Oracle® Complex Maintenance, Repair, and Overhaul

User's Guide

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Oracle Complex Maintenance, Repair, and Overhaul User's Guide, Release 12.2

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Preface

Intended Audience

Welcome to Release 12.2 of the *Oracle Complex Maintenance, Repair, and Overhaul User's Guide.*

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

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

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Structure

Related Information Sources

Oracle E-Business Suite User's Guide

This guide explains how to navigate, enter and query data, and run concurrent requests using the user interface (UI) of Oracle E-Business Suite. It includes information on setting preferences and customizing the UI. In addition, this guide describes accessibility features and keyboard shortcuts for Oracle E-Business Suite.

Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide

Use this guide to set up Oracle Complex Maintenance, Repair, and Overhaul.

Oracle Complex Maintenance, Repair and Overhaul Process Guide

This guide provides information from a role based perspective.

Oracle Installed Base User's Guide

This guide provides an introduction to the concepts, and explains how to navigate the system, enter data, and query information in the Oracle Installed Base interface that forms part of Oracle Complex Maintenance, Repair, and Overhaul.

Oracle Customer Support Implementation Guide

This guide describes how to set up the list of values that you see in Oracle Customer Support. The Oracle service solution provides everyone in the organization with a complete, real-time customer view that enables for the immediate access to information on past interactions with the customer, and also provides agents with knowledge of possible solutions to speed issue resolution. Additionally, the solution empowers customers to solve their own issues using a self-service portal with access to the same knowledge base that agents utilize for quick resolution.

Oracle Demantra User's Guide

This guide describes how to use Oracle Demantra Demand Planning, an internet-based solution to create and manage forecasts.

Oracle Quality User's Guide

This guide describes how Oracle Quality can be used to meet your quality data

collection and analysis needs. This guide also explains how Oracle Quality integrates with other Oracle Manufacturing applications to provide a closed loop quality control system.

Oracle Service Contracts Concepts and Procedures

This guide contains the information that you need to implement and use Oracle Service Contracts.

Oracle Procurement Contracts Implementation and Administration Guide

This guide contains the information that you need to implement and administer Oracle Procurement Contracts.

Integration Repository

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

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

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

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

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

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

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

Part 1

Overview of CMRO and Key Features

1

Overview of Oracle Complex Maintenance, Repair, and Overhaul

This chapter covers the following topics:

- Overview of Complex Maintenance, Repair, and Overhaul
- CMRO Home Page
- Minimum Equipment Lists (MEL) and Configuration Deviation Lists (CDL)
- Integration and Dependencies
- Integration of Oracle CMRO and Enigma 3C

Overview of Complex Maintenance, Repair, and Overhaul

Oracle Complex Maintenance, Repair, and Overhaul (CMRO) is an integrated, web-enabled, software application suite designed for complex equipment maintenance organizations. It supports typical maintenance processes such as scheduled and unscheduled maintenance visits, component monitoring, job scheduling and routing, labor time collection, cost collection, inventory management, and maintenance document management.

You can view maintenance practice improvement opportunities, and opportunities to improve fleet readiness. The application provides models for electromechanical systems and defines rules for assembling units. You can record unit-specific information, enabling quick access to the maintenance history of a product component. It provides maintenance organizations a means to reduce operational costs, and thereby to yield improved profitability.

Key Features

Oracle CMRO enables maintenance organizations to meet customer expectations, and draw maximum benefit by improving the operational readiness of equipment. Key features include:

- Oracle Supply Chain Planning, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Auto Visit Forecasting and Packaging, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Aircraft Maintenance Planning, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Complex Assembly Maintenance, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Component Maintenance, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Visit Work Planning, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Fleet Associations and Simulations, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Non Routine Analysis and Maintenance Requirement Profiles, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Service Bulletin Effectivity, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Oracle Production Scheduling Integration, page 1-5

- Supplier Warranty, page 9-1

- Fleet Maintenance Program, page 1-6

- Route Management, page 3-3

- Document Index, page 1-6

- Enigma Integration, page 1-7

- Master Configuration, page 1-7

- Unit Configuration, page 1-8

- Product Classification, page 1-8

- Oracle Projects Integration Enhancements, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

- Material Marshalling, page 1-9

- Planning, page 1-9

- Administration, page 1-10

- FAA Compliance Reports, *Oracle Complex Maintenance Repair and Overhaul User's Guide*

- Production Planning, page 1-10

- Outside Processing, page 1-10

Oracle Supply Chain Planning

Oracle CMRO includes intelligent processing and direct input to Oracle Value Chain Planning (VCP) suite of products. This integration enables a more complete and intelligent processing of forecasted, planned, and consumed materials.

Currently, the CMRO Unit Maintenance Plan contains the instance-specific maintenance needs projected out into the future. This instance-specific maintenance plan includes the material and resource demand needed to keep the units serviceable, and the time frame in which this demand will be required.

See Oracle Supply Chain Planning, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Auto Visit Forecasting and Packaging

The automated visit forecasting process is a tool for the maintenance planners to group maintenance requirements together to support both a rough-cut visit plan and an operational maintenance plan (Primary Plan), based on a maintenance organization. This enables the planner to approach the plan and focus on the exceptions for both short and long term planning. This feature is used primarily for heavy maintenance such as letter checks and modifications. It is typically used to forecast 12-18 months into the future.

See Auto Visit Forecasting and Packaging, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Aircraft Maintenance Planning

The Aircraft Maintenance Planning workbench improves the scheduling and accomplishment of maintenance requirements for unit configurations for aircraft, but also for engines and APUs for both line and base maintenance. This workbench enables users to search for requirements that are due through a new version of the current UMP search capability. Users can then identify opportunities in which to schedule the maintenance to existing or new visits, while taking flight schedules, organizational scheduling and fleet downtime into consideration.

See Aircraft Maintenance Planning, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Complex Assembly Maintenance

The workbench can be used for any complex assembly, where tracking maintenance at the configuration position for the subcomponent is required in the execution process. The workbench enables users to search for both repair demand for complex assemblies from ASCP (or another source system), and locate assemblies requiring repair both on and off wing.

See Complex Assembly Maintenance, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Component Maintenance

In addition to the complex assembly workbench, the component maintenance workbench expands the planning functionality for an operation. Users can search and plan for component maintenance, both serialized and non-serialized. This workbench provides the ability to search for repair demand for components from ASCP (or another source system), and locate components requiring repair that are in an unserviceable inventory.

See Component Maintenance, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Visit Work Planning

CMRO's existing visit work package (VWP) functionality has been enhanced to support the introduction of the ASCP functionality throughout CMRO. Enhancements were made to several existing UIs and new UIs were created.

See Visit Work Planning, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Fleet Associations and Simulations

See Fleet Associations and Simulations, *Oracle Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Non Routine Analysis and Maintenance Requirement Profiles

CMRO includes tools to analyze the historical occurrence of non-routine maintenance, and to create non-routine planning factors and estimates which can be applied during the maintenance planning process. Non-routine history can be evaluated in the Oracle Demantra application based on the associated maintenance requirement, aircraft, fleet,

and program type of maintenance accomplished. The output can then be applied within CMRO by creating maintenance requirement profiles.

These profiles enable the creation of non-routine estimates for an MR based on the Program Type and operating organization in which it would be accomplished. For example, an MR that occurs in an A-Check may generate different non-routines than in a C-Check, depending on the operating organization.

See Non Routine Analysis and Maintenance Requirement Profiles, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Service Bulletin Effectivity

CMRO includes functionality to cover more completely the detailed scenarios that are involved in planning, performing, and proving compliance with Service Bulletins, Service Letters, and Airworthiness Directives. These types of maintenance requirements can have a complex relationship between each other, the aircraft or assembly configurations, and the history involved. As a solution to this complex network of allowed parts, required maintenance, and historic life, CMRO includes the following functionality such as effectivity triggers and service bulletin rules.

See Service Bulletin Effectivity, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Oracle Production Scheduling Integration

The Oracle Production Scheduling (PS) integration has been optimized to enable CMRO engineering definitions to direct the visit structure and work order relationships, while still maintaining the power of the PS engine. This enables the complete optimization and visibility of CMRO visits, work orders, resource requirements, and material requirements within the PS tool. Some of the highlights of this integration are:

- The CMRO Work Breakdown Structure (WBS) can be defined as a template for a visit, then adjusted specifically for each instance of the visit.

  This WBS definition gives further direction to the PS engine as to the order, precedence, and dependency among work orders.

- Visit stages are passed and used within the PS engine and are also visible in the UI.

- Non-routine (NR) estimates defined in CMRO are used to plan accurately for a visit before the actual NRs exist in the visit.

- Alternate item information is passed to PS to enable the scheduling engine to optimize the completion schedule.

- PS scheduled dates are passed back to CMRO Visit Work Package for comparison and adjustment against the visit planned dates, as necessary.

Projects Integration Enhancements

The Oracle Projects integration was enhanced to include functionality such as the ability to define the cost hierarchy for project tasks, add visits to parent projects, synchronize visit and project tasks dates, and define service types.

See Projects Integration Enhancements, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Fleet Maintenance Program

The key features of the CMRO Fleet Maintenance Program are:

- Maintenance requirements creation enable maintenance personnel to create maintenance requirements with attributes uniquely defining the requirement.

- Maintenance routes association by attaching appropriate routes created in the Route Management module to the maintenance requirements.

- Maintenance documents association by attaching the appropriate documents from the Document Index to the maintenance requirements.

- Effectivity definition enabling personnel to be automatically notified regarding the maintenance requirements applicable to certain physical units within the database.

- Interval and threshold definition enabling a schedule to be set that counts down until the maintenance requirement is due for a unit.

- Maintenance requirements and dependent relationships management enabling the use of group relationships for non-complicated parent child components where the parent maintenance requirement accomplishment includes the children.

- Affected items listing providing a comprehensive view of the items that are covered by a maintenance requirement's effectivity.

Document Index

The key features of the CRMO Document Index module are:

- Receipt and registration of documents.

- Upload and revision of electronic documents.

- Document subscription control through supplier information recording and subscription status tracking.

- Document revision control ensuring current and accurate information.

- Document status lookup enabling document version verifications from multiple levels during maintenance operations.

- Document Distribution Control ensuring authorization of a person (who requests a document) to receive a document.

Enigma 3C Integration

The integration between CMRO and Enigma 3C is to provide a ready-to-use solution for MRO service providers to provide the maintenance technicians with a set of tools that connect CMRO's extensive back office functionality for configuration management, engineering and maintenance planning with Enigma's flexible and easy to use documentation centric maintenance execution system, in a wireless or disconnected environment.

This combination of the two products supports the maintenance technicians in efficiently executing all their maintenance tasks, achieving highest level of quality by providing the right information in the right place at the right time in a most user-friendly form.

See Integration of Oracle CMRO and Enigma 3C, page 1-16 for more information regarding this integration.

Master Configuration

The key features of the Master Configuration module are:

- Assembly tree structure representing the positions of tracked or required components that make up a complex assembly.

- Assembly qualification by identifying the components required to meet a certain specification.

- Tracked parts positioning.

- Definition of parent-child relationships between components in an assembly.

- Configuration templates for unit configuration modeling the general characteristics of a fleet unit.

- Cost rollup structure enabling the division of maintenance cost by the modules of an assembly.

- Definition of alternate parts allowable for each component position in an assembly.

- Definition of position ratios to use in counter updates between positions in a master configuration hierarchy.

- Maintenance document association to master configuration positions.

Unit Configuration

The key features of the Unit Configuration module are:

- Unit composition providing information on the hierarchical positions of parts within a unit.

- Physical location tracking of parts.

- Recording of child unit installation and removal on or from parent assemblies.

- Recording of utilization or age of parts in an assembly based on different parameters related to the usage of parts and events that affect the parts.

- Utilization population from parent to child units enabling the determination of component aging as a result of the attachment to other parts, or parent units, that gain utilization.

- Unit maintenance history tracking through all previously accomplished maintenance requirement records.

- Equipment ownership history tracking enabling the analysis of impact on business procedures due to ownership changes.

- Temporary parts identification enabling the assignment of temporary serial numbers to parts in an acquired unit.

Product Classification

The key features of the Product Classification module are:

- Hierarchy-based product classification creation and maintenance.

- Maintenance requirements and documents association to any level in the product classification using a tree-based hierarchy to reduce the administration necessary when adding a new product to a maintenance program.

- Logical Product grouping across multiple levels.

- Primary and supplementary classification support that enables part and unit grouping from multiple viewpoints.

Unit Maintenance Plan

The key features of the Unit Maintenance Plan module are:

- Utilization forecast maintenance that provides the utilization forecast in terms of the applicable time based unit of measures for each unit in the fleet.

- Serviceable time unit of measure (UOM) of units viewing for the parent unit and all child units expressed in terms of the appropriate UOM, such as hours, cycles, mileage, and so on.

- Repetitive maintenance requirement modeling over a user-defined period providing the UOM remaining for each occurrence of a maintenance requirement.

- Due date calculation of maintenance requirements based on utilization forecasts and maintenance frequencies in the absence of a specified fixed due date.

- Association of maintenance requirement groups to a visit.

Material Marshalling

The key features of the Material Marshalling module are:

- Search units and associated visits, and view the progress and status of each visit.

- View the material requirements of a visit. This view organizes the material requirements by their association within the associated configuration and positions of the visit.

- Issue the required materials from other subinventories when the visit subinventory and locator cannot accommodate the material requirement of a work order.

Planning

The key features of the CMRO Planning module are:

- Assessment of a maintenance base's workload capacity analysis of available labor by skill, available tooling and machinery, available materials and the location's capabilities, such as the list of units and requirements that the location can support, balanced against known workloads.

- Visit creation to group together events for long and short-term capacity planning and to facilitate scheduling to a maintenance base.

- Definition of visit resource requirements based on the unit, man hour requirements by skill, required tooling, required materials, duration and required completion times of the maintenance requirements and routes for the visit.

- Visit appointment creation based on maintenance base resource forecasting and visit requirements.

- Resource balancing capacity versus workload requirements for scheduling purposes and efficiency assurance.

- Resource leveling on different simulation plans enabling the identification of the

best resource capacity plan.

Administration

The key features of the Administration module are:

- Departmental work shift schedule definition enabling maintenance planners to select shift schedules for the departmental workers who perform the inspections and repairs.

- Calculating spaces and space unavailability.

FAA Compliance Reports

Eight reports are available for use. Reports can be printed, exported, and viewed online.

See Projects Integration Enhancements, Overview of CMRO Features, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Production Planning

The key features of the CMRO Production Planning module are:

- Job creation from visit tasks for Scheduled, Unscheduled, and Convenience maintenance.

- Service request creation to track reported problems.

- Operations to non-routine jobs creation for work definition and tracking.

- Job maintenance through status, completion, and start and end date adjustments of the schedule.

- Operation maintenance by addition, removal, material and resource requirement updates, cost capture, and resource assignment review.

- Quality maintenance using Route Management.

Outside Processing

The key features of the Outside Processing module are:

- Assign production jobs for third-party service.

- Add or remove production jobs to an existing OSP work order.

- Determine how and when the parts will be shipped to the supplier.

- Create and approve purchase orders.

- Create purchase requisitions for an OSP order.

- Receive shipments for an OSP order.

CMRO Home Page

Use the CMRO Home page to quickly access the menus to efficiently manage the maintenance, repair and overhaul of your complex, high-valued assets. You can access the following menus and their respective tabs from the CMRO Home page:

- **Engineering**
  - Document Index

  - Route Management

  - Fleet Management Program

  - Reliability

- **Configuration**
  - Master Configuration

  - Unit Configuration

  - Product Classification

  - Supplier Warranty

- **Planning**
  - Unit Maintenance Planning

  - Visit Work Package

  - Planning Workbench

  - Fleet Forecasting

  - Component Maintenance

  - Assembly Maintenance

  - Auto Visit Planning

- **Administration**

  - Approvals

  - Workflow

  - Department Location

  - Spaces

  - Space Availability

  - Reliability

  - Vendor Sourcing

  - Reports

  - WBS Rules

  - Visit Types

  - Utilization History

  - CMRO Analytics

  - Maintenance Requirement Status Reports

- **Execution**

  - Production Planning

  - Outside Processing

  - Service History

  - Material Transactions

Minimum Equipment Lists (MEL) and Configuration Deviation Lists (CDL)

The Minimum Equipment List and Configuration Deviation List functionality identifies equipment, as opposed to structural items that can be inoperative or missing on aircraft, but still enables the aircraft to maintain airworthiness. This includes items such as radios, seats, lights, air conditioning, heaters, and indicators. These items, called provisos, can be inoperative under certain conditions. Limitations may be required as how the aircraft is operated. For example, there may be limitations regarding ice conditions, night flights, or altitude limits. When non-routine maintenance

requirements are discovered during inspections, you can create a service request and determine if the requirement should be deferred to subsequent visits using MEL or CDL instructions.

An MEL addresses defective equipment, and a CDL addresses missing parts in an aircraft. This functionality includes:

- Definition of the lists is based on Air Transport Association of America (ATA) specification codes.

  MEL and CDL instructions are associated to a product classification. The applicable ATA codes are defined, along with the corresponding repair times, installed quantities and minimum required quantities. These ATA codes and minimum quantities are used to identify the eligibility of MEL and CDL deferrals for the unit, based on the ATA code definitions in corresponding master configurations.

