

# ORACLE SPARES MANAGEMENT



Oracle® Spares Management is positioned in the Oracle Field Service solution as a product providing both logistics and inventory planning functionality to manage a service parts inventory. The product uses core Oracle Supply Chain functionality from Oracle Inventory, Oracle Order Management, Oracle Purchasing and Oracle ATP extending those products where necessary with additional functionality to satisfy field service needs. The product has extensive integration with other Oracle Field Service modules including the Oracle Dispatch Center, Oracle Advanced Scheduler, Oracle Field Service Debrief and Oracle Mobile Field Service. The integration with Oracle Advanced Schedule enables the technician assignment and scheduling process to be coordinated with parts availability.

## KEY BUSINESS BENEFITS

- Accurate planning of Technician and Warehouse inventory
- Assist Scheduler to assign Technicians with required parts.
- Manage excess and defective parts
- Priority orders for the technician
- Manage Internal and External repair execution
- Increase Customer Satisfaction
- Reduce Service Costs
- Increase productivity of Spares Logistics Coordinators

## Oracle Spares Management Overview

Spares Management is a complete solution covering key processes and functionality required to manage service parts in the Oracle Field Service supply chain. The solution covers both logistics and inventory planning.

Key planning and logistics processes covered by Oracle Spares Management include

- Plan and replenish warehouse inventories
- Plan and replenish technician inventories
- Process priority orders for the field technician
- Manage parts returns for excess and defective
- Execute repair for warehouse replenishment

The primary modules included in the Spares Management application are:

- Warehouse Replenishment Planning for larger warehouses
- Planner's Desktop for technicians and smaller warehouses
- External Repair Execution to manage repair at a supplier
- Parts Search and Ordering or forward logistics
- Parts Return or reverse logistics

In addition, Spares Management has extensive integration with Oracle Advanced Scheduler, used in Oracle Field Service to assign and schedule tasks. With the integration functionality, Oracle Advanced Scheduler will assign and schedule tasks using parts availability as a cost factor and scheduling constraint.

#### INTEGRATION WITH FIELD SERVICE

- Link Technician Orders to Service Request and Task
- Integration with Scheduler to provide parts availability and delivery cost
- Define parts required for the service task

### Integration with Advanced Scheduler

Costs are low and customer satisfaction is high when the technician or warehouse has the parts to complete the service task. Using parts availability and cost information from Spares Management, Advanced Scheduler assigns the task and schedules the technician based on the lowest total cost option that includes the availability and delivery cost of parts needed for the task. The internal order will be automatically created when the task is assigned to a technician who does not have the parts on-hand. The parts required for a task can be defined either manually or automatically from the analysis of debrief transactions.

### Inventory Planning

Service level agreements often require service parts to be stocked in many locations close to where the service is required. To insure a high level of service, the stocking levels need to be updated frequently to reflect the latest usage trends and supersession activity.

Oracle Spares Management has functionality to automate inventory planning and replenishment for both the field service technicians and warehouses.

### Plan and Replenish the Technician Inventory

Oracle Spares Management will recommend which parts the technician should stock and in what quantities. The functionality includes:

- Automated stocking recommendations with business rules
- Planning parameters for both service and inventory
- Safety stock coordinated with lot sizes.
- Unique field service planning scenarios
- Advanced supersession functionality to minimize obsolete inventory

Planning Methods are available to support unique field service planning scenarios:

**Personal Usage** method recommends Min-Max levels based on usage history and planning parameters. This method would be used where the technician is in a reasonably stable working situation doing similar tasks on a continuing basis.

**Territory Norm** method is used when the technician is either new or has been transferred into a new territory. The territory norm defines a stocking level for the technician that is typical or average for the technician's work group.

**Product Norm** is used when a technician needs to support a new product or a change in population of a current product. The Product Norm defines the product in terms of service parts, populations, and failure rates. With Product Norm, failure rates can be calculated based on usage history for the product. Failure rates that are known can also be applied.

