle Advanced Supply Chain Planning plan. Use the consensus forecast to drive the Oracle Advanced Supply Chain Planning plan instead.

Demand Management Features

Global forecasts: You develop forecasts by item in Demantra Demand Management, use them as input to Rapid Planning, and Rapid Planning distributes them to ship-from organizations.

Local forecasts: You develop forecasts by item-organization and use them as input to Rapid Planning.

Forecast spreading: Your forecasts in Demantra Demand Management are in week, month, or quarter buckets. You can pass these forecasts to Rapid Planning and:

- Net with the same buckets
- Have Rapid Planning spread the bucketed forecasts over daily buckets before it nets

See profile option MSC: Forecast Spreading Calendar.

Forecast consumption: Sales orders reduce forecasts. The planning solver consumes forecasts by:

- Item-customer

- Item-customer-customer site
- Item-zone: Global forecasts only
- Item-zone-customer Global forecasts only
- Demand class
- Item-organization

Use the sales order line date that matches the meaning of your forecast dates:

- Schedule Ship Date
- Schedule Arrival Date
- Request Ship Date
- Request Arrival Date
- Promise Ship Date
- Promise Arrival Date

For consumption by demand class:

- If a sales order has a demand class, the solver consumes a forecast that has the same demand class.
  - If a forecast does not have a demand class, the solver uses its organization demand class.
  - If a sales order does not have a demand class, the process uses its organization's warehouse demand class.
  - If you consume by demand class and have forecasts without demand classes, set profile option MSC: Rapid Planning Consume Forecast with No Demand Class.

Forecast explosion: Explode CTO model forecasts to option classes, options, and mandatory components. Either explode them in Demantra Demand Management or Rapid Planning.

Forecast consumption by bucket

Backward and forward consumption days: Use these if:

- You do not always have an exact match between the sales order line schedule dates and forecast entry dates.

- Your forecast entry quantity is not always sufficient to cover the sales order quantities.

Implementation Steps

Navigate to the Plan Options view, Organizations tab.

In the Global Demand Schedules region:

- Select global forecasts
- Select consumption methods

In the Organizations region, select organizations.

In the Demand Schedule region:

- Select local forecasts
- Select consumption methods

Navigate to the Plan Options view, Main tab.

Select a forecast spreading method.

If you consume by demand class and have forecasts without demand classes, set profile option MSC: Rapid Planning Consume Forecast with No Demand Class.

See also *Oracle Demantra Demand Management User Guide and Oracle Demantra Implementation Guide*.

Oracle Demantra Sales and Operations Planning

Use this product to manage the forecast development and approval process.

Once you have agreed on consensus forecasts, you can upload them to Rapid Planning for additional simulation and planning.

You can use Rapid Planning plans including those that are simulations from baseline Oracle Advanced Supply Chain Planning plans, as Sales and Operations Planning supply scenarios.

Rapid Planning passes this information:

- Planned Production
- Constrained (Shipment) Forecast
- Planned Shipments
- Dependent Demand

- On-Hand: Usable available on-hand only
- Safety Stock
- Available Standard (Resource) Capacity
- Required (Resource) Capacity
- Available Standard Supplier Capacity
- Required Supplier Capacity

Repeat this cycle until you have an operational plan.

See Demantra Sales and Operations Planning to Rapid Planning Integration in *Oracle Demantra Integration Guide*.

Implementation Steps

Navigate to the Plan Options view, Main tab.

Select Use for Sales and Operations Planning.

See also *Oracle Demantra Sales and Operations Planning User Guide*.

Oracle Advanced Planning Command Center

Use this product to view Oracle Rapid Planning information for supply chain analysis. This includes plans that are simulations from baseline Advanced Supply Chain Planning plans.

You can use it:

- As a business intelligence component
- As a way to narrow down supply chain problems and drill down for analysis
- To develop custom reports and dashboards

This is the sort of information that you can see:

- Supply Chain Analyst Dashboard Pages
- Supply Demand Plan Drilldowns
- Resource Plan Drilldowns
- Exceptions Reports Drilldowns
- Measures

Implementation Steps

When you save a plan, set Publish analytics to APCC. See Basic Plan Actions, Save Plan.

See also *Oracle Advanced Planning Command Center User's Guide*.

Oracle Inventory Optimization

Use this product to determine when and where to hold your inventories across the supply chain to achieve the desired customer service levels

You can pass its target safety stock recommendations to Rapid Planning as demand.

Implementation Steps

Make the start dates and end dates of the Inventory Optimization forecast buckets the same as the start dates and end dates of the Rapid Planning planning buckets.

Navigate to the Plan Options view, Organizations tab.

In the Demand Schedule region, select an Inventory Optimization plan.

See also *Oracle Inventory Optimization User's Guide*.

Oracle Global Order Promising

Use this product to review projected supplies and suggest promise dates for sales orders.

Use Global Order Promising with a Rapid Planning plan as reference instead of an Advanced Supply Chain Planning plan as reference if you execute from your Rapid Planning plan.

Implementation Steps

Navigate to the Plan Options view, Main tab.

Select ATP Enabled.

See also *Oracle Global Order Promising Implementation and User's Guide*.

Oracle Collaborative Planning

Use this product to communicate, plan, and optimize supply and demand information with trading partners. See *Oracle Collaborative Planning Implementation and User's Guide*.

Oracle Collaborative Planning (CP) integrates with Oracle Rapid Planning. On the supplier collaboration side, you can publish order forecast and safety stock targets to suppliers from a Rapid Planning plan and receive supplier supply commits from

suppliers. On the customer side, you can publish supply commit information from the RP plan to CP. The integration of these two products allows you to forecast collaboration workflow between and enterprise and its trading partners.

The integration between CP with RP is very similar to the integration of CP with ASCP. The functional workflows are identical.

See the *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Integration makes the following assumptions:

- Oracle Rapid Planning and Oracle Collaborative Planning are deployed on the same instance.
- Rapid Planning plan has been saved.
- Rapid Planning is able to read Supply Commits that are collected from CP to ODS using the Receive Supplier Capacity programs.

The collaboration between RP and CP supports supplier collaboration workflow and enables:

- Rapid Planning to publish Order Forecast to Collaboration Planning (Supplier Collaboration).
- Rapid Planning to publish Supply Commit to Collaboration Planning (Customer Collaboration).

Supplier Collaboration

The first step in a supplier collaboration workflow is to determine the requirements of the enterprise from its suppliers. Typically, you do this by planning for the enterprise demand in a supply plan that is internal capacity constrained, but is supplier capacity unconstrained. When this plan has completed, the requirements on suppliers are published from a supply plan to suppliers through a Collaboration platform.

As part of the publish process, planned buy requirements, which are established by the supply plan, are translated to Order Forecasts and then published to suppliers. Suppliers then evaluate these requirements to determine which ones can be satisfied using internal planning tools. Those that can be satisfied are uploaded into Collaborative Planning by the suppliers, reviewed by the user and modified, if necessary, using Collaborative Planning.

At regular intervals, the enterprise considers the supplier feedback in its next constrained planning run. The commit from suppliers that is uploaded into CP overrides supplier capacity that may have been established through approved supplier lists (ASL). The enterprise locks the resulting plan into for the current cycle. This process is repeated for every planning cycle.

Customer Collaboration

Oracle Rapid Planning supports the customer collaboration workflow and allows Rapid Planning to publish Supply Commit to customers, based on how supply is pegged to forecast or sales order demand. For information on the concurrent programs, refer to the *Oracle Collaborative Planning Implementation and User's Guide*.

Order Forecast Collaboration

In this collaboration, the order forecast is published from a customer to the enterprise. The order forecast signifies a forecast of the quantity that the customer will order from the enterprise. In the collaboration cycle, an initial order forecast is first received by the enterprise in the collaboration plan. If necessary, the enterprise iterates with the customer to refine the order forecast. The order forecast is read in and planned for in supply planning.

After the order forecast is planned for in the supply planning engine, the enterprise must publish the quantity of forecast that it can satisfy to its customers – this is achieved through the Publish Supply Commit process. Supply pegged to customer forecast as published from the supply plan to CP as "Supply Commit" against the customer.

Deployment of Rapid Planning and Collaborative Planning

Data within Rapid Planning exists in memory, and is available in the database (PDS) only when plans are saved through the Save Plan action in the Rapid Planning workbench. When data is published from Rapid Planning to CP, that is Publish Order Forecast to Suppliers, Supply Commit to Customers, the saved data from the Rapid Planning plan is referenced.

It is possible that you may be running simulations in Rapid Planning, and at a particular point of time may want to publish the results to Collaboration Planning. If you launch Publish/Receive Programs without saving the plan data, there will be a message in the log file associated with the concurrent request, which will indicate that you need to save the Plan.

Invoking Concurrent Requests from Advanced Planning Administrator

You can integrate with CP from within the Rapid Planning Workbench or as an Advanced Planning Administrator.

Once any of the programs or functions are selected, the Plan Name field selector must include all Rapid Planning plans and the existing ASCP plans. In addition, Rapid Planning plans must appear as selectable plans in the list of plans, along with other plans.

8

Implementation: Plan Definition and Modeling

Step 6: Plan Definition and Modeling

You must decide whether to use unconstrained or constrained plans and set the plan options.

Responsibility and Menus

The seeded responsibility for Rapid Planning planners is Supply Chain Simulation Planner.

It displays these menus:

- Plans, Inputs, and Simulations: The Rapid Planning workbench.
- Collections: Move execution system data to the planning server.
- Sourcing; Specify where item come from.
- Setup
- Other

Unconstrained and Constrained Plans

You can run unconstrained or constrained supply chain plans.

Unconstrained Plans

An unconstrained plan:

- Assumes infinite material and resource capacity.
- Overloads resource and supplier capacity.
- Backwards schedules resources from the demand due date. It schedules past due resource requirements on the plan run date using compression days. It does not use planning unit of work.
- Aligns supplies with demand need by dates.
- Issues exception messages related to lead time, material, and resource capacity overload risks.

Use unconstrained plans if you:

- Have few material and resource capacity constraints
- Want to know when and how much capacity you need to meet all the demands on time
- Want to see the supplies that do not have enough lead time

To learn how the planning solver plans unconstrained plans, see these topics:

- Items to Plan
- General Planning Solver Scheduling
- Lead-time
- Supply Scheduling

Constrained Plans

A constrained plan:

- Balances capacity while meeting customer demand
- Plans around material, resource, and supplier resource constraints using planning unit of work.

  It does not use compression days.

Use constrained plans if you want the plan to:

- Plan around capacity constraints for resources, suppliers, and lead time
- Schedule supplies with realistic completion
- Calculate the quantity of an item that you can produce to daily capacity

- Issue exception messages to indicate constraints on the plan results

To learn how the planning solver plans unconstrained plans, see these topics:

- Items to Plan
- General Planning Solver Scheduling
- Lead-time
- Default Order Sizing and Planning Unit of Work

Items to Plan

This topic applies to unconstrained and constrained plans.

There are two plan options that determine the items that are included in the plan.

Planned Item Type: Specifies the subset of items that the planning engine should plan in a particular plan run.

- MPS Planned: Include items with Planning Method of MPS Planned and MPS/MPP Planned
- MPP Planned: Include items with Planning Method of MPP Planned , MPS/MPP Planned, and MRP/MPP Planned
- MRP Planned: Include all planned items, that is, include all items unless Planning Method is Not Planned
- Distribution Planned: Include all items that are Distribution Planned. There is no separate distribution planning logic in Oracle Rapid Planning.

For Rapid Planning plans, you:

- Can use supply chain planning methods Master Production Schedule (MPS) and Material Requirements Plans (MRP):
- Cannot use the distribution planning methods Master Production Plans (MPP) and Distribution Plans (DRP)

Planned Items: Specifies the types of items that the planning engine should plan in a particular plan run:

- All Planned Items
- Demand Schedule items only: Only plan items that have demands. If the demand schedule includes substitute items, the planning solver plans them. If plan option Include Sales Orders is selected, include only sales orders against those items found

in demand schedules.

- Demand Schedule and WIP components
- Demand Schedule Items and all sales orders: Plan all items that have demands as well as all items that have sales orders against them.
- Demand Schedule Items, WIP components and all sales orders

The largest possible item list is a plan where you select:

- Planned Item Type: MRP Planned
- Planned Items: All Planned Items

General Planning Solver Features

This topic applies to unconstrained and constrained plans.

It follows the item-organization Planning Time Fence:

- It does not set any planned order Suggested Due Dates earlier than Planning Time Fence Date.
- The planning engine uses Due Date to determine if the supply is earlier than, later than, or on Planning Time Fence Date.
- When planning for a firm supply, any upstream supplies can violate the planning time fence to be on time for the firm supply.

For profile option MSO: Firm Work Orders/Operations Within Time Fence, it always uses Yes, the default setting.

It follows the Demand Time Fence and the Release Time Fence.

It follows firm flags on supplies.

For planned orders, it does not select alternate BOM/Routings, alternate resources, alternate suppliers, alternate source orgs, substitute components and end item substitutes.

For scheduled receipts that use alternates, it does not change the alternate selection.

It follows order modifiers.

For definitions of these concepts, see *Oracle Advanced Supply Chain Planning Implementation and User's Guide.*

Lead-time

Lead-time Introduction

Lead-times are portions of the span of time from recognizing the need for an order to receiving the goods to inventory.

This topic reviews the lead-times that the planing process uses to plan and schedule. It also explains concurrent processes, profile options, plan options, and planning parameters that affect lead-time calculations.

Setting Lead-times

Set lead-time values for the planning process to use in the following source system forms:

- Source instance > Oracle Inventory > Organization items form > Item attributes > Lead-time tabbed region
- Source instance > Oracle Purchasing > Approved Supplier List form
- Destination instance > Item Attributes Mass Maintenance form

The planning process does not use subinventory lead-times from Oracle Inventory. These values are for the Oracle Inventory Min-Max planning process.

Lead-time Item Attributes

This topic describes the lead-time item attributes. You define them:

- For each organization and not for the master organization
- In work days from the manufacturing calendar

For more information, see *Oracle Inventory User's Guide*.

Lead-time Item Attributes Definition

You can enter the following lead-time item attributes:

- Preprocessing: The time required to place a purchase order or create a discrete job or schedule. This is also known as the paperwork or planning time.
- Fixed: The time required to complete the tasks to make an assembly that are independent of order quantity, for example, setup, fixed run time, or teardown times.
- Variable: The time required to complete the tasks to make an assembly that depend

on order quantity, for example, run time. Oracle Bills of Material concurrent processes calculate this time.

- Lead Time Lot Size: The typical quantity of the item that you buy, make or transfer. The default value is item attribute Standard Lot Size (set by Oracle Cost Management).

  Oracle Bills of Material concurrent process Calculate Manufacturing Lead Time uses this value to compute Processing.

- Processing: The time required for a supplier or your transfer from facility to deliver an item to your receiving dock or for you to manufacture an item. For make items, this is also known as manufacturing lead-time. For buy and transfer items, it includes in-transit time to your facility.

  For transfer items, the planning engine only takes this lead time into account if the item is not planned at your source organization, If the item is planned at the source organization, the planning engine uses the lead times from the source organization.

- Postprocessing: For buy and transfer items, the time to receive from the receiving dock to inventory or for a make item from production to inventory.

  For make items, the time to receive from production to inventory. It includes post-production activities that you don't model in the item routing, for example, quality control analysis and shipping preparation activities. The planning process adds this time to work orders that you have collected. Set it in the Item Attributes Mass Maintenance window, do not set it in the source using the Item Attributes window. By-products and coproducts cannot have Postprocessing lead time.

- Cumulative Manufacturing: For make items, the time required to make the item if you have all of the buy items in inventory and have to make all subassemblies and the item itself.

- Cumulative Total: For make items, the time required to make the item if you have to purchase all of the buy items, make all subassemblies, and make the item itself.

Lead-times and Order Dates

The lead-times define dates that are associated with planned orders and scheduled receipts for these items:

- Order date: The beginning of Preprocessing the date you should begin the processing to release the order.

- Start date: The end of Preprocessing and beginning of Processing; the date you, your supplier, or your ship from facility should begin work on the order.

- Dock date: The end of Processing and the beginning of Postprocessing. For buy and transfer orders, the date that the material should be on your receiving dock. For

make orders, the date that you should finish the operations. The supply of a by-product and a coproduct is ready for downstream consumption on the dock date.

- Due date: The end of Postprocessing and the date that the material should be in your inventory. For make orders, put the on-hand on hold to account for the post processing lead time.

Lead-time Item Attributes and Lead Time Calculation Concurrent Processes

If you run the following Oracle Bills of Material concurrent processes, they can update lead-time values that you may have manually set:

- Calculate Manufacturing Lead Time
- Calculate Cumulative Lead Time
- Rollup Cumulative Lead Time

These concurrent processes update the following lead-time item attribute fields:

- Fixed: Oracle Bills of Material concurrent process Calculate Manufacturing Lead Time calculates this time and update your manual entry for make items. It sums the values in field Usage for lot-based, scheduled resources.
- Variable: Oracle Bills of Material concurrent process Calculate Manufacturing Lead Times calculates this time and update your manual entry for make items. It sums the values in field Usage for item-based, scheduled resources.
- Processing: The Oracle Bills of Material lead-time concurrent process Calculate Manufacturing Lead Time calculates this time and replaces your manual entry for make items. It uses calculation Fixed + (Variable * Lead Time Lot Size); if Lead Time Lot Size does not have a value, it uses 1.
- Cumulative Manufacturing: The Oracle Bills of Material lead-time concurrent processes Calculate Cumulative Lead Time and Rollup Cumulative Lead Time calculates this time and replace your manual entry. For an assembly, they take each component's cumulative lead-time and subtract its operation lead-time offset in the assembly's routing. Then, they take the manufacturing lead-time of the assembly and add the largest adjusted cumulative manufacturing lead-time of its components.
- Cumulative Total: The Oracle Bills of Material lead-time concurrent processes Calculate Cumulative Lead Time and Rollup Cumulative Lead Time calculate this time and replace your manual entry. For an assembly, they take each component's cumulative lead-time and subtract its operation lead-time offset in the assembly's routing. Then, they take the manufacturing lead-time of the assembly, add the largest adjusted cumulative manufacturing lead-time of its components, and add the longest buy part lead-time of its components.

Decimal lead-time quantities denote times less then one day and are the result of the lead-time divided by 24 hours.

For more information, see *Oracle Bills of Material User's Guide*.

Safety Lead Time

Safety lead-time is a lead-time that you add to the normal lead-time of make and buy items. You use it to instruct the planning process to schedule supplies in advance of the demand due dates that peg to them for the purposes of:

- Having an inventory buffer to protecting against fluctuations in lead-time, demand (for example, forecast error), and supply (for example, variable supplier lead times and irregular operation yields)
- Providing a time buffer to recover from fluctuations by taking longer to manufacture the original units or by manufacturing more units either to handle increased demand or to replace unsuitable parts from the original supply run

Safety lead-time is sometimes referred to as protection time or safety time

You can also complete supplies earlier than the demands that peg to them using transient safety stock levels. See the section *Safety Stock* in the *Oracle Advanced Supply Chaining Planning Implementation and User's Guide*. Use safety stock lead-time instead of transient safety stock if you want to have:

- Lower average inventory level: Safety lead-time creates less excess supply because it creates safety stock from supplies pegged to actual demands rather than to additional safety stock level demands
- Less late-satisfied demands: There are no supplies pegged to additional safety stock level demands that compete against actual demands for manufacturing and supplier capacity

Safety stock lead-time is:

- Used in constraint-based planning and is not available for unconstrained planning
- A soft constraint. If hard constraints prevent moving the supply due date to honor the safety lead-time, the planning process will not honor the safety lead-time

To set safety lead time:

- Set profile option MSO: Use Safety Lead Time to Yes
- For each item-organization, set item attribute Safety Stock Method to MRP Planned % then, in item attribute Safety Stock Percent, enter safety lead-time in days.

When the planning engine schedules a supply subject to safety lead-time, it:

- Creates planned orders based on demands

- Pegs demands to these supplies and uses them to cover transient safety stock requirements
- Ignores safety lead-time in forward scheduling so as to meet demand due date
- Inflates the lead-time by the safety lead-time in backward scheduling to plan for receipt to stock.

This example shows how to analyze plan information for items subject to safety lead-time:

- In the diagram, SS means safety stock and PAB means projected available balance.
- Profile option MSO: Use Safety Lead Time = Yes
- Item attribute Safety Stock Method = MRP Planned %
- Item attribute Safety Stock Bucket Days = 5
- Item attribute Safety Stock Percent = 200% = 2 days
- The planning engine ignored transient safety stock, pegged supplies to actual demands, and scheduled supplies two days earlier than the demand due dates of the demands that peg to them.
- Planned orders on day 4 are for quantities 400, 400, and 200.
- The first planned order of quantity 400 on day 4 is against the transient safety stock of quantity 400 on day 1.
- The second planned order of quantity 400 is against the increase in the transient safety stock to quantity 800 on day 3.
- A third planned order of quantity 400 is against the increase in the transient safety stock to quantity 1200 on day 5. The planning engine splits the planned order of quantity 400 into two planned orders of quantity 200 (according to profile option MSO: Demand Size Tolerance Before Splitting Planned Orders). The demand on day 6 pegs to one planned order of quantity 200; the demand on day 8 pegs to the other planned order of quantity 200.

Entity	1	2	3	4	5	6	7	8	9	10
Demand						1000		1000		1000
Transient SS	400	400	800	800	1200	800	800	400	400	
Non-transient SS										
SS level	400	400	800	800	1200	800	800	400	400	
Supply				400 400 200		200 600 200		400 600		
PAB				1000	1000	1000	1000	1000	1000	

This example shows the plan information for the same demand position but using non-transient/transient safety stock planning. In the diagram, SS means safety stock and PAB means projected available balance.

Entity	1	2	3	4	5	6	7	8	9	10
Demand					[400]	1000 [600]	[800]	1000 [200]	[400]	1000 [600]
Transient SS				400	400	800	400	400		
Non-transient SS		400	400	400	400	400	400	400	400	400
SS level		400	400	800	800	1200	800	800	400	400
Supply		400 [400]		400 [0]		1400 [0]		600 [0]		600
PAB		400	400	800	800	1200	1200	800	800	400

If you use safety lead-time:

- You might accumulate too much material too early. However, resource constraints reduce the possibility. By using safety lead-time planning, the risk of accumulation should be lower than by using non-transient/transient safety stock planning.

- The planning process might suggest that you delay lower priority demands in order to meet safety lead-time

Lead-time Item Attribute Notes

You can also view Preprocessing, Processing, Postprocessing, Fixed, and Variable among the items information.

The planning engine does not use Cumulative Manufacturing and Cumulative Total values. You may see them in lists of values when you are entering lead-times, for example, item attribute Planning Time Fence.

Total lead-time is not an item attribute. The planning process calculates it in unconstrained plans to determine an order's Order Date. It:

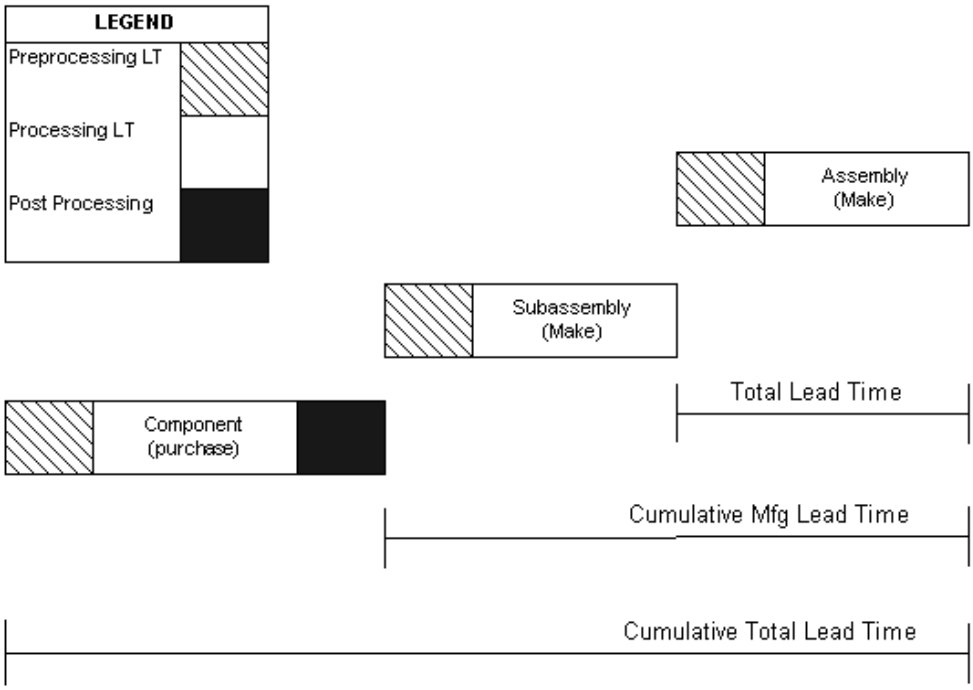
- Begins with the order's Due Date

- Calculates total lead-time for the order as item Fixed + (Variable * Order quantity)
- Adds Preprocessing to calculate the order's Order Date

The Calculate Manufacturing Lead-time concurrent process uses the same general calculation for Processing as the planning process uses for Total Lead-time. The Calculate Manufacturing Lead-time concurrent process uses item attribute Lead-time Lot Size to calculate item attribute Processing. The planning process uses actual order quantity to calculate the processing time for a specific planned order or scheduled receipt.

This diagram shows the relative use of Total Lead-time, Cumulative Manufacturing, and Cumulative Total.

Calculations of Cumulative Lead-time Attributes



Calculated Supply Dates

For all plan types, the planning process schedules planned orders and scheduled receipts based on Demand Due Date of the demand that the supply is pegged to. It calculates these dates:

- Need By Date: The earliest demand due date of all demands pegged to a supply. This does not apply to purchase orders, as the need by date for purchase orders is the collected date from purchasing.

- Suggested Due Date: The date by which the supply is available for use by its demand. In an Unconstrained or Constrained - Enforce demand due dates plan this is the same as Need By Date. In a Constrained - Enforce capacity constraints plan this is the scheduled availability date of the supply.
- Suggested Dock Date: For buy or transfer orders, the date the order arrives on your receiving dock.
- Suggested Ship Date: For transfer orders, the date of departure from the source organization of the last transport used for the transfer.
- Suggested Start Date: The date that you, your supplier, or your ship from facility should begin work on the order
- Suggested Order Date: The date by which you need to place the order. For a scheduled receipt, this field displays the date the date that it was created.

Old Due Date, Old Dock Date, and Original Need By Date are the original dates from the source system for scheduled receipts.

You can view these dates among the supply and demand information.

Calculating Planned Order Demand Due Date

The planning process takes into account the actual requirement date and the lead-times for calculating the planned order demand due dates. This provides more accurate lead-time offsets in aggregate planning time buckets.

It allows you to plan at aggregate time bucket levels like periods and weeks. It provides you easy identification of aggregate supply/demand mismatches and helps you make strategic decisions related to equipment and labor acquisition, sourcing etc. without generating needless details.

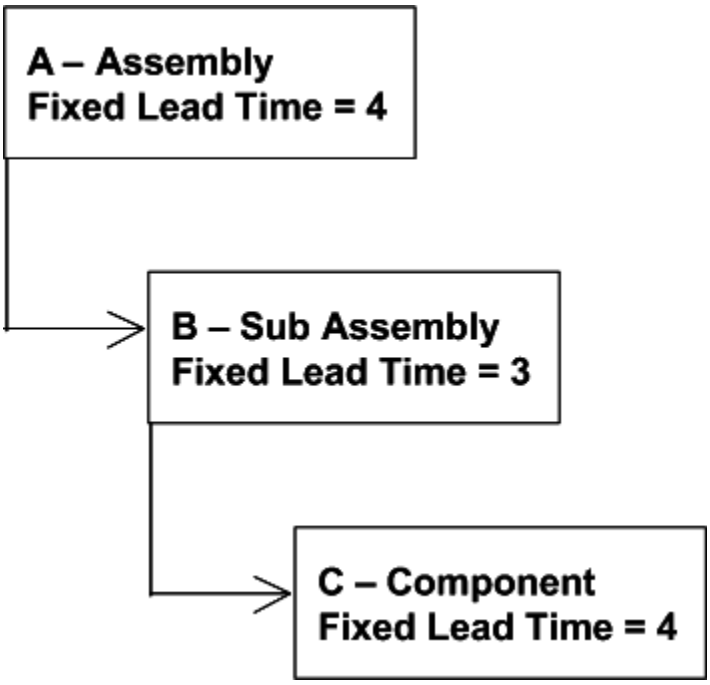
The planning process calculates the planned order demand due dates for dependent demands based on the actual requirement date with respect to lead-time. It saves the calculated requirement date based on the lead-time value for subsequent calculation.

Then, it aligns all dates to the ends of time buckets. You can get more accurate dates by first performing dependent demand explosion followed by alignment.

Example

Consider an organization with an assembly A, which has components B and C.

Assembly



The quantity per assembly for components B and C is 1.

The lead-time for assembly A = 4

The lead-time for sub-assembly B = 3

The lead-time for component C = 4

The organization follows a weekly planning bucket and working days are Monday through Friday.

An order quantity of 1 is placed for item A on Friday February 28.

The planning process generates the following planned order demands:

Planned Order Demand Due Date Calculation

Item	Requirement Date	Demand Due Date (bucketed)	Quantity
A		February 28	1
B	February 24	February 28	1
C	February 18	February 21	1

Explanation:

- Calculated requirement date for B

  = Demand Due Date for A - LT

  = February 28 - 4 days

  = February 24 (Monday)

- Demand Due Date for B

  = Calculated requirement date for B after bucketing into planning bucket

  = February 28 (weekly demands are bucketed into Friday)

- Calculated requirement date for C

  = Calculated requirement for B - LT

  = February 24 - 4 days

  = February 18 (Monday)

- Demand Due Date for C

  = Calculated requirement date for C after bucketing into planning bucket

  = February 21 (weekly demands are bucketed into Friday)

Date Calculations for Manufactured Supplies

The planning process uses work days from the manufacturing calendar to calculate dates for manufactured supplies, unless otherwise indicated.

Need By Date: The date that the material should ship or be in inventory for a next-higher level assembly. The earliest demand due date that the supply is pegged to.

Suggested Due Date: In an Unconstrained or Constrained - Enforce demand due dates plan this is the same as Need By Date. In a Constrained - Enforce capacity constraints

plan this is the scheduled availability date of the supply. If the supply is constrained, the planning process forward schedules from the constraint.

Suggested Dock Date: Demand Due Date. Dock Date is the day by which all shop floor operations are complete.

Suggested Ship Date: Blank

Suggested Start Date: Suggested Due Date - Production duration. The day that you should begin shop floor operations.

Lead-time offsetting begins only on a workday of the workday calendar. For example:

- The workday calendar shows the week of 15 January as 5 workdays (Monday 15 January to Friday 19 January) followed by 2 non-workdays (Saturday 20 January to Sunday 21 January).
- The planning process creates a planned order against item A for quantity 45 with suggested ship date 20 January. Processing lead-time for item A is 5 days.
- Since 20 January is a non-workday, the planning process moves to 19 January to begin lead-time offsetting and calculates Suggested Start Date 12 January.

  Sunday 21 January (non-workday)

  Monday 20 January (non-workday) > Suggested Ship Date

  Friday 19 January > Beginning of lead-time offsetting

  Thursday 18 January > -1

  Wednesday 17 January > -2

  Tuesday 16 January > -3

  Monday 15-January > -4

  Sunday 14 January (non-workday)

  Saturday 13 January (non-workday)

  Friday 12 January > -5 and Suggested Start Date

  Thursday 11 January

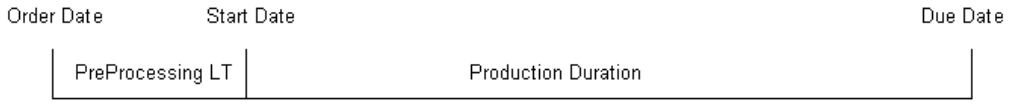
Production Duration:

- Unconstrained plans: Fixed + (Variable * Order quantity)
- Constrained plans: Calculated resource and material duration. If the item does not have a routing, the planning process uses the unconstrained calculation.

Suggested Order Date: Planned order Start Date - Preprocessing. The date on which you should place the order. For a scheduled receipt, this field displays the date the date that it was created.

This diagram shows dates calculated for manufacturing supplies.

Dates Calculated for Manufacturing Supplies



Date Calculations for Manufactured Supply Components

The planning process calculates the component due dates of a manufacturing supply order according to your setting of the plan option Material Scheduling Method.

For value Order Start Date, the component due date is the supply Start Date.

For value Operation Start Date:

- Unconstrained plans: The planning process determines the operation that uses the component. It begins with the supply Start Date and increases it by lead-time % of that operation.
- Constrained plans: Operation Start Date for the operation which uses it

Purchased Supply Lead-times and Approved Supplier Lists

If the item of the purchased supply has an Approved Supplier List, the planning process uses:

- Uses its Processing Lead-time value instead of the item attribute Processing lead-time
- Adjusts Dock Date to conform to its Delivery Calendar value

You can view Approved Supplier List planning attributes among the items information.

Date Calculations for Purchased Supplies

The planning process uses work days from the receiving organization calendar to calculate dates for purchased supplies, unless otherwise indicated.

Need by Date: Date that the material is required to satisfy demand.

Suggested Due Date:

- Unconstrained plans: Need by Date
- Constrained plans: The available date of the supply by forward scheduling

Suggested Dock Date:

- Unconstrained plans: Due Date - Postprocessing

- Constrained plans: The latest delivery day for which the capacity is available and the material is needed

- If the purchased supply item has an Approved Supplier List delivery calendar: The planning process verifies that the Suggested Dock Date is a work day on the delivery calendar. If it is not, the planning solver changes Suggested Due Date to the next earliest working day of the delivery calendar.

Suggested Ship Date: Dock Date - Production duration

Production Duration:

- If the purchased supply item has an Approved Supplier List Supplier Processing lead-time: Approved Supplier List Supplier Processing lead-time

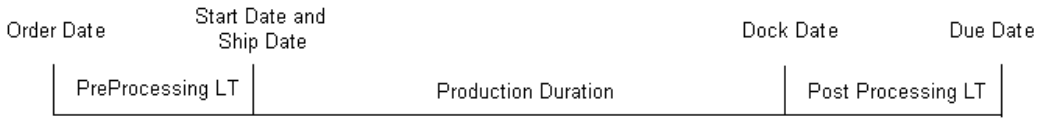
- If the purchased supply item does not have an Approved Supplier List Supplier Processing lead-time: Item attribute Processing

Suggested Start Date: Ship Date

Suggested Order Date: Start Date - Preprocessing. For a scheduled receipt, this field displays the date the date that it was created. For collected information, purchase order create date. The planning process calculates this date using the organization manufacturing calendar.

This diagram shows the calculations for purchased supplies.

Calculated Dates for Purchased Supplies



Date Calculations for Transfer Supplies

The planning process uses work days from the receiving organization calendar and shipping organization calendar to calculate dates for transfer supplies.

Need By Date (receiving organization calendar): Date material is required to satisfy demand.

Demand Due Date (receiving organization calendar):

- Unconstrained plans: Need By Date

- Constrained plans: Forward scheduling from the constraint.

Suggested Dock Date (receiving organization calendar): Due Date - Postprocessing

Suggested Ship Date (shipping organization calendar):

- Unconstrained plans: Dock Date - Intransit Time
- Constrained plans: Dock Date - Intransit Time, considering constrained transportation duration. The planning process considers transportation constraint maximum transfer quantity per day

  Intransit Time is calendar days.

Suggested Start Date (shipping organization calendar):

- Unconstrained plans: Ship Date - Processing
- Constrained plans: Ship Date. The planning process does not consider a build time because the supply may be on-hand.

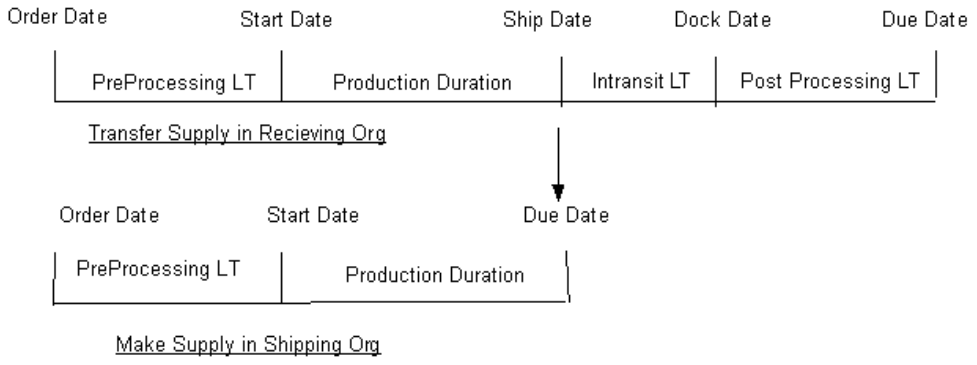
Suggested Order Date (receiving organization calendar):

- Unconstrained plans: Planned order Start Date - Preprocessing
- Constrained plans: Ship date in the receiving organization, if the shipping organization is a planned organization. The constrained plan uses material and resource constraints in the shipping organization.

For a scheduled receipt, this field displays the date the date that it was created.

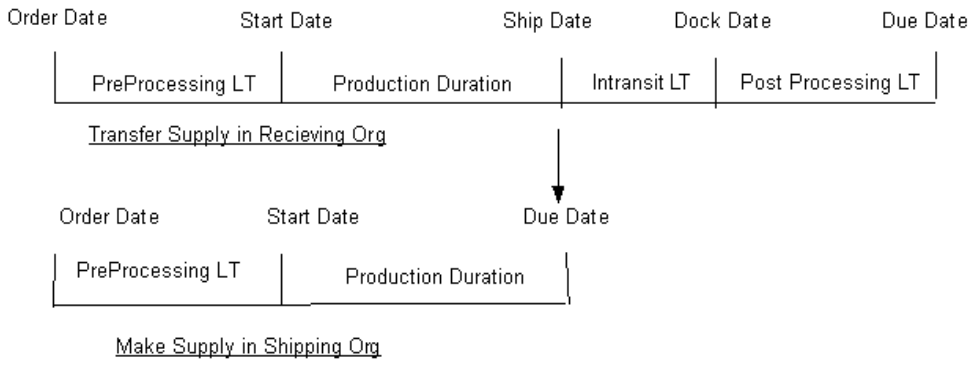
This diagram shows calculated dates for transfer supplies in an unconstrained plan. The planning process calculates production duration differently for the source organization and the destination organizations; therefore, the dates in your plan may not line up as accurately as they appear in this diagram. If material is scheduled inside of these lead-times, planners can determine what action to take on the compression messages.

Calculated Dates for Transfer Supplies, Unconstrained Plan



This diagram shows that, in constrained plans, Need By Date and Demand Due Date in the shipping organization should be the same as planned order Ship Date in the shipping organization.

Calculated Dates for Transfer Supplies, Constrained Plan



Supply Scheduling

This topic applies to unconstrained plans only. For constrained plans, see Default Order Sizing and Planning Unit of Work.

Resources and Suppliers

The planning solver overloads resource and supplier capacity.

It does not schedule resources earlier to minimize resource overload.

It backward schedules resources based on duration when required to meet the make order due date.

During backwards scheduling, when it reaches the plan run date, it schedules all earlier resources on the plan run date.

It issues exception messages for resource capacity overloads, supplier capacity overloads, and lead time violations.

If it calculates resource requirements, it issues exception messages Sales order / forecast at risk due to a material shortage and Sales order / forecast at risk due to a resource shortage.

Compression Days

Compression occurs when the planning engine detects that a supply order needs to be completed in less time that its minimum processing time in order for it to meet a demand. If the planning engine plans the order according to its lead-time, it would start in the past (before the planning horizon start date). Compression days is the number of days the planning process suggests you reduce the time between the start date and the due date).

Make Orders

For schedule and reschedule of WIP jobs and planned orders for make items, the planning solver compresses the first several operations of the make order. The operation start dates and end dates are the plan run date.

Compression begins at pre-processing lead time. The planning solver compresses each successive operation to no duration until there is sufficient lead time for the remaining operations to complete using their resource durations.

Buy and Transfer Orders

For schedule and reschedule purchase orders and purchase requisitions and planned orders for purchased items, the planning solver compresses pre-processing lead time, then processing lead time, then post processing lead time until there is sufficient lead time for the order to complete using the lead times.

Default Order Sizing and Planning Unit of Work

This topic applies to constrained plans only. For unconstrained plans, see Supply Scheduling.

Default order sizing creates manageable manufacturing order sizes that are both efficient for scheduling resource usage and are efficient to produce.

Order sizes that are too small create shop floor inefficiencies while order sizes that are too large are difficult to schedule, can cause supplies to be late for demands and usually leave significant amounts of unconsumed resource capacity.

To invoke default order sizing, you specify a planning unit of work--a few hours, a shift, a day, or a larger time bucket.

Planning Unit of Work

Planning Unit of Work is an item-organization attribute that you specify in hours.