- Issues can be logged by a pilot, crew member, or technician, and flagged as a potential MEL or CDL item.

  The system automatically identifies applicable MEL and CDL instructions based on the associated configuration position.

- Maintenance requirements are deferred against associated MEL and CDL instructions.

  When a requirement is deferred against the MEL or CDL, applicable Maintenance and Operation (M) and (O) procedures are automatically added to the maintenance visit. These procedures are defined in engineering as maintenance requirements, and the applicability is determined based on effectivity definitions and defined ATA codes.

See: Minimum Equipment List (MEL) and Configuration Deviation List (CDL) Setup, page 10-10

Integration and Dependencies

Oracle CMRO uses modules from other Oracle applications.

Oracle Counters

Organizations perform maintenance operations on an electromechanical system to maximize the service life of that asset. Maintenance operations require that the service life of a system, or the components comprising it, be measured. Timers and counters become important here. Car odometers, for example, are counters. Meters used to record the operating hours of power plants on aircraft and boats are timers. Maintenance is typically performed periodically, based on elapsed operating time. Oracle CMRO meets these needs through its integration with the Oracle Counters application.

Oracle CMRO user uses an Oracle Counters instance to represent a timer when defining models for system configurations. The service life of a component is measured according to the nature of that component's role, and service life measurements are selected by failure mode analysis. Calendar time is of interest because of possible corrosive conditions resulting in damage over time. Counter instances are sufficiently flexible, and Oracle CMRO users can define the counters using the appropriate unit of measurement associated with a component.

Oracle Installed Base

Maintenance organizations gain many advantages by modeling a template for electromechanical system assemblies and individual fleet units. After an Oracle CMRO user completes the definition of a master configuration, a framework then exists that describes the general characteristics of the system including the engineering rules for assembly. The user can then create a unit configuration.

Oracle CMRO invokes the Installed Base methods to populate the database with a transaction representing the as-operated or unit configuration of an electromechanical system.

Oracle Inventory

Maintenance organizations can greatly improve operational efficiency by planning their material requirements. The Master Configuration module of Oracle CMRO provides a template for the structure of an electromechanical system, and lists the components that are allowable in the different positions of a system configuration. The Unit Configuration module describes the as-installed configuration of a specific fleet unit. This helps organizations predict to approximate the material requirement to maintain the operational readiness of fleet units.

Oracle CMRO user uses instances of Oracle Inventory when defining the allowable parts in a master configuration for an electromechanical system, and when describing the components in a unit configuration.

Oracle Quality

Oracle CMRO uses the setup from Route Management and the system profile options in Oracle Quality, to enable maintenance organizations to capture quality elements for operations, jobs, deferrals, scrap management, and capture counter value snapshots. This functionality provides maintenance facilities the flexible integration required to maintain reliable products. Oracle CMRO provides seeded plan templates for routes, operations, job deferrals, MRB dispositions and counter reading capture. These templates can be used as-is or adjusted with additional quality elements, except the counter reading template which is used by CMRO in the background and cannot be changed.

Oracle Advanced Supply Chain Planning

Oracle CMRO integrates with Oracle Advanced Planning and Scheduling (APS) applications for supply chain management. Advanced Supply Chain Planning (ASCP), is used to schedule required materials from maintenance visits. Available to Promise (ATP), is used for material availability inquiries, as well as scheduling through ASCP. Oracle Demantra Demand Planning is used to create material demand from three sources: global demand from forecasted requirements in the Unit Maintenance Plan module; scheduled demand from requirements scheduled to maintenance visits; and historical non-routine (and routine) demand from the maintenance performed at specific facilities. Additionally, Oracle APS Inventory Optimization (IO) application is required for complete supply chain planning.

Oracle Purchasing

Oracle CMRO integrates with Oracle Purchasing to set up buyers, approvals, purchasing options, receiving options, financial options, and open accounting periods. Oracle Purchasing is directly integrated with CMRO's OSP module and enables the creation of purchase requisitions or purchase orders when required for outside vendor services.

Oracle Projects

Oracle CMRO integrates with Oracle Projects to define a cost hierarchy for project tasks, add visits to parent projects and synchronize visit and project task dates. In addition, services types are defined in Oracle Projects, and are used in CMRO to identify routine and non-routine maintenance activities.

Oracle Warehouse Management

Oracle Warehouse Management provides maintenance organizations, the functionality to control their inventory by status or condition and associate subinventories with a department.

Oracle Order Management

Oracle CMRO integrates with Oracle Order Management to set up processing constraints and create customers. Oracle Order Management is directly integrated with the CMRO Outside Service Processing module and enables the creation of service orders with shipping lines for shipping and receiving items when required for outside vendor services.

Oracle Enterprise Asset Management

Oracle CMRO uses the same work order system as Oracle Enterprise Asset

Management (eAM). It also uses the Oracle eAM functionality to complete operations. Oracle CMRO benefits from the integration of Oracle eAM with Oracle Costing.

Oracle Customer Support

Oracle Support provides Oracle CMRO with the functionality to create and update service requirements in a maintenance organization. The association of a service request to a visit task and production job enables the maintenance organization to track the service difficulty (non-routine) to the associated progress or resolution performed by the maintenance personnel.

Integration of Oracle CMRO and Enigma 3C

The integration of Oracle CMRO and Enigma 3C delivers the functionality to manage entire maintenance operations from configuration management and engineering to maintenance planning and execution for a maintenance organization.

Enigma 3C delivers a dynamic service index of maintenance, parts and diagnostic information, that captures the operational expertise and connects to vital corporate systems to manage and optimize the service and support workflow.

2

Managing Maintenance Requirements

This chapter covers the following topics:

- Overview
- Fleet Maintenance Program
- Creating Maintenance Requirement Records
- Attaching Documents to a Maintenance Requirement
- Associating Routes to a Maintenance Requirement
- Defining Maintenance Requirement Effectivity
- Defining Effectivity Details
- Defining Intervals and Thresholds
- Defining Maintenance Requirement Relationships
- Updating Maintenance Requirement Records
- Viewing Items Affected by a Maintenance Requirement
- Associating Visit Types with a Maintenance Requirement
- Creating Maintenance Requirement Revisions
- Viewing Maintenance Requirement Details
- Associating Program Sub Types to Program Types
- Service Requests
- Entering Service Requests

Overview

Ensuring the safety and readiness of machines, and the increase in the component life of complex, safety sensitive, and expensive assets is crucial in today's industry. The Oracle Complex Maintenance, Repair, and Overhaul Fleet Maintenance Program module

enables organizations to manage a preventative maintenance program that accomplishes this need.

Key functions provide process-oriented, task-based procedures for essential maintenance requirement management tasks. See:

- Creating Maintenance Requirement Records, page 2-5

- Attaching Documents to a Maintenance Requirement, page 2-10

- Setting Maintenance Route Dependencies, page 2-14

- Updating Maintenance Requirement Records, page 2-29

- Viewing Items Affected by a Maintenance Requirement, page 2-31

- Associating Visit Types to a Maintenance Requirement, page 2-34

- Creating Maintenance Requirement Revisions, page 2-35

- Viewing Maintenance Requirement Details, page 2-37

- Associating Program Sub Types to Program Types, page 2-37

Fleet Maintenance Program

Fleet maintenance manages the creation, organization, and planning of preventative maintenance tasks for an asset or group of assets. It is a repository for scheduled maintenance and associated information that organizes and streamlines planned maintenance tracking and execution.

Maintenance actions are called maintenance requirements and originate from requirements applicable to a product, and organizing them in a way universally usable by all parties involved. The Fleet Maintenance Program (FMP) module addresses the four major parts of a preventative maintenance requirement:

- Origin (why a maintenance action is required)

- Effectivity (what the maintenance requirement applies to)

- Frequency (when the maintenance requirement is to be performed)

- Work cards or routes (how the maintenance requirement is to be performed).

The Fleet Maintenance Program targets the operator (commercial and military), third-party maintenance service provider, simple assembly component shop, and complex assembly component shop in the maintenance, repair, and overhaul industry.

It enables the association of maintenance requirements to the three groups of product

types:

- Top Units: Units that contain all the component parts, such as an aircraft, motor vehicle, or ship.

- Complex Assembly: A complex component of the top unit, such as an engine or aircraft landing gear.

- Simple Component: A component of the top unit or complex assembly.

Maintenance Requirements

Maintenance requirements are planned or scheduled when unit maintenance is planned. Maintenance requirements are associated to visits in the Unit Maintenance Plan module.

Maintenance requirements may also arise during maintenance and crew inspections or when the visit is in production. These requirements are of the unplanned or non-routine nature. Users can choose to accomplish these requirements in the same visit by creating non-routine work orders in the Production module. Optionally, users can define these requirements in the Fleet Maintenance Program and plan them from FMP by adding these unplanned requirements directly to visits in the Visit Work Package. If the user chooses to defer these requirements, it will appear in the Unit Maintenance Plan and can be scheduled to other visits.

Users can also log service requests to track maintenance needs discovered during inspections or production. You can view these service requests as maintenance requirements with the program type of Non-routine. These requirements can be associated with visits the same way as other unplanned requirements.

Key Business Processes

Maintenance Requirements Creation

Maintenance requirements refer to planned maintenance actions that originate from directives from the FAA (Federal Aviation Administration) in the aircraft industry. The maintenance requirement recording process enables maintenance personnel to create maintenance requirements with attributes uniquely defining the requirement. You can link maintenance requirements to maintenance routes, define an effectivity clause describing the requirement applicability, and schedule the maintenance performance.

Maintenance Routes Association

You can search for routes applicable to a maintenance requirement, and to attach the appropriate routes to the maintenance requirement. Routes can then be set up with technical dependencies to each other within the maintenance requirement. These dependencies are validated against visit and planning information to assist in the scheduling order of the routes.

Documents Association

Maintenance personnel frequently refer to technical manuals during a maintenance operation. If maintenance documents such as technical manuals and regulatory directives are attached to a maintenance requirement, the additional information may improve operational efficiency. You can search for documents applicable to a maintenance requirement, attach appropriate documents to a maintenance requirement, and mark attached documents as reference or source.

Effectivity Definition

Effectivity refers to the applicability of a maintenance requirement. Fleet maintenance enables maintenance organizations to attach attributes to maintenance requirements, which automatically notifies personnel of the maintenance requirements applicable to certain physical units within the database. A master configuration node, a master configuration item, and a product classification node can be attached to a maintenance requirement. Maintenance requirements can also be associated to unit details such as serial number, and manufacturer.

You can set up multiple effectivity for one maintenance requirement enabling total flexibility and control. An effectivity definition contains a set of effectivity details, and a set of interval thresholds. Depending on these effectivity rows, details, and interval thresholds, actual items affected in inventory are selected, and then calculated for maintenance requirement due dates. You can also set up overlapping effectivity for the same maintenance requirement, in which case the Unit Maintenance Plan module will calculate more than one estimated due date, and then display only the earliest one. This is desirable because one effectivity can have its own set of applicable interval thresholds when an item is found according to specific criteria.

Interval and Threshold Definition

Intervals and thresholds are used to set a schedule that counts down until the maintenance requirement is due for a unit. Maintenance organizations can define interval and threshold values for maintenance requirements using the Fleet Maintenance Program. The number of interval and threshold values defined for a maintenance requirement can be unlimited, and maintenance personnel can select the combined intervals. The interval thresholds are directly related to the effectivity of a maintenance requirement, enabling a maintenance requirement to have several useful interval threshold sets depending on the effectivity.

Maintenance Requirements and Dependent Relationships Management

Maintenance organizations can use group relationships for non-complicated parent-child components where the parent maintenance requirement includes the children.

The Letter Check relationships in aviation maintenance is an example. An A Check consists of X number of children components that are all tracked on the parent component's interval for maintenance requirement. An A Check will belong to a B Check, and the B Check will include all the A Check's children in addition to some of its own. The B Check will belong to a C Check and the C Check to a D Check. Each Check will be displayed in the unit maintenance plan as a group with the same estimated due date eliminating a cluttered report. In addition, if a child component has a more frequent, recurring maintenance requirement different from its parent, the unit

maintenance plan will reflect this as a separate Check.

A maintenance requirement can also be linked with the completion of another requirement. This creates a dependency between the two requirements. The Fleet Maintenance Program accommodates such dependency with a maintenance requirement attribute that indicates any prerequisite maintenance requirements.

Affected Items Listing

Maintenance organizations gain a comprehensive view of the items that covered by a maintenance requirement's effectivity. Maintenance personnel can view all items in the database to which the maintenance requirement applies based on the current effectivity definition.

Create Service Requests and Associate with Maintenance Requirements

You can log problems that occur with the unit, whether it occurs during operation, or is the result of a maintenance inspection. You can also diagnose the problem and identify the fleet maintenance requirement to resolve the problem.

Minimum Equipment and Configuration Deviation Deferrals, and Non-routine Requests

The Minimum Equipment List (MEL) and the Configuration Deviation List (CDL) instructions provide the authorization to defer certain maintenance requirements when performing line maintenance. This functionality identifies equipment and items that can be inoperative or missing, but still enable the aircraft to fly with limitations. For example, life preservers might be missing on an aircraft, but the flight can be authorized to continue if it is not flying over bodies of water. Deferrals for the unit are based on the ATA code definitions in corresponding master configurations, based on associated repair times, installed quantities, and minimum required quantities. When a requirement is deferred against the MEL or CDL, applicable Maintenance and Operation (M) and (O) procedures are automatically added to the maintenance visit.

When non-routine maintenance requirements are discovered during inspections, you can create service requests in the Complex Maintenance, Repair, and Overhaul application. You can then determine if the requirement should be deferred to subsequent visits using MEL or CDL instructions.

See: Minimum Equipment List (MEL) and Configuration Deviation List (CDL) Setup, page 10-10, and Creating Non-routine Requests During Unit Maintenance, page 10-15

Creating Maintenance Requirement Records

To create maintenance requirement records:

1. Navigate to the Create Maintenance Requirement page.

2. Enter a value in the Title field to define the name of this maintenance requirement. Any newly created maintenance requirement is at the Draft status. The status

advances to Approval Pending when the requirement is sent for approval.

3. You can optionally enter a revision number.

4. Select a category defined for this requirement; categories are based on equipment types.

> **Note:** When you create the record, the Status value defaults to Default, and the Version value defaults to 1.

5. Select a value in the Effective From date field.

6. Select a value in the Program Type field to classify or group maintenance requirements.

   Optionally, you can select a Program Subtype used with this program.

7. Select a Service Type value to determine the service type to fulfill.

   Options are On or Off. For example, On wing can be accomplished at aircraft location; Off wing requires it being sent to the shop.

8. Select an Implement Status value:

   - Mandatory: Requirements with this status are forecasted in a Unit Maintenance Plan (UMP).

   - Optional Implement: These requirements are forecasted in UMP, but performed at the discretion of the planner.

   - Unplanned: These requirements are not forecasted in the UMP.

     These are non-routine requirements, identified solutions, or inspections for issues discovered during maintenance process or selective maintenance not needed in the forecasted maintenance program.

     > **Note:** Child maintenance requirements use this because they do not require their own forecast and threshold definitions, but are included under mandatory, forecasted parent material requirements.

   All statuses are considered in processing maintenance requirements except Optional Do Not Implement.

9. Select a value of Yes or No in the Repetitive field indicating whether the maintenance requirement is one time or repetitive. If No is selected, then a one-time MR will be defined.

10. Select a value in the Show field if this is a repetitive requirement. This field is applicable to repetitive maintenance requirements only. Options are All or Next.

    This value is considered when the unit maintenance plan calculates the Estimated Due Dates list. Based on the Show field value, the unit maintenance plan will either show all repeating occurrences, or only the next occurrence. This is useful for maintenance requirements that are to be carried out frequently, and would otherwise clutter a year long report.

11. Select a value for Whichever Comes field.

    This field determines whether to choose the first or the last due date calculated. It is based on all the interval thresholds defined for the maintenance requirement. Options are:

    •   First: indicates an OR condition for the interval threshold records

    •   Last: indicates an AND condition for the interval threshold records

12. Optionally select a value in the Allow Restart field. This field indicates that the forecast for the maintenance requirement can be restarted after the accomplishment of an unplanned MR.

    > **Important:** This feature applies to mandatory maintenance requirements that are repetitive over time.

13. Optionally, select a billing item.

    Billing items are set up Oracle Inventory; they are non-stockable and non-transactable items. Whenever a maintenance requirement with a billing item is added to a visit, the price of the billing item considered when estimating the price of the visit.

14. Optionally, select a Service Location.

    This field can be used to define the type of location in which the requirement is typically planned and executed. Examples of user-defined values may be Line or Base maintenance. This field is used for reference purposes only.

15. Optionally, select a Quality Inspection Type value used for quality collection.

16. Optionally, select a Service Category value.

    When creating visits, planners can search for and add maintenance requirements to visits based on the visit category.