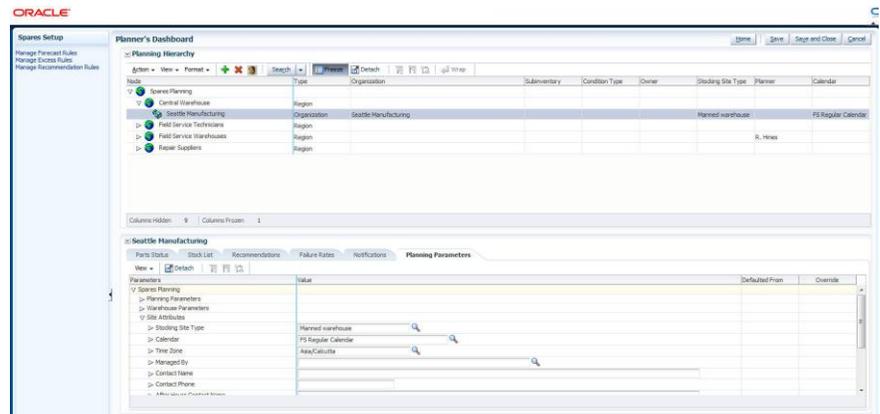


Figure 1. Planners Dashboard

### TECHNICIAN PLANNING

- Automated process to create Min-Max levels
- Planning for new or transferred technician
- Supersession functionality to coordinate stocking levels with supply chain inventory

The figure above shows the new HTML Oracle Spares Management Planners Dashboard. The automated stocking recommendations appear in the Recommendations tab. The implementation of these recommendations can be further automated with business rules that focus on value and forecast accuracy.

Oracle Spares Management planning also has advanced functionality to minimize obsolete technician inventories caused by supersession activity. This functionality coordinates min-max levels with supply chain inventories to insure maximum utilization of inventory on superseded parts. The functionality is also embedded in the technician ordering process to insure the superseded parts are “used to depletion” whenever possible.

### Plan and Replenish the Field Service Warehouse

Inventory Planning and replenishment execution at a field service warehouse requires specialized capabilities to handle unique requirements for the field service supply chain:

- Utilize excess from other field service warehouses
- Incorporate defective inventories and forecasted returns into the planning
- Plan and execute both internal and external repair
- Planning for changes in product populations using failure rates
- Minimize obsolescence caused by supersession impacts

The Warehouse Replenishment Planning module in Spares Management provides the planning and replenishment solution that includes these capabilities.

### Warehouse Replenishment Planning

The Warehouse Replenishment planning (WRP) module is an advanced planning and replenishment solution that incorporates the special features needed for a field service inventory.

Key features and functionality in Warehouse Replenishment Planning include:

- Horizontal time phased view of the warehouse plan
- Multi level warehouse planning
- Advanced supersession features to minimize obsolete inventories

### WAREHOUSE PLANNING

- Excess utilization at other warehouses
- Internal and external repair
- Planned orders for excess, repair and new-buy
- Product population and failure rate planning
- Supersession functionality to minimize obsolescence
- Forecast of defective returns to minimize new-buy

- Planning Parameters and planned orders by excess, repair and new-buy
- Forecast of defective returns utilization
- Regenerate new plans based on parameter or status changes
- Integrated with internal and external repair execution
- Integrated with order execution
- Automated planned order release based on business rules
- Saved plans for future reference
- Safety stock coordinated with Economic Delivery Quantity
- View of current inventory and on-order by Supply Type
- Requirements based on product population and failure rates
- Enter manual requirements
- View of usage and defective returns history

Planning Parameters								Current On-Hand Balance							
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	300	19	57	2								

Plan												
Personalize "Plan"												
Number of Periods		10		Period Size in Days		7		Regenerate				
Expand All   Collapse All												
Focus Name	Past Due	Apr 21 2006	Apr 28 2006	May 5 2006	May 12 2006	May 19 2006	May 26 2006	Jun 2 2006	Jun 9 2006	Jun 16 2006	Jun 23 2006	
PS18947	0	0	0	0	0	0	0	0	0	0	0	
+ Total Requirements	0	50	65	62	65	67	70	72	75	78	80	
+ Current On-Order	0	56	0	0	0	0	0	0	0	0	0	
- Current Balance	0	84	19	-43	-108	-175	-245	-317	-392	-470	-550	
+ Planned Orders	0	38	41	37	75	75	50	25	0	41	51	
+ Excess	0	38	41	37	0	0	0	0	0	0	0	
+ Repair	0	0	0	0	75	75	50	25	0	0	0	
+ New Buy	0	0	0	0	0	0	0	0	0	41	51	
- Repairable Returns	0	0	0	0	0	0	0	46	70	29	29	
Planned Balance	0	122	98	73	83	91	71	70	65	57	57	

Figure 2. Warehouse Replenishment Planning UI

As seen above, Figure 2 shows the Warehouse Replenishment Planning UI. The Planned Orders section includes uniquely generated planned orders for each of the three supply types.

For cost effective warehouse planning in Oracle Field Service the planner needs to use the best blend of planned orders by supply type: excess, repair and new-buy. Planning Parameters by supply type enable the planner to selectively modify the Safety Stock and Economic Delivery Quantity depending on the type of planned orders being used in the plan.