Oracle Rapid Planning uses planning unit of work to determine the order size. Order size is how many units you can produce within the planning unit of work time.

For example:

- Since the planning solver considers daily capacities, you can decide that it should create planned orders with quantity equal to one production day. In other words, because Oracle Rapid Planning only considers daily capacities, then Oracle Rapid Planning should create units of work that take a full production day.

- If you want long production runs, set the planning unit of work, for example, to two to three days or two to three weeks duration.

The planning solver uses planning unit of work for constrained planning; for unconstrained planning, it uses lead time. It uses planning unit of work to fix the lead time for planned orders so it can quickly arrive at a feasible daily schedule.

Planning Unit of Work Size

The planning unit of work order size is the number of units of an item that you can produce during the planning unit of work time. The planning solver calculates it for each primary and alternate routing by dividing the planning unit of work by the routing lead time. If you use rounding control, the calculation rounds the planning unit of work order size up.

If you have not defined a Planning Unit of Work, then Oracle Rapid Planning uses order size quantities that can be produced in a day, depending on resource and material availability.

Resources and Planning Unit of Work

The planning solver:

- Applies planning unit of work
- Splits resource requirements
- Consumes resource requirements

Resources and Planning Unit of Work: Applying Planning Unit of Work

The planning solver backward schedules the resource requirements from the job end time.

The planning solver uses the operation lead time for each operation if resources are available within the time that the lead time covers. For example, if the lead time is 10 hours with 8 hour per day shifts, the lead time spans two days. If the resource requirement is 10 hours using a single assigned unit, then resource capacity usage each day can be anything from 2 to 8 hours. Fixed lead time is the time required to make one unit.

If the planning solver has to move the operation to an earlier day, it schedules to reflect the resource usage on that day. For example:

- There is four hours of available capacity in the second day of the operation
- The planning solver schedules four hours on the second day
- The planning solver schedules six hours on the previous day

Resources and Planning Unit of Work: Splitting Resource Requirements

This is how the planning solver splits resource requirements across daily buckets:

- For resource requirements of two hours or less, it can split them over two contiguous daily buckets. It searches for a bucket with at least two hours available capacity and schedules the remainder of the resource requirement in a contiguous bucket.
- For resource requirements more than two hours, it schedules them in a daily bucket

For example:

- The resource requirement is 4 hours
- The planning solver looks for a bucket that has at least 2 hours (half the requirement).
- It finds 3.5 hours in a daily bucket
- It looks in the daily bucket before and after to find the remaining 0.5 hour.

Resources and Planning Unit of Work: Consuming Resource Availability

This example shows how the planning solver consumes resources with daily buckets.

Resource availability:

- Resource A: 8 hours per day
- Resource B: 8 hours per day

Routing:

- Operation 1: Uses resource A; resource requirement = 0.25 hour
- Operation 2: Uses resource B; resource requirement = 0.25 hour

Lead time = 0.5 hour [0.25 + 0.25]

Planning unit of work = 16 hours

Planning unit of work order size = 32 [16 / 0.5], you can produce 32 units in 16 hours

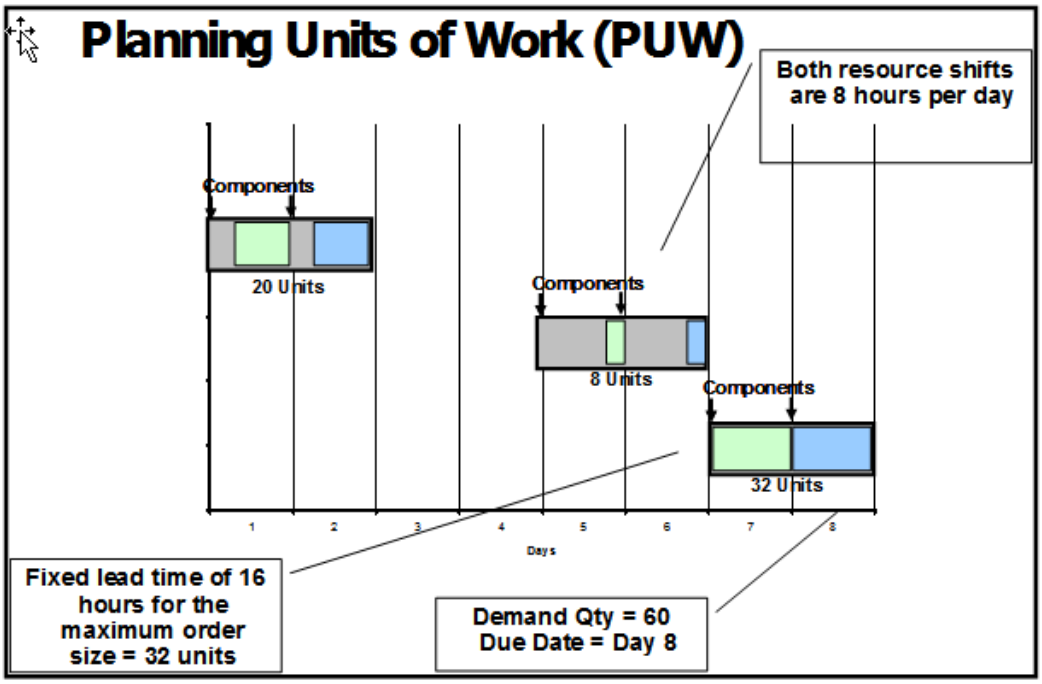
For any planned order quantity from 1 to 32 units, total lead time = 16 hours

- Operation 1 lead time = 8 hours
- Operation 2 lead time = 8 hours

Demand

- Quantity: 60 units
- Due date: Day 8

This diagram shows that the planning solver schedules these planned orders:



- Quantity = 20 units, days 1 and 2, lead time = 16 hours
- Quantity = 8 units, days 5 and 6, lead time = 16 hours
- Quantity = 32 units, days 7 and 8, lead time = 16 hours

For the planned order for quantity 32, the planning solver could schedule the operations on the same day:

- Day 8: Operation 1, 8 hours consumed [32 * 0.25]
- Day 8: Operation 2, 8 hours consumed

For the planned order for quantity 32, the planning solver could schedule the operations on different contiguous days:

- Day 7: Operation 1, 8 hours consumed
- Day 8: Operation 2, 8 hours consumed

For the planned order for quantity 32, the planning solver could schedule the operations on different non-contiguous days:

- Day 6: Operation 1. 8 hours consumed
- Day 8: Operation 2, 8 hours consumed

For the planned order for quantity 4, the planning solver could schedule the operations

on the same day:

- Day 8: Operation 1, 1 hour consumed [4 * 0.25]
- Day 8: Operation 2, 1 hour consumed

Order Modifiers

The planning solver uses these rules to decide planned order sizes when there are conflicts between planning unit of work size and order modifiers:

- If fixed days supply is higher than the planning unit of work size, use fixed days supply.
- If fixed lot multiplier is higher than the planning unit of work size, use fixed lot multiplier.
- If minimum order quantity is higher than the planning unit of work size, use minimum order quantity.
- If maximum order quantity is lower than the planning unit of work size, use maximum order quantity.
- If there is a fixed order quantity, use it. All planned orders have the same lead time and same quantity.

Key Plan Options

See Plan Options.

Plan Life Cycle Actions

When you select a plan in the Plans region, you can see its information.

This table shows the life cycle of each plan.

Action	Plan State
Create Plan	Created
Launch Plan	Successfully launched
Load Plan	Loaded in memory, available for update
Close Plan	Closed, not in memory

Action	Plan State
Save Plan	Saved to database from memory
Delete Plan	Delete plan from memory and database

9

Implementation: General Features

Step 7: General Features

You evaluate Rapid Planning features and decide whether to use them. For example:

Safety Stock

Safety stock planning helps you in such situations to handle uncertainties in demand and maintain higher customer satisfaction levels.

Use this feature if you:

- Are unable to meet demands because of stockouts
- Have uncertainty in your demand and supply lead times

If the demand quantities vary greatly, consider safety stock planning by lead time. Otherwise consider safety stock planning by quantity.

Safety Stock Lead Time

The planning solver calculates safety stock lead time if the value of profile option MSC Use Safety Lead Time is Yes.

The calculation is:

- Item attribute Safety Stock Percent / 100
- Rounded up to the next integer

The planning solver uses the safety stock lead time to create supplies that are a number of days earlier than the actual demand. The process is to try to schedule the supply:

- Early by the safety stock lead time

- If this is not possible, halfway between the safety stock lead time and the demand due date
- If this is not possible, on the demand due date

The planning solver:

- Only uses workdays
- Never reschedules earlier that the planning time fence
- Applies safety stock lead time when scheduling components that are MRP Planned and have a safety stock percent
- Schedules using safety stock lead time of the end item substituted and the substitute components
- Does not schedule safety stock lead time for co-products and by-products

Modeling Safety Stock

Oracle Rapid Planning provides two methods of modeling safety stock:

- Lead time
- Quantity

Modeling Safety Stock Based on Lead Time

Oracle Rapid Planning models safety stock to buffer against unexpected demands using safety lead time. It uses the following item attributes to model

- Safety Stock method: This must be set to MRP PLANNED PERCENT for Oracle Rapid Planning to consider safety stock requirements
- Safety Stock Percent: This is a value field that must be populated

Safety Stock Lead Time (SSLT) is an internal field. It is an integer value, which is calculated as Safety Stock Percent / 100. During planning, Oracle Rapid Planning creates supplies that are SSLT days earlier than the actual demand due date. For example, if a demand is on Day 12 and SSLT = 5, then the supply is created with a suggested due date = day 7, assuming there are no non-working days.

The plan option MSC: Rapid Planning Use Safety Lead Time enables this logic. The possible valid values for the plan option are:

- YES: Compute SSLT for items with Safety Stock Method = MRP Planned Percent and Safety Stock Percent not null
- NO: Do not compute SSLT

Modeling Safety Stock Based on Quantity

In order to calculate safety stock by quantity, Oracle Rapid Planning performs two tasks. It:

- Converts Safety Stock Percent to Safety Stock Quantity
- Converts Safety Stock Quantity to Safety Stock Percent

To complete these conversions, the assumptions associated with the current safety stock logic hold.

Converting Safety Stock Percent to Safety Stock Quantity

The Oracle Rapid Planning engine uses Safety Stock Percent as an input in handling safety stock requirements. This value can be converted to quantity so that it can then be displayed in the user interface. The following steps describe the conversion logic that is used by the application:

- Compute Safety Stock Lead Time (SSLT)

  SSLT = SafetyStockPercent/100

- Derived safety Stock Quantity (DSSQ)

  DSSQ = SSLTxAverage DailyDemandd

  where the Average Daily Demand is computed as an Average divided by the Planning Horizon

  Note: SSLT can be a fractional value.

An example of the conversion logic follows:

Example

Safety Stock Percent = 100

Demands over a 7 day horizon are: 20, 28, 50, 33, 38, 19, and 28

Safety Stock Lead Time (SSLT) = 100/100 = 1 day

Average Daily Demand over the planning horizon = (20+28+50+33+38+19+28)/7 = 30.85

Derived Safety Stock Quantity (DSSQ) = 1 * 30.85 = 30.85 units

Converting Safety Stock Quantity to Safety Stock Percent

Oracle Rapid Planning has the ability to read in time phased safety stock quantity as an input. However, this quantity must be converted to SSLT since the engine supports only SSLT.

The steps below show the logic that is used to convert a time phased quantity based safety stock to a single SSLT value that the engine uses in its safety stock computation:

Time Phased Safety Stock Quantity (SSQi) is an input; where i refers to the occurrence

in the time period.

Compute Safety Stock Lead Time (SSLTi):

$$SSLT_i = \frac{SSQ_i}{AverageDailyDemand}$$

Average Daily Demand is computed as an Average over the Planning Horizon.

Compute Safety Stock Percent:

$$SafetyStockPercent = \frac{\sum_{i=1}^{n} SSLT_i \times w_i}{\sum_{i=1}^{n} w_i} \times 100$$

The safety stock lead time (SSLT) that the engine will be using in its computations is the weighted average shown above:

$$SSLT = \frac{\sum_{i=1}^{n} SSLT_i \times w_i}{\sum_{i=1}^{n} w_i}$$

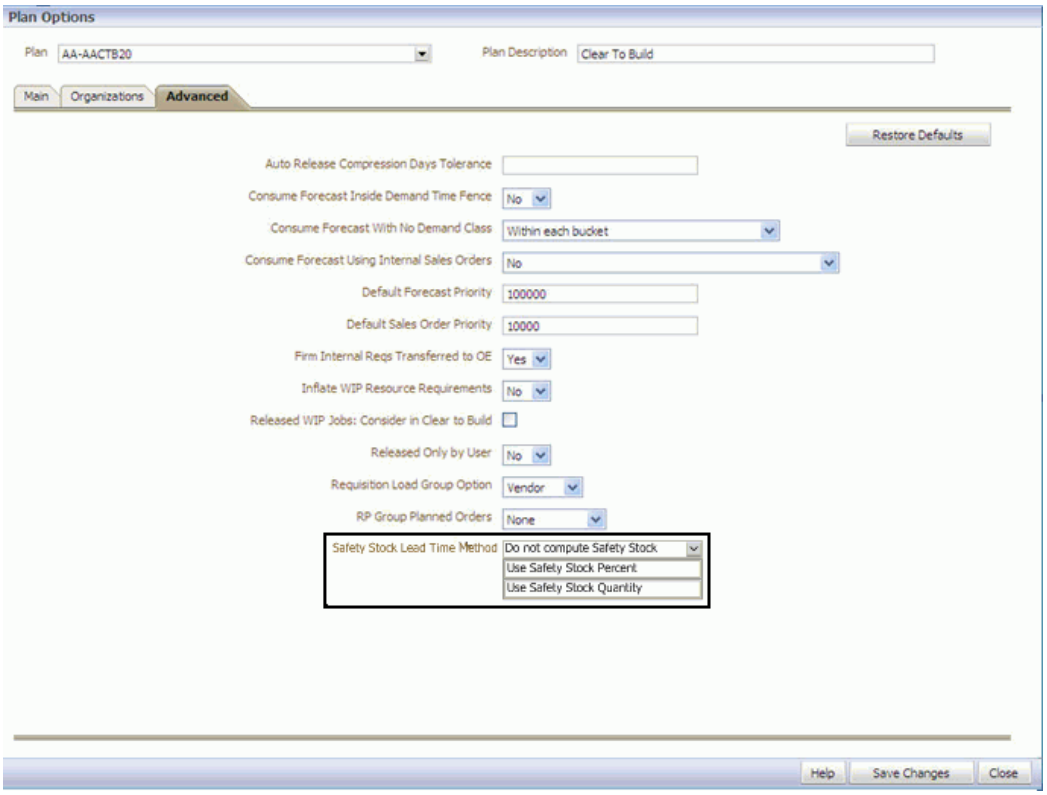
The derived safety stock quantity (DSSQ) will be computed using SSLT.

> **Note:** SSLT can be a fractional value.

To calculate safety stock, there is a new plan option, Safety Stock Lead Time Method. This plan option has three possible settings:

- Do not compute safety stock
- User Safety Stock Percent
- Use Safety Stock Quantity

To calculate safety stock using quantity, this plan options must be set to Use Safety Stock Quantity.



Two examples of calculating safety stock quantity are given below.

Example 1

The demands over a 7 day horizon are: 20, 28, 50, 33, 38, 19, and 28. Assume a constant safety stock quantity over the horizon of 5 units.

Average Daily Demand over the planning horizon = 30.85

Safety Stock Lead Time (SSLT) = 5/30.85 = 0.16 days

Safety Stock Percent = 16

Derived Safety Stock Quantity (DSSQ) = 0.16 * 30.85 = 4.94 units

Example 2

Average Daily Demand over the planning horizon = 27.86

Safety Stock Lead Time is computed as 4/27.86 = 0.14 days and 6/27.86 = 0.22 days for 4 and 6 units safety stock quantities respectively

Safety Stock Lead Time (SSLT) computed as weighted average = (0.14 * 3 + 0.22 * 4)/7 = 0.186

Derived Safety Stock Quantity (DSSQ) = 0.186 * 27.86 = 5.18 units

Note: When determining safety stock by SSLT, SSLT is a rounded down

integer value. When determining safety stock by quantity, SSLT is used as a positive number. Fractional values of up to two decimal values are permissible. When the engine plans, it considers SSLT as a positive number.

Component Safety Stock

Safety stocks are also computed for components. The calculation of Safety Stock Lead Time for components requires component item demands which are not available as input (from snapshot) like an end item demand. Demands for components are calculated during planning and therefore safety stocks for end items are only considered during the first planning run.

At the end of the first planning run components items demands are available. They are updated for subsequent planning runs. SSLT for component demands is available after the first planning run and is considered in subsequent planning runs. There will always be a lag on component safety stock consideration because in each planning run, the component items demands generated from previous planning runs, are considered. In addition, component items demands are generated using the satisfied quantity of the parent end item

Safety Stock Input

The Safety Stock input is fed into and defined by Oracle Rapid Planning in one of two ways:

1. Item Attribute Safety Stock Percent
2. Time Phase Safety Stock Quantity

For the input to be fed into Oracle Rapid Planning successfully, Safety Stock Method must be set to MRP PLANNED PERCENT.

1. Safety Stock Input Defined by Item Attribute Safety Stock Percent

When Oracle Rapid Planning defines safety stock by Item Attribute Safety Stock Percent, the engine performs the following functions:

- Takes Safety Stock Percent as input
- Computes Safety Stock Lead Time (SSLT)
- Schedules orders by buffering for Safety Stock using SSLT

  Note: In this case, the SSLT used is a positive number. A fractional value is permissible.

- Computes Derived Safety Stock (DSSQ)

Note: In this case, the SSLT used is a positive number. A fractional value is permissible.

The user interface displays the Derived Safety Stock in Material Plan, as computed by the engine in the steps in the example above.

Note: If Target Safety Stock Quantity is specified, it will not be displayed in this scenario.

2. Safety stock Input Defined as a Time Phased Safety Stock Quantity

When Oracle Rapid Planning defines safety stock as a time phased safety stock quantity, the engine performs the following functions:

- Takes Safety Stock Quantity as input. This is the Target Safety StocK.
- Computes Safety Stock Lead Time as a weighted average (SSLT)
- Computes Safety Stock Percent. Populates this as the Item attribute value
- Schedules orders by buffering for Safety Stock using SSLT

  Note: In this case, the SSLT used is a positive number. A fractional value is permissible.

- Computed Derived Safety Stock (DSSQ).

  Note: In this case, the SSLT used is a positive number. A fractional value is permissible.

The user interface displays both Target Safety Stock and Derived Safety Stock quantities in Material Plan, as computed by the engine in the steps above.

Some points to note are:

- There are no drilldowns from Target Safety Stock and Derived Safety Stock rows.
- Target Safety Stock Quantity is displayed only if plan option Safety Stock Lead Time Method is set to "Use Safety Stock Quantity".
- Target Safety Stock Quantity displayed at the Week or Period level is the value of the last day within that Week or Period.
- Target Safety Stock Quantity and Derived Safety Stock Quantity are not editable in the material pan view.

If the item attribute Target Safety Stock Override is populated in the Item Details screens, it updates the Target Safety Stock row in the Material Plan view.

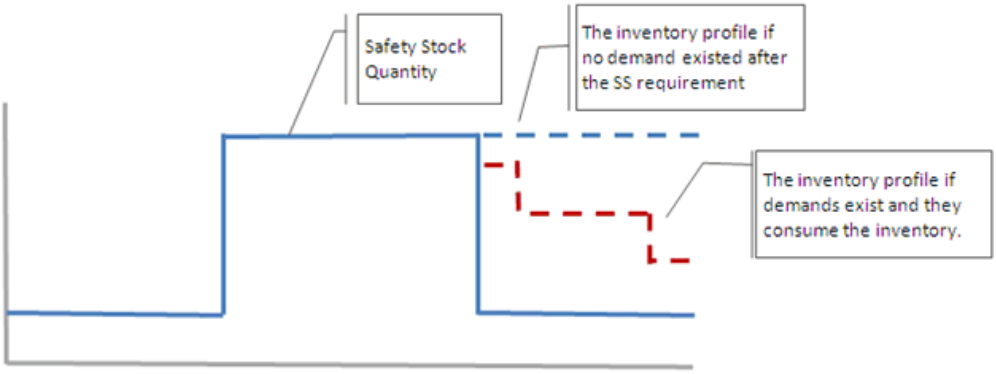
Quantity Based Safety Stock Planning

In order to understand your inventory position more comprehensively, Oracle Rapid Planning supports the following methods of planning safety stock in addition to using Safety Lead Time:

1. User-defined Safety Stock Quantities and safety stock from Oracle Inventory. Item safety stock method is Non-MRP Planned.
2. Safety Stock Quantities calculated by Oracle Rapid Planning as a percent of future demand. Item safety stock method is MRP Planned Percent.
3. Safety Stock Quantities fed into Oracle Rapid Planning from Inventory Optimization. Item safety stock method is MRP Planned Percent.

Introduction to Safety Stock Based on Quantity

Planning safety stock, based on quantity, starts by planning all safety stock demands across the supply chain prior to planning all other real demands. This allows the Rapid Planning engine to consume any transient safety stock by demands that occur after the fall in the safety stock level. This logic ensures that there will be no excess inventory due to transient safety stocks. The diagram below and the example that follows illustrate this behavior:



Example

Example:

Lead time = 5 days

	D1	D2	D3	D4	D5

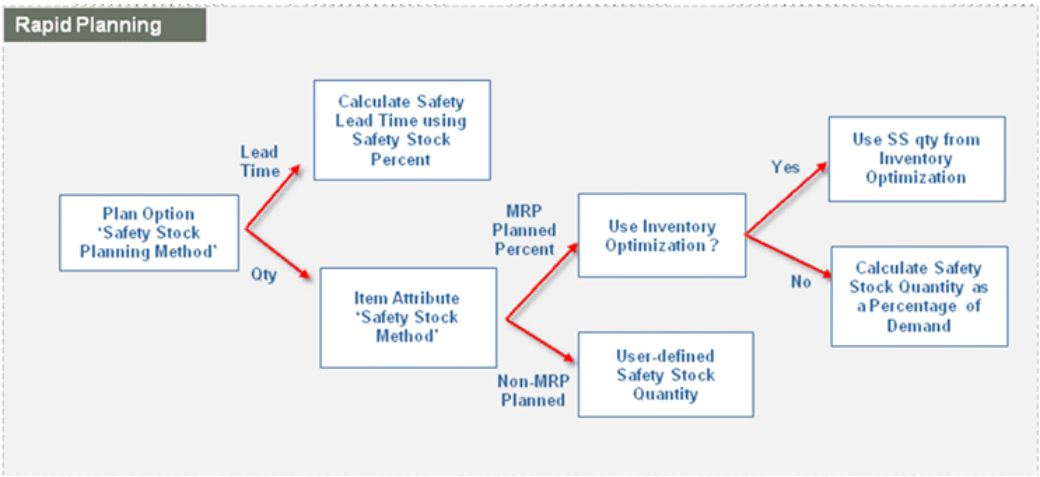
Sales Orders				10	
Safety Stock	20	20	20	20	20
Onhand	20				
Planned Order					10
Available (excluding Safety Stock Quantity)	0	0	0	-10	0
Available (including Safety Stock Quantity)	20	20	20	20	20

Using the numbers in the table above, planning follows the sequence:

1. Plan Safety Stock on D1. Available Qty on D1 = 0
2. Plan Demand on D4 based on Available (excluding SS). Since LT = 4 days, the earliest satisfaction date = D5
3. Plan Demand on D4 based on Available (including Safety Stock). Satisfaction Date = D4

Safety Stock Set-ups

Oracle Rapid Planning uses the plan option Safety Stock Planning Method and the item attributes Safety Stock Method using the following decision chart:



User-defined Safety Stock Quantities at the Item Level

- Safety Stock Method = Non-MRP Planned
- User entered Safety Stock Quantities (Oracle Inventory > Planning > Safety Stocks)

The safety stock quantities are then collected and used in Oracle Rapid Planning.

Safety Stock Quantity Generated in Oracle Inventory at the Item Level

- Safety Stock Method = MRP Planned %
- Safety Stock Bucket Days = user defined value
- Safety Stock Percent = user defined value

These item attributes are collected and the safety stock quantities are calculated in Oracle Rapid Planning using the following logic:

a. Calculate the daily gross requirements for every item in the supply chain. Daily gross requirements is the independent demand + dependent demand.

b. For every day, Day-n, calculate the sum of gross requirements for the safety stock demand window. Note that all days are working days based on the organization's manufacturing calendar. The demand window is derived as follows:

- Start Date of the window = Day-n + m days

  where m = Safety Stock Bucket Start Offset Days. This is based on a new profile option, MSC: Safety Stock Bucket Start Offset Days. This profile option is also available as a plan option.

  Both Day n and m days are working days based on the organization's manufacturing calendar.

  The start date of the safety stock bucket is offset from the current day. This allows

Rapid Planning to ignore the impacts of high near term demand which may occur due to high backlog demand.

- End Date of the window = Start Date of the window + n days

  where n = Safety Stock Bucket Days (Item Attribute)

c. The bucket days serve as a rolling window, based on working days in the organization manufacturing calendar.

- Safety stock is (Sum of gross requirements for Bucket Days working days * Percent) / (100 * Bucket Days).

- Calculate safety stock as follows where:

  Working week = 5 days

  Bucket Days = 5

  Safety Stock Percent = 100

  Note: Safety stock is not calculated on non-working days.

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15
Gross requirements	10	10	20	20	20			20	20	30	30	30			20
Safety Stock	16	18	20	22	24			26	26	22	16	10			4

- Safety stock on D1 = (Average daily Gross Requirements in bucket days from D1) * (SS % / 100)

  = [(10 + 10 + 20 + 20 + 20) / 5] * 1.0

  = 16

- Safety stock on D21 = (Average daily Gross Requirements in bucket days from D1) * (SS % / 100)

  = [(10 + 20 + 20 + 20 + 20) / 5] * 1.0

  = 18

  and so on.

Because Rapid Planning is a day-level planning tool, the safety stock level is a target, which is satisfied by the end of the day.

Since component dependent demand is not readily available in the initial bootstrap run of a plan, due to the choices of the alternate BOMs or substitute components that the plan has not yet made, this example uses the following logic to calculate the dependent demand:

1. In the initial bootstrap run of the plan, the dependent demand for the purpose of calculating the gross requirements is based on the primary BOM. The primary components use an unconstrained MRP explosion using Fixed and Variable lead times.

2. For all subsequent runs, the dependent demand is based on the previous run and the choices of alternate BOMs and substitute components made in that run.

In both scenarios, the *Total Demand used for Safety Stock Calculation* is available along with Safety Stock Quantity in the material plan.

Safety Stock Quantity Input to Oracle Rapid Planning from Inventory Optimization

For Rapid Planning plans, if you want to account for the variability in demand and lead times in their supply chain, you can specify any Inventory Optimization Plan in the demand schedules area of Plan Options. For such items, the Safety Stock Method = MRP Planned % and will be part of the Inventory Optimization plan.

A Rapid Planning plan can be made up of a combination of items from any of the following groups:

- MRP Planned%
  - Some of the items have their safety stocks calculated in an Inventory Plan (demand schedule)
  - Some of the items have their safety stocks calculated in Oracle Rapid Planning

  If an item of this category (SS Method = MRP Planned %) is coming from an Inventory Optimization plan as a demand schedule , then the IO generated safety stock takes precedence and the other safety stock attributes, that is safety stock percent, are not considered. Rapid Planning does not calculate the safety stock for that item.

- Non-MRP Planned
  - Some of the items have user-defined safety stock quantities.
  - Some of the items have safety stock quantities generated in Oracle Inventory.

Plan Option for Safety Stock Planning

The current plan option in the advanced options section, Safety Stock Lead Time Method, which configures safety stock planning method, is changed to Safety Stock Planning Method. It has the following values:

- Do not plan Safety Stock
- Use Safety Stock Quantities
- Use Safety Stock Lead Time from Safety Stock Percent

There will no longer be Safety Stock Lead Time using Safety Stock.

Safety Stock Smoothing

In some cases, you may want to reduce the fluctuations in safety stock in the plan but do not want to directly use the raw safety stock numbers that come out of either of the above mechanisms such as an IO plan, generated in Oracle Inventory or user-defined. The following profile options are available so you can control if and how the smoothing occurs. For example:

Safety Stock Smoothing interval = 5 days

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15
Gross requirements	10	10	20	20	20			20	20	30	30	30			20
Safety Stock (Raw)	16	18	20	22	24			26	26	22	16	10			4
Safety Stock (Smoothed in interval)	16	16	16	16	16			10	10	10	10	10			4
Safety Stock (Smoothed across intervals)	16	16	16	16	16			12	12	12	12	12			9

- *MSC: Safety stock change interval (Days)*: The number of working days in the interval for smoothing.

- *MSC: Smoothing method to calculate Safety stock within Change interval*: Starting from plan horizon, in every interval, the raw safety stock quantities are smoothed. The result is always rounded up to nearest integer. Valid values are Min, Max, and Average.

- *MSC: Apply Safety Stock Change interval to non MRP Planned Safety Stock*: Valid values are Yes and No. If it is set to No, smoothing occurs only when the item has the safety stock method set to 'MRP Planned %', that is, when Rapid Planning calculates the safety stock quantities or when they are fed in from IO.

- *MSC: Maximum Percentage variation in safety stock values*: This decides how the smoothing occurs from one interval to the next. For example, using the table above,

  In the 2nd interval, Interval = 5 days

  Safety stock after smoothing within the interval using Min option = 10

  Safety stock after smoothing across intervals using Max % of 25% = 12

  - *MSC: Minimum Percentage variation in safety stock values*: This option indicates the minimum required percentage that triggers an interval to have a different safety stock qty. For example:

    Safety stock (after smoothing) in Interval (1) = 20

    Safety stock (after smoothing) in Interval (2) = 25

    Min % variation in SS stock values profile = 50%

In this example, since the Interval (2) is below the Min % (Interval (1) + 50% = 30), the plan further smooths the safety stock by not triggering any change between these two intervals and moves to next interval. The result is:

Safety stock (after smoothing) in Interval (1) = 20

Safety stock (after smoothing) in Interval (2) = 20

Safety Stock Pegging

Rapid Planning does not generate actual demand entries for Safety Stock requirements. Therefore, there is no pegging created for the supplies that are used to satisfy the safety stock requirements. However, the safety stock will consume the inventory buffer like any other demand and the plan will ensure that there is enough supply for it, subject to other demands being met.

Simulation of Item Attributes

You can edit the following item attributes in both simulation sets and in Plan for simulation, what-if analysis. When you change these attributes in Plan, it takes effect without running the plan with a snapshot

- Safety Stock Method
- Safety Stock Bucket Days
- Safety Stock Percent

The standard mass edit operations are available for these attributes.

Material Plan

The following measures are currently available in Material Plan. The changes to measures are as follows:

- Target Safety Stock: This will represent the time-phased Safety Stock Quantities that are considered as "input" to Rapid Planning after smoothing. You can edit the Target Safety Stock only if the item's safety stock method attribute is Non-MRP Planned.
- Raw Target Safety Stock: This is the Target Safety Stock prior to smoothing.
- You can edit the following in material plan
  - Item-Org-Day: Simple update. No allocations
  - Item-Org-Week: Applies to all Days in that week
  - Item-Org-Period: Applies to all Days in that period

You will be able to edit the Raw Target Safety Stock only if the item's safety stock method attribute is Non-MRP Planned.

Fixed Days Supply

This feature does not appear in all releases. Contact Oracle Support for information about your release.

Use this feature if you:

- Place purchase orders in bulk quantities, for example, once a week
- Schedule production in bulk quantities, for example, once a week

The planning solver estimates fixed points (FDS dates) on the planning timeline. It creates and resizes supply orders on these days as it processes demands in priority order.

For unconstrained plans, it calculates fixed days supply for all items where you set a fixed days supply

For constrained plans, it calculates fixed days supply for buy items where you set a fixed days supply that have either:

- Sourcing rules assigned to the item with only buy from sourcing. If the sourcing rules assigned to an item have buy from and also make at or transfer from, the planning solver does not calculate fixed days supply.
- No sourcing rules assigned to the item, but make/buy code of buy.

Processing

It sets the first FDS date on the latest of the:

- Plan start date
- Planning time fence + 1 day. It cannot create FDS dates earlier than a planning time fence.
- Latest scheduled receipt + Fixed Days Supply: For work orders, it uses Old Due Date.

To set the other FDS dates, it:

- Starts with the first FDS date
- Spaces FDS dates according to Fixed Days Supply

The time between two FDS days is the FDS window.

The planning solver may have to adjust the length of the first FDS window when it needs to respond to a zero or negative projected available balance by:

- Rescheduling the latest scheduled receipt

- Creating supply before the first FDS date

It may either:

- Move the first FDS date
- Create earlier FDS dates, if moving the first FDS date results in more than two FDS days of supply on the moved FDS date

It does not change the length of the other FDS windows.

The planning solver creates supply only on FDS dates.

The planning solver may have to:

- Finally reschedule a scheduled receipt after it creates planned orders
- Work with a firm scheduled receipt

In these cases, you may see:

- A scheduled receipt and a planned order in an FDS window
- The planned order due before the scheduled receipt

The planning solver does not violate capacity constraints in a Constrained-Enforce capacity constraints plan. To deal with a need to create supply where you have unavailable capacity, it uses this process:

- Looks to the previous FDS dates to create a build ahead quantity
- Looks to the next FDS dates that have available capacity in their FDS windows

After the planning solver creates planned orders on the FDS dates, it resizes them to accommodate fixed lot multiple, then minimum order quantity, then maximum order quantity.

When you have sourcing splits, the planning solver:

- Does not split a planned order on an FDS date
- Alternates sources on the FDS dates and attempts to keep the split percentages close to your percentages
- Issues exception messages for sourcing split violations

When you set both safety stock lead time and fixed days supply for an item, the planning solver:

- Calculates fixed days supply
- Does not calculate safety stock

Views

You can set Fixed Days Supply in a simulation set and see it in the Items view.

You can view Days of Supply and Average Days of Supply in the Material Plan view.

Days of Supply is:

- Calculate available supply for today: Projected available balance of the previous day + The supply available today
- Begin with the available supply of today, subtract from it the daily demands on each of the following days, until you've used up all of the supply
- Use that number of days as the days of supply for today

For the first day of the FDS window, the planning solver uses 0 for projected available balance.

On a non-workday, its fixed days supply is the same as the fixed days supply of the day before.

For example:

- Demand quantity days 5 to 15: 150 each day
- Projected available balance on day 4: 0
- Supply quantity on day 5: 500
- Supply quantity available on day 5: 500 [0 + 500]
- Remaining supply day 5: 350 [500 - 150]
- Remaining supply day 6: 200 [350 - 150]
- Remaining supply day 7: 50 [200 - 150]
- Remaining supply day 8: -100 [50 - 150], used up all the supply from day 5
- Days of supply: 4 [day 5, day 6, day 7, and day 8]

For example:

- The FDS window is five days
- The demand is quantity 100 on each of the five days
- On day 1, there is a planned order for quantity 500
- At the end of day 1, there is demand quantity remaining of 400 and there are four days left in the period

- At the end of day 1, the projected available balance is 400
- Days of Supply = 4 [400 / (400 / 4) = 400 / 100]

Average Days of Supply is

Projected Available Balance / (The sum of demand in Average Days of Supply Calculation Window (Days) / The number of days in Average Days of Supply Calculation Window (Days))

Average Days of Supply Calculation Window (Days) is an item attribute and you can include it in a simulation set.

For example:

- Average Days of Supply Calculation Window (Days) is 5
- The Average Days of Supply on day 4 is (Projected available balance on day 4 / Average daily demand from day 4 to day 8)
- The Average Days of Supply on day 20 is (Projected available balance on day 20 / Average daily demand from day 20 to day 24)

The planning solver issues exception message Days of Supply Exceeds Fixed Days Supply.

Enforcing Sourcing Splits

Use this feature if you:

- Have contractual obligations to source from suppliers in proportions
- Have business rules to make items in multiple manufacturing facilities in proportions

The planning solver splits sourcing of:

- All sourcing types: Make, buy, and transfer
- Rank 1 sources
- Within a time window

Setting Up

Create or verify sourcing percentages and ranks in the Advanced Supply Chain Planning sourcing rules and assign them to entities assignment sets.

Divide the planning horizon into windows. Within each window, the planning solver splits the supply according to the sourcing percentages. If the cumulative quantities in a window do not match the sourcing percentages, it may issue an exception message. Set

profile option MSO: Sourcing Allocation Window. Use Plan Options view, Advanced tab.

Set a tolerance percentage between the sourcing percentages and the actual percentages in a window. If the difference between them is more than the tolerance, the planning solver issues a Sourcing split percentage violated exception message. Set profile option MSC: Sourcing Variance Tolerance. Use Plan Options view, Advanced tab.

Set the start date where the collections starts to accumulate sourcing history. The planning engine uses this information to make sourcing decisions. Use profile option MSC: Start Date Offset for Sourcing History (in months) in Advanced Supply Chain Planning profile options.

Instruct the planning solver to process the sourcing splits. Use Plan Options view, Main tab, Enforce Sourcing Splits field.

Processing

In constrained plans, the planning solver favors capacity or due date constraints over the soft constraint of sourcing splits.

The planning solver uses only sources with rank 1.

When you copy these sorts of plans from Advanced Supply Chain Planning, select plan option Enforce Sourcing Constraints.

Analyzing

You can see Source, Rank, and Sourcing % in the Supply Chain Bill view. Click Exceptions to see the Sourcing split percentage violated exception message.

Clear To Build

Use this feature if you:

- Keep on-hand for most of your component and sub-assembly items
- Like to know which items which orders you can start early or right away
- Reprioritize your orders to peg current on-hand to them

Clear to build tells you whether you can start orders for make items. It depends on whether the materials required for these orders are available. An order is clear to build if all its components are on-hand.

If you understand which make orders have delay risks due to the lack of component availability, you can:

- Expedite component supplies
- Readjust and resequence planned production to expedite clear to build metrics of important orders

An order is clear to build if all its components peg to on-hand. If some of its components peg to scheduled receipts, for example purchase order, planned order, transfer order, it is not clear to build.

The planning solver can determine clear to build for:

- Planned orders
- Discrete jobs – unreleased
- Discrete jobs – released: Set profile option Released WIP Jobs: Consider in Clear to Build to Yes.

Simulation Set Attributes

You set these clear to build item attributes in the simulation set:

- Consider in Clear to Build: Determines whether the planning solver calculates clear to build for this item-organization. The default is No.
- Calculate Clear to Build: Determines whether the planning solver calculates clear to build in this plan. The default is No.
- Clear to Build Horizon: The horizon where the planning solver calculates clear to build KPI metrics. This attribute does not affect when it calculates clear to build for orders, but only the time period that it assembles KPIs. The default is the plan horizon.

Clear to Build Attributes

The planning solver uses the pegging information to calculate these attributes for each make order:

You can see these attributes in the:

- Supply/Demand view
- Clear to Build Simulations view
- Simulation View Contentions view

Clear to Build Status:

- Yes: All its components are completely available in on hand
- No - On Time: All its components are available when required for the order. Some components are not completely available in on hand right now.
- No - At Risk: The Clear to Build Date is later than the Need By Date. The order is at risk due to lack of components.

Clear to Build Component Availability %: The percentage of components of the make

order, that are completely available on hand.

Ready to Build %: The percentage of the order that you could start now, based on the most constrained component. For this to have a value, all components must at least partially peg to on hand.

Clear to Build Date: The date that the order should be clear to build. It is the date that the latest component material should arrive in on hand. The planning solver uses, for make planned orders, The due date; for buy orders, the dock date plus postprocessing time; and for transfer orders, the receipt date plus postprocessing time.

Clear to Build Date (Purchased Components only): Clear to Build Date if you only look at buy components.

Delay Due to Clear to Build: Clear to Build Date - Need By Date, in working days from the manufacturing calendar). Zero means that the two dates are the same (no delay) or that the Clear to Build Date is earlier than Need By Date.

Ready to Build Quantity: The quantity of the order that you could start now, based on the most constrained component. For this to have a value, all components must at least partially peg to on hand. Ready to Build % * Order quantity.

Make Order Value: Manufactured item standard cost * Order quantity.

Substitute Components Used Indicator:

- Yes: The order uses substitute components
- No: The order does not use substitute components

Clear to Build Example

A make order against Item 1 for quantity 100 due on June 20 uses three components

Component A buy usage = 1, need for this order 100

Component B make usage = 2, need for this order 200

Component C buy usage = 3, need for this order 300

Component A pegged to on hand = 20, quantity 80 scheduled to arrive in on hand on June 14

Component B pegged to on hand = 20, quantity 180 scheduled to arrive in on hand on June 30

Component C pegged to on hand = 40, quantity 260 scheduled to arrive in on hand on June 14

The standard cost of item 1 is $45

Clear to Build = No [all components are not completely available in on hand]

Clear to Build Component Availability % = 0 [no components are completely available in on hand]

Ready to Build % = 10 [you can start 10 units of the make order, this consumes 10 units

of A, 20 units of B, and 30 units of C; (10 units ready to build / 100 order quantity) * 100]

Clear to Build date = June 30 [component B is the latest to arrive in on hand]

Clear to Build Date (Purchased Components only): June 14

Delay Due to Clear to Build: 8 [June 30 – June 20 in workdays]

Ready to Build Quantity: 10 [0.1 * 100] Make Order Value: $4500 [$45 * 1000]

Substitute Components Used Indicator: No

Clear to Build Across Multiple Levels

When a higher-level make order pegs to a lower-level make order that is clear to build, the planning server operates as if the lower-level assembly is already available in on hand.