17. Optionally, select a value in the Follows After Accomplishment field.
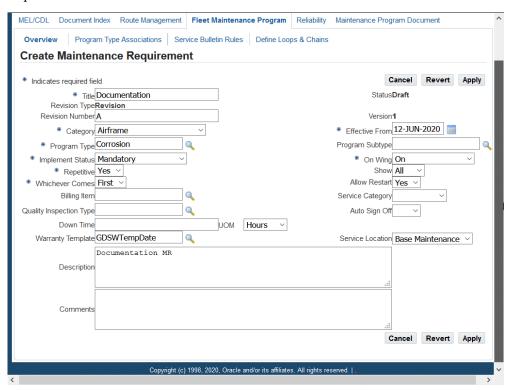
    This field indicates the next requirement after the completion of this requirement.

18. Optionally, select a Warranty Template to add to a maintenance requirement.

    This action supersedes any templates associated to routes that are added to the requirement. This template is used to identify the task warranty in a visit and allows the system to validate if a warranty contract can be automatically associated for an asset and task.

19. Optionally, select a value in the Auto Sign Off field to indicate if you want the MR to be signed off automatically when accomplishment triggers occur.

20. Enter a description this requirement in the Description field, and any other descriptive text in the Comments field.

21. Optionally, enter a Down Time value.

    Downtime is the total amount of time needed to complete the related maintenance requirement.

22. Click the Apply button to save your work.
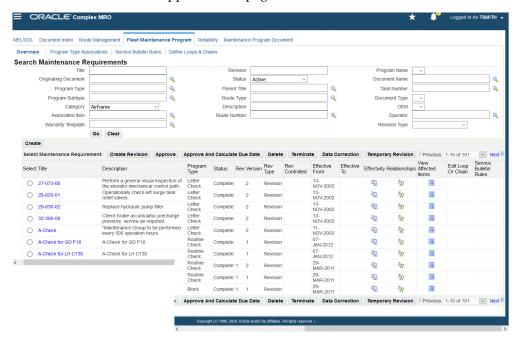
To retrieve existing maintenance route records:

1. Navigate to the Search Maintenance Requirements page.

2. Enter information in the applicable fields, and click the Go button to display the

results of your search.

You can enter information in the following fields: Title, Originating Document, Program Type, Category, Associated Item, Revision, Status, Parent Title, Description, and Route Number.

3. Click Go, and the results appear on the page.

4. Select a record and click one of these links to edit the maintenance requirement:

- Create Revision: Click to access the Update Maintenance Requirement page where you can revise a maintenance requirement.

> **Note:** You can only create revisions for maintenance requirements that have the Complete status.

> **Additional Information:** Oracle CMRO enables you to render the Maintenance Requirements page in a view only mode. You can do this by enabling the function AHL_FMP_VIEW.

- Approve: Click button to approve the maintenance requirement.

- Approve And Calculate Due Date: Click to approve and calculate the due date for the MR.

- Delete

- Terminate

- Effectivity: Click to access the Update Effectivity page.

- View Affected Items: Click to view the items affected by the MR.

- Relationships: Click to view the relationships.

- Edit Loop or Chain: Click to access the Edit Loop or Edit Chain page to make revisions.

- Service Bulletin Rules: Click to access the Service Bulletin rules.

Related Topics

Attaching Documents to a Maintenance Requirement, page 2-10

Defining Maintenance Requirement Effectivity, page 2-15

Defining Maintenance Requirement Relationships, page 2-26

Role 7.0 - Engineering - Engineer, *Oracle Complex Maintenance, Repair and Overhaul Process Guide*

Service Bulletin Effectivity, page 1-5

Attaching Documents to a Maintenance Requirement

Source or originating documents identify the origin of a maintenance requirement. The Document Index module serves as the central location for these documents. Multiple originating documents can be applicable to one maintenance requirement. Reference documents refer to supporting documents. This enhances operational efficiency, providing maintenance personnel at all levels ready access to related documents during the maintenance process.

> **Note:** You cannot edit the documents that are attached to a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the View Attached Documents page (view-only mode) instead of the Update Attached Documents page when the maintenance requirement is at any of these statuses.

To attach documents to a maintenance requirement:

1. Select your maintenance requirement and navigate to the Update Attached Documents page.

   If documents have already been attached to the maintenance requirement, the
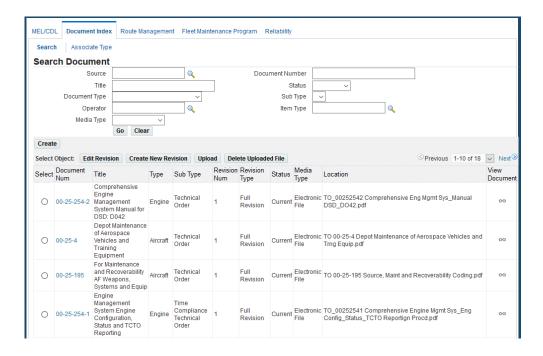
Documents List shows the attached documents. These attachments can be updated by altering the values in the Documents List fields if the maintenance requirement record is in the Draft or Approval Rejected status.

2. Select a value in the Association Type and Number fields.

   The options for Association Type are Source or Reference. A Source type indicates that the attached document is the originating document of the maintenance requirement, and a Reference type indicates that the document is a supporting document.

   Options for Title, Type, and Revision fields appear when you select a document number.

3. You can enter any descriptive text in the following fields:

   - Chapter: the specific chapter information in the document.

   - Section: the specific section in the document chapter.

   - Subject: the specific subject within the document.

   - Page: the specific page in the document. Enter the page number.

   - Figure: any figures in the document that are related to the maintenance requirement. Enter the figure detail.

   - Note: text field where you can enter additional information.

4. Click the Apply button to save your work.

5. Click the Associate Documents button to display the Search Document page.

   Use this page to select and associate multiple documents to an maintenance requirement.

6. You can search using the following fields: Source Title, Document Type, Operator, Media Type, Document Number, Status Sub Type, and Item Type.

7. Click the Go button to retrieve the document references based on your selection criteria.

8. In the Search Results region, select the document records using the Select check box, and click Associate to return this record to the Documents List in the Update Attached Documents page.

9. Click the Apply button to save your work.

Associating Routes to a Maintenance Requirement
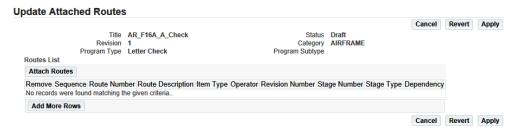
The Fleet Maintenance Program enables maintenance organizations to search for maintenance route records, and to associate them to maintenance requirements. One maintenance requirement can be associated to multiple routes, and each route can be associated to multiple maintenance requirements. The Fleet Maintenance Program module also enables you to set a dependency to the attached routes.

> **Note:** You cannot edit the maintenance routes assigned to a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the Update Attached Routes page in a view-only mode when the maintenance requirement is in any of these statuses.

To associate maintenance routes to a maintenance requirement:
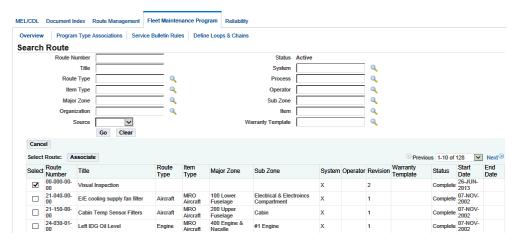
1. Navigate to the Update Attached Routes page.

   If routes have already been attached to the maintenance requirement, the Routes

List shows the associated maintenance routes.

These routes can be updated by altering the values in the Routes List fields if the maintenance requirement record is in the Draft or Approval Rejected status.
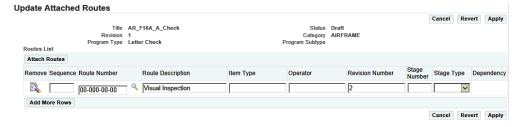
2. Click the Attach Routes button to associate new maintenance routes to the maintenance requirement record.

    The Search Route page appears.

3. Enter your selection criteria and then click the Go button to retrieve the maintenance records.

4. From the Search Results, select the pertinent record using the Select check box.

5. Select a value in the Route Number field.

When this value is selected, applicable values display in the Route Description, Item Type, Operator, and Revision fields.

6. Optionally, you can enter a value in the Stage field.

   The maximum number of stages is set up during implementation. If there are two routes and one is dependent on the other, the dependent maintenance requirement route must be in a later or in the same stage as the first route. The stage information is carried over when maintenance requirements are assigned to visits.

7. Click the Apply button to save your work.

Setting Maintenance Route Dependencies

The Fleet Maintenance Program enables maintenance organizations to attach existing maintenance route records to maintenance requirements, and to set an order in which the maintenance routes are to be performed.

The Route Dependencies page is accessible from the Update Associated Routes page. The values for Dependency can be chosen as Execute Before, or Execute After. Only the route numbers corresponding to routes associated to the maintenance requirement appear.
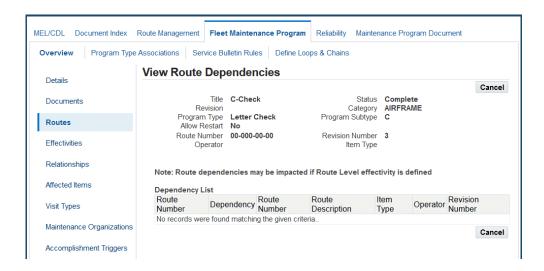
> **Note:** You cannot edit the maintenance route dependencies assigned to a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system opens the View Route Dependencies page (view-only mode) instead of the Update Route Dependencies page when the maintenance requirement is in any of these statuses.

To define maintenance route dependencies:

1. Associate the appropriate maintenance routes with the maintenance requirement record.

2. Click the Dependency tree icon corresponding to the route that you want to set.

   The Route Dependencies page appears displaying the maintenance requirement and route context information.

   If other maintenance route dependencies have already been defined for the requirement record, the Route Dependencies List shows the existing dependencies. These dependencies can be updated if the maintenance requirement record is in the Draft or Approval Rejected status.

Route dependencies may be impacted if the route level effectivity is defined.

3. Select a value in the Dependency Order field.

    This is the order which maintenance routes are associated to a maintenance requirement. Options are Execute Before and Execute After.

4. Select a Route Number value.

    When you select this value, the applicable information appears in the Route Description, Item Type, Operator, and Revision Number fields.

5. Select Apply to save your work.

Defining Maintenance Requirement Effectivity

The Fleet Maintenance Program enables maintenance organizations to attach Oracle CMRO attributes to maintenance requirements. This automatically notifies maintenance personnel about a maintenance requirement applicability on certain physical components existing in the database.

You can define maintenance requirement effectivity using the Fleet Maintenance Program for a master configuration position or alternate item, for an item in inventory, or for a Product Classification node. You can also define effectivity based on manufacturer, serial number or a range of serial numbers, manufacturing date, or country of origin.

> **Note:** You cannot edit the effectivity definitions for a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the View Effectivity page (view-only mode) instead of the Update Effectivity page when the maintenance
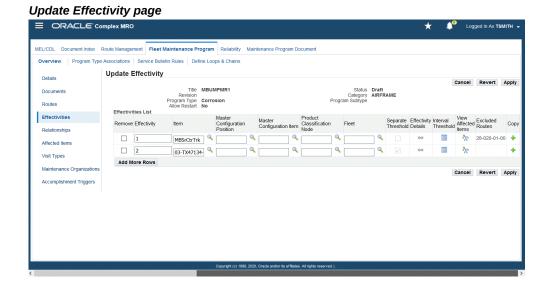
requirement is in any of these statuses.

Prerequisites

☐ The maintenance requirement record for which you want to define effectivity must exist in the database. The maintenance requirement record must be in the Draft or Approval Rejected state.

To define maintenance requirement effectivity:

1. Retrieve the maintenance requirement records that match your needs. See Retrieving Existing Maintenance Requirement Records, page 2-5.

2. In the Search Results list, click the Title link of the pertinent record to launch the Update Maintenance Requirement page.

3. Click the Effectivities link to launch the Update Effectivity page.

Update Effectivity page

If you have already defined the effectivity for the maintenance requirement, the Effectivities List shows the existing effectivity definitions. These definitions can be updated by changing the values in the Effectivities List fields if the maintenance requirement record is in the Draft or Approval Rejected status.

Use the information in the following table to enter values in the Update Effectivity page.

Description of fields in the Update Effectivity page

Field Name	Description
Effectivity	User defined name for the effectivity. The name is unique across all effectivities for a given maintenance requirement, and can relate to the actual application of the effectivity or maintenance requirement further describing its purpose. For example, Boeing 737, MD 80, Cold Weather.
Item	The Inventory item identification number. This refers to the part number to which the maintenance requirement is applicable to the effectivity.
Master Configuration Position	The master configuration position to which the maintenance requirement applies to the effectivity. This indicates that the maintenance requirement would apply to a part installed in a specific position of the configuration.
Master Configuration Item	The alternate item which can be installed in the specified master configuration position. The maintenance requirement applies to the item in this position.
Product Classification Node	The Product Classification node to which the maintenance requirement applies. The product classification refers to the logical grouping of a product family. An item or a master configuration position must be defined for the maintenance requirement effectivity in addition to the product classification node. The maintenance requirement will then be applicable to the item when it is installed in the specified product classification only.
Fleet	The fleet to which the maintenance requirement is associated.
Effectivity Details	Click to view information relating to the effectivity.
Interval Threshold	Click to update interval thresholds.
View Affected Items	Click to view a list of affected items.
Excluded Routes	Column displays the route numbers that are excluded for each effectivity line.

4. Click the Add More Rows button to define a new effectivity for the maintenance

requirement.

5. Click the Apply button to record the changes.

6. Select the check box for the record that you want to remove from the Effectivities List, and click the Apply button.

7. Click the Effectivity Details button to update the details for an effectivity definition. This launches the Update Effectivity Details page. For detailed instructions, see Defining Effectivity Details, page 2-18.

8. Click the Interval Details button for the record to define the intervals and thresholds for an effectivity definition. For details, see Defining Intervals and Thresholds, page 2-20.

9. Click the View Affected Items button for the specific effectivity definition to view the items affected by a maintenance requirement effectivity. For details, see Viewing Items Affected by a Maintenance Requirement, page 2-31.

Defining Effectivity Details

You can define effectivity details, such as the Serial Number Range, Manufacturing Details, Country of Origin, Item Owner, Item Location, and Item Additional Attributes after defining the maintenance requirement effectivity. Specifying these item details further narrows the maintenance requirement applicability to specific units.

> **Note:** You cannot edit the effectivity definition details for a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the View Effectivity Details page (view-only mode) instead of the Update Effectivity Details page when the maintenance requirement is in any of these statuses.

Prerequisites

❒ The maintenance requirement record for which you want to define effectivity details must be in the Draft or Approval Rejected status.

To define effectivity details:

1. Define the effectivity for the maintenance requirement. See Defining Maintenance Requirement Effectivity, page 2-15.

2. Access the Update Effectivity page and click the Effectivity Details icon corresponding to the effectivity definition for which you want to specify details.

The Update Effectivity Details page appears.

Any existing effectivity details appear in the Effectivity Details List. These details can be updated by changing the values in the Effectivity Details List fields if the maintenance requirement record is in the Draft or Approval Rejected status.

Use the information in the following table to enter values in the Update Effectivity Details page.

Field Name	Description
Serial Number From	The context item serial number used to define the start of the serial number range to which the maintenance requirement applies. You can use a lookup from existing inventory serial numbers to populate this field, or enter any value here to allow the inclusion of unknown new inventory, not yet owned, but would be affected by the maintenance requirement.
Serial Number To	The serial number that ends the serial number range to which the maintenance requirement applies. You can use a lookup from existing inventory serial numbers to populate this field, or enter any value here to allow the inclusion of unknown new inventory that is not yet owned, but would be affected by the maintenance requirement. The Serial Number To field value can be the same as the Serial Number From value if only one item serial number is affected by the maintenance requirement.
Manufacturer	The item manufacturer identity. The current validation against this field is not in effect because the manufacturer has a one-to-one relationship with the item number.
Manufacture Date From	The starting item manufacturing date to which the maintenance requirement applies. This field value is used to define effectivity for items with manufacturing dates within a specified range.
Manufacture Date To	The item manufacturing end date to which the maintenance requirement applies. This field value is used to define effectivity for items with manufacturing dates within a specified range.
Country	The country of origin. The current validation against this field is not in effect as country of origin is not stored against an instance of an item. Serial number range is often used for defining this item attribute.
Owner	The effectivity detail based on owner.
Owner Name	The name of the item owner.

Field Name	Description
Item Location Type	The item location used to define effectivity detail based on location.
Additional Attribute Code	The code used to define additional attributes.
Attribute Value	The value used to define effectivity detail based on extended attributes.

3. Click the Add More Rows button to enter a new effectivity detail row.

4. Enter the field values as required.

5. Click the Apply button to save the effectivity detail.

6. Select the Exclude check box for the row that you want to exclude from the maintenance requirement effectivity. The Exclude flag indicates whether the maintenance requirement effectivity includes or excludes an effectivity detail row.

   For example, if you want to exclude a range of part serial numbers within a serial number range for which the maintenance requirement applies, perform the following tasks:

   1. Click Add More Rows to open a new row.

   2. Enter the Serial Number From and Serial Number To values in this row, defining the range that you want to exclude from the effectivity.

   3. Select the Exclude check box beside the range that you want to exclude from the effectivity, and click the Apply button.

      The Exclude check box indicates the serial number range in that effectivity detail row to be excluded from the maintenance requirement effectivity.

