Oracle® Spares Management

User Guide

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Preface

Intended Audience

Welcome to Release 12 of the *Oracle Spares Management User Guide*.

This guide is designed for users, administrators, and implementors, of the Oracle Field Service Spares Management application. It assumes that you have a working knowledge of the principles and customary practices of your business area, along with specific application knowledge of the Oracle Field Service suite of products.

See Related Information Sources on page xi for more Oracle Applications product information.

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Structure

1 Using Spares Logistics

This chapter covers using Spares Logistics functionality to create parts requirements, order parts, view order status, and return excess parts inventory.

2 Using the Planner's Desktop

The Oracle Spares Management Planner's Desktop allows field service operations to plan, view, and monitor the status of technician and warehouse inventories to ensure that each is properly stocked with the parts necessary to service technician needs. It also provides tools for creating automated min-max inventory recommendations that define stocking levels for field technician trunk stock and warehouse inventories.

3 Loop Planning, Notifications and Reporting Hierarchy

Oracle Spares Management supports an aggregate planning approach where individual subinventories can be grouped into planning loops. A parts loop is a group of subinventories that is planned together as a single entity. A parts loop can cross more than one inventory organization and more than one operating unit.

4 Warehouse Replenishment Planning

The Warehouse Replenishment Planning (WRP) module of the Oracle Field Service suite plans inventories for central, regional, theater, or metropolitan warehouses in a field service supply chain. WRP is not designed to plan Technician trunk stock inventories. Trunk stock is planned using core Planner's Desktop functionality.

5 Using Warehouse Replenishment Planning

This chapters documents procedures for using Warehouse Replenishment Planning to create, select, review, and execute spares replenishment plans.

6 External Repair Execution

This chapter describes how Oracle Spares Management External Repair Execution functionality manages the external repair process for service parts in a field service supply chain.

7 Using Repair Purchase Orders

This chapter documents procedures for using Repair Purchase Orders to repair

defective parts for the replenishment of a field service warehouse.

Related Information Sources

Oracle Field Service Implementation Guide

Oracle Wireless Option for Service Concepts and Procedures

Oracle Field Service/Palm™ Devices Concepts and Procedures

Oracle Field Service/Laptop Concepts and Procedures

Oracle Advanced Scheduler Concepts and Procedures

Oracle Self–Service Web Applications Implementation Guide

Oracle Common Application Components User Guide

Integration Repository

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

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

Do Not Use Database Tools to Modify Oracle Applications Data

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

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

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications also keeps track of who changes information. If you enter information into database tables using

database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL*Plus and other database tools do not keep a record of changes.

Part 1

Spares Management

1

Using Spares Logistics

This chapter covers using Spares Logistics functionality to create parts requirements, order parts, view order status, and return excess parts inventory.

This chapter covers the following topics:

- Overview of Parts Requirements
- Creating a Parts Requirement Manually
- Creating a Parts Requirement Automatically
- Creating an Internal Order or a Parts Reservation
- Using Parts Search Hierarchy
- Overview - Move Orders
- Creating Move Orders
- Creating Reservations for Move Orders
- Printing Pick Lists for Move Orders
- Confirming Pick Lists for Move Orders
- Creating Pack Lists and Confirming Shipment
- Receiving Shipments for Move Orders
- Viewing the Status of Move Orders
- Viewing the Status of Internal Orders
- Creating Replenishment Orders
- Returning Excess Parts

Overview of Parts Requirements

A *parts requirement* defines specific parts needed for a product and task template. In Oracle Field Service Advanced Scheduler, the parts requirement is used to automate the

assignment and scheduling of tasks based on availability of the technicians and parts.

You can create parts requirements manually. For example, on arrival at the customer site, the required parts are not available in the technician's trunk stock to fix the broken machine. The dispatcher, field manager, or technician using a mobile device can then create a follow-up task and a parts requirement for the task. The parts requirement can be used to create an internal order when the task is assigned to a technician not having the parts, or it can be used in assignment and scheduling if the task is processed by Advanced Scheduler.

Parts requirements can also be created automatically at the time the service request and task are created, when the task was created from a template that has parts defined for the template and product used on the service request. Parts required for the task template and product can be defined in Spares Management Task Parts.

The Oracle Spares Management Parts Search functionality can be used to locate parts when available parts in the normal supply chain cannot be found.

The two methods to create parts requirements are described in the following procedures:

- Creating a Parts Requirement Manually, page 1-2

- Creating a Parts Requirements Automatically, page 1-4

Creating a Parts Requirement Manually

You can create a parts requirement manually by accessing the user interface directly, and then entering the appropriate information. The Parts Requirement user interface is divided into four parts:

- Header information, such as service request number, resource name, and requirement number

- Ship To Address. Populate this block with one of the addresses already assigned to the technician ship to address, one of the customer addresses, or a special address entered at the time the Parts Requirements are created.

- Items for the parts requirement. Multiple items can be associated to a arts requirement.

- Item scratch pad block. When the item number is unknown, enter a temporary part number that is set up in Oracle Inventory as a placeholder. Then describe the item in the scratch pad block. This information can be used to either find the correct item number in the item master or to create a new item in the item master. Once you have found the item or created the item, change the placeholder with the item number found or created.

Follow these steps to manually create a parts requirement:

Prerequisites

❒ Define parts for the task.

❒ Set up available-to-promise.

❒ Define addresses and subinventories for the resource.

Steps:

1. From the Field Service Manager Responsibility, navigate to the Parts Requirement user interface:

   Field Service Dispatcher > Spares Management > Spares Logistics > Parts Requirement

   The View Parts Order Status window appears. To modify an existing parts requirement, you can search for it here.

2. To create a new parts requirement, click New.

   The Parts Requirement window opens.

3. To create a parts requirement, the minimum required in the header region is a destination organization. Select an organization from the Destination Organization list of values. This is the organization that contains the location to which the item will be shipped.

   Destination Organization, Subinventory, and Address fields automatically populate if they have been set up for the resource.

4. If you are creating the parts requirement for a specific service request or task, enter the service request number. If you know the task number, enter it and the service request number attached to the task automatically populates.

   Resource Type and Name fields automatically populate if a resource (field technician) has been assigned to the task.

   • If the resource name is associated with a subinventory, the Destination Organization field populates with the organization associated with that subinventory.

   • The Destination Subinventory field is also populated.

5. Enter a date in the Need By date field.

6. Choose the order type from the list of values. The default value is the order type defined in the profile option: CSP: Order Type.

7. In the Ship To block, select the radio button for the type of address: Engineer, Customer, or Special. The default selection is Engineer, and the engineer's default address displays.

8. If you want to change addresses, click the Addresses button, and choose the address where you want to ship the parts. If you choose the Special radio button, enter the address, and then click Save.

   The special address is added to the engineer's list of addresses.

9. In the Required Item field of the Requirement tab, enter the item number you want to assign to the parts requirement.

10. In the Required Quantity field, enter the quantity needed for the parts requirement.

11. Repeat steps 10-11 for each item you want to add to the parts requirement.

12. To create the parts requirement, click Save.

    This creates a requirement number, which you can use to access the parts requirement at a later time if you need to view or modify it.

Creating a Parts Requirement Automatically

In many field service operations, required parts are known for frequently executed tasks. You can create parts requirements automatically when you create a service request for a product by using a task template where parts have been predefined in Oracle Spares Management for that product and Task Template combination. See the *Oracle Field Service Implementation Guide* for details.

You create task templates and define items associated with products and task templates during Spares Management implementation. For more information on creating a service request and creating tasks using a task template, see the *Oracle Support User Guide*.

Prerequisites

❐ Create the task parts definition.

❐ Define organizations and subinventories.

Steps:

1. From the Field Service Manager Responsibility, navigate to the Service Request window.

   Field Service Dispatcher > Service Request > Service Requests > Create Service Requests

The Service Request window opens.

2. After you have created a basic service request for a product where parts requirements have been defined, navigate to the Tasks tab, and then click the Use Template button to create a task based on the template.

> **Note:** The product used in the Service request and the Task Template combination need to have the required parts predefined in Spares Management Task Parts.

3. In the Create Tasks from Template Group window, choose the Template Group that corresponds to the task template you want to use.

    The Parts Requirement for the Product and Task is created automatically.

4. Go to the Parts Requirement in Spares Management. Query the Parts Requirement from te Service Request or Task to view the Parts Requirement.

Creating an Internal Order or a Parts Reservation

You can manually create an internal order or create a reservation for a technician's trunk stock.

Internal orders are used to execute shipment of the parts required to the field technician at the specified ship to address. Internal orders are tracked using the internal order number created for each item of the parts requirement. Internal orders are typically used in the field service supply chain to ship parts between organizations. The internal order can also be used to ship within the organization, but in-transit is not available.

If a technician has the parts available in trunk stock, you can use the Availability feature to create a reservation for the parts, which allocates them to the specific task for which the Parts Requirement was created. This ensures that the same parts are not assigned to multiple tasks.

An internal order or reservation can be created at the same time as the parts requirement. You can create an internal order after a parts requirement has been created. For details on creating a Parts Requirement, see Overview of Parts Requirements., page 1-1

Follow this procedure to create an internal order or a reservation:

Steps:

1. Navigate to the Parts Requirement user interface.

    Field Service Dispatcher > Spares Management > Spares Logistics > Parts Requirement

    The View Parts Order Status window opens.

2. From the Parts Requirement page, query the parts requirement for which you want to create an internal order. Otherwise, the View Parts Order Status find function to search for a parts requirement. If a parts requirement does not already exist, you can create the requirement at the same time that you create the internal order.

> **Note:** If you set the profile option CSP: Include Alternates to Always, the availability search automatically includes alternate parts. These alternates include both substitute and supersession parts. Other values for the profile option include Never, Parts Requirement Only, or Scheduler Only.

3. If the part does not already have a value, enter the required quantity for the part.

4. If there are multiple items that you want to ship together on the same internal order, enter the identical number for each item in the Ship Set field. For example, if you have four items and you want items one and two to ship together and items three and four to ship together, enter ship set of "1" for items one and two and a ship set of "2" for items three and four.

5. (Optional) To manually choose the sourcing for the part, click the Source tab.

6. Enter the source organization and source subinventory, if required.

7. Save your work.

8. To create an internal order, click Create Order. You can view this internal order or reservation by clicking the Order tab.

9. (Optional) To view sourcing options using a modified version of Available-to-Promise (ATP), click the Availability button.

   If the quantity ordered for the part is available, or a suitable substitute for a superseded part is available, available-to-promise functionality populates the following fields:

   - Item Required

   - Required Quantity

   - Item Supplied

   - Available Quantity Source Type

   - Source

   - Order Quantity

- Shipping Method

- Arrival Date

If multiple options are available, the Availability window displays all of them. The availability of alternate parts, as defined by the sourcing rule used by available-to-promise, appears.

- The options available for Source Type depend upon the configuration of the supply chain.

- If the technician has parts available in the trunk stock, the Source Type reads "Reservation."

- If the parts are available in a warehouse, the Source Type reads "Internal Order."

10. To create an order or a reservation, mark the Select check box next to the option that you want to use.

11. Click Order.

    Once the order or reservation is created, the main Parts Requirement window populates with the appropriate information.

12. You can cancel an order by navigating to the Order tab, and then selecting the Cancel check box. You must also enter a cancel reason.

13. You can view this internal order or reservation by clicking the Order tab.

    When an order is successfully created, on the Requirement tab, the Status is set to "Booked".

    On the Order Tab, the Document Number field populates with the internal order number used in Oracle Order Management.

Using Parts Search Hierarchy

The Parts search hierarchy functionality is used to locate parts within the field service supply chain. This functionality integrates with the Parts Requirement user interface to search beyond the normal supply chain when the Availability button does not find a source. You can use parts search hierarchy functionality to run a global search for the parts that are needed. By using the "expression" and "condition" functionality, you can narrow the search to return only those subinventories that meet specified criteria. For example, you can narrow the search to display only those organizations and subinventories that have the necessary quantity on hand that you need to complete the task.

With any search, the parts search hierarchy's tree structure collapses to display only those planning tree nodes that meet your search requirement.

You can view parts information at the organization, subinventory, or the node level. With the Display Alternate Items feature in the Find Items window, you can include substitutes and supersessions in the results. You can also search by location to see all parts that are in the requested location.

Follow these steps to search for parts:

Prerequisites

❒ Set up the tree functionality in the Planner's Desktop.

❒ Run the Create Part Availability Data concurrent program.

Steps:

1. From the Field Service Manager Responsibility, navigate to Parts Search Hierarchy.

   Field Service Dispatcher > Spares Management > Spares Logistics > Part Search Hierarchy

   You can also access the Parts Search Hierarchy directly from the Parts Requirement user interface by clicking the Parts Search button.

   The Find window opens in front of the Parts Status and Navigator windows.

2. Click the hierarchy node, organization, or subinventory from which you want to search for the part. A red X indicates a defective subinvnentory. A green check mark indicates a usable subinvntory.

3. To search for a specific part, click the flashlight in the tool bar or right mouse click and select 'Find' from the popup window.

   > **Note:** You can navigate to a specific node, organization, or subinventory in the planning tree before you search for a part.

   The Find Window opens.

4. Enter a part number in the item field.

5. To include all available parts, alternates, substitutes, and supersessions in the results, select the Display Alternate Items check box.

6. (Optional) Use a condition expression to narrow the search results.
   Example
   For example, to search for locations that contain a sufficient quantity of a part so

that you can process an internal order for the part, use a conditional expression in the Find window to narrow the search results.

Expression: "Usable Onhand", Condition: "Greater Than", Expression: "14" retrieves organizations and subinventories having at least 15 of the specified part in stock.

7. Click Find.

   - The Parts Search Hierarchy's tree structure collapses to display only those organizations and subinventories that meet your search requirement.

   - The Parts Status tab displays only the status for the Item or Items if Alternate Items were included and the planning tree shows only the nodes that contain the part for which you searched.

   - The Drill Down tab displays the details of the warehouses and the subinventories beneath the highlighted node in the tree.

8. Click Nodes, subinventories, or organizations in the planning tree to view the Parts Status tab for the Item for that Node.

9. Click a subinventory, warehouse, or node name to see the on hand quantity and order status for this part.

   The spread table shows the status as of the last time the Create Part Availability Data program was run. The current values for Actual On-Hand and Available are displayed in the lower Parts Status tab.. The On Hand quantity includes reserved quantities. The Available quantity does not include reserved quantities.

10. To create an internal order, click Order Part..

   See Creating an Internal Order or a Parts Reservation, page 1-5.

   The Parts Requirement user interface appears with the source and Item pre-populated.

   > **Note:** The Order Part button is enabled only when you are in a subinventory or a warehouse.

Overview - Move Orders

Field service representatives, as well as dispatchers and managers, can process move orders for parts within a single inventory organization.

Move Orders includes the following topics:

- Creating Move Orders, page 1-10

- Creating Reservations for Move Orders, page 1-12

- Printing Pick Lists for Move Orders, page 1-14

- Confirming Pick Lists for Move Orders, page 1-15

- Creating Pack Lists and Confirming Shipment, page 1-16

- Receiving Shipments for Move Orders, page 1-19

- Viewing the Status of Move Orders, page 1-20

Creating Move Orders

Move Orders can only be used transfer parts between subinventories within the same inventory organization. The following features are available when creating a move order:

- Designate the source and destination subinventories.

- Override the automatic receipt setting at the Move Order level. Automatic receipt is typically set at the subinventory level.

- Ship parts on a Move Order to a special address

To create a move order to move parts between subinventories within one inventory organization, use the following procedure.

Steps:

1. Navigate to the Move Orders window.

    Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Create Move Orders

    The Move Orders window opens.

2. If the Select Organizations window appears on top of the Move Orders window, choose the inventory organization that you want to access.

    The Select Organizations window closes to reveal the Move Orders window for the specified inventory organization.

3. (Optional) Enter the source subinventory and destination subinventory in the Default section of the Move Order window if you want this information to become the default values for your move order lines. This default feature is useful when you are entering multiple lines with the same source and destination subinventories.

4. On the Item tab, enter the part number in the Item field.

> **Note:** If you accessed the Move Order window from Parts Search Hierarchy, the selected part number automatically appears in the Item field.

5. When you choose an item, the Unit of Measure (UOM) field and the Date Required fields automatically populate with default values. You can change the Date Required value by using the list of values or by entering a new date.

6. Enter the move order quantity in the Quantity field.

7. Click the Source tab, and then enter or select a source subinventory from the list of values.

> **Note:** If you accessed the Move Order window from Parts Search Hierarchy, the source subinventory for the selected item automatically appears in the Source Subinventory field.

8. (Optional) Enter Locator, Lot Number, Serial From and Serial To, if your part is using these Oracle Inventory features.

9. In the Destination tab, select a destination subinventory from the list of values.

10. (Optional) In the Service Controls tab, select the Service Request and Task numbers from the list of values.

11. (Optional) Enter the Customer PO number and Comments.

> **Note:** The Project and Task tab and the Control tab are not used for Spares Management.

12. The automatic receipt feature is used when the shipment needs to be automatically transacted into the destination subinventory at the Confirm Ship step.

    The default value for the destination subinventory comes from the destination subinventory. To override the automatic receipt setting for this move order, click the Special Ship To button. Check or clear the Auto Receipt check box.

13. To ship the parts to a one time address, click the Special Ship To button. Enter a special address or click the Address button, and then select from a list of addresses previously entered for customers or locations.

    Automatic receipt is often used along with a special ship to address when a drop shipment is required. The move order special ship to address specifies an address

other than the standard address assigned to the destination subinventory.

14. (Optional) Select the Shipment Method and Carrier from the list of values.

15. Click OK to close the window.

16. Save your work.

    The Move Order number displays.

17. The move order must be in an Approved status for further processing to continue. While your move order *is not* yet approved, you can update any field in the move order.

    To update existing move orders, navigate to the Create Move Orders window and query the Move Order number you want to update. You can also find your move order on the View Move Order Status window. After updating the move order, click Save.

18. To change the status of the Move Order to Approved, click Approve.

    After your move order is approved, you can update any field except Quantity and Destination Subinventory.

    > **Note:** If you click Approve before saving your move order, the save and the approval both occur.

Creating Reservations for Move Orders

Allocations are used to reserve parts in a specific subinventory location for a move order. Allocation ties the inventory to the move order.

This process is optional because the Create Pick Lists process allocates the inventory automatically. This functionality is typically used to ensure that the move order that has been generated to support a service request task will be fulfilled as a priority if inventories are limited.

When creating manual allocations, you can:

• View On-hand and Available quantities

• Allocate the inventory

Follow these steps to view inventory quantities, and then create a manual allocation for a move order.

Prerequisites

❑ The Move Order must be in an Approved status to create an allocation.

Steps:

1. From the Field Service Manager Responsibility, navigate to the Create Allocations window.

   Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Reservations

2. If the Select Organizations window appears, select an inventory organization, and then click OK.

   The Find Move Order Lines window opens.

