

**Oracle® Fusion Applications Supply Chain Planning, Order
Promising Guide**

11g Release 1 (11.1.2)
Part Number E22704-02

August 2011

Oracle® Fusion Applications Supply Chain Planning, Order Promising Guide

Part Number E22704-02

Copyright © 2011, Oracle and/or its affiliates. All rights reserved.

Author: Deborah West

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information on content, products and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Contents

1 Collect Order Promising Reference and Transaction Data

Data Collections, Order Orchestration, and Order Promising: How They Fit Together	1-1
Collecting Data for the Order Orchestration and Planning Data Repository: Explained	1-2
Data Collection Entities: Explained	1-5
Data Collection Methods for External Source Systems: Explained	1-8
Data Collection Methods for the Oracle Fusion Source System: Explained	1-9
Refreshing the Global Order Promising Engine: Explained	1-10
Manage Planning Data Collection Processes	1-12
Perform Order Orchestration and Planning Data Collection	1-16
Perform Order Orchestration and Planning Data Load from Staging Tables	1-17
Review Planning Collected Data	1-21

2 Manage Order Promising Rules

ATP Rules, Allocation Rules, and Sourcing Rules: How They Work Together	2-1
Manage ATP Rules	2-2
Manage Planning Allocation Rules	2-11

3 Promise Orders

Check Availability	3-1
Schedule Order Fulfillment Lines	3-10
View Availability Options	3-11
View Availability Details	3-14
Review Supply Availability and Supply Allocation	3-15
Perform Order Promising Server Data Refresh	3-17

4 Manage Sourcing Rules, Bills of Distribution, and Assignment Sets

Manage Sourcing Rules and Bills of Distribution	4-1
Manage Assignment Sets	4-6

Preface

This Preface introduces the guides, online help, and other information sources available to help you more effectively use Oracle Fusion Applications.

Oracle Fusion Applications Help

You can access Oracle Fusion Applications Help for the current page, section, activity, or task by clicking the help icon. The following figure depicts the help icon.



With a local installation of help, you can add custom help files to replace or supplement the provided content. Help content patches are regularly made available to ensure you have access to the latest information. Patching does not affect your custom content.

Oracle Fusion Applications Guides

Oracle Fusion Applications guides are a structured collection of the help topics, examples, and FAQs from the help system packaged for easy download and offline reference, and sequenced to facilitate learning. You can access the guides from the **Guides** menu in the global area at the top of Oracle Fusion Applications Help pages.

Note

The **Guides** menu also provides access to the business process models on which Oracle Fusion Applications is based.

Guides are designed for specific audiences:

- **User Guides** address the tasks in one or more business processes. They are intended for users who perform these tasks, and managers looking for an overview of the business processes. They are organized by the business process activities and tasks.
- **Implementation Guides** address the tasks required to set up an offering, or selected features of an offering. They are intended for implementors. They are organized to follow the task list sequence of the offerings, as displayed within the Setup and Maintenance work area provided by Oracle Fusion Functional Setup Manager.
- **Concept Guides** explain the key concepts and decisions for a specific area of functionality. They are intended for decision makers, such as chief financial officers, financial analysts, and implementation consultants. They are organized by the logical flow of features and functions.

- **Security Reference Manuals** describe the predefined data that is included in the security reference implementation for one offering. They are intended for implementors, security administrators, and auditors. They are organized by role.

To supplement these guides, which cover specific business processes and offerings, the following guides address common areas:

Other Information Sources

My Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Use the My Oracle Support Knowledge Browser to find documents for a product area. You can search for release-specific information, such as patches, alerts, white papers, and troubleshooting tips. Other services include health checks, guided lifecycle advice, and direct contact with industry experts through the My Oracle Support Community.

Oracle Enterprise Repository for Oracle Fusion Applications

Oracle Enterprise Repository for Oracle Fusion Applications provides visibility into service-oriented architecture assets to help you manage the lifecycle of your software from planning through implementation, testing, production, and changes. In Oracle Fusion Applications, you can use the Oracle Enterprise Repository for Oracle Fusion Applications for:

- Technical information about integrating with other applications, including services, operations, composites, events, and integration tables. The classification scheme shows the scenarios in which you use the assets, and includes diagrams, schematics, and links to other technical documentation.
- Publishing other technical information such as reusable components, policies, architecture diagrams, and topology diagrams.

The Oracle Fusion Applications information is provided as a solution pack that you can upload to your own deployment of Oracle Enterprise Repository for Oracle Fusion Applications. You can document and govern integration interface assets provided by Oracle with other assets in your environment in a common repository.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/us/corporate/accessibility/index.html>.

Comments and Suggestions

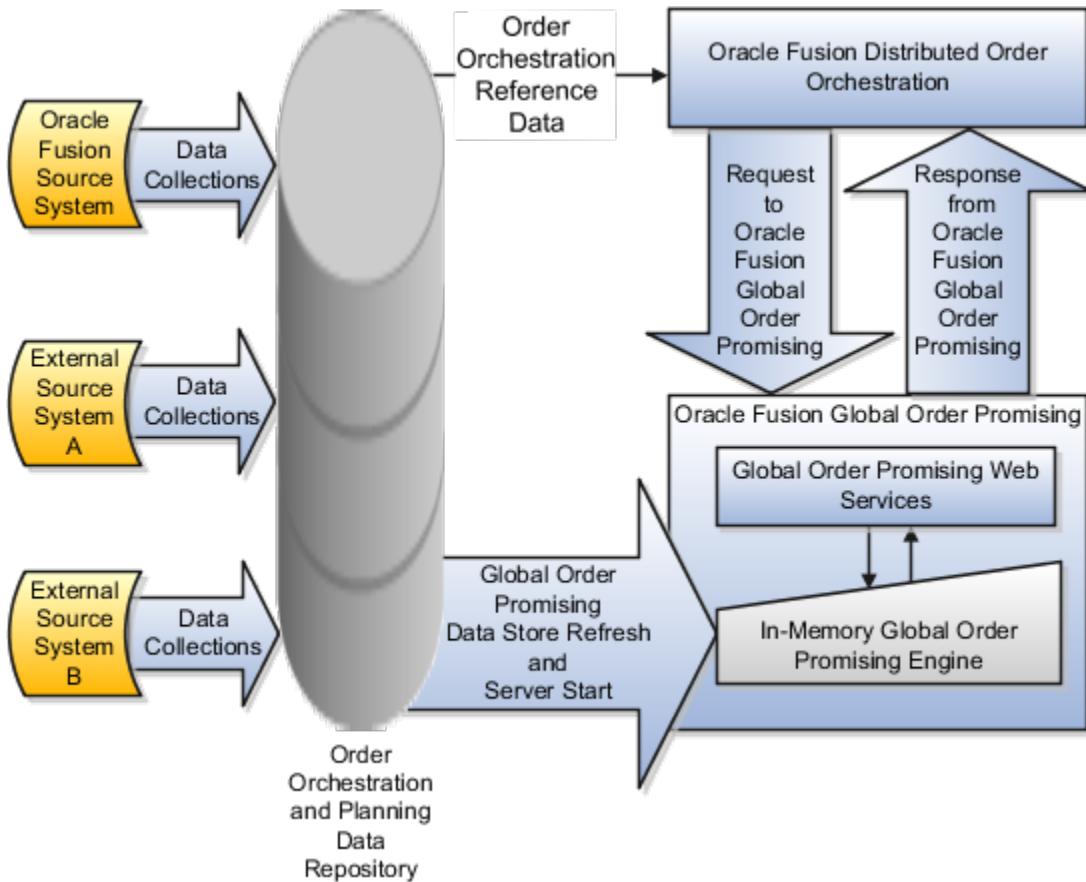
Your comments are important to us. We encourage you to send us feedback about Oracle Fusion Applications Help and guides. Please send your suggestions to oracle_fusion_applications_help_ww@oracle.com. You can use the **Send Feedback to Oracle** link in the footer of Oracle Fusion Applications Help.

Collect Order Promising Reference and Transaction Data

Data Collections, Order Orchestration, and Order Promising: How They Fit Together

You perform data collections to populate the order orchestration and planning data repository. The collected data is used by Oracle Fusion Distributed Order Orchestration and Oracle Fusion Global Order Promising.

The following figure illustrates that the order orchestration and planning data repository is populated with data from external source systems and from the Oracle Fusion source system when you perform data collections. Oracle Fusion Distributed Order Orchestration uses some reference data directly from the repository, but the Global Order Promising engine uses an in-memory copy of the data. After data collections are performed, you refresh the Global Order Promising data store with the most current data from the data repository and start the Global Order Promising server to load the data into main memory for the Global Order Promising engine to use. When Oracle Fusion Distributed Order Orchestration sends a scheduling request or a check availability request to Oracle Fusion Global Order Promising, the Global Order Promising engine uses the data stored in main memory to determine the response.



Data Collections

You perform data collections to populate the order orchestration and planning data repository with data from external source systems and from the Oracle Fusion source system.

Order Orchestration

Oracle Fusion Distributed Order Orchestration uses some reference data directly from the order orchestration and planning data repository. You must perform data collections for the order orchestration reference entities even if you are not using Oracle Fusion Global Order Promising.

Order Promising

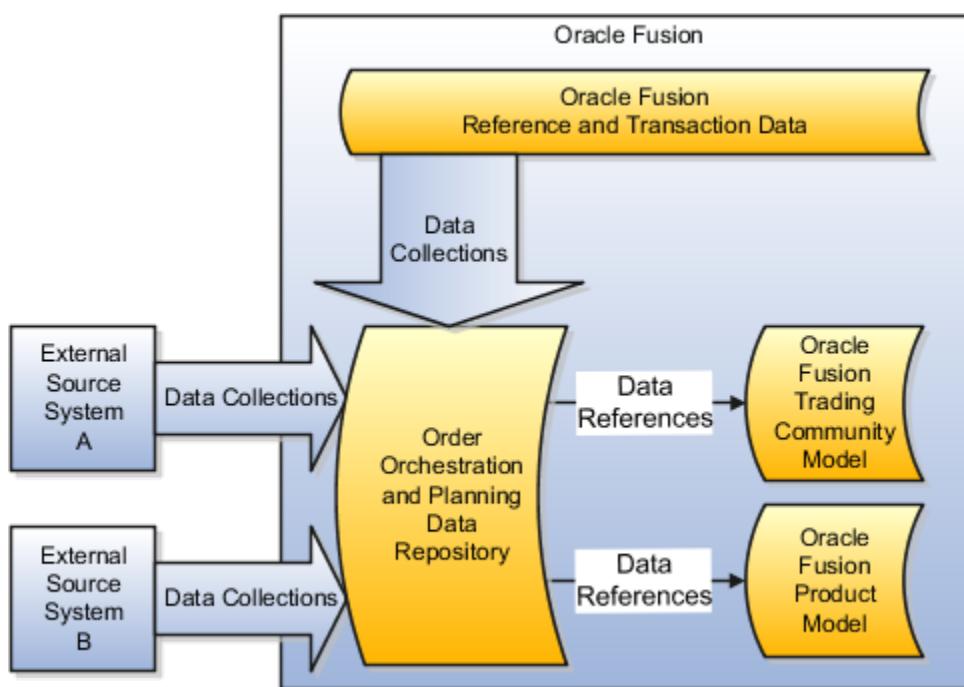
The Global Order Promising engine uses an in-memory copy of the data from the order orchestration and planning data repository. When Oracle Fusion Distributed Order Orchestration sends a scheduling request or a check availability request to Oracle Fusion Global Order Promising, the Global Order Promising engine uses the data stored in main memory to determine the response to send back to order orchestration. After a cycle of data collections is performed, you refresh the Global Order Promising data store with the most current data from the data repository and start the Global Order Promising server to load the data into main memory for the Global Order Promising engine to use.

Collecting Data for the Order Orchestration and Planning Data Repository: Explained

The order orchestration and planning data repository provides a unified view of the data needed for order orchestration and order promising. You manage

data collection processes to populate the data repository with data collected from external source systems and from the Oracle Fusion source system. You manage the data collection processes to collect the more dynamic, transaction data every few minutes and the more static, reference data on a daily, weekly, or even monthly schedule. The data collected into the data repository contains references to data managed in the Oracle Fusion Trading Community Model and to data managed in the Oracle Fusion Product Model. The data managed in these models is not collected into the order orchestration and planning data repository.

The following figure illustrates that the order orchestration and planning data repository is populated with data collected from external source systems and from the Oracle Fusion source system. The data repository does not contain data managed by the Oracle Fusion Trading Community Model and the Oracle Fusion Product Model. The data collected into the data repository references data managed in the models.



When you plan and implement your data collections, you determine which entities you collect from which source systems, the frequency of your collections from each source system, which data collection methods you will use to collect which entities from which source systems, and the sequences of your collections. Consider these categories of data when you plan your data collections:

- Data collected for order promising
- Data collected for order orchestration
- Data not collected into the order orchestration and planning data repository

Data Collected for Order Promising

The following data is collected and stored to support order promising:

- Existing supply including on-hand, purchase orders, and work orders

- Capacity including supplier capacity and resource capacity
 - Related demands including work order demands and work order resource requirements
 - Planned supply including planned buy and make orders
 - Reference data including calendars, transit times, and routings
-

Important

After performing data collections, you must refresh the Order Promising engine to ensure it is using the data most recently collected.

Data Collected for Order Orchestration

The following data is collected and stored to support order orchestration:

- Order capture and accounts receivable codes
 - Accounting terms and currencies
-

Tip

Use the Review Planning Collected Data page or the Review Order Orchestration Collected Data page to explore many of the entities and attributes collected for the order orchestration and planning data repository.

Data Not Collected into the Order Orchestration and Planning Data Repository

Data collected into the order orchestration and planning data repository includes attributes, such as customer codes, that refer to data not collected into the data repository. Most of the data references are to data in the Oracle Fusion Trading Community Model or in the Oracle Fusion Product Model. Some of the data references are to data outside the models, such as item organizations and inventory organizations. To manage data collections effectively, especially the sequences of your collections, you must consider the data dependencies created by references to data not collected into the data repository.

References to data in the Oracle Fusion Trading Community Model include references to the following:

- Source systems
- Geographies and zones
- Customers
- Customer sites

References to data in the Oracle Fusion Product Model include references to the following:

- Items, item relationships, and item categories
- Item organization assignments
- Structures

For more information, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

Data Collection Entities: Explained

When you collect data for the order orchestration and planning data repository, you specify which of the data collection entities to collect data for during each collection. When you plan your data collections, you plan which entities to collect from which source systems and how frequently to collect which entities. One of the factors you include in your planning considerations is the categorizations of each entity. One way entities are categorized is as reference entities or transaction entities. You typically collect transaction entities much more frequently than reference entities.

Another way entities are categorized is as source-specific entities or global entities. For global entities the order in which you collect from your source systems must be planned because the values collected from the last source system are the values that are stored in the data repository.

When you plan your data collections, you consider the following categorizations:

- Source-specific entities
- Global entities
- Reference entities
- Transaction entities

You also consider which entities can be collected from which types of source systems using which data collection methods as follows:

- Entities you can collect from the Oracle Fusion source system and from external source systems
- Entities you can collect only from external source systems

Source-Specific Entities

When you collect data for a source-specific entity, every record from every source system is stored in the order orchestration and planning data repository. The source system association is maintained during collections. The data stored in the data repository includes the source system from which the data was collected.

For example, you collect suppliers from source system A and source system B. Both source systems contain a record for the supplier named Hometown Supplies. Two different supplier records will be stored in the data repository for the supplier named Hometown Supplies. One record will be the Hometown Supplies supplier record associated with source system A and the second record will be the Hometown Supplies supplier record associated with source system B.

The majority of the data collections entities are source-specific entities.

Global Entities

When you collect data for a global entity, only one record for each instance of the global entity is stored in the order orchestration and planning data repository.

Unlike source-specific entities, the source system association is not maintained during collections for global entities. The data stored in the data repository for global entities does not include the source system from which the data was collected. If the same instance of a global entity is collected from more than one source system, the data repository stores the values from the last collection.

For example, you collect units of measure (UOM) from three source systems and the following occurs:

1. During the collection of UOM from source system A, the Kilogram UOM is collected.

This is first time the Kilogram UOM is collected. The Kilogram record is created in the data repository.

2. During the collection of UOMs from source system B, there is no collected UOM with the value = Kilogram

Since there was no record for the Kilogram UOM in source system B, the Kilogram record is not changed.