In this example, the planned order for:

- SA123 is clear to build: Its components CM1 and CM2 both peg to on hand
- AS66311 is clear to build: Its component CM3 pegs to on hand. Its component SA123 pegs to on hand because it is a clear to build order.

Item	Description	Order Type	Requested Date	Due Date	Order Quantity	Pegged Quantity	Clear to Build	Clear to Build Component Availability
AS66311	End Item	Sales order	Day 20	-	100	-	-	-
. AS66311	End Item	Planned order	-	Day 20	100	100	Yes	100
. . SA123	Sub assembly	Planned order	-	Day 18	100	100	Yes	100
. . . CM1	Subassembly component	On hand	-	-	-	100	-	-

Item	Description	Order Type	Requested Date	Due Date	Order Quantity	Pegged Quantity	Clear to Build	Clear to Build Component Availability
. . . CM2	Sub assembly component	On hand	-	-	-	100	-	-
. . CM3	End item component	On hand	-	-	-	100	-	-

In this example, the planned order for:

- SA123 is clear to build: Its components CM1 and CM2 both peg to on hand
- AS66311 is not clear to build: Its component CM3 pegs to purchase order. Its component SA123 pegs to on hand because it is a clear to build order

Item	Description	Order Type	Requested Date	Due Date	Order Quantity	Pegged Quantity	Clear to Build	Clear to Build Component Availability
AS66311	End Item	Sales order	Day 20	-	100	-	-	-
. AS66311	End Item	Planned order	-	Day 20	100	100	No - on time	80
. . SA123	Sub assembly	Planned order	-	Day 18	80	80	Yes	100

Item	Description	Order Type	Requested Date	Due Date	Order Quantity	Pegged Quantity	Clear to Build	Clear to Build Component Availability
. . . CM1	Subassembly component	On hand	-	-	-	80	-	-
. . . CM2	Sub assembly component	On hand	-	-	-	80	-	-
. . CM3	End item component	Purchase order	-	-	-	20	-	-

Using Clear to Build Information in the Supply/Demand View

You can use the Supply/Demand view to

- View the clear to build attributes
- Search on the clear to build attributes
- View the order status: For example, Unreleased or Released

You cannot update the clear to build attributes.

Using Clear to Build KPIs

These are the clear to build KPI metrics. Some are available to Oracle Advanced Planning Command Center:

- Clear to Build Orders (%)
- Clear to Build Component Availability %
- Ready to Build %
- Top Shortage Components
- Top Shortage Suppliers

See Base Metrics, page 15-21.

Clear to Build Simulations

Use the Clear to Build Simulations view to try a more desirable allocation of on-hand to competing make orders. You do this by:

- Identifying critical make orders that need to be expedited for clear to build
- Prioritizing them
- Deprioritizing other make orders
- Prioritizing and deprioritizing planned orders
- Deprioritizing sales orders

Clear to Build Simulations: Identifying Critical Make Orders

In the Supply/Demand view, filter for your key sales orders to identify whether there is any risk associated with replenishing them. Use filters such as:

- Revenue
- Scheduled Ship Date/Due Date
- Customer
- Ship-From Organization
- Item

Use action View Pegged Make Order Supplies. This shows the make orders that peg to the key sales orders and their clear to build attributes.

Select the orders of concern, and use action Clear to Build Workbench.

Clear to Build Simulations: Prioritizing Make Orders

To prioritize make orders that you want to be clear to build, select Clear to Build priority.

This instructs the planning solver to allocate on-hand supply to these orders with priority during the next plan run.

If there is not enough on-hand to satisfy all of the priority clear to build orders, the planning solver allocates it in order of order due date.

Clear to Build Simulations: Deprioritizing Make Orders

To deprioritize make orders, select your key make orders, and click View Order contentions.

View the display of contenders—other make orders that are contending for the on hand of the components of your key make orders. The process displays the contenders in the

order of the most improvement offered to the key make orders.

Use component allocation to decide which orders to deprioritize.

Select Deprioritize from Clear to Build.

Clear to Build Simulations: Prioritizing and Deprioritizing Planned Orders

If you prioritize a firm planned order, the planning solver uses its date, even if there will not be on hand to satisfy its components. It may issue lead time compression and overload exception messages as a result.

If you deprioritize a firm planned order, it retains its firmness and date, and the planning solver may issue exception messages as a result.

If you prioritize a planned order, it becomes a firm planned order.

If you deprioritize a planned order, the planning solver loses that information when it recreates planned orders in the next run.

Clear to Build Simulations: Priority Flag Retention

During each run of a plan, the planning solver keeps the clear to build priority and de-priority flags for discrete jobs and firm planned orders.

Demand Pull-ins, Upside Processing, and Order Priorities

This section outlines the process and logic though which Oracle Rapid Planning respects Pull-ins, Upsides, and Order Priorities. It specifies the mechanism by which users can simulate Pull-ins and Upsides and analyze their impact on Planning, while respecting the Order Priorities that are set either by the user or computed by an offline demand prioritization scheme.

This feature ensures that Rapid Planning meets multiple needs of an enterprise, while not compromising its fast simulations, performance and efficiency

This section is divided into the following topics:

- Planning Logic Recap for Oracle Rapid Planning
- Planning Logic for Pull-ins and Upsides
- New Item Attributes
- New Exception Messages
- Identifying Pull-ins and Upsides
- Examples of Pull-ins and Upsides

Planning Logic Recap for Oracle Rapid Planning

Oracle Rapid Planning solution adheres to the following logic:

1. Your list of orders is prioritized from the highest to the lowest.
2. The orders are planned, one at a time, starting with the highest priority order.
3. The sequence for each order is to:
   - Ensure supply is available upstream to meet the Order Due Date.
   - If this is not possible, try to find supply by building ahead ensuring lead times are respected.
   - If this is also not possible, then try to find supply while minimizing Order lateness.
4. After planning an order, that plan is locked before selecting the next order in priority list.
5. When planning all the Orders in the priority list, use FIFO logic to peg demands to supplies by sorting demands in increasing order of demand satisfaction date.

The objective of the Pull-in logic may be described as follows: If a demand is Pulled-in and it succeeds per its priority then no issues but If the Pull-ins fail, that is, the Planning logic did not find any supply on the revised Order Due Dates, then the logic should revert to the pre Pull-in due dates. In case of Upsides, if it fails, it will be recorded as a shorted order.

Planning Logic for Pull-ins and Upsides

The planning logic for pull-ins and upsides is as follows:

1. The application considers both orders that are split and those that are not split when prioritizing the list of orders. Each order must have:
   - Firm date
   - Firm Quantity
   - Priority (Priority may also be referred to as Primary Order Priority)
   - Revised Demand Date
   - Revised Demand Priority
2. The application then determines the highest priority of a pull-in and marks all pull-in orders.
3. All orders with a priority greater than the priority determined in Step 2 are then planned using Firm Date and Firm Quantity. The on-hand profile resulting from this run dictates how much pull-ins and upsides can be planned:

- An excess-on-hand at the end indicates the amount of upside that can be planned.
- A temporary excess at a specific period indicates the amount of pull-in that can be planned during that period.

4. The orders that can be planned are planned, starting with the highest priority as determined in Step 2 to the lowest priority or until the supply is exhausted.

   If an order to be planned is pulled-in, then:

   - Unplan the primary order, keeping track of the Date of Fulfillment for that order

     Note: The entire order is pulled-in. Partial pull-ins are not supported.

   - Plan the pull-in order on the Revised Demand Date with the Firm Quantity.
   - If Step b fails, then try to build ahead by searching for Firm Quantity between Revised Demand Date and Plan Current but ensuring lead times are respected.
   - If Step c also fails, then try to find supply to minimize lateness. You can do this by searching for supply between Revised Demand Date and Date of Fulfillment for Firm Quantity.

     Note: On-hand profile from Step 3 is used when searching for supply.

5. Once planning is complete, using FIFO logic, demands are pegged to supplies by sorting the demands in increasing order of demand satisfaction date. However, in case of partial pull-ins, the partially pulled-in quantity and the date on which it was satisfied are also used in the sorting logic.

   Note: Make sure a temporary negative On-hand is not created.

Note the following points:

1. Release Orders: Users should have the ability to release the Planning results to the source Order Management system.
2. Launch Re-plan with Re-fresh Snapshot: As discussed above, Pull-in and Upsides logic is primarily for simulation purposes. The data is saved to the memory only. If users launch re-plan with re-fresh snapshot, the changes made to the Plan will be lost.

3. Late Demand Analysis: Late Demand Analysis is performed as part of the planning logic to determine reasons on why an Order was not satisfied on the due date. Some reasons may include upstream constraints (resource, capacity, etc.). During planning of Pull-ins and Upsides, if any of these orders fail, that is if the order is unable to be satisfied on the desired due date, the late demand analysis logic should be invoked so that users can better understand which constraint (material, supplier or resource) is the root cause. Understanding the root cause will help users take necessary actions to alleviate the constraint.

4. Pegging: As described in the Planning logic, pegging is a post-process done after planning wherein demand is pegged to supplies using FIFO logic within a planning bucket. However, in case of demands being partially satisfied in each bucket, the partial quantities and their satisfaction dates are also used in the pegging logic thereby ensuring plan quality is not compromised. The supply demand view where the pegging logic is displayed will display the partial consumptions from different buckets.

5. Save Plan: On Planning with Pull-ins and Upsides, if the user likes the results he can save the plan using the "Save Plan" feature. Saving a Plan will save the current version of the Rapid Planning Plan to the database. This is similar to the current feature and has no impact on this enhancement.

Exception Messages for Pull-ins and Upsides

Four new exceptions messages, two for sales orders and two for forecasts, are introduce to address lateness of a pull-in order and quantity of pull-in satisfied on the revised demand date. They are:

- Late Replenishment for a Pull-in Sales Order: This exception message is flagged when the planning logic detects that supplies for a sales order line are due later than the sales order line's Revised Demand Date.

- Late Replenishment for a Pull-in Forecast: This exception message is flagged when the planning logic detects that supplies for a forecast are due later than the forecast's Revised Demand Date.

- Sales Orders Pulled-in: This message is flagged for all Sales Orders that have the Revised Demand Date populated. It indicates:
  - Quantity that has been satisfied by the Revised Demand Date
  - Quantity that has been satisfied by the Demand Date

- Forecasts Pulled-in: This message is flagged for all Forecasts that have the Revised Demand Date populated. It indicates:
  - Quantity that has been satisfied by the Revised Demand Date

- Quantity that has been satisfied by the Demand Date

Item Attributes for Pull-ins and Upsides

Two item attributes in Oracle Rapid Planning to support pull-ins and upsides:

- Revised Demand Date: This is a date field that indicates the due date of the Pull-in Order. A pull-in is created on a demand line if this field is populated

- Revised Demand Priority: This field determines the priority of the pull-in that is populated in the Revised Demand Date field. The value in this field is typically less than the Firm Date.

The two new attributes are enabled in both Search and Advanced Search functions in all Rapid Planning Views to aid you in performing searches by Revised Demand Date and Revised Demand Priority in addition to the already supported entities. This helps in the analysis of Pull-in and Upside orders.

Both attributes have the following characteristics:

- They are nullable fields with no default values.

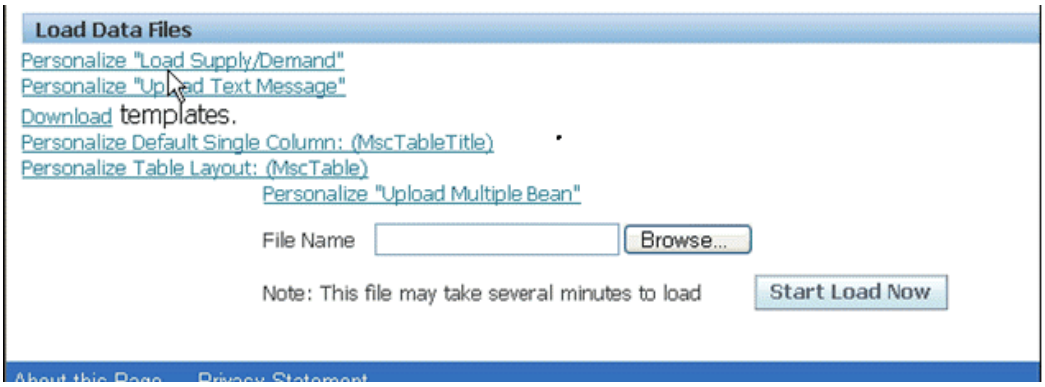
- They are editable.

- You can Mass Update these attributes using the mass update framework. This needs to be enabled in the supply demand view.

- They are populated using the existing custom self-service load feature:
  - Role: Advanced Planning Administrator

  - Drill path: Navigator>Collections: Oracle System> Load Transaction Data Using Self Service Loads

When you click Load Transaction Data Using Self Service Loads, the Load Data Files window appears.

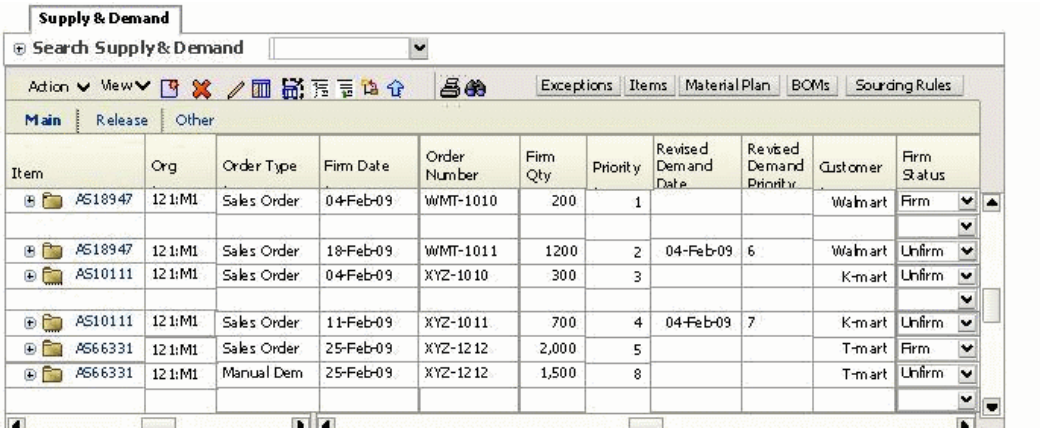


On this screen you can point to the file that contains the attributes that need to be uploaded. Each upload of this file replaces all the data that currently exists in the system.

You can use the Download Template link to obtain the format that is required to uploading attributes. The names of the attribute template files are:

- demandforecast.dat for forecasts
- salesorder.dat for sales

An example of an Upside and a Pull-in created using the Revised Demand Date and Revised Demand Priority fields is shown below:



Item	Org	Order Type	Firm Date	Order Number	Firm Qty	Priority	Revised Demand Date	Revised Demand Priority	Customer	Firm Status
AS18947	121:M1	Sales Order	04-Feb-09	WMT-1010	200	1			Walmart	Firm
AS18947	121:M1	Sales Order	18-Feb-09	WMT-1011	1200	2	04-Feb-09	6	Walmart	Unfirm
AS10111	121:M1	Sales Order	04-Feb-09	XYZ-1010	300	3			K-mart	Unfirm
AS10111	121:M1	Sales Order	11-Feb-09	XYZ-1011	700	4	04-Feb-09	7	K-mart	Unfirm
AS66331	121:M1	Sales Order	25-Feb-09	XYZ-1212	2,000	5			T-mart	Firm
AS66331	121:M1	Manual Dem	25-Feb-09	XYZ-1212	1,500	8			T-mart	Unfirm

In the above example, order numbers WMT-1011, XYZ-1011 and XYZ-1212 have either been pulled-in or have an upside. Order numbers WMT-1011 and XYZ-1011 are pulled-in. Notice the Revised Demand Date and Revised Demand Priority for these orders. Upside is planned for Order number XYZ-1212 by creating a new manual demand.

Identifying Pull-ins and Upsides

To make sure that Oracle Rapid Planning respects the Order Priorities that were set by the user or by an offline process, it is important to identify the Pull-ins and Upsides.

In Oracle Rapid Planning, upsides are defined as a new demand line with type Manual Demand. The priority assigned to this order, its due date, and quantity defines where it is planned in the order sequence

A Pull-in is created on a demand line if the Revised Demand Date is populated. The priority of the Pull-in is populated in the field Revised Demand Priority. The Revised Demand Date should typically by less than the Firm Date. If the Revised Demand Date is greater than the Firm date then it is a Pull-out which is possible but this is not normal.

In the example shown in the previous section on the new item attributes, note the partial pull-in, fully pull-in and upside in the results. The explanations use the information from that example.

Explanation 1

Order Number WMT-1011 is partially pulled-in as shown below:

Firm Date = 18-Feb-09 and Firm Quantity = 1200; Priority = 2

Revised Demand Date = 04-Feb-09 and Revised Demand Priority = 6

Revised Demand Date is less then Firm Date hence the order is pulled-in. The amount pulled-in is 1200 and will be planned with Revised Demand Priority 6.

Explanation 2

Order Number XYZ-1011 is pulled in fully as shown below:

Firm Date = 11-Feb-09 and Firm Quantity = 700, Priority = 4

Revised Demand Date is less then Firm Date hence the order is pulled-in. The amount pulled-in is 700 (entire quantity) and planned with Revised Demand Priority 7.

Explanation 3

Order Number XYZ-1212 has an upside as shown below:

Firm Date = 25-Feb-09 and Firm Quantity = 2000 with Priority = 5

Manual Demand created with Firm Date = 25-Feb-09 and Firm Quantity = 1500 with Revised Demand Priority = 8

The manual demand is an upside planned with the lowest priority, in this case 8.

In this case, 2000 units of the Order will be planned with the priority of a regular sales order while 1500 units will be planned with priority of a Manual Demand as an Upside. The due date for both demand lines is the same.

Examples of Pull-ins and Upsides

The examples in this section are based on the following assumptions:

1. This logic applies to both Forecasts and Sales Order demand streams
2. Pull-in and Upsides information is fed to Rapid Planning in one of the two ways:

- From the back end: Pull-in date and Upside quantity along with the associated priority against a demand line are populated and fed into Rapid Planning through a supported integration scheme.

- Manually created in the Supply-Demand view: User manually populates the relevant fields creating the Pull-in and/or Upside.

3. Priority against a Pull-in is specified in two ways

   - Computed by an external Process: An offline demand prioritization scheme supports logic that can be based on custom rules to compute the Pull-in or Upside priority.

   - Manual: You can create or update Pull-ins or Upsides in the Supply-Demand view. In this case, you input the priority for Pull-ins and Upsides.

4. Upsides defined for demand lines that are received in Rapid Planning from the back end come in as a new demand line with order type set to manual demand.

5. The pegging information displayed when planning with Due Date and with Revised Demand Date can be different.

6. In this document, Firm Date refers to Demand Date (due date of the demand line) and Firm Quantity refers to the Quantity of the demand line.

7. If the Revised Demand Date is populated, the behavior is as follows:

   - Demand Date is copied into the Firm Date

   - Quantity is copied into the Firm Quantity fields

   - Firm date and Firm quantity fields will not be editable.

   - Users will be able to edit the Revised Demand Date and Revised Demand Priority fields.

   - This behavior applies to both Firm and un-Firm demand lines.

Solution Components

The solution consists of the following components:

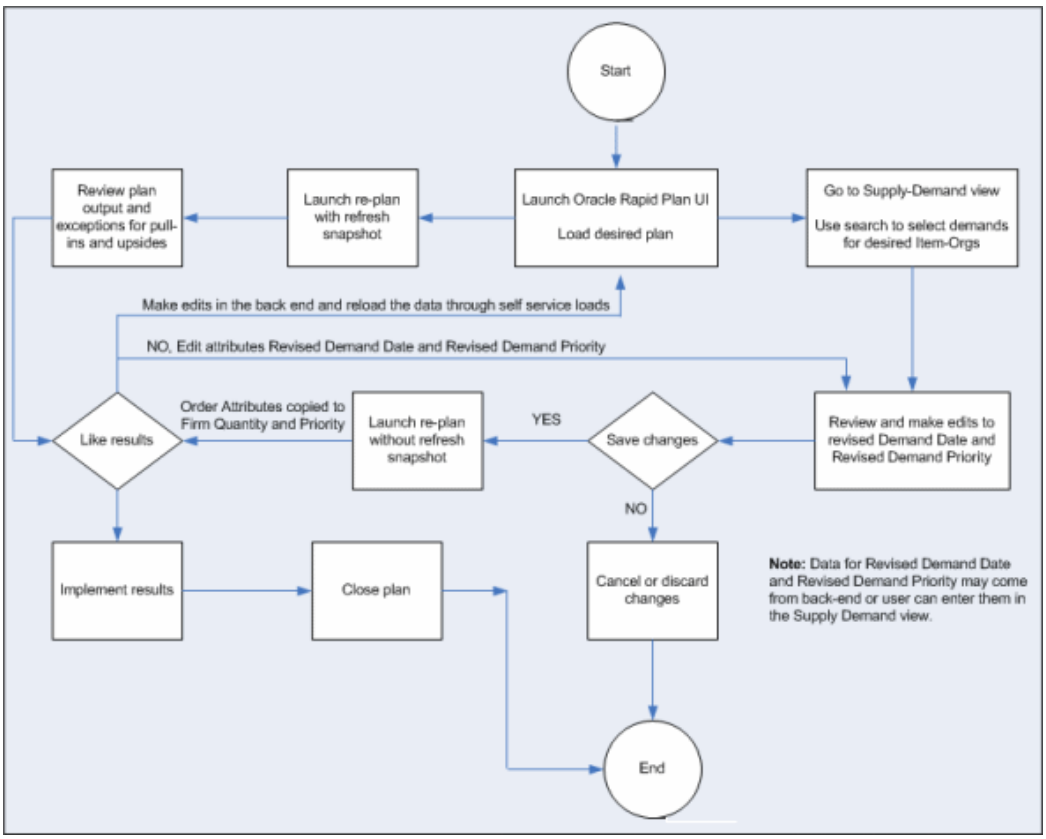
- Assumptions in the model (see below)

- New attributes added to the Order Attribute table and the mechanism to load them

- Ability to identify the pull-in and/or upside date and quantity.

- Ability to Plan respecting the Pull-in and/or Upside date and quantity and its priority.
- Impacts on Existing Rapid Planning Feature.

A typical workflow describing the user actions in creating a pull-in or an upside is shown below:



In this example, four customers are competing for supply from a common hard disk vendor. For simplicity, assume the production lead times are zero. Demands are due at the start of the week. Step one to five determine the weekly customer demands.

1. The demand priority (customer, pull-in, and upsides) is as shown below:

Customer	Priority
CUST-A	1
CUST-M	2

CUST-C	3
CUST-M Pull-in	4
CUST-C Pull-in	5
CUST-A Upside	6

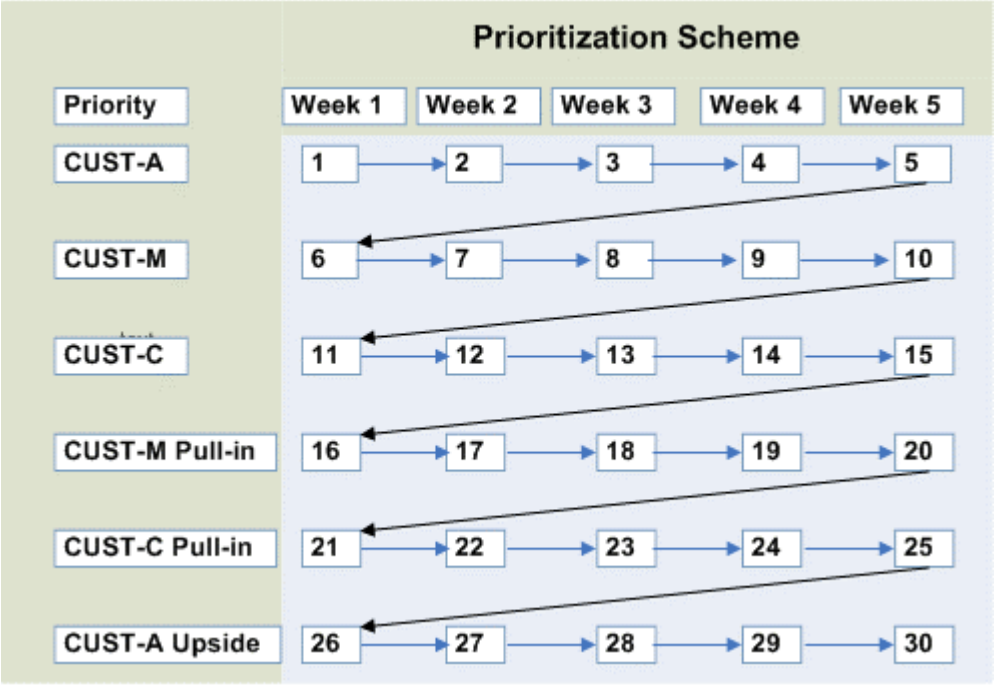
2. Last week's customer requested demands are as shown below:

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Total**
CUST-A	500	500	500	500	2000	**4000**
CUST-M	200	200	200	1200	1200	**2000**
CUST-C	500	300	700	100	200	**1800**

3. The incoming supply picture for the hard drive HDD1 is as shown below:

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Total**
HDD-1	1200	1700	1800	1500	1600	7800

4. Given the prioritization, the demand prioritization is as shown below:



Oracle Rapid Planning uses the above prioritization scheme in planning the customer demand.

5. Based on Oracle Rapid Planning's Planning logic, the weekly customer demands are planned. A temporary excess in bold in the tablet below:

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**
Supply	1200	1700	1800	1500	1600
Buffer Balance	1200	2900	4700	6200	7800
CUST-A	500				
	700	2400	4200	5700	7300
		500			
	700	1900	3700	5200	6800
			500		

	700	1900	3200	4700	6300
				500	
	700	1900	3200	4200	5800
					2000
	700	1900	3200	4200	3800
CUST-M	200				
	500	1700	3000	4000	3600
		200			
	500	1500	2800	3800	3400
			200		
	500	1500	2600	3600	3200
				1200	
	500	1500	2600	2400	2000
					200
	500	1500	2600	2400	1800
CUST-C	500				
	0	1000	2100	1900	1300
		300			
	0	700	1800	1600	1000
			700		
	0	700	1100	900	300

				100	
	0	700	1100	800	200
					200
Temporary excess is in bold.	0	**700**	**1100**	**800**	0

6. The current week's demands are revised with upsides and pull-ins.

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Total**
CUST-A	500	500	500	500	3500	**5500**
CUST-M	200	1400	200	0	200	**2000**
CUST-C	500	1000	0	100	200	**1800**

7. Based on the chart above, there is an upside of 1500 units in Week 5 for Customer-A. Customers M and C have a Pull-in of 1200 units in Week 2 and 700 units in Week 3 respectively.

8. Normally, Rapid Planning is able to plan for the revised demands for this week, as shown in Step 6, because it has the temporary excess, (see Steps 5 and 6). If it can't plan the upsides and pull-ins from this week's revised demand, it goes back to the plan and reverts to the solution shown in in Step 5, which does not consider the revised commits.

Phantoms

Oracle Rapid Planning plans phantom assemblies and their bills of material like standard items.

You cannot release planned orders for phantom assemblies.

Oracle Rapid Planning does not use profile option MSC: New Planner Backward Compatibility

Flow Manufacturing

You can:

- Plan supplies for flow items using line rates in flow routings
- View planned orders, flow schedules, and time phased material plans for flow items
- Release flow schedules

Setup

Define flow items using template Flow Assembly.

Define a production line with minimum and maximum hourly rates. Flow Manufacturing does not use fixed and routing-based lead times.

Associate the production line with the item routing.

Create bills of material.

Create demand schedules.

Process

The planning solver:

- Does not plan operations of the flow item
- Plans for components on hand at the beginning of the process
- Plans the line rate from the maximum hourly rate of the production line. It does not use minimum hourly rate
- Creates flow schedules as daily planned orders
- Calculates resource usage form the maximum hourly rate: For example, if the maximum hourly rate if 10 units per hour, the resource usage is 0.1 [1 / 10].
- Calculates daily capacity: For example, if the maximum hourly rate is 5 units and the line runs 20 hours per day, the daily capacity of the line is 100 units [5 * 20]
- Sets by-product and scrap due dates to the suggested due date of the flow schedule

Flow schedules are firm. The latest flow schedule creates a natural time fence and the planning solver does not create flow schedules earlier than it. If new demands appear before the natural time fence, the planning solver plans to satisfy them late.

Exception Messages

In unconstrained plans, the planning solver always schedules daily supply to meet

daily demand. If the daily demand is higher than the daily capacity, the planning solver issues resource overloaded exception messages.

In constrained plans, the planning solver never plans to exceed daily capacity. If the daily demand is higher than the daily capacity, the planning solver meets the demand late and issues late demand and resource overloaded exception messages. The line appears in the Constraint Details page as a root cause of late demand satisfaction.

To research late demand, use page Constraint Details, find the production line in column Department/Line and look for a Resource Constraint.

For resource overloaded, find the production line in column Department/Line.

Viewing

To view flow information in Rapid Planning, use pages:

- Resources: Department/Line and Resource (the production line), Max Rate. Operation Sequence Number and Resource Sequence Number are zero.
- Processes: Department/Line and Resource (the production line) and Rate or Usage [1 / Max Rate]. Operation Sequence Number and Resource Sequence Number are zero.
- - Resource Requirements: Department/Line and Resource (the production line), Adjusted resource Hours, and Schedule Quantity. Operation Sequence Number and Resource Sequence Number are zero.
- Resource Availability: Department/Line and Resource (the production line), 24 Hour Resource, From Time and To Time (for non-24 hour resources)
- Resource Plan: Available Capacity [Maximum hourly rate * Hours per day, daily with UOM = EA], and Required Capacity [flow schedule quantity, daily with UOM = EA], Net Capacity Available [Available Capacity - Required Capacity], and Cum Capacity Available [Required Capacity / Available Capacity]
- Supplies and Demands: Order Type is Flow schedule
- Metrics: Department/Line and Organization and Department/Line, Organization and Week

Simulating

To change line capacity for the entire planning horizon, navigate to the Resource page and change the maximum hourly rate.

To change line capacity for an interval of time, navigate to the Resource Availability page change resource duration and capacity units. You cannot change the maximum hourly rate for specific time buckets.

Run the plan without refresh snapshot.

Releasing

You cannot release planned orders for flow lines.

Run concurrent process Push Plan Information:

- In Plan Type, select Supply Chain Simulation Plan.
- In Plan Name, select the plan with the flow schedules.

Implement the flow schedules in the Line Scheduling Workbench.

Daily Bucketing

Oracle Rapid Planning buckets these entities by day.

Resource and supplier capacity. It:

- Is a strategic planning tool that wants to minimize planning solver processing time
- Does not do detailed shop floor scheduling and does not schedule resources down to the minute.

Demands and supplies. It does not assign a timestamp

Available resource capacity:

- If a make order is scheduled that uses 8 hours of capacity on Day 1 and 1 hour of capacity on Day 2, the planning solver does not assign a particular hour for the resource requirement on either Day 1 or Day 2
- The planning solver assumes that resource capacity availability in a daily bucket is continuous.

Work in process job completion dates. The job completion date is typically in the last daily bucket where the final activity consumes resource capacity but can be later in some cases. These are the scheduling rules:

- A single resource activity is typically scheduled within a single daily bucket. The resource activity can be scheduled in two contiguous daily buckets with some resource usage on each day. However, a single resource activity is never scheduled in non-contiguous daily buckets.
- A single resource requirement for two hours or less is scheduled in a single daily bucket.
- In a single operation, two or more resources are always scheduled contiguously. That is, there are never daily gaps in the scheduled resources for a single operation.
- Two operations can be scheduled with gaps more than one day between the operations.

- If the planning solver cannot bucket all of the resource usage into a daily buckets, it creates multiple planned orders for scheduling flexibility.

Large resource requirements:

- If resource requirements are more than one day for a single resource, the planning solver expands the resource capacity bucket and spreads the resource requirement over several days.
- The plan information shows the start date and the end date of the resource requirement and also shows the resource usage on each day. The start date and end date of the resource requirement may not match the resource usage precisely due to the estimation of lead time.
- It schedules resources within an operation contiguously
- It does not necessarily schedule operations contiguously
- It can schedule resource requirements more than two hours over contiguous daily buckets
- If it must bucket some resource requirements into larger than daily buckets, it can still use daily buckets for the other resource requirements on the routing.

Firm Supplies

Use this feature if you:

- Firm supplies to avoid re-planning changes to them
- Use firm supplies as plan input data to Rapid Planning

Order and Resource Firming

You can firm supplies in these ways.

Planned orders; you can:

- Firm the supply and enter a new date and a new quantity
- For a make at order, select and firm an alternate bill of material and routing combination. If you do not re-run the plan after this change, a release of the planned order only creates the order header
- For a buy from order, select and firm an alternate source.
- Select and firm a substitute component.

Non-firm work in process job:

- You can firm the supply and enter a new end date. Re-run the plan to have the planning solver recalculate the resource and component requirements in the next plan run.
- If you firm a work in process job in the source, the planning solver does not change its resource and component requirements

Non-firm purchase order:

- Firm the supply and enter a new date and a new quantity
- The planning uses Suggested Due Date unless you enter New Date. The planning solver then sets the Suggested Due Date to the New Date and reschedules all related activities.

Scheduling Firm Supplies

The planning solver does not change the suggested due date or quantity of a firm supply.

When the supply is firm the planning solver:

- Cannot change resource schedules
- Can overload resource or supplier capacity

The planning solver first processes firm work orders and firm planned make orders against the highest priority demands. It does this without regard to the demand priorities. However, it never makes a demand late by using a firm order.

After it processes firm work orders, then it schedules supplies for demands by priority using non-firm work orders and planned orders.

If a supply is firm, the planning solver treats all upstream supplies as pegged to a firm and they are not allowed to be late. This means that these orders can be compressed in the same manner as unconstrained planning. This does not apply to supplies that are firmed because of the planning time fence.

Scheduling Non-firm Supplies

To schedule non-firm supplies, the planning solver uses the same idea as scheduling firm supplies but also considers supplies that are after the demand due date.

This is the process:

- The planning solver uses non-firm supplies and does not change the suggested due date order of work in process supplies needlessly

- It continues to use non-firm supplies until it has selected all of them.
- For non-firm supplies that are later than the demand date, the planning solver tries to reschedule them in to meet the demand on time. It does not select alternate resources, substitute components, or alternate bill of material and routing combinations for work in process supplies.
- If this is not possible for a supply, the planning solver creates planned orders to meet the demand on time.
- If this is not possible for a supply, the planning solver creates planned orders as close to the demand date as possible. If a planned order date is the same as a scheduled receipt and there is available capacity for the existing supply, it uses the scheduled receipt for the lower priority demand as well, even though the supply may be late.

To specify your preferences for work order vs. planned order pegging, you can use Oracle Rapid Planning item attribute No planned orders before WIP window in simulation sets.

- The default value is 10.
- Work orders outside of this window do not affect planned order creation.
- In this number of days from plan start date, the planning solver does not create planned orders that are due earlier than work orders are due.
- It tries to reschedule in the work orders first, then uses planned orders outside this window if work order reschedules will meet the demand late.

The planning solver right-justifies non-firm orders to the right to minimize excess. It does this only if they are outside of the range you specify in item-organization attribute Acceptable Early Days.

Creating Supplies

The planning solver does not create planned orders if:

- There is no available resource capacity or material capacity during the planning horizon
- The plan horizon is shorter then the lead times, planned orders are not created

Oracle Advanced Supply Chain Planning creates planned orders at the end of the plan horizon due to constraints during the plan horizon. The Oracle Rapid Planning solver generates exception message Demand Quantity not Satisfied and does not create planned orders at the end of the plan.

If the planning solver cannot create a complete supply for a demand, it sets its material satisfied date to the day after the end of the planning horizon.

Alternate Supplies

Use this feature if you:

- Use alternate bills of material, routings, and resources
- Want to use alternate supplies wherever possible to meet demands

The planning solver considers all alternates as supplies to meet demands.

The search path is depth first and then breadth. During the search, the planning solver may find partial quantities and then continue the search for the remaining quantity required to meet the demand. It uses partial quantities only if they satisfy the order modifiers.

This is the search order.

The primary source is searched first based on the sourcing rules:

- First use on hand, then in receiving, then scheduled receipts
- Check each source all the way down the supply chain for supply availability before considering the next lower ranked source
- Search each alternate source at all levels before moving on to the next alternate source

The sourcing rule primary source is the rank 1 source with the highest % allocation. The planning solver searches all rank 1 sources with allocation percents before rank 2 sources.

If multiple rank 1 sources have the same allocation percents, then the engine selects one to search first.

If there is make source on the search path:

- First, search the primary bill of material and routing combination using any substitute components and alternate resources
- Then, search each alternative successive bill of material and routing combination using any substitute components and alternate resources. Search alternates in bill of material rank order.

The planning solver continues searching alternate sources until it considers all of them.

Search for the first substitute item using its complete search path.

Continue searching for each successive substitute item using its complete search path.

If the demand cannot be met on time, re-search and attempt to minimize the supply

lateness. Use an alternate source may be used to create a late supply if the primary source supply date is after the alternate source supply date.

Bottleneck Resource Planning

All resources default as bottleneck resources. You must clear the flags manually.

In simulation sets, you can select a bottleneck flag for resources in constrained planning.

- Selected: The planning solver schedules resources to avoid overloads. It may schedule resource requirements early due to resource capacity loads or the planned order late because of resource capacity loads.

- Cleared: The planning solver calculates resources requirements and notes resource duration. It can overload resources and issues exception messages. It schedules the resource requirement as needed and never early because of resource capacity loads. The planned order is never late because of resource capacity loads but can be late because of uncompressed resource duration.

There are no bottleneck resource groups.

Substitution

Use this feature if you have similar products where you can:

- Satisfy the demand for one item with supply of another item

- Use one component in place of another component

Rapid Planning plans both:

- End-item substitution

- Component substitution

The planning solver works with only these features of end item substitution. See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

- One-directional

- Two-directional

- Inference

Planning attributes: If a plan specifies a substitution set, the planning solver uses it You must use a substitution set for end item substitution.

The planning solver does not use these profile options but behaves as if they are set to these values:

- MSO: Choice of supply for substitution: All supplies
- MSO: Disable Inference of Item Substitution Relationship: Yes.
- MSC: Choice of Items for which to Create Supplies in a Substitute Relationship: Follow Item Attributes
- MSO: Use Effectivity Dates to Infer End Item Substitute Priority: No

You can always use partial substitution supplies to satisfy end demands. The planning solver does not use customer-specific end item substitution rules.

Component Substitution

Oracle Rapid Planning supports component substitution and allows you to control how the substitution occurs and in which order it occurs. As long as demand can be met on schedule, Rapid Planning follows one of the following behavior:

- When substitute parts are very similar in their specification and cost to the primary component or the substitute component is in its end-of life phase, you can use up the supply before buying or making the primary component. In such cases, you may want to use the Unhand and Scheduled Receipts of the substitute component before you create a new order for the primary component.
- Sometimes it is advantageous and cost effective to create new supplies on the primary component, for example, when the substitute component is either more expensive than the primary component, or it is over-specified, such as a 4 GB card being substituted for a 2 GB card.

  Perhaps it is just a poor replacement for the current item, such as replacing the required 2% resistor with 1% resistor. In a case like this, it only makes sense to substitute the primary component if you cannot meet the demand on time using either existing or new supply for the primary component.

You can switch between the two behaviors as the need arises.

Oracle Rapid Planning engine searches for component supplies, full or partial, which are capable of meeting the demand on time. If it cannot find any, it discards that search and moves to the next step. It looks for component supplies at every level in the following order:

1. Existing supplies of primary component (including on hand and schedule receipts, that is Purchase Orders, Requisitions, Firm Work Order, and non-standard jobs)
2. Existing supplies of substitute
3. Create new supplies of primary

4. Create new supplies of substitute

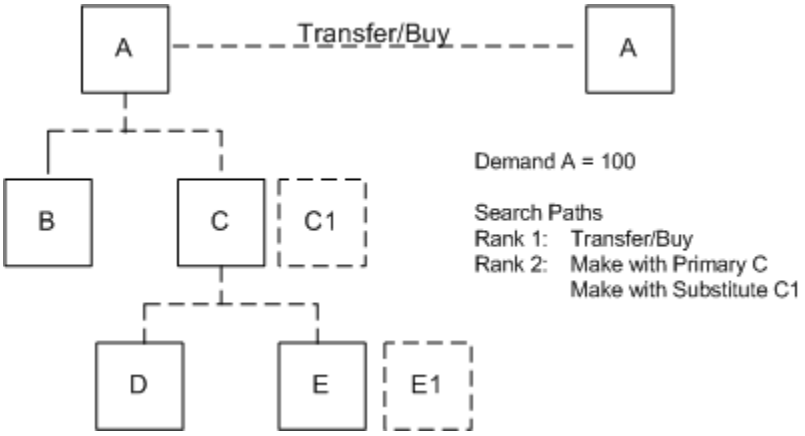
In case the requirement is met by partial quantities of substitute and primary, the make order of the assembly should not be split. It should still be one single order or as needed, based on the order modifiers, but with component requirements spread between primary and substitute.