Viewing On Hand and Available Quantities

3. Enter the move order number in the Number field of the Headers tab.

4. Click Find to open the Create Allocations window for the selected inventory organization.

   The On Hand quantity includes reserved quantities. The Available quantity does not include reserved quantities.

Creating an Allocation

5. Mark the Select check box to the left of the Move Order Line.

6. Click Allocations.

Changing Allocation Quantity

7. Click View/Update Allocations to open the Transact Move Order Line Allocations window.

8. Scroll right, and then enter a quantity in the Quantity field.

9. Click Update.

Verifying the Allocation

10. (Optional) Click View/Update Details again to verify the allocated quantity.

    The allocation was created successfully if the Allocated Quantity field displays the allocated quantity.

Printing Pick Lists for Move Orders

Printing a pick lists produces a report that specifies the parts to be picked from their location in the warehouses. Printing the pick list changes the Move Order status to Printed. Furthermore, if an allocation was not previously created, printing the pick list creates the allocation automatically. You can print a pick list for an individual move order or you can print a pick list for a batch of move orders.

Use this procedure to print pick lists:

Prerequisites

❒ The Move Order status is Approved.

❒ The quantity on hand must be greater than or equal to the quantity ordered on the Move Order.

Steps:

Printing Pick Lists

1. Navigate to the Submit Requests window.

   Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Print Pick lists

   The Submit Requests window opens.

   > **Note:** If the Select Organizations window appears, select the inventory organization for the pick list.

2. To print a pick list for an individual move order, enter a Move Order number, and then click OK.

3. To print pick lists for a batch of move orders, enter appropriate values in one or more of these parameters: Source Subinventory, Destination Subinventory, Date Required and Requestor. Click OK.

4. Click Submit to run the concurrent program that creates the pick list.

5. Click No in the Decision window if you are finished printing pick lists.

Verifying Pick List Printing

6. (Optional) Verify that the pick list was created by navigating to the Move Order Status window.

Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Move Order Status

The Move Order Status window opens.

7.   Enter your Move Order number in the Find window, and then click Find.

The line status indicates "Printed". The pick list number is assigned to the move order, and the picked quantity field displays the correct quantity.

Confirming Pick Lists for Move Orders

You confirm pick lists so that the quantity actually picked is verified before packing and shipping the parts. Confirming the pick list changes the Move Order Line status to "Confirmed".

With this feature, you can change the picked quantity only in the Reservations user interface. You can split pick list lines into multiple lines for shipping.

Follow this procedure to confirm a pick list:

Prerequisites

❑   The pick list must be in "Printed" status before it can be confirmed.

Steps:

Confirming a Pick List

1.   Navigate to the Confirm Pick List window.

Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Confirm Pick Lists

The Find Pick Lists window opens.

> **Note:** If the Select Organizations window appears, select an inventory organization

2.   Enter a pick list number or select from the list of values, and then click Find.

The Confirm Pick List window opens and populates with data from the selected pick list.

3.   Click Confirm Pick to confirm the pick list.

Verifying Pick List Confirmation

4.   (Optional) Verify that the pick list was confirmed by navigating to the View Move

Order Status window.

5. Enter your move order number or your pick list number in the Find window and click Find.

The line status indicates Confirmed and the picked quantity displays the correct quantity.

Creating Pack Lists and Confirming Shipment

A pack list is used to define the contents of a box and to execute the physical shipment. Pick lists are assigned to boxes. Pack lists are created for each box.

Pack lists are printed and then confirmed. The confirmation process transacts inventory out of the source subinventory, and relieves the allocated quantity. If the auto receipt feature is enabled, confirmation transacts inventory into the destination subinventory. If auto receipt is disabled, the shipment is transacted into the in-transit subinventory.

With this functionality you can:

- Find consolidation opportunities by viewing all pick lines destined for the same ship to address.

- Assign multiple pick lines to one box.

- Split pick lines into multiple boxes.

- Automatically assign the ship to address from the pick list to the pack list header.

- Print the pack list and confirm the shipment from the same window.

Prerequisites

❒ The Pick list must be in a Confirmed status to be available for selection in a pack list.

Steps:

Opening a Packing List

1. Navigate to the Packing Lists navigator tree.

Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Pack lists

The Packing Lists navigator tree appears.

> **Note:** If the Select Organizations window appears, select an

inventory organization.

2. Click the "+" sign to expand the Packing Lists node.

   The Packing Lists folder expands to display the Open, Received, Received Short, and Shipped status folders.

3. Click the "+" sign for the Open folder to display open packing lists.

4. Click the Open folder and then right-click it.

   The right-click popup menu appears

5. Select Create Packing List from the right-click menu.

   The Create Pack List window appears with the Pack List Details tab displayed.

6. (Optional) Enter shipping information such as Carrier, Shipment Method, Waybill, Comments, Ship to Subinventory, and Location Address.

   > **Note:** You can also enter this information later when you are finalizing your pack list.

7. Click Save to create the pack list.

   The pack list appears within the Open folder.

Adding Items to a Shipping Box

8. Click the "+" sign for the new pack list to display Box 001.

9. Click Box 001 to open the Box Details tab. (Optional) Enter the weight.

10. Open the Picked Items tab.

    The Find Pick lists window opens.

11. Enter the pick list number and then click Find. If you do not know the pick list number, leave the pick list number blank, and then click Find to execute a blind query for all pick lists that have not been previously assigned to a pack list.

12. Select from the spread table the pick list item to be added to the box. You can select multiple items.

13. To assign the selected lines to the box. click Add.

    The selected pick line disappears from the Picked Items tab and is transferred to the selected box. All other pick lines that are assigned to a ship to address that differs

from the pick line just selected, disappear from the Picked Items tab.

14. To add more pick lines to the same box, repeat steps 10 through 13.

Adding Additional Shipment Boxes

15. To add a second box to your pack list, click your pack list folder, and then right-click it.

    A right-click popup menu appears.

16. Select Create Box. Optionally enter the weight in the Box Details tab. Click Save.

    Your new box number appears under your pack list.

Splitting Quantities into Multiple Boxes

17. To split the quantity on a pick line into more than one box, click the quantity value of a pick line in the Picked Items tab.

    The Split Quantity window opens.

18. Enter the quantity to be assigned to the first box, and then click OK.

19. To add the remaining quantity to another box, click the other box number.

20. Click the pick list number containing the remaining quantity. Click Add.

Creating the Pack List

21. To finalize the pack list, click the pack list number.

22. Enter values for carrier, shipment method, waybill and comments in the Pack List Header tab.

23. Save your work.

24. Enter the box weight in the Box Details tab.

25. Save your work to create the pack list.

Printing the Pack List

26. Click Print in the Pack List Header tab to the print the pack list.

    The Submit Request window opens.

27. Click Submit to print the Pack list. Click No in the Decision window.

Confirming the Pack List

28. Click Ship Confirm in the Pack List Header tab to confirm the shipment.

Receiving Shipments for Move Orders

Receiving is performed at the packing list level. The receipt transaction relieves the in-transit subinventory and increments the inventory at the destination subinventory. Receiving parts is executed automatically if auto receipt is enabled.

With this process:

- If the quantity received is correct, you can receive the entire shipment.

- If the quantity received differs from the quantity shipped, you can correct the quantity received.

- You can close the receipt with a short quantity, for example, in the case of lost parts.

Follow this procedure to manually record the receipt of parts:

Prerequisites

❐ The pack list must be in a Shipped status.

Steps:

1. Navigate to the Receive Shipments window.

   Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Receive Shipments

   The Find Pack Lists popup window opens.

2. Enter a pack list, and then click Find or leave the Pack List field blank and then click Find to execute a blind query.

   The Receive Parts window opens with a list of shipments that match your search criteria.

3. If the quantity shipped is the same as the quantity received, select all the lines, and then click Receive.

4. If the quantity shipped is different from the quantity received, click the quantity value located under the This Receipt column.

5. Enter the actual quantity received. Click Receive.

6. To close a partially received line, select the line, and then click Close Line.

   > **Important:** To activate the Close Line button, you must set up an

inventory account alias, named CSP_RECEIPT, in the relevant organization. For information about setting up the account alias, refer to the *Oracle Field Service Implementation Guide* section on setting up inventory organizations.

Viewing the Status of Move Orders

The View Move Order Status window allows you to view the move order status and details at each step in the logistics process. This window also allows you to:

- Track move order quantities throughout the logistics process

- View the date and time of each step of the logistics process

- View multiple move orders

- View details such as pick list number, pack list number, carrier and waybill number

- Navigate directly to the Move Order window

Follow this procedure to view the status of one or more move orders:

Steps:

1. Navigate to the View Move Order Status window.

   Field Service Dispatcher > Spares Management > Spares Logistics > Spares Move Order > Move Order Status

   The Find Move Orders window opens.

2. To view multiple move orders, specify combinations of parameters in the Find window, including move order number, source subinventory, destination subinventory, pick list number, pack list number, waybill number and line status.

   Enter the criteria that you want to use to limit the results of your search in the Find window, and then click Find.

   A list of move orders that match your search criteria displays.

3. Scroll to the right to view details.

4. To navigate to the Move Order window, click a move order number.

Viewing the Status of Internal Orders

Use the View Parts Order Status window to view parts requirements and internal order

details at each step in the logistics process.

This window enables you to:

- Track internal order quantities throughout the logistics process

- View the date and time of each step of the logistics process

- View key logistic details such as carrier and waybill number

- Navigate directly to the parts requirement window

- View multiple internal orders

- Check whether an internal order has been created for the Parts Requirement

- View whether a service request and task have been assigned to the parts requirement

Follow this procedure to view the status of one or more parts requirements or internal orders:

Prerequisites

❏ You must have created a Parts Requirement or an Internal Order.

Steps:

1. Navigate to the View Parts Order Status window.

   Field Service Dispatcher > Spares Management > Spares Logistics > Parts Order Status

   The View Parts Order Status window opens.

2. To view multiple internal orders, specify combinations of the parameters in the Find window, including Order number, Source Organization, Status, Item Number, Order By Date, Promise Date, Service Request, Need by Date, Resource, Task, Requirement, Waybill number and Line Status.

   Enter the criteria that you want to use to limit the results of your search in the Find window, and the click Find. A list of parts requirements that match your search criteria is displayed.

3. Scroll to the right to view all details of the Parts Requirement.

4. To view a specific parts requirement, either select the parts requirement, and then click OK, or click the Requirement Number link.

   The Parts Requirement window opens.

Creating Replenishment Orders

Technician trunk stock and field service warehouses need to be periodically replenished with parts used by the technician or shipped by the warehouse.

Replenishment is accomplished by running the Oracle Inventory Min - Max Planning Report concurrent program. The program can be run in two modes: automated or manual. The automated mode automatically creates the internal order, move order, or purchase requisition, depending upon the sourcing used. The manual mode provides a report that can be reviewed by the planner before orders or requisitions are created.

Prerequisites

❒ Define Authorized Stock Lists.

Steps:

1. From the Inventory Responsibility, navigate to the Min - Max Planning window.

   Dispatch Center > Spares Management > Spares Logistics > Reports and Programs > Create Min - Max Planning Report

   Alternative navigation path: From the Planner's Desktop, right-click node or subinventory you want to replenish. You can launch this report from the Planning tree by territory or field service manager or any other logical grouping that is defined by a node in the tree by right-clicking on the desired node, and then selecting the Create Min - Max Planning Report concurrent program.

   When you select the Min - Max Planning Report concurrent program, the Parameters window opens.

2. Parts replenishment is done at either the organization or subinventory level. Select Subinventory or Organization in the Planning Level field.

3. If you chose Subinventory, select the subinventory in the Subinventory field from the list of values.

4. Select Yes in the Restock field if you want to run in the automated mode. Select No if you want to run in manual mode.

5. Review and change other parameters from the default values as required.

   For more information regarding these parameters, see the *Oracle Inventory User's Guide*.

6. Click OK to save your entries and close the Parameters window.

7. Click Submit in the Min - Max Planning window to submit the request.

8. Click No in the Decision window to close the main Min - Max Planning concurrent program window.

9. To check the status of your concurrent request, select View from the Tools menu, and then select Requests.

10. Click Find to view all of your concurrent requests.

11. To view the output of the Min - Max Planning Report, select the request, and then click View.

Returning Excess Parts

Spares Management provides a process for managing the return of excess parts from field technicians or warehouses. You can define business rules to focus on the excess parts that have the highest cost impact.

Excess parts are defined as those parts whose available inventory balance is greater than the maximum level defined in the Authorized Stock List (ASL). If the minimum and maximum level is null, a zero quantity is assumed. Internal orders for the warehouse, or inter-organization transfers for the technician, are created when the return of excess parts is approved.

There are three steps to the process of returning excess parts, two of which are required:

• Run the Create Excess List Concurrent Program (Required)

• Run the Print Excess List Concurrent Program (Optional)

• Return Excess Parts (Required)

Run the Create Excess List Concurrent Program (Required)

You can create excess lists for both usable and defective parts. Run the Create Excess List concurrent program to identify excess parts and apply the excess rules to filter for high impact excess parts.

> **Tip:** Run the Create Excess List concurrent program just prior to initiating the return excess parts process to ensure that the latest updates are included in the excess parts data.

Excess lists rely on "excess rules", which you define during implementation. Excess rules allow you to create lists based upon business considerations. For example, you may not want to return excess parts if the on-hand stock maximum is set at 50 and the field technician has 51 on hand. You define excess rules to handle this type of situation. See the *Oracle Field Service Implementation Guide* for more information.

Excess rules apply only to the determination of excess in a usable subinventory or

warehouse. For a defective subinventory, all parts are considered excess.

Return Excess Parts (Required)

Use the Return Excess window to view and approve excess parts for return.

You can search for excess lists by organization, field technician, subinventory, or item. Spares Management allows you to move retrieved excess lists to the Return Lists table, where you can then create an inter-organization transfer or internal order to return the parts. You can return all of the excess parts, or only part of the excess.

The bottom region of the window is called Return Lists and displays excess lines that have been approved for return.

To Return Excess Parts, follow these steps.

Prerequisites

❒ Oracle recommends defining excess rules during implementation, but it is possible to return excess parts without having defined excess rules.

Steps:

Create Excess Lists (Required)

1. From the Field Service Manager responsibility, navigate to the Create Excess Lists concurrent program.

   Field Service Dispatcher > Spares Management > Reports and Programs > Create Excess Lists

   Alternative navigation path: You can launch this request from the Planning tree by territory or field service manager or any other logical grouping that is defined by a node in the tree by right-clicking on the desired node, and then selecting the Create Excess Lists concurrent program.

   The Submit Requests window opens. The Create Excess Lists concurrent program populates the Name field.

2. In the Parameters window, select the node, warehouse, or technician for which you want to create an excess list. For all other parameters, review and change from the default values as required.

   When a node is selected, Excess Lists are created for all organizations and sub-inventories under that node.

3. Click OK to save your entries and close the Parameters window.

4. Click Submit to submit the request for this concurrent program.

Print Excess List (Optional)

5. To run the Print Excess List concurrent program, navigate to the Submit Requests window.

   Field Service Dispatcher > Spares Management >Reports and Programs > Print Excess List

   The Submit Requests window opens. The Print Excess Lists concurrent program populates the Name field.

6. In the Parameters window, choose the Organization ID for the Excess List you want to print from the list of values.

7. Choose the Subinventory for the Excess List from the list of values.

8. Click OK to close the Parameters window and return to the Submit Request window.

9. Click Submit to run the concurrent program.

Return Excess Parts (Required)

10. Initiate the Excess Return process by navigating to the Excess Lists window.

    Field Service Dispatcher > Spares Management > Spares Logistics > Excess Return

    The Excess Lists window opens.

11. From the Excess Lists window, use the Find function to display the excess lists you want to access. You can search for excess lists by entering values in any of the following fields:

    • Resource Type and Resource Name

    • Organization

    • Organization and Subinventory

    • Item

12. If you want to include Defective or Usable parts in the search, select the appropriate check box. To search for all excess lists, select the check boxes for both Defective and Usable parts.

13. Click Find.

    The Excess Lists for that selection appear in the Excess Lists spread table. The Excess Lists can now be viewed and reviewed.

14. The excess quantity number is the available quantity in excess of the maximum as

defined in the Authorized Stock List after applying the excess rules.

The excess quantity is a hyperlink, which you can use to change the return quantity. To change the return quantity, click the Current Excess Quantity hyperlink.

The Return Quantity window appears with the value of the Current Excess Quantity displayed in the Return Quantity field.

15. You can return all of the excess parts, or only part of the excess, by manually changing the return quantity before approving the parts return. Change the value in the Return Quantity field to the number you want to return. Click OK.

   The excess list moves to the Return Lists box, and the value you just entered displays in the Current Return Quantity field.

16. Alternatively, if you do not want to change the excess quantity, you can move the excess list to the Return Lists box by selecting it, and then clicking the Add button.

17. If you want to move a list from the Return Lists box back to the Excess Lists box, highlight the list and click the Remove button.

18. When you approve an excess line and move it to the Excess Lists box, the Status field changes to "Modified". To reject an excess list, select the list, and then click the Reject button. This changes the Excess Status to "Rejected".

19. Once you have approved an Excess List for return, highlight the list and click Return.

   The Return Item window opens.

20. For a resource, the Return Organization and Return Subinventory fields contain default values if the Return To organization and subinventory are defined in the Addresses and Subinventories user interface in Spares Management. For a warehouse, select the Return Organization and Return Subinventory lists of values.

21. (Optional) Enter a Carrier name and a Waybill number for the return.

22. Enter a Shipment Number for the technician return.

23. Click OK.

   For a resource, an Inter-Organization transfer order is created. For a warehouse, an internal order is created.

2

Using the Planner's Desktop

The Oracle Spares Management Planner's Desktop allows field service operations to plan, view, and monitor the status of technician and warehouse inventories to ensure that each is properly stocked with the parts necessary to service technician needs. It also provides tools for creating automated min-max inventory recommendations that define stocking levels for field technician trunk stock and warehouse inventories.

This chapter covers the following topics:

- Planner's Desktop Summary
- Creating and Maintaining the Planning Tree
- Creating the Planning Tree
- Managing Planning Tree Subinventories
- Adding Multiple Subinventories
- Moving Subinventories
- Deleting Subinventories
- Create and Make Planning Recommendations
- Setting Up Personal Usage Planning Method
- Using Personal Usage Planning Method Modified by Population Change
- Setting Up Territory Norm Planning Methods
- Setting Up Product Norm Planning Method
- Setting Up Blended Planning Methods
- Defining Business Rules for Automated Min-Max Recommendations
- Generating Stock List Recommendations
- Adding or Modifying an Authorized Stock List
- Supersession
- Setting Up Part Supersession

- Create Warehouse Notifications

- Setting Up and Creating Warehouse Notifications

- Creating Business Rules to Automate Warehouse Notifications

- Warehouse Replenishment Notifications

- Executing Warehouse Replenishment Notifications

- Warehouse Replenishment Using Depot Repair

- View Parts Status and Order Detail

Planner's Desktop Summary

The Planner's Desktop provides functionality to plan and view inventory across the entire field service supply chain.