3. During the collection of UOMs from source system C, the Kilogram UOM is also collected.

Since the collections from source system C include the Kilogram UOM, the Kilogram record in the data repository is updated to match the values from source system C.

The following entities are the global entities:

- Order orchestration reference objects
- Units of measure (UOM) and UOM conversions
- Demand classes
- Currency and currency conversion classes
- Shipping methods

Tip

When you collect data for global entities from multiple source systems, you must consider that the last record collected for each occurrence of a global entity is the record stored in the order orchestration and planning data repository. Plan which source system you want to be the source system to determine the value for each global entity. The source system that you want to be the one to determine the value must be the source system that you collect from last.

Reference Entities

Reference entities are entities that define codes and valid values that are then used regularly by other entities. Units of measure and demand classes are two examples of reference entities. Reference entities are typically static entities with infrequent changes or additions. Whether an entity is reference entity or a transaction entity does not impact how it is stored in the order orchestration and planning data repository.

You consider whether an entity is a reference entity or a transaction entity when determining which collection method to use to collect data for the entity. You typically use the staging tables upload method to collect data for reference entities from external source systems. You typically used the targeted collection method to collect data for reference entities from the Oracle Fusion source system unless the reference entity is one of the entities for which the targeted collection method is not possible.

Transaction Entities

Transaction entities are the entities in the data repository that store demand and supply data. Because the data for transaction entities changes frequently, you typically use the web services upload method to collect data for transaction entities from external source systems. You typically use the continuous collection method to collect data for transaction entities from the Oracle Fusion source system.

Entities You Can Collect From the Oracle Fusion Source System and From External Source Systems

Many of the data collection entities can be collected from both types of sources systems. For the following entities you can use any of the collections methods:

- Approved supplier lists
- Calendars
- Calendar associations
- Interlocation shipping networks
- Item costs
- On hand
- Organization parameters
- Purchase orders and requisitions
- Subinventories
- Suppliers
- Units of measure

For the following entities you can only use the Web service upload method to collect data from external source systems:

- Currencies
- Order orchestration reference objects
- Shipping methods

Entities You Can Collect only From External Source Systems

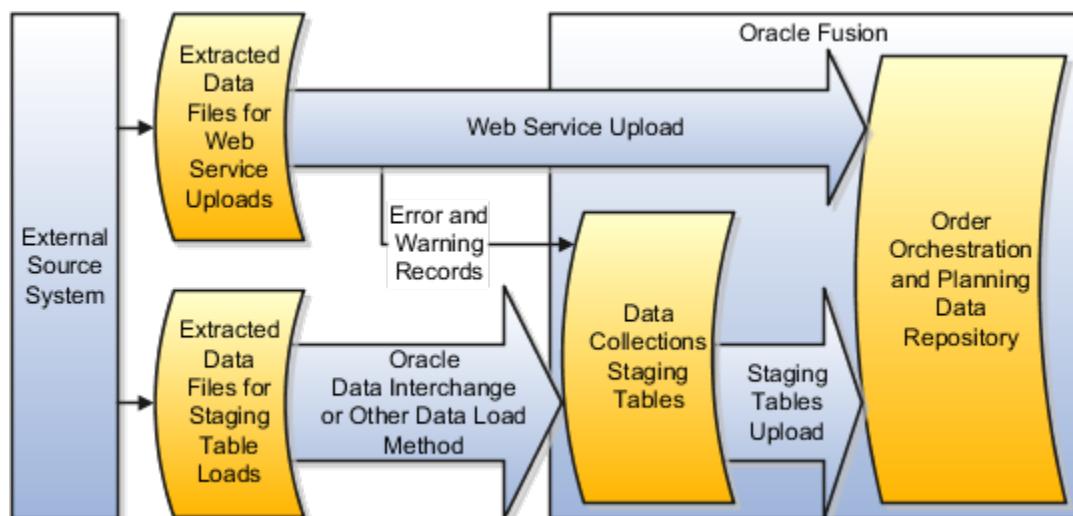
Many of the data collection entities can be only collected from external sources systems. For these entities, you can use both methods for collecting data from external source systems. Remember to consider frequency of change and volume of data in your considerations of which methods to use to collect which entities. The following are the entities you can only collect from external sources systems:

- Customer item relationships
- Demand classes
- Planned order supplies
- Routings
- Resources
- Resource availability
- Sourcing
- Supplier capacities
- Work-in-process supplies
- Work-in-process component demands
- Work-in-process resource requirements

Data Collection Methods for External Source Systems: Explained

To populate the order orchestration and planning data repository with data collected from external source systems, you use a combination of two data collection methods. The two methods are Web service uploads and staging tables uploads.

The following figure illustrates the two data collection methods, Web service uploads and staging tables uploads, used to collect data from external source systems. The figure illustrates that both methods require programs to be written to extract data from the external source systems. For Web service uploads, you load the data from the extracted data files directly into the order orchestration and planning data repository. Any records with errors or warnings are written to the data collections staging tables. For staging table uploads, you load the data from the extracted data files into the data collections staging tables, and then you use the Staging Tables Upload program to load the data from the staging tables into the data repository.



You determine which entities you collect from which source systems and at what frequency you need to collect the data for each entity. The data for different entities can be collected at different frequencies. For example, supplies and demands change frequently, so collect data for them frequently. Routings and resources, are more static, so collect data for them less frequently.

Which data collection method you use for which entity depends upon the frequency of data changes as follows:

- Web service upload
 - Use for entities with frequent data changes.
- Staging tables upload
 - Use for entities with more static data.

Web Service Upload Method

Use the Web service upload method for entities that change frequently, such as supply and demand entities. You determine the frequency of collections for each entity. For certain entities, you may implement Web services to run every few minutes. For other entities, you may implement Web services to run hourly.

To implement and manage your Web service uploads, you must design and develop the processes and procedures to extract the data in the format needed by the data collection web services. For more information regarding the data collection Web services, refer to the Oracle Enterprise Repository. For additional technical details, such as the table and column descriptions for the data collection staging tables, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

Staging Tables Upload Method

Use the staging tables upload method for entities that do not change frequently, such as routings and resources. You determine the frequency of collections for each entity. You may establish staging table upload procedures to run daily for some entities, weekly for some entities, and monthly for other entities.

To implement and manage your staging table uploads, you must develop the processes and procedures you use to extract data from an external source system. You use Oracle Data Interchange, or another data load method, to load the extracted data into the data collection staging tables. For the technical details required to develop and manage your data extracts and staging table loads, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

For the final step of the staging tables upload method, you initiate the Load Data from Staging Tables process from the Manage Data Collection Processes page or via the Enterprise Scheduling Service.

Data Collection Methods for the Oracle Fusion Source System: Explained

To populate the order orchestration and planning data repository with data collected from the Oracle Fusion source system, you use a combination of two

data collection methods: continuous collection and targeted collection. You typically use continuous collection for entities that change frequently and targeted collection for entities that are more static.

The following figure illustrates the two data collection methods, continuous collection and targeted collection, used in combination to collect data from the Oracle Fusion source system.



Continuous Collection

When you use the continuous collection method, you are only collecting incremental changes, and only for the entities you have included for continuous collection. Because continuous collection only collects incremental changes, you usually set up the continuous collection to run frequently, such as every five minutes.

Note

Prior to including an entity for continuous collection, you must have run at least one targeted collection for that entity.

Targeted Collection

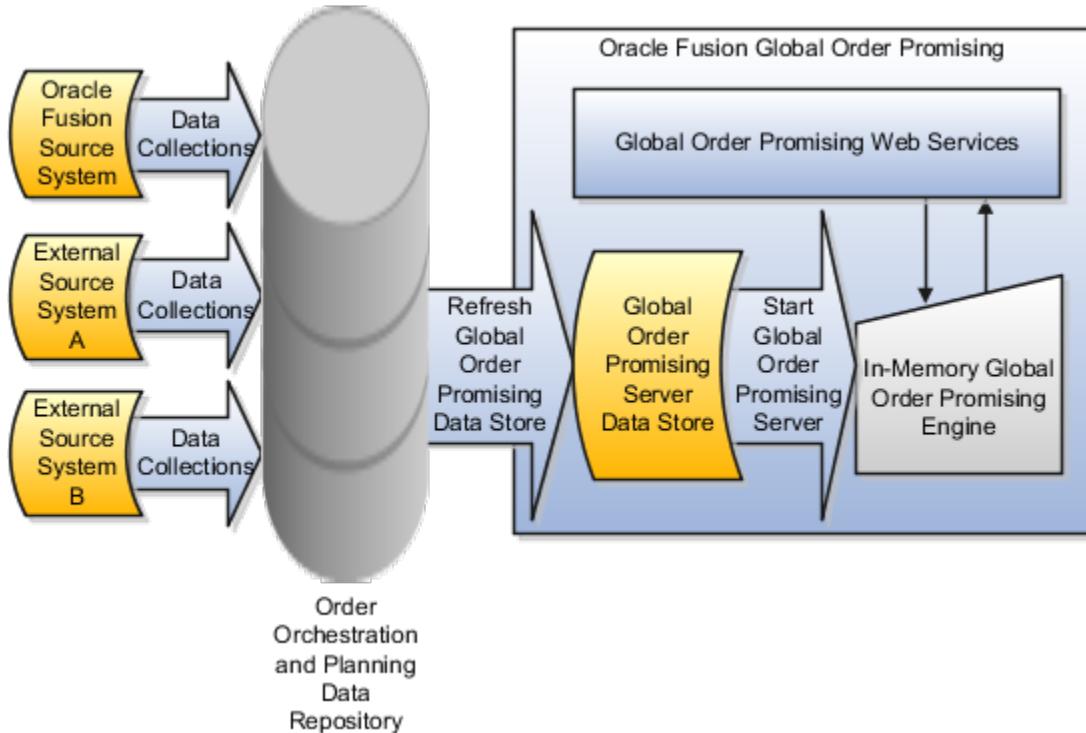
When you collect data using the targeted collection method, you specify which entities to include in the targeted collection. For the included entities, the data in the data repository that was previously collected from the Oracle Fusion source system is deleted and replaced with the newly collected data. The data for the entities not included in the targeted collection is unchanged. You typically use the targeted collection method to collect data from entities that do not change frequently.

Refreshing the Global Order Promising Engine: Explained

The Global Order Promising engine is an in-memory engine that uses an in-memory copy of the data collected into the order orchestration and planning data repository. To ensure the in-memory data reflects the latest supply and demand data collected into the data repository, you should refresh the Global Order Promising data store and start the Global Order Promising server at least once a day.

The following figure illustrates that you perform data collections to populate the order orchestration and planning data repository with current data from multiple source systems. After you complete a cycle of data collections, you refresh the Global Order Promising data store with the latest data from the data

repository. After you refresh the Global Order Promising data store, you start the Global Order Promising server to load a copy of the refreshed data from the data store into main memory.



To refresh the in-memory copy of the collected data with the most recently collected data, perform these two steps:

1. Refresh the Global Order Promising data store.
2. Start the Global Order Promising server.

Refresh the Global Order Promising Data Store

To refresh the Global Order Promising data store, complete these steps:

1. Navigate to the Schedule New Process page by following this navigation path:
 - a. Navigator
 - b. Tools
 - c. Schedule Processes
 - d. Schedule New Process
 - e. Click the more link
2. Select the **Schedule Processes** link.
3. Click the **Submit New Request** button.
4. In the popup window, select Job for the type.
5. Search for and select the process named RefreshOpDatastore.
6. Select the entities you want to refresh and submit the job.

Start the Global Order Promising Server

To start the Global Order Promising server, you use an Oracle Fusion Global Order Promising instantiation of Oracle Enterprise Manager.

You do not need to stop the server before you start it. If the Global Order Promising server is already running when you start the Global Order Promising server, the Global Order Promising engine currently in memory continues to run until the start process is complete. The Start Global Order Promising Server process updates another engine with the current data from the Global Order Promising Server data store. When the updated engine comes up, the existing engine with the old data is automatically shut down.

Important

The Current Date attribute stored within the Global Order Promising engine is also updated when you start the Global Order Promising server. If the Global Order Promising engine is not updated at least once a day, the Global Order Promising engine may have a wrong current date, and there may be issues with promising results.

Note

You also use an Oracle Fusion Global Order Promising instantiation of Oracle Enterprise Manager to monitor performance of the Global Order Promising server, to access log files, and to stop the server when necessary.

Manage Planning Data Collection Processes

Managing Data Collection Processes: Overview

For your data collections from the Oracle Fusion source system, you use the Manage Planning Data Collection Processes page or the Manage Orchestration Data Collection Processes page. From these pages you perform the following:

- Manage your continuous collections from the Oracle Fusion source system.
- Manage your collections destination server.
- Perform your targeted collections from the Oracle Fusion source system.

For your data collections from external source systems, most of the management of your Web services uploads and staging tables uploads is performed external to the Oracle Fusion application pages. If you choose to perform staging tables uploads, you initiate the Perform Data Load process from the Manage Planning Data Collection Processes page, from the Manage Orchestration Data Collection Processes page, or from the Oracle Fusion Enterprise Scheduler.

Continuous Collection Publish Process: Explained

To enable continuous collections, you must set up the publish data processes for the Oracle Fusion source system. The publish process performs the incremental

data collections from the Oracle Fusion source system. You can start, stop, and pause the publish process. To review statistics regarding the publish process, view process statistics from the **Actions** menu on the Continuous Collection - Publish tab on the Manage Planning Data Collection Processes page or the Manage Orchestration Data Collection Processes page.

Note

Because continuous collections only collects net changes, you must perform at least one targeted collection for an entity before you include the entity for continuous collections.

Publish Process Parameters: Points to Consider

You define the publish process parameters to determine the frequency and scope of the continuous collections publish process.

You define the frequency and scope of continuous collections by specifying the following:

- Process Parameters
- Process Entities

Process Parameters

You determine how frequently the continuous collections publish process executes by specifying the frequency in minutes. The continuous collections publish process will publish incremental changes based on the frequency that was defined when the publish process was last started.

You determine which organizations will be included in the set of organizations for which data is collected by specifying an organization collection group. You can leave it blank if you want data collected from all organizations.

Process Entities

You determine which entities are collected during the continuous collections cycles by selecting which entities you want included in the collections. The continuous collections publish process collects incremental changes for the business entities that were included when the publish process was last started.

Collections Destination Server: Explained

The collections destination server is applicable to all four data collection methods. For the continuous collections method the collections server is the subscriber to the continuous collections publish process. From the Actions menu on the Collections Destination Server tab you can access a daily statistic report with statistics regarding each of the collection methods. You also can access a data collections summary report.

Destination Server Collections Parameters: Points to Consider

The collection parameters are initially set to what was defined for the Oracle Fusion system when your planning source systems or order orchestration source systems were initially managed. You can fine tune the parameters for your data collections.

Data Collection Parameters

The data collection parameters affect the usage of system resources. This table define what each parameter does and provides guidelines for setting it.

Parameter	What the Parameter Does	A Typical Value for the Parameter
Number of Database Connections	Defines the maximum number of database connections the source server can create during the collection process. This controls the throughput of data being extracted into the Source Java program.	10
Number of Parallel Workers	Defines the maximum number of parallel workers (Java threads) used to process the extracted data. The number here directly impacts the amount of central processing units and memory used during a collection cycle.	30
Cached Data Entries in Thousands	During data collections, various lookup and auxiliary data are cached in the collection server to support validation. For example, currency rate may be cached in memory. This parameter controls the maximum number of lookup entries cached per lookup to prevent the server from occupying too much memory.	10,000

Cross-Referencing Data During Data Collections: Explained

When you collect data from multiple source systems, you often collect a variety of values for the same instance of an entity. You cross-reference data during data collections to store a single, agreed value in the order orchestration and planning data repository for each instance of an entity.

Caution

Cross-referencing data during data collections can impact the performance of your collections. For collections from external source systems, consider performing the cross-references as part of your processes to extract data into data files.

The following information explains why you might need to cross-reference your data during data collections, and what you need to do to implement cross-referencing:

- Cross-reference example
- Cross-reference implementation

Cross-Reference Example

The following table provides an example of why you might need to cross-reference your data during data collections. In the example, the Kilogram unit of measure is collected from two source systems. The source systems use a different value to represent kilogram. You decide to store kg for the value for Kilogram in the order orchestration and planning repository.