7. Click the Apply button.

8. To remove an effectivity detail row from the Effectivity Details List, select the Remove check box beside the pertinent record.

9. Click the Apply button.

Defining Intervals and Thresholds

Maintenance organizations use intervals and thresholds to set a schedule that will count

down until a maintenance requirement is due for a unit. The Fleet Maintenance Program enables organizations to set multiple intervals and thresholds for each effectivity. It links all intervals and thresholds directly to the affected unit's existing counters. You can choose the counter based a specific interval and threshold combination. You can choose the Whichever Comes Last or Whichever Comes First value for each set of interval and threshold combination.

> **Note:** You cannot edit the interval and threshold definitions for a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the View Interval Threshold page (view-only mode) instead of the Update Interval Threshold page when the maintenance requirement is in any of these statuses.

Prerequisites
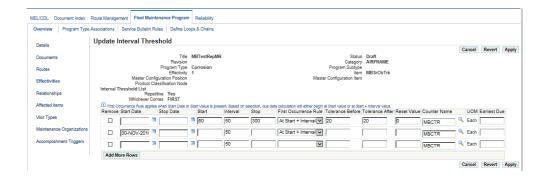
❐ The maintenance requirement record must be defined as Repetitive, Yes or No. This controls which threshold table will be available for selection.

The maintenance requirement record should be defined with the Whichever Comes attribute, First or Last. This determines the order of validation by the BUE process if multiple threshold definition lines are created for an effectivity.

The maintenance requirement record for which you want to define an interval threshold must be in the Draft or Approval Rejected state.

Creating Repetitive Maintenance Requirement Interval Thresholds:

1. Define the maintenance requirement with a Draft status.

2. Set the Repetitive field to Yes, which indicates that this is a repeating MR.

3. Define the effectivity for the maintenance requirement. See Defining Maintenance Requirement Effectivity, page 2-15.

4. Access the Update Effectivity page, and click the Interval Threshold icon for the effectivity definition for which you want to define intervals and thresholds. The Update Interval Threshold page appears.

Any existing intervals and thresholds will appear in the Interval Threshold List. These intervals and thresholds can be updated by editing the values in the Interval Threshold List fields if the maintenance requirement record is in the Draft or Approval Rejected status.

Use the information in the following table to enter values in the Update Interval Threshold page.

Field Name	Description
Start Date	The start date of the range of the interval. This field value is mutually exclusive from the Stop Date, and begins the range for the interval relative to the associated counter. This field applies to repetitive maintenance requirements.
Stop Date	The stop date of the range from the interval. This date is mutually exclusive from the Start Date, and ends the range for the interval relative to the associated counter. This field applies to repetitive maintenance requirements.
Start	The starting counter value of the range for the interval. The Start value is mutually exclusive from the Stop value, and starts the range for the interval relative to the associated counter. This field applies to repetitive maintenance requirements.
Stop	The stop counter value of the range for the interval. This value is mutually exclusive from the Start value, and ends the range for the interval relative to the associated counter. This field applies to repetitive maintenance requirements.
Interval	When used with repetitive maintenance requirements, the interval will represent the frequency of occurrence according to the associated counter.

Field Name	Description
First Occurrence Rule	The first occurrence of the maintenance requirement defined to include the interval when calculating the due date based on: • Null (blank): Default value • At Start: Uses the interval entered in the Start field. The BUE process will calculate the first occurrence of the maintenance requirement as the interval start value without considering the interval. • At Start + Interval: Uses the values entered in the Start and Interval fields. The BUE process will calculate the first occurrence of the maintenance requirement as the interval start value plus the interval.
Tolerance Before	The number of counter units of measure that is acceptable for maintenance requirement accomplishment before the specified interval. This aids in planning maintenance jobs.
Tolerance After	The number of counter units of measure that is permissible for maintenance requirement accomplishment after the specified interval. This value aids in planning maintenance jobs.
Reset Value	The value to which the counter reading needs to be reset.
Counter Name	The associated counter identifier used for all the numerical values of the row including Interval, Tolerances, Start, and Stop.
UOM	The unit of measure as per the associated counter. This display-only value is returned when the counter is selected.
Earliest Due	(Optional) Earliest due date that the MR can be performed. This field applies to repetitive maintenance requirements.

5. Click the Add More Rows button to enter a new interval threshold.

6. Enter the field values as required.

   • You can define a threshold only for one-time (non-repetitive) maintenance requirements.
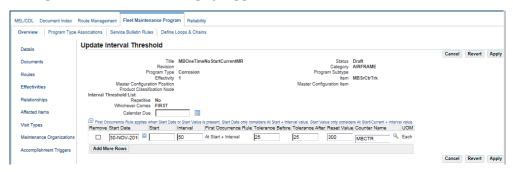
   See Creating One-Time Maintenance Requirement Interval Thresholds, page 2-24 for more information.

- You can add only one interval per counter.

- The Start and Stop values cannot overlap.

7. Click the Apply button to save the interval threshold definition.

Creating One-Time Maintenance Requirement Interval Thresholds:

1. Define the maintenance requirement with a Draft status.

2. Set the Repetitive field to No, which indicates that this is a one-time MR.

3. Access the Update Effectivity page, and click the Interval Threshold icon for the effectivity definition for which you want to define intervals and thresholds.

   The Update Interval Threshold page appears.

> **Note:** The following tool tip appears:
>
> ```
> First Occurrence Rule applies when Start Date or
> Start Value is present. Start Date only considers
> At Start + Interval value.
> ```

Any existing intervals and thresholds will appear in the Interval Threshold List. These intervals and thresholds can be updated by editing the values in the Interval Threshold List fields if the maintenance requirement record is in the Draft or Approval Rejected status.

Use the information in the following table to enter values in the Update Interval Threshold page.

Values for One-Time (Non-Repetitive) Maintenance Requirements

Field Name	Description
Calendar Due	The due date that the MR is due to be accomplished.
	This field can be used in conjunction with an interval value, based on the Whichever Comes value.
Start Date	The start date of the range of the interval. This field value is beginning range for the interval relative to the associated counter. This field works with the Interval field by applying an interval rule of At Start + Interval. This field is used for one-time maintenance requirements.
Start	The starting counter value of the range for the interval. The Start value works with the Interval field by applying an interval rule of At Start/Current + Interval.
Interval	The system-selected interval value for drop-dead counter values for one-time maintenance requirements. When used with one-time maintenance requirements, the interval will be a count down of the associated counter.
First Occurrence Rule	This display-only field works in conjunction with the Start and Interval fields. The value displayed is system generated, based on values in the following fields:
	• At Start: + Interval: Uses the values entered in the Start and Interval fields.
	• At Start/Current + Interval: Uses the values entered in the Start (Value) and Interval fields. If an asset has a matching counter that is greater than the Start (Value), the system will consider the Current Value at the Start (Value) for the BUE process.
	If no values are entered in the Start or Interval fields, the First Occurrence Rule field will be blank, and only the Calendar Due value will be considered by the BUE process.
Tolerance Before	The number of counter units of measure that is acceptable for maintenance requirement accomplishment before the specified interval. This aids in planning maintenance jobs.
Tolerance After	The number of counter units of measure that is permissible for maintenance requirement accomplishment after the specified interval. This value aids in planning maintenance jobs.

Field Name	Description
Reset Value	The value to which the counter reading needs to be reset.
Counter Name	The associated counter identifier used for all the numerical values of the row including Interval, Tolerances, Start, and Stop.
UOM	The unit of measure as per the associated counter. This display-only value is returned when the counter is selected.

Defining Maintenance Requirement Relationships

Maintenance organizations use group relationships for non-complicated parent-child components, where the maintenance requirement accomplishment on the parent component includes the child components. A maintenance requirement can also be linked to the accomplishment of another requirement, creating a dependency between the two. For example, maintenance requirement MR1 can have a dependency to another requirement (MR2) that requires MR2 to be completed before MR1. The Fleet Maintenance Program accommodates such dependencies using an attribute of the maintenance requirement that states another requirement as its prerequisite.

> **Note:** You cannot edit the relationships defined for a maintenance requirement flagged as Complete, Terminated, or Approval Pending. The system launches the Relationships page in a view-only mode when the maintenance requirement is in any of these statuses.

Use the following procedure to create maintenance requirement groups, and define their relationships.

Prerequisites

☐ 1. The maintenance requirement record for which you want to create groups and define relationships must exist in the database.

2. The maintenance requirement record must be in the Draft or Approval Rejected status.

To define maintenance requirement relationships:

1. Retrieve the maintenance requirement records to which you want to define relationships. See Retrieving Existing Maintenance Requirement Records, page 2-5.

2. In the Search Results list, click the Title link of the pertinent record to launch the Update Maintenance Requirement page.

3. On the side navigation menu, click the Relationships link to launch the Maintenance Requirement Relationships page.

Any existing maintenance requirement relationships appear in the Maintenance Requirements list. These relationship definitions can be updated by changing the values in the Maintenance Requirement List fields if the maintenance requirement record is in the Draft or Approval Rejected status.
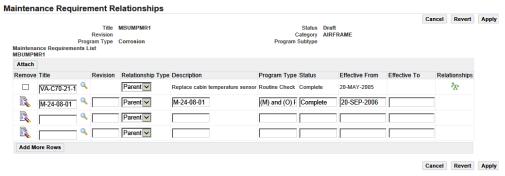
Use the information in the following table to enter values in the Maintenance Requirement Relationships page.

Field Name	Description
Title	The user-defined maintenance requirement name. Enter the generic substitution *metacharacter%* and click the Search icon to retrieve the list of maintenance requirement records that exist in the database. Click the pertinent record in the list of values to return the value to the Title field.
Revision	The revision number of the maintenance requirement. This value further identifies the maintenance requirement. This field is populated when the Title field value is returned.
Relationship Type	The type of maintenance requirement relationship. Options are Parent or Child. The Parent option indicates that the attached maintenance requirement would include the context maintenance requirement. The Child option indicates that a context maintenance requirement would include the attached maintenance requirement.
Description	The maintenance requirement description. This field is populated when the Title field value is entered.
Program Type	The user-defined program type. Program types are used to classify or group maintenance requirements, and can be used in conjunction with Program subtypes. For example, Letter Check, Corrosion, Modification. This field is populated when the Title is entered.
Status	The seeded revision status of the maintenance requirement such as Draft, Complete, Approval Pending, Approval Rejected, or Terminated. Statuses are not user defined and cannot be edited, and only indicate whether the maintenance requirement details and associated information are editable. This field is populated when the Title field value is returned.

Field Name	Description
Effective From	The effective start date of the maintenance requirement. Only one maintenance requirement revision can be effective at the same time. This field is populated when the Title field value is entered.
Effective To	The effective maintenance requirement end date. Only one maintenance requirement revision can be effective at the same time. This field is populated when the Title field value is entered.

4. Click the Attach button to associate new maintenance requirements to the maintenance requirement record. The Search Maintenance Requirement page appears.

5. Retrieve the maintenance requirement records to which you want to associate a new maintenance requirement. See Retrieving Existing Maintenance Requirement Records, page 2-5.

6. Select the check box for the record that you want to attach.

7. Click Attach to return this record to the Maintenance Requirements List on the Maintenance Requirement Relationships page.

Maintenance Requirement Relationships

8. Click the Apply button to save the relationship records.

9. Click Add More Rows to add maintenance requirement relationships.

10. Click the Apply button.

11. Select the Remove check box to remove the specific requirement.

12. Click the Apply button.

13. Click the Relationships button to view the child maintenance requirements associated with any Parent relationship type record in the Maintenance Requirements List.

   The list of material requirements to which the record is related and their relationship types appear.

Updating Maintenance Requirement Records

Oracle CMRO enables you to retrieve existing maintenance requirement records and edit the information associated with the requirement including maintenance routes, documents, effectivity, actions and relationships.

> **Note:** You can update these attributes for a maintenance requirement that is in the Draft or Approval Rejected status only. If the selected maintenance requirement is in the Complete, Terminated, or Approval Pending status, the application generates the details and attribute pages in view-only mode.

To view the details of a Complete, Approval Pending, or Terminated maintenance requirement, see Viewing Maintenance Requirement Details, page 2-37.

This first step in the process is to edit the basic maintenance requirement information.

Prerequisites

❒ The maintenance requirement record you want to edit must exist in the database. The record must be in the Draft or Approval Rejected status.

To update maintenance requirement records:
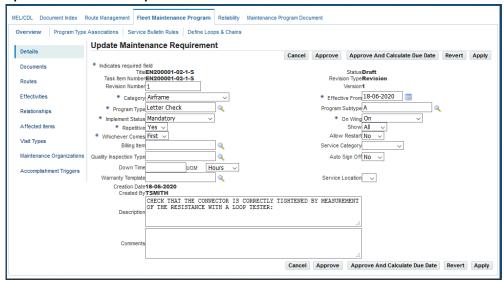
1. Retrieve the maintenance requirements that you want to update. See Retrieving Existing Maintenance Requirement Records, page 2-5.

2. In the Search Results list, click the Title link of the record that you want to edit. The Update Maintenance Requirement page appears.

   > **Note:** The maintenance requirement must be in the Draft or Approval Rejected status.

   In addition, the display-only values for the Task Item Number, Status, and Revision Type fields appear if the MR is a task associated with a Maintenance Program Document. See Working with the Maintenance Program Document Workbench,

page 4-12 for more information.

Update Maintenance Requirement

If the maintenance requirement record you selected has the status of Complete, Terminated, or Approval Pending, the application launches the View Maintenance Requirement page. Users can change the following attributes in the maintenance requirement details:

- Revision Number

- Category

- Effective From

- Program Type

- Program Subtype

- Implement Status

- Service Type

- Repetitive

- Show

- Whichever Comes

- Follows After Accomplishment of

- Allow Restart

- Billing Item

- Visit Category

- Quality Inspection Type

- Auto Sign Off

- Warranty Template

- Description

- Comments

3. Make the necessary changes to the field values.

4. Click the Apply button to record the changes.

5. Click the Approve button to advance the maintenance requirement to Approval Pending.

   This is possible only after maintenance routes have been associated to the requirement. The status changes are dependent on the approval rules during the Oracle CMRO setup.

   A maintenance requirement record in the Approval Pending Status cannot be edited. click the Approve button, the View Maintenance Requirement page is launched displaying the maintenance requirement details in a view-only mode.

6. Click the Affected Items link to view items to which the maintenance requirement applies. See Viewing Items Affected by a Maintenance Requirement, page 2-31.

7. You can also update attached documents, associated maintenance routes, attached actions, effectivities, and relationships by clicking the appropriate link.

Related Topics

Attaching Documents to a Maintenance Requirement, page 2-10

Defining Maintenance Requirement Effectivities, page 2-15

Defining Maintenance Requirement Relationships, page 2-26

Viewing Items Affected by a Maintenance Requirement

The View Affected Items page displays the items that are affected by a maintenance

requirement. Maintenance requirement effectivity are defined using the Update Effectivity page.

To view items affected by a maintenance requirement:

1. You can access the View Affected Items page using any of the following methods.

   From the Search Maintenance Requirement page:

   - Retrieve the maintenance requirement record for which you want to view the affected items. See Retrieving Existing Maintenance Requirement Records, page 2-5.

   - Select the pertinent record and click the View Affected Items button to access the View Affected Items page.

   Use the information in the following table to enter values in the View Affected Items page.

Field Name	Description
Item Number	Inventory item identification number referring to the part number that the maintenance requirement is applicable to the effectivity.
Serial Number	The part serial number to which the maintenance requirement applies. This is derived from the serial number ranges you set for maintenance requirement effectivity on the Update Effectivity Details page.
Location	An attribute of the item instance that is affected by the maintenance requirement, and is one of the standard item identifiers. The field value refers to the part location.
Status	An attribute of the item instance that is affected by the maintenance requirement, and is one of the standard item identifiers.
Owner	The item owner of the item instance that is affected by the maintenance requirement, and is a standard item identifier. This attribute is defined when part information is added or updated.

Field Name	Description
Condition	An attribute of the item instance that is affected by the maintenance requirement, and is one of the standard item identifiers.
Unit	The top node of the unit configuration in which this particular item instance is included . When you click the Unit link, the Unit Configuration page for the item opens.

2. Use the Search Maintenance Requirement page to access the maintenance requirements using one of these options: (The maintenance requirement must be in the Draft or Approval Rejected status):

- Retrieve the maintenance requirement records you want to update.

- In the Search Results region, click the title of the material requirement, and the Update Maintenance Requirement page appears.

- On the side navigation menu, click the Affected Items link to access the View Affected Items page.

3. Use the View Maintenance Requirement page to search for maintenance requirements with a status of Approval Pending, Terminated, or Complete:

- Retrieve the maintenance requirement records you want to view.

- On the Search Results list, Title link to access the View Maintenance Requirement page.

- On the View Maintenance Requirement page side navigation menu, click the Affected Items link to access the View Affected Items page.

4. Use the Update Effectivity page to search for maintenance requirements with a status of Draft or Approval Rejected:

- Retrieve the maintenance requirement records you want to update.

- On the Search Results list, click the Title link to access the Update Maintenance Requirement page.

- On the side navigation menu, click the Effectivities link to access the Update Effectivity page.

Update Effectivity

Update Effectivity

- Click the View Affected Items button to view the items affected by effectivity definitions.