A planner can generate min-max inventory recommendations based on the personal usage of a specific technician, the norm for the territory, or the product norm. The product norm uses failure rates and product populations to plan the technician or warehouse inventory.

The Planner's Desktop consists of the planning tree, and a series of tabs that provide details for the node, warehouse, or subinventory you are viewing. Point-and-click functionality connects the planning tree to the tabs that provide information on planning parameters, inventory status, failure rates, stock list, min-max recommendations, and warehouse replenishment notifications.

When a node is selected, the Planning window displays three tabs: Planning Parameters, Parts Status, and Failure Rates.

When a subinventory is selected, the Planning Window displays a Stock List and a Recommendation tab along with the previous three tabs. When a Warehouse is selected, all five tabs display for the subinventory, along with a Notifications tab that is used for warehouse replenishment planning.

Creating and Maintaining the Planning Tree

Creating the Planning Tree

Oracle Spares Management planning functionality begins with creating a tree structure in the Planner's Desktop that includes all components of the field service supply chain. The purpose of the tree structure is to define and organize supply chain components. Any supply chain component that needs inventory planning and replenishment or any component where you need to view the inventory status should be included in the tree. The normal components of a field service supply chain include: technicians, warehouses, and repair suppliers, both internal and external.

The Spares Management module comes with a default Spares Planning node that serves as the top level of the planning tree. From this node, you can create sub-nodes that you

can populate with organizations and subinventories.

Spares Management allows for creating separate subinventories to handle usable and defective parts. Typically, each field technician is assigned at least one subinventory for each condition. Warehouses, through their subinventories, can also be modeled as usable or defective.

> **Note:** In Spares Management warehouses are modeled as Inventory Organizations and technicians are modeled as subinventories. Repair suppliers are modeled as Inventory Organizations.

After a planning tree is created, you can use point-and-click functionality to plan, replenish, and view inventories for organizations and subinventories. Inventory status can also be viewed at the node level in the planning tree, which is a summary of the warehouses and technicians that appear under the node.

You can search the planning tree by using the Find function. The tree will automatically expand to display the appropriate node, resource, or region. The following parameters are available for search criteria:

- Resource type

- Resource name

- Region name, and

- Node name

The Find Function can also be used to search the Parts Status tab when that tab is active.

When you set up your planning tree, each subinventory you create requires that the Condition be entered in the Planning Parameters tab of the Planner's Desktop. Planning parameters set at a higher level node propagate downward through the tree, unless they are overridden at a lower level. Parameters set at the subinventory or organization level override parameters set higher in the tree structure.

For the steps detailing the process to create the planning tree, see Creating the Planning Tree, page 2-4.

Managing the Planning Tree

Spares Management provides a mechanism for updating the planning tree, including adding subinventories to the tree, moving subinventories from node to node, or deleting subinventories from a node.

For the steps detailing the process to manage subinventories, see Managing Planning Tree Subinventories, page 2-6.

You can also launch the following concurrent programs from the planning tree:

- Create Min-Max Planning Report

- Create Excess Lists

- Create Parts Availability Data

- Generate ASL Recommendations

- Calculate Failure Rates

- Roll up Usage

Creating the Planning Tree

You can create warehouses and subinventories under each node as necessary to meet your business needs. Each sub-node can contain subinventories, warehouses, or a combination of both. You can also create new nodes beneath an existing node on your tree.

Follow these steps to create a planning tree:

> **Tip:** Create a tree structure that allows you to set planning parameters at the highest level possible. This allows you to manage a large field service operation without setting parameters for every field technician and warehouse in your operation.

Prerequisites

❒ Define organizations and subinventories in Oracle Inventory.

> **Note:** Warehouses are modeled as Inventory organizations. Technicians are modeled as subinventories.

Steps:

Adding a Planning Node

1. From the Field Service Manager responsibility, navigate:

   Field Service Dispatcher > Spares Management > Planner's Desktop

2. To set Planning Parameters at the top level for your planning tree, select the Spares Planning top node. The parameters include:

   - Forecast Rule

   - Excess Parts Rule

- Recommendation Rule

- Service Level and EDQ Factor

- Authorized for ASL

- Use Safety Stock

- Condition

- Planner

- Exclude Category Set

- Exclude Category

3. To create your first node, from the Navigator, select and then right-click the Spares Planning node.

4. From the right-click menu, choose Add Planning Node.

   The Planning Parameters tab refreshes.

5. In the Planning Node field, enter the name of the planning node that you are creating.

   > **Tip:** Use a naming convention that makes it easy to distinguish from one node to the next.

   In the Planning Parameters area, default values appear (if any) along with the source node name of the default values.

6. Click Save.

   The new node appears under the Spares Planning node in the navigator tree.

Adding a Technician

7. Right-click the node you created. Select Add Subinventory from the right-click menu.

8. Choose the organization from the list of values that the added subinventory belongs to.

9. Choose the subinventory you want to add from the list of values.

10. In the Planning Parameters tab, select the Condition for this subinventory. This is a required field. A subinventory can either be for "usable" parts or "defective" parts. A

green check mark next to the subinventory name indicates usable parts subinventories on the planning tree. Defective subinventories have a red X next to the subinventory name.

> **Note:** Default values for the other parameters come from either the Spares Planning node, or the node you just created. Parameters set at the subinventory level override those set higher in the planning tree structure.

11. Click Save to save this subinventory to the planning tree.

   Alternatively, you can add multiple subinventories to the tree from a particular organization. See Managing Planning Tree Subinventories, page 2-6.

Adding a Warehouse

12. To add a warehouse to a node, right-click the node, and then select Add Warehouse from the right-click menu.

13. Choose the organization you want to add to the node from the list of values. Warehouses are set up as a inventory organizations in Oracle Inventory.

14. Enter the Warehouse Parameters for the warehouse.

   For more information on warehouse notifications, see Create Warehouse Notifications, page 2-27.

> **Note:** Warehouses in Spares Management can be used for either usable or defective parts. A warehouse is defined as defective through the Condition of the subinventories created for the warehouse. Use Spares Management Loops functionality to assign subinventories to the loop and define Dondition as Defective for the Defective Warehouse.

15. Click Save to save this warehouse to the planning tree.

Managing Planning Tree Subinventories

Field service operations may require frequent maintenance to the tree structure as business needs and organization structures change. For example, if an organization restructures its territories there may be a need to move subinventories from one planning tree node to another, while others need to be added or deleted. Spares Management provides a subinventory management user interface to enable this maintenance.

To maintain the planning tree, see the following procedures:

- Adding Multiple Subinventories, page 2-7

- Moving Subinventories, page 2-8

- Deleting Subinventories, page 2-8

Adding Multiple Subinventories

To add multiple subinventories to the planning tree, follow these steps:

Prerequisites

❑ Define organizations and subinventories in Oracle Inventory.

❑ Create a planning tree in the Planner's Desktop.

Steps:

1. From the Field Service Manager responsibility, navigate to the Planner's Desktop:

   Field Service Dispatcher > Spares Management > Planner's Desktop

   The Planner's Desktop user interface opens.

2. Expand the Spares Planning node on the planning tree navigator. Right-click the node that you want to add the subinventories to, and then choose Manage Subinventories from the right-click menu.

   The Manage Subinventories window opens. The node that you right-clicked appears in the Node Name field.

   > **Tip:** If you want the Manage Subinventories window to remain open after you perform a process, select the Keep Window check box.

3. Choose the Add radio button.

4. In the Organization field, choose the organization from which you want to add the subinventories to the tree.

5. Click Find.

   The Selection Lists table populates with the available subinventories.

6. Select the subinventory you want to add by clicking the appropriate line. To select multiple subinventories, hold down the <Ctrl> key, and then click each subinventory that you want to add.

7. Choose the Condition type for the subinventories.

   The options are Usable or Defective.

8. Click Add.

9. On the confirmation popup window, click OK.

Moving Subinventories

To move subinventories from one node to another on the planning tree, follow these steps:

Steps:

1. From the Planner's Desktop, right-click the node that you want to move existing subinventories *from*, and then choose Manage Subinventories from the right-click menu.

   The Manage Subinventories window opens with the name of the selected node appearing in the Node Name field.

2. Select the Move radio button.

   This changes the label of the field located near the bottom of the window from Condition to Move To.

3. From the list of values in the Move To field choose the node into which you want to move the selected subinventories.

4. In the Selection Lists table, choose the subinventories that you want to move from one node to another.

5. Click Move.

6. On the confirmation popup window, click OK.

Deleting Subinventories

To delete one or more subinventories from a node, follow these steps.

Steps:

1. From the Planner Desktop, right-click the node from which you want to delete subinventories, and then choose Manage Subinventories from the right-click menu.

   The Manage Subinventories window opens with the name of the selected node appearing in the Node Name field.

2. Choose the Delete radio button.

3. In the Selection Lists table, select the subinventories that you want to delete from the node.

4. Click Delete.

5. On the confirmation popup window, click OK.

Create and Make Planning Recommendations

Planner's Desktop functionality is designed to handle inventory planning scenarios unique to field service operations. You can create min-max recommendations to define stocking levels for both the field service warehouse and field technician trunk stock. Customer service agreements often require the deployment of parts inventories in numerous locations close to the point of use. Spares Management planning defines which parts to be stocked, where, and in what quantities.

This planning process produces an Authorized Stock List (ASL), which can be updated automatically through Oracle Spares Management recommendation functionality. Authorized Stock List functionality includes recommendations for warehouse and technician trunk stock, and flexible planning parameters designed to handle planning scenarios unique to field service.

For example, a technician working in a stable situation, would likely have plenty of usage history that could be used for planning. A recently hired technician would not have any usage history and would require a planning method that does not require this. The usage history for a transferred technician might not apply in the new service territory where the work could be different.

The min-max stock level planning methods covered in this section are as follows:

- Personal Usage, seeSetting Up Personal Usage Planning Method, page 2-10

- Modified Personal Usage, see Using Personal Usage Planning Method Modified by Population, page 2-12

- Territory Norm, seeSetting Up Territory Norm Planning Method, page 2-13

- Product Norm, see Setting Up Product Norm Planning Method, page 2-15

- Blended Method, see Setting Up Blended Planning Methods, page 2-18

For the technician working consistently in a relatively stable situation, Oracle Spares Management provides a planning method to make inventory recommendations based on the personal usage data of the technician. The technician's inventory is planned based on what the technician has been using.

The personal usage method is less effective for new or transferred technicians, because

their usage history is either insufficient or not applicable to the new service territory. In these cases, Oracle Spares Management provides other methods to make recommendations:

- Territory Norm, which uses averages for all technicians in the technician's group

- Product Norm, which uses failure rates and product populations

- A blended combination of methods.

Other functions related to planning are covered in these procedures:

- Defining Business Rules to Automate Changes to Min-Max Recommendations, page 2-19

- Generating Stock List Recommendations, page 2-21

- Adding or Modifying an Authorized Stock List, page 2-22

- Setting Up Part Supersession, page 2-26

Setting Up Personal Usage Planning Method

Personal usage is a planning method that uses the history of usage transactions associated with a technician or warehouse for planning. This method is used in the scenario where the technician or warehouse is in a relatively stable situation. The technician would be planned based on the recent usage activity of that technician. The warehouse would be planned based on the aggregate summary of all usage transactions tiering into the warehouse, plus any usage transactions recorded directly against that warehouse.

The key drivers for this method are the Forecast Rule, Service Level, and Economic Delivery Quantity (EDQ).

You can set up the Planning Method as well as other Planning Parameters at any level in the planning tree. All lower nodes will use this method as the default unless you manually override it with a different planning method at that node..

The Defaulted From column of the Planning Parameters tab lists the node where the existing default values are set. If you want to allow lower level nodes to override any of these parameters, select the Override check box next to this parameter. By default, the Override check box is selected for all fields.

Follow these steps to set up a personal usage recommendation method:

Prerequisites

❒ Define organizations and subinventories in Oracle Inventory.

❑ Set up a forecast rule.

❑ Create usage transactions either in the debrief process, or by using the transaction type: Field Service Usage in Oracle Inventory.

Steps:

1. Navigate to the Planner's Desktop.

   Field Service Dispatcher > Spares Management > Planner's Desktop

2. Expand the Planner's Tree. Select the node, warehouse or technician for which you want to set the recommendations.

   • Forecast Method - Four alternative methods for calculating the forecast are available:

      • simple average

      • weighted average

      • single exponential smoothing

      • trend enhanced

   • Period Size - Determines the length in days of the period used for the forecast and history used to create the forecast.

   • Forecast Periods - Defines how many periods you want the forecast to project into the future.

   • History Periods - Defines the number of most recent periods of history to use in the forecast calculations.

   • Transaction Types - Determines the type of transaction to be used. Normally this would be 'Field Service Usage' for the technician and warehouse.

3. In the Planning Parameters tab, choose the Forecast Rule from the list of values.

4. Enter a service level for the recommendation.

   The service level represents the percent of time you want the technician or warehouse to have the parts on hand when needed. This is used to determine safety stock. Safety stock is used to calculate min level where:

   Min = Reorder Point = Forecasted usage during lead time + Safety Stock

   The Service Level could be any number between 1 and 100, but is typically set in the range of 75 - 90 for field service technicians and warehouses.

5. Enter the Economic Delivery Quantity (EDQ) Factor.

The EDQ Factor is a combination of carrying cost and ordering cost in the lot-sizing formula.

The EDQ is used to calculate the max level, where:

Max = Min + EDQ

> **Tip:** Typically, an EDQ Factor in the range of 5 - 15 will produce desired results.

6. To create a stock list for the technician or warehouse, select 'Yes' in the Authorized ASL field.

A 'No' in the field will allow the ASL recommendations to be created for viewing only. This parameter is used to prevent an ASL from being implemented for a technician or warehouse. It may be a new technician who would not yet be ready to receive the first replenishment shipment.

7. If you want to include Safety Stock in your recommendation calculations, choose 'Yes' in the Use Safety Stock field.

> **Tip:** Safety Stock is normally recommended for planning warehouses, but not always for technicians.

8. (Optional) Choose the name of the planner responsible for the node.

9. If you want to exclude a particular Category or Category Set from being considered in recommendations, choose the Category or Set from the list of values in those fields.

10. In the Planning Method field of the Planning Method tab, choose Personal Usage from the list of values.

11. Save your work.

Using Personal Usage Planning Method Modified by Population Change

The Personal Usage planning method can be extended with product population changes. This approach is used to handle new product introductions or significant changes to existing product populations where the new or changing population, either up or down, can have a significant impact on part usage patterns. This method is primarily used to plan a warehouse for major changes in population, but it also could be used for the technician if a major population change has impact.

For example, a technician routinely uses 10 parts per week of a specific part. That

quantity is appropriate as long as the product population of the products supported by the technician using the part remains relatively constant. When there is a significant population change, such as by gaining or losing customer's contracts, then the technician's stocking level should be replanned to reflect that gain or loss of population supported.

Oracle Spares Management applies the failure rate to the population change to calculate the change in usage. The usage average is adjusted up or down depending on the magnitude of the population change and failure rate for the part.

For details on setting up and using failure rates, see Setting Up Product Norm Planning Methods, page 2-15.

To set up a Personal Usage method that is modified by part population change, follow these steps:

Prerequisites

❒ Set up and calculate failure rates for the product or enter failure rates manually for a product.

> **Note:** You must calculate failure rates at a higher node in the tree than the warehouse or technician where you plan to employ them in combination with personal usage planning.

Steps:

1. From the Planner's Desktop, select the subinventory or organization being planned and select Personal Usage in the Planning Methods sub tab in the Planning Parameters tab.

2. Open the Failure Rates tab.

3. In the Product field, choose the item for which you want to consider the population change.

4. Enter the Population Change, either a positive or a negative number, in the Population Change field.

5. Save your work.

Setting Up Territory Norm Planning Methods

This method is used in the scenario that involves a new technician or a transferred technician from another territory. This method can also be used to replan the inventory of a technician who has been out of a normal technician work routine for a period of

time. For example, training or leave of absence. During this period the technician's usage history would understate normal activity, and as a result would not be a good basis for planning the technician's stocking level.

Territory Norm calculates average or typical usage for the planning tree node the technician is assigned to.

By calculating the average usage of all the technicians in a given group over a period of time, you can define min-max recommendations that represent what is typical or average for a technician in the group.

> **Tip:** After a technician has worked long enough to create a stable personal usage history, switch to that method. Also, when using Territory Norm it is important that the technicians in the group for which the Territory Norm is being used are doing similar work on a regular basis. If everyone is doing unique work by product or skill, for example, then Territory Norm would obviously not work very well for that group.

> **Note:** The Territory Norm method is not used for planning a warehouse.

Example

There are 100 technicians currently in the territory. Part A has usage equal to 2000, summarized for all technicians assigned to the node for the recent 10-week period. The territory norm usage for Part A would be:

(2000 units / 100 technicians * 10 weeks) = 2.0 units per technician per week on average across all technicians.

Using the territory norm method, recommended Part A min-max levels for the technician are based on the average usage of 2.0 units per week. Assumed in this example is that all technicians have been working in the territory for the entire ten week period. If this were not the case, technician-weeks would be accumulated based on the actual number of weeks each technician had been assigned to the node during the defined period.

Follow these steps to set up a territory norm recommendation method:

Prerequisites

❒ Define organizations and subinventories in Oracle Inventory.

❒ Set up a Forecast Rule.

❒ Create usage transactions either in the debrief process, or by using the transaction type: Field Service Usage in Oracle Inventory.

Steps:

1. Field Service Dispatcher > Spares Management > Planner's Desktop

2. Expand the Planner's Tree, and then select the technician for which you want to set the min-max recommendation.

3. In the Planning Parameters tab, choose the forecast rule from the list of values.

4. The Service Level field is not used in the recommendations when Territory Norm is used. Leave the field null.

5. Enter the Economic Delivery Quantity (EDQ) Factor.

6. To make this method available for your authorized stock list recommendations, select Yes in the Authorized for ASL field.

7. The Use Safety Stock field should be set to Null. Safety Stock is not used in the Territory Norm Method.

8. (Optional) Choose the name of the Planner responsible for the node.

9. If you want to exclude a particular category set from being considered in recommendation parameters, choose the set from the list of values at the Exclude Category Set field.

10. In the Recommendation Method field, choose Territory Norm from the list of values.

11. Save your work.

> **Important:** Check the node the technician is attached to in the planning tree and make sure that a Forecast Rule is entered for that node. The history periods in the Forecast Rule for that node are used to determine the number of technician-weeks that fall within the history period. The number of technician weeks is used to calculate 'average weekly usage for the Territory Norm planning method.

Setting Up Product Norm Planning Method

Product Norm is a planning method that uses product populations and failure rates to plan the min-max levels for the warehouse or technician. The product norm typically is used when a new product is being introduced, or the population of an existing product is being increased, decreased, or extended into a new area.