Source System	Collections Entity	Source Value	Target Value
System A	Unit of measure	kilogram	kg
System B	Unit of measure	k.g.	kg

Cross-Reference Implementation

To implement cross-referencing, you must complete the following actions:

1. Decide which business object to enable cross reference.
2. For each object, work with business analyst to decide value-to-value maps.
3. Use the Oracle Fusion Middleware Domain Value Map user interface to upload mappings to the corresponding domain value map.
4. On the Manage Planning Data Collection Processes page, enable the corresponding entity for cross-reference.
5. Determine an ongoing procedure for adding new values into the domain value map.

For more information, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

FAQs for Manage Planning Data Collection Processes

Can I use continuous collection to collect item costs?

The continuous collection data collection method is partially supported for item costs. Item costs are collected in the next incremental collection cycle for previously existing items when one or more item organization attributes in addition to item cost have changed.

When a new item is defined, the item cost for the new item is not collected in the next incremental collection cycle. If an existing item is not changed other than an update to the item cost, the item cost change is not picked up in the next incremental collection cycle.

Tip

If items are added frequently, item costs are changed frequently, or both, then targeted collection of item costs should be routinely performed, perhaps once a day.

Perform Order Orchestration and Planning Data Collection

Parameters for the Perform Data Collection Process: Points to Consider

To perform a targeted data collection from the Oracle Fusion system, you use the Perform Data Collection process. When you invoke the process, you provide values for the parameters used by the process.

The Perform Data Collection Process

When you perform a targeted collection, you specify the Oracle Fusion source system to be collected from and the organization collection group to collect for. When you invoke the process, the parameters also include each of the fourteen entities you can collect from the Oracle Fusion source system with yes or no for the parameter options. The table below explains the other two parameters.

Parameter Name	Parameter Options
Source System	The source system presented for selection is determined by what system has been defined as the Oracle Fusion source system when the manage source systems task was performed.
Organization Collection Group	The organization collection groups presented for selection are determined by what organization groups were defined when the manage source systems task was performed for the selected source system.

The parameters presented also include a yes-or-no parameter for each of the entities you can collect. If you select yes for all of the entities, the data collections will be performed in the sequence necessary to avoid errors caused by data references from one entity being loaded to another entity being loaded.

Important

If you do not select yes for all of your entities, you need to plan your load sequences to avoid errors that could occur because one of the entities being loaded is referring to data in another entity not yet loaded. For more information, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

Organization Collection Group: Explained

When you perform a targeted collection from the Oracle Fusion source system, you use an organization collection group to contain the collections

processing to only the organizations with data that is needed for the order orchestration and planning data repository. Organization collection groups limit targeted collections from the Oracle Fusion source system to a specific set of organizations.

You perform the following actions for organization collection groups:

- Define an organization collection group.
- Use an organization collection group.

Define an Organization Collection Group

You define organization groups when managing source systems for the source system where the version equals Oracle Fusion. For each organization in the organization list for the Oracle Fusion source system, you can specify an organization group. You can specify the same organization group for many organizations.

Use an Organization Collection Group

You use an organization collection group when you perform a targeted collection from the Oracle Fusion source system and you want to contain the collections processing to a specific set of organizations. You specify which organization group to collect data from by selecting from the list of organization groups defined for the Oracle Fusion source system. Data will only be collected from the organizations in the organization group you specified.

For example, if only certain distribution centers in your Oracle Fusion source system are to be considered for shipments to your customers by the order promising and order orchestration processes, you could create a DC123 organization group and assign the applicable distribution centers to the DC123 organization group when managing source systems. When you perform a targeted collection for the Oracle Fusion source system, you could select DC123 for the organization collection group.

Perform Order Orchestration and Planning Data Load from Staging Tables

Parameters for the Perform Data Load Process: Points to Consider

To perform a data load from the data collection staging tables, you invoke the Perform Data Load from Staging Tables process. When you invoke the process, you provide values for the parameters used by the process

Parameters for the Perform Data Load from Staging Tables Process

When you perform an upload from the staging tables, you specify values for a set of parameters for the Perform Data Load from Staging Tables process including specifying Yes or No for each of the entities you can load. For the parameters that are not just entities to select, the table below explains the name of each parameter, the options for the parameter values, and the effect of each option.

Parameter Name	Parameter Options and Option Effects
Source System	Select from a list of source systems.
Collection Type	<ul style="list-style-type: none"> • Net change Data in the data repository is updated with the data uploaded from the staging tables. • Existing records are updated. For example, on hand is updated with current quantity. • New records are added to the data repository. For example, New purchase orders are added to the data repository. • Targeted Existing data in the data repository is deleted and replaced with the data uploaded from the staging tables. For example, a targeted data load for purchase orders will replace all existing purchase order data with the purchase order data from the staging tables.
Group Identifier	Leave blank or select from the list of collection cycle identifiers. Leave blank to load all staging table data for the selected collection entities. Select a specific collection cycle identifier to load data for that collection cycle only.
Regenerate Calendar Dates	<ul style="list-style-type: none"> • Yes You loaded calendar patterns into the staging tables so you need the concurrent process to generate and store individual dates to run. • No You loaded individual dates into the staging tables so you do not need the concurrent process to generate and store individual dates to run.
Regenerate Resource Availability	<ul style="list-style-type: none"> • Yes You loaded resource availability patterns into the staging tables so you need the concurrent process to generate and store individual dates to run. • No You loaded individual dates into the staging tables so you do not need the concurrent process to generate and store individual dates to run.

The parameters presented for the Perform Data Load from Staging Tables process also include a yes-or-no parameter for each of the entities you can collect

using the staging tables upload method. If you select yes for all of the entities, the data collections will be performed in the sequence necessary to avoid errors caused by data references from one entity being loaded to another entity being loaded.

Important

If you do not select yes for all of the entities, you need to plan your load sequences to avoid errors that could occur because one of the entities being loaded is referring to data in another entity not yet loaded. For more information, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

Collections Cycle Identifier: Explained

The collection cycle identifier is a unique number that identifies a specific data collection cycle, or occurrence. One cycle of a data collection covers the time required to collect the set of entities specified to be collected for a specific data collection method. The collection cycle identifier is then used in statistics regarding data collections, such as the Data Collection Summary report. The collection cycle identifier is also used for a parameter in various processes related to data collections, such as the Purge Staging Tables process and the Perform Data Load process.

This topic explains the population of the collection cycle identifier when you use collecting data from external source systems as follows:

- Web Service Uploads and the Collection Cycle Identifier
- Staging Tables Uploads and the Collection Cycle Identifier

Web Service Uploads and the Collection Cycle Identifier

When you use the Web service upload data collection method, a collection cycle identifier is included as part of the collected data. You can then use the collection cycle identifier to review statistics regarding the Web service collections, or to search for error and warning records written to the data collection staging tables.

Staging Table Uploads and the Collection Cycle Identifier

If you use the Oracle Data Integrator tool to load your extracted data into the data collections staging tables, a collection cycle identifier is created for each load session. Each record loaded into the staging table during the load session will include the collection cycle identifier for that session.

If you populate the data collection staging tables using a method other than the Oracle Data Integrator tool, you must follow these steps to populate the collection cycle identifier.

1. Groupid is to be populated in column refresh_number of each data collections staging table. In one cycle of loading data into the staging tables, the column should be populated with same value. Get the group id value as follows:

```

SELECT ....NEXTVAL FROM DUAL;
2. After a cycle loading data into the data collections staging tables, insert a
row as follows into table msc_cycle_status for that cycle as follows:
```

```

INSERT INTO MSC_COLL_CYCLE_STATUS
(INSTANCE_CODE, INSTANCE_ID, REFRESH_NUMBER, PROC_PHASE, STATUS,
COLLECTION_CHANNEL, COLLECTION_MODE, CREATED_BY, CREATION_DATE,
LAST_UPDATED_BY, LAST_UPDATE_DATE)
SELECT a.instance_code, a.instance_id, :b1, 'DONE', 'NORMAL',
'LOAD_INTERFACE', 'OTHER', 'USER', SYSTIMESTAMP, USER, SYSTIMESTAMP
FROM msc_apps_instances a
WHERE a.instance_code= :b2 ;
:b1 is instance_code for which data is loaded
:b2 is the groupid value populated in column refresh_number in all
interface tables for this cycle
```

Collecting Calendars and Resource Availability: Points to Consider

When you collect calendars and net resource availability from external source systems, you decide whether to collect patterns or individual dates. Order promising requires individual calendar dates and individual resource availability dates to be stored in the order orchestration and planning data repository. If you collect calendar patterns or resource shift patterns, you must invoke processes to populate the order orchestration and planning data repository with the individual dates used by order promising.

You invoke the necessary processes by specifying the applicable parameters when you run data collections. The processes generate the individual dates by using the collected patterns as input. The processes then populate the order orchestration and planning data repository with the individual calendar dates and the individual resource availability dates.

Calendar Collections

When you collect calendars from external source systems, you decide whether to collect calendar patterns or individual calendar dates. Both methods for collecting data from external source systems, Web service upload and staging tables upload, include choosing whether individual calendar dates must be generated as follows:

- The Web service to upload to calendars includes a parameter to run the Generate Calendar Dates process.

You control whether the process will run. If the parameter is set to yes, then after the Web service upload completes, the process will be launched to generate and store individual calendar dates.

- The parameters for the Perform Data Load from Staging Tables process also include a parameter to run the Generate Calendar Dates process.

You control whether the process will run. If the parameter is set to yes, then after the load from staging tables completes, the process will be launched to generate and store individual calendar dates.

- In both scenarios, calendar data is not available while the Generate Calendar Dates process is running.

When you collect calendars from the Oracle Fusion system, the Generate Calendar Dates process is run automatically.

Restriction

Only calendar strings that are exactly equal to seven days are allowed. Calendar strings with lengths other than seven are not collected. Only calendars with Cycle = 7 should be used.

Resource Availability Collections

When you collect net resource availability from external source systems, you decide whether to collect resource shift patterns or individual resource availability dates. Both methods for collecting data from external source systems, Web service upload and staging tables upload, include specifying whether individual resource availability dates must be generated as follows:

- The Web service to upload to net resource availability includes a parameter to run the Generate Resource Availability process.

You control whether the process will run. If the parameter is set to Yes, then after the Web service upload completes, the process will be launched to generate and store individual resource availability dates.

- The parameters for the Perform Data Load from Staging Tables process also include a parameter to run the Generate Resource Availability process.

You control whether the process will run. If the parameter is set to Yes, then after the load from staging tables completes, the process will be launched to generate and store individual resource availability dates.

- In both scenarios, new resource availability data is not available while the Generate Resource Availability process is running.

You cannot collect net resource availability from the Oracle Fusion source system.

Review Planning Collected Data

Data Collections Daily Monitoring: Explained

When you manage the data collection processes, you use the Process Statistics report and the Data Collection Summary report to routinely monitor your collections. When error records are reported, you query the data staging tables for further details regarding the error records. You can also review most of your collected data using the review collected data pages.

The following information sources are available for you to monitor data collections:

- Process Statistics report
- Data Collection Summary report
- Review collected data pages
- Staging table queries

Process Statistics Report

You view the Process Statistics report to monitor summary of statistic for the daily collections activity for each of your source systems. This report is available on the **Actions** menu when managing data collection processes for either the continuous collection publish process or the collections destination server. The day starts at 00:00 based on the time zone of the collection server.

For the Oracle Fusion source system, statistics are provided for both the continuous collection and the targeted collection data collection methods. For each external source system, statistics are provided for the Web service upload and for the staging tables upload data collection methods. The following statistics are provided in the Process Statistics report:

- Number of collection cycles for the current day
- Average cycle time in seconds
- Average number of records
- Average number of data errors

Note

The process statistics provide summary information, and are not intended for detailed analysis of the collections steps. Use the Oracle Enterprise Scheduler Service log files for detailed analysis.

Data Collection Summaries

You view the Data Collection Summary report to monitor statistics regarding the data collection cycles for each of your source systems. The summary report shows last the results of the last 20 cycles of all collection types. This report is available on the Action menu when managing data collection processes for the collections destination server.

The Data Collection Summary report provides information for each source system. If a source system was not subject to a data collection cycle for the period covered by the summary, an entry in the report states that there are no cycles in the cycle history for that source system. For each source system that was subject to a data collection cycle for the period covered by the summary, the following information is provided for each data collection method and collected entity value combination:

- The data collection method
- The collection cycle number

- The entity collected and, for that entity, the number of records collected, the number of records with data errors, and collection duration
- Time started
- Time ended

Review Collected Data Pages

You can review most of your collected data by using the Review Planning Collected Data page or the Review Order Orchestration Collected Data page. Both pages include a list of entities from which you select to specify the entity for which you want to review collected data. The list of entities is the same on both pages. Most of the entities listed on the review collected data pages are identical to the entities you select from when you run collections, but there are a few differences.

Some of the entities on the list of entities you select from when you review collected data are a combination or a decomposition of the entities you select from when you run collections. For example, the Currencies data collection entity is decomposed into the Currencies entity and the Currency Conversions entity on the review collected data pages. For another example, the Supplies entity on the review collected data pages is a combination of data collection entities including the On Hand entity and the Purchase Orders and Requisitions entity.

A few of the data collection entities cannot be reviewed from the review collected data pages. The data collection entities that are not available for review on the review collected data pages are Resources, Resource Availability, Routings, Work-in-Process Resource Requirements, and Customer Item Relationships.

Staging Table Queries

If errors or warnings have been encountered during data collections, you can submit queries against the staging tables to examine the applicable records. For more information regarding the staging tables and staging table columns, see the articles regarding order promising or data collections on My Oracle Support at <https://support.oracle.com>.

Errors and Warnings When Collecting Data from External Source Systems: How They Are Handled

When you are collecting data from external source systems, the data collection processes perform many data validation checks. If the data validations fail with errors or warnings, the steps taken by the data collection processes vary slightly depending upon whether the Web service upload data collection method or the staging tables upload data collection method is used.

In both cases, records where errors are found are not loaded into the order orchestration and planning data repository. Instead records are loaded into, or remain in, the applicable staging tables with an appropriate error message.

Records where only warnings are found are loaded to the data repository, and records are loaded into, or remain in, the applicable staging tables with an appropriate warning message.

Settings That Affect Error Handling When Collecting Data from External Source Systems

The handling of errors and warnings encountered when the data collection processes validate data during collections from external source systems depends upon which data collection method is used, Web service upload or staging tables upload.

How Errors and Warnings Are Handled

When you are running data collections using the Web services method, the following error and warning handling steps occur:

- Errors: Records are loaded to the applicable staging tables instead of the data repository and are marked with the appropriate error message.
A record with an error due to mandatory missing mandatory fields, such as organization or supplier or item, is first marked as retry. After several unsuccessful retry attempts, the record will be marked as error.
- Warnings: Records are loaded into the data repository and into the applicable staging tables with the appropriate warning message.

When you are running data collections using the staging tables upload method, the following error and warning handling steps occur:

- Errors: Records remain in the staging tables without being loaded to the data repository and are marked with the appropriate error message.
A record with an error due to mandatory missing mandatory fields, such as organization or supplier or item, is first marked as retry. After several unsuccessful retry attempts, the record will be marked as error.
- Warnings: Records are loaded into the data repository and remain in the staging tables with the appropriate warning message.

Error Handling Example

When a Planned Order Supplies record is collected, many validations occur for which an error is recorded if the validation fails.

For example, the supplier name is validated against the suppliers data in the order orchestration and planning data repository. If the supplier name is not found, the validation fails with an error condition, and the following steps occur:

- The Planned Order Supplies record is not loaded into the data repository.
- The Planned Order Supplies record is loaded into the applicable stating table, or remains in the applicable staging table, with an error message stating invalid supplier or invalid supplier site.

Warning Handling Example

When a Planned Order Supplies record is collected, many validations occur for which a warning is recorded if the validation fails.

For example, the Firm-Planned-Type value in the record is validated to verify that the value is either 1 for firm or 2 for not firm. If the validation fails, the failure is handled as a warning, and the following steps occur:

- The Planned Order Supplies record is loaded into the data repository with the Firm-Planned-Type value defaulted to 2 for not firm.
- The Planned Order Supplies record is also loaded into the applicable staging table, or remains in the applicable staging table, with a warning message stating invalid firm planned type.

Purge Collected Data Processes: Points to Consider

You use the Purge Data Repository Tables process to delete all collected data from the order orchestration and planning data repository that was collected from a specific source system. You use the Purge Staging Tables process to remove data that you no longer need in the data collections staging tables.