> **Note:** Normally, non-firm WIP is not considered as part of existing supplies in the search for primary and substitute components.

Example

For example:

Finished good A has a sourcing rule setup of Rank 1 as Transfer and Rank 2 as make, with B and C components. C1 is a substitute for C. The search order is to transfer A to meet demand on time. If this is not feasible, then Rapid Planning uses existing supplies of C first and then existing supplies of C1.



You can control the order of how the search for supplies upstream is done. That is, using these controls, you can configure the search order to be as follows:

1. Existing supplies of primary
2. Existing supplies of substitute
3. Create new supplies of primary
4. Create new supplies of substitute

For more information on how to set the controls, see *User Controls for Component Substitution* in this document.

When creating new supplies, the Rapid Planning engine uses the order you prescribe for the primary and every alternate BOM in the priority order. This search order is honored as long as the demand can be met on time. But if there are existing supplies of

the substitute (step 2 above), the Rapid Planning engine may choose to create new supplies on primary (step 3 above). This may happen if using the existing supplies on substitute could potentially delay the demand due to constraints or lead-time, and the creation of new supplies on the primary could cause the demand not to be met on time

The Rapid Planning engine evaluates the options of creating supplies on primary versus substitute to minimize lateness. For example, if the demand is due on D20, and if neither the primary nor the substitute's existing supplies are available to meet the demand on time, the engine does not create the new supply on primary if it pushes the demand to D25, if it can create the new supply on substitute that will satisfy the demand earlier, say on D22.

Level by Level Searching

When Rapid Planning searches for existing supplies of a substitute component, it searches the current level as well as all upstream levels, one level at a time. In doing so, it allows you to specify which items qualify for this multiple-level search and which items in the chain qualify for the upstream search.

Using these controls, you are able to refine the search order to be as follows:

1. Existing supplies of primary
2. Existing supplies of substitute
3. Create new supplies of primary with existing supplies of upstream components, level by level
4. Create new supplies of substitute with existing supplies of upstream components, level by level
5. Create new supplies on primary
6. Create new supplies on substitute

Lateness Threshold

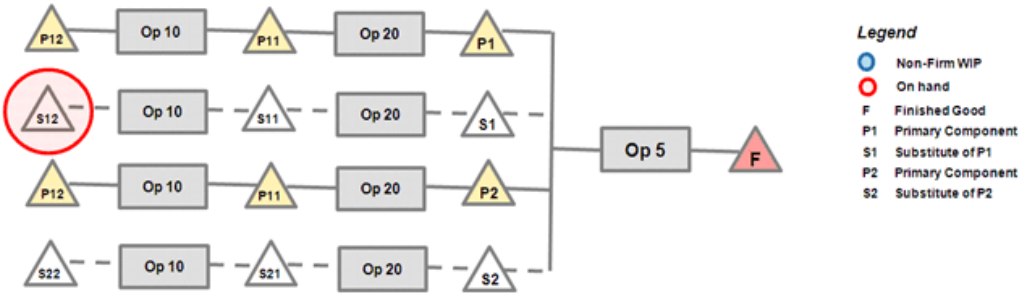
Component substitution not only ensures that demand is met on the due date, it also allows certain configurable offset so that the demands satisfied within the window from the due date are also considered as on-time.

This is achieved by using a new plan option, Lateness Threshold for Consuming Existing Supplies. You can set this plan option to any positive integer. The default is zero.

Example

For example:

In the following example, the Finished Good (F) is made of 2 primary components (P1, P2) which have substitute components (S1 and S2 respectively). Each of these components is made using the BOM shown below.



Assuming there is on hand upstream of the substitute component, S1, the configured search path is:

1. Existing supplies of primary
2. Existing supplies of substitute
3. Create new supplies of primary with existing supplies of upstream components, level by level
4. Create new supplies of substitute with existing supplies of upstream components, level by level
5. Create new supplies on primary
6. Create new supplies on substitute

If the Demand is due on D10 and creating a planned order for S1 with existing upstream supplies (step 3 above) satisfies the Demand on D11 and creating new supplies on primary (step 5 above) on D10, the logic creates new supplies on Primary as it is the alternative that satisfies the demand on time.

Demand Quantity	Due Date	Path	Satisfied Quantity	Date	Selected
100	D10	P1, P11, P12	100	D10	Yes
100	D10	S1, S11, S12	100	D11	

However, you can configure a threshold for the lateness calculation. If you specify a lateness threshold of 2 days, the decision changes; Rapid Planning chooses to create supplies on Substitute with existing upstream supplies. This is because the demand satisfaction date is Due Date + Lateness threshold.

Lateness Threshold, by customer, is 2 days

Demand Quantity	Due Date	Path	Satisfied Quantity	Date	Selected
100	D10	P1, P11, P12	100	D10	
100	D10	S1, S11, S12	100	D11	Yes

Excluding Components from a Multi-Level, Level-by-Level Search

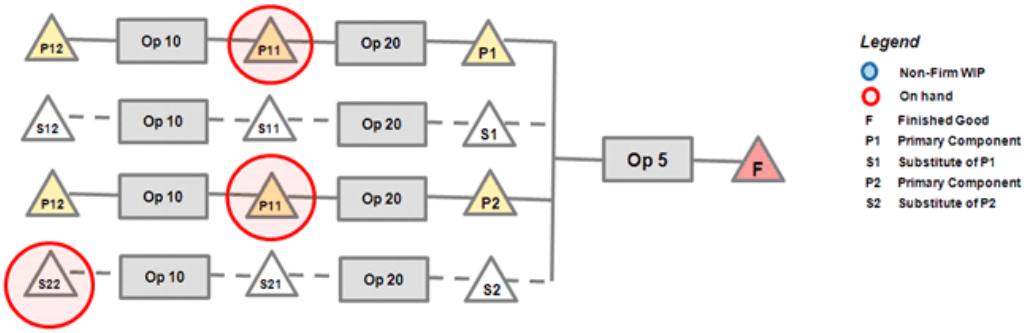
In some cases, an in-depth multi-level search is not required. Rapid Planning provides you with the ability to exclude some part of the supply chain from this deep search for three reasons:

1. It is sometimes preferable to leave the existing supplies upstream unused , for example, in the case of a low-cost nature of the upstream components.
2. There is a performance hit for doing this extensive. Therefore, Oracle does not recommend performing such a search for all components.
3. Sometimes, the upstream on hand of a primary component is being preserved for other purposes. You may prefer to use other options to satisfy the demand, such as creating new supplies on substitute (as long as the demand can be met on time).

Example

For example:

Consider the case where there is upstream on hand for a component of both the primary components P1 and P2 as well as the substitute S2.



If the demand is due on D10 and if item attribute on P is set to not participate in this multi-level search, then the solver picks the option to use P1 and S2. It ignores the fact that there is existing supply upstream of P2.

Lateness Threshold = 0 days

Demand Quantity	Due Date	Path	Satisfied Quantity	Date	Selected
100	D10	P1 and P2	100	D10	No used because the item attribute, Consume Before Making Primary, on $21 is set to No.
100	D10	P1 and S2	100	D10	Yes

Switching Primary and Substitute Components for Existing Supplies

You can specify the order of precedence among the existing supplies of primary and substitute supplies. By setting the order of precedence, products that have short life cycles and substitute that represent older revisions are used before Rapid Planning creates a new order for the primary, which is the newer revision.

A new profile option, MSO: RP - Component Substitution Logic controls this switch. When it is enabled, the search order changes as follows:

1. Existing supplies of *substitute*
2. Existing supplies of primary
3. Create new supplies of *substitute with existing supplies of upstream components*, level by level
4. Create new supplies of primary with existing supplies of upstream components, level by level
5. Create new supplies on primary
6. Create new supplies on substitute

Note: The profile option MSO: RP-Component Substitution Logic is also available as an advanced plan option.

Note: The substitute comes first only in the case of existing supplies at that level, that is 1 and 2 are switched around, or existing supplies

upstream, that is, 3 and 4 are switched around). New supplies are still using the Primary first approach.

User Controls for Component Substitution

Component substitution can be set at the primary component level or set to consume before making primary.

Plan Option : MSO:RP - Component Substitution Logic

Plan Option MSO: RP - Component Substitution Logic is a global setting that applies to your entire plan. It is also available as an advanced plan option. You can override these settings at the individual item level, as demonstrated in the following sections. MSO: RP - Component Substitution Logic is set to one of the following options:

1. Use Primary, existing and new supplies, before using Substitute
2. Exhaust all existing supplies (Primary first) c. Exhaust all existing supplies (Substitute first)
3. Exhaust all existing supplies (Substitute first)

The default setting is Use Primary.

If it is Exhaust all existing supplies (primary first), the process consumes the supplies in this order:

- Existing supplies of primary
- Existing supplies of substitute
- Create new supplies of primary
- Create new supplies of substitute

If it is Exhaust all existing supplies (substitute first), the process consumes the supplies in this order:

- Existing supplies of Substitutes
- Existing supplies of Primary
- Create new supplies of primary
- Create new supplies of substitute

The existing supplies include On-hand, Firm and non-firm purchase orders, purchase Requisitions, and WIP orders.

Setting Component Substitution at the Primary Component Level

A new item attribute, Component Substitution Logic, is available. Valid values are a, b, or c:

- a - Use primary, existing and new supplies, before using substitute.
- b - Exhaust all existing supplies, primary first.
- c - Exhaust all existing supplies, substitute first.

> **Note:** This item attribute is available only on Value Chain Planning (VCP) instances through simulation sets. It is not available on the source system.

The interplay between the new plan option and item attribute control is as follows:

Plan Option	Item Attribute at primary	Behavior
(a)	(a)	Always use primary, existing and new supplies, before using substitute.
	(b) to (c)	Item attribute overrides plan option. Use this as per (b) to (e) specified on the item attribute.
(a)	Not specified	Always use primary, existing and new supplies, before using substitute.
(b) to (c)	(a)	Item attribute overrides plan option. Use primary, existing and new supplies before using substitute.
	(b)	Exhaust all existing supplies, primary first
	(c)	Exhaust all existing supplies, substitute first
	Not specified	Use behavior as per (b) to (e) specified on the item attribute
	(a)	Item attribute overrides plan option. Use primary, existing and new supplies, before using substitute.
	(b) to (c)	Item attribute overrides plan option. Use behavior as per (b) to (c) specified on the item attribute
	Not specified	Always use primary, existing and new supplies, before using substitute.

Setting Component Substitution to Consume Before Making Primary

This attribute controls whether this item will need to be consumed as part of the process where the engine is trying the exhaust all existing supplies as discussed in the section *Switching Primary and Substitute Components for Existing Supplies* of this document.

Note: Set for all components at all levels.

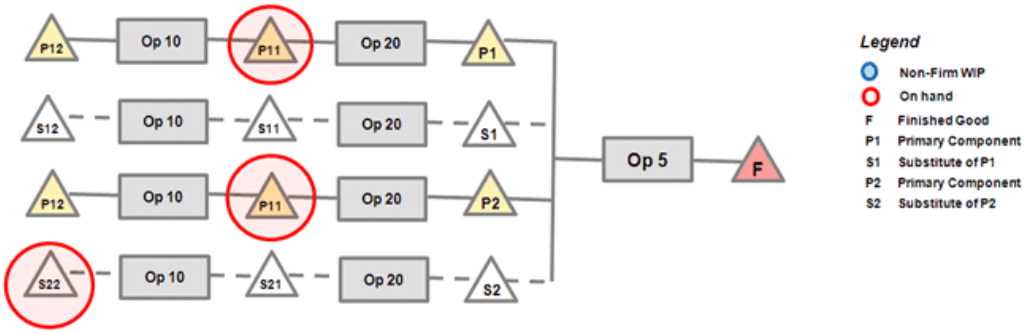
There is a new item attribute, Consume before making Primary. Valid values are Yes and No. The default value is No.

Note: This is a planning attribute that is available only on VCP instances through simulation sets, not on the source system.

Example

Example:

In the example in the section *Switching Primary and Substitute Components for Existing Supplies* in this document, this attribute is set to No for item P11 so that it is not included in the search for existing supplies. The behavior excludes this item and all its upstream components from this search for existing supplies.



Supplier Capacity

If the purchase order promise date is not available, the planning solver uses purchase order need by date to consume supplier capacity.

It accumulates supplier capacity at the beginning of each day. Plans launched during the day will not accumulate supplier capacity until the next day.

The planning solver behaves like this if supplier capacity is missing from the advanced supplier list:

- No supplier capacity entries: Supplier capacity is infinite
- Supplier capacities have gaps: During gaps, supplier capacity is zero
- Future supplier capacity is missing: After the last defined supplier capacity, it is infinite

- Beginning supplier capacity is missing: Before the first defined supplier capacity, it is zero

Planning Time Fence

Use this feature if you want to keep:

- Schedules for the near term intact but replan
- The due date of planned orders outside of the near term

To use it:

- Set values for item-org attribute Planning Time Fence Days to the number of days from the plan start date
- Select plan option Planning Time Fence

In unconstrained plans, it does not set any planned order suggested due dates earlier than the planning time fence date. It can schedule all other dates before the planning time fence date.

In constrained plans, it schedules planned orders depending on supply type:

- Make supplies: It does not set any planned order suggested due dates earlier than the planning time fence date.
- Buy supplies: It does not set any planned order dock dates earlier than the planning time fence date
- Transfer supplies: It does not set any planned order start dates at the receiving organization earlier than the planning time fence date

Past Due Orders

If a scheduled receipt has a suggested due date in the past (earlier than the plan date), the Planning Solver

- For purchase requisition and purchase order, always reschedules it out regardless of whether its item has a planning time fence.
- For job, always firms it.

Natural Time Fence

A natural time fence is a planning time fence date that the Planning Solver calculates based on an item's scheduled receipts, as opposed to calculating it from a fixed number of weeks that you enter for the item. The Planning Solver uses the later of the calculated dates as the value for Planning Time Fence Date.

To instruct the Planning Solver to use natural time fences as the planning time fence for

an item, you must:

- Select item attribute Planning Time Fence Control
- Set plan options on the Advanced tab

If you select Create Time Fence, you instruct the Planning Solver to create a natural time fence for items at the due date of the latest firm discrete job, purchase order, flow schedule, or shipment. If you run the plan without the snapshot process, it still calculates a natural time fence. For example:

- The calculation of Planning Time Fence Date based on item attribute PTF Days is day 10. The latest scheduled receipt for the item is a job with due date of day 15. The plan uses planning Time Fence Date of day 15.
- The calculation of Planning Time Fence Date based on item attribute PTF Days is day 10. The latest scheduled receipt for the item is a job with due date of day 5. The plan uses planning Time Fence Date of day 10.

If you select Firm Planned Order Time Fence, you instruct the Planning Solver to create a natural time fence for items at the due date of the latest firm planned order.

If you select Firm Internal Requisition Time Fence, you instruct the Planning Solver to create a natural time fence for items at the due date of the latest firm internal requisition.

If you select more than one of these plan options, you instruct the Planning Solver to create a natural time fence for items at the due date of the latest due date of all the supplies that are covered by your plan option selections.

You cannot see the natural time fence date but you see that an item has used the natural time fence if its Planning Time Fence Date is different from a date calculated using item attribute PTF Days.

Configure to Order

Oracle Rapid Planning plans these configurations:

- Assemble to order
- Pick to order

It can source the model components:

- All from the same organization
- From multiple organizations within a single instance

Scenarios

Oracle Rapid Planning works with:

- Exploded configure to order forecasts as demand
- Model forecasts that it explodes as demand
- Global forecasting

You can use forecasts from:

- Oracle Demantra
- Oracle Demand Planning
- Oracle E-Business Suite

Oracle Rapid Planning always includes sales orders and always uses them to consume forecasts.

Scenarios: Pre-Exploded Model Forecasts as Demand

Oracle Rapid Planning creates supply for pre-exploded, organization-specific forecasts for assemble to order models that include option class and option forecasts:

- Sales orders consume the forecasts
- Models can be either single or multi-level
- It sources their subassemblies and components using sourcing rules

Oracle Rapid Planning creates supply for pre-exploded, organization-specific forecasts for pick to order model forecasts that include options, items, and ATO model forecasts.

- Sales orders consume the forecasts
- It does not source their subassemblies and components because pick to order model forecasts do not pass to Oracle Rapid Planning.

Oracle Rapid Planning creates supply for pre-exploded, single-instance, global forecasts for assemble to order models that include option classes and options across multiple organizations.

- Sales orders consume the forecasts
- It sources them using sourcing rules and supply availability, either percentage-based or region-based
- It sources their subassemblies and components using sourcing rules at the local organization and planning percentages of each component. For forecasts form Oracle Demantra, it passes the final planning percentage.

Oracle Rapid Planning creates supply for pre-exploded, single-instance, global forecasts for pick to order models that include options, items, and ATO model forecasts.

- Sales orders consume the forecasts
- It does not source their subassemblies and components because pick to order model forecasts do not pass to Oracle Rapid Planning.

Scenarios: Model Forecasts as Demand for Explosion

Oracle Rapid Planning explodes and creates supply for organization-specific, assemble to order model forecasts to the options, option classes and mandatory components.

- Sales orders consume the forecasts
- It uses the planning bill of material percentages to explode the model forecasts to each level.
- It sources their subassemblies and components using sourcing rules

Oracle Rapid Planning explodes and creates supply for organization-specific pick to order model forecasts that include options, items, and assemble to order model forecasts.

- Sales orders consume the forecasts
- Pick to order model forecasts do not pass to Oracle Rapid Planning
- You can pass organization-specific pick to order forecasts that are exploded one level down

Oracle Rapid Planning explodes and creates supply for single-instance, global forecasts for assemble to order models that include option classes and options across multiple organizations.

- Sales orders consume the forecasts
- It sources them using sourcing rules and supply availability, either percentage-based or region-based
- It sources their subassemblies and components using sourcing rules at the local organization and planning percentages of each component.

Oracle Rapid Planning explodes and creates supply for single-instance, global forecasts for pick to order models that include options, items, and ATO model forecasts across multiple organizations.

- Sales orders consume the forecasts
- It sources them using sourcing rules and supply availability, either percentage-based or region-based
- It sources their subassemblies and components using sourcing rules at the local

organization and planning percentages of each component

Scenarios: Global Forecasting

Oracle Rapid Planning creates supply for single-instance, global forecasts for standard items:

- Sales orders consume the forecasts
- It sources them using sourcing rules and supply availability, either percentage-based or region-based

The planning solver distributes forecasts with no constraints. It uses planning percentages and rank 1 sourcing rules.

For assemble to order model forecasts the planning engine in all cases distributes the global forecast based on sourcing rules and planning percentages to meet the model forecast on time.

For global forecast offsetting during forecast explosion, the planning solver only uses only the processing lead times defined in the item validation organization. Oracle Rapid Planning only accounts for fixed and variable lead times when it processes sales orders.

Item Attribute Forecast Consumption for Pre-exploded Forecasts

For the model, set to Consume or Consume & Derive. Oracle recommends that you set to Consume and Derive.

For child items of the model other than mandatory components, Oracle Rapid Planning:

- Recommends that you set to Consume and Derive for Oracle Demantra and Oracle Demand Planning pre-exploded forecasts
- Includes forecasts for ATO Models, PTO Models, Option Classes, Options and Mandatory Components (optional).
- Performs forecast consumption
- Does not peg forecast demand to the model planned order

If you set child items of the model to Consume:

- Oracle Demantra and Oracle Demand Planning do not calculate exploded demand
- Oracle Rapid Planning does not create exploded demand from parents

For child items of the model other than mandatory components, Oracle Rapid Planning:

- Requires that you set to Consume and Derive for Oracle Demantra and Oracle Demand Planning pre-exploded forecasts
- Includes forecasts for ATO Models, PTO Models, Option Classes, Options and

Mandatory Components.

- Performs forecast consumption
- Does not peg forecast demand to the model planned order

For mandatory component children of the model, Oracle Rapid Planning:

- Recommends that you set to None
- Calculates exploded demand
- Pegs planned order demand to the model planned order

Item Attribute Forecast Consumption for Forecast Explosion

For the model, set to Consume or Consume & Derive. Oracle recommends that you set to Consume and Derive.

For child items of the model other than mandatory components, Oracle Rapid Planning:

- Recommends that you set to Consume and Derive for Oracle Demantra and Oracle Demand Planning forecasts
- Explodes forecasts to assemble to order models, option classes, options and mandatory components
- Performs forecast consumption
- Does not peg forecast demand to the model planned order

If you set child items of the model to Consume, Oracle Rapid Planning does not create exploded demand from parents.

For mandatory component children of the model, Oracle Rapid Planning:

- Recommends that you set to None
- Calculates exploded demand
- Pegs planned order demand to the model planned order

Select plan option Explode Forecast.

If you are using Oracle Demantra, set profile option MSD_DEM: Calculate Planning Percentages and do not change it after the initial download.

If you are using Oracle Demand Planning, set profile option MSD: Calculate Planning Percentage

Bills of Material

For models, you can:

- Add models, option classes, and items to model and option class bills of material that you have already defined ion the source instance
- Edit Planning Percent for model and option class bills of material
- Edit flag Optional for model and option class bills of material

Use the Plan Input views to make these changes.

Demand Schedules

You can select these forecasts as demand schedules:

- Organization-specific configure to order
- Global configure to order: If you have multi-level, multi-organization assemble to order models, Oracle recommends that you use these for proper forecast consumption

For organization-specific configure to order forecasts, use either:

- Pick to order forecasts that contain assemble to order model, option class, and option level forecasts and mandatory components Oracle Demantra does not pass pick to order model forecasts, only its options, items, and assemble to order models
- Assemble to order forecasts that contain model, option class and option level forecasts

For global configure to order forecasts, you import them at these levels:

- Global (Item)
- Organization
- Customer
- Customer site
- Zone
- Customer zone

Set both of these profile options in the master organization:

- Define the item validation organization using the profile option OE: Item Validation Organization.
- Maintain a common bill of material in the Oracle Order Management validation organization and identify that organization in profile option MSC: Organization containing generic BOM for forecast explosion.

After forecast explosion, Oracle Rapid Planning sources global forecasts to organizations in an unconstrained manner based on sourcing rules and planning percentages. It plans based on ship date at the shipping organization and does not attend to constraints in receiving calendars.

Mandatory Components

If you pre-explode assemble to order forecasts, you do not need to pass forecasts for mandatory components because Oracle Rapid Planning calculates them from their parents, after it consumes the parents.

For pre-exploded pick to order models, include pre-exploded forecasts for mandatory components.

Forecast Explosion

To instruct Oracle Rapid Planning to explode configure to order forecasts, select plan option Explode. It explodes forecasts, then it consumes the forecasts.

Forecast Consumption

Set plan option Ship to consumption level. The process consumes forecast entries that have the same Ship To value as it.

For consumption by demand class:

- If a sales order has a demand class, the process consumes a forecast that has the same demand class.
- If a forecast does not have a demand class, the process uses its organization demand class.
- If a sales order does not have a demand class, the process uses its organization's warehouse demand class.
- If you consume by demand class and have forecasts without demand classes, set profile option MSC: Rapid Planning Consume Forecast with No Demand Class.

For global forecasts, the planning solver:

- Aggregates all sales orders to the level that you want to consume.
- Ignores the organizations on the sales order lines
- Consumes global forecasts by sales orders in inventory organizations with reference to a ship to entity, for example, zone, customer site, and demand class
- Distributes forecasts and sales orders to organizations that may have a different demand classes than the ones on the sales orders and may have a different demand classes than the ones that it used for consumption.

Sourcing Rules

Oracle Rapid Planning uses sourcing rules for a configuration first, then for the model, then for the sourcing hierarchy.

For global forecasts, use the profile option MRP: ATP Assignment Set to indicate the assignment set name for use with Oracle Global Order Promising. The planning solver also uses this profile option to determine sources when configuring a model sales order.

Configuration Forecasts

If you build standard configurations to forecasts, and make forecasts both for the model and the configuration, make them customer-specific forecasts. Reduce the model forecasts and their component forecasts by the amount of the configuration forecasts.

The planning solver first consumes forecasts with sales orders for the configured item, then with forecasts for the base model.

Purchased Models

If you purchase assemble to order configurations, you can use the Suppliers page > Supplier site to see their constraints.

You can constrain the purchased configuration by providing the aggregate capacity for the supplier – supplier site to build the base model.

Also, view metrics:

- Supplier capacity utilization %
- Supplier Capacity
- Supplier requirements

The planning solver uses the:

- Approved supplier list capacity for the assemble to order models, not the supplier capacity for any of its configuration items.
- Approved supplier list order modifiers and lead times for the configuration items

Option Dependent Resources

The planning solver treats option dependent resources in model routings as 100% loaded.

This may result in the resource appearing overloaded. Consider making these resources non-bottleneck resources.

Simulation

You can firm and update forecasts for models and configurations and their option classes, options, mandatory components.

However, if you drive a plan with pre-exploded forecasts from Oracle Demantra, there are no pick to order models and option classes for update..

Ship Sets

You set ship sets in Oracle Order Management against sales order lines. Sales order lines of one sales order with the same ship set must ship:

- Together: The planning solver calculates a planned ship date.
- From the same warehouse (organization)

You can also set a ship set on a manual demand

Process

The planning solver plans ship sets in Unconstrained and Constrained plans.

It looks at the sales order lines and manual demands in ship sets and plans to create supplies that satisfy all the demands of the ship set on the same date (common date)—the most constrained of the satisfied dates. Constraints on one line of a ship set can make all the lines of the ship set late.

The planning solver does not:

- Recommend to change the warehouse
- Consider end item substitutes

In this example:

- The planned order for Item C is constrained until Day 10
- Therefore, the planning solver changes the dates of all supplies and their sales order lines from Day 5 to Day 10

Item	Order Type	Quantity	Ship Set	Due Date of Demand	Suggested Due Date of Supply (in the absence of a ship set)	Suggested Due Date of Supply (with ship set respected)	Planned Ship Date of Demand (in absence of ship set)	Planned Ship Date of Demand (with ship set)
Item A	Sales Order	100	1	Day 5	-	-	Day 5	Day 10
.Item B	Sales Order	100	1	Day 5	-	-	Day 5	Day 10

Item	Order Type	Quantity	Ship Set	Due Date of Demand	Suggested Due Date of Supply (in the absence of a ship set)	Suggested Due Date of Supply (with ship set respected)	Planned Ship Date of Demand (in absence of ship set)	Planned Ship Date of Demand (with ship set)
Item C	Sales Order	100	1	Day 5	-	-	Day 10	Day 10
Item A	Planned Order	100	1	-	Day 5	Day 10	-	-
Item B	Planned Order	100	1	-	Day 5	Day 10	-	-
Item C	Planned Order	100	1	-	Day 10	Day 10	-	-

These are situations when the planning solver plans a supply due date that is different from the ship set common date. It:

- Must finish the supply earlier because of constraints. For example, it plans three make orders of quantity 10 to satisfy a demand of quantity 30 on Day 5 because the production capacity is 10 units per day. The first two planned orders have due dates of Day 3 and Day 4 instead of Day 5.
- Must finish the supply later because of constraints. It issues exception message Late replenishment for sales order.
- Decides to satisfy the demand from on-hand. It sets the supply due date to the plan start date or to the day that it plans the material to go into inventory.

Analyzing and Viewing

To view and change ship sets, use view Supply/Demand, field Ship Set. The field does not have a list of values. You can use both letters and numbers for the ship set name.

To query ship sets, use search fields Sales Order Number (not Order Number) and Ship Set. Different sales orders can have the same ship set name, but a ship set only applies to one sales order. Ship set A of sales order 2222 is a different ship set than ship set A of sales order 1111. Search field Ship Set does not have a list of values.

The planning solver gives constraint details only for the order line that causes the delay in the ship set. Oracle recommends that you click on all of the order lines in the ship set,

then click Constraint Details.

You can simulate adding, changing, or deleting ship sets and the planning solver plans for them:

- You cannot simulate changing a sales order line to another sales order.
- As you add ship sets to sales order lines, the view immediately updates the firm date of the lines to the ship set's common date.
- As you change firm dates and revised demand dates of sales order lines in a ship set, the view asks if you want to change the firm dates of all lines in the ship set to this new date. If you answer No, you must remove the firm date that you changed.
- You cannot mass update lines with no ship set names so that they have ship set names. Your mass update could include multiple sales orders, and the planning solver cannot calculate a common date.
- You cannot mass update sales order line firm dates and revised demand dates if any of the lines has a ship set. Your mass update could not have all of the lines in the ship set, and the planning solver cannot calculate a common date.
- If you give multiple manual demands the same ship set name, the planning solver plans them to ship together. However, it does not associate them with any sales orders, even if some sales orders use that same ship set name.

You can pass simulated new schedule dates to the sales order in Oracle Order Management:

- It is for dates that the planning solver reschedules and issues exception message Changes recommended to sales orders. Use action Publish Sales Order Changes.
- The action does not pass dates to the sales order that you have manually changed after a simulation run. These sales order lines Release Status is None.

Engineering Change Orders

You can plan use-up engineering change orders (ECOs). Use-up engineering change orders are engineering change orders where the cutover date for the new component is the date that you run out of the old component.

For other ECOs that are:

- Based on the usage of the assembly item, Rapid Planning does not plan them
- Non-use-up ECOs (adding new components only or changing component sequences or quantities, Rapid Planning uses the ECO effective date

Process

For a use-up ECO, you:

- Create it in the source; use form Engineering Change Order
- Leave it unimplemented
- Enter the assembly (revised item) and mark it as MRP Active; use form Revised Items
- Collect the data to Rapid Planning
- Run a Rapid Planning plan
- Send the plan information to the source; use concurrent request Push Plan Information
- In the source ECO, enter the old (use-up item) and new component; use form Revised Components
- Collect the data to Rapid Planning
- Run a Rapid Planning plan

The planning solver:

- Marks the old component item attribute Use Up as Yes
- Ignores effectivity dates of the old and new components
- No longer creates planned orders for the old component
- Calculates use-up date as the date that old component projected on hand becomes zero. However, when there are firm supplies, the projected on hand of the old component may go below zero prior to the due date of the earliest firm supply. In this case, the use up date is the date when the planning engine uses up the latest firm supply.
- Creates planned orders for the new components after the use-up date

If the old component of a use-up ECO is in multiple bills of material, the planning solver

- Calculates a use up date for the old component in each of the bills
- Leaves demand unmet if a bill of material does not specify a new component. In this case, you must create an ECO for that bill.

Each time that you run a Rapid Planning plan and send the plan information to the source, the planning solver refines the use-up date.

Models

You can also plan use-up ECOs for models in which:

- The revised item is an option class
- The old and new components are options and mandatory components

The planning solver does not:

- Plan ECOs for configured items that came from the model
- Calculate use-up dates for options that have pre-exploded forecasts, for example, from Oracle Demand Planning or Oracle Demantra Demand Management

Simulating

You can run simulation plans against plans with ECOs where you either:

- Change the use-up item on an ECO
- Add a new component to a bill of material

To change the use-up item on an ECO:

- Navigate to page Bill of Material and query the bill with the ECO
- In the row with the use-up component, change the use-up component
- The new use-up item's item attribute Use Up is Yes and the old use-up item's item attribute Use Up changes to No
- Run a Rapid Planning simulation plan without refresh snapshot
- Review the simulation plan output
- When you accept the simulation plan output, send the plan information to the source
- In the source, manually change the use up item on the ECO

To add a new component to a bill of material:

- Navigate to page Bill of Material and query a bill
- Add a new component on the bill and specify a use up item
- Run a Rapid Planning simulation plan without refresh snapshot
- Review the simulation plan output
- When you accept the simulation plan output, send the plan information to the

source

- In the source, manually create a new ECO

Viewing

To view ECO information in Rapid Planning, use pages:

- Items: Use Up and Inventory Use Up Date
- Bill of Material old component: Use Up, Disable Date
- Bill of Material new component: Use Up Item (changeable for simulations but not deletable), Change Notice

10

Implementation: User Interface Modeling

Step 8: User Interface Modeling

The views, actions, exceptions, and metrics in Rapid Planning are the tools for your planners. Become familiar with them and decide on your processes.

Overview

Related Topics

See:

Plan Analysis: Workbench

Plan Analysis: Inputs

Plan Analysis: Output Exceptions and Metrics

Plan Analysis: Outputs

11

Implementation & Plan Analysis: Simulations

Step 9: Simulations

You can simulate unanticipated events in the business environment and respond to them. By comparing multiple simulation plans with the baseline plan, you can make the best decision for execution.

Overview

You can do simulations by modeling changes in business conditions, for example, new demands, changes to supplies, and engineering change orders. The planning solver analyzes the impacts of these changes.

Use simulations if you:

- Have frequent, unanticipated supply chain changes that occur in the near term
- Want to do what-if scenario analysis, simulate responses, and compare scenarios before deciding on responses to these changes

Implementation

You can make changes to:

- Plan inputs: For example, items, bills of material and resources, to simulate, for example, engineering change orders, machine downtime
- Plan data: Forecasts and supplies to simulate situations, for example, hot demand and late supplies.

You make these changes either:

- Individually
- Mass update: Multiple changes with one transaction

Change:

- Plan inputs using simulation sets
- Plan data using the views

This table compares the editing methods.

Simulation Sets	Views
Changes apply to collected data	Changes apply to plan data
You can use the changes in multiple plans	You can use the changes in the changed plan only
You cannot edit supply and demand entities	You can edit supply and demand entities
Used to update key properties without updating ERP	Used for interactive simulation using a plan
See changes in the Plan Inputs tab	See changes in the views

This table shows the entities that you can update.

Entity Type	Create Rows	Duplicate Rows	Update Rows	Delete Rows
Items	No	No	Yes	No
Resources	No	Yes	Yes	No
Bill of Materials	No	Yes	Yes	No
Resource Availability	No	Yes	Yes	Yes
Resource Requirements	No	No	No	No
Calendar	No	Yes	Yes	No

Entity Type	Create Rows	Duplicate Rows	Update Rows	Delete Rows
Calendar Associations	Yes	Yes	Yes	No
Supplier	No	Yes	Yes	No
Processes	No	Yes	Yes	No
Supply and Demand	No	No	No	No

This table shows the attributes that you can update.

Entity	Attributes
Item	Maximum Order Quantity, Minimum Order Quantity, Fixed Lot Multiple, Fixed Order Quantity, Variable Lead Time, Fixed Lead Time, Preprocessing Lead Time, Processing Lead Time, Post-processing Lead Time
Resources	Units, Bottleneck Flag, Effective Date, Disable Date
Bill of Material	Assembly Quantity, Effective Date, Disable Date, Component, Substitute Component Item, Component Usage Quantity, Component Yield, Substitute Priority, Substitute Quantity, Substitute Item UOM
Resource Availability	Shift, Shift Date, Assigned Units, Start Time, End Time
Calendar	Status
Calendar Associations	Association Type
Supplier	Processing Lead Time, Last Change Date / Time, Changed by, Minimum Order Quantity, From Date, To Date, Capacity, FLM

Entity	Attributes
Processes	Effective Date, Disable Date, Operation Effective Date, Operation Disable Date, Resource, Alternate Routing, Replacement Group, Alternate Resource, Assigned Units, Rate or Amount, Operation Yield

Editing Plan Input (Collected) Data

After the collected data arrives, you can use it unchanged to run through a plan

You can change it using either:

- Direct changes
- Simulation sets

Editing Plan Input (Collected) Data – Direct Change

You can change data as changes in your manufacturing environment occur by individually updating or mass updating a plan or a copy of a plan. You do not have to make the changes in the source system and re-collect them.

You can use these changes to visualize your supply and demand picture:

- Before: A current plan
- After: A simulation plan that includes the simulated data. This can be a copy of the current plan
- Edit plan data in order to evaluate their impact on the plan.

To make direct edit changes:

- Navigate to a data area tab
- Do not enter a simulation set name in the view's Search Area
- Type over the data that you want to change or use a mass update. See Mass Update.

You do not need to make direct updates for a plan run to use your changes. You can update data in the Rapid Planning views and store your changes in a simulation set. If you make individual updates and mass updates to a simulation set and run a plan with the simulation set, the planning solver uses the changes from your simulation set. The changes are not permanently in the plan, they are in the simulation set. See Editing Plan

Input (Collected) Data – Simulation Sets.

If you make individual updates and mass updates to a plan and run it, the planning solver uses your changes. The edits only apply to that plan and are permanently in the plan, unless you manually undo each one. They are neither in a simulation set nor saved to the database.

This table shows the edits that you can make in the Supply & Demand view.

Order Type	Editable Field	Default Value
Planned Order	Firm Status	Firm
	Firm Date	Value from field Sugg Due Date
	Firm Quantity	Value from field Quantity
	Alternate BOM	
	Alternate Routing	
	Source Organization	
	Source Supplier	
	Source Supplier Site	
Purchase Order / Purchase Requisition	Firm Status	Firm
	Firm Date	Value from field Sugg Due Date
	Firm Quantity	Value from field Quantity
	Source Organization	
	Source Supplier	
	Source Supplier Site	
Work Order	Firm Status	Firm

Order Type	Editable Field	Default Value
	Firm Date	Value from field Sugg Due Date
	Firm Quantity	Value from field Quantity
	Alternate BOM	
	Alternate Routing	
Forecast	Firm Status	Firm
	Firm Date	Value from field Sugg Due Date
	Firm Quantity	Value from field Quantity
	Order Priority	
Sales Order	Firm Status	Firm
	Firm Date	Value from field Sugg Due Date
	Firm Quantity	Value from field Quantity
	Order Priority	

After you edit plan data, you can re-run a plan without refreshing snapshot data. When you start plan action Launch Plan, select Launch Plan, do not refresh snapshot.

Editing Plan Input Data – Simulation Sets

Use simulation sets to modify plan inputs and evaluate their impact on the plan. You can use one simulation set can be given as input to a particular plan. One simulation set can include changes to multiple entities.

You do not need to store your changes in a simulation set for a plan run to use them. You can update data in the Rapid Planning views and not name a simulation set (direct updates). If you make direct individual updates and mass updates to a plan and run it, the planning solver uses your changes. The changes are permanently in the plan. See Editing Plan Input (Collected) Data – Direct Change.

If you save plan changes in a simulation set, they are separate from the collected data and do not change the collected data. You can apply them again later to that plan or to another plan. Plan runs start with the collected data and write over it with the data in their simulation set.

Managing Simulation Sets

You can begin to work with simulation sets by navigating to a data area tab.

Simulation Set Exists for the View

If the view already has changes into a simulation set, you see:

- There is an entry in tab Plan Inputs, Manage Simulation Sets
- The column Simulation Set has value Collected Data. If the tab has changed rows that you saved in a simulation set, that column shows the simulation set name.
- Simulation Set is a criterion in the search area. All of the rows of the tab display and the simulation set rows are in blue highlight.

You can continue to make changes into the simulation set.

Starting with a New Simulation Set

If you are making changes into a simulation set for the first time, you:

- Make a simulation set
- Make changes into it

Simulation Set Operations

To make a simulation set:

- Click Manage Simulation Sets
- In window Manage Simulation Sets, click icon Add New
- In the new blank row, enter the new simulation set name

To make changes into a simulation set:

- Verify that there is a simulation set name in the view's Search Area
- Type over the data that you want to change or use a mass update. See Mass Update.

To rename a simulation set:

- Click Manage Simulation Sets
- In window Manage Simulation Sets, select the row with the name of the simulation

set to rename

- Type the new name in the same row

To make a copy of a simulation set:

- Click Manage Simulation Sets
- In window Manage Simulation Sets, select the row with the name of the simulation set to make a copy of
- Click icon Duplicate
- The copied simulation set appears with name Duplicate of <original simulation set name>. You can rename it.

You can set a simulation set as a default. Every time you make a mass change, the Update Data window:

- Applies the default simulation set to the data
- Fills field Simulation Set with the default simulation set name. The mass update changes will go to the default simulation set unless you select another simulation set name before you OK the mass change

When you add or duplicate a row in a tab and want to store it in a simulation set, select the simulation set that you want as the value for column Simulation Set.

You can perform a mass update that includes rows from the simulation set:

- If you want to save these latest changes in a simulation set, when you are in window Update Data for the mass change, click button Manage Simulation Sets
- Changed data appears in new rows
- You can change changed data in an individual update but not in another mass update

You can delete rows from a simulation set just as you can from the collected data.

You may save changes in a simulation set, recollect the data, and then apply the simulation set to the recollected data. There can be changes in the simulation set that changed a row from the previous collection, but that row is not in the current collection. The tab displays these simulation set changes as deleted rows (red text with strikethrough and a red flag.