When using the Product Norm, failure rates are calculated or entered manually at a higher level node, such as a territory, region, or theater, and used on a lower level node, such as a warehouse or technician.

> **Tip:** Calculating the failure rates at a higher level node increases the product population and tends to increase the accuracy of the calculated failure rates.

Failure rates are calculated from product population and usage transactions collected from the field service debrief process where the product indicated on the Service Request is known. Failure rates in Oracle Spares Management are expressed in terms of *usage per product per week*. Failure rates can be calculated where usage experience is available and population is known or entered manually.

The failure rates are used along with the anticipated product population to determine expected usage for the technician or warehouse. The population can either be expressed as a new population or as a change to an existing product population.

Follow these steps to create a Product Norm recommendation:

Prerequisites

❒ Calculate or enter failure rates at a higher node level, and then set up the Product Norm planning method at the warehouse or technician level.

❒ Define organizations and subinventories in Oracle Inventory

❒ Set up a Forecast Rule.

❒ Create usage transactions in the debrief process, or by using the transaction type: Field Service Usage in Oracle Inventory.

Steps:

Define Failure Rates

1. Navigate to the Planner's Desktop.

   Field Service Dispatcher > Spares Management > Planner's Desktop

2. Click the node in the planning tree where you want to define failure rates, and then select the Calculate Failure Rates check box in the Planning Parameters tab.

   > **Note:** A Forecast Rule must also be defined in the Planning Parameters tab of the planning tree node where the failure rates are to be defined. The history periods in the Forecast Rule are used to define the amount of history that will be used to calculate the

failure rates.

As a best practice, you should calculate Failure Rates at the highest feasible level.

3. Click the Failure Rates tab. From the list of values in the Product field, choose the product for which you want to create failure rates.

4. Enter the Current Population of the product for which you are creating failure rates. Enter failure rates directly in the lower Failure Rates tab by entering Item and Failure Rate.

5. Save your work.

6. To calculate failure rates, select and then right-click the node on the planning tree where you entered your product and population information.

7. From the right-click menu of the node in the planning tree where failure rates are being calculated, select the Calculate Failure Rates concurrent program.

   A concurrent request ID number appears in a popup window. This concurrent request updates the failure rates for your product and parts. You can override the calculated failure rates by entering a value manually. For example, manually enter the failure rate if the manufacturer has published the failure rate for a part.

8. (Optional) To check whether the concurrent program ran successfully, go to View > Requests, and then look up the request ID number of the request you want to view.

   Note: After the concurrent program runs, the calculated failure rates can be viewed in the lower Failure Rates tab.

Use Failure Rates in Setting Min-Max Levels

9. Expand the planning tree and select the node for which you want to use those failure rates in Product Norm min-max recommendations.

   Note: You must calculate or enter failure rates at a higher node in the tree than the warehouse or technician where you plan to employ them.

10. In the Recommendation Parameters section of the Planning Parameters tab, choose the forecast rule from the list of values.

11. The Service Level field is not used in the product norm method. Leave the field null.

12. Enter the Economic Delivery Quantity (EDQ) Factor.

13. To create a stock list, select Yes in the Authorized for ASL field.

14. The Use Safety Stock field should be set to Null. Safety Stock is not used in the product norm method.

15. (Optional) Choose the name of the planner responsible for the node.

16. If you want to exclude a particular category set from being considered in recommendation parameters, choose the set from the list of values at the Exclude Category Set field.

17. In the Recommendation Method field, choose Product Norm from the list of values.

18. In the Failure Rates tab for the subinventory or warehouse being planned, enter the product and population to use in the Product Norm planning.

19. Save your work.

> **Note:** The failure rates automatically populate into the lower Failure Rates tab for the node being planned. Those failure rates come from the first node higher in the tree where the Calculate Failure Rates check box is selected, the same product is entered, and failure rates are entered or calculated.

Setting Up Blended Planning Methods

Oracle Spares Management functionality enables you to set up blended planning methods for determining stock list recommendations. This method combines the Personal Usage method with either the Product Norm or the Territory Norm according to assigned weights.

Territory Norm in combination with Personal Usage could be used in the scenario where a technician has been off the normal field service routine for a period of time due to training or a special assignment. In this situation, the recent usage history would be understated due to the absence from normal technician tasks and usage reporting routines. Personal Usage, which is understated, would be used and supplemented with Territory Norm.

To set up a blended recommendation method, follow the steps:

Steps:

1. From the Planning method tab within the Planning Parameters, choose either:

- Personal Usage and Product Norm, or

- Personal Usage and Territory Norm

Assigning a Weight

> **Note:** Steps 2-5 are mutually exclusive. Depending upon the usage during a given period, Spares Management functionality will use one of the four parameters to determine the Stock List recommendations.

2. Enter a decimal fraction in the Personal Usage > Norm field.

   This is the proportion that you want for Personal Usage when Personal Usage is greater than either the Territory or Product Norm selected.

3. Enter a decimal fraction in the Personal Usage < Norm field. This is the proportion that you want for Personal Usage when Personal Usage is less then either the Territory or Product Norm selected.

4. Enter a decimal fraction in the Personal Usage = Zero field. This is the proportion that you want for Personal Usage when Personal Usage is equal to zero.

5. Enter a decimal fraction in the Norm = Zero field. This is the proportion that you want for Personal Usage when Territory or Product Norm is equal to zero.

6. Save your work.

Defining Business Rules for Automated Min-Max Recommendations

In field service operations where planners have many stocking level recommendations to review and implement, it makes sense to automate routine recommendations. This functionality reduces planning and technician costs and frees the planner to focus on high-impact planning situations.

You can create business rules that automate this process based on recommendation value, quantity change, and magnitude of the cumulative forecast error. Rules are defined by providing values for the following parameters:

- Value change and percentage

- Quantity change and percentage

- Tracking signal minimum and maximum levels for tracking forecast errors

You can set values for as many or as few of the parameters as you want. But for the automated process to be activated, *all* the parameters that have been set must be met. To meet the automation condition, in the cases of value change and percentage, quantity

change and percentage, and tracking signal maximum, the actual value must be less than the value of the parameter. For the tracking signal minimum parameter, the actual value must be greater than the parameter value.

Use the following procedure to define business rules for automated minimum and maximum recommendations.

1. Navigate to the Business Rules window.

   Field Service Dispatcher > Spares Management > Setup > Business Rules

2. From the Business Rules window, click the Recommendation Rules tab.

3. Enter the Name of the Recommendation rule.

4. (Optional) Enter a description.

Value Changes

5. Enter a number for the Value Change.

   This represents the difference between the current maximum value and the maximum recommendation value.

6. Enter a number for the Value Change %.

   This represents the difference between the current maximum value and the maximum recommendation value expressed as a percentage of the current maximum.

Quantity Changes

7. Enter a number for the Quantity Change.

   This represents the difference between the current max value and the max recommendation value.

8. Enter a number for the Quantity Change %.

   This represents the difference between the current max value and the max recommendation value expressed as a percentage of the current max.

Tracking Signal

You use tracking signal minimum and maximum levels for tracking forecast errors.

9. Enter a Tracking Signal Minimum value.

   This is a negative value that measures the forecast error when actual usage on a cumulative basis is running less than what was forecast.

10. Enter a Tracking Signal Maximum value.

    This is a positive value that measures the forecast error when actual usage on a

cumulative basis is running more than what was forecast.

11. Save your work.

Generating Stock List Recommendations

Once you have set up planning parameters for your field service operation, you can create recommendations by running a concurrent program. The recommendation can be reviewed and accepted, rejected, or modified.

When you review recommendations in the Recommendations tab, the following values display in the table to facilitate the planner review:

- Delta Cost between current max and recommended max

- Actual cost of current maximum

- Actual cost of recommended max

- Delta quantity between current minimum and recommended minimum

- Delta quantity between current maximum and recommended maximum

- Usage history and forecast can be viewed in the lower tabs

    Note: The table in the Recommendations tab can be sorted by any of the columns displayed. This is useful to prioritize the review process.

Follow these steps to generate min-max recommendations:

Prerequisites

❒ Specify Planning Parameters.

Steps:

1. Field Service Dispatcher > Spares Management > Planner's Desktop

2. In the Spares Planning Tree, right-click the node, warehouse, or subinventory for which you want to make ASL recommendations.

3. If there has been a usage change, run the **Create Usage For Recommendations** and the **Create ASL Recommendations** concurrent programs.

    In the Create ASL Recommendation parameters window, enter the planning node for which you want to create recommendations. A popup window displays the

concurrent request ID number.

If the tree structure has changed, also run the **Create Usage Rollup** concurrent program. If you need to consider supersession activity, run the **Process Superseded Items** concurrent program.

4. View the requests (View > Requests) to verify the concurrent program ran successfully.

5. Right-click the same node, warehouse, and subinventory, and then select the **Generate ASL Recommendations** concurrent program from the right-click menu.

A popup window displays the concurrent request ID number.

6. Click the Recommendation tab, and then review the recommendation values displayed in the table.

> **Note:** If you are using the automated feature, recommendations will not appear in the table. They are automatically accepted and implemented.

7. To accept a recommendation in the Authorized Stock List, select the recommendation, and then click Accept.

The recommendation moves from this table to the Stock List tab table. Accepted recommendations automatically update the Oracle Inventory table for min-max values. They become the current min-max levels used when replenishing parts for a warehouse or technician.

8. To reject a recommendation, select the recommendation, and then click the Reject button.

The recommendation is removed from the table.

9. To manually override a stock list recommendation, select the recommendation, and then click the Stock List tab.

10. Enter the values you want to recommend for the stock list in the Minimum Quantity and Maximum Quantity fields.

11. Click Accept to save your new values.

Adding or Modifying an Authorized Stock List

The Stock List tab shows the existing stock list for the technician or warehouse. The stock list, by definition, shows those parts that have a min-max greater then zero. The Stock List tab can be sorted by any of the columns displayed. This is useful if you want

to view the stock list using different sorting parameters such as Item, Minimum Quantity, Maximum, and Quantity. You can also view details about the part through the Usage, Forecast, and Parts Status tabs.

You can modify a line in the stock list, add a part to the stock list, delete a part from the stock list, accept or reject multiple Authorized Stock List recommendations, and copy the stock list to another subinventory.

Steps:

1. Navigate to the Stock List tab.

    Field Service Dispatcher > Spares Management > Planner's Desktop

    The Planner's Desktop opens

2. From the planning tree, select the warehouse or technician and select the Stock List tab.

    The Stock List tab opens and displays the existing stock list for the warehouse or technician.

Modifying a Line in the Stock List

3. Select the line that you want to modify in the uper Stock List tab.

4. Enter the new values in the lower Stock List tab.

    The fields you can modify include Min Quantity, Min Order, Max Quantity, Max Order, Source Type, Organization, and Subinventory.

5. Save your work.

Adding a Part to the Stock List

6. To add a part to the stock list, click the Add button in the upper Stock List tab.

    The lower Stock List tab is refreshed and the fields are blank.

7. In the Item field, select the Part you want to add from the list of values.

    The default values for Unit of Measure and Cost automatically appear.

8. Enter the min - max values you want to set for the part being added.

9. (Optional) Select a Source Type. If you select a Source Type of Inventory, you must select the Organization.

    If the stock list was manually created, you can enter a reason for the manual override.

    This reason is displayed in the Reason Code field.

10. (Optional) Enter a value in the Fixed Lot Multiple field.

If there is a specific number of parts that are typically shipped in a package, such as 12 parts per box, you enter that number here. Replenishment orders round to the closest multiple of your Fixed Lot Multiple figure.

11. Save your work.

Deleting a Part from the Stock List

12. You can delete a min-max recommendation from the Stock List tab. Select the line to be deleted.

13. Click the Delete button.

Copying a Part from One Stock List to Another

14. You can also copy a stock list from one subinventory to another. Select the lines in the stock list. Click Copy.

15. Select the subinventory you want to copy the stock list line to.

Supersession

Supersession represents a supplier- or engineering-driven situation where one part has been replaced by another part. The supplier typically notifies the customer that a part has been replaced and is no longer available. All new orders should be placed for the superseding part. In some cases, the supplier requests that existing orders convert to the superseding part. Oracle Spares Management incorporates supersessions in Authorized Stock List (ASL) recommendation functionality and Warehouse Notification functionality.

Whether inventory is still available for the part that has been replaced, and whether that inventory can be utilized based on the disposition parameter, determines where to position the min-max levels in the supply chain.

Depending upon the disposition of inventory on the part being superseded, Spares Management produces the min-max levels for the appropriate part, either the one being superseded, or the superseding part, depending on the inventory level in the supply chain.

To utilize on-hand inventory of the superseded part, the min-max levels are positioned on the superseded part until the inventory is exhausted in the supply chain. This will drive parts out to the technicians where the parts can be used and the inventory depleted. If the reasons for superseding the part include safety issues, scrapping the part is generally preferable to using the parts to depletion.

There are two disposition values: Scrap and Use to Depletion. A disposition value of "Scrap" indicates that inventory on the lower level part cannot be used at all and should

be scrapped. This disposition causes the min-max levels to move to the superseding part as soon as the supersession is entered. The Use to Depletion disposition value indicates that inventory for the lower level part can and should be used to deletion wherever possible. This disposition causes the min-max levels to transfer to the superseding part when the inventory is exhausted.

Example

To illustrate this latter scenario, consider a supersession where Part A is replaced by Part B and the on-hand quantity for Part A at the central warehouse is 500 at the time the supersession is entered. The central warehouse also has a minimum level of 50. In this scenario, Oracle Spares Management recognizes the need to utilize the 500 pieces of inventory under the Use to Depletion disposition option. The min-max levels for the technicians stay at Part A until the inventory at the central warehouse drops below the reorder point (ROP) or the minimum level. This drives the parts out to the technicians where usage occurs and inventory is depleted.

During the transition, while the inventory of Part A is being depleted, min-max levels are planned for Part B if there is usage history for Part B. When the central warehouse inventory drops below the minimum level, the technician min-max levels shift to Part B and are calculated based on the combined usage for both Part A and Part B. Min-max levels for the central warehouse shift to Part B when the supersession is entered, and are calculated based on the combined usage for both Part A and Part B.

Similarly, planning warehouse stocking levels are designed to allow warehouses to deplete the inventory of superseded parts.

The central warehouse is always positioned at the top of the supply chain and, as such, min-max levels are also positioned at the top part in the supersession chain. Because supersessions are a supplier-driven business scenario, the central warehouse automatically switches its min-max recommendation to the superseding part because it will no longer be receiving any inventory for the superseded part.

For an intermediate warehouse, min-max levels are coordinated with the disposition parameters and supply chain inventories. This allows the intermediate warehouse to deplete any leftover inventory of the superseded part. If the disposition of a superseded part is set to "Use to Depletion," then an intermediate warehouse can position the min-max level at the superseded part until the inventory is depleted. Once depleted, the min-max level switches positions to the superseding part.

The Repair to value defines the highest level in the supersession chain that the lower level part can be repaired to. Ideally, the lower level part repairs to the top part in the supersession chain. But this is not always technically or economically possible. For example, Part A has been superseded by Part B, but Part A cannot be repaired to Part B. In this scenario, the Repair-to part for Part A is Part A.

The Reciprocal values works with the Repair to value. Options for the Reciprocal value are: Bilateral or Unilateral

Bilateral is the scenario where an order for Part B, the higher level part, can be filled by either Part A or Part B. In the Unilateral scenario, an order for Part B can only be filled by Part B. The lower level Part A can not be used to fill an order for Part B. An order for

Part A can always be filled with Part A, unless the disposition value is set to "Scrap."

In this way, Oracle Spares Management supersession functionality enables a field service operation to support supersessions and minimize obsolescence at the same time.

See also, Setting Up Part Supersession, page 2-26.

Setting Up Part Supersession

To set up supersessions, use the following procedure:

Prerequisites

❏ Set up items in Inventory.

Steps:

1. Navigate to the Supersessions window.

   Field Service Dispatcher > Spares Management > Setup > Define Supersessions

   The Find Supersessions popup window appears.

2. In the Find Supersessions popup window, enter search criteria if you want to locate existing supersession relationships.

3. To set up a new supersession, close the Find Supersessions window. In the main Supersessions window, select the part that is being replaced from the list of values in the Replaced Item field.

4. Choose the item you want to supersede the replaced item from the list of values in the Superseding Item field.

5. (Optional) Choose a Repair To Item value from the list of values.

   This value defines the highest level in the supersession chain that the lower level part can be repaired to.

6. Choose a Reciprocal value for the supersession.

   Options include: Bilateral or Unilateral.

   Bilateral is the scenario where an order for Part B, the higher level part, can be filled by either Part A or Part B. In the Unilateral scenario, an order for Part B can only be filled by Part B. The lower level Part A can not be used to fill an order for Part B. An order for Part A can always be filled with Part A, unless the disposition value is set to "Scrap."

7. Choose a Disposition code for the superseded item. This value defines how the disposition of inventory needs to be handled on the lower level part.

Options include: Use to Depletion or Scrap.

8. (Optional) Enter start and end dates for the supersession.

9. Save your work.

Create Warehouse Notifications

Warehouse notifications are designed for the more complex replenishment planning encountered where excess utilization, repair, and new-buy recommendations need to be incorporated into an integrated approach to warehouse replenishment planning. While this functionality is typically used at the central warehouse, it can be used at any warehouse in the supply chain where inventories of excess or repair parts need to be considered in the warehouse replenishment planning process.

The notifications process provides for a utilization approach, where replenishment need at the warehouse is satisfied first from excess inventory at other specifically designated warehouses, second from repaired defectives, and finally, from new purchases and internal orders.

To use notifications that incorporate excess and defective stock at a warehouse, you must have an authorized stock level (ASL) for the warehouse, and associate an assignment set for either the usable or the defective parts to the warehouse. The assignment set uses sourcing rules from Oracle Purchasing to define those warehouses you want to consider for excess and repaired parts.

Once configured, you create warehouse notification results by running a concurrent program that identifies parts replenishment needs in the warehouse, searches the supply chain for existing excess and defective parts, and returns results that a planner can review, and then execute a replenishment strategy that best fits business needs.

The planner has the option to fill the replenishment need by using existing excess stock, using repaired parts, by ordering new parts, or by a combination of these.

Spares Management also provides a facility whereby a planner can create business rules that allow notifications that meet the business rule criteria to be automated. The automation is designed to focus on the situation where the notification value is low, the forecast is reasonably accurate, and the excess and repair to consider is relatively low.

> **Note:** Notifications can only be used for warehouses, not for field technicians.

Setting Up and Creating Warehouse Notifications

Use the following procedure to set up and create warehouse notifications:

Prerequisites

❐ An Authorized Stock List must exist for the warehouse.

❐ If you are considering excess and defective parts, assignment sets must be set up.