The Purge Data Repository Tables Process

You use the Purge Data Repository process to delete all data for a source system from the order orchestration and planning data repository. The process enables you to delete data for a specific source system. You typically use the Purge Data Repository process when one of your source systems becomes obsolete, or when you decide to do a complete data refresh for a set of collection entities.

The Purge Data Repository process has only two parameters, both of which are mandatory. This table explains the two parameters.

Parameter Name	Parameter Options
Source System	Select a source system for the list of source systems. All data for the selected system will be deleted from the data repository.
Purge Global Entities	Yes or No If you select yes, in addition to the applicable data being deleted for the source-specific entities, all data from global entities will also be deleted. If you select no, data will be deleted from the source-specific entities only.

The Purge Staging Tables Process

You use the Purge Staging Tables process to delete data from the data collection staging tables.

The following table explains the parameters you specify when you run the Purge Staging Tables process. In addition to the five parameters explained below, you specify yes or no for each of the twenty-five data collection entities.

Parameter Name	Parameter Options
Source System	Select a source system for the list of source systems. Data will be deleted for this source system only.
Record Type	The record type specifies which type of records to purge as follows: <ul style="list-style-type: none"> • Error Purge only error records. • Warning Purge only warning records. • Retry Purge only records marked as retry. • Complete Purge only records that have been successfully processed and data stored in the data repository. • All Purge all records.
Collection Cycle ID	Specify a value for the collection cycle identifier to purge data for a specific collection cycle only, or leave blank.
From Date Collected	Specify a date to purge data from that date only, or leave blank.
To Date Collected	Specify a date to purge data up to that date only, or leave blank.

FAQs for Review Planning Collected Data

What's an order orchestration reference object?

One of the objects in the set of objects used by the orchestration processes to determine the meaning and descriptions for names or codes, such as payment terms names, freight-on-board codes, and mode-of-transport codes.

The sales order data passed to the orchestration processes contains the names or codes, but the processes need to display the meanings or descriptions. The data to determine the meanings or descriptions for the names or codes must be collected into the order orchestration and planning data repository.

For example, sales order information is passed to the Order Orchestration processes containing a freight-on-board code equal to 65, and the order orchestration and planning data repository contains a record with freight-on-

board code equal to 65. The processes use the matching codes to determine that the freight-on-board code meaning is equal to Origin, and the description is equal to Vendors responsibility.

Tip

For the full list of order orchestration reference objects, review collected data for the order orchestration reference objects, and view the list of values for the **Lookup Type** field.

2

Manage Order Promising Rules

ATP Rules, Allocation Rules, and Sourcing Rules: How They Work Together

You create available-to-promise (ATP) rules and allocation rules to define how the items on fulfillment lines are promised by the order promising engine.

ATP rules and allocation rules enable you to govern the behavior of the order promising engine. You can configure different types of rules and assign them in various ways to items and organizations to enable you to get different behavior for different items. You create sourcing rules, and assign the sourcing rules to assignment sets, to define your supply sources and supply chains used when order promising conducts a supply chain availability search.

ATP Rules

Oracle Fusion Global Order Promising provides an order promising engine with flexible promising process logic that you can direct per your business requirements through your definition of ATP rules. For example, constrained and high value items can be promised using supply chain availability search, while low value items can be promised by assuming infinite supply. The following are key points regarding ATP rules:

- ATP rules define order promising behavior by enabling you to specify:
 - The promising mode to be used by the order promising engine to determine how supply availability is considered
 - The supply and demand source types to be considered during promising
 - The usage of advanced promising features, such as capable to promise and profitable to promise
- ATP rules can be assigned flexibly to items, item organization, organization, or categories.
- By assigning different ATP rules to different items, fulfillment lines for various items can be promised in various ways.

Allocation Rules

Allocation rules enable you to specify portions of supply by demand classes to ensure high service levels for specific demand classes. For example, 80 percent

of supplies can be allocated to satisfy high priority demand classes. Allocation rules are applicable only when promising results are being determined through a supply chain availability search. If order promising is using a lead-time-based ATP rule or an infinite-availability-based ATP rule to determine promising results, allocation rules will not be considered.

If order promising is applying an ATP rule in supply chain availability search mode, an allocation rule may be applied if the following are true:

- The fulfillment line being promised has specified a demand class.
- The demand class has been specified in an allocation rule that is applicable to the item being promised.
- The ATP rule being applied has been defined to respect allocation constraints.

Sourcing Rules

When order promising is conducting a supply chain availability search, sourcing rules and the assignment sets that the sourcing rules are contained within provide the details of the supply chain to search. You may have many different manufacturing and distribution locations that can supply the same product. Sourcing rules determine the acceptable fulfillment locations to be considered. The order promising supply chain availability search results determine the best location, based on the product and order request date, from the locations specified in the sourcing rules.

Manage ATP Rules

ATP Rule Promising Modes: Explained

The promising mode of an available-to-promise (ATP) rule determines which set of attributes order promising logic evaluates when determining ATP results. When you create an ATP rule, the first thing that you must specify is which of the three promising modes is applicable to the ATP rule.

These are the three promising modes:

- Supply chain availability search
- Lead time based
- Infinite availability based

Infinite Availability Mode

You create ATP rules in infinite availability mode most often for assigning to items that are not constrained in supply and are of low value. Here are the key points of the infinite availability based mode:

- The item is promised on the requested date irrespective of availability.
- No availability search is performed.
- Calendars are respected during promising.

- The order promising engine does not generate any pegging.
- Transit time constraints are respected; therefore, requests within transit lead times are promised after accounting for the transit lead time.

No other attributes are associated with the infinite availability mode of promising.

Lead Time Mode

You create ATP rules in lead time promising mode most often for assigning to items that are always assembled or built on demand. This mode is typically used for items that can be procured or produced with a reliable lead time. Here are the key points of the lead time based mode:

- Orders are promised after a specified lead time, as promise dates are always offset from the requested date by the specified lead time.
- No supply availability search is performed.
- Lead time can be specified in multiple ways.
- The order promising engine does not generate any pegging.
- Calendars and transit time constraints are respected.

When you create ATP rules in lead time promising mode, you select one of the following four lead times to be used:

- Total lead time
- Cumulative manufacturing lead time
- Cumulative total lead time
- User-defined lead time

Supply Chain Availability Search

You create ATP rules in supply chain availability search mode for assigning to items for which you want promising results determined by a search for available product supply. The supply chain availability search promising mode provides complex and highly configurable promising functionality that enables you to configure how the search will be conducted. Here are the key points of the supply chain availability search mode:

- The search mode is a comprehensive and highly customizable mode of promising.
- Detailed availability search is performed across supply chain depending on the options that you select when you create the rule.
- Pegging information is generated by the engine.
- Lead times, calendars, capacities, transport modes, and supply chain network are considered during promising.

When you create ATP rules in supply chain availability search mode, you specify many additional attributes including these:

- Whether to search components and resources

- Whether to enable a profitable-to-promise search
- Whether to respect allocation constraints
- Which types of supply and demand to consider
- What lead time to use for the infinite availability fence
- How many days to consider for past-due demand and past-due supply

ATP Rule Precedence: How It Is Determined

You assign available-to-promise (ATP) rules to specific items, organizations, or item categories, or to combinations of specific items and organizations. When order promising is determining which ATP rule to use for the item being promised, there may be multiple rules that are applicable, but only one rule will be applied. For example, there may be one ATP rule assigned to the item category of the item being promised, and another ATP rule assigned specifically to the item that is being promised. When there are multiple rules applicable to the item being promised, a hierarchical precedence is used to determine which rule will apply.

Settings That Affect ATP Rule Precedence

When assigning an ATP rule, you select an assignment basis for the assignment. The four choices for assignment basis are item category, item, organization, and item and organization combined.

How ATP Rule Precedence Is Calculated

When there are multiple ATP rules applicable to the item being promised, order promising uses a hierarchical precedence of least granular assignment basis to most granular assignment basis to determine which rule to apply. Order promising applies the rule with the most granular assignment basis. The following lists the four choices for assignment basis in order of least granular to most granular:

- Item category
- Item
- Organization
- Item and organization

Lead-Time-Based and Infinite-Availability-Based Promising Modes

Infinite-Availability-Based Promising Mode: How It Determines Promising Results

When applying an available-to-promise (ATP) rule in the infinite-availability-based promising mode, order promising bypasses supply consideration and

determines the promise date from the requested date. Because supply is assumed to be infinite for all days, a request is always promised on the requested date, except in cases where transit lead times are violated.

Settings That Affect Infinite-Availability-Based ATP Mode

Which constraints order promising must respect when determining the promise date is determined by the type of requested date: requested arrival date or requested ship date.

How Infinite-Availability-Based Promising Results Are Determined

Order promising assumes infinite availability on all days, so no supply and demand matching is done for infinite promising. However, order promising must still respect certain constraints for the organization when determining the promise date from the requested date.

If the requested date is the requested arrival date, order promising must still respect calendar constraints and transit lead time constraints.

If the requested date is the requested ship date, order promising must still respect calendar constraints.

Lead-Time-Based Promising Mode: How It Determines Promising Results

In the lead-time-based promising mode, the promised date is delayed from the requested date based on the lead time defined in the available-to-promise (ATP) rule being applied for the item being promised.

Settings That Affect the Lead-Time-Based ATP Mode

The following two settings affect the promising results for lead-time-based promising:

- Lead time to be considered
- Type of requested date

The lead time to be considered is defined in the ATP rule being applied.

The type of requested date is defined in the fulfillment line being promised. The requested date is one of the following two types:

- Ship Date
- Arrival Date

How Lead-Time-Based Promising Results Are Determined

The calculations used to determine the promising results depend on the type of requested date:

- The requested date is the ship date.

Order promising applies the lead time offset defined in the ATP rule and schedules a promise on the requested date plus lead time offset after

inflating the calendar date to account for any holidays. Order promising will not check whether there is availability of the item because even if there is availability of the item, the availability must be ignored.

- The requested date is the arrival date.

Order promising first derives the requested ship date by applying a transit time offset to determine the requested ship date. To determine the offset, the default carrier, shipping mode, and service level associated between the ship-from date and the ship-to date is considered. To derive the promised ship date, order promising then applies the lead time defined in the ATP rule to the derived requested ship date. Then to calculate the promised arrival date, order promising applies the transit time for the specified or default ship method . When determining dates, order promising accounts for any calendar constraints.

Promising Attributes for Lead Time Based Promising: Points to Consider

In the lead-time-based promising mode, the promised date will always be delayed from the requested date based on the lead time defined in the available-to-promise (ATP) rule being applied.

Lead Time Considered

When you create an ATP rule in the lead time based promising mode, you specify which one of the following four lead times is considered when the rule is applied:

- Total lead time
- Cumulative manufacturing lead time
- Cumulative total lead time
- User-defined lead time

Supply-Chain-Availability-Search-Based Promising Mode

Supply Chain Availability Search: How It Determines ATP

The goal of the supply chain availability search is always to find the available-to-promise (ATP) result that minimizes the lateness of the fulfillment line. The options considered by specific supply chain availability search are determined by a number of settings. The results of the search are affected by which options are considered and by what factors must be evaluated when the options are considered.

Settings That Affect Supply Chain Availability Searches

The behavior of the supply availability search is primarily determined by the following four factors:

- Constraints specified on the fulfillment line, such as the specification of a ship-from warehouse and whether splits are allowed

- Attribute settings for the ATP rule that is being applied
- The supply chain defined by the assignment set in use and the sourcing rules that it contains
- Allocation constraints from an applicable allocation rule

Additional settings determine what additional options the supply chain availability search can consider. The following must be true for the supply chain availability search to consider capable-to-make when determining promising availability:

- The item is built from components, and the ATP rule has been enabled to search for components and resources.
- Inventory is maintained at the component level.
- Modeling of bills-of-material and routings have been collected into the order orchestration and planning data repository from the applicable fulfillment systems.

How Supply Chain Availability Searches Determine Promising Results

If the fulfillment line has many constraints specified, such as substitutions not allowed, the nature of the alternative options generated by the supply chain availability search changes. In the most constrained case, when a ship-from warehouse is specified and substitution and splits are not allowed, promising options are generated from only the specified ship-from warehouse for the specified item, possibly by considering different shipping methods that deliver the item to the customer site.

The fewer constraints specified on the fulfillment line, the more possibilities the supply chain availability search can consider. For example, if a ship-from warehouse is not specified, and splits and item substitutions are allowed, the supply chain availability search looks for the best possible ways of promising the fulfillment line by looking across all warehouses specified in the applicable sourcing rules and by considering splitting by date, or substituting items, or both. Order promising determines a default availability option as well as availability options that represent the best possible availability from each warehouse.

Unless the constraints on the fulfillment line restrict it from doing so, the supply chain availability search always considers the supply for the item at other warehouses, also known as transfer capable-to-promise, and the supply for the item at suppliers, also known as buy capable-to-promise. If the ATP rule being applied has enabled the consideration of components and resources, the supply chain availability search considers the availability of the components and resources consumed during manufacturing, also known as make capable-to-promise. For example, if the settings enable a capable-to-promise search, and an end item is made of two components, C1 and C2, which are assembled on a resource R1, if supply is available for the components, but not for the end item, the fulfillment line is promised by using the available supply of the components and by considering the resource availability.

If the Profitable to Promise attribute is enabled for the ATP rule being applied, the supply chain availability search overrides sourcing priorities to respect the least-cost source that it can promise from. The costs considered when

determining the most optimal location to source the promise from are the following:

- Standard cost at internal organizations
- Standard cost at supplier locations
- Cost of internal transfers between organizations
- Cost of transit from supplier to internal organizations
- Cost of transit from ship-from locations to customer sites by shipping method

In the case of make capable-to-promise, the following costs are also considered:

- The cost associated with resource consumption defined as cost per unit of resource consumed
- The cost of the components required to make the end item

Profitable to Promise Example

An item is being requested on a fulfillment line with the following quantity and date:

- Requested Quantity: 60 units
- Requested Date: 05-Feb-2011

Two warehouses, M1 and M2, both have 100 units of the requested item available, and the customer would receive the item on 05-Feb-2011 from both warehouses. M1 is the preferred warehouse per the applicable sourcing rule, but the ATP rule being applied has the Profitable to Promise attribute enabled. The availability search considers the cost of the item at each warehouse:

- M1 standard cost: \$20 per unit
- M2 standard cost: \$10 per unit

In this example, the ATP search overrides the warehouse with the higher priority in the sourcing rule. The promising result is 60 units from warehouse M2 to arrive at the client with no delay.

Promising Attributes for Supply Chain Availability Searches: Points to Consider

When creating an available-to-promise (ATP) rule in supply chain availability search mode, you define promising attributes to influence how order promising will determine fulfillment options and fulfillment option priority when applying the ATP rule to determine order promising results. You define whether order promising will search components and resources to find promising options that include making the item. You define whether order promising will include profitable to promise to determine which fulfillment option to use. You also define whether the ATP rule will override applicable allocation rules.

To define the promising attributes, you enable or disable the following attributes for each ATP rule that you create in the supply chain availability search mode:

- Search components and resources

- Enable profitable to promise search
- Respect allocation constraints

Search Components and Resources Attribute

Select the **Search components and resources** check box to enable order promising to consider whether the end item can be made using its component and resources if an item is not available at a requested location. When order promising is applying an ATP rule with search components and resources enabled, order promising can determine promising results by looking into the availability of the components and resources required to make the item being promised. In make-to-order environments, inventory is often not available for the ordered item, so it is necessary for order promising to look at components and resources to promise the order. Order promising respects all relevant calendars, lead times, and capacities when searching components and resources.

Enable Profitable to Promise Search Attribute

Select the **Enable profitable to promise search** check box to enable order promising to use the lowest total fulfillment cost option as the final factor for determining which fulfillment option to choose. Order promising always gives highest priority to demand satisfaction so that an order is never delayed for the sake of using a lower cost option. However, when order promising is applying an ATP rule with the profitable to promise search attribute enabled, if order promising finds more than one fulfillment option for the same fulfillment date, order promising determines the fulfillment cost, and sourcing priority may be overridden if the source with the lower cost has a lower priority. When determining cost, order promising considers the standard cost of an item at an internal organization or order promising considers the supplier costs, transfer costs, rolled up costs in the case of manufacturing, and delivery costs to the customer.

Respect Allocation Constraints Attribute

Select the **Respect allocation constraints** check box to direct order promising to apply allocation constraints defined by any allocation rules applicable to the item being ordered. If you do not select the **Respect allocation constraints** check box, order promising will disregard allocation constraints when applying the ATP rule.