To delete a new simulation set:

- Click Manage Simulation Sets
- In window Manage Simulation Sets, select the row with the name of the simulation

set to delete

- Click icon Delete

Applying Simulation Sets

You can apply one simulation set to a plan for each run.

When you want to apply a simulation set to a plan, enter its name in plan option Simulation Set.

The planning solver applies all the simulation set changes to the plan data before it begins solving supply and demand.

When the plan finishes, you can see the simulation set entities in the data area tabs as new rows.

Plan Simulation Types

Incremental Planning

Use incremental planning for hot demands. Incremental planning does not re-snapshot planning data.

The incremental plan freezes all:

- Supplies
- Planned orders
- Resource capacity consumption
- Supplier capacity consumption
- Pegging relationships

The planning solver only changes plan output to:

- Create and reshuffle supplies to meet the hot demand and determine when you can meet it
- Recalculate all exception messages

If there are multiple hot demands, the planning solver plans by:

- Highest demand priority
- Then by earliest due date
- Then by lowest quantity

See Define Incremental Replan Scope.

Simulation Replans and Snapshot Refresh

If the incremental plan output is not satisfactory, run a replan; do not run multiple incremental planning runs.

Run plan launch either with or without snapshot.

When you re-run with snapshot, the planning solver starts over with the collected data. However, the planning solver does not write snapshot data over your manual changes in the simulation set.

Multi-planner Collaboration

Use multi-planner collaboration if:

- Your business has multiple planners
- They work independently on different parts of the plan
- They each want to easily save their changes either together or separately

This is how Oracle Rapid Planning processes data when more than one planner is working on the same plan:

- Their saved changes are visible to one another
- A save or undo of changes by one planner saves or undoes the changes of all the planners
- A re-plan run by one planner locks out all planners from making changes to that plan
- If two planners are changing the same entity, the last one's change holds
- When one planner releases planned orders, the planned order information may not include unsaved changes by another planner. For example, a planner has mass-edited supplier capacity but not saved the changes. When another planner then releases planned orders, they are based on the previous supplier capacity.

Saving to Simulation Sets

Each planner can save their changes to a simulation set.

If you don't select any changed records, all your changes go into the simulation set. If you select changed records, only those changes go into the simulation set.

Use view action Save to Set or menu Plan Actions > Save to Simulation Set:

You can perform all the simulation set actions.

If you can update an entity in the views, you can save the entity to a simulation set.

If you change a field in a record, the save process saves the entire records, not just the field that changed. When the plan runs and applies the simulation set, it applies to all fields from the last chronological update of the record.

When two planners update the same record at different times, the second updater's view may not display the field updates of the first updater. If so, the planning solver loses the first updater's field changes when it applies the second updater's record.

Simulation Set Configuration

All planners can save their changes to one simulation set. If multiple planners change the same information, the planning solver uses the last chronological change. Use this method if you want to consolidate all changes to apply to the next run of the plan.

Each planner can save their changes to different simulation sets. Use this method if each planner wants to run independent simulation on their part of the plan.

Planners can save changes from multiple plans to the same simulation set. Use this method if planners are working with copies of the base plan but want to save changes to apply in the next run of the base plans.

Multi-planner Example

This table shows a collected engineering change order cut-over in tab Plan Inputs

Simulation Set	End Item	Component	Effective Start	Effective End
Collected Data	AS66311	CM66331	-	Jan 7
Collected Data	AS66311	CM66331New	Jan 8	-

The planner does some simulations, decides that a later cut-over is better, and enters that decision in the Bill of Materials view. The planner saves the changes to simulation set MySimSet. The data in tab Plan Inputs changes.

Simulation Set	End Item	Component	Effective Start	Effective End	Last Updated By	Last Updated Date and Time
Collected Data	AS66311	CM66331	-	Jan 7	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM66331New	Jan 8	-	Planner 1	09/12/08 00:00

Simulation Set	End Item	Component	Effective Start	Effective End	Last Updated By	Last Updated Date and Time
Collected Data	AS66311	CM11222	-	Jan 15	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM11222	Jan 16	-	Planner 1	09/12/08 00:00
MySimSet	**AS66311**	**CM66331**	**-**	**Jan 31**	**Planner 1**	**09/12/08 00:10**
MySimSet	**AS66311**	**CM66331New**	**Feb 1**	**-**	**Planner 1**	**09/12/08 00:10**

Another planner can save changes to the same simulation set.

Simulation Set	End Item	Component	Effective Start	Effective End	Last Updated By	Last Updated Date and Time
Collected Data	AS66311	CM66331	-	Jan 7	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM66331New	Jan 8	-	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM11222	-	Jan 15	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM11222	Jan 16	-	Planner 1	09/12/08 00:00
MySimSet	**AS66311**	**CM66331**	**-**	**Jan 31**	**Planner 1**	**09/12/08 00:10**
MySimSet	**AS66311**	**CM66331New**	**Feb 1**	**-**	**Planner 1**	**09/12/08 00:10**
MySimSet	**AS66311**	**CM11222**	**-**	**Feb 14**	**Planner 2**	**09/12/08 00:20**

Simulation Set	End Item	Component	Effective Start	Effective End	Last Updated By	Last Updated Date and Time
MySimSet	**AS66311**	**CM11222New**	**Feb 15**	**-**	**Planner 2**	**09/12/08 00:10**

However, if the other planner saves changes to the same data that the original planner saved changes to, the simulation set only keeps the changes from the other planner

Simulation Set	End Item	Component	Effective Start	Effective End	Last Updated By	Last Updated Date and Time
Collected Data	AS66311	CM66331	-	Jan 7	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM66331New	Jan 8	-	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM11222	-	Jan 15	Planner 1	09/12/08 00:00
Collected Data	AS66311	CM11222	Jan 16	-	Planner 1	09/12/08 00:00
MySimSet	**AS66311**	**CM66331**	**-**	**Jan 25**	**Planner 2**	**09/12/08 00:10**
MySimSet	**AS66311**	**CM66331New**	**Jan 26**	**-**	**Planner 2**	**09/12/08 00:10**

Simulating with Updated Demand Priorities

Use this if you have changing demand priorities that do not conform to consistent rules and you receive hot demands. You can mass update demand priorities without rerunning the planning solver snapshot.

You can use this functionality in unconstrained and constrained plans.

If you do have consistent demand priorities and do not receive hot demands, either:

- Set them on sales orders in the execution (source) system and collect them
- Use demand priority rules

Process

Use an original plan--a new plan or one launched with refresh Snapshot.

Make a copy (destination plan). Use concurrent request Copy Simulation Plan.

Extract demands from the copy plan. Your business must write a query to extract the demand IDs and attributes that you want into a spreadsheet.

Update demand priorities. You must upload them to the Planning Data Store:

- This table has columns – Plan ID, Demand ID, Firm Date, and Order Priority.
- Both Plan ID and Demand ID: need foreign key references to their corresponding columns in table `msc_demands`.
- You can only load priorities for demands that are in the plan. Plan ID-Demand ID of the updated demand must match Plan ID-Demand ID of a demand in the plan.
- The table does not keep history.

Launch the copy plan:

- Select option Use Mass Updated Demand Priorities.
- Do not refresh snapshot. Select either Incremental Replan or Launch Plan, do not refresh snapshot. If you select Incremental Plan, use incremental replan scopes: Freeze selected Supplies / Replan all demand or Freeze all except selected supplies, Replan all demands.
- If you need to refresh snapshot, use concurrent process Launch Simulation Planner. See Launch Plan, Schedule a Plan Run. For both parameters Launch Snapshot and Use Mass updated Demand Priorities, use their default values Yes. For Launch Snapshot, if you select No, you must have run the plan with snapshot at least once before.

Analyzing and Viewing

After the copy plan launch finishes, compare the original and the copy plan.

In view Supply/Demand, you can see, the new priority information in columns Order Priority and Firm Date.

The process updates Suggested Due Date based on the new demand priorities. It keeps the original Suggested Due Date (from the first refresh snapshot run) in column Original Due Date. If you've run a plan without snapshot, Original Due Date does not change, even if you change Firm Date.

If you want to adjust some of the demand priorities in the completed copy plan, you

can in view Supply/Demand both by direct update and mass update.

Simulating Advanced Supply Chain Planning Plans

You use Oracle Advanced Supply Chain Planning and Oracle Rapid Planning together to respond to unanticipated events between Advanced Supply Chain Planning runs. Use Rapid Planning to simulate prospective changes that address these unanticipated issues. Choose a solution, then release it to the execution system and feed it back to Advanced Supply Chain Planning.

Simulate Advanced Supply Chain Planning plans in Rapid Planning if you:

- Use Advanced Supply Chain Planning
- Have frequent, unanticipated supply chain changes that occur between Advanced Supply Chain Planning plan runs
- Want to do what-if scenario analysis, simulate responses, and compare scenarios before deciding on responses to these changes

Typically, businesses run Advanced Supply Chain Planning plan as a nightly job. The next morning, the planner validates the plan output, takes corrective action, and releases orders to the execution system.

During the day, if any dynamic changes occur, for example, to demands, supplies, resources, bills of material, and routings, the planner can see the effects of these changes. Simulate these changes using Rapid Planning plans.

See also Rapid Planning and Advanced Supply Chain Planning.

Process

This table describes the simulation process.

Oracle Advanced Supply Chain Planning	Oracle Rapid Planning
Enable simulations	
Run plan	-
Edit and firm order dates	--
Release orders to execution	--
There are unanticipated events that cause production issues before the next plan run. . .	--

Oracle Advanced Supply Chain Planning	Oracle Rapid Planning
Copy Advanced Supply Chain Planning plan as Rapid Planning baseline plan (once, either from Advanced Supply Chain Planning or Rapid Planning)	Copy Advanced Supply Chain Planning plan as Rapid Planning baseline plan (once, either from Advanced Supply Chain Planning or Rapid Planning)
--	Do this as many times as you need to simulate potential solutions and select a solution:
--	- Copy the baseline plan to a simulation plan
--	- Make changes to the simulation plan
--	- Firm a portion of the simulation plan
--	- Run the simulation plan
--	- Compare the baseline and the simulation results
--	Release orders
--	Firm orders
Run the plan and specify the Rapid Planning simulation plan that you used to solve the issue and released orders from.	--

Enable Simulations

See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Open Simulation

See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Launch Supply Chain Planning Process Request Set

See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Copy Plan

Navigate to Copy Plan.

In Copy From, select Plan Type ASCP

In Copy To, select Plan Type Rapid Planning. If it is a new plan, enter Description, Simulation Horizon (Days), and Category Set.

If the plan exists, you receive a warning.

Create Baseline Plan

You can create the baseline Rapid Planning plan from an Advanced Supply Chain Planning plan using these methods:

- In Advanced Supply Chain Planning: Menu, Open Simulation
- In Rapid Planning: Process, Copy Plan

Supplies inside the simulation horizon that peg to demands outside the simulation horizon disappear from the baseline plan.

Baseline Entities

The baseline creation process replicates the Advanced Supply Chain Planning plan with these entities.

End demands

Supplies: Dates and quantities. However, it does not copy orders made by Global Order Promising.

Details for planned orders and their dependent demands

- Make: Bill of material, routing, resources, operation start and end dates, resource requirement start and end dates, components, and component requirement dates
- Buy: Supplier, supplier site, and ship method
- Transfer: Source organization and ship method

Details for scheduled receipts and their dependent demands:

- Work orders: Bill of material, routing, resources, operation start and end dates, resource requirement start and end dates, components, and component requirement dates
- External purchase orders and purchase requisitions: Supplier, supplier site, and ship method
- Internal purchase orders and purchase requisitions: Source organization and ship

method

Safety stock

- It depends on how you select the Advanced Supply Chain Planning organization-level plan options Plan Safety Stock
- You check it for at least one organization: The process sets Rapid Planning plan option Safety stock lead time method to Safety Stock Quantity and uses the safety stock quantities from the Advanced Supply Chain Planning plan.
- You clear it for all organizations: The process sets Rapid Planning plan option Safety stock lead time method to Do not compute safety stock.
- For setting Advanced Supply Chain Planning plan option Plan Safety Stock, Oracle recommends that you either select it for all organizations or clear it for all organizations.

Baseline Plan Process

Copy plan options and set defaults for some non-Advanced Supply Chain Planning plan Options that are not present in ASCP

Run the Rapid Planning snapshot process to load the static data.

Load all end demands and supplies—scheduled receipts and planned orders--within the simulation horizon. If you have supplies within the Rapid Planning planning horizon that peg to demands outside the Rapid Planning planning horizon, the supplies disappear. Oracle recommends that you set your Rapid Planning planning horizon to:

- At least 30 days after your last supply order due date
- A length where you can see the information that you need, but where you can ignore the plan results of the final 30 to 45 days, in case orders disappear.

Set the firm flag on all the supplies to Yes. The planning solver does not change order dates.

Set all planning time fences to the end of the Rapid Planning planning horizon. The planning solver does not create supply.

Run the planning solver to:

- Make resource and material requirements the orders
- Peg demands to supplies
- Issue exceptions
- Calculate Exceptions/KPIs

Unfirm the artificially firmed supplies and reset all artificially set planning time fences.

Baseline Plan Options

The Rapid Planning plan shows the name of the Advanced Supply Chain Planning plan.

In tab Main, you can change these plan options:

- ATP Enabled
- Category Set
- Use for S&OP
- Plan Security Attributes

In tab Organizations, the sections show the organizations and global demand, demand, and supply schedules from the Advanced Supply Chain Planning plan.

Tab Advanced shows the profile option values from the Advanced Supply Chain Planning plan.

Baseline Order Attributes and Options

This is how process Create Baseline Plans sets supply order attributes and what you can do with the supply orders in Rapid Planning.

For firm supplies, the process makes dependent component requirements and resource requirements firm as well.

Oracle Advanced Supply Chain Planning Supply	Oracle Rapid Planning Supply
Scheduled receipt – No change recommended	It inherits firm status from Advanced Supply Chain Planning and has Action = None. You can plan it in a Rapid Planning simulation and release its recommendation.
Scheduled receipt – Change recommended and not released	It inherits Firm = No and Action = Release. You can either: - Release the Advanced Supply Chain Planning recommendation straightaway - Plan it in a Rapid Planning simulation and release its recommendation

Oracle Advanced Supply Chain Planning Supply	Oracle Rapid Planning Supply
Scheduled receipt – Change recommended and released	It inherits Implement Firm, Action = None, and Suggested Due Date = Implement Date You can either: - Leave it alone - Unfirm it, plan it in a Rapid Planning simulation, and release its recommendation
Planned order – Unreleased and unfirm	It inherits Firm = No and Action = Release. You can either: - Release the Advanced Supply Chain Planning recommendation straightaway - Replace it by planning it in a Rapid Planning simulation
Planned order – Unreleased and firm	It inherits Firm = Yes and Action = Release. You can either: - Leave it alone - Release it straightaway - Unfirm it, plan it in a Rapid Planning simulation, and release its recommendation
Planned order – Released	Inherits Firm = Yes, Suggested Due Date = Implement Date, and Action = None. You can modify the firm flag. When you plan a simulation, Rapid Planning removes it, unless it is part of the simulation scope. Oracle recommends that you do not do this--if you rerun the plan, it plans another, you might accidentally release it, and you order double production.

Running Baseline Simulation Plans

You can't run the snapshot for these plans

You must replan in either of these modes:

- Incremental Replan
- Launch Plan, do not refresh snapshot

Specifying Simulation Scope

See Define Incremental Replan Scope.

Comparing Plans

Use the Analytics view to compare supply orders between the baseline plan and the simulation plans.

Navigate to tab Metrics. Attend to these metrics:

- Total Supply Quantity
- Planned Order Quantity
- Make Planned Order Quantity
- Transfer Planned Order Quantity
- Buy Planned Order Quantity
- Work Order Quantity
- Purchase Orders / Requisition Quant
- Internal Purchase Orders / Requisition Quantity
- Total Demand Quantity
- Forecast Quantity
- Sales Order Quantity

See Base Metrics.

Navigate to tab Order Comparison, subtab Supply Order Comparison. You can see comparison between purchase orders, purchase requisitions, and work orders. It reports are:

- Action changes: For example, cancelled orders vs non-cancelled orders, rescheduled orders vs non-rescheduled orders, and have an action vs do not have an action.
- Due date changes (Available Date + [Equal To, Less Than, or Greater Than]): Supply Due Dates between scheduled receipts are outside the range. For example, Available Date + greater than 10 = all supply order pairs with Supply Due Dates

more than ten days apart.

It does not report planned orders.

Release Orders

In the simulation plan that you use to solve the issue, release orders to the execution system.

Firm Orders

In the simulation plan that you use to solve the issue, firm the planned orders that you released.

They become firm planned orders when you pass them to the next Advanced Supply Chain Planning run.

Feeding Back to Advanced Supply Chain Planning

Feed back the results of your Rapid Planning simulation decision to the next Advanced Supply Chain Planning plan run.

See *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Purge Plans

You can purge Advanced Supply Planning plans that have baseline and simulation Rapid Planning plans.

The Rapid Planning plans remain but don't have reference to a baseline plan and don't have any of the restrictions of a baseline plan.

Implementation Guidelines

Advanced Supply Chan Planning can plan to the minute level. It can model detailed shop floor constraints such as sequence dependent setups, hard links.

Rapid Planning plans at the day level. You use it to get a rapid response to changes in plan inputs and data without needing to respect all of the detailed constraints.

In constrained plans, Rapid Planning always plans in Enforce capacity constraints mode. If you will compare Rapid Planning and Advanced Supply Chain Planning output, run the Advanced Supply Chan Planning plan as Constrained – Enforce capacity constraints.

Rapid Planning has a global parameter to control safety stock. Advanced Supply Chain Planning has organization-level control. If you will compare Rapid Planning and Advanced Supply Chan Planning output, set the Advanced Supply Chain Planning plan safety stock parameter in each plan organization to be the same as the Rapid

Planning parameter.

If you use any of these modeling constructs and constraints in the Advanced Supply Chain Planning plan, the Rapid Planning and Advanced Supply Chan Planning output will be very different:

- Process manufacturing organizations
- Project manufacturing organizations
- Flow routings
- Batchable resources
- Transportation capacity
- Fixed days supply order modifier
- Percentage based sourcing splits
- Product family level planning
- Bill of resources planning
- Phantom items

Copying a plan from ASCP to RP loads only the demand and supply within the simulation horizon. Keep the simulation horizon large enough to minimize end-of-horizon effects. For example, if you want to simulate for 30 days and cumulative lead-time is 15 days, Oracle recommends that you set the horizon to 45 days. The demands within the simulation horizon will use supplies up to 30 days; otherwise the planning solver may drop them.

Simulation Scenarios

Hot Demand

This is a possible scenario for processing a hot demand.

You have a production plan.

You receive information on a hot demand.

Copy your production plan to a new plan named Hot Demand.

View the Supply Chain Bill for the demanded item.

Navigate to the Material Plan view. Note the supply, demand, and projected available balance.

Navigate to the Supply/Demand view, enter the hot demand, and assign it a high

priority.

Re-navigate to the Material Plan view and notice the impact of the hot demand, including the negative projected available balance.

Save the Hot Demand plan.

Run plan Hot Demand without changing current orders.

Note that the planned date for the hot demand is unacceptably late.

Re-run plan Hot Demand with the ability to change current orders.

Review key performance indicators, favorites, and order comparison information between the production plan and the Hot Demand plan.

If the Hot Demand plan is the more acceptable plan, release planned orders from it.

Engineering Change Cut-in

This is a possible scenario for processing an engineering change order cut-in.

You have a production plan.

You receive information on a phase out-phase in bill of material change

Copy your production plan to a new plan named ECO Change 1.

Navigate to the Bill of Material view and modify the bill of material by changing the effectivity dates.

Run plan ECO Change 1.

Navigate to the Horizontal Plan screen and review the projected available balance for the two components. Check for a large final projected available balance on the phase-out component.

Compare key metrics, for example, excess inventory monetary value and late days, between the production plan and plan ECO Change 1.

If there is, for example, unacceptable excess inventory monetary value, copy your plan ECO Change 1 to a new plan named ECO Change 2.

Re-navigate to the Bill of Material Edit/Update screen and modify the bill of material with a new cut-in date.

Run plan ECO Change 2.

Navigate to the Material Plan view and review the projected available balance for the two components.

Compare key metrics, for example, excess inventory monetary value and late days, between the plan ECP Change 1 and plan ECO Change 2

Release planned orders from the more acceptable ECO Change plan.

Yield Bust

This is a possible scenario for processing a yield bust.

You have a production plan.

You receive information on a reduction in inventory by 100 pieces due to a yield bust.

Copy your production plan to a new plan named Supply Change

Navigate to the Supply/Demand view and lower the inventory by 100 pieces.

Navigate to the Material Plan view and note the projected available balance change.

Run plan Supply Change.

Compare key metrics between the production plan and plan Supply Change.

If you find that the results from the Supply Change plan are unacceptable, check alternate components and find one with supplier capacity of 100 per day.

Negotiate with your supplier for supply of an alternate component.

Re-run plan Supply Change.

Re-compare key metrics between the production plan and plan Supply Change.

If the Supply Change plan is the more acceptable plan, release planned orders from it.

Resource Downtime

This is a possible scenario for processing a resource downtime.

You have a production plan.

You receive information on a down bottleneck resource for all of next week.

Copy your production plan to a new plan named Resource Downtime.

Navigate to the Resource Availability view and decrease the resource availability for next week to zero.

Run plan Resource Downtime

Compare key metrics between the production plan and plan Resource Downtime.

If you find that the results from the Resource Downtime plan are unacceptable, check alternate resources.

Negotiate for overtime on an alternate resource for next week.

Re-navigate to the Resource Capacity view and increase the alternate resource availability for next week by 20%.

Re-run plan Resource Downtime.

Re-compare key metrics between the production plan and plan Resource Downtime

If the Resource Downtime plan is the more acceptable plan, release planned orders from

it.

12

Implementation: Best Practices

Step 10: Best Practices

To have best performance of your Rapid Planning functions, attend to Oracle recommendations.

Implementation

Follow these implementation best practices to improve your performance.

Display only the columns in Supply/Demand window that you need to see.

Create a default Material Plan and view with Item/Organization/Week as filter.

Query a plan for only the items that you need to see. If you don't need simultaneous view of multiple items, query them one at a time.

When querying entities, use as many filters as you can.

Select only those rows to expand that you need, for example, to view pegging.

Export entities only when needed and export only the rows that you need to see. Do multiple small exports instead of one large export.

Do only one query at a time.

Installation and Configuration

See *Oracle Rapid Planning Installation Guide*, Best Practices.

13

Plan Analysis: Workbench

Responsibilities and Menus

The seeded responsibility for Rapid Planning planners is Supply Chain Simulation Planner.

This responsibility can access these menus:

- Plans, Inputs, and Simulations: The Oracle Rapid Planning workbench.
- Collections, Sourcing, Setup, and Other: Forms appropriate to Oracle Rapid Planning from Oracle Advanced Supply Chain Planning. For information about these forms, see *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

Rapid Planning Workbench

The Rapid Planning Workbench is a workspace designed with these characteristics:

- Simple to understand and easy to learn
- Access to lots of data
- Customizable data displays
- Quick entry of data changes for simulation

When you access Rapid Planning Workbench, you see the global region and a workspace region.

The top region has:

- Your user name

- Link Home: Returns to the E-Business Suite Rapid Planning responsibility menu
- Link Preferences: Set Oracle E-Business Suite preferences
- Link Help
- Link Logout
- Button Save: Saves your updates from all the tabs in the workbench. This is different from the Workbench Actions > Save Plan.
- Button Cancel: Discards your current updates and reverts to the last saved version of the plan.

The buttons to save and cancel changes apply to all tabs in the workspace. If you make changes in one tab and move to another tab, the Workbench prompts you to save your changes

The workspace region contains:

- Tabs: Use these to view and manipulate the data. You can open as many multiple tabs as you need to accomplish your task. The Workspace region has top and bottom frames; they are independent places to open more tabs and are not related as in, for example, master-detail information.
- Links: Use these to manipulate the plans. You can hide this area; click icon Collapse Pane. To show it, click icon Restore Pane.

When you access Rapid Planner Workbench, The open tabs are:

- Plans
- Plan Inputs

The Plans contain a navigator on the left that contains three regions that you can access. They are:

- Plans: Displays a complete list of all the plans that are in the states Launched, completed and Loaded into memory; Launched and currently in-process; and Launched and errored out
- Plan Links: Contains links to workbench views that display data about the currently selected plan; you can take action against the data
- Plan Actions: Links to workbench views with actions that users need to manage the plans

The Plan Input tab displays a simpler navigator on the left that only has the Plan Input Links region. These links open views that you can use to see and update plan inputs and simulation set information

Operating in Tabs

Rapid Planning Workbench is organized into multiple views in these main tabs:

- Plan Inputs
- Plans

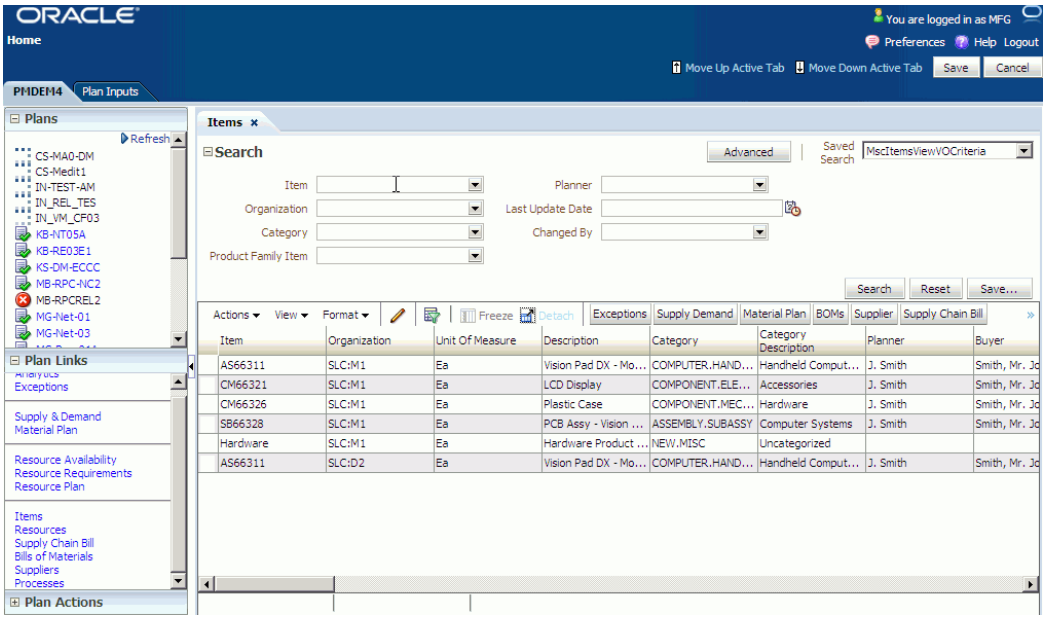
As you open each view, there are these areas:

- Search area: The top of the view
- Search results: The bottom of the view

These areas have common features that you work with.

If you want to make a tab disappear, click on its title, then click its icon Close.

This is an example of a workbench view



Search Area (Top of the View)

The search area displays attributes that you can use to limit the display in the search results area. For example, in the Items tab, you can search for Item, Organization, Category, Product Family Item, Planner, Last Update Date, and Changed By.

Fill up the search fields that you want to, then click button Search.

Oracle recommends that you enter search criteria. If you do not, the data may take a long time to load. The view may remind you if you click Search without entering search

criteria.

If you search on more than one criteria, the search process treats them as if they are joined by logical operator AND. For example, you search on

- Item Equals AS54888
- Organization Equals M1

The search process finds everywhere in the data that Item Equals AS54888 AND Organization Equals M1

The search area shows Basic search fields. If you want to do a more advanced search, click button Advanced. The search area shows more fields to search on and shows button Basic to return to the basic search criteria.

If the advanced search does not contain all the fields that you want to search on, click button Add Fields and select them from the list.

To clear all the search criteria, click button Reset.

Search Results Area (Bottom of the View)

The search results area shows the data that matches your search.

- Change how the data displays
- Act on the data

There are some common functions that appear in many views. See Search Results Area – Displaying Data and Search Results Area – Acting on Data.

Some functions in the search results area are unique for certain tabs. See Rapid Planning Workbench Views, page 14-1

Search Results Area (Bottom of the View) – Displaying Data

You may see some or all of these menu items on the data area menu bar:

- Actions
- View
- Format

In addition, you may see icons and buttons on the search results menu bar.

Saving Data to Spreadsheet

If you want to see the data in a Microsoft Excel spreadsheet, click Actions > Export to Excel or click button Export to Excel. The export includes the column headings and Grand Totals..

Printing Data

If you want to see the data printed out, click Actions > Print Page. A pop-up window opens with the data in a printable page format.

Sorting Data

To sort the data by a certain column, mouse over the column title and select either icon Sort Ascending or icon Sort Descending. Also, you can click View > Sort > Ascending or View > Sort > Descending.

To sort on multiple columns, click View > Sort > Advanced… In the advanced sort pop-up window, select up to three column names and whether each should sort by.

Changing Column Order

To change the order of the columns, click View > Reorder Columns…. A pop-up window shows the available columns. To move column positions, click the columns' name in the pop-up window and then click one of these icons:

- Move selected items to top of list
- Move selected items up one in list
- Move selected items down one in list
- Move selected items to bottom of list

Changing Column Size

To change the size of columns, click Format > Resize Columns.

Wrapping Column Data

To wrap the data in the columns, click the Wrap icon or select Format > Wrap.

Removing a Column

To make a column disappear, click View > Columns and click the columns to disappear.

Adding a Column

If you want to add a new column, click View > Columns > Show More Columns. Then click the columns you want to see.

Displaying All Columns

If you want to display all the columns available for the tab, click View > Columns > Show All

Moving Up a Data Hierarchy

To move up in a chain of data, for example, a supply chain bill or pegging tree:

- To the original top level where used, click icon Go top
- To the next level where used, click Go up

Making a New Top Level

To make the currently selected row the new top level, click Show as top. To return the display to the original top level where used, click on the new top level, then click either icon Go up or icon Go top.

Freezing Data Columns

If you want to freeze columns, click in a column, then click icon Freeze or click View > Freeze. The column that you selected and all columns to its left freeze while you can scroll through the columns to its right.

Showing Data in a Separate Window

If you want to open the data area in a separate window of its own, click icon Detach. To resume working in the tab, click icon Attach. Use this function if you need to see a large number of data rows.

Searching Using Query-by-Example

To search using the query-by-example method:

- Click icon Find or click View > Query by Example. A blank row appears above the column titles. Enter your search criteria there. To execute the search, click Return or Search in the query panel. To exit, remove the search criteria and click icon Query by Example again.

- This function only works with fields that Oracle enables as query-by-example fields; for example, in view Clear to Build Simulation, you cannot query by example on fields Prioritize for Clear to Build and Deprioritize for Clear to Build.

- In the Supply and Demand view, do not click the Query by Example icon. Click the binocular icon "Query By Example Mode to translate the view into a simple table.

- For alphabetic fields, you can use operators

Generally, you can use query-by-example in all views and all fields except:

- String fields: STARTS WITH, EQUAL TO, WILD CARD SEARCH

- Quantity fields: EQUAL TO, GREATER THAN, LESS THAN

Using Column Groups

In some tabs, Oracle assigns multiple, related columns into column groups. If you want to see the columns arranged by their groupings, select View > Column Groups. For example, in tab Supply & Demand, the column groups are Main, Release, and Other.

Viewing Related Data

If you want to open a tab with data that is related to the data you are viewing, select rows in the data area, then click a button with the name of another tab.

Viewing More Tabs

Sometimes, there are more buttons with the names of other tabs that do not fit in the current tab. Click icon double-greater than and select them from the list of buttons.

Favorites

Use Favorites when you want frequent access to certain information on the workbench.

You can have your own:

- Multiple lists of items, resources, and suppliers
- Navigation to material and resource plans, exceptions, and supplies and demands for multiple items, resources and suppliers

A favorite list is either:

- Static: For example, items, resources, suppliers, supplies and demands
- Dynamic: Based on a filter condition and built when you use it in the current plan

To access a favorites list from a view, click on Favorites.

Static Favorites

To create a static favorites list:

- Query entities that you want to visit frequently, for example, specific items.
- Multi-select them
- Navigate Actions > Save to Favorites. Enter a name.

Dynamic Favorites

These are the dimensions and measures that you can use:

- Item and organization
  - Fill rate %
  - Inventory turns ratio
  - On time orders %
  - Late replenishment for sales order (value)
  - Late replenishment for forecast (value)
  - Demand quantity not satisfied (value)
- Resource and organization: Resource utilization %

- Supplier:
  - Supplier capacity utilization %
  - Purchasing cost

To create a dynamic favorites list:

- Navigate to the view Analytics tab
- Select one of the measures.
- Click tab Filter and check Save results to a Favorite list. Enter a name.

Search Results Area (Bottom of the View) – Acting on Data

Copying Data to New Rows

If you want to copy a data to new rows:

- Highlight the rows that you want copied
- Click the Duplicate icon or click Actions > Duplicate Selected

Deleting Data Rows

If you want to delete a row of data:

- Highlight the rows that you want deleted
- Click the Delete icon or click Actions > Delete Selected
- Specify a simulation set, see Managing Simulation Sets, page 11-7.

The deleted data remains displayed. It is in red with a strikethrough and the change flag is red.

You cannot delete certain entities, for example, items.

Adding Data Rows

To add a row, click icon Add Row

Editing Data Rows

To edit a row, either:

- Double-click in it
- Click in it then click icon Edit

Then, enter or select the new value into the field

To change individual data, click in the field and type in the new data.

Editing Multiple Data Rows

To edit multiple rows, click in them using the Shift and Ctrl keys. To select all rows, click Actions > Select All or click icon Select All. See Mass Update.

Unselecting Data Rows

To unselect a selected row, click in it.

To unselect all selected rows, click in an area of the tab that is not a selected row

Mass Update

Use mass update to edit multiple rows.

Editing One Column

To edit one column (mass update):

- Use search criteria or a favorite to limit the display to the rows that you want to change
- Click the column header

Editing Multiple Columns

To edit multiple columns (mass update):

- Use search criteria or a favorite to limit the display to the rows that you want to change
- Click the column headers using the Shift and Ctrl keys or rubber banding

Making the Edits

Click icon Mass change or navigate Actions > Update Selected

The tab opens window Update Data. In each row, select a field and an update action, then enter a new value. Each update applies to all the rows you selected.

Saving and Committing

If you want to save all your changes, click Actions > Update All.

If you want to save some of your changes:

- Highlight the rows that you want changes saved
- Click Actions > Update Selected

Viewing Changed Data

After you change data:

- It appears in blue highlight

- There is a flag that appears in the left column to show the rows that are changed.

Applying Changes to the Database

If you want to apply your changes to the database, click button Commit or click Actions > Commit. To reverse the commit, click button Rollback.

Reversing Mass Updates

If you want to reverse the changes you have made:

- Highlight them
- Navigate to Plan Actions > Undo All User Changes

Mass Update Time Capabilities

In the Supplies & Demands and the Resource Availability views, mass update hinges on a separate value of the record. This ensures that each record is updated independently. That is, the records do not all assume the same value.

The number of rows that are updated are displayed at the bottom of the Resource Availability view and the Supplies & Demand View.

The additional option Increment by and Decrement by are also included in the Mass Update FROM TIME.

Resource	From Time	To Time
Resource 1	8:00	4:00
Resource 2	8:30	4:30
Resource 3	8:00	3:00
Resource 4	9:00	4:00

Using this new feature, if we reset the To Time of Resource 1 by one hour, the new To Time is 5:00. Resources 2, 3, and 4 are then also incremented independently by one hour, as shown below:

Mass Update in the Resource Availability View

Mass updating in the Resource Availability view can be based on a separate value in order to obtain results with separate values. This feature is available in the FROM TIME and TO TIME fields.

Example: The following defines the resources work time:

Resource	From Time	To Time
Resource 1	8:00	4:00
Resource 2	8:30	4:30
Resource 3	8:00	3:00
Resource 4	9:00	4:00

Using this new feature, if we reset the To Time of Resource 1 by one hour, the new To Time is 5:00. Resources 2, 3, and 4 are then also incremented independently by one hour, as shown below:

Resource	From Time	To Time
Resource 1	8:00	5:00
Resource 2	8:30	5:30
Resource 3	8:00	4:00
Resource 4	9:00	5:00

To support this and similar features, the following options are included in the Mass Update TO TIME:

- From Time +
- Increment by
- Decrement by

The additional option Increment by and Decrement by are also included in the Mass Update FROM TIME.

Calculating the Value of TO TIME

Using the resources work time from the example above, the sections show how each option behaves.

Using the FROM Time + Option to Calculate To Time

When you select the FROM Time + option, then:

To Time = From Time + Entered Value

If we select 9 as the Entered Value, then To Time = From Time + 9.

The new values of To Time are:

Resource	From Time	To Time
Resource 1	8:00	5:00
Resource 2	8:30	5:30
Resource 3	8:00	5:00
Resource 4	9:00	6:00

Using the Increment by Option to Calculate the Value of To Time

When you select the Increment by option, then:

To Time = To Time + Entered Value

If we select 2 as the Entered Value, then To Time = To Time + 2. The new values of To Time are:

Resource	From Time	To Time
Resource 1	8:00	6:00
Resource 2	8:30	6:30
Resource 3	8:00	5:00
Resource 4	9:00	6:00

Using the Decrement by Option to Calculate To Time

When you select the Decrement by option, then:

To Time = To Time – Entered Value.

If we select 1 as the Entered Value, then To Time = To Time – 1. The new values of To Time are:

Resource	From Time	To Time

Resource 1	8:00	3:00
Resource 2	8:30	3:30
Resource 3	8:00	2:00
Resource 4	9:00	3:00

Calculating the FROM TIME

The options Increment by and Decrement by are included in the Mass Update FROM TIME.

Using the resources work time as shown below, the following examples show how each option behaves.

Resource	From Time	To Time
Resource 1	8:00	4:00
Resource 2	8:30	4:30
Resource 3	8:00	3:00
Resource 4	9:00	4:00

Using the Increment by Option to Calculate From Time

When you select the Increment by option, then:

From Time = From Time + Entered Value.

If we select 2 as the Entered Value, then From Time = From Time + 2. The new values of From Time are:

Resource	From Time	To Time
Resource 1	8:00	10:00
Resource 2	8:30	10:30

Resource 3	8:00	10:00
Resource 4	9:00	11:00

Using the Decrement by Option to Calculate From Time

When you select the Decrement by option, then:

From Time = From Time – Entered Value.

If we select 1 as the Entered Value, then From Time = From Time – 1. The new values of From Time are:

Resource	From Time	To Time
Resource 1	8:00	7:00
Resource 2	8:30	7:30
Resource 3	8:00	7:00
Resource 4	9:00	7:00

Validations Rules for From Time and To Time

The following validations are required when editing From Time and To Time values:

Case 1: To Time Is Greater Than (>) From Time

1. 0 {(ShiftDate + To Time + Increment By) – (ShiftDate + From Time)} < 24

   For example, if :

   ShiftDate = Sept 13th

   To Time = 4:00

   Increment By = 2

   From Time = 3:00, then

   0 {Sept 13th + 4:00 + 2:00) – (Sept 13th + 3:00)} < 24

   0 Sept 13th 6:00 – Sept 13th 3:00 < 24

   This condition is met because the difference is 3 hours.

2. 0 {(ShiftDate + To Time + Increment By) – (ShiftDate + From Time)} < 24

3. 0 {(ShiftDate + To Time - Decrement By) – (ShiftDate + From Time)} < 24

4. 0 {(Shift Date + To Time) – (From Time + ShiftDate + Increment By)} < 24

5. 0 {(ShiftDate + To Time) – (ShiftDate + From Time – Decrement By)} < 24

Case 2: From Time Is Greater Than (>) To Time

1. 1. 0 {(ShiftDate_plus1 + To Time + Increment By) – (ShiftDate + From Time)} < 24

   For example, if :

   ShiftDate = Sept 13th

   To Time = 4:00

   Increment By = 2

   From Time = 8:00, then

   0<= Sept 13th + 1 + 4:00 + 2:00 – (Sept 13th + 8:00) <=24

   0<= Sept 14th 6:00am – Sept 13th 8:00am <=24

   This condition is met because the difference is 22 hours.

2. 0 {(ShiftDate_plus1 + To Time + Increment By) – (ShiftDate + From Time)} < 24

3. 0 {(ShiftDate_plus1 + To Time - Decrement By) – (ShiftDate + From Time)} < 24

4. 0 {(ShiftDate_plus1 + To Time) – (From Time + ShiftDate + Increment By)} < 24

5. 0 {(ShiftDate_plus1 + To Time) – (ShiftDate + From Time – Decrement By)} < 24

Case 3: From Time is 00:00

If you need to change a From Time, which is currently 00:00, To Time can take a value of 24:00. Note that when From Time or To Time is modified, the conditions of Case 1 of the Validations Rules for From Time and To Time, apply.

Notes:

1. If any of the conditions listed in the above section, Validations Rules for From Time and To Time are violated, do not change either the From Time or the To Time.