Steps:

1. Navigate to the Planner's Desktop.

    Field Service Dispatcher > Spares Management > Planner's Desktop

2. Expand the planning tree in the Planner's Desktop. Select the warehouse that you want to set up for notifications.

3. Click the Warehouse Parameters tab.

4. (Optional) Enter an EDQ Multiple.

    The Economic Delivery Quantity (EDQ) is used to define order quantities. The EDQ multiple sets a limit to define excess on-order quantity.

5. In the Assignment Usable field, choose the assignment set to define excess in the notification from the list of values.

    Assignment Sets define those warehouses in the supply chain that you want the notification to use when looking for excess parts. See the *Oracle Purchasing Implementation Guide* for details on setting up Assignment Sets and Sourcing Rules.

6. If you are using Spares Management's Depot Repair functionality, choose a Depot Repair assignment set, which along with sourcing rules, defines the internal repair depot as a supplier for specific parts.

7. (Optional) Enter a Min Value.

    This is a minimum value for the excess on-order notification. A Min Value of 100, for example, would mean that a notification triggers only if the total value of the excess on-order notifications exceeds $100.

8. In the Assignment Defective field, choose the assignment set to define defective inventories for repair for notifications.

    The Assignment Set, along with sourcing rules, define defective warehouses for notifications.

9. If you are using business rules to automate notifications, choose the rule you want to apply to this warehouse from the Notification Rule list of values.

10. Save your work.

At this point, you have configured your warehouse to allow notification functionality.

To generate a notification, continue with the following:

11. Run the Warehouse Notifications concurrent program.

    Return to the main navigation tree and open Reports and Programs to access this concurrent program.

Creating Business Rules to Automate Warehouse Notifications

Creating business rules to automate warehouse notifications is beneficial for the efficient use of the planners' time. Planners often have a large number of Warehouse Notifications to execute, and the notification cycles need to be processed frequently to insure timely replenishment.

These rules are set up to address notifications that have a low notification value, low excess and repair values, and a high forecast reliability as measured by the Tracking Signal. You can create automation rules for the following three new-buy notification types:

• Internal Order - This represents transfer orders between warehouses.

• WIP Order - This is used when manufacturing is required.

• Requisition - This is used when purchasing is required.

In each of the preceding cases, you can enter values for excess and repair recommendations, and the minimum and maximum tracking signal.

• **Excess** - This is the value of excess inventory that can be used to satisfy the notification.

• **Repair** - This is the value of defective inventory that, when repaired, can be used to satisfy the notification.

• **Notification** - This is the value of the notification recommendation.

• **Tracking Signal Minimum** - This measures the forecast error when actual usage on a cumulative basis is running less than forecast.

• **Tracking Signal Maximum** - This measures the forecast error when actual usage on a cumulative basis is running more than forecast.

For all parameters with the exception of the tracking signal minimum, if the actual value is less than the parameter value, the notification is triggered. In the case of the tracking signal minimum, if the cumulative variance is greater than the parameter value, the notification is triggered.

> **Note:** You can set values for as many or as few of the parameters as you want. But for the automated process to be activated, *all* the parameters that have been set must be met.

You can set up only one Notification Rule for each warehouse. To set up automated notification rules, follow this procedure:

Steps:

1. Navigate to the Business Rules window:

   Field Service Dispatcher > Spares Management > Setup > Business Rules

2. From the Business Rules window, click the Notification Rules tab.

3. Enter the Name of the rule.

4. (Optional) Enter a Description.

5. For the Internal Order Line, enter an Excess Value number.

6. Enter a Repair Value.

7. Enter a Recommended Value.

8. Enter Tracking Signal minimum and maximum values.

9. Repeat steps 5 - 8 for Requisition and WIP Order lines.

10. Save your work.

Warehouse Replenishment Notifications

Notifications are used for warehouse replenishment and provide additional information about excess parts and defectives that, when repaired, can be used to satisfy the notification.

When you open the Notifications tab, a table displays notifications for those parts where the on-hand available and on-order has dropped below the minimum level for the part. Excess parts as defined by the usable assignment set appear in the Total Excess column. The quantity of defective parts, as defined in the defective assignment set, appear in the Total Repair column.

The Notification Quantity column displays the quantity needed to replenish the warehouse. When you select one of the notifications, the lower Notifications tab displays the breakdown of replenishment options available to fill the replenishment notification. If there are excess parts and defective parts available, multiple lines display

in the table. The planner can review this information, and then create a replenishment order based on what works best in this situation.

- Internal orders set up to utilize excess

- The total available in repair or the repair depot order

- The purchase requisition, WIP order, or internal order

Supersession

If a lower part in a supersession chain has defectives, those are rolled into the total defectives for the higher part. For example, if Part A has a "repair to" status of Part B, and there are eight defective Part A's and 10 defective Part B's, then the Part B notification will display a defective amount of 18 parts.

For more information on supersessions, see Supersessions, page 2-24.

A planner can replenish a part from this user interface by creating an internal order, if excess stock is used, or by creating a requisition for a purchase order, or by creating internal orders and repair orders to have the parts repaired at an internal depot.

See also Executing Warehouse Replenishment Notifications, page 2-31.

Executing Warehouse Replenishment Notifications

To execute warehouse replenishment using excess, external repair, and new buy parts, follow these steps:

Prerequisites

❐ Create an Authorized Stock List for the warehouse.

❐ If you are considering excess and defective parts, set up assignment sets.

Steps:

1. Field Service Dispatcher > Spares Management > Planner's Desktop

2. In the upper Notification tab, select the Notification of the part you want to review and execute.

   In the lower Notifications tab, the replenishment options are shown as orders that can be released for the Notification shown in the upper tab.

   - Excess order for excess utilization:

     - An Internal Order is created.

- New Buy Orders:

  - An Internal Order is created when the source is another warehouse organization.

    > **Note:** The Make/Buy parameter in Inventory needs to be set to 'Buy'.

  - A Purchase Requisition is created when the source is an external supplier

  - A WIP order is created when the source is the same as the warehousee organization being replenished

    > **Note:** The Make/Buy parameter in Inventory needs to be set to 'Make'.

- External Repair Orders are shown for information only, but are not directly executable from the user interface.

  > **Note:** Internal Repair using Depot Repair integration is described in the next section.

3. Select a Source Type in the lower Notifications tab, and then enter the quantity of for the excess, WIP, or new-buy order in the Order.

   This quantity must be less than or equal to the Available Quantity.

4. To submit your request, click Order.

   This creates the appropriate order document to execute the process as noted previously: Internal Order, Purchase Requisition, or WIP Order.

Warehouse Replenishment Using Depot Repair

Oracle Spares Management provides a mechanism to handle the repair of defective parts through an internal depot using Oracle Depot Repair. Defective parts that are owned by the field service can be sent to the internal repair depot based on need, repaired and returned to the field service warehouse being replenished.

Process Flow

- A repair depot using Oracle Depot Repair software is positioned in the supply chain to repair defective parts. This repair depot is defined in sourcing rules where the internal repair operation is defined as a repair supplier.

- Field technicians recover defective parts at the customer site, which are then transacted into the technicians' defective subinventories.

- Technicians transfer the parts into a defective warehouse for consolidation. The consolidated defectives are integrated into the warehouse replenishment planning, presenting the planner with a notification when defective parts need to be repaired at the internal depot for replenishment to the warehouse being planned.

- When the notification is approved, the defective parts are shipped to the repair depot on an internal order, repaired by the repair depot on a repair order, and shipped to the field service warehouse on a second internal order.

To use Oracle Depot Repair functionality to repair parts based on a Warehouse Notification follow this procedure.

Prerequisites

❒ Install Oracle Depot Repair and Oracle Order Management.

❒ Provide an assignment set value for the Depot Repair Suppliers field for the warehouse that is integrated with Depot Repair.

❒ Define the internal depot as an organization, along with a sourcing rule that defines an internal depot.

Steps:

1. Navigate to the Planner's Desktop user interface.

   Field Service Dispatcher > Spares Management > Planner's Desktop

2. In the planning tree, click the warehouse for which you want to view notifications.

3. Click the Notifications tab.

   This displays all notifications related to the selected warehouse.

4. Select a Notification from the upper Notifications tab that has a Depot Repair Source Type.

5. Select the Depot Repair Source Type in the lower Notifications tab and enter the quantity for the repair order if different than the quantity available.

6. Click Order.

   The following documents are automatically created:

   - Internal order to ship the defectives to the internal depot

- Repair order for the depot

- Internal order for shipping the repaired parts back to the field service warehouse form the repair depot

> **Note:** Spares Management also enables creating a depot repair order from the Parts Status tab on the Planner's Desktop to repair parts without a Warehouse Notification for replenishment.

View Parts Status and Order Detail

Within the Planner's Desktop, the Parts Status and order Detail information can be viewed.

Parts Status

The Parts Status tab displays status information at the warehouse, subinventory, or node selected in the planning tree. A table displays such information as part number, usable on-hand, defective on-hand, parts in transit, requisitions, purchase orders, and so on.

On the bottom panel of the Parts Status tab, there are several sub-tabs:

- Usage

- Forecast

- Parts Status

- Stock List

- Order Details

Each of these tabs displays information pertaining to the selected item in the Parts Status tab. The Parts Status and Stock List sub-tab correspond with the same tabs on the top panel of the Parts Status tab.

> **Note:** In the Parts Status lower tab, the Actual On-Hand and Available are real time. All other data in the upper and lower Parts Status tabs are updated by the Parts Availability Data concurrent program.

You can order parts from this tab by selecting the part you want to order and clicking the Order button. This action brings up the Parts Requirement page, where you can create a parts requirement and an order.

Order Details

The Order Details tab provides a view of incoming orders for an item at the subinventory or organization level.

3

Loop Planning, Notifications and Reporting Hierarchy

Oracle Spares Management supports an aggregate planning approach where individual subinventories can be grouped into planning loops. A parts loop is a group of subinventories that is planned together as a single entity. A parts loop can cross more than one inventory organization and more than one operating unit.

This chapter covers the following topics:

- Summary - Loop Planning, Notifications and Reporting
- Creating a Parts Loop
- Assigning Subinventories to a Parts Loop
- Defining a Master Stock List (MSL)
- Creating and Using Loop Notifications
- Creating Part Availability Data
- Creating Usage History
- Viewing Usage and Forecast Data
- Creating Notifications
- Processing Notifications

Summary - Loop Planning, Notifications and Reporting

Planning loops are used to coordinate planning and execution activities across multiple locations and to control the total inventory across all subinventories in the loop. The planning loop can include both usable and defective subinventories from different inventory organizations.

At least one parts loop must be set up. These are the steps required to set up parts loops:

- Creating a Parts Loop, page 3-2

- Assigning Subinventories to a Parts Loop, page 3-3

- Defining a Master Stock List, page 3-4

Oracle Spares Management uses a master stock list (MSL) to define the plan for the loop. The MSL defines the parts and total quantities to be stocked in the loop. In addition, the master stock list provides for a minimum usable quantity to ensure that the loop maintains a balance of usable parts.

Notifications can be generated by running a concurrent program when the total available is above or below plan conditions as defined in the master stock list. Notifications are also generated when the level of usable parts has dropped below the minimum usable on-hand level as designated in the master stock list.

The Planner's Desktop provides an organized presentation of the functionality used for planning and execution at the location and loop levels. Navigation icons included on the desktop are for loops, reporting hierarchies, and notifications.

In the Reporting Hierarchy area of the Planner's Desktop, you can create hierarchies for summarizing inventory balances, viewing on-order quantities, and viewing usage and forecast information. Reporting hierarchies also provide a tool for parts searches

Reporting hierarchies consist of a group of virtual nodes, designed around your organizational or geographical reporting structure. Each node can contain other nodes or subinventories. Each subinventory can belong to only one reporting hierarchy.

Creating a Parts Loop

To create a parts loop, follow this procedure.

Prerequisites

❒ Define planners.

❒ Define calculation rules.

❒ Define forecast rules.

Steps:

1. From the Field Service Manager responsibility, navigate to the Planner's Desktop:

   Field Service Dispatcher > Spares Management > Planner's Desktop> Parts Loop (icon)

2. Highlight the Parts Loop folder in the navigator tree.

3. Right click the Parts Loop folder to open a right-click menu.

4. Select Create Parts Loop from the right-click menu to open the Loop Details tab.

5. Enter a parts loop name in the Loop Details tab.

6. (Optional) Enter a description for the parts loop.

7. Select a planner from the Planner list of values.

8. Select a calculation rule from the Calculation Rule list of values.

9. Select a forecast rule from the Forecast Rule list of values

10. Save your work.

   The new parts loop appears in the navigator tree.

Assigning Subinventories to a Parts Loop

When you assign subinventories to a parts loop, you must specify whether the subinventory is for tracking usable or defective parts. You can also choose to use the Auto-receipt feature for the subinventory. With Auto-receipt enabled, shipments are received automatically at the source subinventory during the ship confirm process.

> **Important:** The auto-receive check box in the Planner's Desktop is used only for move orders. For internal orders, the auto-receive option defined in the shipping network is used

Prerequisites

❐ Define the parts loop.

Steps:

1. Navigate to the Planner's Desktop user interface.

   Field Service Dispatcher > Spares Management > Planner's Desktop > Parts Loop (icon)

2. Click the "+" sign next to the Parts Loop folder in the navigator tree.

3. Right-click the parts loop to which you want to add subinventories.

4. Select Add Subinventory from the right-click menu.

   The Location Details tab opens.

5. Select an organization name from the Organization list of values.

6. Select a subinventory from the Subinventory list of values.

7. Select a condition type of Usable or Defective from the Condition Type list of values.

8. (Optional) Select the Auto-receipt check box.

   If you select this feature, parts shipments are received automatically during Ship Confirm at the destination subinventory.

9. Select the Spares Location check box.

   The Spares Location check box has no functionality at this time.

10. Save your work.

Defining a Master Stock List (MSL)

A master stock list is the component of a parts loop that defines the allowable quantity of usable and defective parts. The master stock list defines the part numbers and corresponding quantities stocked in the parts loop. The master stock list is required if parts are stocked on a planned basis in a parts loop.

The loop quantity represents the total quantity, including usable and defective, that is required in the loop and includes the availability elements as defined in the calculation rule. The minimum usable quantity represents the usable on-hand quantity that is required in the loop. The loop quantity and loop minimum are used to generate Notifications to the planner. The Notifications represent an exception condition for which the planner may want to take the appropriate action.

Prerequisites

❒ Define a parts loop.

Steps:

1. Navigate to the parts loop in the Navigator tree.

   Field Service Dispatcher > Spares Management > Planner's Desktop > Parts Loop (icon)

2. Highlight the appropriate parts loop in the Navigator tree.

3. Open the Master Stock List tab.

4. Enter an item number or select an item from the list of values that you want to add

to the master stock list.

> **Note:** The Item field is case sensitive.

5. Select a planner from the Planner list of values.

6. Enter the desired loop quantity for this item.

7. (Optional) Enter the minimum usable quantity for this item in the Minimum Good field.

8. The Plan Type field default value is obtained from the item definition.

9. Save your work.

Creating and Using Loop Notifications

Planning at the loop level involves the comparison of actual loop quantities to the Master Stock List quantities. When the available quantities of parts are greater than or less than the inventory levels defined for the parts loop, a notification is created for review and processing by the planner.

In the Parts Loop area of the Planner's Desktop, you can administer the Master Stock List for the loop. You can define and maintain the loop parameters, such as selecting the calculation and forecast rule. You can also view part availability for the loop. Finally, you can assign, update and view the usable and defective subinventories included in the parts loop.

The following steps describe using parts loops in more detail:

- Creating Part Availability Data, page 3-5

- Creating Usage History, page 3-6

- Viewing Usage and Forecast Data, page 3-7

- Creating Notifications, page 3-7

- Processing Notifications, page 3-8

Creating Part Availability Data

The Create Part Availability Data concurrent program compiles part availability data for the loop. This availability data is used to update summary quantities displayed in planning loops and hierarchies. The summary data that appears at the node levels in the Planner's Desktop are updated by this concurrent program. The availability data is

also used to determine whether notifications should be generated.

Prerequisites

❑   Define a Parts Loop.

Steps:

1.   Navigate to the Submit Request window:

Field Service Dispatcher > Spares Management > Reports and Programs > Create Part Availability Data

The Submit Request window opens. The Create Parts Availability Data concurrent program appears in the Name field.

2.   There are no parameters for Create Parts Availability Data concurrent program. Click Submit.

3.   Click No in the Decision window.

4.   To see the status of your concurrent request, click View from the menu, and then click Requests.

5.   Click Find to view the status of all your requests.

Creating Usage History

Usage activity is a component of planned inventory levels and is also used for forecasting future usage activity. The Create Usage History concurrent program gathers usage statistics that can be viewed in the Planner's Desktop.

Use the following procedure to run the Create Usage History concurrent program:

Steps:

1.   Navigate to the Submit Request window:

Field Service Dispatcher > Spares Management > Reports and Programs > Create Usage History

The Submit Request window opens. The Create Usage History concurrent program appears in the Name field.

2.   There are no parameters for this program. Click Submit.

3.   Click No in the Decision window.

4.   To see the status of your concurrent request, click View from the menu, and then

click Requests.

5. Click Find to view the status of all your requests.

Viewing Usage and Forecast Data

A forecasting tool is available on the Planner's Desktop to aid in the planning process. Multiple forecasting techniques are provided. The forecast for the part is viewable by location, loop, and reporting hierarchy.

Use this procedure to view the forecast and usage information.

Prerequisites

❒ Run the Create Usage History concurrent program to gather usage statistics.

Steps:

1. Navigate to the parts loop hierarchy.

   Field Service Dispatcher > Spares Management > Planner's Desktop > Parts Loop (icon

2. Click the "+" sign next to Parts Loop.

3. Click the parts loop for which you want to view forecasting information.

4. Open the Parts Status tab.

5. Click Find in the Find Items window to execute a blind query for all parts.

6. Click an Item number and view the Usage and Forecast information in the lower Usage/Forecast tab.

Creating Notifications

The Create Notifications concurrent program compares the Available quantities that are calculated by the Create Part Availability Data concurrent program to the desired quantities that were defined by the master stock list in the parts loop. Notifications to the planner are created when one of the following conditions occurs:

• The Available quantity for this part is above the total loop quantity by more than the allowable percentage.

• The Available quantity for this part is below the total loop quantity by more than the allowable percentage.

- The usable quantity for this part is below the minimum usable quantity.

Prerequisites

❏ Run the Create Part Availability concurrent program so the notifications are based on the most recent quantities.

Steps:

1. Navigate to the Submit Request window:

   Field Service Dispatcher > Spares Management > Reports and Programs > Create Notifications

   The Submit Request window opens. The Create Notifications concurrent program appears in the Name field.

2. There are no parameters for this program. Click Submit.

3. Click No in the Decision window.

4. To see the status of your concurrent request, click View from the Tools menu and click Requests.

5. Click Find to view the status of all your requests.

Processing Notifications

Notifications advise that the parts inventory is above or below quantities defined in the master stock list. You can view and take action on open notifications in the Planner's Desktop. Notifications have a status of either Open, Pending or Closed.