Business rules are available to automate the release of planned orders in WRP. The business rules are organized by supply type and include parameters for value, tracking signal and lead time. The tracking signal is a measure of forecast error enabling the planner to automate the release of those planned orders that have relatively low value and good forecasts.

WRP also has advanced functionality to minimize obsolete warehouse inventories caused by supersession activity. This functionality coordinates multi-level warehouse planning to insure maximum utilization of inventory on superseded parts.

## Automated Min-Max Levels and Warehouse Notifications

Oracle Spares Management also includes functionality in the Planner's Desktop to automate the creation of Min-Max levels for the warehouse. This functionality is similar to what was described above for the technician. Warehouse replenishment, using Min-Max levels, which considers both excess and repair, and includes automated capabilities, is found in the Notifications tab of the Planner's Desktop. This functionality would normally be used for the smaller metropolitan warehouse that would not require WRP type of functionality.

## Repair Execution for Warehouse Replenishment

Repair execution, both external and internal, is a key part of the warehouse planning and replenishment process. Defective parts are recovered by the technician, consolidated, incorporated into the planning process, sent out for repair based on need and received back at the warehouse being planned as replenishment.

Warehouse Replenishment Planning includes integration with both internal and external repair execution. Internal repair execution from WRP integrates with Oracle Depot Repair and auto creates internal orders required to move the defective parts to the depot and ship the repaired parts from the depot to the warehouse being replenished. The Oracle Depot Repair order is also created from the automated integration.

External Repair Execution integrates with Purchasing, Order Management and WIP to automate the execution of the repair process using an external repair supplier.

### REPAIR EXECUTION

- Both Internal and external repair execution
- Integrated with Warehouse Replenishment Planning
- Comprehensive view of external repair process
- Supersessions to maximize use of down level defectives
- Integration with Depot Repair for internal repair execution
- Integration with Purchasing and OM for external repair execution
- Process Scrap and Adjustment Transactions and give visibility to Planning Systems

**ORACLE Spares Logistics** Diagnostics Home Logout Preferences Help Personalize Page

**Repair Purchase Order Details**  
 \* Indicates Required Field Cancel Apply

Purchase Order	72016	Requisition	71057
Creation Date	08-May-2006	Repair-to Item	FS54888
Status	Purchase Order Closed	Repair Supplier	Advantage Corp
Destination Organization	Dallas Manufacturing	Quantity	9
Defective Organization	Defective Warehouse	Received	9
Need Date	22-May-2006	Scrap	1
Delivery Date	19-May-2006	Adjustment	1
Repair Program	Repair Return	Balance Due	0
PO Notes			

Personalize "Transaction Details"

**Transaction Details** Previous 1-10 Next 10

Transaction	Document	Date	Defective	Quantity	Carrier	Waybill
Requisition Approved	71057	08-May-2006	FS54888	9		
Purchase Order Approved	72016	08-May-2006		9		
Internal Order Created	65739	08-May-2006	FS54888	9		
Internal Order Shipped	1124173	08-May-2006	FS54888	9	United Parcel Service	
Internal Order Received	5012	08-May-2006	FS54888	9	United Parcel Service	
WIP Order Created	730848	08-May-2006		9		
WIP Order Received	730848	09-May-2006		9		
Scrap	22897807	08-May-2006	FS54888	1		
Adjustment	22897869	08-May-2006	FS54888	1		
Advance Shipment Notification		08-May-2006		9		

Scrap Adjustment (0) Previous 1-10 Next 10

Figure 3. Repair Purchase Order details UI for External Repair

Oracle Spares Management Repair Execution includes the following key functionality:

- Comprehensive view of external repair process
- Fully integrated with Warehouse Replenishment Planning
- WRP integration with Depot Repair for internal repair
- Integrated with Purchasing for external repair

- Integrated with internal order for shipping defective parts for repair
- Tracks defective parts while at the repair supplier
- Drill down on Purchase Requisition Number, Purchase Order Number, Vendor Name and WIP Number within ERE UI
- Report receipts and discrepancies
- Report short-pick, scrap and adjustments in Repair Purchase Order UI
- View Advanced Shipment Notice details in ERE UI
- Recognizes supersessions
- Integrated with Oracle Financials

## Oracle Spares Management Logistics

Fast and efficient delivery of parts to the field technician is a mission critical objective for the field service operation. The ability to respond quickly when an SLA is at risk is key to maintaining a high level of customer satisfaction.