Defining an Infinite Availability Time Fence: Points to Consider

You define the infinite availability time fence to specify the horizon after which supply is considered to be infinite. Order promising considers any demand that falls beyond this time fence as available. When a promise is made at the infinite time fence, no real supplies are consumed.

Infinite Availability Time Fence

Order promising assumes infinite supply availability after the time period defined by the infinite availability fence. For requested dates after the time fence,

order promising promises on the requested date without checking availability. If the requested date is beyond the infinite time fence, no real supplies are used for promising. For requested dates within the infinite availability time fence, order promising conducts a supply chain availability search.

You specify a user-defined number of days for a user-defined infinite availability time fence, or select from one following three lead times to define a lead time based infinite availability time fence:

- Total lead time
 - Cumulative manufacturing lead time
 - Cumulative total lead time
-

Tip

You should define an infinite availability time fence. If you do not define an infinite availability time fence, order promising uses a horizon of a year which incurs a large increase in the memory used by the order promising engine.

Defining Past-Due Supply and Demand Considerations: Points to Consider

You define past-due supply and past-due demand to limit the past-due supply and past-due demand considered when order promising determines promising results.

Past-Due Demand Considered

Past-due demand is a demand with a scheduled date earlier than the current date. Most past-due demands need to be considered and accounted for as they are expected to ship in the future. However, you may have a number of days of past-due beyond which you no longer consider the demand valid. You specify the number of days of past-due for past-due demand to be included when order promising determines promising results. Order promising does not consider any past-due demand due before the number of days you specify. If you do not specify a value for past-due demand considered, all past-due demand will be considered.

Past-Due Supply Considered

Past-due supply is a supply, usually in the form of a purchase order, for which the expected date is earlier than the current date. Most past-due supplies need to be considered as the expectation of supply is still considered valid. You specify the number of days of past-due supply to be included when order promising determines promising results. Order promising does not consider any past-due supply expected before the number of days you specify. If you do not specify a value for past-due supply considered, all past-due supply will be considered.

Defining an ATP Time Fence: Points to Consider

To ensure that short term supply is preserved for orders within the short term, define an available-to-promise (ATP) time fence. By defining an ATP time fence,

you prevent scenarios where longer term orders that come in first are pegged against existing supply, delaying the promise for orders that come in for the short term.

Requested Dates within the ATP Time Fence

Supply searches for the period within the ATP time fence look for existing supply before looking through the supply chain for item availability. In other words, the supply search looks for on-hand supply before looking for capable-to-promise supply.

Requested Dates outside the ATP Time Fence

Supply searches for dates outside of the ATP time fence look for capable-to-promise supply before looking for existing supply availability.

The ATP Time Fence

You specify a user-defined number of days for the ATP time fence, or select from one following three lead times to define a lead time based ATP time fence:

- Total lead time
- Cumulative manufacturing lead time
- Cumulative total lead time

Manage Planning Allocation Rules

Planning Allocation Rules: Explained

You use allocation rules to control how supply is allocated among various classes of demand. If allocation rules are not defined, order promising promises on a first-come-first-serve basis. If orders for a lower priority customer come in first, the lower priority customers could consume scarce supply. If you have defined an allocation rule for a demand class, the allocation amount serves as the upper allocation constraint for that demand class for items the allocation rule has been assigned to.

You specify how supply is allocated using one of the following three specification types:

- Number: Fixed quantity is allocated to a demand class.
- Percentage: Percentage of total supply is allocated to a demand class.
- Ratio: Relative ratios between the various demand classes are used to divide up the total available supply within a week.

Controlling Allocation among Demand Classes

You determine how to allocate your supply among various classes of demand using one of the three specification types. For each fulfillment line with a

demand class specified for which there is an applicable allocation rule, order promising applies the allocation rule when assessing the quantity requested against the quantity available. Orders are promised up to the allocation defined for the demand class.

Here is an example scenario.

- Allocation Rule: 20 percent to low priority customers, 80 percent to high priority customers.
- Supply: 100 on 19-Oct-2011, 100 on 26-Oct-2011

The following table is an example order with two fulfillment lines.

Fulfillment Line Number	Requested Item	Requested Date	Requested Quantity	Demand Class
1	WM101	19-Oct-2011	30	Low Priority Customer
2	WM101	19-Oct-2011	30	High Priority Customer

Results:

- Fulfillment Line 1: Delayed by 7 days since there is insufficient supply to allocate until additional supply is received on 26-Oct-2011.
- Fulfillment Line 2: No delay since there is sufficient supply for the requested date.

Planning Allocation Rule Precedence: How It Is Determined

You assign allocation rules to specific items, specific organizations, specific item categories, or combinations of specific items and organizations. When the Order Promising process is determining whether an allocation rule applies to the item being promised, the process may determine that multiple rules are applicable. However, only one rule will be applied. For example, there may be one rule assigned to the item category of the item being promised, and another rule assigned to the item that is being promised. When there are multiple rules applicable to the item being promised, a hierarchical precedence is used to determine which rule will apply.

Settings That Affect Allocation Rule Precedence

When assigning an allocation rule, you select an assignment basis for the assignment. The four choices for assignment basis are item category, item, organization, and item and organization combined.

How Allocation Rule Precedence Is Determined

When there are multiple allocation rules applicable to the item being promised, order promising uses a hierarchical precedence of least granular assignment

basis to most granular assignment basis to determine which rule to apply. Order promising applies the rule with the most granular assignment basis. The following lists the four choices for assignment basis in order of least granular to most granular:

- Item Category
- Item
- Organization
- Item and organization

Allocation Targets: Examples

Allocation targets can be defined using a specification type of number, percentage, or ratio. The following examples illustrate the use of each of these specification types.

Number Example

When you define allocation using the number specification type, you are specifying a fixed quantity to be allocated to the demand class. For example, if you want to allocate 500 units for a high priority demand class, you create an allocation rule using the number specification type with an allocation target of 500 for the high priority demand class.

Percentage Example

When you define allocation using the percentage specification type, you are specifying a percentage of overall item supply to be allocated to a demand class. For example, if you create an allocation rule using the percentage specification type with an allocation target of 20 for the low priority demand class, if total supply is 1000, up to 200 units may be promised for the low priority demand class.

Ratio Example

When you define allocation using the ratio specification type, you are specifying that a relative ratio between the demand classes is used to divide up the total available supply within week. For example, if you create an allocation rule using the ratio specification type with a three to one ratio between high priority demands and low priority demands, and the total supply is 2000 units, the high priority demand class is allocated 1500 units, and the low priority demand class is allocated 500 units for the week.

3

Promise Orders

Check Availability

Check Availability: Explained

Use the Check Availability feature to explore alternative ways of promising a batch of one or more fulfillment lines. The fulfillment lines presented on the Check Availability page contain promising result attributes. The promising results are presented in a simulation mode. No supply is committed until you schedule a fulfillment line.

When you navigate to the Check Availability page from the Order Orchestration work area, the batch of fulfillment lines you selected are presented in a default priority order based upon requested dates. The initial check availability results present the promising result that minimizes delay for each fulfillment line after checking for availability in the default priority order. You make changes to fulfillment lines, such as changing priorities, changing the requested ship-from warehouse, or removing fulfillment lines from shipment sets, to explore other options for promising. You schedule the promising results that meet your objectives. For example, you may choose to schedule a result with less cost but more delay than what was originally suggested.

When you review the fulfillment lines, you review the following sets of attributes for each fulfillment line:

- Promising results attributes
- Requested attributes
- Scheduled attributes

Promising Results Attributes

Promising results are reflected in the set of attributes that begin with available or expected, such as the Available Item, Available Quantity, and Expected Ship-from Warehouse attributes. These are the values for the simulated promising results determined by the Check Availability process. You cannot directly change the values for these attributes. You can influence the values for these attributes by changing other attributes, such as the Requested Ship-from Warehouse attribute, and then refreshing your results or viewing availability options. Until you schedule a fulfillment line, you are in a simulation mode. The values specified for the available attributes and the expected attributes are not committed until you schedule the applicable fulfillment line.

You review the values of the available attributes and expected attributes to evaluate the availability result suggested for the fulfillment line. For example, you explore promising possibilities for a fulfillment line with the requested item set to item X1234, the requested ship date set to 20-Dec-2011, and no substitutions allowed. The availability result suggests item X1234, the requested item for the available item, and a delayed expected ship date of 28-Dec-2011. You change the fulfillment line to allow substitutions, and refresh results. The availability result now specifies Y4567, a substitute item, for the available item, and a no-delay-expected ship date of 20-Dec-2011.

Requested Attributes

The values for the attributes that begin with requested, such as the Requested Item attribute and the Requested Ship-from Warehouse attribute, are initially determined by what the values are when you select the line in the Order Orchestration work area. You cannot change the values for many of the requested attributes, such as the Requested Item attribute, the Requested Quantity attribute, and the Requested Ship Date attribute. You can change or clear the values for the Requested Ship-from Warehouse attribute and the Requested Shipping Method attribute. There are also some additional attributes you can change, such as whether substitutions are allowed, to influence the results when you explore other promising option.

When you click on a fulfillment line, the attributes that are editable are enabled for edits.

Scheduled Attributes

The attributes that begin with scheduled, such as the Scheduled Ship-from Warehouse, have values if the fulfillment line was previously scheduled when selected in the Order Orchestration work area. You check availability for fulfillment lines that are scheduled, but not yet shipped, to explore whether you can find improved promising results. The scheduled attributes are presented for your reference. Your changes to the requested attributes on the Check Availability page do not change the values for any scheduled attributes until you choose to schedule a fulfillment line. When you schedule a fulfillment line, the fulfillment line is returned to the Order Orchestration work area with the values for the scheduled parameters copied from the promising results attributes for that line. After you schedule a fulfillment line on the Check Availability page, the fulfillment line is no longer displayed on the page.

Refresh Results: Explained

You refresh results to obtain new promising availability results for your batch of fulfillment lines contained on the Check Availability page. Each time you refresh results, all of the fulfillment lines in your batch are sent to the Order Promising engine in the sequence specified in the **Override Priority** field using the attributes values currently specified for each fulfillment line. You refresh results to obtain new availability results after making changes to one or more fulfillment lines. When you refresh results, the previous results will be replaced. Only one set of results are displayed at a time.

You also refresh results to obtain current availability results when one or more of your availability results expire. Each time you refresh results, the availability results are determined using the latest availability information in the Order

Promising engine. The availability results obtained when you refresh results may be quite different from the original results if changes to supply or demand occurred due to other promising transactions for similar items.

This topic explains the following three aspects regarding refreshing results:

- Why you refresh results
- Why results expire
- What happens when you refresh results

Why You Refresh Results

You refresh results for two reasons. One reason you refresh results is to obtain new promising availability results using the changes you have made to attributes on your fulfillment lines. Another reason you refresh results is to obtain new promising availability results after one or more of your availability results have expired.

Why Results Expire

When you check availability, the promising results are based upon the latest availability information contained in the Order Promising engine. Because the availability information may change due to other promising transactions for similar items, a time limit is set for how long your promising results will remain valid. You can view the time remaining before your results expire on the Check Availability page. When the time limit is reached, the availability results for all of the fulfillment lines in your batch of fulfillment lines expire.

Tip

If you have found promising results that meet your objectives for one or more of your fulfillment lines, schedule the applicable fulfillment lines before your results expire. The same promising results may not be available after you refresh results because other promising transactions may have used the supply.

Fulfillment lines also expire due to actions you take, such as selecting a different availability option, for higher priority fulfillment lines within your batch of fulfillment lines. Because the promising results are determined according to the priority order of the fulfillment lines, changes to the supply used by a higher priority fulfillment line can affect the supply available for a lower priority line. Because the affect on supply cannot be determined until you check for availability results again, the results for the lower priority lines are expired when you make changes to a higher priority line.

Tip

Before you change higher priority lines, consider the promising results for your lower priority fulfillment lines. Schedule any lower priority fulfillment lines with availability results that you do not want to risk losing.

What Happens When You Refresh Results

When you refresh results the Check Availability process runs again for all fulfillment lines in your batch of fulfillment lines regardless of what lines are selected. The fulfillment lines are processed in the order of the override priorities. If you have made changes to any of the requested attributes for any of

your fulfillment lines, the new attribute values are used as inputs to the Check Availability process. When the process completes, your fulfillment lines contain the new promising results, the time out expiration is reset, and the results-expire countdown begins again.

Tip

Before you refresh results, schedule any fulfillment lines with results that you do not want to risk losing. When you refresh results, all fulfillment lines on the Check Availability page are refreshed.

Availability Results

Availability Results: How They Are Determined

When you check availability, the Order Promising process returns a result for each fulfillment line that minimizes the lateness for each fulfillment line in your batch of fulfillment lines. The batch of fulfillment lines is processed in a sequential order. Fulfillment lines later in the sequence may be affected by the soft pegging of supply for fulfillment lines earlier in the sequence.

Settings That Affect Availability Results

Numerous settings affect what results are determined when you check availability. The settings fall into the following three categories:

- The values for the requested attributes and the Splits Allowed and Substitutions Allowed attributes on the fulfillment line

The more specific and restrictive the values are for the attributes of a fulfillment line, the less flexibility the Order Promising process has when considering promising options for that line. The following is the most restrictive combination of attributes:

- A ship-from warehouse is specified
 - A shipping method is specified
 - Splits are not allowed
 - Substitutions are not allowed
 - Order promising rules applicable to the item organization being requested
- One or more of the following rules may be applicable:
- Available-to-promise (ATP) rules
 - Sourcing rules
 - Allocation rules
 - Supply and demand in the order promising engine

Each time you check availability or refresh results, the current status of supply and demand in the order promising engine is used. Because other promising activity may affect the available supply, you can receive

different promising results even if you refresh results with the same values specified for your fulfillment lines.

How Availability Results Are Determined

While the Check Availability logic may find many availability options for each fulfillment line contained in your batch of fulfillment lines, only one availability result is presented for each line. The availability result presented is the availability option that results in the least amount of fulfillment delay while following all of the rules order promising has determined to be applicable to the requested item organization.

The Order Promising process follows a series of logic paths based upon the mode of the ATP Rule that is applicable to the requested item organization. Item attributes and allocation rules may also influence the availability results.

On the Check Availability page, view the **Original Priority** field to view the sequence in which the order promising engine promised lines. The fulfillment lines with a lower original priority number are the lines with priority access to supply. The availability results are determined for the batch of fulfillment lines. If the fulfillment lines request similar items, the results of a higher priority line may impact the results of a lower priority line.

Tip

Use the additional information that is available for each of your availability results for better understanding of your results. View order promising rules for a specific availability result for visibility into the promising logic that dictated the result. View availability details for a specific availability result to review the supply pegging. View the Supply Availability report and the Supply Allocation report for details of supply and allocation available within the supply chain.

Influencing Availability Results by Changing Fulfillment Lines: Points to Consider

You can make a number of changes to fulfillment lines to influence the results you receive when you refresh results on the Check Availability page. You can change one or more field values, remove lines from one or more shipment sets, or both. Until you schedule, you are in simulation mode and no supply is committed. Because you are in simulation mode until you schedule, you can explore results from different combinations of changes without impacting supply quantities for other promising activity.

Tip

If you have found a promising result that meets your promising objectives, but you are curious to see what other possibilities exist, remember that you may not get the same results the next time you refresh results, even if you use the same values. The available supply may have changed due to other promising transactions. If you have found a promising result that meets your objective, you should schedule the result.

You perform the following actions to influence your availability results:

- Change field values on one or more fulfillment lines
- Remove fulfillment lines from a shipment set

Change Field Values on One or More Fulfillment Lines

You can change a number of fields on the Check Availability page to explore alternative promising results. You change the fields and then refresh results to see new promising results. Because you are in simulation mode until you schedule a fulfillment line, you can explore the promising results from different combinations of field values. No changes are committed until you schedule. When you schedule, the fulfillment lines are returned to order orchestration using the field values as they are when you schedule.

The following table explains what fields to change, what the field does, and why you would change it.