Prerequisites

❏ Run the Create Notifications concurrent program.

Steps:

1. Navigate to the Planner's Desktop.

   Field Service Dispatcher > Spares Management > Planner's Desktop

2. Click the "+" sign to expand Notifications.

3. Click the "+" sign to expand the Loop folder.

4. The notification categories are:

- Above

- Below

- Not Enough Usable Parts

Click the "+" sign for the notification category you want to view.

5. Within each notification category, you can choose:

   - Open

   - Closed

   - Pending

   Click the Item number in the Open folder to view the notification.

6. Open the Master Stock List tab to view the master stock list parameters for the Item in the notification.

7. Open the Parts Status tab to view details. The detailed view includes the availability elements for the part.

8. There are five actions you can take on an open notification:

   - Change the quantity on the master stock list.

   - Create a move order to transfer parts to the location that needs them.

   - Create an external requisition to purchase an additional quantity of parts.

   - Create an external requisition to have the parts repaired externally.

   - Create a WIP order to have the parts repaired internally.

   After taking the appropriate action regarding the notification, update the status of the notification to Pending or Closed.

Part 2

Warehouse Replenishment Planning

4

Warehouse Replenishment Planning

The Warehouse Replenishment Planning (WRP) module of the Oracle Field Service suite plans inventories for central, regional, theater, or metropolitan warehouses in a field service supply chain. WRP is not designed to plan Technician trunk stock inventories. Trunk stock is planned using core Planner's Desktop functionality.

This chapter covers the following topics:

- Overview - Planning Field Service Warehouse Inventories
- Integration with Repair Execution
- Selecting Plans
- Overview - Warehouse Replenishment Plan User Interface

Overview - Planning Field Service Warehouse Inventories

Planning warehouse inventories in a field service supply chain experience requires a different approach, as compared to warehouses that support a manufacturing supply chain. some of the more significant differences are noted below:

- Higher volume of defective returns

- Higher volume of repair operation activities

- Redeployment of excess inventory

- Inventory plans driven by product component failure rate forecasts, in contrast to supporting manufacture of end products.

- Supersession of parts impacts usage forecasts, safety stock, reorder point and order quantity.

Warehouse business performance objectives are consistent with those of most other types of warehouses:

- High service level

- Low inventory investment

- High utilization of assets

Warehouse Inventory Planning Process:

- Create a warehouse replenishment plan

- Find and select a specific plan to analyze

- Review generated plan recommendations

- Change and regenerate the plan, if required

- Process recommendations to execute the plan

Supply Types

Supply Types are key to the warehouse planning process. A cost-effective approach is required to utilize excess and repair before ordering additional parts that could grow the inventory unnecessarily. The Supply Types as defined in Spares Management are: Excess, Repair, and New-Buy.

Excess

Changes in field service activity can cause the level of inventory in certain locations to exceed the quantity needed to support planned service activities. Excess inventory is a low cost supply source type, since it only needs to be redeployed and should be utilized wherever possible at other warehouse locations when needed.

Repair

Some parts recovered during field service operations are repairable. Repairable returns are a medium cost supply source. Costs include repair, either internally or by sending them to an external provider of repair services, and redeployment. Defective parts, when consolidated, can be incorporated into the warehouse planning process, and should be repaired as needed to replenish the warehouse being planned.

New-buy

New parts to fulfill purchase orders or internal orders from other warehouses is the third supply source type. The new-buy source of supply is usually more costly than either excess or repair sources.

> **Tip:** To achieve low inventory investment and reduce risk of obsolescence, the replenishment should be planned by consuming inventories of excess parts, and then repair parts, before new-buy parts.

Recommendation Types

Warehouse Replenishment Planning generates exception recommendation messages that point out actions needed to balance supply and demand. Such action messages are categorized by recommendation type.

Seeded Recommendation Types

Recommendation Type	Description	Related Business Objective
Planned Order Inside of Lead Time	This order should be processed promptly to support planned service activities.	Service Level
Planned Order Outside of Lead Time	This order can be processed now, but normally this planned order is positioned in the plan for visibility and would not be released until lead time had been reached.	Inventory Investment
Reschedule In	These parts are on-order, but the projected on-hand balance is tracking too low, based on the Reschedule In business rule. The current order may need to be repositioned earlier in the schedule to eliminate gaps or situations where the projected on-hand balance is potentially putting service at risk.	Service
Reschedule Out	These parts are on-order. They are due to arrive before they are needed, causing the projected on-hand balance to track too high, based on the Reschedule Out business rule. The current order may need to be repositioned later in the schedule to avoid an inventory that is higher than needed.	Inventory Investment
Review Superseded Parts	This part has been replaced by a different part and either an open order, manual forecast, or population forecast for this part still exists.	Inventory Investment
Unutilized Excess	A current new-buy, on-order quantity at the warehouse being planned is preventing the excess inventory at other warehouses from being utilized.	Asset utilization

Unutilized Repair	A current new-buy, on-order quantity at the warehouse being planned is preventing the defective inventory assigned to that warehouse from being utilized.	Asset utilization
Excess On-order	The on-hand plus on-order exceeds the Excess On-Order Limit	Inventory Investment

Supersession Impacts

Supersessions have major impacts on the planning process. The supersession definition used in Warehouse Replenishment Planning is defined in Spares Management.

The Supersession in Spares Management is defined as follows:

- Replaced item - This is the identification number of the *superseded* or obsolete item.

- Superseding item - This is the identification number of the replacement item.

- Repair to item - This identifies the highest part in the supersession chain that the part can be updated and repaired to. The Repair to item can be the same as superseding item or can be a different item.

- Reciprocal - This is either Unilateral or Bilateral, which defines whether the superseded part can be used to fill an order for the superseding part. In Bilateral, the superseded part can be used. In Unilateral, the superseded part can not be used.

- Disposition - This field indicates whether the replaced item can still be used or should be scrapped. Use to Depletion (UTD) indicates that the superseded part can still be used.

- The Start Date and End Date columns are used for effectivity and expiration of supersessions.

Supersession impact on the superseding (replacement) part in the Warehouse Replenishment Planning process:

- The superseding part defective inventory includes the superseded part defective inventory when the superseding part is the same as the Repair To for the superseded part. In other words, the superseded part can be upgraded to the superseding part.

- The usage history of the superseding part includes usage for the superseded part.

- The usage forecast for the superseding part is based on the combined usage of both items.

- The defective returns history for the superseding part includes defective returns of the superseded part when the superseding part is the same as the Repair To for the superseded part.

- Repairable Returns are based on the combined defective returns as appropriate based on the Repair To of the superseded part.

Supersession impact on the superseded (obsolete) part

- The top level superseded part is shown in the header region.

- Planning is suppressed.

- Recommendation for "Review Superseded Parts" appears if:
    - On-order quantity is greater than zero

    - Population forecast exists, or

    - Manual forecast exists.

Integration with Repair Execution

Oracle Spares Management integrates Warehouse Replenishment Planning with Repair Execution to manage the execution of internal and external repair. Repair is one of the Supply Types in Warehouse Replenishment Planning.

The process begins in Warehouse Replenishment Planning:

- The current On-hand Balance shows a positive On-hand balance of repairable inventory in one or more of the defective warehouses.

- WRP, based on need for the repair, produce Planned Repair Orders.

- The planner reviews and executes a Planned Repair Order to create either a Repair Order in Oracle Depot Repair for internal repair, or a purchase requisition for external repair. For internal repair, the internal orders required to ship into and out of the depot repair operation are also produced.

- Integrated Repair Execution functionality manages the repair process for service parts in a field service supply chain. External Repair Execution provides a consolidated view of all documents and repair process details. For more information about external repair execution functionality, see the External Repair Execution, page 6-x chapter in this guide.

    The repair program is defined in the Repair region of the MPS/MRP Planning tab of the Inventory Organization Item window. Related setup documentation appears in the *Field Service Implementation Guide*.

- As plans change, Warehouse Replenishment Planning can generate recommendations to reschedule or cancel the repair order.

- View Repair Purchase Requisition after execution

Selecting Plans

Use the Find Warehouse Replenishment Plans page to find and select plans by:

- Organization

- Item

- Recommendation Type

- Inventory Class

A table presents the retrieved plans. See Accessing Warehouse Replenishment Plan Details, page 5-6.

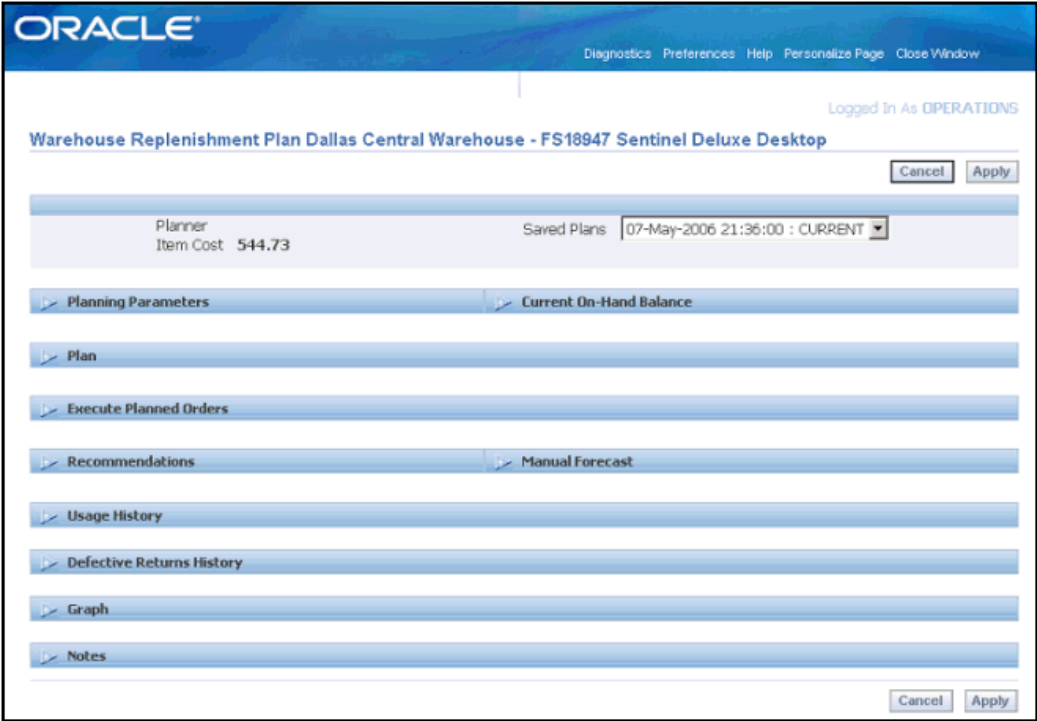## Overview - Warehouse Replenishment Plan User Interface

In the Planner's Desktop, when you select a warehouse from the planning tree, the Planner's Desktop user interface displays six tabs, including a Notifications tab. The Notifications tab, which provides warehouse replenishment functionality includes:

- New-Buy Purchase Order and WIP Order recommendations

- View of Excess inventory

- View of Defective inventory

- Integration with Depot Repair

- Supersessions

- Execution features

Oracle Warehouse Replenishment Planning provides the following enhancements:

- Find and select saved plans

- Regenerate named plans

- Horizontal view, in which table columns represent past, current, and future time periods

  - Forecast based on population and failure rate of parts

- Forecast repairable returned parts

- Manually adjust or replace forecast

- Projected planned orders by source type

- Projected on-hand and available inventory balances

The Warehouse Replenishment Planning user interface organizes information into the following page title, fields, and expandable regions:

Elements of the Warehouse Replenishment Planning User Interface

UI Element	Description
Item at a warehouse (title)	This page title is determined by the plan selected from the Find Warehouse Replenishment Plan page.
Planner (field)	Planner or buyer responsible for this item.
Item Cost (field)	This is the cost per-unit.

Saved Plans (menu)	This drop-down menu lists previously saved plans.
Planning Parameters by Supply Type (region)	Planning can be controlled by Supply Type.
Current On-Hand Balance (region)	This region displays the item current on-hand, available, and excess quantities by inventory organization and Supply Type.
Plan (region)	This region displays a horizontal bucketed view of requirements, planned supply, and projected balances.
Execute Planned Orders (region)	This region displays planned orders by source type and supplier. To execute planned orders, select them, and then click Create Orders.
Recommendations (region)	This region displays action messages by type, due date, and order quantity, for excess on-order, rescheduling orders in or out, unutilized inventory, and superseded parts.
Manual Forecast (region)	This region is used to manually adjust or replace the usage forecast.
Usage History (region)	This region displays usage quantities for this part grouped by historical time period. This information is used to evaluate usage forecasts.
Defective Returns History	This region displays the quantity of defective parts returned during historical time periods. This information is used to evaluate asset utilization and the repairable returns forecast.
Graph	Quantity versus time line graph of Total Requirements, Current On-Order, Current Balance, Planned Orders, and Planned Balance
Notes	This text box is provided for adding notes to track significant events related to the part.

5

Using Warehouse Replenishment Planning

This chapters documents procedures for using Warehouse Replenishment Planning to create, select, review, and execute spares replenishment plans.

This chapter covers the following topics:

- Creating Warehouse Replenishment Plans

- Finding Warehouse Replenishment Plans

- Accessing Warehouse Replenishment Plan Details

- Reviewing Warehouse Replenishment Plans

- Specifying Planning Parameters for a Specific Part

- Specifying Planning Parameters for a Warehouse Organization

- Regenerating Warehouse Replenishment Plans

- Executing Planned Orders

- Recommendations

- Processing Excess On-Order Recommendations

- Processing Unutilized Excess and Repair

- Rescheduling In or Out

- Reviewing Superseded Parts

Creating Warehouse Replenishment Plans

The process for creating warehouse replenishment plans consists of running three concurrent programs. The first program updates usage history so forecasts calculations are based on the latest usage information. The second program collects the latest supersession information. The third program is the planning engine that creates or regenerates plans for one or all warehouses.

Prerequisites

❒ Set up inventory organizations to model field service warehouses.

❒ Set up items in Oracle Inventory.

Steps:

Updating Usage History

1. From the Field Service Manager responsibility, navigate to the Submit Request window for the Create Usage for Recommendations concurrent program.

   Field Service Dispatcher > Spares Management > Reports and Programs > Usage for Recommendations

   The Submit Request window opens. The Name field populates with the Create Usage for Recommendations concurrent program name.

2. There are no parameters to set for this program. On the Submit Requests window, click Submit.

   The Decision window opens.

3. On the Decision window, note your request number.

   In response to "Submit another request?" click No.

4. Navigate to the Find Requests window.

   Field Service Dispatcher > Other > View Requests

   The Find Requests window opens.

5. On Find Requests, choose the Specific Request radio button, and then enter your request number in the Request ID Field. Click Find.

   As an alternative, on Find Requests, choose the All Requests radio button, which is selected by default. Click Find.

   The Requests window opens to display your request ID, phase, and status.

6. If the phase is not "Complete", wait a moment, and then click Refresh Data. When the program completes normally, close the Requests window.

Updating Planning for Superseded Parts

7. Navigate to the Submit Request window for the Process Supersede Items concurrent program.

   Field Service Dispatcher > Spares Management > Reports and Programs > Process Supersede Items

The Submit Request window opens. The Name field populates with the Process Supersede Items concurrent program name.

8. There are no parameters to set for this program. On the Submit Request window, click Submit.

   The Decision window opens.

9. On the Decision window, note your request number.

   In response to "Submit another request?" click No.

10. Navigate to the Find Requests window.

    Field Service Dispatcher > Other > View Requests

    The Find Requests window opens.

11. On Find Requests, choose the Specific Request radio button, and then enter your request number in the Request ID Field. Click Find.

    As an alternative, on Find Requests, choose the All Requests radio button, which is selected by default. Click Find.

    The Requests window opens to display your request ID, phase, and status.

12. If the phase is not "Complete", wait a moment, and then click Refresh Data. When the program completes normally, close the Requests window.

Updating Planning for One or All Warehouses

13. Navigate to the Submit Request window for the Create Warehouse Replenishment Data concurrent program.

    Field Service Dispatcher > Spares Management > Reports and Programs > Create Warehouse Replenishment Data

    The Submit Request window opens. The Name field populates with the Create Warehouse Replenishment Data concurrent program name.

14. In the Parameters window, select the inventory organization from the Organization list of values. To run this program for all organizations, leave the Organization blank in the Parameters window.

15. To save the System Generated Plan enter 'Yes' in the field in the Parameters window.

    Click OK.

16. On the Submit Requests window, click Submit.

    The Decision window opens.

17. On the Decision window, note your request number.

In response to "Submit another request?" click No.

18. Navigate to the Find Requests window.

Field Service Dispatcher > Other > View Requests

The Find Requests window opens.

19. On Find Requests, choose the Specific Request radio button, and then enter your request number in the Request ID Field. Click Find.

As an alternative, on Find Requests, choose the All Request radio button, which is selected by default. Click Find.

The Requests window opens to display your request ID, phase, and status.

20. If the phase is not complete, wait a moment, and then click Refresh Data. When the program completes normally, close the Requests window.

Finding Warehouse Replenishment Plans

After creating warehouse replenishment plans, you use search criteria within find functionality to retrieve plans and recommendations of interest.

Prerequisites

❒ Create one or more warehouse replenishment plans.

Steps:

1. Navigate to the Find Warehouse Replenishment Plans window.

Field Service Dispatcher > Spares Management > Warehouse Replenishment Planning

The Find Warehouse Replenishment Plans window opens.

2. On the Find Warehouse Replenishment Plans window, choose the radio button for either

• Show table data when all conditions are met, or

• Show table data when any condition is met

Requiring all conditions to be met tends to narrow the search results.

3. Specify parameters and values to filter the data that is displayed in your results set.

Example

Search Criteria Examples:

To find plans for all items within the Dallas manufacturing warehouse (M3) that need to be ordered promptly, specify the search criteria as follows:

- Organization is M3

- Item is (blank)

- Recommendation Type is Planned Orders Inside of Lead Time

- Inventory Class (blank)

Example

To find plans a specific item FS54888 within the Dallas manufacturing warehouse (M3), specify the search criteria as follows:

- Organization is M3

- Item is FS%

- Recommendation Type is (blank)

- Inventory Class is (blank)

> **Note:** Entering FS plus the wild card (%) character in the Item field causes the system to retrieve several items, all having item IDs that begin with "FS". Select item FS54888. The Item field populates with the selected item.

Example

To find plans for costly items in all warehouses that need to be rescheduled out, specify the search criteria as follows:

- Organization is (blank)

- Item is (blank)

- Recommendation Type is Reschedule Out

- Inventory Class is A

4. Click Go.

The system populates the table with plans that match the search criteria.

Accessing Warehouse Replenishment Plan Details

After retrieving plans that meet the search criteria, view the search results table to identify the specific plan that you want to work.

Use the following procedure to access plan details.