The rapid recovery, disposition and repair of defectives are key to cost effective replenishment of the warehouse. The capability to identify, recover and utilize excess inventory with the technician or warehouse is also key to the cost effective management of the field service inventory.

## Tracking Usable and Defective Parts

Spares Management functionality tracks both usable and defective parts through the complete supply chain cycle.

Technician inventories are tracked by assigning sub-inventory(s) that can be designated as either usable or defective. When the technician debriefs a service task, transactions are automatically created that update the defective sub-inventory when a defective part is recovered. Transactions are also created in debrief to relieve the usable sub-inventory when parts are used.

## Priority Orders for the Field Technician

Technicians often need additional parts to complete a service task. Oracle Spares Management has an order entry process specifically designed to handle the technician's priority parts orders. The process can create an internal order, a purchase requisition or a parts requirement for a field service task.

The Parts Requirement functionality has unique features for field service:

- Parts order can be linked to service request, task and technician
- Special address capability for drop shipments
- Advanced parts search capabilities based on distance
- Order creation capability integrated into the process
- Parts Search Hierarchy to find and order parts outside normal supply chain

The internal order created from the Parts Requirement UI is processed through the normal Order Management shipping cycle. A detailed view of order status is also provided.

### LOGISTICS

- View of inventory across the entire field service supply chain
- Back Order creation for unavailable parts
- Calculate parts arrival date based on Shipping Method Calendars
- Order processing for field service technician
- Tracking for both usable and defective parts
- Excess returns process for both technicians and warehouses
- Return parts directly to multiple locations
- Advanced parts search tools
- Drill down on Waybill Number to see Carrier Shipment Status

## Parts Search and Ordering

Locating parts within the supply chain and the delivery of those parts to the technician is key to the success of field service and the process must be fast and efficient to support same day SLA's. The typical field service supply chain will be stocking many parts and have multiple stocking locations that need to be included in the search. In some cases a global search across many countries will be required to locate the parts.

The advanced search capabilities need to be imbedded in the Field Service Mobile applications for the technician and the Portal application for the dispatcher.

The Spares Management advanced parts search and ordering module has the following key features:

- Quick Order creation at Default Source for simple Spares Supply Chains
- Flexible parameter based searching for use by the technician or dispatcher
- Distance based parameter the technician can use for local searches
- Provides delivery date / time and cost for warehouse shipments
- Calculate delivery date / time based using Warehouse Shipping Method Calendars
- Provide ability to ship-to a 'third party' address or location
- Includes technician's own inventory and other technicians
- Includes manned and unmanned warehouses
- Includes supersessions and substitutes
- Visibility to supersession and Substitute notes in search results
- Integrated with order creation when parts are found
- Capability to search for a single source for multiple parts and quantity
- Includes Site Dedicated Spares
- Create Spares Order at default source when parts are unavailable
- Drill down on Waybill Number to access Carrier Shipment Status
- Can be integrated with GPS for locating technicians
- Included in Mobile Field Service and the Technician's Portal

The Spares Management advanced parts search and ordering is available to the technician in Mobile Field Service and the dispatcher in the Admin Portal.

## Parts Return for Excess and Defective

Reacting quickly and efficiently to the return of excess or defective parts at the technician or warehouse is one of the keys to effective control of the field service inventory. Excess can be utilized by other technicians and defective parts when repaired can be low cost replenishment for the warehouse.

It's also critical that the technician is able to send both defective and excess parts directly to multiple destinations. The routing module has business rule parameters that include: source which can be an inventory location or territory, return type, part category and item. The business rules are used to determine the destination from any point in the supply chain.

The Spares Management reverse logistics process includes features specifically designed to address the needs of field service.

- Excess identification based on max levels
- Business rules to focus on high impact excess
- Planner, dispatcher or technician review process
- Ability to send defective or excess parts to any location
- Auto-generate Shipment Number when returning parts
- Advanced routing module to determine the returns destination
- Integrated with customer's routing module
- Execution to create the return order
- Functionality is included in Field Service Mobile and the Admin Portal

For excess returns, business rules are used to filter and prioritize the excess that has the highest impact on inventory value. The business rules were designed with mobile field service in mind where short, high impact lists are easier for the technician to execute.

#### RELATED PRODUCTS

- Oracle Mobile Field Service
- Oracle TeleService
- Oracle Advanced Scheduler
- Oracle Order Management
- Oracle Purchasing
- Oracle Inventory

#### RELATED SERVICES

The following services support Oracle Main Product:

- Update Subscription Services
- Product Support Services
- Professional Services



#### CONTACT US

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