What to Change	What Does It Do?	Why Change It?
Change the value in the Override Priority field.	Determines which fulfillment lines in the batch of fulfillment lines on the Check Availability page have priority access to supply. Lower numbers have higher priority.	You want to improve the promising results for one or more fulfillment lines even though the promising results for other fulfillment lines in the batch may be impacted. For example, you want to improve the promising result of a fulfillment line for a preferred customer.
Change the value in the Requested Ship-from Warehouse field.	Determines which warehouse will be considered for sourcing the item.	You want the availability checked at a different, specific warehouse. Result options will only be found if the order promising rules applicable to the requested item include the warehouse as a valid source.
Clear the value in the Requested Ship-from Warehouse field.	Allows any applicable warehouse to be considered for sourcing the item. Order promising rules, item attributes, or both, determine which warehouses are applicable.	You want the availability checked at any warehouses allowed for consideration as a source by the applicable order promising rules.
Change the value in the Requested Shipping Method field.	Determines which shipping method will be considered for sourcing the item.	You want the availability checked using a different, specific shipping method. Result options will only be found if the order promising rules or attributes applicable to the requested item include the shipping method as a valid method.
Clear the value in the Requested Shipping Method field.	Order promising rules, item attributes, or both, determine shipping methods applicable.	You want the availability checked using any shipping method allowed for consideration as a source by the applicable order promising rules and item attributes.

Change the demand class.	Allows the line to be associated with a different demand class, which allows it to be associated with a different allocated supply.	You have determined that allocation rules are affecting how supply is being allocated. You want to explore other result options using a different demand class.
Allow substitution	Allows the Check Availability process to explore whether using a substitute item provides other promising options.	You want to explore additional result options using substitute items.
Allow splits	Allows the Check Availability process to explore whether splitting the fulfillment line into two or more fulfillment lines provides other promising options.	You want to explore additional result options including options that split the fulfillment line into multiple lines with combinations of different promising results such as different available items and different expected dates.

Remove Lines from a Shipment Set

A shipment set implies that all lines within the set must be shipped together on the same date, using the same shipping method. You group fulfillment lines together as a shipment set within order orchestration. When you include a shipment set in the batch of fulfillment lines for which to check availability, the set is displayed as a hierarchical structure on the Check Availability page. You can remove lines from the set to explore whether the promising results improve for the set without the removed lines, or if the results improve for the removed lines, or both.

You use the Remove from Set action to remove one or more lines from a shipment set. When you refresh results after removing lines, the removed lines are included as separate lines in your batch of fulfillment lines. The removed lines are no longer included in the hierarchy displayed for the set. The removed lines can be shipped on a different date using different shipping methods.

Because you are in simulation mode until you schedule a fulfillment line or fulfillment line set, you can explore the promising results options made available from different combinations of removing fulfillment lines from a set and adding lines back to the set. When you schedule, the fulfillment lines are returned to order orchestration how they are scheduled. If you have removed some lines from a set, and scheduled these lines individually, the lines will be returned to order orchestration separate from the fulfillment lines that remain in the set.

Note

You can add a fulfillment line that you removed from a set back to the shipment set from which it was removed. You cannot add a fulfillment line to a shipment set if the line was not originally part of the set.

Fulfillment Line Splits and Substitutions: Explained

If a fulfillment line allows splits, or substitutions, or both, the order promising engine explores these possibilities when determining availability results or finding availability options.

Order promising may split fulfillment lines as follows:

- Split across warehouses
- Split across substitute items
- Split across dates

Split Across Warehouses

Splits across warehouses only occur if the **Requested Ship-from Warehouse** field is not populated on the original fulfillment line. When the order promising engine splits across warehouses to determine a promising option, each of the fulfillment lines produced by the split specifies a different value for the **Expected Ship-from Warehouse** field.

Split Across Substitute Items

Item substitutions only occur if the **Allow Substitutions** field equals Yes. When the order promising engine splits across substitute items to determine a promising option, each of the fulfillment lines produced by the split specifies a different value for the **Available Item** field.

For example, assume supply for a requested item is 80 units for a requested item and 50 units for its substitute item. The Check Availability process will split a fulfillment line requesting 100 units into the following two availability results:

- one result with 80 units of the requested item specified for the available item
- one result with 20 units of the substitute item specified for the available item

Split Across Dates

When the availability results are split across dates, two date splits can be created. The first date split for a fulfillment line is for the quantity that is available on the requested date. The second date split is for the remaining quantity promised from the same item and organization combination on another date.

For example, assume supply for a requested item is 70 units on 15-Nov-2011 and 40 units on 30-Nov-2011. The Check Availability process will split a fulfillment line requesting a 100 units of the item on 15-Nov-2011 into the following two availability results:

- one on-time result for 70 units of the requested item with the expected date equal to 15-Nov-2011
- one delayed result for 30 units of the requested item with the expected date equal to 30-Nov-2011

Fulfillment Analytics: Explained

When you check availability two analytics provide promising metrics for your batch of fulfillment lines overall. As you make changes to individual fulfillment lines, use the analytics to evaluate the promising results for your batch of fulfillment lines overall. When you improve the promising results for one fulfillment line, the promising results for other fulfillment lines in your batch

of lines often degrade if the lines are requests for similar items. Use the analytics to determine if the overall results for your batch of fulfillment lines meet your promising objectives. If the fulfillment lines were previously scheduled when you selected them on the order orchestration workbench, use the analytics to compare the proposed promising results for the batch overall using the currently proposed promising results with the results for the batch as previously scheduled.

The following two analytics are provided when you check availability:

- Aggregate Batch Scheduling Metrics analytic
- Fulfillment Line Promising Distribution analytic

Aggregate Batch Scheduling Metrics Analytic

Use the Aggregate Batch Scheduling Metrics analytic to analyze the total margin and total fulfillment cost for your batch of fulfillment lines overall. The Order Promising process uses cost information collected into the order orchestration and planning data repository to calculate the fulfillment cost of each line and then aggregates these results. The Order Promising process considers multiple costs, such as the standard cost of item at an organization, purchasing cost of components, shipping costs, and resource usage costs, when calculating the fulfillment cost.

The calculation of the fulfillment cost depends on the mode in which the promise was made. In the simplest case, where existing available supply at a warehouse is used to promise an order, the fulfillment cost for a line is calculated as the standard cost of an item * quantity + per unit shipping cost * quantity.

Fulfillment Line Promising Distribution Analytic

Use the Fulfillment Line Promising Distribution analytic to analyze the on-time and delay results for your batch of fulfillment lines overall. Two pie charts with promising distribution, such as the number of lines promised on time, the number of lines slightly delayed, and the number of lines severely delayed, are provided on the Check Availability page.

One of the pie charts, the Original pie chart, presents the distribution of the fulfillment lines as they were previously scheduled if they were previously scheduled when you selected them on the order orchestration workbench. Delay is calculated as the difference in days between scheduled arrival dates and the requested arrival dates.

The other pie chart, the Proposed pie chart, presents the distribution of the fulfillment lines using the currently proposed promising results. Delay is calculated as the difference in days between expected arrival dates and the requested arrival dates.

FAQs for Check Availability

Why did one or more of my availability results expire?

You changed the results for a higher priority fulfillment line or the availability results time-out was reached.

Refresh results to obtain current availability results.

How can I see new results after changing attribute values?

Refresh results to check availability using the current attribute values specified on the Check Availability page.

When the Check Availability process completes, the availability results presented reflect the changes you made to the attribute values, and changes in the available supply and demand made by other promising activity.

Important

When you refresh results, all fulfillment lines on the Check Availability page are refreshed. Before you refresh results, schedule any fulfillment lines with availability results you want to promise. The same availability results may not be available after you refresh results, even for fulfillment lines whose attributes you did not change.

Schedule Order Fulfillment Lines

Fulfillment Line Scheduling: Explained

Scheduling a fulfillment line is equivalent to promising a fulfillment line. The terms scheduling and promising can be used interchangeably in the context of the Check Availability page. You use the Check Availability feature to determine a date when the fulfillment line can be delivered to the customer by matching the demand specified by a fulfillment line with supply. While the fulfillment line is on the Check Availability page, the supply and demand match is in simulation mode. You must schedule a fulfillment line to commit the matched supply to the fulfillment line.

When you are on the Check Availability page, you have the following two scheduling choices:

- Schedule the selected fulfillment lines.
- Schedule all fulfillment lines.

Schedule the Selected Fulfillment Lines

When you find availability results for specific fulfillment lines that meet your promising objectives for those lines, select and schedule the specific fulfillment lines. When you schedule one or more specific fulfillment lines, the supply matched to the demand for the selected fulfillment lines is committed to that line. The fulfillment lines are returned to the Order Orchestration workbench with the scheduled parameters populated with the values from the available attributes and expected attributes on the fulfillment line. The fulfillment lines that you selected and scheduled no longer appears in the batch of fulfillment lines on the Check Availability page.

Schedule All Fulfillment Lines

When you find availability results for your batch of fulfillment lines overall that meet your promising objectives, schedule all of your fulfillment lines. When

you schedule all fulfillment lines, the supply matched to the demand for each fulfillment line in your batch of lines is committed to that line. All fulfillment lines in your batch of fulfillment lines are returned to the Order Orchestration workbench with the scheduled parameters for each line populated with the values from the available attributes and expected attributes for that line.

View Availability Options

Availability Options: How They Are Determined

When you check availability, the availability results include one promising option for each fulfillment line. You view availability options to explore additional promising options for a specific fulfillment line. When you select a fulfillment line, the View Availability Options button is activated. When you click the View Availability Option button, one or more availability options, up to six options, are generated by the Order Promising process.

Settings That Affect Availability Options

The same settings that affect how availability results are determined affect how availability options are determined. The setting fall into the following three categories:

- The values for the requested attributes and the Splits Allowed and Substitutions Allowed attributes on the fulfillment line

The more specific and restrictive the values are for the attributes of a fulfillment line, the less flexibility the Order Promising process has when considering promising options for that line. The following is the most restrictive combination of attributes:

- A ship-from warehouse is specified
- A shipping method is specified
- Splits are not allowed
- Substitutions are not allowed
- Order promising rules applicable to the item organization being requested

One or more of the following rules may be applicable:

- Available-to-promise rules
- Sourcing rules
- Allocation rules
- Supply and demand in the order promising engine

Each time you check availability or refresh results, the current status of supply and demand in the order promising engine is used. Because other promising activity may affect the available supply, you can receive

different promising results even if you refresh results with the same values specified for your fulfillment lines.

How Availability Options Are Determined

Availability options are determined using the same logic that is used when availability results are determined except up to six options are presented rather than only the one best option. The availability options are presented in a ranked order with each option associated with an option number that indicates the rank of the option. The ranking is based on the fulfillment delay associated with the option, and then on cost, and then on whether substitutes were used in the fulfillment. An availability status is provided for each option to specify whether the option is on-time, or delayed, or is split into a combination of both. An option summary is provided for each option.

The type of availability options generated depends upon what is set for the attributes on the fulfillment line. For example, if the attributes are not restrictive, if a ship-from warehouse is not specified, and if splits and substitutions are allowed, then the Order Promising process will look across all warehouses allowed by the rules for the item organization, and split by date, or find a substitute item, or both, to determine the best option which is designated as the default option. After determining the default option, the Order Promising process generates options for the best possible availability from each warehouse including splitting fulfillment, using substitute items, and combinations of both.

If the attributes on the fulfillment line are more restrictive, then the nature of the availability options will change. In the most constrained case when a ship-from warehouse is specified, and substitutions and splits are not allowed, then options will be generated only from the specified ship-from warehouse, possibly by considering different shipping methods.

There are some cases where no additional availability options are found for a fulfillment line. The promising rule that is applied may be very specific, or the attributes may be very restrictive, or there may just be one set of supply available. In other cases, where the promising rules provide many possibilities, and the attributes are nonrestrictive, and many sources of supply are available, the maximum number of availability options may be generated.

Tip

Use the additional information that is available for each availability option for better understanding of how your options were determined. View the order promising rule for visibility into the promising logic that dictated a specific availability option. View the availability details to review the supply pegging for an option. View the Review Supply Availability and the Review Supply Allocation reports for details of supply and allocation available within the supply chain.

Ship-to Region or Zone: How It Is Used to Determine Sourcing

The Ship-to Region or Zone attribute is used to determine sourcing when the Order Promising engine needs to consider a sourcing assignment at an assignment level that includes region, and the Order Promising engine cannot derive the region from the customer site on the fulfillment line.

Settings That Affect Whether Ship-to Region or Zone is Used to Determine Sourcing

When the Order Promising engine considers a sourcing assignment at an assignment level that includes region, order promising derives the region from the customer site on the fulfillment line whenever possible. Order promising only uses the ship-to region or zone supplied by the order orchestration process when it needs a region value and cannot derive the region from the customer site.

Order promising cannot derive the region from the customer site on the fulfillment line when one of the following is true:

- The customer site is an ad-hoc customer site which is not within the in-memory data of the Order Promising engine.
- The region or zone associations of a newly added customer site are not within the in-memory data of the Order Promising engine.

Note

A value for region is needed only if there are no applicable sourcing assignments that are higher in the sourcing hierarchy than one of the region-level sourcing assignments. If there is an applicable sourcing assignment at one of the more granular assignment levels, such as customer or item, then the more specific sourcing assignment will be used, and a region value is not needed.

How Ship-to Region or Zone is Used to Determine Sourcing

Rather than ignoring sourcing assignments with a region specification when unable to derive the region from the customer site, order promising will use the value provided for ship-to region or zone. If the value provided for ship-to region or zone matches the region specified in a sourcing assignment, and that is the sourcing assignment that is the most specific sourcing assignment applicable, then the sourcing rule or bill of distribution in that sourcing assignment will be the one used to determine sourcing.

Option Summary: Explained

The **Option Summary** field provides an explanation of how availability was determined, such as whether an item was substituted, for each availability option included in the list of availability options. The explanation of how availability was determined is in relation to other availability options in the list. You use the information provided in the option summary to evaluate the option based upon your promising objectives.

The option initially suggested by the order promising process when you checked availability is marked as the current option and the option summary specifies Faster ship method. The other availability options are summarized using one or more of the following option summaries:

- Slower ship method

- Different items
- No substitutes
- Different ship location
- Different split
- No split
- Item split
- Date split
- Source split

FAQs for View Availability Options

What happens if I select an availability option?

You are returned to the Check Availability page with the availability result for the fulfillment line replaced by the availability option you selected.

At this point you are still simulating how the fulfillment line would be promised if you scheduled the fulfillment line as currently displayed on the Check Availability page. The supply has not been committed. You must schedule to commit the supply.

Note

When you select a different availability option for a fulfillment line, the fulfillment lines with lower priority on the Check Availability page become expired.

What happens if I select and schedule an availability option?

The fulfillment line is promised per the attribute values presented in the availability option.

The supply specified in the availability option is committed to the fulfillment line. The fulfillment line is no longer included in the group of fulfillment lines on the Check Availability page. The Order Orchestration workbench now presents the fulfillment line as scheduled, and the scheduled values reflect the values of the availability option selected.

View Availability Details

Availability Details, Pegging Properties, and Supply Reports: How They Work Together

For insight into how your availability results and availability options were determined, use the additional information that is available for each of your availability results and availability options. View availability details for a specific availability option or availability result to review the hierarchy of the supply pegging used. For each row in the pegging hierarchy, view the pegging properties for the details specific to that pegging row. Use the Review Supply

Availability report and the Review Supply Allocation report to view details of supply and allocation available within the supply chain.

Availability Details

View availability details for a specific availability option or availability result to review the hierarchy of how supply was pegged in order to promised the line. The **View Availability Details** action is available from the **Actions** menu when you select a specific availability option or a specific availability result.

Use the information provided when you view availability details to understand how the Order Promising process searched for supply across the supply chain, and to determine possible causes of delay for a fulfillment line. You can use the information to determine details regarding where supply was found to promise the order, such as whether there was existing on-hand availability in the supply chain for the requested item, whether the Order Promising process used supplies from another organization, or whether the process used available supplier capacity.

Note

The Order Promising process examines the supply availability across the supply chain to determine the best possible promise dates. However, the process does not actually create supplies. The Order Promising process looks for upstream availability of an item when it is not available at the requested warehouse, adds associated lead times, and then generates a promise date, but the process does not actually create the transfer document between the upstream availability and the ship-from warehouse.

Pegging Properties

For each row in the pegging hierarchy, you can view the pegging properties for the details specific to that pegging row. The **Pegging Properties** action is available from the **Actions** menu when you have selected a specific row in the availability details pegging hierarchy.

The specific pegging properties provided will vary depending upon the type of pegging row selected. For example, if the pegging row is a row of type Make, then the pegging properties include details such as the manufacturing calendar and the manufacturing start and end dates. If the pegging row is a row of type Resource, the pegging properties include details such as the resource calendar and the resource utilization start and end dates.