  The View Affected Items page appears with a listing of all the serial numbers for which the effectivity is defined.

5. Use the View Effectivity page to search for maintenance requirements with a status of Approval Pending, Terminate, or Complete:

- Retrieve the maintenance requirement records that you want to view.

- In the Search Results list, click the Title link to access the View Maintenance Requirement page.

- On the side navigation menu, click the Effectivities link to access the View Effectivity page.

- Click the View Affected Items button to view the items affected by effectivity definitions.

  The View Affected Items page appears listing all the part serial numbers for which the effectivity is defined.

Associating Visit Types with a Maintenance Requirement

You can associate specific visit types to a maintenance requirement. This is especially useful for the transit visits, as it automates the visit creation process. When a transit visit is created and a visit type is selected, the applicable maintenance requirements and associated routes are automatically added to the visit being defined. For information on transit visits, see Creating Transit Visit from Unit Schedule, page 10-32.

Prerequisites

❐ The visit types must have been defined.

The maintenance requirement must have an Implement Status of Unplanned.

To associate a visit type with a maintenance requirement:

1. Navigate to the Update Maintenance Requirement page, and search for the maintenance requirement with which you want to associate a visit type.

2. Click the Visit Types link in the side navigation menu, and the Update Visit Type Associations page appears.

3. Click the Add More Rows button to associate visit types.

4. Select the visit types to associate and click the Apply button. The visit type is associated with the maintenance requirement. This maintenance requirement will be automatically associated with any visit created with the selected visit type.

Update Visit Type Associations page

Creating Maintenance Requirement Revisions

A maintenance requirement revision is created when an existing maintenance requirement record with the status Complete has to be updated.
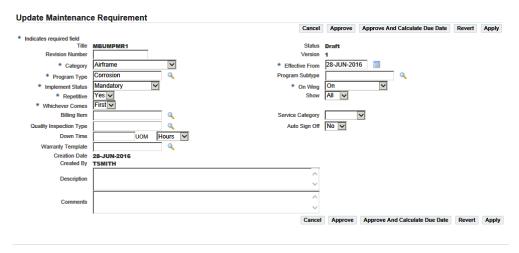
You can create a revision from an existing maintenance requirement record. The Create Maintenance Requirement Revision page is a variation of the Create Maintenance Requirement page. The maintenance requirement Version default value is the next sequentially generated number, and all the original maintenance requirement attributes including intervals and thresholds are copied to the revision. The maintenance requirement Revision Number is user defined and optional. The revision status is Draft.

> **Note:** Maintenance requirement records must have a status of Complete before revisions can be created.

To create maintenance requirement revisions:

1. Retrieve the maintenance requirement record for which you want to create a revision.

2. In the Search Results list, select the pertinent record using the Select option, and click Create Revision. The Update Maintenance Requirement page appears.

The fields that appear on the Update Maintenance Requirement page are the same as that on the Create Maintenance Requirement page with the exception of the Copy Last Accomplishment field, and the Version field default value is the next sequentially generated number.

The Copy Last Accomplishment option indicates whether the last accomplishment of the maintenance requirement should be copied in the Unit Maintenance Plan module when a new maintenance requirement revision is created. Options are Yes and No. This value is used when creating a maintenance requirement revision. This option is used only in the case of repetitive maintenance requirements. The Unit Maintenance Plan module calculates the next occurrence of the maintenance requirement based on the previous accomplishment of the same maintenance requirement. Also, when a maintenance requirement revision is created, you can retain the previous accomplishment information, or start with new information.

3. Click the Apply button to save the maintenance requirement revision record.

4. Click the Approve button to advance the maintenance requirement revision to Approval Pending status. This is possible only after maintenance routes have been associated to the requirement.

A maintenance requirement record in the Approval Pending status cannot be edited. When you click the Approve button, the View Maintenance Requirement page appears listing the maintenance requirement details in a view only mode.

5. To update the maintenance requirement attributes, such as attached documents, associated maintenance routes, actions, effectivities, and relationships, see:

- Attaching Documents to a Maintenance Requirement, page 2-10

- Defining Maintenance Requirement Effectivities, page 2-15

- Defining Maintenance Requirement Relationships, page 2-26

6. Click the Affected Items link to view the items to which the maintenance requirement revision applies. See Viewing Items Affected by a Maintenance Requirement, page 2-31.

Viewing Maintenance Requirement Details

Maintenance requirement records with the status Complete, Terminated, or Approval Pending, cannot be edited. With any of these maintenance requirement statuses, the application opens the Maintenance Requirement Details page in a view-only mode.

To view maintenance requirement details:

1. Retrieve the maintenance requirement records that you want to view.

2. Click the pertinent Title link to access the View Maintenance Requirement page, and view the maintenance requirement header details.

3. Click the appropriate link to view the attributes including attached documents, associated maintenance routes, attached actions, effectivities, and relationships of a Complete, Approval Pending, or Terminated maintenance requirement.

Associating Program Sub Types to Program Types

Use the following procedure to associate program sub types to program types.
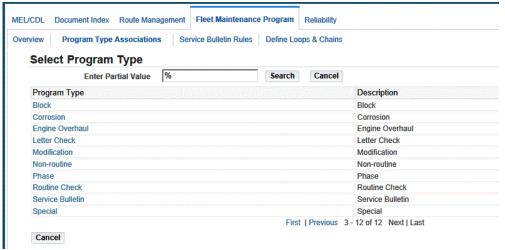
Prerequisites

❒ Program Type values must exist in the database.

To associate program sub types to program types:
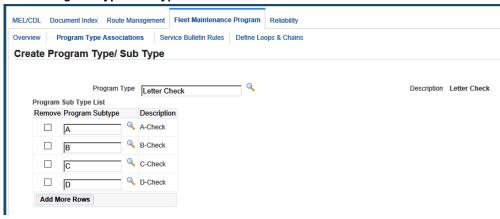
1. Click the Fleet Maintenance Program tab, and then click the Program Type Associations tab to access the Create Program Type/Sub Type page.

2. In the Program Type field, enter the generic substitution metacharacter%, and click the Search icon to return a list of Program Type values on the Select Program Type page.

Select Program Type

3. Click the relevant result to return this record to the Program Type field.

4. The Program Sub Types List shows all the program sub types associated to the selected program type.

5. Click the Add More Rows button to associate a new sub type to the program type.

Create Program Type/Sub Type

6. Enter the required values in the fields. Fields in the Program Sub Types List include:

    •   Program Subtype - the user defined sub type of the program type. For example, for the Program Type Letter Check, program subtypes could be A Check, B Check, C Check, and D Check.

- Description - the Program Subtype description.

7. Click the Apply button to record the association.

8. Select the Remove check box for the program subtype that you want to remove a subtype association, and click the Apply button.

> **Note:** You can remove a program sub type association to a program type only if this combination is not associated to any existing maintenance requirement. For information on defining program types and program sub types, see the *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide.*

Service Requests

Service requests can be created to track requirements that are not defined in the Fleet Maintenance Program. These maintenance requirements may arise in the following conditions:

- When a non-routine job requirement is discovered.

  These non-routine, or unplanned jobs can be accomplished in the originating visit or deferred to subsequent visits. The service request is the instance of this requirement and is used for planning purposes to ensure that the requirement is accomplished.

- During the utilization of the applicable unit or item. For example, when a problem is identified, the crew enters it into the system to be followed up during the maintenance process.

- Through administrative or executive actions. For example, there is a decision to change the paint scheme of a particular plane, or the seating arrangement.

An integrated service request system enables these requests to be fed directly into the planning process. You can associate predefined maintenance solutions and resource requirements with a service request. You can schedule these service requests as you schedule the requirements generated.

You can create a service requests using the Service Request page in Oracle TeleService. You can also create non-routine service requests in the Unit Maintenance Plan menu of the Planning module. These requests can be deferred to subsequent visits using MEL or CDL instructions. A corresponding unit effectivity is created for the service request. You can associate one or multiple maintenance requirements with the service request when a solution to the problem has been diagnosed. In these cases, a corresponding unit effectivity is created for the service request and child unit effectivity are created for the associated maintenance requirements. Service requests with a type of Complex

Maintenance appear as non-routine maintenance requirements. You can track not only planned maintenance in unit maintenance plans, but also the unplanned maintenance originating from production inspections or through the manual creation of a service request.

When a service request with maintenance requirements is planned (associated with a visit), a summary task is created for the top-level service request with root unit effectivity. For the child unit effectivity, summary tasks and planned tasks are created similar to the process for group maintenance requirements. Upon creation, the service request ID is associated to all summary and planned tasks when created.

When a service request with no child maintenance requirements is planned, a single summary task and planned task are created for the service request. Both the summary task and planned task will have the SR Unit Effectivity ID and Service Request ID associated.

Additionally, service requests for defects identified on the production floor can be defined in the Production module when creating non-routine work orders.

Related Topics

Entering Service Requests, page 2-40

About the Service Request Window, *Oracle TeleService Implementation and User Guide*

Creating Non-routine Requests During Unit Maintenance, page 10-15

Entering Service Requests
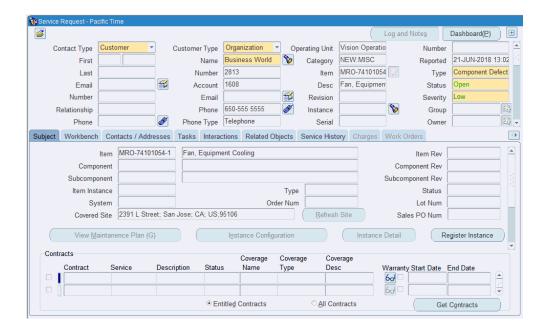
To enter service requests:

1. Navigate to the Service Request page.

   Note: You can also enter non-routine service requests in the Unit Maintenance Plan region of the Planning module. See: Creating Non-routine Requests During Unit Maintenance, page 10-15

2. Create a service request for a type of Complex Maintenance.

   For information on field descriptions, see: About the Service Request Window, *Oracle TeleService Implementation and User Guide*

Select the following values in the applicable fields:

- Type: Complex MRO Service Request Type

- Instance: Installed Base instance number

- Status: Open

- Summary: This will appear as the description of the Unit Maintenance Plan

3. Save your work.

A maintenance requirement with program type of Non-routine is created.

To associate maintenance requirements:

1. In the Service Request page, click the Maintenance Requirement tab.

The Maintenance Requirement tab is enabled only for service requests of type Complex MRO.

> **Note:** You can associate a maintenance requirement with a service request only when it is in Open status.

2. Select the maintenance requirement to associate with the service request using the following search criteria:

- Program Type: CMRO Fleet Maintenance Program MR type

- Title: CMRO Fleet Maintenance Program MR Title

3. Save your work.

Updating Service Requests

You can close a service request using the Service Request page. The maintenance requirements associated with the service request must be in an Accomplished or Cancelled status. The instance created in the unit maintenance plan is removed when the service request is closed or cancelled. The following conditions apply to service requests:

- You cannot associate maintenance requirements or remove maintenance requirements from the service request after it has been closed.

- You can change the type from CMRO to non-CMRO. Associated unit maintenance plan records are deleted.

- You can change the type from non-CMRO to CMRO only if the service request is in the Open status. A new unit maintenance plan record is created.

- If a service request has associated maintenance requirements, you cannot change the instance number, type from CMRO to non-CMRO, or close the request.

- If a maintenance requirement associated with a service request is terminated or revised in Fleet Maintenance Program, then the association is also voided.

- You cannot associate duplicate maintenance requirements with a service request.

3

Managing Maintenance Routes

This chapter covers the following topics:

- Overview
- Route Management
- Creating Operation Records
- Creating Maintenance Route Records
- Creating an Item Composition List
- Editing Item Compositions
- Viewing Item Compositions
- Creating Disposition Lists
- Editing Disposition Lists
- Approving Disposition Lists
- Finding Operation Records
- Updating Maintenance Route Records
- Defining Reference Documents
- Defining Reference Documents for an Operation
- Defining Reference Documents for a Maintenance Route
- Defining Resource Requirements
- Defining Resource Requirements for an Operation
- Defining Resource Requirements for a Maintenance Route
- Defining Costing Parameters
- Defining Costing Parameters for an Operation Resource Requirement
- Defining Costing Parameters for a Route Resource Requirement
- Defining Material Requirements

- Defining Material Requirements for an Operation

- Defining Material Requirements for a Maintenance Route

- Associating Operations with a Maintenance Route

- Defining Access Panels

- Defining Access Panels for an Operation

- Defining Access Panels for a Maintenance Route

- Editing Operation Records

- Editing Maintenance Route Records

- Defining Component Locations in Fleet Units

- Associating Major Zones to Item Types

- Associating Sub Zones to Item Types

- Finding Oracle Complex Maintenance, Repair, and Overhaul Resources

- Creating Oracle Complex Maintenance, Repair, and Overhaul Resources

- Editing Oracle Complex Maintenance, Repair, and Overhaul Resources

- Associating BOM Resources

- Generate Workcards

Overview

A maintenance route describes a series of maintenance, repair, or overhaul tasks on a fleet unit, subassembly, or subsystem. Maintenance routes are effectively work cards, modeling the printed work cards typically provided by the manufacturer of the fleet unit. Work cards are often associated with a zone in a fleet unit, such as the power plant of a commercial aircraft. Other attributes of maintenance routes include work location (engine overhaul shop, machine shop, painting facility), supporting process types inspection, cleaning), skill types (electronics technician, airframe technician, power plant technician), and supporting significant maintenance tasks (ship in dry-dock with all cargo and engines removed). Oracle CMRO includes the Route Management module that manages work cards and resource requirements.

This chapter discusses the key functions supported by the Oracle CMRO Route Management module. The chapter provides process-oriented, task-based procedures for using Oracle CMRO to perform essential route management tasks in maintenance organizations.

See:

- Creating Operation Records, page 3-5

- Creating Maintenance Route Records, page 3-8

Route Management

The Route Management module is a subsystem that manages the work definition of scheduled and unscheduled maintenance tasks. It enables maintenance organizations to create work cards specifying the zone, work location, supporting process types, skill types, and significant maintenance tasks associated with the work card.

The Route Management module also supports the management of resource

requirements for a maintenance route including labor estimate, materials estimate, tooling required, and reference documents. For some fleets, especially aircraft, regulatory compliance requires that maintenance operations be inspected before completion is formally recorded. Route Management supports the definition of inspection signature attributes for work card records. Route Management also supports the check point definitions for labor cost collection, and progress reporting.

The Route Management module uses data managed by the other modules comprising Oracle CMRO. For example, airlines may create work cards in response to an Airworthiness Directive by the Federal Aviation Administration, but only for a subset of the aircraft in the operational fleet. Using the Fleet Maintenance Program, the route management routes (work cards) can be associated with those fleet units.

Key Business Processes

Route Management supports the following business processes:

Work Card or Route Authoring

Work cards or routes are fundamental in accomplishing maintenance requirements. Work cards consist of step-by-step work instructions containing functional and operational data needed to perform specific job tasks. Oracle CMRO supports the authoring of routes. Each work card is comprised of one or several operations. The route authoring process enables maintenance personnel to select predefined operations, and associate them to a maintenance route.

Production Planning Information

Operational data is essential to the grouping work cards and planning maintenance requirements. The more the information in the work card, the easier it is for the production planner to schedule and group work cards. Oracle CMRO enables organizations to define production planning information for an operation, including work zone, work center, operation category, operation type, process, and significant tasks.

Resource Requirements Information

Functional data is essential to accomplish maintenance requirements, and to a lesser extent, the grouping of maintenance tasks. The more the information in the work card, the easier it is for the production planner to schedule and group work cards. This enables the material planner to schedule and forecast material needs. Oracle CMRO enables organizations to define the resource requirements for an operation including estimated labor man hours, material required, tools required, and reference documents.

Sign-Off Requirements

A work card changes to a work order when issued to Production. In the maintenance, repair, and overhaul industry, all work orders require to be signed off when completed, and also at certain step levels. Oracle CMRO enables maintenance facilities to define sign-off requirements for each work card. You can set up all sign-off requirements at the time the work card or route is created. The actual sign-off, however, occurs on the work

order and not on the work card.

Resource Collection Check Points

Maintenance organizations may be required to collect actual labor expended, material usage, and other job cost data at the completion of different operations during a maintenance job. Oracle CMRO enables you to collect this data by creating check points that group successive operations together.

Composition Lists Creation

Composition lists serve as the base definition for a component or assembly. They enable the creation of disposition lists and forecast models, based on the type of service to be performed, and also enable more accurate prediction of material requirements. It is a complete listing of the non-tracked items or item groups contained in an item or assembly.

Disposition List Creation

Disposition lists act as checklists for the Production user. Disposition listing is defined in the Route Management module, as the subset of a composition list, to complement material requirements. Depending on the need, maintenance personnel may use the item composition or the composition of the master configuration to create the listing that is used when the item or master configuration is being planned in a maintenance requirement.