Prerequisites

❒ Complete the procedure: Finding Warehouse Replenishment Plans, page 5-4, to populate the table on the Find Warehouse Replenishment Plans user interface.

Steps:

1. The Find Warehouse Replenishment Plans user interface table shows:

   • Item

   • Description, and where applicable:

      • Inventory Class

      • Planner

      • Recommendation Type

   • Date

   • Excess quantity and value

   • Repair quantity and value

   • New buy quantity and value

      > **Note:** The Date, Quantity, and Value fields can be sorted in ascending or descending order to facilitate selection of higher priority plans.

2. To select a plan, click the Details icon in the row for the plan.

   The Warehouse Replenishment Plan <organization> <Item ID> <Item description> page appears.

   Example
   For example the page title: Dallas Manufacturing - FS54888 Sentinel Standard Desktop, displays the replenishment plan and recommendations for the Sentinel Standard Desktop computer, item ID FS54888, in the Dallas Manufacturing

inventory organization.

Reviewing Warehouse Replenishment Plans

The Warehouse Replenishment Plan user interface presents several regions. For a description of the regions, see Overview - Warehouse Replenishment Plan User Interface, page 4-6.

Current On-Hand Balances

This region displays the item current on-hand, available, and excess quantities by warehouse (inventory organization), by source type for the Item. On-hand is the physical quantity at the stated warehouse. Available quantity is on-hand minus the quantity reserved to fulfill existing orders. Excess is the quantity exceeding the Maximum level.

The on-hand and excess balances are displayed for the primary warehouse being planned as well as the excess and repair warehouses that are being included in the planning for the primary warehouse. The excess warehouses are those specifically designated warehouses that will be incorporated in the planning for the item at the primary warehouse when excess is available. Repair warehouses are locations for consolidating repairable defectives.

Source	Source Type	Onhand	Available	Excess
Dallas Manufacturing		78	23	0
Boston Manufacturing	Excess	369	41	41
Chicago Subassembly Plant	Excess	75	75	75
Defective Warehouse	Repair	200	200	
Phoenix Manufacturing	Repair	25	25	

Example

For example:

- On Hand - Dallas Manufacturing Warehouse = 78

- Available Excess - Total of Source Type Excess warehouses = 116

- Available Repaired - Total of Source Type Repair warehouses = 225

Planning Parameters

Planning parameters by supply type is used for adjusting the inventory plan depending on the Supply Type being used. Default Planning Parameters can be entered in the

Planner's Desktop. The Planning Parameters in Warehouse Replenishment Planning are applicable only to the Item at the Warehouse being planned.

Planning Parameters

Personalize Advanced Table: (planningParamsTable)

Source Type	Lead Time	Service Level	EDQ Factor	ROP	EDQ	Safety Stock	EDQ Multiple
Excess	21	80	15	264	36	87	2
Repair	28	75	10	312	24	70	2
New Buy	35	70	8	366	19	57	2

Input Parameters

• Lead Time - Enter as the number of days from *recognition* that replenishment is needed to the *receipt* of the replenishment shipment

• Service Level - Enter as a percentage, this number is used along with the Economic Delivery Quantity, or EDQ to calculate the safety stock quantity. The service level, expresses as a percent, defines on a planned basis the desired percent of demand filled when needed.

• Economic Delivery Quantity (EDQ) Factor - This factor is used in calculating the Economic Delivery Quantity. The EDQ Factor combines both ordering costs and carrying costs in the classical economic order quantity algorithm to determine delivery quantity. EDQ varies directly with EDQ Factor. In other words, increasing the EDQ Factor produces a larger calculated Economic Delivery Quantity.

• EDQ Multiple - This value is used to define the Excess Limit in the Excess On-order Recommendation. The Excess On-Order Limit is equal to the Reorder Point (ROP) plus the EDQ Multiple times the EDQ. See Processing Excess On-Order Recommendations, page 5-18.

Calculated Parameters

• Reorder Point - This quantity is equal to the total requirements during the lead time plus the safety stock.

• Safety Stock quantity - This buffer inventory protects against usage fluctuations that occur while the item is on order. The safety stock quantity is based on EDQ and Service Level.

• Economic Delivery Quantity - The EDQ is based on the EDQ Factor and the Value of Annual Usage.

Interpret the Plan

The figure shows the Plan region of the Warehouse Replenishment Planning user interface expanded to display the horizontal view.

The table describes the fields and table rows in the plan region.

Description of Plan Region Elements

Field or Row Label	Description
Number of Periods	This field specifies the number of time periods displayed in the horizontal plan future time periods.
Period Size in Days	This field specifies the number of days included in each period. **Example** For example, period size of 7 days results in weekly time buckets.
Total Requirements	This row displays the sum of demand on this warehouse for the Item. • Usage Forecast • Population (and Failure Rate) Forecast • Manual Forecast +/- (adjustment) • Manual Forecast Replace

Current On-Order	This row displays the sum of open replenishment orders by time period. Expand this row to see individual orders.
Current Balance	This row projects inventory balance as would occur if no planned orders are executed.
	Current balance equals On-hand, or previous Current balance plus On-order for the period minus Total requirements for the period.
	Example
	Period 1 current balance = 78 + 56 - 50 = 84.
	Period 2 current balance = 84 + 0 - 65 = 19.
	Period 3 current balance = 19 + 0 - 62 = - 43.
	And so on.
Planned Orders	This row displays a summary of recommended orders by time period. Expand this row to see planned orders by source type:
	• Excess
	• Repair
	• New Buy
	Example
	The first three planned orders of 38, 41, and 37 are for excess and consume the excess inventory of 116.
	The next four planned orders of 75, 75, 50, and 25 are for repair, and consume the inventory of 225 repairable defective parts.
	Planned orders to purchase new parts are due in the last two time periods.
Repairable Returns	This row forecasts the utilization of future defective returns. This forecast of repairable returns utilization is used to fill requirements before new buy.

| Planned Balance | This row projects inventory balance as would occur if all planned orders are executed as planned. |

Planned balance equals On-hand, or previous Planned Balance plus On-order plus Planned Orders plus Repairable Returns minus Total Requirements

Example

Period 1 planned balance = 78 + 56 - + 38 - 50 + 0 = 122.

Period 2 current balance = 122 + 0 + 41 - 65 + 0 = 98.

Period 3 current balance = 98 + 0 + 37 - 62 + 0 = 73.

Period 4 current balance = 73 + 0 + 75 - 65 + 0 = 83.

And so on.

Example Plan

--	Past Due	1	2	3	4	5	6	7	8	9	10
Total Required	-	50	65	62	65	67	70	72	75	78	80
On Order	-	56	-	-	-	-	-	-	-	-	-
Current Balance	-	84	19	-43	-108	-175	-245	-317	-392	-470	-550
Planned Orders	-	38	41	37	75	75	50	25	-	41	51
Excess	-	38	41	37	-	-	-	-	-	-	-
Repair	-	-	-	-	75	75	50	25	-	-	-
New Buy	-	-	-	-	-	-	-	-	-	41	51
Repair Returns	-	-	-	-	-	-	-	46	70	29	29

Planned Balance	-	122	98	73	83	91	71	70	65	57	57

Planning Preserves Safety Stock

The new buy quantities in periods 9 and 10 are sized to result in a planned balance of 57. In this example, planning parameter calculations set the safety stock equal to 57. Safety stock is a buffer against *unplanned* demand. Therefore planning recommendations are calculated to preserve the safety stock quantity by preventing the *planned* balance from dropping below the calculated safety stock quantity.

Specifying Planning Parameters for a Specific Part

The Planning Parameters region displays the following parameters by source type:

- **Lead Time**

- **Service Level**

- **EDQ Factor**

- ROP

- EDQ

- Safety Stock

- **EDQ Multiple**

When you adjust the factors listed in **bold** font, the system recalculates the ROP, EDQ, and Safety Stock, and with the exception of Lead Time, automatically recalculates the replenishment plan to reflect changes.

Lead Time

Lead time is used to calculate Reorder Point where the ROP is equal to the Total Requirements during Lead Time plus Safety Stock. Lead Times are maintained in Oracle Inventory. It is necessary to run the Create Warehouse Replenishment Plans concurrent program to update the plans.

> **Note:** The Regenerate button does not update plans for lead time changes.

Service Level

When you change the service level, the system automatically recalculates the Reorder

Point and the safety stock quantity.

> **Tip:** Service Level is a *trade-off* between the conflicting objectives of high customer service and low inventory investment. A 100 percent service level is tempting, but requires a very high investment in safety stock inventory. Start with an 80 percent service level, and then adjust from that level as experience with service and inventory investment indicates.

EDQ Factor

Increasing the EDQ factor increases the size of the EDQ and the size of the planned orders, and may reduce the size of the safety stock depending on how sensitive the safety stock is to the EDQ change. Safety Stock is determined by service level, demand variation, and EDQ. EDQ is used in safety stock to account for the number of stockout exposures. In general, higher EDQ means less exposure to stockout risk and a lower level of safety stock.

EDQ Multiple

The Excess EDQ multiple is used to define the Excess Limit in the Excess On-order Recommendation. Excess on order is an exception condition where the total on-order is too high. The excess limit is equal to the Reorder Point plus the number of EDQ multiples specified.

Example

For example, the reorder point is 266, the EDQ is 36, and the EDQ multiple is 2. The Excess On-order Recommendation triggers when on hand plus on order exceeds 338. In other words, 266 + (2 * 36) = 338.

Use the following procedure to set the input planning parameters.

Prerequisites

❒ Create, find, and select a warehouse replenishment plan.

Steps:

1. From the Warehouse Replenishment Plan user interface for the selected plan, expand the Planning Parameters region.

2. To modify service level, enter a different number in the service level field of Planning Parameters region.

> **Caution:** Increasing service level increases safety stock quantity and the Reorder Point, consistent with the EDQ.

3. To change economic delivery quantity factor, enter a different number in the EDQ

Factor field of Planning Parameters region. An increase in EDQ Factor indicates that ordering costs have increased relative to the cost of carrying inventory, and vice versa. An increase in the EDQ Factor may reduce the Safety Stock.

4. To change economic delivery quantity multiple, enter a different number in the EDQ Multiple field of Planning Parameters region.

   Excess on-order recommendations trigger when on-hand plus on-order exceed the excess on-order limit and the value of the excess on-order is in excess of the Minimum Value in the Warehouse Parameters tab of the Planner's Desktop.

5. After changing the Planning Parameters, click the Apply button.

   The Plan regenerates based on the new parameters.

6. To set up new buy lead time for a specific item, navigate to the Organization Items window of the Inventory application.

   Inventory > Items > Organization Items

   The Organizations window appears.

7. Select the inventory organization, and then click OK.

   The Find Organization Items window appears.

8. Enter the item ID number, and then click Find

   The Organization Items (organization) window opens to the record for the selected item.

9. Navigate to the Lead Times tab.

   The Lead Times tab opens to display fields for several types of lead time.

10. To modify lead time, change the lead time days shown in the Preprocessing, Processing, and Post Processing fields. Click Save.

    > **Note:** Lead times can also be changed in Oracle Inventory at the Item Sub-inventory level.

11. After the lead times have been changed, run the Create Warehouse Replenishment Plans concurrent program to update the plans for the lead time changes.

    See Updating Planning for One or All Warehouses, page 5-3.

    > **Note:** Plans cannot be updated with the Regenerate button for lead time changes.

Specifying Planning Parameters for a Warehouse Organization

Planning parameters specified at the warehouse level apply to all warehouse replenishment plans for items within the warehouse, unless overridden by parameters specified for the specific item.

Use the following procedure to specify planning parameters for a warehouse.

Steps:

1. Navigate to the Planner's Desktop.

   Field Service Dispatcher > Spares Management > Planner's Desktop

   The Planner's Desktop user interface opens.

2. From the Planning Tree, select the warehouse organization.

   The adjacent Planning Parameters and Warehouse Parameters windows provide details of the planning tree node (warehouse) that you selected.

3. Navigate to the Planning Parameters tab.

4. The Planning Parameters tab displays fields for Service Level, EDQ Factor. Modify these fields as desired.

   > **Note:** The Planning Parameters tab for the warehouse defines the default Service Level and EDQ Factor for all Supply Types.

5. The Warehouse Parameters tab displays fields for the EDQ Multiple, Minimum Value (for excess on order) Service Level, and EDQ Factor by Supply Type. Modify these fields as desired.

6. The Planning Method tab is used to enter or update the Planning method. Modify these fields as desired.

7. Save your work.

Regenerating Warehouse Replenishment Plans

The Regenerate button in can be used to update the plan for any change in business rules or parameter changes made outside of the Warehouse Replenishment Planning user interface, except for lead time changes as noted previously. For parameter changes in the Warehouse Replenishment Planning user interface the Apply button is used. This includes:

- Changes to business rules: forecast rules and reschedule rules

- Changes to parameters in the Planning Parameters, Warehouse Parameters, and Planning Method tabs in the Planner's Desktop

- Changes to the Failure Rates tab in the Planner's Desktop

- Changes to inventory that would update the Current On-hand balance

In addition the Regenerate button is used to update the Plan view when Number of Days and Period Size in Days is changed.

Use this procedure to regenerate a plan to view the impact of modifying planning parameters.

Prerequisites

❒ Create, find, and access a warehouse replenishment plan.

Steps:

1. Field Service Dispatcher > Spares Management > Warehouse Replenishment Planning

2. From the Warehouse Replenishment Planning user interface, expand the Plan region.

3. On the Plan region, click Regenerate.

   The plan regenerates, and then refreshes the user interface with the new plan.

Executing Planned Orders

The Execute Planned Orders region displays planned orders for the item sequenced by need date. The source type, supplier, quantity, lead time, and order by date are also provided.

- Planned orders are automatically checked if Need Date is within the lead time.

- You can change the order quantity and need buy date.

- You can create an order or remove a planned order.

Use the following procedure to execute, remove, or add a planned order.

Prerequisites

❒ Create, find, and review a warehouse replenishment plan.

Steps:

Create Order

1. Expand the Execute Planned Orders region of a warehouse replenishment plan.

   The region displays ordered item, source type, supplier, order quantity, order by date, need date, and lead time.

2. Select the planned orders to be executed.

3. (Optional) Change the order quantity.

4. (Optional) Change the Need Date.

5. Click Create Order.

Remove a Planned Order

6. To remove one or more planned orders, select the planned orders to be removed.

7. Click Remove.

Add an Order

8. Click the Add Order button.

9. Enter required fields for:
   - Supply Type
   - Supplier
   - Quantity
   - Need Date

10. Click Select, and then click Create Order.

Recommendations

The Recommendations region of the Warehouse Replenishment Planning user interface displays all recommendations other than planned orders:

- Excess On-order
- Unutilized Excess
- Unutilized Repair

- Reschedule In

- Reschedule Out

- Review Superseded Part

Processing Excess On-Order Recommendations

Excess on-order is an exception condition where the total on-order quantity is too high. The Excess EDQ multiple is used to calculate the Excess Limit in the Excess On-order recommendation. The excess limit is equal to the reorder point plus the number of EDQ multiples specified.

Example

For example, the reorder point is 266, the EDQ is 36, and the EDQ multiple is 2. The Excess On-order recommendation triggers when on hand plus on order exceeds 338; [266 + (36 * 2)] = 338], and the value of the Excess On-Order exceeds the Minimum value as defined in the Warehouse Parameters tab of the Planner's Desktop.

Use this procedure to identify and cancel or decrease the order quantity of new buy orders that cause excess on-order.

Prerequisites

❐ Create warehouse replenishment plans.

Steps:

1. Use the Find Warehouse Replenishment Plans window to find a plan where the Recommendation Type is Excess On-order.

2. Select the appropriate plan.

> **Note:** The excess On-order Value can be sorted to facilitate the selection of high value recommendations.

3. Expand the Recommendations region.

   The Recommendations region displays all recommendation types other than creating planned orders, along with order quantity and date. The Excess On-Order by Supply type displays.

4. Expand the Plan > Current On-Order region.

   Review current on-order and select a specific order or multiple orders to cancel or partially cancel.

- Internal Orders that have not been shipped can be cancelled in Oracle Order Management.

- Purchase Orders or Requisitions can be cancelled through Oracle Purchasing after negotiations with suppliers.

Processing Unutilized Excess and Repair

This exception conditions occur when the planned orders do not fully utilize the existing excess and defective inventory, and there is new-buy on-order that is preventing the utilization from occurring. In this situation, the planner is interested in canceling enough of the new-buy so that the excess and defective parts can be utilized in the next planning cycle.

Use the following procedure to process Unutilized Excess or Unutilized Repair recommendations.

Prerequisites

❒ Create warehouse replenishment plans.

Steps:

1. Use the Find Warehouse Replenishment Plans window to find a plan where the Recommendation Type is Unutilized Excess or Unutilized Repair.

2. Expand the Recommendations region to view Unutilized Excess or Unutilized Repair recommendations.

3. Review the Planned Orders and Unutilized Excess and Repair to verify the condition and need to take action.

4. Expand the Plan region > Current On-Order

   Review current on-order and select a specific order or multiple orders to cancel or partially cancel.

   - Internal Orders that have not been shipped can be cancelled in Oracle Order Management.

   - Purchase Orders or Requisitions can be cancelled through Oracle Purchasing after negotiations with suppliers.

Rescheduling In or Out

Reschedule In is an exception condition where the projected on-hand balance is tracking

too low, based on the Reschedule-In business rule.

Reschedule Out is an exception condition where the On-hand Balance is tracking too high, based on the Reschedule-Out business rule. This condition indicates that inventory investment in this item is higher than necessart to sustain the desired level of service.

For more information about defining Reschedule-in and Reschedule-out business rules, see the *Field Service Implementation Guide*.

Use this procedure to identify orders to be rescheduled.

Prerequisites

❐ Create warehouse replenishment plans.

Steps:

1. Use the Find Warehouse Replenishment Plans window to find a plan where the Recommendation Type is Reschedule In or Reschedule Out.

2. Expand the Recommendations region to view Reschedule In or Reschedule Out recommendations.

3. Expand the Plan region. Review the Current Balance and Current On-order to verify the condition and feasibility of achieving corrective results.

4. Expand the Plan region > Current On-Order

    Review current on-order and select a specific order or multiple orders to reschedule.

    •   Internal Orders that have not been shipped can be rescheduled in Oracle Order Management.

    •   Purchase Orders or Requisitions can be rescheduled through Oracle Purchasing after negotiations with suppliers.

Reviewing Superseded Parts

Supersession represents a supplier-driven business situation where one part has been replaced by another part. The supplier typically notifies the customer that a part has been replaced and is no longer available. New orders call for the superseding part.

See Setting Up Part Supersession, page 2-26

Use the following procedure to process Review Superseded Part recommendations.

Prerequisites

❒ Create warehouse replenishment plans.

Steps:

1. Use the Find Warehouse Replenishment Plans window to find a plan where Recommendation Type is Review Superseded Parts.