2. If a specific record violates the validation rules, then the update is not applied to that specific record. In the case of records that are not violated, the updates is applied.

A message is displayed, which indicates the number of records that have succeeded and the number of records that have failed. For example, you will see a message such as: Mass Update has failed on 6 out of 76 records. Mass Update has succeeded on 70 out of 76 records.

To Change Both the From Time and To Time

When you need to change both the From Time and the To Time in the Resource Availability view, follow the procedure below:

1. Make your initial change to the From Time.
2. Using the new From Time result from Step 1, calculate the new To Time.
3. If any of the above validation rules are violated when you calculate Step 1 or Step 2, then do not change either the From Time or To Time.

Mass Update in the Supplies and Demand View

Similar to the Resource Availability view, mass update is available in the Mass Update FIRM DATE in the Supplies and Demand view. The options are:

- Reset to Original
- Set Value To
- Sugg Due Date+

The new options and their behavior are:

- **Increment by**

  If Firm Date is not null:

  Firm Date = Firm Date + Entered Value

  If Firm Date is null:

  Firm Date = Suggested Due Date + Entered Value

- **Decrement by**

  If Firm Date is not null:

  Firm Date = Firm Date – Entered Value

  If Firm Date is null:

  Firm Date = Suggested Due Date - Entered Value

- **Request Date +**

  Firm Date = Request Date + Entered Value

  If you choose Request Date, the system first looks for Requested Arrival Date. If the Requested Arrival Date is not populated, then it uses the Requested Ship Date.

Notes:

1. Request Date + and Sugg Due Date + can have a positive or negative value.

2. For all views the mass update feature for the operators Increase by, Decrease By, Increase By %, Decrease By %, Sugg Due Date +, Request Date +, etc. are applied to the value displayed in the UI and not the value saved in the database. For this reason, the operators must be applied to un-saved date changes too.

14

Plan Analysis: Inputs

Input Views

Use the views to view, analyze, and update the plan information

Access them from the Plan links section in the Plan tab and the Plan input links in the Plan inputs tab.

For each view, this tells you:

- The view name
- The regions that it commonly appears in
- What it is for and how to use it

Bills of Materials

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view bills of material.

You can edit data in this view.

Plan Tab

Search, view, and analyze the bills of material, components, and substitute components used in the plan.

Plan Inputs Tab

Add a bill of material or some of its components or substitutes to a simulation set.

Plan Tab and Plan Inputs Tab

Duplicate a bill of material, a component, or a substitute and make edits for simulation purposes

Mass edit a set of rows, for example, all assemblies that use a particular component and

do a single-row edit to these attributes:

- Component effectivity date
- Component disable date
- Component
- Substitute component
- Component usage quantity
- Substitute priority
- Substitute quantity
- Substitute item UOM

Calendar Association

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view the associations of ship methods and calendars.

You cannot edit data in this view.

Plan Inputs Tab

Search, view, and analyze the associations of calendars to organizations, suppliers, customers, and carriers.

Calendars

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view calendars.

You can edit data in this view.

Plan Inputs Tab

Search, view, and analyze the working days and non-working days of any calendar.

You can edit attribute Status (working or non-working) for simulation purposes in simulation sets

Component Substitution

Most tabs share common functions, see Operating in Tabs.

Use this tab to view component substitutions.

You can edit data in this tab, including mass update.

Item Substitution

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view item substitutions.

You can edit data in this tab, including mass update.

Items

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view item attributes.

You can edit data in this tab.

Enhance Item's List of Values

The List of Values (LOV) for an Item can be searched based on the following criteria:

- Starts With
- Contains
- Equal to

You can also perform a wildcard search, using the Contains option. For example, you can search for %ITM% or ITM.

All three search criteria apply to all the views where an Item's LOV is used in Rapid Planning as well as all Plan Inputs tab. The views are given below:

- Analytics: Create, Edit Metrics
- Exceptions: Search
- Supplies and Demand: Search
- Material Plan: Set Up: Filter
- Items: Search
- Supply Chain Bill: Search
- Bill of Material: Search
- Clear to Build: Search
- Processes: Search

Plan Tab

Search, view, and analyze the items used in the plan

Plan Inputs Tab

Make changes to items and add them to a simulation set

Plan Tab and Plan Inputs Tab

Mass edit a set of rows, for example, all items of a particular category, or do a single-row edit to update any of these attributes

- Maximum Order Quantity
- Minimum Order Quantity
- Fixed Lot Multiple
- Fixed Order Quantity
- Variable Lead Time
- Fixed Lead Time
- Preprocessing Lead Time
- Processing Lead Time
- Postprocessing Lead Time
- Acceptable Early Days
- No New Planned Orders Before WIP

Manufacturing Order Operation Networks

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view manufacturing order operation networks.

You can edit data in this tab, including mass update.

Manufacturing Order Resource Requirements

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view manufacturing order resource requirements.

You can edit data in this tab, including mass update.

Resource Availability

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view resource availability.

You can edit data in this view.

Plan Tab

Search, view, analyze, and edit the resource availability used in the plan

Plan Inputs Tab

Add simulation set changes or manual over-rides on resource availability

Plan Tab and Plan Inputs Tab

Mass edit a set of rows, for example, all dates of a particular resource, or do a single-row edit to update any of the following attributes

- Shift Date
- Assigned Units
- Start Time
- End Time

Resources

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view resource attributes.

You can edit data in this view.

Enhance Resource's List of Values

The List of Values (LOV) for a Resource can be searched based on the following criteria:

- Starts With
- Contains
- Equal to

You can also perform a wildcard search, using the Contains option. For example, you can search for %RES% or RES.

All three search criteria apply to all the views where a Resources's LOV is used in Rapid Planning as well as all Plan Inputs tab. The views are given below:

- Analytics: Create, Edit Metrics
- Exceptions: Search
- Resource Availability: Search

- Resource Requirement: Search
- Resource Plan: Search
- Resources: Search
- Clear to Build: Search
- Processes: Search

Plan Tab

Search, view, analyze, and edit the resources in the plan

Plan Inputs Tab

Search, view, analyze, and edit the resources in the plan and add resource changes to a simulation set

Plan Tab and Plan Inputs Tab

Mass edit a set of rows or do a single-row edit to update attribute Bottleneck Resource flag.

Routing Operation Networks

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view routing operation networks.

You can edit data in this tab, including mass update.

Routings

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view routings.

You can edit data in this tab, including mass update.

Suppliers

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view supplier attributes--ASL's and supplier capacity.

You can:

- Add capacity to a supplier-item-org. You cannot create a supplier-item-org.
- Multi-select and duplicate ASL and supplier capacity rows
- Edit data

- Mass update data
- Save edits in simulation sets

You cannot have overlapping dates within the same supplier-supplier site-item-org.

There is no organization field in this view because Rapid Planning ASL information applies the same to all organizations for each item-supplier. For example, if you individual or mass edit information, duplicate a row, or add to a simulation set, the action applies to all organizations with that same item-supplier.

Plan Tab and Plan Inputs Tab

Search, view, and analyze the approved supplier lists and the supplier capacities used in the plan

Supply Chain Bill

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view a graphical and tabular supply chain bill.

You cannot edit data in this view.

The supply chain bill is a nested tree of the:

- Component structure: For all effectivity dates
- Sourcing hierarchy: This is from the assignment set of the plan options

There is not a separate row in the supply chain bill for Make at or Transfer from sourcing. There is a separate row for Buy from sourcing.

The tab shows all alternate bills of material unless you restrict it through search field Alternate BOM.

The tab does not show substitute components.

To add a component to an assembly:

- Click one assembly only
- Click icon Add Component

To add a component to an assembly by duplicating another component:

- Click one component only
- Click icon Duplicate Component
- Use line editing to change the duplicated component row

To remove a component from an assembly:

- Click one assembly only
- Click icon Remove Component

Components Plan Tab

Search, view, and analyze the complete supply chain of specific end assemblies and their bills of material and sourcing.

You cannot make any edits in this view for simulation purposes. You can use the Bill of Materials view to edit bill of material attributes.

Processes Plan Tab and Processes Plan Inputs Tab

Search, view, and analyze the routings, operations, and resources assigned to each operation

You cannot make any edits in this view for simulation.

Plan Options

Use this view to maintain plan options.

You can access the plan options:

- As part of the action Create Plan.
- From the Plan Actions menu when you have a plan open.

Use this sequence to set up plan options. Set:

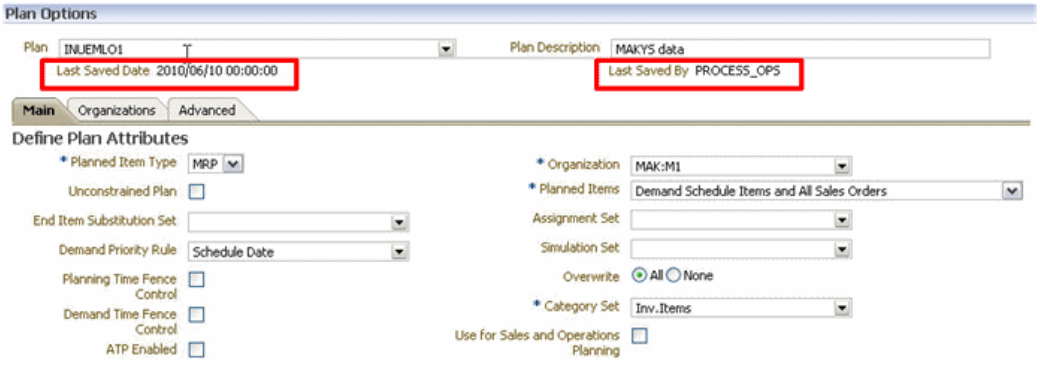
- Plan attributes
- Plan horizon
- Forecast allocation and consumption options
- Planned organizations and demand and supply schedule inputs
- Advanced plan options

The plan options view has these tabs:

- Main: Options that influence solver behavior.
- Organizations: Planned organizations and demand and supply schedule inputs
- Advanced: Advanced Options that influence solver behavior. They come from profile options.

Audit information about plans is now displays when a plan was last saved and by whom. To view this information, two fields, Last Saved Date and Last Save By, have

been added to the Plan Options screen. These fields are updated every time a Plan is saved.



In addition, when you save changes to rows, you receive a confirmation message, which indicates the number of rows that have been updated, the number of successful updates, and the number of failed updates.

Main Plan Options Tab

The plan options Organizations tab has regions for.

- General plan options: Define Plan Attributes
- Plan security: Define Plan Security Attributes
- Buckets and horizons: Define Plan Attributes
- Forecasting: Forecast Allocation and Consumption
- Auto release: Auto Release Parameters. See Planned Order Auto Release.

Explode Forecast: specifies that the planning solver should explode configure to order forecasts. Do not select this option if you are driving the plan with pre-exploded forecasts.

RP Planning Item Type. Values are:

- MPS: A master production schedule
- MPP: A master production plan
- MRP: A material requirements planning plan
- DRP: A distribution planning plan

This table shows the options in the Main tab.

Plan Option	Description
Plan Name	Plan name
Plan Description	Plan Description
Organization	Plan owning organization
Planned Item Type	The planning method of items included in the plan
Planned Items	Items that are planned. Valid values are: • All Planned Items • Demand Schedule Items and all sales orders • Demand Schedule and WIP components • Demand Schedule items only • Demand Schedule Items, WIP components and all sales orders
Unconstrained Plan	Constrained or unconstrained mode.
Assignment Set	Assignment set to use in the plan.
End Item Substitution Set	End-item substitution set to use in the plan.
Simulation Set	Simulation set to use in the plan.
Demand Priority Rule	Demand priorities to use in the plan.
Overwrite	To determine which firm orders the planning solver uses in this plan run.
Planning Time Fence Control	Planning time fence to use in the plan.
Demand Time Fence Control	Demand time fence to use in the plan.
Category Set	Item category set to use in the plan.

Plan Option	Description
Number of Planning Buckets (Daily)	Number of daily buckets to be included in the plan.
Plan Start Date	The start date of the plan, set to the current date by default
Plan End Date	The end date of the plan, calculated automatically based on the start date and number of planning buckets
Forecast Spreading	Whether to spread the forecasts.
Consume by Forecast Bucket	Whether forecast consumption is by forecast bucket or based on backward and forward consumption days.
Backward Days	Forecasts falling within this many days before the sales order date are eligible for consumption by the sales order.
Forward Days	Forecasts falling within this many days after the sales order date are eligible for consumption by the sales order.
Auto-Release	Auto-release the recommendations.

Organization Plan Options Tab

The plan options Organizations tab has regions for.

- Organizations
- Global forecasts and sales orders: Global Demand Schedules
- Local forecasts and sales orders: Demand Schedules

The fields for subinventory netting appear on a separate window.

Ship to consumption level

Specifies the forecasts that the planning solver should consume. Valid values are:

- Customer: Consumption occurs when item numbers and customer numbers match between the forecast entry and the sales order line.

- Customer Site: Consumption occurs when item numbers, customer numbers, and customer ship-to addresses match between the forecast entry and the sales order line.
- Zone: Consumption occurs when the item numbers and the zone to which the customer ship-to address belongs match between the forecast entry and the sales order line.
- Zone Customer: Consumption occurs when the item numbers, the zone containing the customer ship-to address, and the customer numbers match between the forecast entry and the sales order line.
- Demand Class: Consumption occurs when item numbers and demand class match between the forecast entry and the sales order line.
- Item-organization (default value): Consumption occurs when item numbers match between the forecast entry and the sales order line.

All values apply to global forecasts. For local forecasts, you can use Customer, Customer Site, Demand Class, and Item-org.

This table shows the options in the Organizations tab.

Plan Option	Description
Organizations	Organizations to plan. in the Rapid Plan. Note – • You cannot edit some checkboxes. • List all organizations that are in your sourcing rules. The planning solver uses missing organizations as sources of infinite supply.
Sub-Inventories	Subinventories to net.
Demand Schedules	Demand schedules to use in the plan.
Ship To Consumption Level	Forecasts to consume.
Global Demand Schedules	Global forecasts.

Advanced Plan Options Tab

The plan options Advanced tab has the plan options that:

- Default from profile options
- Control natural time fence; see Planning Time Fence

This table shows the options in the Advanced tab.

Plan Option	Description
Auto-Release Compression Days Tolerance	Number of compression days allowed for auto-release of planned orders.
Consume Forecast Inside Demand Time Fence	Determines whether to apply forecast consumption or demand time fence first.
Consume Forecast with No Demand Class	Order of forecast consumption when some have demand classes.
Consume Forecasts Using Internal Sales Orders	Should internal sales orders consume forecasts.
Default Forecast Priority	Default priority value for forecasts.
Default Sales Order Priority	Default priority value for sales orders.
Safety Stock Bucket Start Offset Days	Number of days after the plan run date that the safety stock window starts.
Firm Internal Reqs Transferred to OE	Consider internal requisitions transferred to Oracle Order Management as firm.
Inflate WIP Resource Requirements	Whether to inflate resource requirements by efficiency and utilization during collections from Oracle Work in Process.
Released Only By User	Whether to restrict implementation of planned orders to the current user.
Requisition Load Group Option	Group by option to use when loading requisitions from the workbench

RP Group Planned Orders	Whether to restrict implementation of planned orders and recommendations to the current group.
RP - Component Substitution Logic	Whether to use on-hand of the primary item or its substitutes first to satisfy the demand.
Lateness Threshold for Consuming Existing Supplies	The number of days late that an order can be to use on hand of substitute components.
Safety Stock Planning Method	Whether to calculate safety stock and whether to use time phase or quantity based safety stock.
Create Time Fence	Whether to recalculate the time fence date to the latest due date of scheduled receipts.
Firm Planned Order Time Fence	Whether to recalculate the time fence date to the latest due date of firm planned orders.
Firm Internal Requisition Time Fence	Whether to recalculate the time fence date to the latest due date of firm internal requisitions.

Basic Plan Actions

Use the actions to act against plans. You find links to the actions in the Plan Actions section of the navigator in the Plan inputs tab.

For each action, this tells you:

- The link name
- The regions that it commonly appears in
- What it is for and how to use it

You cannot perform all actions on all plans. For example:

- You cannot load, save, or close a plan that you have created but never launched.
- You cannot perform any action against a plan that is being saved or being re-planned (launched).
- You cannot load, save, or copy a plan that has failed its re-plan.

Create Plan

Use this action to create plans.

It opens the plan definition and options page in a pop-up window with an empty plan name and default values. Once you create a plan, you can see it in the list of plans.

Launch Plan

Use this link to re-plan plans.

It opens a launch plan page in a pop-up window.

Field Plan shows that plan that you currently have selected and you can select another one instead.

If you don't have any plan selected, field Plan is blank and you can select one

You select:

- Incremental replan: Select this option if the simulation changes made in this plan are adding new manual demands. Do not use if you simulated anything else, that is, changed forecasts, supplies, or other reference data, for example, items.
- Launch Plan, do not refresh snapshot: Select this option if you want to do a complete solve and if the collected data has not changed since the last time you re-planned.
- Launch Plan, refresh snapshot: Select this option if you want to do a complete solve and if the collected data has changed, or if there are fresh simulations made in the simulation set since the last time you re-planned.

The progress bar shows the progress of the planning solver.

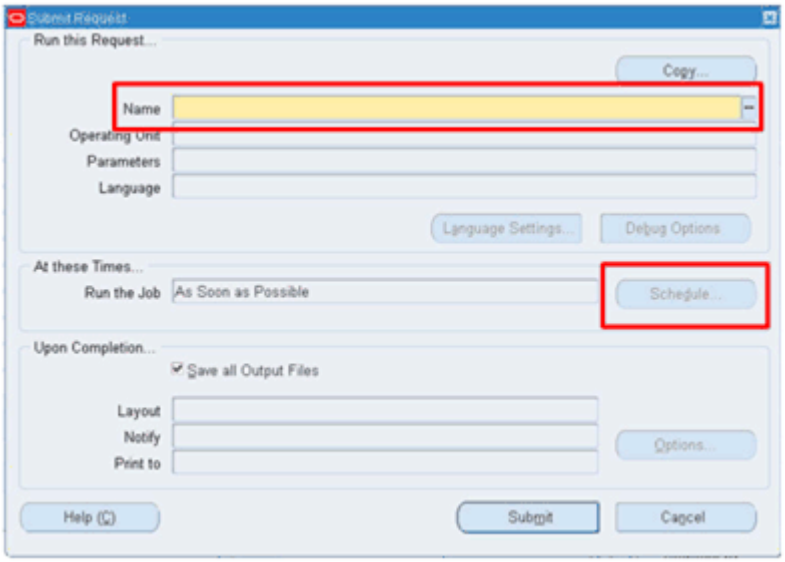
Schedule a Plan Run

When you are signed in under the Oracle Supply Chain Simulation Planner, you can schedule a plan run.

To schedule a plan run:

1. Sign in under the Oracle Supply Chain Simulation Planner responsibility.
2. Under the Other heading, click Request.

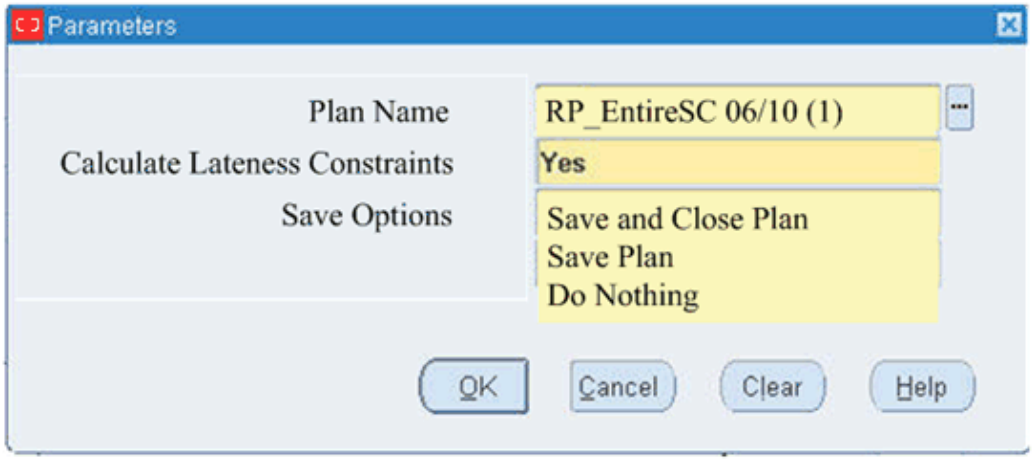
   The Submit Request form pop-up window appears.



3. Click the Name field.

You can select the name of the concurrent request, Launch Simulation Planner.

The Parameter screen appears.



- The plans that are visible are controlled by the Security Model. Only Plan level security is enforced.
- Plans scheduled through the concurrent request are always launched with the option "Refresh Snapshot".
- Calculate Lateness Constraints can take values of YES or NO. The default value is NO.

- Use fields Launch Snapshot and Use Mass updated Demand Priorities if you have loaded updated demand priorities. See Simulating with Updated Demand Priorities.

Save Options

Save options can be one of three possible values:

1. Save and Close Plan. This option ensures that the executed Rapid Planning plan, which was run on a defined schedule, saves and closes the plan. This guarantees that the updated plan is available for other downstream processes.

   This is the default setting.

2. Save Plan. This option is the same as the Save and Close Plan option except it does not close the plan. Since the plan is not closed, it is still using a managed server.

3. Do Nothing. This option runs the Rapid Planning plan as scheduled but the plan is not saved and is still using a managed server.

Plan Status

Each plan has a status:

- Running Plans: Plans with a waiting sign.
- Active Plans: Plans with green tick, plans loaded in to memory.
- Inactive Plans: Plans with a red cross, they have errored out.

Load Plan

Use this action to load a plan from the database to memory.

You must load a plan before you can view, update, or simulate it.

It displays a plan status page in a pop-up window. Use this page to monitor the progress of each phase of the load. You can close this page and do other work and the load process keeps running.

Close Plan

Use this action to close a plan that you have loaded into memory.

Save Plan

Use this action to save a plan from your workspace to the database.

It opens a save plan page in a pop-up window.

Field Plan shows the plan that you currently have selected and you can select another

one instead.

Select a value for field Post-Save Options > Release recommendations:

- Do not release
- Release recommendations marked for release: After the save finishes, release orders marked for release
- Auto-release all plan recommendations: After the save finishes, release all the orders that the plan recommends whether or not a planner has marked them for release

Select a value for field Post-Save Options > Publish analytics to APCC:

- Do not Publish
- Yes, and do not archive the previous version in APCC: After the save finishes, erase the plan analytics in Oracle Advanced Planning Command Center and send the analytics again
- Yes, and archive the previous version in APCC: After the save finishes, archive the current version the plan analytics in Oracle Advanced Planning Command Center and send the analytics again

After you confirm, it opens another save plan status page in a pop-up window. It displays the concurrent request number of the process.

15

Plan Analysis: Output Exceptions and Metrics

Output Exceptions: Overview

Exception messages alert the planner to situations where the planning solver needs planner intervention.

These are the exception messages that the planning solver issues, see Exception Messages, page 15-2:

- Changes Recommended for Sales Orders
- Days of Supply Exceeds Fixed Days Supply
- Demand Quantity Not Satisfied
- Demand Satisfied Using End Item Substitution
- Forecasts Pulled-in
- Items With a Shortage
- Items Below Safety Stock
- Items with Excess Inventory
- Late Replenishment for Forecast
- Late Replenishment for a Pull-in Forecast
- Late Replenishment for a Pull-in Sales Order
- Late Replenishment for Sales Order

- Late Supply Pegged to Forecast
- Late Supply Pegged to Sales Order
- On Time Orders
- Order Sourced from Alternate Facility
- Order Sourced from Alternate Supplier
- Order with Insufficient Lead Time
- Orders to be Cancelled
- Orders to be Rescheduled In
- Orders to be Rescheduled Out
- Past Due Orders
- Past Due Sales Orders
- Planned Order Uses Alternate BOM/Routing
- Planned Order Uses Substitute Component
- Planned Order Uses Alternate Resource
- Resource Overloaded
- Sales Order/Forecast at Risk Due to a Resource Shortage
- Sales Order/Forecast at Risk Due to Material Shortage
- Sales Orders Pulled in
- Sourcing Split Percentage Violated
- Supplier Capacity Overloaded

Exception Messages

These are explanations of the exception messages that the planning solver issues.

Changes Recommended for Sales Orders

The planning solver issues this exception message is generated each time there is a

change in the following:

- Material availability date
- Schedule arrival date

This is some of the information displayed for this exception:

- Sales order number with reference to line number
- Old schedule date (Suggested due date)
- New schedule date (Demand satisfied date)

Days of Supply Exceeds Fixed Days Supply

The planning solver issues this exception message when:

- You are using order modifier fixed days supply
- Days of Supply is larger than Fixed Days Supply

It usually occurs because of capacity constraints or other order modifiers that make the planning solver create planned orders for quantities that do not match demand for the FDS window.

You can access it from the Supplies view and from the Material Plan view. You can drill from it to the Supplies, Items, BOMs, and Material Plan views.

This is some of the information displayed for this exception

- Organization
- Item
- Item Category
- From Date
- To Date
- Days of Supply
- Fixed Days Supply
- Excess Days of Supply: The absolute difference between Days of Supply and Fixed Days Supply

Demand Quantity Not Satisfied

For any demand pegged to supplies, the supply quantities are less than the demand quantity. The planning solver issues this exception message for demands at all levels of the supply chain bill of materials.

The planning solver delays the demand until the end of the planning horizon and issues this exception if there is no demand on the plan horizon end date.

This is some of the information displayed for this exception:

- Partial Planned Date: The date on which the order is partially planned
- Partial Planned Quantity: Quantity of the order that is planned on partial Planned date
- Quantity Mismatch: Quantity of the order that has not been planned; the shortage quantity, Demand quantity – Total pegged supply quantity
- Value of Order: Order quantity * Price
- Value of Order (Unplanned Portion): Unplanned order quantity * Price

Demand Satisfied Using End Item Substitution

The planning solver plans to satisfy an end item demand using a supply order with a substitute item. If it satisfies a demand with multiple planned orders, it issues an exception for each supply order with the substitute item.

For example, the substitution chain is PSS7001 > PSS7002 > PSS7003 > PSS7004. The planning solver can satisfy demand for:

- PSS7001 using PSS7002, PSS7003, or PSS7004
- PSS7002 using PSS7003 or PSS7004
- PSS7003 using PSS7004

The substitute quantity is from the item relationships.

A piece of the information displayed for this exception is Value of Order: Order quantity * Price.

Forecasts Pulled In

This message is flagged for all Forecasts that have the Revised Demand Date populated. It indicates:

- Quantity that has been satisfied by the Revised Demand Date

- Quantity that has been satisfied by the Demand Date

For example, there is a Forecast for Item-A, with a Firm Date (Scheduled Date) of January, 25th 2010 for a quantity of 100 units in Org D2. The Revised Demand Date on this Forecast is January, 15th 2010. The supplies pegged to this Forecast are:

- Supply1: Quantity of 50 units on January 15th, 2010
- Supply2: Quantity of 20 units on January 12th, 2010
- Supply3: Quantity of 30 units on January 18th 2010

Quantity satisfied by Forecast's Revised Demand Date of January 15th 2010 is 70 units while Quantity satisfied by Forecast's Demand Date of January 25th 2010 is 100 units.

Some of this information displayed for this exception includes:

Field	**Explanation**
Organization	
Item	
Item Category	
Demand Date	Due date of the demand for the forecast (Firm Date)
Quantity	Quantity of the line (Firm Quantity)
Revised Demand Date	Pull-in due date of demand for the forecast
Customer	Customer on the forecast
Customer Site	Customer site
Priority	Priority on the demand line
Revised Demand Priority	Pull-in priority on the forecast
Demand Class	Demand Class on the demand Line
Quantity Satisfied by Revised Demand Date	Quantity that can be planned by the demand date (Scheduled Demand Date)

Value of Delay	Calculated Fact: Delayed Quantity * Price

Items With a Shortage

An item has negative projective available balance at the end of the planning bucket.

In this example, the planning solver issues these Items With A Shortage exception messages:

- Projected available balance -50 units
- Days 5 & 6: Projected available balance -200 units on both days

-	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
On Hand	0	50	-50	50	0	-200	-200
New Supply in bucket	100	0	200	50	100	0	200
Demand in bucket	50	100	100	100	300	0	0
Projected Available Balance	50	-50	50	0	-200	-200	0

This is some of the information displayed for this exception:

- From Date: The start date of the first planning time bucket in which the item has a shortage
- To Date: The start date of the last planning time bucket in which the item has a shortage
- Days of Shortage: Number of workdays the item is short, based on the manufacturing calendar of the organization. As long the shortage quantity remains the same in successive planning time buckets, the planning solver issues one exception message and extends To Date.
- Value of Shortage: Shortage quantity * Item standard cost

Items Below Safety Stock

Projected available balance for a planning bucket is below the specified safety stock level for the planning bucket.

Since Oracle Rapid Planning uses the period-of-cover safety stock basis, safety stock is the amount required to cover demand for the target days.

In this example, the planning solver issues these Items Below Safety Stock exception messages:

- Day 2: 50 [300 – 250]
- Day 3: 250 [500 – 250]

-	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
On Hand	0	350	250	250	550	350	350
New Supply in bucket	400	0	100	400	100	0	0
Demand in bucket	50	100	100	100	300	0	0
Safety Stock Target (Days)	3	3	3	3	3	3	3
Safety Stock Target (Quantity)	250	300	500	400	300	0	0
Projected Available Balance	350	250	550	550	350	350	350

This is some of the information displayed for this exception:

- From Date: The start date of the first planning time bucket in which the item is below safety stock

- To Date: The start date of the last planning time bucket in which the item is below safety stock.
- Projected Available Balance : On To Date
- Quantity Below Safety Stock: Safety Stock Target (Quantity) – Projected Available Balance. As long the below safety stock quantity remains the same in successive planning time buckets, the planning solver issues one exception message and extends To Date
- Days of Shortage: Number of workdays the item is below safety stock, based on the organization manufacturing calendar
- Value of Shortage: Quantity below safety stock * Item standard cost

Items With Excess Inventory

The projected available balance on a particular day exceeds Safety Stock Target (Quantity) for that day

If you want to see only the exceptions above a certain threshold, specify the threshold in the search area on the Exceptions tab.

In this example, the planning solver issues these Items With Excess Inventory exception messages:

- Day 1: 100 [350 – 250]
- Day 4: 150 [550 – 400]
- Day 5: 50 [350 – 300]
- Day 6: 350 [350 – 0]
- Day 7: 350 [350 – 0]

-	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
On Hand	0	350	250	250	550	350	350
New Supply in bucket	400	0	100	400	100	0	0
Demand in bucket	50	100	100	100	300	0	0

-	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Safety Stock Target (Days)	3	3	3	3	3	3	3
Safety Stock Target (Quantity)	250	300	500	400	300	0	0
Projected Available Balance	350	250	550	550	350	350	350

This is some of the information displayed for this exception:

- From Date: The start date of the first planning time bucket in which the item has excess inventory
- To Date: The start date of the last planning time bucket in which the item has excess inventory.
- Projected Available Balance: On To Date
- Quantity of Excess: Projected Available Balance - Safety Stock Target (Quantity). As long the excess inventory quantity remains the same in successive planning time buckets, the planning solver issues one exception message and extends To Date
- Days of Excess: Number of workdays the item has excess inventory, based on the organization manufacturing calendar
- Value of Excess: Quantity of excess * Item standard cost

Late Replenishment for Forecast

The supplies for a forecast are due later than the forecast's due date. For example, there is a forecast for item A due 25 January for quantity 100 in organization D2. The supplies pegged to this sales order line are:

- Supply 1: Quantity 50 and due date 23 January
- Supply 2: Quantity 20 and due date 25 January

- Supply 3: Quantity 30 and due date 27 January

Demand satisfied date is 27 January (from Supply 3). Days late are 2. Quantity satisfied by forecast date is 70 (from Supply 1 and Supply 2).

This is some of the information displayed for this exception:

- Demand Date: The Requested Date of the forecast.
- Days Late: Difference between the Planned Date and the Demand Date, based on the manufacturing calendar of the organization
- Value of Forecast: Forecast Quantity * Price
- Value of Delay: Delayed quantity * Price

Late Replenishment for a Pull-in Sales Order

This exception message is flagged when the planning logic detects that supplies for a sales order line are due later than the sales order line's Revised Demand Date. For example, there is a sales order line for Item-A, with a Firm Date (Scheduled Date) of January, 25th 2010 for a quantity of 100 units in Org D2. The Revised Demand Date on this Sales Order is January, 15th 2010. The supplies pegged to this Sales Order are:

- Supply1: Quantity of 50 units on January 15th, 2010
- Supply2: Quantity of 20 units on January 12th, 2010
- Supply3: Quantity of 30 units on January 18th 2010

Demand satisfied date on this order line is January, 18th 2010.

Days late are 3.

Quantity not satisfied by sales order line Revised Demand Date of January 15th 2010 is 30 units.

Some of the information shown for this exception includes:

Field	Explanation
Organization	
Item	
Item Category	

Order, Line Number	
Demand Date	Due date of demand for the sales order (Firm Date)
Demand Satisfied Date	Date when the order is currently satisfied
Order Line Quantity	Quantity of the Line (Firm Quantity)
Revised Demand Date	Pull-in due date of demand for the sales order
Customer	Customer on the order
Customer Site	Customer site
Priority	Priority on the Order Line
Revised Demand Priority	Pull-in priority on the Order Line
Demand Class	Demand Class on the Order Line
Quantity not Satisfied by Revised Demand Date	Quantity that is not planned by the due date
Days Late (calculated)	Calculated fact: Number of days the order is planned late
Value of Order	Calculated fact: Quantity * Price
Value of Delay	Calculated Fact: Delayed Quantity * Price

Late Replenishment for a Pull-in Forecast

This exception message is flagged when the planning logic detects that supplies for a forecast are due later than the forecast's Revised Demand Date. For example, there is a forecast for Item-A, with a Firm Date (Scheduled Date) of January, 25th 2010 for a quantity of 100 units in Org D2. The Revised Demand Date on this forecast is January, 15th 2010. The supplies pegged to this forecast are:

- Supply1: Quantity of 50 units on January 15th, 2010
- Supply2: Quantity of 20 units on January 12th, 2010

- Supply3: Quantity of 18 units on January 17th, 2010
- Supply 4: Quantity of 12 units on January 18th, 2010

Demand satisfied date on this forecast is January, 18th 2010.

Days late are 3.

Quantity not satisfied by forecast's Revised Demand Date of January 15th 2010 is 30 units.

Some of the information shown for this exception includes:

Field	Explanation
Organization	
Item	
Item Category	
Demand Date	Due date of the forecast (Firm Date)
Demand Satisfied Date	Date when the forecast is planned
Quantity	Forecast quantity (Firm Quantity)
Revised Demand Date	Pull-in due date of demand for the forecast
Customer	Customer on the forecast
Customer Site	Customer site
Priority	Priority on the Order Line
Revised Demand Priority	Pull-in priority on the forecast
Demand Class	Demand Class on the demand Line
Quantity not Satisfied by Revised Demand Date	Quantity that is not planned by the due date
Value of Forecast	Calculated fact: Forecast Quantity * Price
Value of Delay	Calculated Fact: Delayed Quantity * Price

Late Replenishment for Sales Order

The supplies for a sales order line are due later than the sales order line's schedule date. For example, there is a sales order line on item A, with a scheduled date of 25 January for quantity 100 in organization D2. The supplies pegged to this sales order line are:

- Supply 1: Quantity 50 and due date 23 January
- Supply 2: Quantity 20 and due date 25 January
- Supply 3: Quantity 30 and due date 27 January

Demand satisfied date is 27 January (from Supply 3). Days late are 2. Quantity satisfied by sales order line schedule date is 70 (from Supply 1 and Supply 2).

This is some of the information displayed for this exception:

- Demand Date: The Requested Date of the sales order.
- Days Late: Difference between the Planned Date and the Demand Date, based on the manufacturing calendar of the organization
- Value of Forecast: Sales Order Quantity * Price
- Value of Delay: Delayed quantity * Price

Late Supply Pegged to Forecast

A forecast demand will be satisfied late because supplies that peg to it are late.

This is some of the information displayed for this exception:

- Supply Order Demand Date: The date when the supply order should have been created to meet the forecast on time
- Supply Order Due Date: Actual supply date of the supply order
- Supply Days Late: Supply order demand date – Supply order due date, based on the organization manufacturing calendar of the demand

Late Supply Pegged to Sales Order

A sales order demand will be satisfied late because supplies that peg to it are late that is satisfied late.

This is some of the information displayed for this exception:

- Supply Order Demand Date: The date when the supply order should have been created to meet the forecast on time

- Supply Order Due Date: Actual supply date of the supply order
- Supply Days Late: Supply order demand date – Supply order due date, based on the organization manufacturing calendar of the demand

Order Sourced from Alternate Facility

The planning solver sources a planned order from an alternate facility

This is some of the information displayed for this exception:

- Source Org: The alternate facility
- Value of Order: Order quantity * Cost

Order Sourced from Alternate Supplier

The planning solver sources a planned order from an alternate supplier

This is some of the information displayed for this exception:

- Supplier: The alternate supplier
- Supplier site: The alternate supplier site
- Value of Order: Order quantity * Cost

Order With Insufficient Lead Time

The planning solver detects that a supply order needs to be completed in less time than the minimum processing time required to meet the demand. If the planning solver plans the order according to its lead-time, it would start in the past (before the planning horizon start date).

The planning solver issues this exception message only when an order start date is scheduled to be before the horizon start date. It never generates it when the plan start date is later than the horizon start date.

To calculate order start date, the planning solver uses the item lead time offset (for unconstrained plan) or routing level processing times (for constrained plans) and then backward schedules from its due date. It considers all the relevant calendars associated with each part of the supply chain model.

This is some of the information displayed for this exception:

- Compression Days: Number of days the order is compressed, based on the organization manufacturing calendar; Horizon Start – Order Start
- Value of Order: Order quantity * Item standard cost

Orders to be Cancelled

This exception message appears when the planning solver suggests that you cancel a supply order. It occurs when the planning solver detects a non-firm supply order that you do not need to satisfy demand or safety stock requirements.

A piece of the information displayed for this exception is Value of Order: Order quantity * Cost

Orders to be Rescheduled In

The planning solver suggests that you reschedule an existing supply order to an earlier date. It occurs when the planning solver detects a non-firm existing supply order with a due date that is later than it suggests (suggested order date). The planning solver continues to plan lower bill of material levels as if you accept the suggestion.

This is some of the information displayed for this exception:

- Order Number: The start date of the planning time bucket in which the supplier capacity is overloaded
- Original Due Date (From Date): The current due date
- Suggested Due Date: New due date that the planning solver recommends; no earlier than the plan horizon start date.
- Reschedule Days: Number of workdays between the original and suggested due dates, based on the organization manufacturing calendar.
- Value of Order: Quantity * Item standard cost

Orders to be Rescheduled Out

The planning solver suggests that you reschedule an existing supply order to a later date. It occurs when the planning solver detects a non-firm existing supply order with a due date that is earlier than it suggests (suggested order date). The planning solver continues to plan lower bill of material levels as if you accept the suggestion.

This is some of the information displayed for this exception:

- Order Number: The start date of the planning time bucket in which the supplier capacity is overloaded
- Original Due Date (From Date): The current due date
- Suggested Due Date: New due date that the planning solver recommends; no earlier than the plan horizon start date.

- Reschedule Days: Number of workdays between the original and suggested due dates, based on the organization manufacturing calendar.
- Value of Order: Quantity * Item standard cost

Past Due Orders

Supply orders and planned orders have order (start) dates or due dates in the past (before the planning horizon start date).

For non-firmed supply orders, the planning solver also issues exception message Orders to be rescheduled out.

This is some of the information displayed for this exception:

- Order Number: The start date of the planning time bucket in which the supplier capacity is overloaded
- Suggested Due Date: No earlier than the plan horizon start date
- Days Past Due: Number of workdays past due, based on the organization manufacturing calendar; Due date – Horizon start date
- Value of Order: Quantity * Item standard cost

Past Due Sales Orders

The schedule date of the sales order line is earlier than the plan horizon start date.

This is some of the information displayed for this exception:

- Days Past Due: Number of workdays past due, based on the manufacturing calendar of the organization
- Value of Order: (Quantity on Sales Order * Price)

Planned Order Uses Alternate BOM/Routing

The planning engine uses an alternate bill of material or routing in a planned order or detects a firm planned order with an alternate bill of material or routing.

A piece of the information displayed for this exception is Order Value: Order quantity * Item standard cost

Planned Order Uses Alternate Resource

The planning engine uses an alternate resource in a planned order or detects a firm planned order with an alternate resource.

This is some of the information displayed for this exception:

- Quantity: Units of the primary and alternate resources used
- Value of Order: Order quantity * Item standard cost
- Resource units from alternate: Units of the alternate resource used

Planned Order Uses Substitute Component

The planning engine uses a substitute component in a planned order or detects a firm planned order with a substitute component.

A piece of the information displayed for this exception is Value of Order: Order quantity * Cost

Resource Overloaded

In a planning time bucket, the resource required capacity is more than the resource available capacity. Resources could be overloaded in constrained plans because of firm supplies that have associated resource consumption. In unconstrained plans, resources could be overloaded to meet demand requirements on time.