Creating Operation Records

The Route Management module leads you through the steps to create an operation record. The initial step creates a record of the operation in the database. Subsequent steps define operation attributes such as document references, labor, machine and tooling requirements, and material requirements. The following process initiates the creation of an operation. The Create Operation page permits saving the record in the database before proceeding to define the attributes in the following pages.
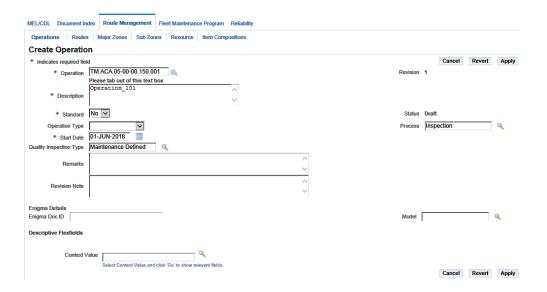
To create operation records:

1. Navigate to the Create Operation page.

2. Use the information in the following table to create an operation record.

Field	Description
Operation	Contains the operation code, which describes the order of the operation within the route.

Field	Description
Operation Type	Refers to the kind of operation being performed, and is used to organize operations.
Process	Refers to the kind of maintenance process, such as cleaning or inspection.
Status	Indicates whether the operation record is current, or in the draft stage.
Start Date	Refers to the date of the first day of effectivity of this operation.
Description	Refers to a text description of the maintenance operation.
Remarks	Refers to any additional information that the maintenance personnel should know regarding the operation.
Revision	Represents the document revision identifier.
Revision Note	Describes why the revision is made.
Quality Inspection Type	Associates a plan in Oracle Quality with quality elements for recording the necessary accomplishments and sign-off criteria of an operation.
Standard	Indicates if it is a standard (Yes) or non-standard (No) job.
Model	Identifies the type of aircraft (precisely the document associated to a type of aircraft).
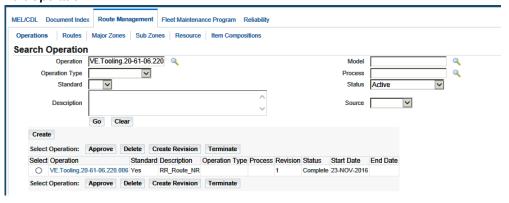
Note: The Model field is displayed on Create Operation page if you use the Enigma Integration. The Model field is used to identify the type of aircraft (precisely the document associated to a type of aircraft). For example, if the model is PW4000, then this corresponds to Engine Maintenance Manual in Enigma.

3. Click the Apply button to record the operation in the database.

   The Edit Operation page appears where you can update information and define reference documents, resource requirements, and material requirements for the operation.

Edit Operation

4. After it is completely defined, the operation must be approved. To do this, click the Approve button on the Edit Operation page. This will launch the approval workflow and, depending on the outcome of the approval, change the status of the operation.

   > **Note:** During the approval workflow, the status is Approval pending for the creation of a operation or Termination pending for the deletion of an operation. The outcome status of the approval workflow can either be Complete or Approval Rejected. When an

operation record in the Approval Rejected status is modified, the status reverts to Draft and the record can be resubmitted for approval after editing.

> **Note:** You can also approve a draft operation from the result list in the operation search screen. The approval workflow is defined by your organization at the time of setting up Oracle CMRO. For more information about setting up approval workflow, see the *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide.*

Related Topics

Defining Reference Documents for an Operation, page 3-29

Defining Resource Requirements for an Operation, page 3-33

Defining Material Requirements for an Operation, page 3-39

Creating Maintenance Route Records

The Route Management module requires steps to create a maintenance route record:

1. Create a record of the route in the database.

2. Define the attributes of the route including sign-off requirement, document references.

3. Define requirements for labor, material, machine and tools.

4. Associate existing operations with the maintenance route.

The following process initiates the creation of a route. The Create Route page enables you to save the record in the database, before defining the attributes.

Prerequisites - Create Route
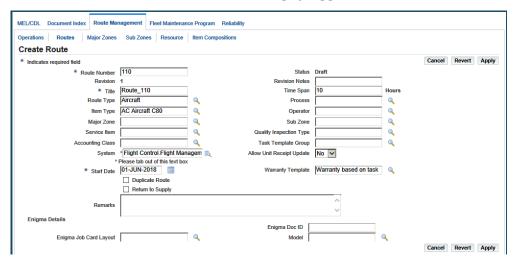
❒ While it is helpful to know the Route Type, System, Process, Major and Sub Zone, Quality Collection Plan, and the Accounting class of the system to which the maintenance route applies, but these fields are all optional.

If you define the route as a work card for a different operator on whose equipment you perform maintenance, you can specify that operator on the route. If the route is a work card for an outside processing job, you can define the Service Item that is applicable when the outside processing work order and the purchase order gets created. If Route Management is used in the Preventive Maintenance module, you

can also define the JTF Task Template Group which should be used when integrating with Oracle's Field Service module through Preventive Maintenance.

To create a route record:

1. Navigate to the Search Route page (Engineering > Route Management).

2. Click the Create button, and the Create Route page appears.

3. Use the information in this table to create maintenance route records.

Field	Description
Route Number	User-defined identifier for a maintenance route (required).
Title	The text description of the maintenance route (required).
Route Type	The type of route, for example, whether the route applies to an entire aircraft or to a subsystem in the aircraft.
Item Type	The classification by category, of the electromechanical system. If you do not know the value, enter the generic substitution metacharacter %, and click the Go button to access the Select Item Type page. This page displays all item type records in the database. Select the pertinent record to return the value to the field.

Field	Description
Service Item	The service item of this route for outside processing. This service item is used in production planning when creating the outside processing work order and the purchase order.
Accounting Class	The accounting class is used when the route becomes a WIP job in Production. It supports the costing procedure in on the shop floor.
System	The electromechanical system on which you perform the maintenance activity (required). This system field is a segmented flexfield. The segmentation is defined by your organization at set up time. .
Start Date	The date of the first day of effectivity for this maintenance route (required). Enter a date, or click the icon beside the Date field to access the calendar.
Status	The current stage of the route record, and can Completed or Draft.
Time Span	The total duration of a route in hours. It will be used when calculating the visit structure in the Visit Work Package.
Operator	The organization operating the item. If you do not know the value, enter the generic substitution metacharacter %, and click the Go button to access the Select Operator page.
Major Zone and Sub Zone	The user-defined zones used as a method for identifying locations in the electromechanical system being maintained. If you do not know the value, enter the generic substitution metacharacter%, and click Go to launch the Select Major Zone (or Sub Zone) page.
Process	The type of the maintenance route such as cleaning or inspection.
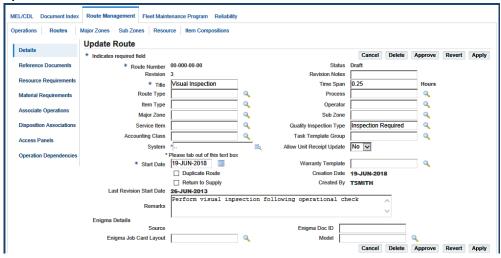
Field	Description
Quality Inspection Type	The association to a plan in Oracle Quality with quality elements for recording the necessary accomplishments and sign-off criteria of an operation. Quality collection plans are used at the time of maintenance completion, and are set up as part of Oracle Quality.
Task Template Group	A template group used by Oracle Service. Task template groups should be defined if your organization uses Oracle's Preventive Maintenance module.
Allow Unit Receipt Update	This field Indicates if the unit can be updated upon receipt. Options are Yes or No (the default value is No). It cannot be modified once a route is approved.
Revision	The user-assigned document revision identifier.
Warranty Template	Optionally, you can select a Warranty Template to add to a route. This template is superseded if the maintenance requirement in which the route is associated also has a warranty template defined.
Model	The type of aircraft. This field identifies the specific document associated to a type of aircraft. Model field is displayed on Create Route page if you integrate with Enigma. For example, if the model is PW4000, then this corresponds to Engine Maintenance Manual in Enigma.

4. Click the Apply button to record the route in the database.

The Update Route page appears where you can update information and define reference documents, resource requirements, and material requirements for the operation.

After it is completely defined, the route must be approved.

Update Route

5. Click the Approve button on the Update Route page.

   This will launch the approval workflow and, depending on the outcome of the approval, change the status of the operation.

   > **Note:** The status to which the route gets updated depends on the approval workflow setup. You may set up the workflow so that the route passes from Draft to the Approval Pending status. Optionally, the status may directly change to Complete when the route is approved. The outcome status of the approval workflow can either be Complete or Approval Rejected. When a route in the Approval Rejected status is modified, the status reverts to Draft and the record can be resubmitted for approval after editing.

   You can also approve a draft operation from the result list in the operation search screen. The approval workflow is defined by your organization during the setup of Oracle CMRO. For more information about setting up approval workflow, see the *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide.*

   For routes created from Enigma, a file shortcut icon is displayed against the route ID. This icon either shows a PDF document if the revision is complete or a window opens to the Enigma AMM section associated to the route.

6. To define the attributes of the route such as reference documents, labor requirement, resource requirement (material, tool, machine, and so on), and associated operations, see:

Related Topics

Creating an Item Composition List

A composition list is a flat listing of the non-tracked parts, items or item groups, that are contained in, and can be used in maintaining an Oracle Installed Base tracked item. Composition lists are revision-controlled, allowing for changes to be tracked and approved through an approval workflow, automatically replacing the older revision when approved. Composition lists serve as the base definition for a component or assembly enabling the creation of disposition lists. Disposition lists provide a listing of items, item groups, and positions which may be impacted during the performance of a route. Production planners refer to the composition list during the course of maintenance as a complete listing of the items contained in an item or assembly.

> **Important:** You can create item composition lists and associations for **Installed Base tracked items only**.

To create a composition list, the user must select the Installed Base tracked item or the master configuration for which the composition is to be created. A hierarchy is then created using either position codes or items, or a combination of both. After defining the composition list, you can create the details of the Disposition List by:

• Associating the Installed Base tracked item with a route.

• Associating a master configuration with a route.

  Compositions are inherited in the Master Configuration module through the tracked item's association with the item groups for each position and sub-configuration position.

Composition lists reduce the amount of time required to research, create, and maintain routes. When a composition is revised, the changes are automatically reflected in the routes disposition, thus keeping the route up to date.

See also:

Prerequisites

- Installed Base tracked items, non-tracked items and item groups must have been defined.

- The Approval workflow must be set up.

To create a composition list for an Installed Base tracked item:

1. Navigate to the Search Item Composition page (Engineering > Route Management > Item Compositions).

   The Search Item Composition page appears.

   > **Note:** You can also create composition lists from the Master Configuration module also. Navigate to the Master Configuration module, and select the Composition List sub-tab. The Search Item Composition page appears.

2. Click the Create button, and the Create Composition List page appears.

3. Select an organization (required).

   This represents the master organization to which an item belongs.

4. Select an item (required).

   > **Note:** Draft is the status when creating a composition list.

5. Tab or click out of the field.
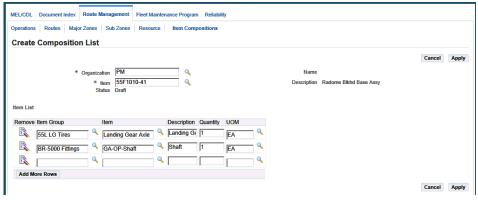
   The following table describes the fields related to item compositions.

Field	Description
Organization	The organization in which you are creating the item composition (required).

Field	Description
Item Group	The alternate item group defined in the Master Configuration module. If your material requirement for this task is not a specific item type but a group of alternate items, you can define the complete alternate item group as a material requirement. This definition specifically applies for a replacement material requirement. You can only define an item group or a part number for only one material requirement. If you do not know the value, enter a partial search string using the generic substitution metacharacter%, and click the Search button to retrieve the list of alternate item groups.
Item	The Installed Base tracked item for the header item and a non-Installed Base tracked item in the details.
Description	The description of the item group or the part (item) number. The description is automatically populated when selecting an item group or item number.
Quantity	The quantity necessary for the item or item group and is not required for the item group association.
UOM	The unit of measure for the item or item group and is not required for the item group association.

6. Tab or click out of the field.

7. Click the Add More Rows button. You can add the following to the composition list:

   • Non-Tracked Item Groups

   • Non-Tracked Items associated with at least one Oracle Inventory organization

Create Composition List

> **Note:** You can copy composition details from one item composition into another Composition List if records exist in the database. In the Update Composition List page, click the Copy Compositions button. The Search Item Composition page appears, and select the item composition, from which you want to copy the details.

8. Enter the quantity and unit of measure for the non-tracked items, and click the Apply button.

   The Update Composition page appears, displaying the item composition details.

9. Click the Submit for Approval button to submit the item composition for approval.

   An approval workflow is implemented to allow the user to obtain approval from engineering, planning, materials, or other supervisory authorities. This ensures that the materials are properly planned and approved for use.

Editing Item Compositions

Prerequisites
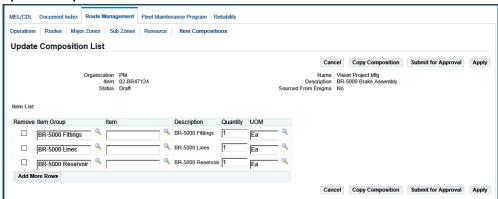
☐ The item composition that you want to edit must exist in the database, and must have a status of Draft.

To edit item compositions:

1. Navigate to the Search Item Compositions page. For information, see Creating an Item Composition List, page 3-13

2. Search for the item composition that you want to edit. The results appear in the Item Composition List table.

3. Select the item composition, and click the corresponding Edit icon. The Update Composition List page appears.

Update Composition List

4. Select the Remove check box for the item or item group that you want to remove from the composition list.

5. Click the Apply button.

6. Click the Add More Rows button to add more items or item groups.

7. Click the Apply button to save the changes.

8. Click the Copy Compositions button to copy the item composition from an existing composition list.

9. Enter the item composition from which you want to copy the composition list, and the View Composition List page appears.

10. Select the items that you want to include, and click the **Copy Compositions** button. The items are added to the item list of the composition that you are editing.

11. Click the Submit for Approval button to initiate the approval workflow. The item composition is submitted for approval, and the View Composition List page appears.

12. Click the Create New Revision button to make changes to the item composition that you have defined, and the Update Composition List page appears.

    You can create revisions for all item compositions with a status of Complete.

    The Create Revision button is also available in the results table in the Search Item

composition list page. Disposition lists, which have been created utilizing the item compositions, automatically inherit all revisions made to the item composition.

13. Make the necessary changes, and click the Apply button.

   After approval, a new revision appears as the active revision.

Viewing Item Compositions

To view item compositions:

1. Navigate to the Search Item Compositions page (Engineering > Route Management > Item Compositions).

   The Search Item Composition page appears.

2. Search for the composition list that you want to view.

3. Click the Go button, and the results appear at the bottom of the page.

4. Select an item and click the Item link.

   The View Composition List page appears, displaying the list of non-tracked items and item groups.

5. Optionally, you can view and edit the item composition from the Configuration > Master Configuration menu.

   1. Click the Master Configuration tab, then select the Composition List link.

      The Search Item Composition page appears.

   2. Enter your search criteria and click the Go button.

      You can view the associated disposition lists, create a revision for the composition list, or submit it for approval.

Creating Disposition Lists

Disposition lists are defined as a subset of a composition list or master configuration to complement material requirements. A disposition list is a list of the items, item groups, and positions, that may be impacted when a route is performed. A route can be set up to contain multiple disposition lists. A disposition list can also be a subset if additional materials are defined for the item or configuration.

Disposition lists are created though the association of an item or master configuration to a route.

- **Route-Item Association:** For a route and item association, you can choose the disposition items from the composition list of the associated item.

  Additionally, you can pick items from the item master not related to the composition list. The item must be set up as a Tracked Item. For each item defined in the disposition list, you can assign a percentage value that indicates the possibility of a replacement or tracked percentage of rework when this maintenance route is executed. The material planner uses the percentage figure to make an accurate planning decision. You can also select non-tracked items or item groups from the composition list. The percentage of rework cannot be defined for a non-tracked item.

- **Route-Master Configuration Association:** For a route and master configuration association, you can select the positions to associate from the master configuration.

  This position path can be revision specific or revision independent. You can also select the alternate item and the composition items and item groups for a position. The association is at the position level instead of the item level, indicating that every alternate item is dispositioned the same way. You can also pick items from the item master not related to the composition list. You can then assign to each position, a percentage of rework or replacement. The association with a master configuration can be revision specific or independent.

A disposition list is approved when the route is approved.

Materials are forecast, planned, and scheduled based on the percentile of expected replacement or rework from the disposition list combined with the mandatory replacement items on the material requirements list. Only the items, item groups, or positions that are set as a 100% replacement are auto-planned. Disposition lists provide the ability to create material requirements that are item or master configuration specific. Disposition lists are also used by maintenance or inspection personnel to set up items or parts to be dispositioned and to create material transactions. Maintenance or inspection personnel use the listing to disposition parts for rework; scrap; use as is; identify parts not received; identify as BFS (bad from stock), not applicable, return to vendor, return to customer, hold, or not removed.

Disposition lists are created and utilized differently based on the maintenance needs. Following are some examples:

- Component overhaul - The disposition list is defined based on a route-item association.

- Assembly breakdown - For assembly breakdowns, such as module disassembly in an engine shop, the items for disposition are typically the sub-assembly modules.

  Thus, when defining the disposition list for an assembly breakdown, the route is associated with a master configuration. The highest assembly is associated with the route, and the sub-assembly positions are included in the disposition list.