Supply Reports

Use the Review Supply Availability report and the Review Supply Allocation report to view details of supply and allocation available within the supply chain.

Review Supply Availability and Supply Allocation

Supply Availability and Supply Allocation Reports: Explained

Two reports, the Supply Availability report and the Supply Allocation report, are available for you to analyze further information regarding the available supply

in the Order Promising engine. You use the Supply Availability report to review the overall state of supply for an item. You use the Supply Allocation report to review the allocation of supply for an item to demand classes where allocations have been created.

Use the following two supply reports for additional detail regarding the overall state of supply of an item, and where applicable, the allocation of that item to demand classes:

- Supply Availability report
- Supply Allocation report

Supply Availability Report

Use the Supply Availability report to review the current state of the supply available in the Order Promising engine. The report is typically used to view the available supply for an item organization, but you can use the report to view supplier capacity for an item by conducting an advanced search. Because availability results are in simulation mode, and are not committed until a fulfillment line is scheduled, the details provided in the report do not account for fulfillment lines for which availability is being checked.

The following details are provided in the Supply Availability report:

- Supply

The total supply available in the Order Promising engine for the specified item by period.

- Consumed

The supply that the Order Promising engine has currently consumed during order promising. Because a single fulfillment line can consume supply from multiple dates as required to promise the order, consumption may not correspond to the requested dates of demands.

- Net

The supply consumed for the particular time period.

- Cumulative

The cumulative net supply in a period.

Note

The supply availability report is only relevant for items subject to an available-to-promise (ATP) rule with the promising mode set to supply chain search.

Supply Allocation Report

Use the Supply Allocation report to review details regarding the allocation of the supply for an item to demand classes where applicable. The report shows data by item, organization, demand class and week. The start date of the week is always assumed to be a Monday.

The following details are provided in the Supply Allocation report:

- Target Allocation
 - Supply allocated to the demand class in a particular week based on the applicable allocation rule.
- Consumed Allocation
 - Allocation that has already been used up by other fulfillment lines in that demand class.
- Available Allocation
 - Allocation still available per week.
- Cumulative Available Allocation
 - Allocation still available on a cumulative basis.

FAQs for Review Supply Availability and Supply Allocation

When does the total supply in the Order Promising engine get updated?

When the Order Promising engine is refreshed and restarted.

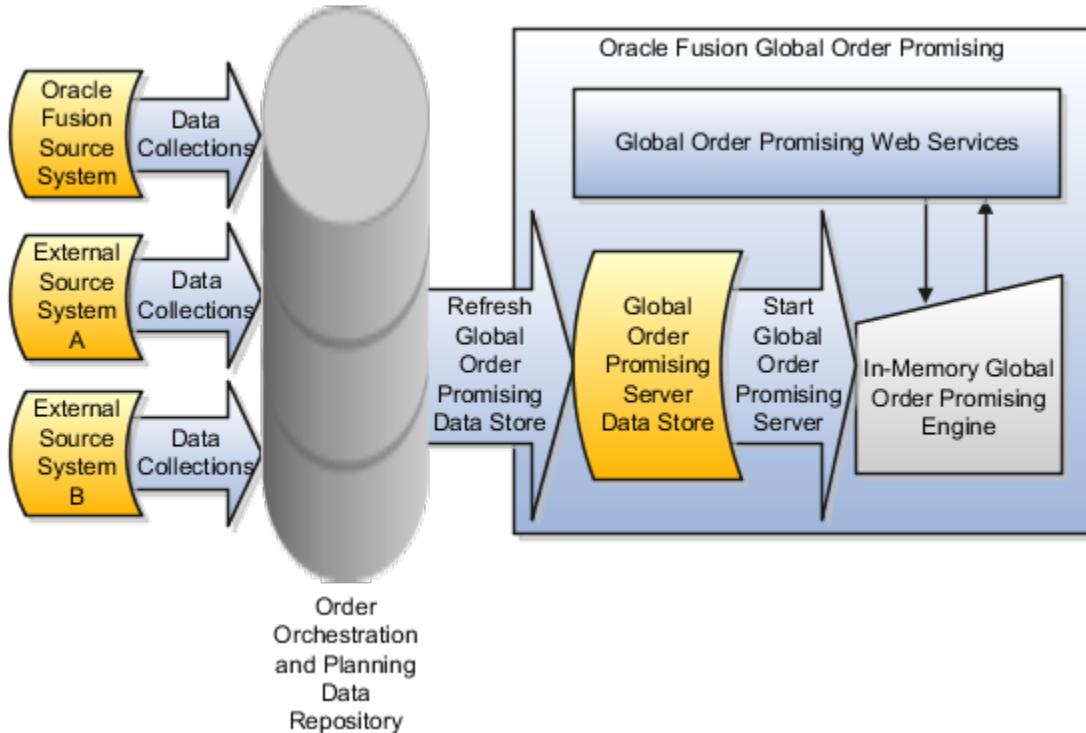
Because the Order Promising engine, also known as the Order Promising server, is an in-memory engine which loads all the data required for order promising into an in-memory process, the engine needs to be refreshed with the latest data from transactions frequently, at least once a day. Daily administration tasks are performed to refresh the Order Promising engine with the latest data collected into the order orchestration and planning data repository, and then to restart the engine. These administration tasks are conducted in the background and should be transparent to your promising activities.

Perform Order Promising Server Data Refresh

Refreshing the Global Order Promising Engine: Explained

The Global Order Promising engine is an in-memory engine that uses an in-memory copy of the data collected into the order orchestration and planning data repository. To ensure the in-memory data reflects the latest supply and demand data collected into the data repository, you should refresh the Global Order Promising data store and start the Global Order Promising server at least once a day.

The following figure illustrates that you perform data collections to populate the order orchestration and planning data repository with current data from multiple source systems. After you complete a cycle of data collections, you refresh the Global Order Promising data store with the latest data from the data repository. After you refresh the Global Order Promising data store, you start the Global Order Promising server to load a copy of the refreshed data from the data store into main memory.



To refresh the in-memory copy of the collected data with the most recently collected data, perform these two steps:

1. Refresh the Global Order Promising data store.
2. Start the Global Order Promising server.

Refresh the Global Order Promising Data Store

To refresh the Global Order Promising data store, complete these steps:

1. Navigate to the Schedule New Process page by following this navigation path:
 - a. Navigator
 - b. Tools
 - c. Schedule Processes
 - d. Schedule New Process
 - e. Click the more link
2. Select the **Schedule Processes** link.
3. Click the **Submit New Request** button.
4. In the popup window, select Job for the type.
5. Search for and select the process named RefreshOpDatastore.
6. Select the entities you want to refresh and submit the job.

Start the Global Order Promising Server

To start the Global Order Promising server, you use an Oracle Fusion Global Order Promising instantiation of Oracle Enterprise Manager.

You do not need to stop the server before you start it. If the Global Order Promising server is already running when you start the Global Order Promising server, the Global Order Promising engine currently in memory continues to run until the start process is complete. The Start Global Order Promising Server process updates another engine with the current data from the Global Order Promising Server data store. When the updated engine comes up, the existing engine with the old data is automatically shut down.

Important

The Current Date attribute stored within the Global Order Promising engine is also updated when you start the Global Order Promising server. If the Global Order Promising engine is not updated at least once a day, the Global Order Promising engine may have a wrong current date, and there may be issues with promising results.

Note

You also use an Oracle Fusion Global Order Promising instantiation of Oracle Enterprise Manager to monitor performance of the Global Order Promising server, to access log files, and to stop the server when necessary.

4

Manage Sourcing Rules, Bills of Distribution, and Assignment Sets

Manage Sourcing Rules and Bills of Distribution

Sourcing Rules and Bills of Distribution: Explained

To define the sources of supply for your supply chains and to define your date-effective sourcing strategies, create sourcing rules and bills of distribution.

Within each sourcing rule or bill of distribution, you define one or more supply sources and a combination of rankings and quantity-based sourcing specifications for each source to define priorities across the supply sources. For each source, you also select one of three source types, and you specify the value for the attributes applicable to the selected source type.

This table lists the three replenishment source types, the definition of the source type, and the attributes to specify for each source type.

Source Type	Source Type Definition	Attributes to Specify
Buy from	Sourced from an external supplier.	Specify the supplier and supplier site.
Make at	Sourced from an internal organization that manufactures the item.	Specify the manufacturing organization.
Transfer from	Sourced through an interorganization transfer.	Specify the organization from which items will be transferred.

Note

When you create sourcing rules and bills of distribution, you specify how you will replenish items. You do not specify what items that you will replenish. To specify which sourcing rules or bills of distribution that you will use to replenish what items, you create assignment sets.

You define the following aspects of sourcing rules and bills of distribution to define your sources of supply and your sourcing strategies:

- Global sourcing rules

- Local sourcing rules
 - Bills of distribution
 - Effectivity dates
 - Source ranks, quantity-based sourcing specifications, and allocation percentages
-

Tip

When first designing your sourcing rules and bills of distribution, start by envisioning your assignment set. Determine what set of global sourcing rules, local sourcing rules, bills of distribution, or combinations of rules and bills that you need to implement your assignment set while minimizing the number of rules or bills to maintain. For example, you may be able to define a global sourcing rule in such a way that you will need only a few local sourcing rules to assign for exceptions to the global rule.

Global Sourcing Rules

Global sourcing rules can specify two of the source types: the buy-from or transfer-from source types. Any organization can potentially replenish items by buying from any of the suppliers specified in the buy-from sources, or transferring from any of the organizations specified in the transfer-from sources. For example, if you create a global sourcing rule with a buy-from source with Super Supply Company specified for the supplier, any of your organizations can potentially buy from Super Supply Company.

If you have a source that is applicable to most of your organizations, create a global sourcing rule for that source and local sourcing rules for the organizations for which the source is not applicable. For example, if there are 20 organizations in your company, and 19 of the organizations transfer supply from the Munich organization, create a global sourcing rule specifying transfer-from the Munich organization, and create a local sourcing rule specifying where the Munich organization gets supply from.

Local Sourcing Rules

Local sourcing rules can specify all three source types. Because a local sourcing rule is applicable to one, and only one, organization, you specify which organization the rule is being created for when you create the rule. The replenishment sources defined in the rule are applicable only to the organization for which the rule was created. For example, if you create a local sourcing rule with M1 as the organization for which the rule is being created, and you add a buy-from source to the rule with XYZ Supply Company specified for the supplier, and you have no other sourcing rules or bills of distribution with XYZ Company specified for the supplier, then only the M1 organization can buy from XYZ Supply Company.

Bills of Distribution

If you have designed multiple local sourcing rules with material flowing through three or more organizations, you can choose to create one bill of distribution to implement the sources instead of creating multiple local sourcing rules. Choosing to create a bill of distribution instead of souring rules is a personal or organizational preference. Any scenario that you can implement by creating a

bill of distribution, you can also implement by creating multiple local sourcing rules.

For example, the following sourcing scenario could be implemented by three local sourcing rules or one bill of distribution:

- Organization M1 sources items by purchasing from a supplier, XYZ Supply.
- Organization M2 sources items by transferring from M1.
- Organization M3 sources items by transferring from M2.

Effectivity Dates

Use sourcing effectivity dates to modify sourcing rules and bills of distribution when sources change, such as a new supplier contract is established or a manufacturing facility is shut down. Each rule or bill can have multiple, non-overlapping ranges of effectivity start dates and end dates, with a different set of sources specified for each range. For example, if you have a sourcing rule that currently specifies a buy-from source with Acme Supplier specified for the supplier, but your company has decided to start buying from Winter Widgets instead, you would modify the sourcing rule by specifying the applicable end date, the date you will no longer buy from Acme Supplier, for the current effectivity date range. You add a new effectivity date range, specifying the date when you will start buying from Winter Widgets for the start date, and then you add a buy-from source for the new effectivity date range with Winter Widgets specified for the supplier.

Source Ranks, Quantity-Based Sourcing Specifications, and Allocation Percentages

For each source in a sourcing rule or bill of distribution, you designate a rank to specify the order in which the sources within the rule or bill will be considered by order promising when the rule or bill is applied during a supply chain availability search. The source with the lowest number rank will be considered first, and the source with the highest number rank will be considered last. If your sourcing strategy includes using specific sources for specific quantities, you designate a from quantity, a less-than quantity, or both, for one or more sources.

Note

Because sourcing rules collected from external source systems may include split allocations for planning purposes, there may be multiple sources with the same rank and quantity range, but the allocation percentages must add up to 100 percent. The Order Promising process does not split the desired quantity when checking for availability.

The Order Promising process checks the source with the highest allocation percent first within a group of sources with the same rank. If the source with the highest allocation percent has enough supply, that source is used for the entire requested quantity. If the source with the highest allocation percent does not have enough supply, then the source with the next highest allocation percent will be checked for the entire quantity. Because split allocations are not applicable to order promising sourcing strategies, the examples provided here do not include split allocations.

The following table is an example of a sourcing rule with three ranks. Quantity-based sourcing is not being used in this example. If a supply chain search is conducted using this rule, order promising checks if organization M2 can make the desired quantity first. If organization M2 cannot make the desired quantity, order promising will then check if there is enough quantity at organization V1 for an interorganization transfer. If there is not enough quantity at organization V1, then order promising will check if the desired quantity can be bought from supplier Winter Widgets.

Replenishment Source and Applicable Attribute Value	Rank	Allocation Percent
Make at manufacturing organization M2	1	100
Transfer from organization V1	2	100
Buy from supplier Winter Widgets	3	100

Defining Quantity-Based Sourcing for Multiple Sources: Example

This example illustrates how to define sourcing rules to implement sourcing requirements with quantity-based sourcing specified in the requirements.

Scenario

You are defining the sources for a set of business requirements that initially include quantity ranges for two suppliers. The requirements change to include a third quantity range and a third supplier.

Quantity-Based Sourcing Specifications

Your business initially defines the following sourcing requirements:

- For quantities less than 100, buy from Supplier A.
- For quantities greater than or equal to 100, buy from Supplier B.

Your business adds a new supplier, Supplier C. Your business now defines the following sourcing requirements:

- For quantities less than 100, buy from Supplier A, if Supplier A has enough quantity.
- For quantities greater than or equal to 100, but less than 200, buy from Supplier B, if Supplier B has enough quantity.
- For quantities greater than or equal to 200, buy from Supplier C.
- If Supplier A does not have enough supply for a quantity less than 100, or Supplier B does not have enough supply for a quantity between 100 and 199, buy from Supplier C for these quantities.

Analysis

First, analyze your sourcing requirements to determine how many different sourcing rules you need to create to implement your sourcing requirements. The requirements specified above can be defined within one sourcing rule. After determining how many sourcing rules to define, determine how many sources must be defined for each sourcing rule. First analyze how many replenishment

source types have been specified in the requirements. All of the requirements above are for buy-from-a-supplier replenishment source types. Next, analyze how to define the From Quantity, Less Than Quantity, and Rank attributes as needed to implement your sourcing requirements.

For the requirements as initially stated, define two sources with the following values for the Source Type, Supplier, From Quantity, Less Than Quantity, Allocation, and Rank attributes:

- Source Type equals Buy from, Supplier equals Supplier A, Less Than Quantity equals 100, Allocation Percent Equals 100, and Rank equals 1
 - You do not need to specify a value for the From Quantity attribute because the source applies for any quantity less than 100.
- Source Type equals Buy from, Supplier equals Supplier B, From Quantity equals 100, Allocation Percent Equals 100, and Rank equals 1.
 - You do not need to specify a value for the Less Than Quantity attribute because the source applies for any quantity greater than or equal to 100.

For the requirements after the third supplier is added, edit the buy-from-Supplier-B source and add additional sources for Supplier C to define the four sources with the following values for the Source Type, Supplier, From Quantity, Less Than Quantity, Allocation, and Rank attributes:

- Source Type equals Buy from, Supplier A, Less Than Quantity equals 100, Allocation Percent Equals 100, and Rank equals 1.
 - You do not need to specify a value for the From Quantity attribute because the source applies for any quantity less than 100.
- Source Type equals Buy from, Supplier B, From Quantity equals 100, Less Than Quantity equals 200, Allocation Percent Equals 100, and Rank equals 1.
 - You do not need to specify a value for the Less Than Quantity attribute because the source applies for any quantity greater than or equal to 200.
- Source Type equals Buy from, Supplier C, From Quantity equals 200, Allocation Percent Equals 100, and Rank equals 1.
 - You do not need to specify a value for the Less Than Quantity attribute because there is no minimum or maximum value in this case.
- Source Type equals Buy from, Supplier C, and Rank equals 2.
 - You do not need to specify a value for the From Quantity attribute or Less Than Quantity attribute because there is no minimum or maximum value in this case.