This is some of the information displayed for this exception:

- Start Constraint Date: Date that the overload starts
- End Constraint Date: Date that the overload ends
- Resource Load Ratio (%): (Resource requirement / Resource availability) * 100

Sales Order/Forecast at Risk Due to a Resource Shortage

Typically issued in an unconstrained plan when the sales order or forecast is still planned on time even in the absence of resource availability. This exception message details the end demands that are at risk because of being pegged to supply orders with resources with insufficient capacity.

Sales Order/Forecast at Risk Due to Material Shortage

Typically generated in an unconstrained plan when the sales order or forecast is still planned on time even in the absence of material availability (because of the plan being unconstrained). This exception details the end demands that are at risk because of being pegged to supply orders with material shortages

Sales Orders Pulled-in

This message is flagged for all Sales Orders that have the Revised Demand Date

populated. It indicates:

- Quantity that has been satisfied by the Revised Demand Date
- Quantity that has been satisfied by the Demand Date

For example, there is a Sales Order for Item-A, with a Firm Date (Scheduled Date) of January, 25th 2010 for a quantity of 100 units in Org D2. The Revised Demand Date on this Sales Order line is January, 15th 2010. The supplies pegged to this Sales Order are:

- Supply1: Quantity of 50 units on January 15th, 2010
- Supply2: Quantity of 20 units on January 12th, 2010
- Supply3: Quantity of 30 units on January 18th 2010

Quantity satisfied by Sales Order Line Revised Demand Date of January 15th 2010 is 70 units while Quantity satisfied by Sales Order Line Demand Date of January 25th 2010 is 100 units.

Some of the information shown for this exception includes:

Field	Explanation
Organization	
Item	
Item Category	
Demand Date	Due date of demand for the sales order (Firm Date)
Quantity	Quantity of the line (Firm Date)
Revised Demand Date	Pull-in due date of demand for the sales order line
Customer	Customer on the order
Customer Site	Customer site
Priority	Priority on the demand line
Revised Demand Priority	Pull-in priority on the Order Line

Demand Class	Demand Class on the Sales Order Line
Quantity Satisfied by Revised Demand Date	Quantity that can be planned by the revised demand date
Value of Order	Calculated fact: Quantity * Price

Sourcing Split Percentage Violated

Use this profile option to specify the tolerance that you allow between sourcing percentages and the actual percentages in a split sourcing window. If the difference is outside the tolerance, the planning solver issues the exception message.

If the last window of the planning horizon is shorter than all of the other windows, the planning solver does not issue the exception message.

This is some of the information displayed for this exception:

- Item
- Supplier
- Supplier Site
- Source Organization (if the source is an organization and not a supplier)
- From Date: The start date of the first split sourcing window in violation
- To Date: The end date of the last split sourcing window in violation. When the percentage of variation remains the same in successive windows, the planning solver uses the exception message from the previous window and extends the end date.
- Allocated Percentage: The sourcing rule split percentage
- Planned Percentage: The actual cumulative split percentage
- Percent Variation: Planned Percentage - Allocated Percentage

Supplier Capacity Overloaded

In a planning time bucket, the supplier required capacity is more than the supplier available capacity.

The amount of overload is Required capacity of the bucket - Cumulative available capacity of the bucket. Load ratio is a percent and its calculation is (Required quantity /

Cumulative available quantity) * 100.

The planning solver consumes supplier capacity is through backward then forward netting of capacity from the demand date. The calculation of supplier capacity utilization is Capacity consumed / Supplier capacity per day. The planning solver issues this exception message only on the days that have utilization over 100%.

In this example:

- Row Order Qty shows orders that use up the supplier capacity.
- Since supplier capacity is cumulative, the planning solver can consume more than the capacity on a specific day. For example, on day D3, the planning solver can backward consume up to quantity 40

-	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Supplier Capacity	10	10	10	10	10	10	10	10
Order Quantity	-	-	-	40	-	-	-	30
Capacity Consumed	0	10	10	20	10	10	10	0
Utilization Percentage	0	100	100	200	100	100	100	0

Some of the information displayed for this exception is From Date: The start date of the first planning time bucket in which the supplier capacity is overloaded

Output Metrics: Overview

Metrics are indicators of plan quality.

You see them in the Analytics view.

Base Metrics

The planning solver calculates these metrics based on data from the plan.

Exception-Based Metrics

The planning solver derives these metrics from exception messages, most often by aggregating facts associated with the related exceptions. These metrics include:

- The count: Number of the exceptions; for example, the number of exception message Past Due Orders that the planning solver issues in the plan run
- Quantity: Number of pieces involved in the exception; for example, shortage quantity
- Value: In functional currency of the exception; for example, the Quantity * Cost of exception messages Orders to be Rescheduled In
- Days: Duration of the exception; for example, days below safety stock represented by the exception messages Items Below Safety Stock
- Ratio: Ratio of exception occurrences to a baseline; for example; the supplier load ratio resulting from the exception messages Supplier Capacity Overloaded

Base Metrics

These are explanations of the base metrics that the planning solver calculates.

Buy Planned Order Quantity

The dimensional combination is Item-Organization-Week.

Clear to Build Component Availability %

This metric is relevant for Oracle Advanced Planning Command Center

The dimensional combinations are:

- All
- Item Category
- Organization
- Item Category-Organization
- Item-Organization
- Item Category-Organization-Week
- Item-Organization-Week

The percentage of component requirements that are fully available on-hand:

- Aggregated to the dimensions that you specify
- Over the clear to build horizon

The calculation is total component requirements vs component requirements in on hand.

Clear to Build Orders (%)

This metric is relevant for Oracle Advanced Planning Command Center

The dimensional combinations are:

- All
- Item Category
- Organization
- Item Category-Organization
- Item-Organization
- Item Category-Organization-Week
- Item-Organization-Week

The percentage of orders that are clear to build (have all their components completely pegged to on hand):

- Aggregated to the dimensions that you specify
- Over the clear to build horizon

The calculation is total make orders vs. make orders that are clear to build.

Derived Safety Stock

Derived Safety Stock is a quantity that can be viewed only in pre-seeded combinations All, Org, and Item-Org. Item-Org is a dimension for which Rapid Planning must pre-compute the metrics.

Value of Derived Safety Stock is quantity multiplied by price.

Fill Rate (percentage)

Fill rate of the end demands based on quantity satisfied on time. The planning solver calculates it at level Item-Organization-Customer-Site.

Total quantity satisfied on time / Total quantity of the demand

Forecast Quantity

The dimensional combination is Item-Organization-Week.

Forecasts Pulled In

This metric pertains to the pull-in feature. It can be viewed only in pre-seeded combinations.

Exception fact: Count of Exceptions

Exception fact value (functional currency): Value of order (quantity * price)

Exception fact, Quantity Satisfied by Revised Date: Quantity satisfied by revised demand date

Exception fact, Quantity Satisfied by Demand Date: Quantity satisfied by revised demand date

Pre-seeded dimensional combinations for display: All, Org, Item-Org. Oracle Rapid Planning must pre-compute metrics for Item-Org

Gross Margin % (percentage)

Gross Margin % (percentage)

where

Total Cost = Manufacturing cost + Purchasing cost

The planning solver calculates this at level Item-Organization-Customer-Day. Day is the order Scheduled Ship Date.

Internal Purchase Orders / Requisitions Quantity

The dimensional combination is Item-Organization-Week.

Inventory Turns (ratio)

Annualized cost of goods sold in standard cost / Average projected available balance

where

Annualized cost of goods sold = (Item standard cost * Sum of [Independent demand quantity in plan * 365]) / Number of days in plan

Average projected available balance = Average of beginning value and ending value of each bucket

Late Orders Ratio (count)

Demand lateness measured as the percentage of the number of end demand lines unsatisfied on their due date.

Late Replenishment for a Pull-in Forecast

This metric pertains to the pull-in feature. It can be viewed only in pre-seeded combinations.

Exception fact: Count of Exceptions

Exception fact value (functional currency): Value of order (quantity * price)

Exception fact, Days: Days late

Exception fact, Quantity: Late Quantity:

Pre-seeded dimensional combinations for display: All, Org, Item-Org. Oracle Rapid Planning must pre-compute metrics for Item-Org

Late Replenishment for a Pull-in Sales Order

This metric pertains to the pull-in feature. It can be viewed only in pre-seeded combinations.

Exception fact: Count of Exceptions

Exception fact value (functional currency): Value of order (quantity * price)

Exception fact, Days: Days late

Exception fact, Quantity: Late Quantity:

Pre-seeded dimensional combinations for display: All, Org, Item-Org. Oracle Rapid Planning must pre-compute metrics for Item-Org

Make Planned Order Quantity

The dimensional combination is Item-Organization-Week.

Manufacturing Cost (functional currency)

Manufacturing cost value in functional currency

The standard costs collected into Rapid Planning are not rolled-up.

The planning solver calculates this at level Item-Organization-Day.

On Time Orders (percentage)

Percentage of on time demands, measured as the percentage of number of end demand

lines unmet on due date

The planning solver calculates this at level Item-Organization-Customer-Day.

Planned Order Quantity

The dimensional combination is Item-Organization-Week.

Purchase Orders / Requisition Quantity

The dimensional combination is Item-Organization-Week.

Purchasing Cost (functional currency)

Purchasing cost value in functional currency.

The planning solver calculates this at level Item-Organization-Supplier-Day.

Ready to Build %

This metric is relevant for Oracle Advanced Planning Command Center

The dimensional combinations are:

- All
- Item Category
- Organization
- Item Category-Organization
- Item-Organization
- Item Category-Organization-Week
- Item-Organization-Week

The percentage of orders that are ready to build (have all their components pegged to on hand, but not all their total quantities pegged):

- Aggregated to the dimensions that you specify
- Over the clear to build horizon

The calculation is total make orders vs make orders that are ready to build.

Resource Utilization % (percentage)

Resource utilization as a ratio of resource requirements to resource availability within

the planning bucket

The planning solver calculates this at level Resource-Organization-Day.

Revenues (functional currency)

Sum of [(Independent demand quantity * (List price - Discount)]

The planning solver calculates it at level Item Category-Organization-Customer-Day. Day is the order Scheduled Ship Date.

Safety Stock Violation Days (days)

The number of days when the inventory at the end of a planning bucket is below minimum safety stock targets.

The planning solver calculates it at level Item-Organization-Day.

Sales Order Pulled In

This metric pertains to the pull-in feature. It can be viewed only in pre-seeded combinations.

Exception fact: Count of Exceptions

Exception fact value (functional currency): Value of order (quantity * price)

Exception fact, Quantity Satisfied by Revised Date: Quantity satisfied by revised demand date

Exception fact, Quantity Satisfied by Demand Date: Quantity satisfied by revised demand date

Pre-seeded dimensional combinations for display: All, Org, Item-Org. Oracle Rapid Planning must pre-compute metrics for Item-Org

Sales Order Quantity

The dimensional combination is Item-Organization-Week.

Stock Out Days (days)

Total number of days stocked out

Supplier Capacity Utilization % (percentage)

Ratio of supplier capacity required to supplier available capacity

The planning solver calculates this at level Item-Organization-Supplier-Day.

Target Safety Stock

Target Safety Stock is a quantity that can be viewed only in pre-seeded combinations All, Org, and Item-Org. Item-Org is a dimension for which Rapid Planning must pre-compute the metrics.

Value of Target Safety Stock is quantity multiplied by price.

Top Shortage Components

The dimensional combination is Item-Organization

The percentage of orders that are ready to build (have all their components pegged to on hand, but not all their total quantities pegged):

The filter criteria for this metric must have filters for specifying the end item category, date range, items, and organizations.

The calculation is total pegged requirements for the component across all orders vs pegged requirements for the component across against non-on hand supply.

Top Shortage Suppliers

The dimensional combination is Item-Organization

The percentage of orders that are ready to build (have all their components pegged to on hand, but not all their total quantities pegged):

The filter criteria for this metric must have filters for specifying the end item category, date range, items, and organizations.

The calculation is total buy requirements against the supplier across all orders vs buy requirements against the supplier pegged against non-on hand supply.

Total Demand Quantity

The dimensional combination is Item-Organization-Week.

Total Supply Quantity

The dimensional combination is Item-Organization-Week.

Transfer Planned Order Quantity

The dimensional combination is Item-Organization-Week.

Work Order Quantity

The dimensional combination is Item-Organization-Week.

Pull-in Metrics

The table below summarizes the list of metrics that have been introduced for the pull-in feature, which are based on exceptions defined above. This table contains the metric name and type.

SN	Name of Metric	Metric Type
1	Late Replenishment for a Pull-in Sales Order (Count)	Number
2	Late Replenishment for a Pull-in Sales Order (Value)	Number
3	Late Replenishment for a Pull-in Sales Order (Days)	Number
4	Late Replenishment for a Pull-in Sales Order (Quantity)	Number
5	Late Replenishment for a Pull-in Forecast (Count)	Number
6	Late Replenishment for a Pull-in Forecast (Value)	Number
7	Late Replenishment for a Pull-in Forecast (Days)	Number
8	Late Replenishment for a Pull-in Forecast (Quantity)	Number
9	Sales Orders Pulled-in (Count)	Number
10	Sales Orders Pulled-in (Value)	Number
11	Sales Orders Pulled-in (Quantity by Revised Date)	Number
12	Sales Orders Pulled-in (Quantity by Demand Date)	Number
13	Forecasts Pulled-in (Count)	Number

14	Forecasts Pulled-in (Value)	Number
15	Forecasts Pulled-in (Quantity by Revised Date)	Number
16	Forecasts Pulled-in (Quantity by Demand Date)	Number

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Plan Analysis: Outputs

Output Views

Use the views to view, analyze, and update the plan information

Access them from the Plan links section in the Plan tab and the Plan input links in the Plan inputs tab.

For each view, this tells you:

- The view name
- The regions that it commonly appears in
- What it is for and how to use it

Use the actions to act against plans. You find links to the actions in the Plan Actions section of the navigator in the Plan inputs tab.

For each action, this tells you:

- The link name
- The regions that it commonly appears in
- What it is for and how to use it

You cannot perform all actions on all plans. For example:

- You cannot load, save, or close a plan that you have created but never launched.
- You cannot perform any action against a plan that is being saved or being re-planned (launched).
- You cannot load, save, or copy a plan that has failed its re-plan.

Analytics

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view base metrics. See Rapid Planning Metrics Overview, page 15-20.

You cannot edit data in this view.

To view exception messages for a plan, load it.

Metrics Tab

You can create metrics from the list of available metrics. Specify the

- Dimensions, for example, item-organization
- Aggregation levels, for example, day or week
- Entities, for example, items and item categories

You can:

- View the results in graphs, for example, bar and line, and tables
- Specify the location of the metric on the metrics page, for example, left upper or right bottom
- See multiple metrics simultaneously
- Compare metrics across multiple plans or multiple runs of the same plan, for example, previous run and current run

Order Comparison Tab – Sales Order Comparison

You can compare across sales order demands between two plans. You cannot compare forecast demands.

The comparison type describes the satisfaction status of the demand in the base plan (Was…) and the compared plan (…, now…) For example, Was late, now on time.

Order Comparison Tab – Supply Order Comparison

You can compare across supply orders between two plans. You typically use this while solving issues that arise between Advanced Supply Chain Planning plan runs. You compare a baseline Rapid Planning plan (that you copy from Advanced Supply Chain Planning) with a Rapid Planning plan that shows a proposed solution.

See Simulating Plans from Oracle Advanced Supply Chain Planning, Comparing Plans.

Bills of Materials

You can:

- Add a bill of material or some of its components or substitutes to a simulation set.
- Duplicate a bill of material, a component, or a substitute and make edits for simulation purposes

See Input Views, Bills of Materials

Clear to Build Workbench

Use the Clear to Build Workbench to influence the allocation of clear to build on hand inventory. Prioritize and deprioritize make orders and sales orders.

The Clear to Build Workbench has these regions:

- A region to search and view make orders
- A region to prioritize make orders for clear to build, view contentions (make orders that share common components with other make orders), and deprioritize make orders for clear to build

The search area has these searchable attributes:

- Item
- Organization
- Component Item
- Order Type
- Due Date
- End pegged Demand Customer
- End Pegged Demand Due Date
- Resource Used
- Clear to Build Status
- Clear to Build Date
- Clear to Build Component Available %
- Ready to Build %

The Make Orders table has all the searchable fields and also:

- Order Number

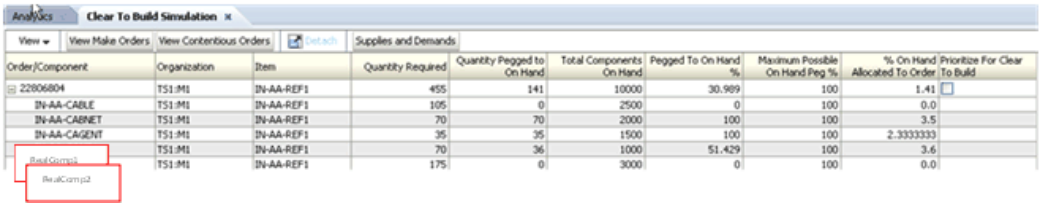
- Maximum Potential Ready to Build %
- Clear to Build Priority
- Deprioritized from Clear to Build

Phantom Items

When you evaluate the Clear to Build status of a work order, look through any components of the work order that are phantoms and evaluate the non-phantom sub-components.

Viewing a Single Level Phantom

When evaluating the Clear to Build status of a work order, Oracle Rapid Planning looks through the various phantom levels and displays only the real components. This provides you with clear visibility into the real component availability and requirements during a Clear to Build analysis. For example, in the diagram below, you see the components within the phantom, RealComp1 and RealComp2. You do not see any row for the parent phantom item IN-AA-COMP1.



Order/Component	Organization	Item	Quantity Required	Quantity Pegged to On Hand	Total Components On Hand	Pegged To On Hand %	Maximum Possible On Hand Peg %	% On Hand Allocated To Order	Prioritize For Clear To Build
22806804	TS1:M1	IN-AA-REF1	455	141	10000	30.989	100	1.41	☐
IN-AA-CABLE	TS1:M1	IN-AA-REF1	105	0	2500	0	100	0.0	
IN-AA-CABINET	TS1:M1	IN-AA-REF1	70	70	2000	100	100	3.5	
IN-AA-CAGENT	TS1:M1	IN-AA-REF1	35	35	1500	100	100	2.3333333	
RealComp1	TS1:M1	IN-AA-REF1	70	36	1000	51.429	100	3.6	
RealComp2	TS1:M1	IN-AA-REF1	175	0	3000	0	100	0.0	

Viewing Multi-Level Phantoms

The display of multi-level phantoms is identical to that of single phantoms. The phantoms are flattened so that only real components are displayed on the component allocation workbench.

For example, if there is a two-level phantom structure as shown below:

Item1						
Phantom1						
	Comp1					
	Comp2					
	Phantom2					
		Comp3				
		Comp4				
		Phantom3				
			Comp5			
			Comp6			

The component allocation displays only the real components. Your screen displays the following:

Item1						
	Comp1					
	Comp2					
	Comp3					
	Comp4					
	Comp5					
	Comp6					

Integration of the Component Allocation View into the Main Clear to Build Workbench Display

There is a new button on the Clear to Build workbench, View Contentious Orders for Components. The "View Contentious Orders for Components" action is enabled only when a component pegging row against a make order is selected.

All columns associated with the component allocation view, such as Quantity Required, Quantity Pegged to On-Hand, and so on, are available as additional columns when you scroll to the right of the table.

Since the main make order table is now in a tree format, the icons used for enabling Query by Example are changed slightly. The icons are similar to those in Supply/Demand.

All columns associated with the component allocation view (Quantity Required, Quantity Pegged to On-Hand, Total Components On-Hand, etc) are available as additional columns when scroll to the right of the table. Functionally, all the data in this view is identical to the erstwhile separate component allocation view.

Since the main make order table now changes from a normal table to a "Tree" table, there are slight changes to the icons used for enabling Query by Example. The icons used will be similar to the ones in Supply/Demand (which is also a tree table).

> **Note:** The Query by Example Mode button will be replaced by an icon of binoculars.

Constraint Details

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to see constraints for late and unmet demands. See also Planner Analysis: Late Demand Diagnosis.

You can access it for single and multiple demands and from:

- Supply & Demand View: From Late or Unmet End Demands

- Exceptions View: From exception messages Late Replenishment for Forecast, Late Replenishment for Sales Order, and Demand Quantity not Satisfied

It is in the Plan Links menu as well.

Here are some specific field definitions:

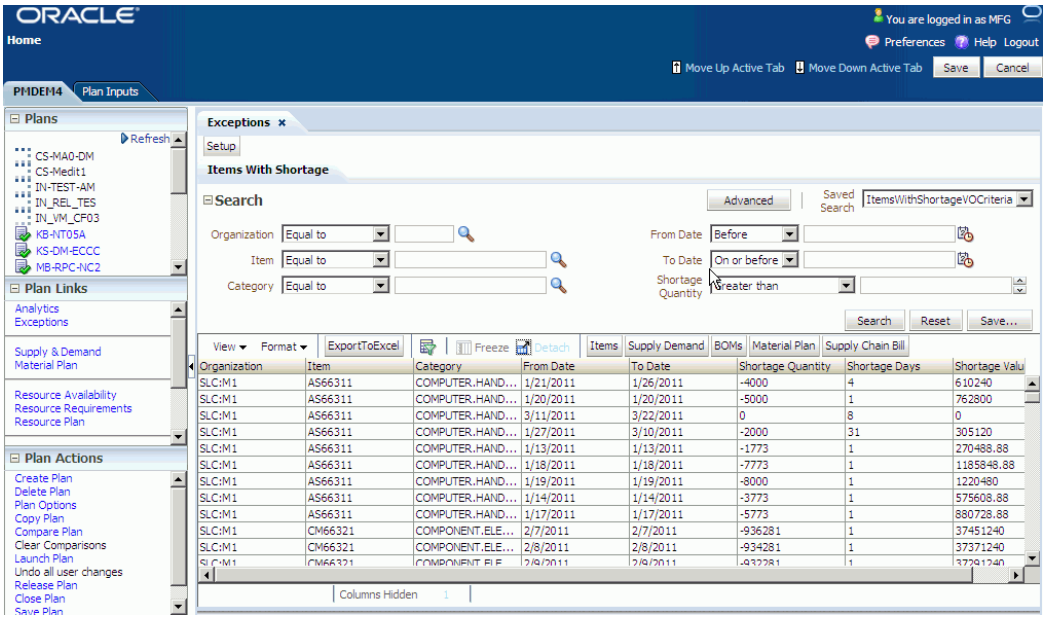
- BOM Level: Bill of material level from the finished good; the finished good level is level 1.
- Constraint Type: Material, Resource or Supplier
- Material Constraint Type: Lead Time, Time Fence, Date Effectivity, WIP Window
- Search Path: For the primary path, it reports exhaustive constraints.
- Requested Date: Date of the constraint
- Requested Qty: Quantity required to meet the demand on time; units for material or supplier constraints, hours for resource constraints.
- Available Qty: Quantity available at the moment that the planning solver is planning this demand
- Shortage Qty: Requested Qty – Available Qty
- Shortage %: Shortage Qty / Requested Qty
- Earliest Available Date: When the material or capacity is first available
- Constraint Duration: Earliest Available Date – Requested Date

Exceptions

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view exception messages.

You cannot edit data in this view.



You can set up the exceptions that you want to see:

- Click on Exceptions > Set Up
- Select the exceptions that you want to see by moving them between the lists using the > , >> and < ,<< icons in the set up wizard
- Once you move an exception is moved from one list to another, it is removed from the original list.
- Use the up and down icons to specify the order of the exceptions display

To see exception messages, you must load the plan to your workspace.

Each exception message appears in a separate sub-tab. Each sub-tab has its own search area and search results area.

The exception message sub-tabs appear in the order that you set up. Several sub-tabs appear when you first see this tab.

To see another exception message sub-tab, click on the sub-tab related to the exception. If the exception you want is not visible, click icon double-greater than and select the exception from the drop down list.

To move around to other exception messages, click icons double-greater than and double-less than and select them.

You can:

- Save the search criteria for each exception
- Export exceptions to Microsoft Excel

- Specify search conditions to limit the display of each exception and save it. After you specify the search criteria, you can drill down to other views

The meaning of each exception message is in Exceptions > Rapid Planning Exceptions Overview.

Items

You can:

- Make changes to items and add them to a simulation set
- Mass edit a set of rows, for example, all items of a particular category, or do a single-row edit to update any of these attributes

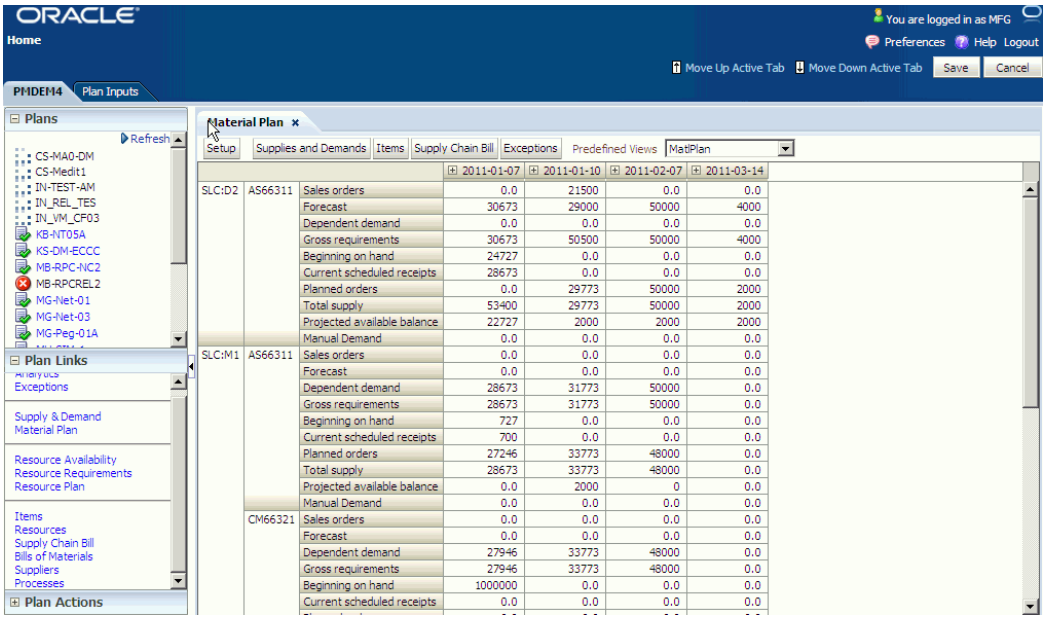
See Input Views.

Material Plan

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view a horizontal picture of the supply and demand. It is a horizontal plan.

You can edit data in this view.



Plan Tab

To drill down to supply and demand detail, highlight cells, then click button Supplies & Demands

The time bucket dates appear as the first three rows of the display. To:

- Expand a time bucket into lower level buckets, click icon Drill Expand near the date of the higher-level bucket
- Summarize lower level bucket detail into the higher level bucket, click icon Drill Collapse near the date of the higher-level bucket

Click button Setup to see the Search and Layout window where you can:

- Specify filter criteria (tab Filters)
- Specify the layout of the data columns (tab Layout)
- Specify titles for the data columns (tab Labels)
- Save the search, layout, and titles and make it your default (tab General)

You can filter on:

- Category
- Item
- Projected available balance
- Organization
- Product family
- Model
- Global forecast: In the Filter tab, select Show Global Forecast Measures.

You can directly make edits to the following row types:

- Forecasts
- Planned orders
- Manual demands

You can create:

- Planned orders
- Manual demands

After you save a changed cell, the tab:

- Finds the increased or decreased percentage change between what was there and

what you changed it to

- Applies that to all supply or demand details that make up the number in that cell
- Sets the new quantity and date values as firm

For example, you have a material plan row

Organization	Category	Measure	16 February	23 February	2 March
TST_M1	Hard Drives	Forecast	2000	2400	3000

The bucket 23 February quantity 2400 is the sum of these detail forecasts.

Organization	Item	Order Type	Date	Quantity	Firm Date	Firm Quantity
TST:M1	320 GB External Hard drive	Forecast	26 February	300	--	--
TST:M1	1 TB Hard drive	Forecast	25 February	1500	--	--
TST:M1	3 TB Hard drive	Forecast	27 February	600	--	--

You update bucket 23 February to quantity 3000.

Organization	Category	Measure	16 February	23 February	2 March
TST_M1	Hard Drives	Forecast	2000	3000	3000

The tab calculates a 25% quantity increase, passes that increase to all of the detail forecast firm quantities, and sets their firm dates.

Organization	Item	Order Type	Date	Quantity	Firm Date	Firm Quantity
TST:M1	320 GB External Hard drive	Forecast	26 February	300	26 February	375
TST:M1	1 TB Hard drive	Forecast	25 February	1500	25 February	1875
TST:M1	3 TB Hard drive	Forecast	27 February	600	27 February	750-

If you are creating a supply or demand in a week or period bucket, the new supply or demand's firm date is the last workday of the week or period.

Measures

You can view most of these measures as low as the item, organization, and day levels. You can roll up to higher:

- Item levels: Category, product family, and model
- Time levels: Week, period

If you select global forecast measures, global demand schedules display in a Global Organization section.

These are the demand measures available in the material plan:

- Dependent Demand: Sum of order types – (Planned order demand + Discrete job demand)
- Expected Scrap: Sum of Expected scrap; demand resulting from applying item attribute
- Shrinkage Rate to supplies
- Forecast: Forecast quantity after consumption
- Gross Requirements: Sum of all demands
- Manual Demand: Sum of manually created demand rows
- Other Independent Demand: Sum of (Hard reservation, Copied schedule demand, Non-standard demand, Demand class consumption)
- Production Forecast: Sum Production forecasts; can be based on exploded forecasts

of product families and models

- Sales Orders: Sum of Sales order quantities
- Original (Global Organization section only): The original global forecast quantity. If you spread the forecast to daily buckets, the spread forecast displays in place of Original.
- Consumed (Global Organization section only): The global forecast quantity that sales orders have consumed
- Current (Global Organization section only): The global forecast quantity that remains after consumption
- Cumulative Current (Global Organization section only): The sum of Current for this bucket and Current for all previous buckets

These are the supply measures available in the material plan:

- Current Scheduled Receipts: Sum of (Discrete jobs, Purchase orders, Requisitions, In transit, In receiving)
- Flow Schedules: Sum of Flow schedules
- In Receiving: Sum of In-receiving
- In Transit: Sum of In-transit
- Onhand: On-hand balance
- Planned Orders: Sum of Planned orders
- Purchase Orders: Sum of Purchase Orders
- Requisitions: Sum of Requisitions
- Total Supply: Sum of all supplies
- Work Orders: Sum of Discrete jobs

These are the other metrics available in the material plan:

- Projected Available Balance: Onhand + Total Supply – Gross Requirements
- Projected Onhand: Onhand + (Total Supply – Planned Orders) – Gross Requirements

For global forecasts, this is how the material plan rolls up:

- Model: It uses the model defined in the organization that you specified in profile option MSC: Organization containing generic BOM for forecast explosion.

- Categories and product families: If you select an organization view by, it uses that. Otherwise, it uses the definition in the plan owning organization.

Grand Totals

You can see grand totals for Material Plan entities and drill down to their corresponding Supplies and Demands, Items, Supply Chain Bill, and Exceptions windows.

In the Material Plan Setup page, General tab, select Grand Total.

All measures displayed at the Item level or Category level are displayed at the Grand Total level, except Global Forecast.

You can update values for:

- Planned Order (zero and non-zero values)

- Forecast (only non-zero values)

- Manual Demand: (zero and non-zero values)

When you update from:

- Zero to non-zero (Planned Order and Manual Demand): The page proportionally updates all items/dates and categories/dates to total to the new value. It uses item attribute Rounding Control. For example, there are four items that contribute to a Grand Total, their values are zero, you update Grand Total from 0 to 10, the four items values change to 3, 2, 3 and 2.

- Non-Zero to Non-zero (Planned Order, Forecast, and Manual Demand): The page proportionally updates all items/dates and categories/dates that have values to total to the new value. It uses item attribute Rounding Control.

- Non-Zero to Zero (Planned Order, Forecast, and Manual Demand): The page updates all items/dates and categories/dates to zero.

After you finish updates, click Refresh View, then Yes. The page:

- Recalculates the Planned Order, Forecast, and Manual Demand items/dates and categories/dates to total to their new values

- Recalculates measures affected by the updates: Total Supply, Total Demand, Gross Requirements, and Projected Available Balance.

- Saves all changes to the database

Material Plan Display Order

The display order for Material Plan depends on your selection in the view from which

you navigate to the Material plan. This section provides use cases and discusses how the Material Plan is displayed.

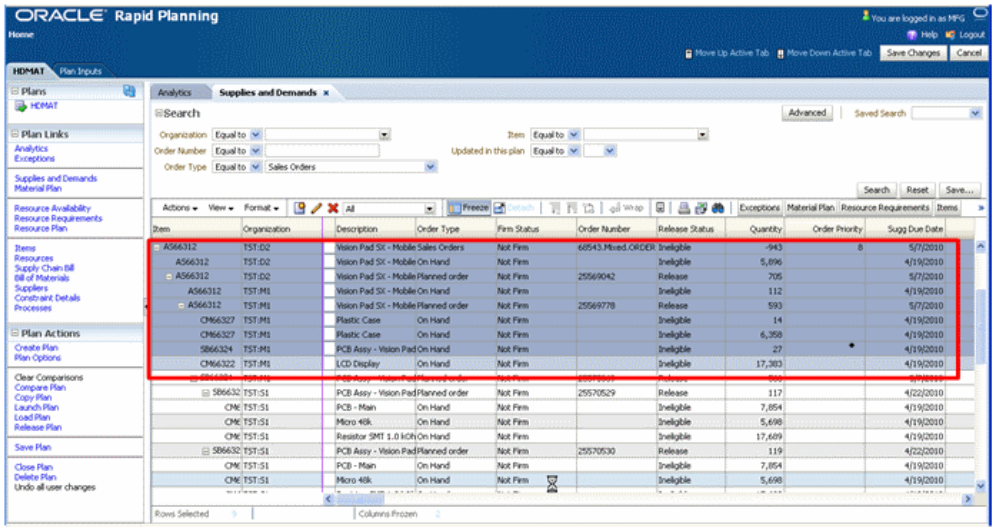
Examples, which demonstrate use cases, are given below. There are a couple of notes about the examples:

- The material plan displays the items you select.
- The material plan preserves the order.
- You need to determine the Item-Orgs and components that you want to view in the material plan.
- In these examples, your layout must be set to either Item-Orgs or Org-Item for the drill-downs to show properly. If your default layout is set to Cat-Org, then the material plan displays the Cat-Org view but only the categories for the selected items are displayed. Within each category, the information that is displayed is for the selected items only.

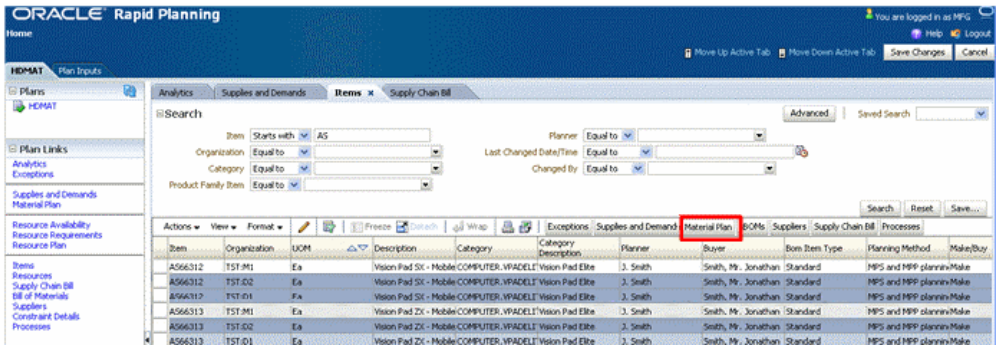
Material Plan in Plan Links frame: When you click on Material Plan in the Plan links frame, you use the set-up feature in material plan to determine the dimensions that are displayed. There is no change in layout in this case.

Example 1: Material Plan from Supply and Demand View

1. Select the following list of rows (pegging trees) in the Supplies and Demand view: Items AS66312 at TST:D2, As66312 at TST:M1, and Components CM66327, SB66324, CM66322 at TST:M1, as shown below. Note that not all rows in a given tree are selected.



2. Click Material Plan.



The Material Plan view appears.

Note: Your selection is preserved and only information that you selected appears on Item-Organizations.

Material Plan

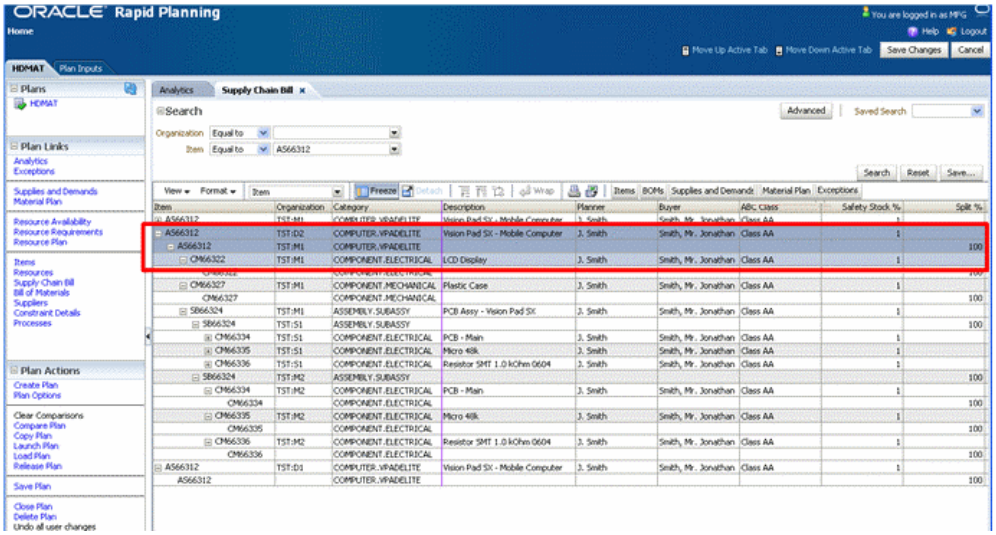
Action View My Items Exceptions Items Supply & Demand Supply Chain Bill

Item	Org	Measure	12-May	19-May	26-May	02-Jun	09-Jun	16-Jun	23-Jun	30-Jun
AS66312	TST :D2	Demand	1,200	0	1,200	0	1,200	0	1,200	0
		Supply	20	1,000	20	1,000	20	1,000	20	1,000
		PAB	1,000	0	1,000	0	1,000	0	1,000	0
AS66312	TST :M1	Demand	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		Supply	105	12,000	105	12,000	105	12,000	105	12,000
		PAB	11,895	11,895	11,895	11,895	11,895	11,895	11,895	11,895
CM66327	TST :M1	Demand	0	100	0	100	0	100	0	100
		Supply	100	0	100	0	100	0	100	0
		PAB	100	0	100	0	100	0	100	0
SB66324	TST :M1	Demand	105	1,000	1,000	2,000	0	0	105	200
		Supply	1,000	1,000	900	2000	105	1800	105	200
		PAB	895	895	795	795	1,000	2,800	2,800	2,800
CM66322	TST :M1	Demand	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		Supply	105	12,000	105	12,000	105	12,000	105	12,000
		PAB	11,895	11,895	11,895	11,895	11,895	11,895	11,895	11,895

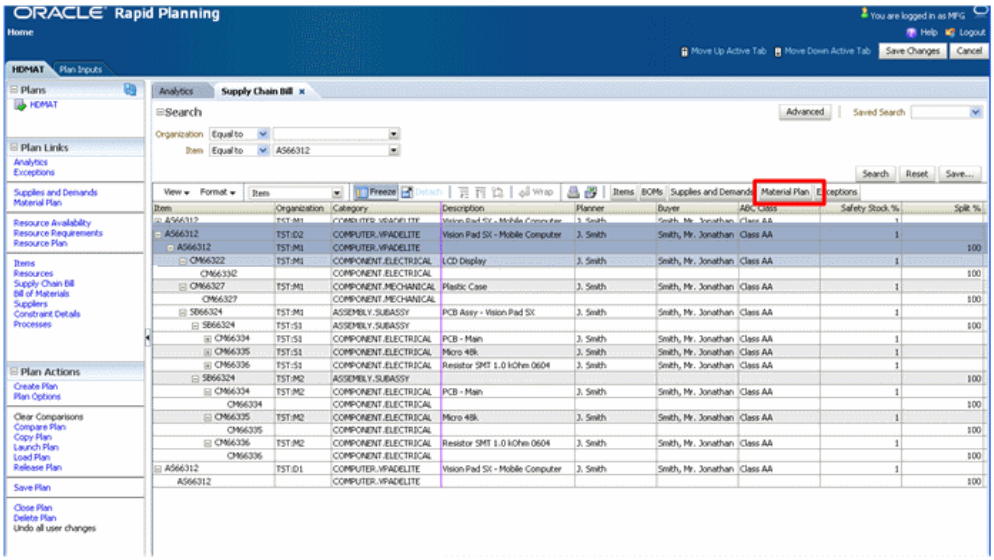
Example 2: Material Plan from Supply Chain Bill View

1. Select the following list of Bill-of-Material Items and components in the supply chain bill: AS66312 at TST:D2; AS66312 at TST:M1 and CM66322 at TST:M1.