2. Expand the Recommendations region to view Review Superseded Part recommendations.

   Recommendation for "Review Superseded Parts" appears if:

   • Current On-order quantity is greater than zero

   • Population forecast exists, or

   • Manual forecast exists

3. The planner may need to cancel the Current On-order Quantity or roll the order to the superseding part.

4. The planner may need to cancel the population forecast or roll the forecast to the superseding part.

5. The planner may need to roll the manual forecast to the superseding part.

Part 3

External Repair Execution

6

External Repair Execution

This chapter describes how Oracle Spares Management External Repair Execution functionality manages the external repair process for service parts in a field service supply chain.

This chapter covers the following topics:

- Overview - External Repair Execution
- Integration with Warehouse Replenishment Planning
- Search for Repair Purchase Orders
- Overview - Repair Purchase Order Details User Interface

Overview - External Repair Execution

Repair execution is a key part of the field service supply chain. The repair execution process includes recovery and consolidation of defective parts, repair, and then replenishing the field service warehouse inventory with repaired parts.

Internal repair activities are charged to an internal work order. With external repair, a repair purchase order authorizes a supplier to complete repairs. Spares Management provides functionality for both internal and external repair. For information about the internal repair, see Creating and Shipping the Internal Order, page 7-5 and Managing Defective Parts, page 2-32.

This chapter describes external repair execution, where defective parts are sent to a supplier for repair.

External Repair Business Needs

- Consolidated view of process documents and transaction details:

- Integration with warehouse replenishment planning application

- Integration with purchasing application

- Integration with financial applications

- Asset tracking

Integration with Warehouse Replenishment Planning

The external repair execution (ERE) module provides an automated alternative to the multistep manual process that uses Planner's Desktop notifications functionality. The ERE process begins in Oracle Spares Management Warehouse Replenishment Planning:

- Finding Warehouse Replenishment Plans, page 5-4

- Accessing Warehouse Replenishment Plan Details, page 5-6

- Reviewing Warehouse Replenishment Plans, page 5-7

- Executing Planned (Repair) Orders, page 5-16

Executing a planned order for repair begins the external repair execution process described in the table.

Spare Parts Flow Diagram
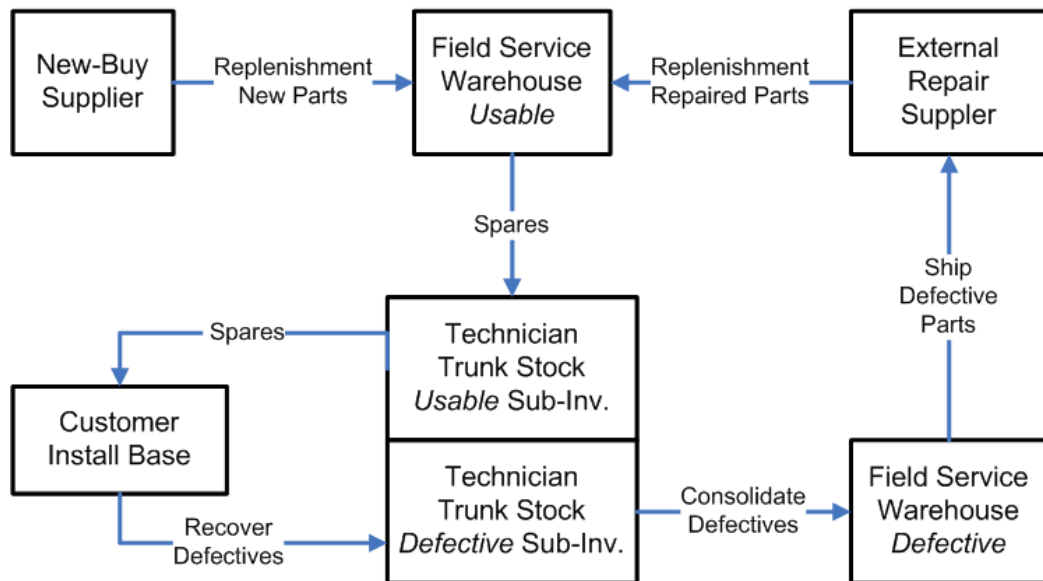
External Repair Execution Process

Step	Role	Activity

1	Planner	Approve repair planned order in Warehouse Replenishment Planning
2	*System* *	Automatically create a purchase requisition
3	Buyer	Create and approve repair purchase order (RPO)
4	*System* *	Create internal order when RPO approved
5	Inventory Planner - Defective Warehouse	Pick and ship defective parts to repair supplier
6	Repair Supplier	Receive parts and report discrepancies
7	*System* *	Create work-in-process (WIP) order
8	Repair Supplier	Repair and then ship repaired parts to field service warehouse. Report scrap.
9	Repair Administrator	Enter transactions for adjustments and scrap
10	Field Service Warehouse	Receive repaired parts into inventory.
11	*System* *	Complete WIP order
		Receive into Finished Repair subinventory at repair supplier organization
		Transact out of Finished Repair subinventory at repair supplier organization
12	Repair Administrator	Reconcile repair purchase order when necessary

*

Important: The process steps performed by the External Repair Execution System are the same, regardless of repair program. The sequence, however, differs depending on the program. See the next section of this chapter titled: "Repair Programs".

Repair Programs

Repair programs vary from company to company, but can be grouped into three general strategies:

Repair and Return

The defective parts are sent to the repair supplier for repair. The repaired parts are shipped from the repair supplier and received as replenishment by the field service warehouse..

Exchange

When the defective parts are received by the repair supplier, serviceable parts are shipped from the repair supplier's stock to the field service warehouse for replenishment. The defective part can be repaired by the repair supplier and used to replenish the buffer inventory used by the repair supplier to support the Exchange program. This strategy eliminates lead time associated with repairing the item.

Advance Exchange

When the purchase order is received by the repair supplier, serviceable parts are shipped to the field service warehouse against the purchase order. The defective part can be repaired by the repair supplier and used to replenish the buffer inventory used by the repair supplier to support the Advance Exchange program. This strategy eliminates lead times associated with shipping the defective parts to the repair supplier and repairing the parts.

> **Note:** The choice of repair program influences lead time. Lead times are used in Warehouse Replenishment Planning for calculating safety stock and reorder point.

Serial Number Control

Rules for serial number control for external repair execution in the field service supply chain follow:

- At the defective warehouse organization serial number control can be used.

- At the repair supplier organizations, serial number control can not be used.

- At the field service warehouse finished repair subinventory, serial number control is available.

Serial number control at repair supplier organizations is not possible due to the automated backflushing of the parts at the repair supplier when the receipt is executed at the field service warehouse.

Search for Repair Purchase Orders

You can Search for Repair Purchase Orders by:

- Purchase Order (number)

- Requisition (number)

- Repair to Item (number)

- Repair Supplier

- Destination Organization

- Defective Organization (an inventory organization designated for defective parts)

The search results table shows retrieved repair purchase orders, along with:

- Purchase Order (number)

- Requisition (number)

- Repair to Item (number)

- Creation Date

- Repair Program

- Status

- Destination Organization

- Defective Organization (an inventory organization designated for defective parts)

- Need Date

- Delivery Date

Show details provides additional information. See Searching for Repair Requisitions and Orders, page 7-2.

Overview - Repair Purchase Order Details User Interface

The Repair Purchase Order Details User Interface provides for a consolidated view of all process documents and transactions. It also provides functionality needed to transact scrap and adjustment activity. The user interface would be used by the planner or administrator to reconcile with the repair supplier any residual balance due on the purchase order.

The header region in the Repair Purchase Order Details user interface provides the following information:

- Purchase Order

- Requisition

- Creation Date (for the purchase order)

- Repair to Item (See Supersessions, page 2-24.)

- Status (of the process)

- Repair Supplier

- Destination Organization (warehouse being replenished)

- Defective Organization (warehouse defective parts were shipped from)

- Need Date

- Delivery Date

- Repair Program

- Quantity (shipped from the defective warehouse)

- Received (quantity)

- Scrap (quantity)

- Adjustment (quantity)

- Balance Due (Ordered - Received - Scrap +/- Adjustments)

The Transaction Details shows all transactions and documents related to the process:

- Requisition Incomplete

- Requisition Approved

- Purchase Order Created

- Purchase Order Approved

- Internal Order Created

- Internal Order Shipped

- Internal Order Received

- WIP Order Created

- WIP Order Received

- Scrap Transactions

- Adjustment Transactions

- Shipment Notification

- Purchase Order Receipt

7

Using Repair Purchase Orders

This chapter documents procedures for using Repair Purchase Orders to repair defective parts for the replenishment of a field service warehouse.

This chapter covers the following topics:

- Repair Purchase Requisitions
- Searching for and Viewing a Repair Requisition
- Approving a Repair Requisition
- Create and Approve Repair Purchase Orders
- Creating and Shipping the Internal Order
- Receiving the Internal Order at the Repair Supplier
- Creating the WIP Order
- Entering Adjustment and Scrap Transactions
- Receiving the Purchase Order at the Field Service Warehouse

Repair Purchase Requisitions

The external repair execution process begins in Warehouse Replenishment Planning. For a general description of the process flow, see Integration with Warehouse Replenishment Planning, page 6-2.

When a planner approves a planned repair order in the Warehouse Replenishment Planning user interface, or creates a planned repair order manually, the system automatically creates a repair purchase requisition when the repair supplier is an external supplier. To approve a planned repair order, see the procedure titled: Executing Planned Orders, page 5-16.

Execution of the planned repair order in Warehouse Replenishment Planning creates the requisition in the initial status: 'Requisition Incomplete'. The requisition can be viewed in Repair Purchase Order Details, but is not visible to the buyer until the 'Requisition Import' concurrent program completes and the requisition is updated to

'Approved ' status.

Searching for and Viewing a Repair Requisition

After the system creates the requisition, use this procedure to search for and view a repair purchase requisition or a repair purchase order.

Prerequisites

❒ Create a repair requisition.

Steps:

1. Navigate to the Search Repair Purchase Orders page.

   Field Service Dispatcher > Spares Management > Spares Logistics > Repair Purchase Order Details

   The Search Repair Purchase Orders page appears.

2. To search for a requisition, enter search criteria. If you know the requisition number, enter the number the Requisition field. Click Go.

   Search criteria include:

   • Purchase order (not yet created)

   • Requisition (number)

   • Repair to Item (ID number)

   • Repair Supplier

   • Destination Organization

   • Defective (source) Organization

   The table populates with requisitions that match the search criteria. Information includes:

   • Requisition number

   • Repair to item

   • Creation date

   • Repair program

   • Status

- Repair supplier

- Destination warehouse

- Defective warehouse

- Need date

- Delivery date

3. To view details, click the Show details ' + ' icon.

> **Note:** After the repair requisition has been initially created from Warehouse Replenishment Planning, the requisition will be in 'Requisition Incomplete' status in Transaction Details in the Repair Purchase Order Details user interface.

Approving a Repair Requisition

Use this procedure to approve a requisition and update the Transaction status from 'Requisition Incomplete' to 'Requisition Approved' in the Repair Purchase Order Details user interface.

Prerequisites

❒ Create a repair requisition in Warehouse Replenishment Planning.

❒ Transaction status: 'Requisition Incomplete'.

Steps:

1. Complete the procedure Searching for and Viewing a Repair Requisition, page 7-2 to populate the table on the Search Repair Purchase Orders page with the requisition that you want to approve.

2. In the row for the requisition, click the Update icon.

   The Repair Purchase Order Details page appears.

3. View the Repair Purchase Requisition. Verify the transaction status is 'Requisition Incomplete'.

Run Requisition Import

4. Run the 'Requisition Import' concurrent program to approve the requisition,

navigate to the Submit Request window.

Purchasing > Reports > Run

The Submit Request window opens.

5. In the Name field, enter 'Requisition Import". Press the Tab key.

The Parameters window opens.

6. Click OK.

The Parameters window closes.

7. On the Submit Request window, click Submit.

> **Note:** After the Requisition Import program completes, the buyer can view, approve, and process the repair requisition. The buyer can see that the requisition is a repair requisition in two ways:
>
> • Note to Buyer: Populated with 'Repair Program', and
>
> • Requisition Attachments: Shows the defective parts and quantities that will be shipped to the repair supplier.

Run Generate Repair Purchase Order Execution Details

8. Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Requisition status. From the Field Service Manager responsibility, navigate to the Submit Request window.

Field Service Dispatcher > Spares Management > Reports and Programs > Create Repair PO Execution Details

The Submit Requests window appears with the concurrent program: 'Generate repair purchase order execution details' appearing in the Name field.

> **Note:** The 'Generate Repair Purchase Order Execution Details' concurrent program needs to be run each time after the Repair Purchase Order Details user interface is updated.

9. There are no parameters for this program. Click Submit.

10. Search for and view the requisition in the Repair Purchase Order Details user interface. See the procedure Searching for and Viewing a Repair Requisition, page 7-2.

The Transaction column updates from 'Requisition Incomplete' to 'Requisition Approved' in the Transaction Details section of the user interface.

Create and Approve Repair Purchase Orders

The repair purchase order is used to purchase the repair service from the repair supplier for the defective parts. The repair purchase order is also used to receive the repaired parts back into the field service warehouse being replenished and pay the repair supplier for the repair service. Using standard Oracle Purchasing, you can either automatically create or manually create the repair purchase order.

Standard Oracle Purchasing functionality is used to create a Repair Purchase Order from the Repair Requisition and approve the purchase order. Please refer to the *Purchasing User Guide*.

When the repair purchase order is updated to 'Approved' status in Purchasing, the Internal Order required to ship the defective parts to the repair supplier is automatically created.

> **Note:** To facilitate the processing of the internal order and tracking defective parts, the Repair Suppliers are setup as Inventory Organizations. This is covered in additional detail in the Spares Management Implementation Guide.

Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Repair Purchase Order Details.

Search for and view the requisition and purchase order in the Repair Purchase Order Details user interface. In the Repair Purchase Order Details user interface:

- The purchase order will appear in the Header and Transaction Details

- The Internal Order will appear in Transaction Details if the purchase order has been approved

- The Internal Order will appear in Transaction Details as 'Internal Order Created' along with indicative details relating to the internal order

Creating and Shipping the Internal Order

When the repair purchase order is updated to 'Approved' status in Purchasing, the internal order that is used to ship the defective parts to the repair supplier is automatically created when the concurrent program 'Generate Repair Purchase Order Execution Details' is run.

Steps:

1. Search for and view the repair requisition and repair purchase order in the Repair Purchase Order Details user interface.

In the Repair Purchase Order Details user interface, the Internal Order appears in Transaction Details as 'Internal Order Created' along with indicative details relating to the internal order.

2. Oracle Order Management is used to process the internal order through the pick, pack and shipment processes. Please refer to the *Order Management User Guide* for guidance on how this processing works.

3. Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Repair Purchase Order Details.

4. Search for and view the repair requisition and repair purchase order in the Repair Purchase Order Details user interface.

In the Repair Purchase Order Details user interface, the Internal Order appears in Transaction Details a second time as 'Internal Order Shipped' along with indicative details relating to the shipment.

Receiving the Internal Order at the Repair Supplier

Receiving at the repair supplier can either be automated (direct) or manual (not direct) depending on how the Shipping Network between the defective warehouse and the repair supplier has been setup in Oracle Inventory. 'Direct' receiving results in the shipment showing as having been received at the repair supplier as soon as the 'Ship Confirm' transaction has executed at the defective warehouse. Manual receiving is transacted when the shipment is physically received at the repair supplier.

Prerequisites

❒ Oracle Purchasing is used to process receipt at the repair supplier. Please refer to the *Oracle Purchasing User Guide* for details on how this processing works.

Steps:

1. Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Repair Purchase Order Details.

2. Search for and view the requisition and purchase order in the Repair Purchase Order Details user interface.

In the Repair Purchase Order Details user interface, the Internal Order appears in Transaction Details a second time as 'Internal Order Received' along with indicative details relating to the receipt.

Creating the WIP Order

The WIP Order is automatically created by the system when the internal order is received (either direct or non-direct) at the repair supplier. The WIP order is used to transform the defective parts into repaired parts. It would also be used to transform the Item number in the case of a supersession.

Steps:

1. Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Repair Purchase Order Details.

2. Search for and view the requisition and purchase order in the Repair Purchase Order Details user interface.

   In the Repair Purchase Order Details user interface, the WIP Order appears in Transaction Details as 'WIP Incomplete' along with indicative details relating to the WIP Order.

3. Run the 'WIP Mass Load' concurrent program to complete the creation of the WIP Order.

4. From the Field Service Manager responsibility navigate to the Submit Request window.

   Order Management > Reports, Requests > Run Requests

   The Submit a New Request window appears.

5. On Submit a New Request, in response to "What type of request do you want to run?", choose the Single Request radio button. Click OK.

   The Submit Request window opens.

6. In the Name field, enter: "%Mass%", and then press the tab key.

   The Name field populates with WIP Mass Load. The Parameters window opens.

7. Enter parameters. Use the WIP Order number for the "Group ID".

8. Search for and view the requisition and purchase order in the Repair Purchase Order Details user interface.

   In the Repair Purchase Order Details user interface, the WIP Order appears in Transaction Details as 'WIP Complete' along with indicative details relating to the WIP Order.

Entering Adjustment and Scrap Transactions

Adjustments transactions are used for receiving discrepancies and other reconciliations that are required to account for miscellaneous losses and gains while the parts are at the repair supplier. Scrap transactions are used to account for repair scrap during the repair process when it is determined that a defective part can not be repaired. Adjustment and Scrap transactions show in summary in the header and update the balance due. The Adjustment and Scrap transactions are also shown in the Transaction Details section of the user interface.

Steps:

1. Complete the procedureSearching for and Viewing a Repair Requisition, page 7-2 to navigate to the Repair Purchase Order Details window.

   The Repair Purchase Order Details window appears.

2. In the Transaction Details region, click Adjustment or Scrap. Depending on the button selected, either an Adjustment line or a Scrap line appears with fields for Date, Defective (item number), and Quantity.

3. Click Apply. View the changes to the Adjustment or Scrap summary in the Header as well as the change to the Balance Due.

Receiving the Purchase Order at the Field Service Warehouse

The repaired parts are shipped by the repair supplier and received at the field service warehouse that is being replenished. Oracle Purchasing is used to process receipt at the field service warehouse. Please refer to the *Oracle Purchasing User Guide* for details on how this processing works. The receipt at the field service warehouse causes a backflushing process to occur at the repair supplier Organization:

• The WIP Order at the repair supplier is completed and the receipt quantity is received into the 'Finished Repair' sub-inventory

• The receipt quantity is transacted out of the 'Finished Repair' sub-inventory

Steps:

1. Run the 'Generate Repair Purchase Order Execution Details' concurrent program to update the Repair Purchase Order Details.

2. Search for and view the requisition and purchase order in the Repair Purchase Order Details user interface.

   In the Repair Purchase Order Details user interface the Purchase Order appears in

Transaction Details a second time as 'Purchase Order Received ' along with indicative details relating to the receipt