This table lists the two sources you define to implement the following sourcing requirements:

- Check Supplier A for order quantities less than 100.
- Check Supplier B for order quantities greater than or equal to 100.

Type	Supplier	From Quantity	Less Than Quantity	Quantity Unit of Measure	Allocation Percent	Rank
Buy from	A		100	Each	100	1

Buy from	B	100		Each	100	1
----------	---	-----	--	------	-----	---

This table lists the four sources you define to implement the following sourcing requirements:

- Check Supplier A for orders for quantities less than 100.
- Check supplier B for quantities greater than or equal to 100 and less than 200.
- Check supplier C for quantities greater than 200.
- Check supplier C for quantities less than 200 when Supplier A or Supplier B do not have the desired quantity.

Type	Supplier	From Quantity	Less Than Quantity	Quantity Unit of Measure	Allocation Percent	Rank
Buy from	A	1	100	Each	100	1
Buy from	B	100	200	Each	100	1
Buy from	C	200		Each	100	1
Buy from	C				100	2

Manage Assignment Sets

Assignment Sets, Sourcing Rules, and Bills of Distribution: How They Work Together

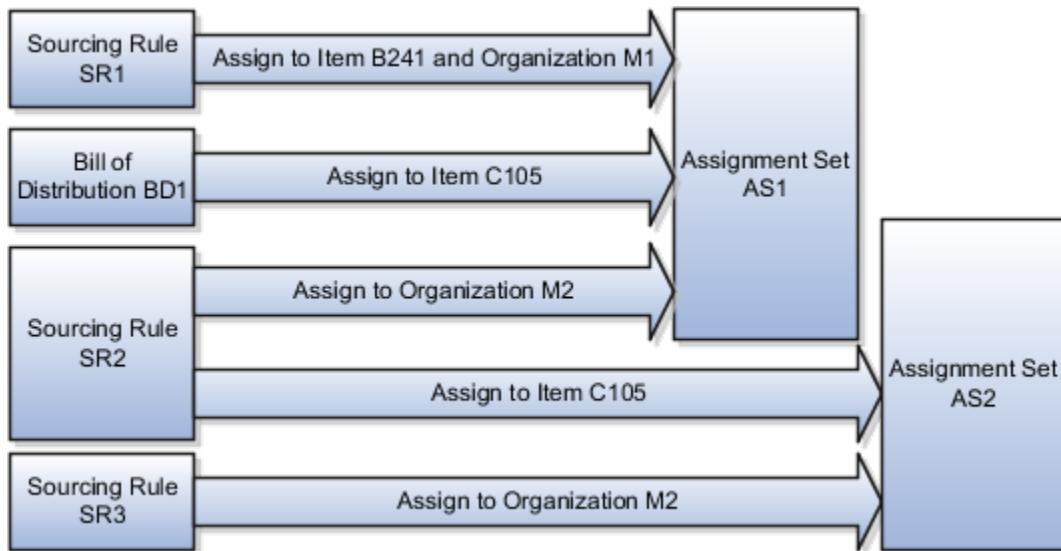
You create assignment sets to implement the supply chain networks for your sourcing strategies. You implement your supply chain network by selecting the appropriate sourcing assignment level when you assign a sourcing rule or bill of distribution to an assignment set. You create alternative assignment sets, with different sourcing assignments, to model alternative supply chains.

The following figure shows an example where three sourcing rules and one bill of distribution are assigned to two assignment sets:

- The first sourcing rule, SR1, is assigned to the first assignment set, AS1, at the item and organization assignment level for item B241 and organization M1.
- The bill of distribution, BD1, is assigned to the first assignment set, AS1, at the item assignment level for item C105.
- The second sourcing rule, SR2, is assigned to the first assignment set, AS1, at the organization assignment level for organization M2.
- The second sourcing rule, SR2, is also assigned to the second assignment set, AS2, but it is assigned to AS2 at the item assignment level for item C105.

- The third sourcing rule, SR3, is assigned to the second assignment set AS2, at the organization assignment level for organization M2.

When the supply chain network implemented by assignment set AS2 is followed, Item C105 is replenished according to the sourcing means specified in the sourcing rule SR2. When the supply chain network implemented by assignment set AS1 is followed, Item C105 is replenished according to the sourcing means specified in the bill of distribution BD1.



Assigning Sourcing Rules or Bills of Distribution to Assignment Sets

When you create sourcing rules and bills of distribution, you create descriptions of the means by which you replenish items, but you do not associate these means with any specific items. You create assignment sets to define your supply chain sourcing and transfer links by assigning sourcing rules and bills of distribution to specific items, customers, organizations, categories, demand classes, or regions. For each sourcing assignment within an assignment set, you select the applicable sourcing assignment level to implement the scope of the sourcing rule or bill of distribution for the specific sourcing assignment.

When you add new replenishment sources, change your strategies for using your existing sources, or you delete replenishment sources, you edit exiting assignment sets, or create new assignment sets, to incorporate these changes into your supply chains. When you edit assignment sets, you add new sourcing assignments to the assignment set, delete exiting sourcing assignments from the assignment set, or make changes to the assignment level and assignment attributes for existing sourcing assignments. You edit assignment sets on the Edit Assignment Set page, or in a worksheet by choosing to edit in worksheet while on the Manage Assignment Sets or Edit Assignment Set pages.

Sourcing Assignment Levels: Explained

When you design an assignment set, you determine the sourcing assignment level for each sourcing assignment contained within the assignment set. To implement well-designed assignment sets, you must know which sourcing assignment levels take precedence over which other sourcing assignment levels.

Two aspects to understand regarding sourcing assignment levels are:

- The sourcing assignment levels and their levels of granularity
- Sourcing demand types and the sourcing assignment levels

Sourcing Assignment Levels and Their Levels of Granularity

To determine which sourcing assignments to include in an assignment set, you need to know which assignment levels override which assignment levels. An assignment level that is more granular overrides an assignment level that is less granular.

For example, the Item and Customer and Customer Site assignment level is more granular than the Item and Customer assignment level. If a customer has 12 customer sites, and your sourcing strategy is the same for a specific item at 11 of the 12 customer sites, you only need to add these two sourcing assignments to your assignment set to implement this aspect of your sourcing strategy:

- A sourcing assignment at the Item and Customer assignment level to implement which sourcing rule or bill of distribution is applicable for orders placed for the item by the customer at 11 of the customer sites.
- A sourcing assignment at the Item and Customer and Customer Site assignment level to implement which sourcing rule or bill of distribution is applicable for orders placed for the item by the customer at the twelfth customer site.

If an order for the item is received for the customer at the twelfth customer site, then the sourcing rule or bill of distribution assigned at the Item and Customer and Customer Site level will be applied. If an order for the item is received for the customer for any of the other eleven sites, then the sourcing rule or bill of distribution assigned at the Item and Customer assignment level will be applied.

The sourcing assignment levels, listed most granular to least granular, are:

- Item and customer and customer site: Applies to a specific item for a specific customer at a specific customer site.
- Item and customer: Applies to a specific item for a specific customer at all of the customer's sites.
- Item and demand class: Applies to a specific item in a specific demand class.
- Item and region: Applies to a specific item in a specific region or zone.
- Item and organization: Applies to a specific item at a specific organization.
- Category and customer and customer site: Applies to all items in specific item category for a specific customer at a specific customer site.
- Category and customer: Applies to all items in specific item category for a specific customer at all of the customer's sites.
- Category and demand class: Applies to all items in a specific item category for a specific demand class.

- Category and organization: Applies to items in a specific item category at a specific organization.
- Item: Applies to a specific item in all regions, in all demand classes, and for all customers and all organizations.
- Category and region: Applies to all items in a specific item category for a specific region.
- Category: Applies to all items in a specific item category in all regions, in all demand classes, and for all customers and all organizations.
- Customer and customer site: Applies to a specific customer at a specific customer site for all items.
- Customer: Applies a specific customer at all of the customer's sites for all items.
- Demand class: Applies to all a specific demand class for all customers and all items.
- Region: Applies to a specific region or zone for all demand classes, all customers, and all items.
- Organization: Applies to a specific organization for all categories and all items.
- Global: Applies to all regions and zones, all demand classes, all customers, all items, and all organizations.

Note

The assignment levels that include category are available only if a category set has been defined for the Sourcing Rule Category Set profile option.

Sourcing Demand Types and the Sourcing Assignment Levels

When you create an assignment set, all assignment levels are applicable.

When sourcing logic determines which sourcing assignment to use, the type of sourcing need determines what attribute values have been provided, which determines which assignment levels are considered.

Demand for sales orders or forecasts sourcing, also known as independent demand, specifies a value for one or more of the following attributes: item, customer, customer site, demand class. Sales orders always specify item, customer, and customer site. The postal code included in a customer site is used to derive the region. Therefore, for independent-demand sourcing the sourcing logic will consider sourcing assignments where the assignment level includes customer site, customer, item, demand class, or region. A sourcing assignment at the global assignment level will also be considered.

Organization demand specifies a value for the item. The category value is derived from the category the item belongs to. The organization the demand is for defines the organization value. Therefore, for organization-demand sourcing the sourcing logic will consider sourcing assignments where the assignment level includes item, category, or organization. A sourcing assignment at the global assignment level will also be considered.

Note

When sourcing logic is determining where to get the supply from for a specific independent demand, such as the demand specified by a fulfillment line, the answer may be to source it from an organization that doesn't have the supply on hand. At that point, the sourcing logic will use the assignment levels applicable to organization demand to determine how to source the supply for that organization.

Tip

If you are checking the availability for fulfillment line, and you are viewing the pegging tree presented when you view the details of an availability option, you can see the supply chain followed to determine how to source the fulfillment line.

Assignment Set Sourcing Hierarchy: How It Determines Which Sourcing Rule Is Used

The sourcing assignment levels that you select when you create sourcing assignments in an assignment set formulate a sourcing hierarchy for that assignment set. Order promising uses the sourcing hierarchy to determine which sourcing rule or bill of distribution to follow to find a source for a specific item. Order promising always uses the most specific sourcing rule or bill of distribution that is applicable in the hierarchy.

Note

When order promising conducts a supply chain search, a profile option , the Default Order Promising Assignment Set profile option, designates which assignment set will be applied. Order promising uses the sourcing hierarchy to determine which sourcing rule or bill of distribution to follow from the rules or bills within the designated assignment set.

Settings That Affect the Sourcing Hierarchy

The position of a sourcing rule or a bill of distribution in the sourcing hierarchy is determined by these two factors:

- The assignment level at which you assigned the sourcing hierarchy or bill of distribution to the assignment set.
 - The rule or bill type which can be global sourcing rule, local sourcing rule, bill of distribution, or source organization. Source organization is the type used to designate when the set of item attribute values is what determines the source instead of a sourcing rule or bill of distribution.
-

Tip

Understanding and using the power of the sourcing hierarchy in an assignment set can make the designing and managing of sourcing relationships easier.

For example, if a plant initially receives all items belonging to a specific item category, such as the Fasteners item category, from Supplier A, then the sourcing rule to buy from Supplier A can be assigned at the Category assignment level for the Fastener item category.

If you then determine that a specific fastener is to be sourced from a different supplier, Supplier B for example, then you can assign a different sourcing rule to buy from Supplier B at the item level for the specific fastener. The detailed-to-general hierarchy determines that the specific fastener will be sourced from Supplier B, while all other fasteners are still sourced from Supplier A.

How the Sourcing Hierarchy Determines Which Rule Is Used

The sourcing hierarchy can be envisioned as a detailed-to-general table where each row in the table is a combination of assignment level and rule type. Each row in the hierarchy is more specific than the row below it. The topmost row, the row where a sourcing rule is assigned at the item and customer and customer site assignment level, is the most specific row. The bottommost row, the row where a global sourcing rule is assigned at the global assignment level, is the most general row. You use the sourcing hierarchy to answer which sourcing rule, bill of distribution, or set of item attribute values will be used to find a source for a specific combination of values of these four criteria:

- Assignment set
- Date
- Organization
- Item

For the sourcing rules and bills of distribution within the assignment set where the effective date of the sourcing assignment meets the date criteria, each rule or bill is associated with a specific row in the sourcing hierarchy. The sourcing assignment attribute values, such as the item value, determine which of the rules, bills, and set of item attributes are applicable to the specific criteria set. Multiple rules, bills, or item attributes can be applicable; therefore, multiple rows can be applicable. The rule, bill, or set of item attributes associated with the highest row in the hierarchy is the rule, bill, or set of item attributes that will be followed to determine the source.

From the Manage Assignment Sets page, you can select the **View Sourcing Hierarchy** button to view a table containing rows of the sourcing hierarchy. The most specific, most granular, row is the top row. The least specific, least granular row, is the bottom row.

Assignment Level	Sourcing Rule Type
Item and organization	Sourcing rule
Item and organization	Source Organization
Category and organization	Sourcing Rule

Item	Bill of Distribution
Item	Sourcing rule
Category	Bill of Distribution
Category	Sourcing Rule
Organization	Sourcing Rule
Organization	Source Organization
Global	Bill of Distribution
Global	Sourcing rule

Tip

You can view the sourcing hierarchy and initiate a search to ask "Where does this organization get this item on this date?" If you need to analyze why the order promising process returned results that were different than what you expected, you can view and search the sourcing hierarchy to determine which sourcing rule would be used for your set of criteria.

Editing an Assignment Set Within a Spreadsheet: Explained

When managing or editing assignment sets, you use the **Edit in Spreadsheet** button to use a spreadsheet to add, edit, or delete the sourcing rule or bill of distribution assignments for an assignment set. If you are managing assignment sets, you must select an assignment set before you can choose to edit in spreadsheet.

Glossary

assignment set

A group of sourcing rules, bills of distribution, or both, in which each rule or bill is assigned to an assignment level, and to attribute values for the attributes applicable to that assignment level. An assignment set defines a supply chain.

bill of distribution

A multilevel specification of the means by which several, specific organizations can replenish items.

continuous collection

An incremental, entity-specific method of collecting data from the Oracle Fusion source system into the order orchestration and planning data repository.

cumulative manufacturing lead time

The total amount of time needed to manufacture an item, assuming there is no availability of any raw material or components. The manufacturing time is added up from the primary routing of the item and all the subassemblies beneath it.

cumulative total lead time

The total lead time of an assembly plus the largest adjusted cumulative total lead time of its components.

global entity

An entity for which a single value is stored for all source systems when instances of the entity are collected and stored in the order orchestration and planning data repository.

global sourcing rule

A sourcing rule that is applicable to every organization.

item organization

Item definition where inventory balances are not stored and movement of inventory is not tracked in the applications. Item attributes that carry financial and accounting information are hidden.

local sourcing rule

A sourcing rule that is applicable to one, and only one, specific organization.

order orchestration and planning data repository

The set of data collected from source systems and stored for use by order orchestration and order promising processes.

profile option

User preferences and system configuration options consisting of a name and a value, that can be set at hierarchical levels of an enterprise. Also called a profile or user option.

source system

Any point of origin with integrated, cohesive business application data from which fulfillment data, or planning data, or both, can be extracted into data files.

source-specific entity

An entity for which a record is stored for each instance in each source system when data is collected and stored in the order orchestration and planning data repository. The stored data includes which source system the record was collected from.

sourcing assignment level

The scope, or level of granularity, for which a sourcing rule or bill of distribution is applicable when assigned within a specific assignment set.

sourcing rule

A specification of the means by which organizations can replenish items.

staging tables upload

The final step in the extract, store in staging tables, and upload from staging tables, method of collecting data from an external source system into the order orchestration and planning data repository. The upload can be performed as a targeted or net change upload.

targeted collection

A periodic, full-refresh, entity-specific method of collecting data from an Oracle Fusion source system into the order orchestration and planning data repository. A targeted collection completely replaces all data in the data repository for each entity included in the collection cycle.

total lead time

The time required to procure or manufacture an item. For manufactured assemblies, total lead time equals the time required to manufacture the item from its components on the primary routing, assuming infinite availability of components.

Web service upload

An incremental, entity-specific method of collecting data from an external source system into the order orchestration and planning data repository.