   Note: Not all Items within a given BOM have been selected.



2. Click Material Plan.



The Material Plan appears.

Note: Your selected Item-Orgs and your order in the Supply Chain Bill is preserved.

Material Plan

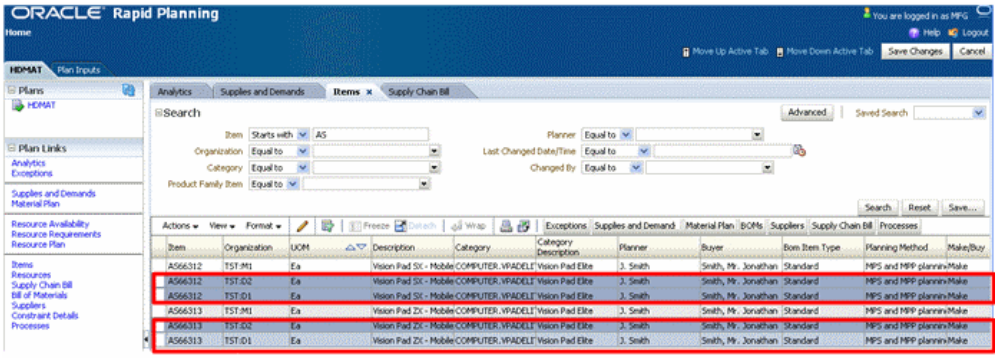
Action View My Items Exceptions Items Supply & Demand Supply Chain Bill

Item	Org	Measure	12-May	19-May	26-May	02-Jun	09-Jun	16-Jun	23-Jun	30-Jun
AS66312	TST:D2	Demand	1,200	0	1,200	0	1,200	0	1,200	0
		Supply	20	1,000	20	1,000	20	1,000	20	1,000
		PAB	1,000	0	1,000	0	1,000	0	1,000	0
AS66312	TST:M1	Demand	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		Supply	105	12,000	105	12,000	105	12,000	105	12,000
		PAB	11,895	11,895	11,895	11,895	11,895	11,895	11,895	11,895
CM66322	TST:M1	Demand	0	100	0	100	0	100	0	100
		Supply	100	0	100	0	100	0	100	0
		PAB	100	0	100	0	100	0	100	0

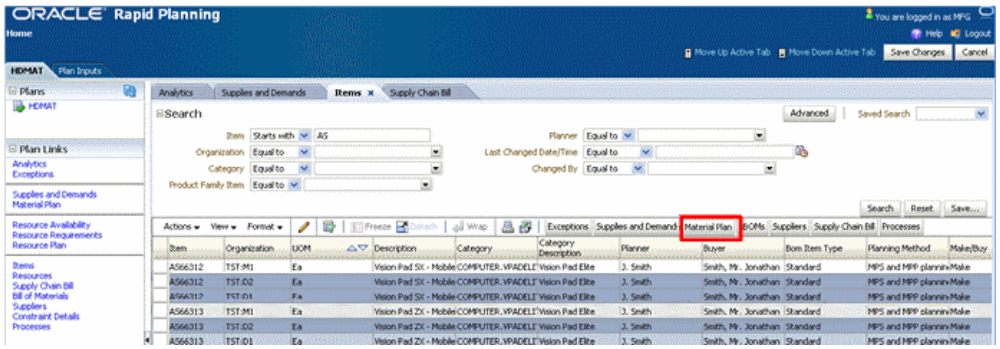
Example 3: Material Plan from Items/BOM or Other Similar Views

1. Select a list of items from the list displayed and click on Material Plan. For this example, the Items View is shown.

   Note: The items selected are not in consecutive order.

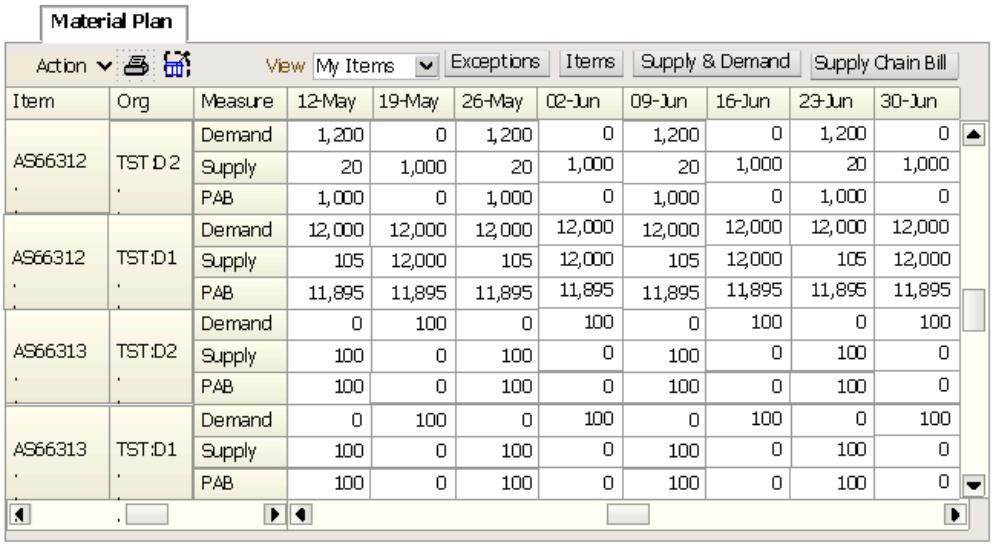


2. Click on Material Plan.



The Material Plan appears.

Note: Only the selected Item-Orgs are displayed.



Material Plan

Action | View My Items | Exceptions | Items | Supply & Demand | Supply Chain Bill

Item	Org	Measure	12-May	19-May	26-May	02-Jun	09-Jun	16-Jun	23-Jun	30-Jun
AS66312	TST:D2	Demand	1,200	0	1,200	0	1,200	0	1,200	0
		Supply	20	1,000	20	1,000	20	1,000	20	1,000
		PAB	1,000	0	1,000	0	1,000	0	1,000	0
AS66312	TST:D1	Demand	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		Supply	105	12,000	105	12,000	105	12,000	105	12,000
		PAB	11,895	11,895	11,895	11,895	11,895	11,895	11,895	11,895
AS66313	TST:D2	Demand	0	100	0	100	0	100	0	100
		Supply	100	0	100	0	100	0	100	0
		PAB	100	0	100	0	100	0	100	0
AS66313	TST:D1	Demand	0	100	0	100	0	100	0	100
		Supply	100	0	100	0	100	0	100	0
		PAB	100	0	100	0	100	0	100	0

Resource Availability

You can:

- Search, view, analyze, and edit the resource availability used in the plan
- Add simulation set changes or manual over-rides on resource availability
- Mass edit a set of rows, for example, all dates of a particular resource, or do a single-row edit to update any of the following attributes

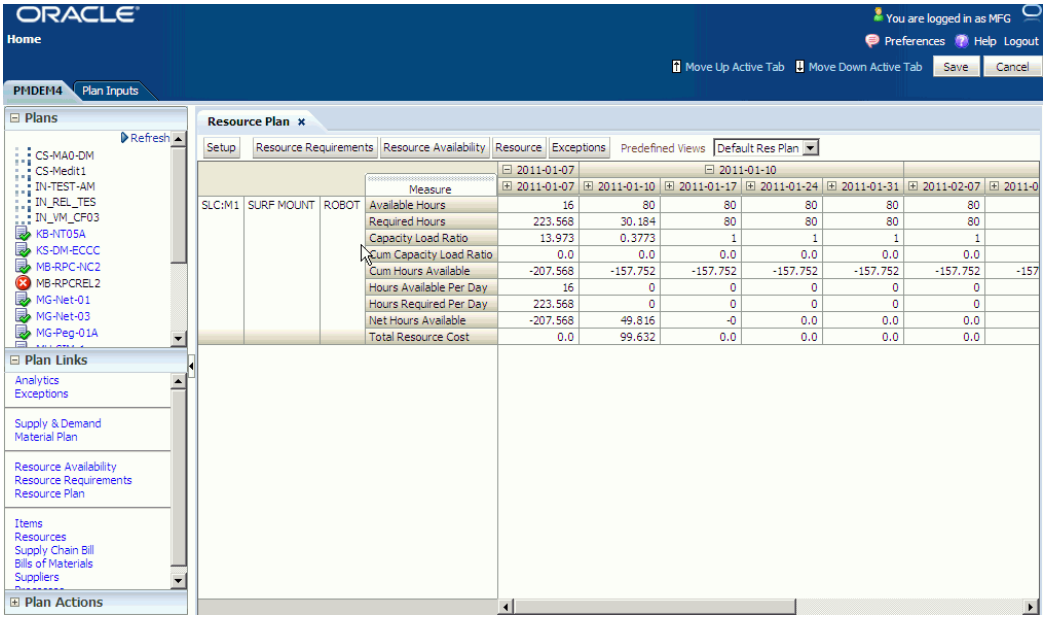
See Input Views, Resource Availability.

Resource Plan

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view a horizontal picture of the resources.

You can edit data in this view.



Plan Tab

To drill down to resource detail, highlight cells, then click button Resource Requirements.

The time bucket dates appear as the first three rows of the display. To:

- Expand a time bucket into lower level buckets, click icon Drill Expand near the date of the higher-level bucket
- Summarize lower level bucket detail into the higher level bucket, click icon Drill Collapse near the date of the higher-level bucket

Click button Setup to see the Search and Layout window where you can:

- Specify filter criteria (tab Filters)
- Specify the layout of the data columns (tab Layout)
- Specify titles for the data columns (tab Labels)
- Save the search, layout, and titles and make it your default (tab General)

You can filter on:

- Organization
- Resource
- Department
- Load Ratio

Measures

These are the measures available in the resource plan.

- Capacity load ratio
- Cum capacity load ratio
- Cum hours available
- Flow schedules
- Hours available
- Net ATP
- Net hours available
- Non-standard job orders
- Planned orders
- Required hours
- Run hours
- Run hour ratio
- Setup hours
- Setup hour ratio
- Sum of capacity changes
- Total resource cost
- Work orders

Resource Requirements

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view resource requirements.

You cannot edit data in this view.

Plan Tab

You cannot firm or reschedule the resource requirements for simulation purposes

Plan Inputs Tab

You cannot make changes or add simulation changes on the resource requirements

Plan Tab and Plan Inputs Tab

Search, view, and analyze the resource requirements in the plan

Resources

You can:

- Search, view, analyze, and edit the resources in the plan and add resource changes to a simulation set
- Mass edit a set of rows or do a single-row edit to update attribute Bottleneck Resource flag.

See Input Views, Resources.

Suppliers

You can save edits in simulation sets.

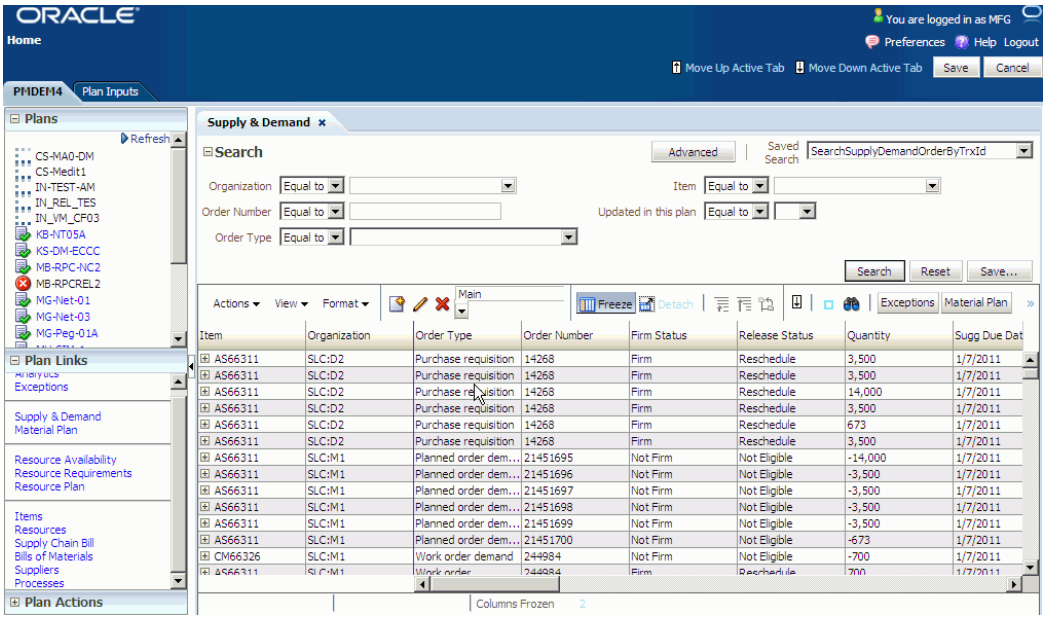
See Input Views, Suppliers

Supply & Demand

Most tabs share common functions, see Operating in Tabs, page 13-3.

Use this tab to view supply and demand for an item-organization combination.

You can edit data in this view.



It displays as a collection of trees with the pegging information collapsed under each supply or demand line. The pegging is based on the assignments that the planning solver made in its last replan.

Since the tab is a combined supply-demand display and a pegging tree, a supply or demand could appear multiple times, due to, for example:

- A supply pegged to multiple top-level demands
- Once as a root node as returned by search criteria and once as part of the pegging chain of another demand or supply

To expand all nodes completely, click Actions > Expand All

This view shows a list of column groups in the search results area.

You can set the display to show:

- All: All columns
- Main: The major columns
- Release: Columns related to releasing
- Other: Other columns

To change the upstream (supply) or downstream (demand) orientation of the pegging tree, click toggle icon Supply/Demand Pegging or click Actions > Supply Pegging and Actions > Demand Pegging. In

- Supply pegging mode, the display begins with the top level demand and proceeds

to the lowest level supplies

- Demand pegging mode, the display begins with the lowest level supply and proceeds to the top level demands

When viewing a demand's upstream (supply) pegging, if you want to see only the supplies that have exceptions, click Actions > Exceptions. To cancel, click it again.

When viewing a supply's downstream (demand) pegging, if you want to see only the end demands that a supply pegs to and none of the intermediate levels:

- Select the supply
- Click Actions > End Demands
- To cancel, click it again

The tab always hides these demand pegging rows:

- Transfer dependent demand
- Component dependent demand

The pegging tree shows the downstream supply pegged to the upstream supply.

The tab always hides these routing pegging rows:

- Operations for work orders
- Resource requirements for planned orders and work orders

You can click icon Add Row to add:

- Supply of type Planned order
- Demand of type Manual MDS

To delete a supply or demand that you have entered, click icon Delete Row before you save the row.

The fields that you can edit in each row depend on:

- Whether it is a supply or a demand
- Its order type

Since different fields apply to each order type, Oracle recommends that you perform mass updates on only one order type at a time. If the tab cannot update all selected records with the change that you want, it pops-up an error page that shows the fields and the rows that it cannot update with the new values.

Plan Tab

Mass edit a set of rows, for example, priority of all orders from a customer, or do a single-row edit to update any of the following attributes for simulation purposes:

- Firm Status
- Firm Date
- Firm Quantity
- Alternate BOM
- Alternate Routing
- Source Organization
- Source Supplier
- Source Supplier Site

Plan Inputs Tab

You cannot edit the supplies and demands and cannot add them to simulation sets

Plan Tab and Plan Inputs Tab

Search, view, analyze, and edit the supplies and demands in the plan

Order Types

These are the demand order types that Oracle Rapid Planning works with:

- Flow schedule demand
- Flow schedule scrap
- Intransit shipment scrap
- Manual forecast
- Non-standard job demand
- Other independent demand
- Planned order demand
- Planned order scrap
- Production Forecast
- Purchase order scrap
- Purchase requisition scrap

- Sales orders
- Work order scrap
- Work order demand

These are the supply order types that Oracle Rapid Planning works with:

- Demand class consumption
- Flow schedule
- Flow schedule by-product
- Intransit receipt
- Intransit shipment
- Non-standard job
- Nonstandard job by-product
- On hand
- PO acknowledgment
- PO in receiving
- Planned order
- Planned order co-product/by-product
- Purchase order
- Purchase requisition
- Supply adjustment
- Work order
- Work order co-product/by-product

Mass Update in the Supplies and Demand View

Similar to the Resource Availability view, mass update is available in the Mass Update FIRM DATE in the Supplies and Demand view. The options are:

- Reset to Original
- Set Value To

- Sugg Due Date+

The new options and their behavior are:

- **Increment by**

  If Firm Date is not null:

  Firm Date = Firm Date + Entered Value

  If Firm Date is null:

  Firm Date = Suggested Due Date + Entered Value

- **Decrement by**

  If Firm Date is not null:

  Firm Date = Firm Date – Entered Value

  If Firm Date is null:

  Firm Date = Suggested Due Date - Entered Value

- **Request Date +**

  Firm Date = Request Date + Entered Value

  If you choose Request Date, the system first looks for Requested Arrival Date. If the Requested Arrival Date is not populated, then it uses the Requested Ship Date.

Notes:

1. Request Date + and Sugg Due Date + can have a positive or negative value.

2. For all views the mass update feature for the operators Increase by, Decrease By, Increase By %, Decrease By %, Sugg Due Date +, Request Date +, etc. are applied to the value displayed in the UI and not the value saved in the database. For this reason, the operators must be applied to un-saved date changes too.

Firming

You need to firm planned orders before you can process any simulation changes; click the planned orders to firm, then click Actions > Firm. However, you can release planned orders that are not firm.

You can also firm:

- Work orders
- Purchase requisitions
- Purchase orders
- Forecasts

- Sales orders

Attend to these fields for all firming:

- Firm Status
- Firm Date
- Firm Quantity

In addition, attend to these additional fields for these specific order types:

- Planned order: Alternate BOM, Alternate Routing, Source Organization, Source Supplier, Source Supplier Site
- Work order: <no additional fields>
- Purchase order and purchase requisition: <no additional fields>
- Forecast and sales order: Order Priority

Releasing

You can release order type planned orders in the workbench.

Before you can release them, perform some setup steps; see Releasing Planned Orders..

You can instruct the Planning Solver to automatically release some orders, see Planned Order Auto Release.

These are the order types that you can reschedule in the Workbench:

- Purchase orders
- Requisitions
- Work orders
- Sales orders: But not for substitute items if your source system is at release level 12.0.

These are the order types that you can cancel in the Workbench:

- Purchase orders
- Requisitions
- Work orders

To mark an order for release, click Actions > Mark for release.

For planned orders, attend to these fields prior to release:

- Implement Quantity
- Implement Alt BOM
- Implement Alt Routing
- Implement As
- Implement Date
- Implement Demand Class
- Implement Firm
- Implement Job
- Implement Status
- Implement Supplier
- Implement Supplier Site
- Implement WIP Class

For work orders, attend to these fields prior to release:

- Implement Quantity
- Implement Alt BOM
- Implement Alt Routing
- Implement As
- Implement Date
- Implement Firm
- Implement Job
- Implement Status
- Implement WIP Class

For requisitions and purchase orders, attend to these fields prior to release:

- Implement Quantity
- Implement As

- Implement Date
- Implement Firm
- Implement Job
- Implement Status
- Implement Supplier
- Implement Supplier Site

For sales orders, attend to these fields prior to release:

- Firm Status
- Firm Quantity: Sales order quantity
- Firm Date: Sales order schedule date
- Order Priority

For sales orders, attend to these fields prior to release:

For sales orders, the release process:

- Actually sends fields Implement Qty and Implement Date fields to the source.
- Does not send fields Firm Status and Order Priority
- Sends field Material Available Date as sales order line Earliest Ship Date. You see this date in the Oracle Shipping delivery line.

To monitor the orders during release, use field Release Status of each order. This table shows the values that Release Status displays.

Action	Release Status Before Mark for Release	Release Status After Mark for Release	Release Status After Release
None available	Ineligible	-	-
Release	Release	Marked for Release	Released
Reschedule	Reschedule	Marked for Reschedule	Rescheduled

Action	Release Status Before Mark for Release	Release Status After Mark for Release	Release Status After Release
Cancel	Cancel	Marked for Cancel	Cancelled

If you have marked an order for release, you may be able to unmark it for release. After you do, its Release Status returns to the value it had before you marked it for release (Release, Reschedule, or Cancel). Click Action > Unmark for release

Inventory Reservations

Column Reserved Quantity:

- Shows the quantity reserved from on hand against a sales order
- Displays a value only for sales orders

You cannot edit it.

If there is an inventory reservation, demand pegging for on hand displays, for sales orders:

- Reserved Quantity
- Pegged Qty: This can be lower than reserved quantity

In this example, sales order:

- 45678 shows a full reservation
- 12345 shows a partial reservation: The reserved and pegged quantities are different

Item	Order Type	Order Number	Quantity	Reserved Quantity	Pegged Quantity
XYZ	On hand	-	1000	-	-
. XYZ	Sales order	12345	49	49	4
. XYZ	Sales order	45678	143	143	143

If there is an inventory reservation, supply pegging for on hand displays:

- For sales orders, Reserved Quantity
- For on hand, Pegged Quantity

In this example, sales order:

- 45678 shows a full reservation
- 12345 shows a partial reservation: There are two lines for pegged quantity, one for the partial reservation and one for the remaining quantity that can peg to any supply type.

Item	Order Type	Order Number	Quantity	Reserved Quantity	Pegged Quantity
XYZ	Sales order	12345	49	19	-
. XYZ	On hand	-	1000	-	19
. XYZ	<other supply type>	-	80	-	30
XYZ	Sales order	45678	143	143	-
. XYZ	On hand	-	1000	-	143

The planning solver:

- Cancels the reservation if the on hand is no longer available
- Reduces the reservation if the sales order quantity is lower than the reservation

Output Plan Actions

Use the actions to act against plans. You find links to the actions in the Plan Actions section of the navigator in the Plan inputs tab.

Copy Plan

Use this action to make copies of plans to save or simulate.

If you want to do this in batch mode, use action Copy Simulation Plan.

Rapid Planning Plans

It opens the copy plan pop-up page with current plan as From Plan. Select Plan Type Rapid Planning. Once you confirm the copy, the new plan appears in the list of plans.

Baseline Plans from Oracle Advanced Supply Chain Planning

Select Plan Type ASCP. See Simulating Plans from Oracle Advanced Supply Chain

Planning, Copy Plan.

Copy Simulation Plan

Use this action to make copies of plans to simulate, for example, if you want to mass update demand priorities.

If you want to do this online, use action Copy Plan.

Parameters

Source Plan Name: Select a plan.

Destination Plan Name; Enter a plan, new or existing If the copy plan exists, the process deletes the information in it before copying.

Load Plan Parameter: Valid values are:

- Yes: This process leaves the copy plan in memory. You can view it online immediately after the process finishes.
- No: This process leaves the copy plan in memory. You have to open the plan to see it. This is the default

You always need a managed server to run this action, regardless of this parameter setting.

Save Plan Parameter:

- No: The process does not save the copy plan to the database.
- Yes: The process saves the copy plan to the database.
- Yes, Exclude KPIs: The process saves the copy plan to the database, but it does not save the KPI information. This is the default.

Compare Plan

Use this action to compare plans.

It pops up a list of all plans and you select one plan.

If you have any of these tabs open, they are subject to the comparison between the base plan and the comparison plan:

- Supply and Demand
- Horizontal plans (material & resource)
- KPIs
- Exceptions

A tab that is subject to comparison typically:

- Automatically re-queries to show the comparison
- Gains an additional display column to show the plan name
- Does not allow for editing or drilling down of the comparison plan information

Release Plan

Use this action to perform releases, reschedules, and cancellations in the current selected plan.

You can release the plan if you have not loaded it into memory.

It opens a release plan page in a pop-up window and asks you to confirm the release.

After you confirm, it opens a plan status page in a pop-up window. Use this page to monitor the progress of each phase of the release. It displays the concurrent request numbers of the processes.

To see how to mark orders for release, see Rapid Planning Workbench Views, page 13-3 > Supply & Demand > Releasing.

If you are releasing a simulation that has changes to these types of data, the release process releases the order but does not release the component or resource requirement details:

- Bills of material, for example, component changes, effectivity changes
- Routings, for example, new operations

Publish Order Forecast

The publish program parameters show the available attributes that let you publish data from Rapid Planning to Collaborative Planning. These are very similar to the parameters that are enabled in ASCP-CP integration. For information on these parameters, refer to the *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

The table below lists the parameters that are relevant for Rapid Planning; those parameters that are not listed are not relevant and do not need to be published.

Parameters	Description
Plan	Name of the Plan inherited from the current Rapid Planning plan

Organization Code	Enables the publish of order forecast for a specific organization
Planner	
ABC Class	
Item	
Supplier	Select a specific supplier
Supplier Site	Select a specific supplier site – enabled for selection only when Supplier has been selected
Horizon Start Date	Defaulted to current date
Horizon End Date	Defaulted to current date + 1 year
Automatic Versioning	Valid values: Yes or No. The default is Yes.
Last Version Published	Populated with the previous version number that was published from the Plan in case Automatic Versioning is enabled
Include Purchase Orders	
Include Requisitions	
Overwrite	

Publish Supply Commits

The publish program parameters show the available attributes that let you publish data from Rapid Planning to Collaborative Planning. These are very similar to the parameters that are enabled in ASCP-CP integration. For information on these parameters, refer to the *Oracle Advanced Supply Chain Planning Implementation and User's Guide*.

The table below lists the parameters that are relevant for Rapid Planning; those parameters that are not listed are not relevant and do not need to be published.

Parameters	Description
Plan	Name of the Plan inherited from the current Rapid Planning plan. You can change it to any other plan.
Organization Code	Enables the publish of order forecast for a specific organization
Planner	
ABC Class	
Item	
Customer	Select a specific supplier
Customer Site	Select a specific customer site – enabled for selection only when Supplier has been selected
Horizon Start Date	Defaulted to current date
Horizon End Date	Defaulted to current date + 1 year
Automatic Versioning	Valid values: Yes or No. The default is Yes.
Last Version Published	
Publish Supplies pegged to Customer Sales Orders	
Overwrite	All Records (default), Horizon dates specified

Change History

Use this action to view the changes that all planners have made to a plan.

It shows the entire change log for the plan in a pop-up window.

Each change log entry shows the entity, who made the change, when they made the change, and the data values before and after the change.

Clear Comparisons

Use this action after you have done a plan comparison and you want to remove the comparison data.

It removes all comparison plan data and returns all tabs to the base plan data.

Define Incremental Replan Scope

Use plan action Define Incremental Replan Scope to specify the scope of the replans by:

- Selecting the incremental planning mode
- Naming the entities that the planning engine plans or does not plan (supply selection criteria)

Supply Selection Criteria

You can limit by these selection criteria and conditions:

- Item: Equals, Saved Selection / Favorite Equals, and That has been updated in the plan (updated items, bills of material, and routings)
- Org: Equals
- Resource: Equals, Saved Selection / Favorite Equals, and That has been updated in the plan (updated resource attributes and resource capacity)
- Item/Supplier/Supplier Site: Equals, Saved Selection / Favorite Equals, and That has been updated in the plan
- Pegged End Demands: Saved Selection Equals and That have been updated in the plan
- Supplies: Saved Selection Equals and That have been updated in the plan

These criteria are like OR searches. If a supply meets any criterion and condition, the action selects it.

When you select condition Saved Selection Equals, the list that you see does not include dynamic lists, for example top ten lists.

If you select Include pegged upstream supplies, the action selects all supplies that peg down to the selected supplies.

If you select Include pegged downstream supplies, the action selects all supplies that peg up to the selected supplies.

You can also use search attribute Updated in Plan = Yes to find all of the entities that the plan updated.

Incremental Planning Mode

Freeze existing plan / Replan new demands only: The planning process freezes the supplies and demands in the prior run of the plan and plans to meet demands that you add since then.

Freeze Selected Supplies / Replan all demands: The planning process replans all demands but does not replan the supplies that you select. It can make planned orders and recommend reschedule for supplies that you did not select.

Freeze All Except Selected Supplies / Replan all demands: The planning process replans all demands but does not replan the supplies that you did not select. It can make planned orders and recommend reschedule for supplies that you select.

Firm Supplies

For firm supplies, the process makes dependent component requirements and resource requirements firm as well.

Delete Plan

Use this action to delete plans.

This action purges the plan from memory and the database and is irrevocable.

When you run a copied plan, the planning solver needs its base plan. If you delete a base plan, all plans copied from it are invalid.

If you delete a plan that is a simulation from a baseline Oracle Advanced Supply Chain Planning plan, you receive a warning.

Release

Releasing in the Supply & Demand Tab

See Output Views, Supply & Demand.

Order Release

When you release planned orders to the execution system, this is the information that Oracle Rapid Planning passes.

It auto-releases planned orders within the release time fence.

Work orders:

- Job details with start date and end date timestamps of 23:59:59
- Resource details with resource scheduled start date and resource scheduled end date timestamps of 23:59:59
- Resource usage
- Resource hours

- Primary or alternate bill of material and routing combination selection
- Primary or substitute component selection
- Primary or alternate resources selection

Purchase requisitions:

- Selected supplier, supplier site, and ship method
- Suggested Due Date timestamp of 23:59:59

Internal requisitions:

- Selected source organization and ship method
- Order Date timestamp of 23:59:59

Rescheduled work orders:

- End date
- If the plan determined the work order start date, all the remaining information in the order is new

Reschedule or cancellation of purchase requisitions:

- Order number
- Order Date timestamp of 23:59:59

Reschedule or cancellation of purchase orders:

- Order number
- Order Date timestamp of 23:59:59

Reschedule or cancellations of internal requisitions:

- Order number
- Order Date timestamp of 23:59:59

Planned Order Auto Release

You can instruct the planning solver to automatically start the release of planned orders, reschedules, and sales orders (auto release). After the plan completes, it starts a concurrent process to automatically release planned orders.

The planning solver releases planned orders and reschedules that:

- Occur in a plan that you run with a snapshot phase

- Are for items that have a value in item-organization attribute Release Time Fence. You set Release Time Fence in days.
- Have dates in their destination organization on the plan start date that are within their items' release time fence.
- Have Action set to Release
- Can be released manually: For example, it excludes orders for phantom items

When you run a plan with snapshot and want to use auto release, set these plan options on the Main tab. Their default value is clear or null:

- Enable Auto Release
- If you select Enable Auto Release, enable Auto Release Reschedules

This is how the release time fence works:

- You set Release Time Fence in days. The planning solver calculates the release time fence as this many days after the plan start date. For example, if Release Time Fence is 3, the release time fence date is day 4 of the plan horizon [plan start date, day 1 + 3 days].
- The planning solver releases orders that have dates before the release time fence date. In this example, it releases orders in days 1, 2, and 3. But, if you run the plan exactly at 00:00:00, it also releases orders that have dates on the release time fence date.

This is how the planning solver decides whether or not to auto release:

- Planned order: Suggested start date is before (or on) the release time fence date
- Reschedule out: Old order start date is before (or on) the release time fence date
- Reschedule in: Suggested start date is before (or on) release time fence date
- Cancel: Suggested start date is before (or on) the release time fence date

During the auto release process, the planning solver:

- Does not let you view the plan
- Changes the release status of each eligible order to Released
- Updates the quantity in process of each eligible order with the released quantity
- Saves the plan to the database
- Starts a concurrent process immediately after it finishes to release eligible orders to

the E-Business Suite execution products. This process may start concurrent processes Create Releases, Requisition Import, and WIP Mass Load

- Lets you view the plan

Other auto release considerations are:

- Later simulations see the released orders as firm scheduled receipts.
- After a later replan without snapshot, those released orders remain as firm plan orders and marked as released. After a later replan with snapshot, the Planning Solver ignores them as it replans the supply and demand situation using the latest collected data.

Publish Sales Order Changes

You can release sales order changes to Oracle Order Management. If the sales order is not firmed, you can change Material Available Date and the end item substitute.

The planning solver schedules sales orders using the scheduled sales order ship date, it does not use the scheduled sales order arrival date. It does not suggest alternate ship methods to improve the scheduled arrival date. RP does not recalculate the transit lead time from organization to customer site. It does not schedule sales orders with schedule method of arrival type.

Oracle Rapid Planning does not update the source organization for sales orders with:

- Assemble to order models
- Pick to order models and their components, options, and assemble to order models. The planning solver does not change the source organization selected in Oracle Order Management as scheduled by available to promise. Sales order lines for components of pick to order models and kits do not receive any release recommendations.

17

Plan Analysis: Late Demand Diagnosis

Overview

You can use Rapid Planning late demand diagnosis to identify:

- Late and unmet demands
- The likely reasons for them: For example, was the total lead time required less than the time available?
- Their impact: For example, what specific resources and suppliers should I focus on to make the demand satisfied on time?

As it plans to satisfy a demand, the planning solver also searches these paths:

- Routing alternate resources
- Bill of material substitute components
- Alternate BOM and Routing
- Alternate sources on sourcing rules
- End item substitutes

It finds these constraint failure conditions and reports them when it cannot wholly satisfy a demand due to any of these conditions:

- Material Constraint: Lead Time
- Material Constraint: Planning Time Fence
- Material Constraint: Date Effectivity
- Material Constraint: WIP Window

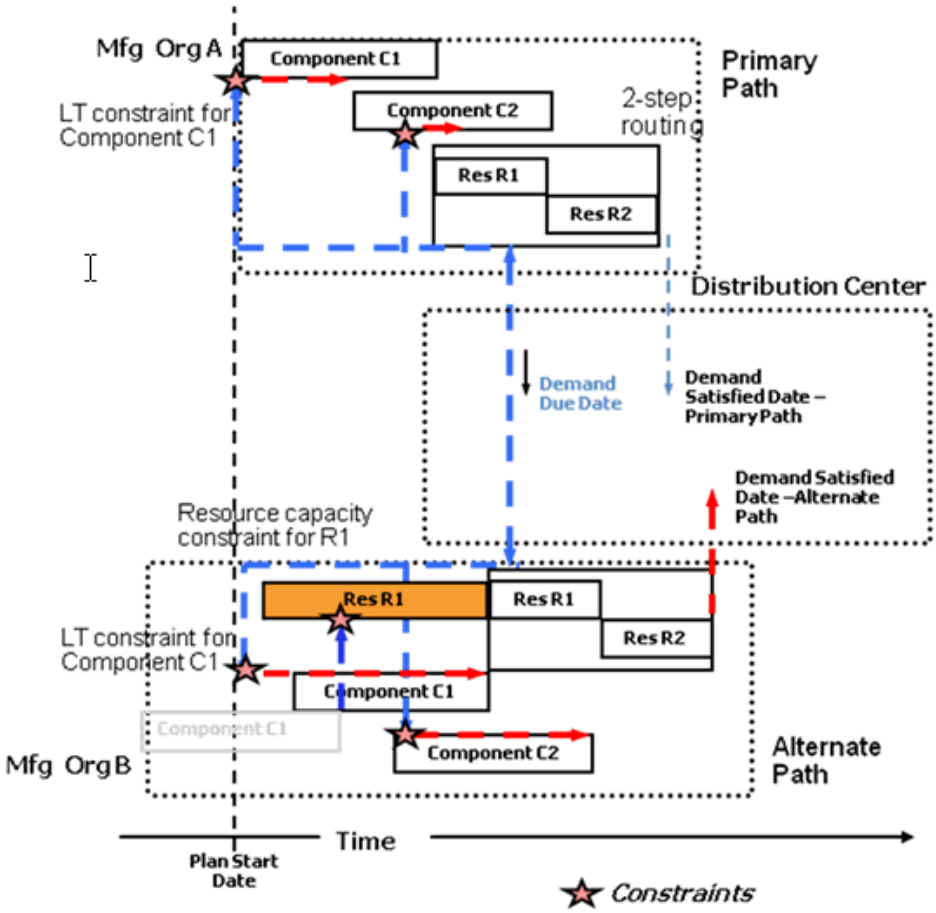
- Resource Constraint
- Supplier Constraint

You can simulate solutions and finds the best responses.

Constraints

In this example:

- There is distribution center demand for the finished good
- The distribution center sources from manufacturing organization A, rank 1, and manufacturing organization B, rank 2.
- The planning solver tries to make it in organization A
- Organization A satisfies the demand two days late because of lead time constraints on components C1 and C2.
- The planning solver reports two constraints.
- The planning solver tries to make it in organization B.
- Organization B satisfies the demand three days late because of lead time constraints on components C1 and C2 and a resource constraint on resource R1.
- The planning solver reports three constraints.
- The planning solver recommends organization A because it is the least late.

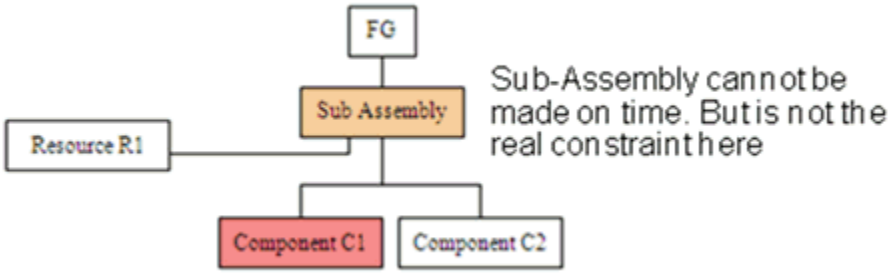


Intermediate Level Reporting

The planning solver reports the root or leaf cause of a delay

x

- Finds a constraint failure on Sub Assembly because of a lead time constraint on Component C1.
- Does not report the constraint failure on Sub Assembly.
- Reports the lead time constraint on Component C1.

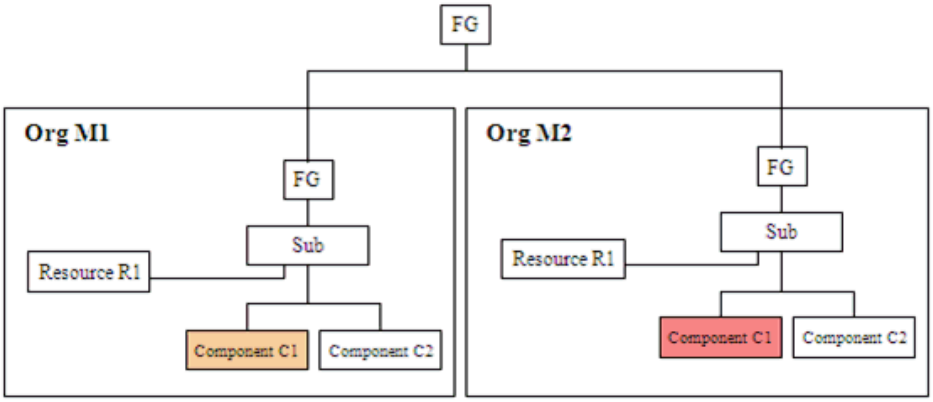


Partial Quantity Shortage Constraints

If the planning solver plans to satisfy partial quantities of a demand from multiple organizations, it reports failure constraints from all organizations involved.

In this example:

- FG sources from organizations M1 and M2
- The planning solver satisfies a partial demand quantity on time from organization M1. It can't satisfy the rest because of a lead time constraint on component C1.
- The planning solver tries to satisfy the remaining demand quantity form organization M2. It can't satisfy it because of a lead time constraint on component C1.
- It reports both failure constraints.



Material Constraint Caused by Resource Constraint

Sometimes, the report of a lead time material constraint is actually caused by resource unavailability. For example:

- A resource is not available on the day the planning solver needs it to complete a component.
- The resource is available earlier.
- The planning solver plans to use the resource earlier.
- Using the resource earlier causes a lead time material constraint on the component, because work on the component is scheduled to start in the past.
- The planning solver reports a lead time material constraint against the component and does not report a resource constraint against the resource. However, the resource availability is the root cause of the late demand.
- You can detect this situation by looking at the Pegging View and searching for time gaps.

Process

The late demand diagnosis process is:

- Copy the baseline plan to a simulation plan
- Run the simulation plan with parameter Snapshot – New demand changes and select launch option Calculate Lateness Constraints
- Analyze lateness using the view Analytics
- Compare the baseline and simulation plans

If you accept the latensses, continue analysis and release recommendations.

If you don't accept the latenesses, do this as many times as you need to accept the lateness. You can use more than one simulation plan and compare among them to choose the best solution:

- Check the constraints for key late demands
- Simulate corrections to fix root causes

- Re-run the simulation plan with parameter Snapshot – New demand changes and select launch option Calculate Lateness Constraints
- Analyze lateness using the view Analytics
- Compare the baseline and simulation plans

You can see the late demand information in any planning mode, but the information is most relevant in mode Constrained – Enforce capacity constraints

Viewing

You see late demand information in the view Constraint Details.

Troubleshooting

Since the planning solver calculates constraints on all paths, it makes run times longer when you use it.

The planning solver exhausts all possibilities for solving a late demand only on the primary path.

To find all upstream constraints along the primary path, use view Constraints Detail, do a query-by-example and filter by search path Primary.

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