- Assembly piece part breakdown - Disposition lists for assembly piece part

breakdown are based on both the route-item and the route-master configuration association.
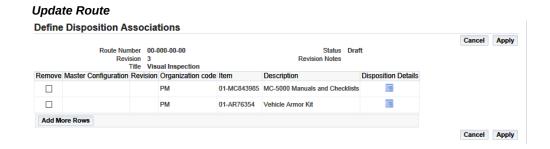
When a master configuration has been associated, you can also define a disposition list, which not only uses the master configuration hierarchy, but also the item composition. You can select positions, and the compositions of the items assigned to the various positions. You can include the position's path if the disposition applies to the specific position only.

Prerequisites

❒ The following must have been defined:

- Tracked and Non-tracked items and item groups.

- Composition lists for all tracked items.

- Master configurations and their position associations.

To create disposition lists:
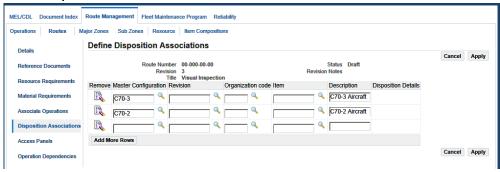
1. Select the route for which you want to create the disposition list, and the Update Route page appears.

Update Route

Define Disposition Associations

					Cancel	Apply

Route Number 00-000-00-00 Status Draft
Revision 3 Revision Notes
Title Visual Inspection

Remove	Master Configuration	Revision	Organization code	Item	Description	Disposition Details
☐			PM	01-MC843985	MC-5000 Manuals and Checklists	📋
☐			PM	01-AR76354	Vehicle Armor Kit	📋

Add More Rows

Cancel Apply

2. Select the Disposition Associations link, and the Define Disposition Associations page appears.

Define Disposition Associations

3. Use the information in the following table to define disposition associations.

Field	Description
Master Configuration	Name of the master configuration that you want to associate with the route. The items can be tracked or non-tracked.
Revision	The part revision identifier.
Organization Code	The code for the inventory organization.
Item	The non-tracked item.
%Replace	The percent of replacement.
%Rework	The percent of rework.

4. Click the Apply button to save your work.

To create a route-item association:

1. Select an organization.

2. Select an item.

3. Click the Disposition Details button to view the disposition details.

   The Disposition List Details page appears.

4. Click the Select from Composition button to add the non-tracked items or item groups in the item composition.

The Composition Selection page appears, displaying the composition list.

5. Select the items include, and the items are added to the disposition list.

   The disposition list definition should not include the 100% replacement parts defined in the material requirements. If such an item is included, the disposition list definition will supersede the material requirements list on the route. The disposition list will contain the same item as a material requirement if it varies by the configuration or composition.

6. Optionally, you can add one item or item group at a time.

   In the Disposition List Details page, choose the item/item-group using the corresponding list of values in the Material List.

7. Select the Remove check box to remove an item or item group from the Disposition List.

8. Click the Apply button.

   The item is not removed from the item composition. You can include it again, by clicking the Select from Composition button, and then selecting the item from the Composition list.

9. Enter a Replace or Rework percentage.

   Items with percentage of 100% for replace or rework percentage are automatically planned by the planning engine during material demand planning and scheduling. Items with percentages less than 100 can be manually planned and scheduled in the Scheduled Materials page in the Planning Workbench. For details, see Material Demand Planning and Scheduling, *Oracle Complex Maintenance, Repair, and Overhaul User's Guide*.

10. Select the Exclude check box if you do not want these items to appear in the Production Disposition view when selecting items to disposition.

    For details on item disposition, see Item Disposition, *Oracle Complex Maintenance, Repair, and Overhaul User's Guide*.

11. Optionally, you can add items that may be required, and the items will be impacted during the route execution.

    Click the Add More Rows button and select the item or item group that you want to add.

12. Click the Apply button to save the record.

To create a route-master configuration association:

1. Access the Disposition Association page, and select the master configuration that

you want to associate with the route.

2. Optionally, you can choose a specific revision of this master configuration.

3. Click the Apply button.

4. Click the Disposition Details button to view the disposition details. You can now add position references to the Disposition list.

5. Click the Position Reference search icon to select the position references defined for the master configuration, which you associated with the route.

   The Search Master Configuration Revision page appears displaying all versions of the master configuration record.

6. Optionally, you can enter a version number in the Revision field to select the position from a specific version of the master configuration.

7. Click the Tree icon corresponding to the master configuration version to select a position reference. The Select Position page appears, displaying the configuration tree.

8. Select a position in the configuration tree, and the position reference details appear.

9. Select Yes from the Version Specific drop-down list to make the position path revision-specific.

   The position reference that is considered is based on the selected master configuration version.

   Select Position

10. Click the Apply button, and the position reference is added to the disposition list.

11. Enter a Replace and Rework percentage.

12. Enter a value in the Quantity and UOM fields.

13. Click the Apply button.

    Disposition lists, created for part piece assembly breakdown, are based on a route-

master configuration association. These lists also require a non-tracked parts listing, which is derived from the composition of the item assigned to a position reference.

> **Note:** If a composition or master configuration is revised by removing positions, items, or item groups, and a disposition list has been created that uses them, the disposition list will automatically reflect the changes.

To create disposition lists, with both configuration and composition selections:

1. Select a route, and associate a configuration with it.

2. Select the position references to add to the disposition list.

3. Click the Select Compositions button to select items from the item compositions.

   The Composition Selection page appears.

Composition Selection

4. Select the Position and Item from the list of values.

5. Click the Go button.

   The non-tracked items and item groups included in the item composition appear.

6. Select the items to include in the Disposition list.

7. Optionally, select the Include Position Path in Disposition check box to add the position to the disposition list.

8. Click the Apply button.

The Disposition List Details page appears, displaying the item and position details.

> **Note:** If a item or item group is removed from a composition, it will be automatically removed from the disposition list.

Disposition Planning

The disposition listing and rework and replace percentages enable the maintenance planner to schedule materials when scheduling a maintenance visit. The items from the routing material requirements and from the disposition list, which have a 100% replacement percentage, are planned through Advanced Supply Chain Planning. The replace or rework items that have less than 100% percent included in a route's disposition list are from a route's disposition lists are scheduled by the planner from the Scheduled Materials page in the Planning Workbench.

If the percentile is in the position code, then the planning engine considers the requirement based on the first highest priority item for the position alternates.

Related Topics

Editing Disposition Lists, page 3-25

Approving Disposition Lists, page 3-25

Editing Disposition Lists

To edit disposition lists:

1. Navigate to the Update Route page, and select the route whose disposition list you want to edit. For information, see Editing Maintenance Route Records., page 3-47

2. Click the Disposition Associations link. The Define Disposition Association page appears.

3. Make the required item changes.

   For information, see Creating Disposition Lists, page 3-18.

4. Click Apply.

Approving Disposition Lists

A disposition list is approved when the associated route is approved. For information on route approval, see Creating Maintenance Route Records, page 3-8.

When the route is approved, you can view the disposition association. Use the Update Route page and select the Disposition Associations link. The View Disposition

Associations page displays the disposition list details.

> **Note:** Disposition lists, which apply to the master configuration and item being planned, are transferred to Planning when the route for a maintenance requirement is being planned. Planners use the replace and rework percentiles to determine which materials to consider. The replacement percentile and the actual item instance are used to plan the material requirements. The rework percentile and the items average duration are used to forecast the need for a replacement part.

Finding Operation Records

Maintenance organizations refer to the existing operation records while defining solutions for similar maintenance requirements. Oracle CMRO also enables organizations to associate existing operations to a maintenance route. This necessitates the efficient retrieval of operation records.

Oracle CMRO enables the use of metacharacters when you type a word, or part of a word, to use as a search argument. Use % to represent any string of zero or more characters. Use _ to represent any single character. For example, if the database contains a record with the value "ENGINE" in a field, typing "E%" will return all records where the field value begins with "E".

Prerequisites

❒ The operation record you want to retrieve must exist in the database.

To find an operation record:

1. Navigate to the Search Operation page (Engineering > Route Management > Routes > Operations).

   The Search Operation page appears.

   > **Note:** You can also activate the Search Operation page in a query-only mode by running a specific function. This function restricts you from creating a new operation using the Search Operation page.

2. Enter the information in the fields.

3. Click the Go button, and the operation records list appears.

4. Click the Clear button to restart a search.

All the search fields on the page will clear. However, if you have retrieved records, these records will display in the lower part of the page.

5. Enter the new search criteria, and click the Go button.

6. Select an operation record to edit.

7. Click the Operation link, and the Edit Operation page appears.

8. Make the necessary changes.

9. Click the Apply button.

10. Select the draft operation that you want to approve, and then click the Approve button.

11. Select the draft operation that you want to delete, and then click the Delete button.

12. Select the active operation that you want to terminate, and then click the Terminate button.

13. Select the active operation for which you want to create a revision, and then click Create Revision.

> **Note:** The Approve, Delete, Terminate, and Create Revision functions can also be performed from the Edit Operations page.

Updating Maintenance Route Records

Use this process to retrieve maintenance route records from your database.

Oracle CMRO enables the use of metacharacters when you type a word, or part of a word, to use as a search argument. Use % to represent any string of zero or more characters. Use _ to represent any single character. For example, if the database contains a record with the value ENGINE in a field, entering E% will return all records where the field value begins with E.

Prerequisites

❒ The maintenance route that you want to retrieve must exist in the database.

To update maintenance route records:

1. Navigate to the Search Route page.

2. Enter the information in the fields for the route.

3. Click the Go button to retrieve the records based on the search criteria.

4. Select the radiobutton for the route.

5. Select a value from the Select From drop-down list:

    Note: The list of available values depends on the status of the route.

    - **Approve**: Select the Draft route that you want to approve.

    - **Create Revision**: Select the Active route to create a revision.

        Note: The Approve, Terminate, Delete, and Create Revision functions can also be performed from the Update Route page.

    - **Terminate**: Select the Active route that you want to terminate.
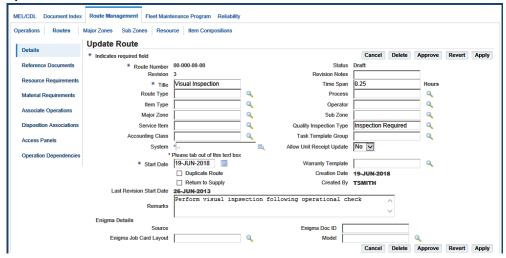
      You can terminate only those routes which are not associated with any maintenance requirements or those routes in which the Effective To date have passed.

    - **Delete**: Select a Draft route that you want to delete.

    - **Associate Operations**: Use this option to associate operations.

    - **View Maintenance Requirements**: Use this option to view the maintenance requirements that have been associated with the route in the Fleet Maintenance Program.

      The Search Maintenance Requirements page appears. Enter the search criteria and view the maintenance requirements. You can view maintenance requirements only for routes with a status of Complete or Termination Pending.

6. Click the Go button, and the Update Route page appears.

Update Route

7. Make the necessary changes.

8. Click the Apply button.

Defining Reference Documents

Oracle CMRO enables you to define the reference documents related to a maintenance activity while creating the work card. This provides a ready reference that can improve the operational efficiency of the personnel involved in the maintenance job.

Related Topics

Defining Reference Documents for an Operation, page 3-29

Defining Reference Documents for a Maintenance Route, page 3-31

Defining Reference Documents for an Operation

Prerequisites

❒ The document references and the operation record to which you want to associate must exist in the database.

To define reference documents for an operation:

1. Navigate to the Search Operation page (Engineering > Route Management > Routes

> Operations).

The Search Operation page appears.

2. Click the Create button to launch the Create Operation page, or search for an existing operation from the Search Operation page.

3. Click the Create button to create a new operation and enter information in the fields.

Information in fields marked with an asterisk is mandatory.

4. Click the Apply button to save the operation.

The Edit Operation page appears.
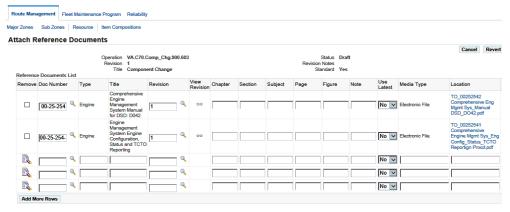
5. Enter the operation and click the Go button.

6. Click the corresponding link to access the Edit Operation page.

7. Click the Reference Documents link to access the Attach Reference Documents page.

Use the information in the following table to define a reference document.

Field	Description
Document Number	A unique identifier, generated by the organization to identify a maintenance document. If you do not know the document number, enter the generic substitution metacharacter% in the field, and click the Go button to access the Select Doc Number page to view all the document references in the database.
Type	The major topic such as power plant, fleet unit, and ground support equipment that is described in the document. This field value is populated when you enter the Document Number.
Title	The title of the maintenance document. The default field value appears when you enter the Document Number.
Revision	A user-assigned document revision identifier.
Chapter	A specific chapter in the associated document. The value is defined by the user when the association is created.
Section	A specific section in the associated document. The value is defined by the user when the association is created.

Field	Description
Subject	A specific subject in the associated document. The value is defined by the user when the association is created.
Page	A specific page in the associated document. The value is defined by the user when the association is created.
Figure	A specific figure in the associated document. The value is defined by the user when the association is created.
Note	A specific note in the associated document. The value is defined by the user when the association is created.

Attach Reference Documents

8. Click the Remove check box for the document definition that you want to remove.

9. Click the Apply button to save the changes.

Defining Reference Documents for a Maintenance Route

Prerequisites

❒ The document references and the maintenance route record to which you want to associate them must exist in the database.

To define reference documents for a maintenance route:

1. Navigate to the Search Route page (Engineering > Route Management > Routes).

2. Click the Create button to access the Create Route page, or search for an existing route using the Search Route page.

3. If you are creating a new route, enter the information in the fields provided.

4. Click the Apply button to save the route. The Update Route page appears.

5. If associating documents to an existing route, retrieve the route, and then click the Route link to navigate to the Update Route page.

6. Click the Reference Document button to access the Attach Reference Documents page.

7. Enter the information in the fields.

Attach Reference Documents

8. Click the Apply button to add the reference document information to the maintenance route record.

9. Select the Remove button for the document definition that you want to remove, and then click the Apply button.

Defining Resource Requirements

Oracle CMRO enables you to compile labor requirements related to a maintenance task. This information is necessary for pre-planning activities. Resource requirements can be defined as Labor, Tooling or Machinery.

Resource requirements are defined at either the operation or the route level. If the requirements are defined at both levels, only the route definitions are used for planning and production processes.

Related Topics
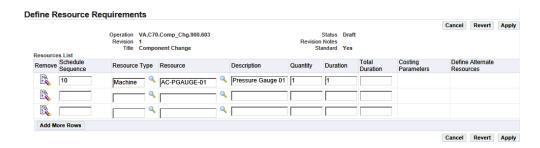
Defining Resource Requirements for an Operation, page 3-33

Defining Resource Requirements for a Maintenance Route, page 3-34

Defining Resource Requirements for an Operation

To define resource requirements for an operation:

1. Select an operation and navigate to the Edit Operation page.

2. Click the Resource Requirements link to access the Define Resource Requirements page.

3. Use the information in the following table to enter the resource requirements.

Field	Description
Resource Type	The type of resource requirement.
Primary Resource	The resource required to perform the route or operation.
Quantity	The number of resources required to perform the route or operation.
Duration	The number of hours required of each resource to perform the route or operation.
Costing Parameters	Field used to calculate job costs during execution of the route or operation on the shop floor. The costing parameter values are defined when implementing Oracle's Work in Process (WIP) and Costing applications.
Alternate Resources	Resources that the user can select as an alternative to the primary resource defined.
Total Duration	The sum of all the required durations for each unit represented in the Quantity field for the resource requirement.
Schedule Sequence	Field used to sequence resources on the route or operation. Sequencing resources are required for a long operation when the resource is not needed for the entire duration.

4. Select the Apply button to save your work.

5. Enter a Costing Parameters value to specify costing parameters for this resource requirement. The Update Costing Parameters page appears.

> **Important:** The Costing Parameters field is available if you have installed Oracle WIP and Oracle Cost Management.

See Defining Costing Parameters, page 3-35.

Defining Resource Requirements for a Maintenance Route

Prerequisites
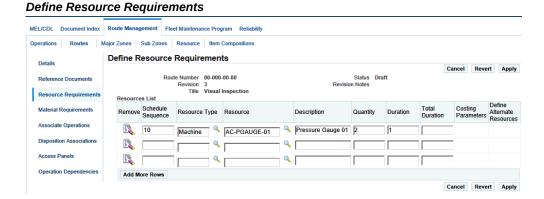
❏ The maintenance route record for which you want to define labor requirements must exist in the database. The resources required to complete the route must be set up in the database. Refer to the *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide.*

To define resource requirements for a maintenance route:

1. Navigate to the Search Route page (Engineering > Route Management > Routes).

   The Search Route page appears.

2. Click the Create button to access the Create Route page, or search for an existing route using the Search Route page.

3. If you are creating a new route, enter the information in the fields.

   Information in the fields marked with an asterisk is mandatory.

4. Click the Apply button to save the route.

   The Update Route page appears.

5. If you are defining resources for an existing route, retrieve the route, and click the

corresponding Route link in the search result list to navigate to the Update Route page.

6. Click the Resource Requirements and, and the Define Resource Requirements page appears.

7. Click the Add More Rows button to enter resource requirements.

   Enter the information in the fields.

Define Resource Requirements

8. Click the Apply button to add the resource requirement information to the operation record.

9. Click the Costing Parameters button to specify the costing parameters for this resource requirement. See Defining Costing Parameters, page 3-35.

10. Click the Remove button for the resource requirement that you want to remove.

11. Click the Apply button to save your work.

Defining Costing Parameters

Oracle CMRO enables you to define the costing parameters for resource requirements. These parameters are used to calculate the job costs during the execution of the route or operation on the shop floor. The costing parameter values are defined when implementing Oracle Work in Process (WIP) and Costing modules. The definition of the costing parameters at the route or operation level is optional. If you do not define any cost parameter values when you create a job in WIP for this route or operation, the system selects a default from the Bill of Materials resources connected to the Oracle CMRO resource.

Related Topics

Defining Costing Parameters for an Operation Resource Requirement

Prerequisites

❒ The operation record and the material requirements for which you want to define costing parameters must exist in the database.

❒ The costing parameters must exist in the database.

To define the costing parameters for an operation requirement:

1. Navigate to the Search Operation page (Engineering > Route Management > Operations).

   The Search Operation page appears.

2. Click the Create button to access the Create Operation page, or search for an existing operation from the Search Operation page.

3. If you are creating a new operation, enter the information in the fields.

4. Click the Apply button to add the operation, and the Edit Operation page appears.

5. If you are defining parameters for an existing operation, retrieve the operation.

   Click the corresponding link in the search result list to navigate to the Edit Operation page.

6. Click the Resource Requirements link to access the Resource Requirements page.

7. Enter the information in the fields.

8. Click the Apply button to add the resource requirement information to the operation record.

9. Click the Costing Parameters button to navigate to the Update Costing Parameters page.

10. Enter the information in the fields.

    For information regarding the field descriptions, see Fields on the Costing

Parameter Page, page 3-38.

11. Click the Apply button to save your costing parameter definition.

12. Select the Null (blank) value in each drop-down list to remove the costing parameters.

13. Click the Apply button.

To view costing parameters for an operation:

1. Navigate to the Search Operation page (Engineering > Route Management > Operations).

   The Search Operation page appears.

2. Search for an existing operation, and then click the Go button.

3. Click the Resource Requirements link, and the View Resource Requirements page appears.

4. Click the Costing Parameters button for the operation, and the View Costing Parameters appears.

5. View the costing parameters.

Defining Costing Parameters for a Route Resource Requirement

Prerequisites

❐ The route record and the material requirements for which you want to define costing parameters must exist in the database.

❐ The costing parameters must exist in the database.

To define costing parameters for route resource requirements:

1. Navigate to the Search Route page (Engineering > Route Management > Routes).

   The Search Route page appears.

2. Click the Create button to launch the Create Route page, or search for an existing route from the Search Route page.

3. If you are creating a new route, enter the information in the mandatory (asterisk) fields.

4. Click the Apply button to add the route.

   The Update Route page appears.

5. If you are defining parameters for an existing route, retrieve the route, and click the Route Number link to access the Update Route page.

6. Click the Resource Requirements link to access the Resource Requirements page.

7. Enter the information in the fields.

8. Click the Apply button to add the resource requirement information to the route.

9. Click the Costing Parameters button to access the Update Costing Parameters page.

10. Use the information in the following table to enter costing details.

Field	Description
Cost Basis	The Cost Basis ID. The value is selected from a drop-down list. The values are defined during the resource definition for the bill of material (BOM).
Scheduled	The Schedule Type ID. The value is selected from a drop-down list. The valid schedule types are defined during the resource definition of the BOM.
Autocharge Type	A method of charging a discrete job or repetitive schedule for the resources consumed at an operation. The value is selected from a drop-down list. The autocharge types are defined during the resource definition of the BOM.
Standard Rate	The frozen standard unit cost for a resource. The value is selected from a drop-down list and can be either Yes or No.

11. Click the Apply button to save your costing parameter definition.

Update Costing Parameters

		Cancel	Revert	Apply

Route Number 00-000-00-00
Revision 3
Title Visual Inspection
Resource Type Person
Resource AD-A&P

Status Draft
Revision Notes

Quantity 1
Duration 0.25

Costing Parameters

Cost Basis Item
Autocharge Type Manual

Scheduled Yes
Standard Rate Yes

12. Remove the costing parameters, select the null (blank) value from the drop-down list of each field you want to remove.

13. Click the Apply button to save your work.

Defining Material Requirements

Oracle CMRO enables you to compile material requirements related to a maintenance task. This information is necessary for pre-planning activities.

The material requirements are defined at either the operation or the route level. If requirements are defined at both levels, only the route definitions are used for the planning and production processes.

Related Topics

Defining Material Requirements for an Operation, page 3-39

Defining Material Requirements for a Maintenance Route, page 3-41

Defining Material Requirements for an Operation

Prerequisites

❒ The operation record for which you want to define resource requirements should exist in the database.

❒ The material required to complete the operation must exist in the database.

To define material requirements for an operation:
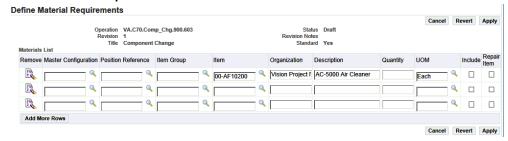
1. Navigate to the Search Operation page (Engineering > Route Management > Operations), and the Search Operation page appears.

2. Click the Create button to launch the Create Operation page, or search for an existing operation from the Search Operation page.

3. If you are creating a new operation, enter the information in the fields.

   Click the Apply button to add the operation, and the Edit Operation page appears.

4. If you are defining material requirements for an existing operation, retrieve the operation and click operation link to access the Edit Operation page.

5. Click the Material Requirements link, and the Define Material Requirement page appears.

6. Click the Add More Rows button to enter material requirements.

   Use the information in the following table to enter material requirements.

Field	Description
Item Group	The Alternate Item Group defined in Master Configuration. If your material requirement for this task is not a specific item type but a group of alternate items, you can define the complete alternate item group as a material requirement.
	This definition specifically applies to a replacement material requirement. You can only define an item group or a part number for only one material requirement. If you do not know the value, enter a partial search string using the generic substitution metacharacter%, and click the Search icon and select the item group.
Part Number	An item number that is required to perform the task.You can only define an item group or a part number for one material requirement. If you do not know the value, enter the search criteria metacharacter%, and click the Search icon. Only the eAM enabled inventory items are available for selection.
Quantity	The number of parts required to perform the task.
UOM	The unit of measure of the quantity required to perform the task.
Repair Item	A material requirement that is fulfilled by repairing an item in a visit and is not planned for in Oracle Advanced Supply Planning.
Exact Item	This check box indicates if the material requirement requires an exact item as the installed item.
	Important: This check box cannot be used for positions that have Service Bulletin rules defined.

Field	Description
As Required	This check box is used for material planning purposes only.

Define Material Requirements

7. Click the Apply button to add the material requirement information to the operation record.

8. Click the Remove button for the material requirement that you want to remove from the operation.

9. Click the Apply button to save your work.

Defining Material Requirements for a Maintenance Route

Prerequisites

❒ The maintenance route record for which you want to define material requirements must exist in the database.

❒ The item type and part number must exist in the database.

To define material requirements for a maintenance route:

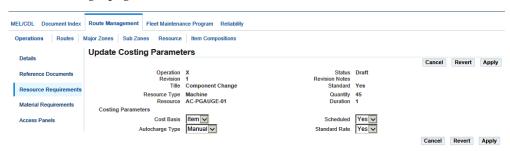1. Navigate to the Search Route page (Engineering > Route Management > Routes).

   The Search Route page appears.

2. Click the Create button to launch the Create Route page, or search for an existing route using the Search Route page.

3. If you are creating a new route, enter the information in the fields.

Click the Apply button to add the route. The Update Route page appears.

4. If you are defining material requirements for an existing route, retrieve the route, and click the Route Number link to access the Update Route page.

5. Click the Material Requirements link, and the Define Material Requirement page appears.

6. Click the Add More Rows button, and enter the required information.

7. Select the Include check box to indicate if the material requirement should be viewed in the disposition list.

   A disposition list is defined as a subset of a composition list to complement material requirements.

   Items defined as material requirements are expected to be 100% replacement requirements. If you want to have the item as a predominately 100% replacement but occasionally use a different percentage, you must define the requirement in the disposition list and set the percentile for replacement and repair. Material requirements are superseded by the disposition requirements where applicable, based on the master configuration or the item being planned.

8. Optionally select the Repair Item check box that identifies a material requirement that is fulfilled by repairing an item in a visit and is not planned for in Oracle Advanced Planning.

   > **Additional Information:** The items from the route material requirements and from the disposition list, which are set to 100% replacement, are planned by default through Advanced Supply Chain Planning.

9. Optionally select the Exact Item check box to indicate if the material requirement requires an exact item as the installed item.
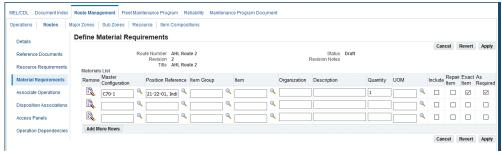
   > **Important:** If the position has service bulletin rules defined, then the Exact Item option cannot be used.

10. Optionally select the As Required check box which is used for material planning purposes.

    For information, see Description of fields in the Material Requirement page, page 3-40.

11. Click the Apply button to add the material requirement information to the maintenance route.

Define Material Requirements

> **Additional Information:** When material requirements change on a route that has been planned for, an approval workflow is started to notify the user to replan for the material requirements.

12. Click the Remove icon to remove a material requirement associated to the operation.

13. Click the Apply button.

Associating Operations with a Maintenance Route

Use the Associate Operation to a Route page to associate operations to a selected maintenance route. The application simplifies the creation of maintenance routes by enabling you to use related operation records existing in the database. You can search for a required operation, and copy the operation record to associate it with the route.

Prerequisites

❒ Operation records that apply to the route must exist in the database.

To associate operations with maintenance routes:

1. Retrieve the route record for which you want to associate operations (see Finding Maintenance Route Records, page 3-27).

2. Select the route record on the Search Route page.

3. Click the Associate Operations link, and the Associate Operations page appears.

4. Enter the information in the fields.

   • The Step field refers to the serial order of the operation in the maintenance

route. This field value is user assigned.

> **Note:** A step number cannot be defined as a single digit because of Oracle Enterprise Asset Management restrictions. For example, steps should be defined with at least two digits, such as 10, 20, 30, and so on.

- • The Operation field contains the predefined operation that you want to associate with the maintenance route.

5. Click the Operation search icon to launch the Select Operation page.

6. Query for operation records, and click the link to select the operation.

   The Associate Operations page appears.

7. Click the Apply button to save the records.

8. You can also associate multiple operations to a maintenance record.

   - • Using the Select Operations page, click the Attach button and then enter the maintenance route information.

   - • Click the Go button to retrieve the operations based on your search criteria.

9.

10. Select the multiple operations that you want to add and click the Associate button.

    Note that the values in the Operation fields do not appear in the same line as the step operation, but on the next empty line.

11. Enter the values in the fields.

12. Click the Apply button to associate the operations to the maintenance route record.

Defining Access Panels

Oracle CMRO enables you to associate access panels to a route or an operation in engineering. When planning a maintenance visit, you can schedule tasks and work orders based on the applicable access panel.

Related Topics

Defining Access Panels for an Operation, page 3-45

Defining Access Panels for a Maintenance Route, page 3-45

Defining Access Panels for an Operation

Prerequisites

❑ The operation for which you want to define access panels must exist in the database.

To define access panels for an operation:

1. Navigate to the Search Operation page in the Route Management tab.

2. Click the Create button to launch the Create Operation page.

3. Optionally, you can search for an existing operation to which you want to associate access panels.

4. Click the appropriate operation number to navigate to the Edit Operation page.

5. Click the Access Panels link, and the Edit Access Panels page appears.

6. Click the Add More Rows button to enter access panel types.

7. Add the appropriate Access Panel Type and description in the Access Panels List region.

8. Click the Apply button to add the access panels to the operation record.

9. Click the Remove icon for the access panel that you want to remove, and then click the Apply button.

Defining Access Panels for a Maintenance Route

Prerequisites
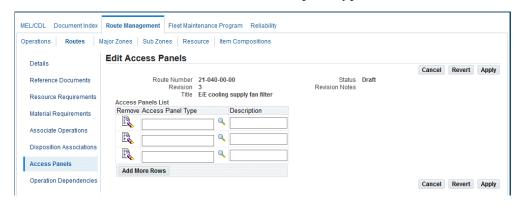
❑ The maintenance route for which you want to define access panels must exist in the database.

To define access panels for a maintenance route:

1. Navigate to the Search Route page in the Route Management tab.

2. Click the Create button to launch the Create Route page.

3. Optionally, you can search for an existing route to which you want to associate

access panels.

4. Click the appropriate Route Number to navigate to the Update Route page.

5. Click the Access Panels link on the Route Management tab. The Edit Access Panels page opens.

6. Click the Add More Rows button to enter access panel types.

7. Add the appropriate Access Panel Type and description in the Access Panels List region.

8. Click the Apply button to add the access panels to the route record.

9. Click the Remove button to remove an access panel, and then click the Apply button.

Editing Operation Records

Oracle CMRO enables you to retrieve existing operation records and edit the information associated with the operation including the signoff, material, machine, and tool requirements. You can also edit document reference and phase code definitions associated with the operation.

The first step enables you to edit the basic operation record information.

Prerequisites
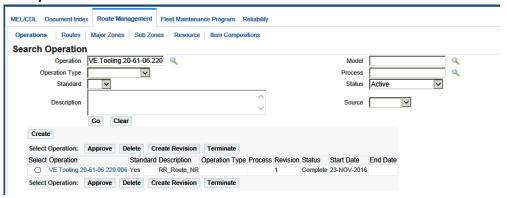
❐ The operation must exist in the database and must have a status of Draft or Approval Rejected.

❐ To edit an approved operation, you must first create a revision of that operation.

To edit operation records:

1. Retrieve the operation records that match your requirement (see Finding Operation Records, page 3-26).

2. Select an operation, and click the Operation link to access the Edit Operation page.

Edit Operation

3. Make the necessary changes to the information in the fields.

4. Click the approve button to save your changes.

5. You can also edit reference document resources, material requirements, or associated operations by clicking the appropriate link on the Route Management tab.

Related Topics

Defining Reference Documents for an Operation, page 3-29

Defining Resource Requirements for an Operation, page 3-33

Defining Material Requirements for an Operation, page 3-39

Editing Maintenance Route Records

Oracle CMRO enables you to retrieve existing maintenance routes and edit the information associated with the route, including the signoff, material, machine, and tool requirements. You can also edit document reference and phase code definitions associated with the operation.

Prerequisites

❒ A maintenance route with a status of Draft or Approval Rejected must exist in the database.

❒ To edit an approved route, you must first create a revision of that route.

To edit maintenance route records:

1. Retrieve the maintenance route records that match your requirement (see Finding Maintenance Route Records, page 3-27).

2. Click the Route Number link to access the Update Route page.

3. Make the necessary changes to the information in the fields.

4. Click the Approve button to save the changes.

5. You can also edit reference document resources, material requirements, or associated operations by clicking the appropriate link on the Route Management tab.

Related Topics

Defining Reference Documents for a Route, page 3-31

Defining Resource Requirements for a Route, page 3-34

Defining Material Requirements for a Route, page 3-41

Associating Operations to a Maintenance Route, page 3-43

Defining Component Locations in Fleet Units

Maintenance organizations define zones to identify component locations in an electromechanical system. Oracle CMRO enables you to associate major zones and sub zones in electromechanical systems to product types. Product type refer to the classification by category of electromechanical systems such as Ground Support and Engine for aircraft. This enables you to closely monitor maintenance activities and component location on any fleet unit belonging to a product type.

Related Topics

Associating Major Zones to Product Types, page 3-49

Associating Sub Zones to Product Types, page 3-50

Associating Major Zones to Item Types
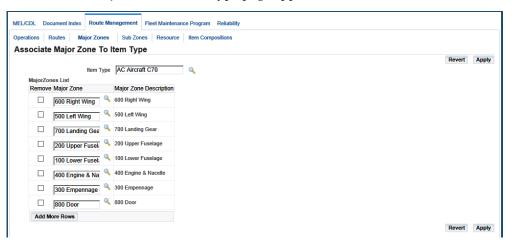
Prerequisites

❐ The Item Type and Major Zone values must exist in the database.

To associate major zones to an item type:

1. Navigate to the Associate Major Zone To Item Type page (Oracle Complex Maintenance, Repair, and Overhaul Home page > Engineering < Route Management > Major Zones).

2. Select the item and click the Go button.

   The Associate Major Zone to Item Type page appears.

3. Select a value for the Major Zone.

   - These user-defined zones are used as a method to identify the locations of the item in the electromechanical system being maintained.

   - If you do not know the value, enter a partial search string with the generic substitution metacharacter%, and click the Go button.

     The Select Major Zone page appears and displays all the matching records in the database.

     Click the appropriate item.

4. Click the Apply button.

Associating Sub Zones to Item Types
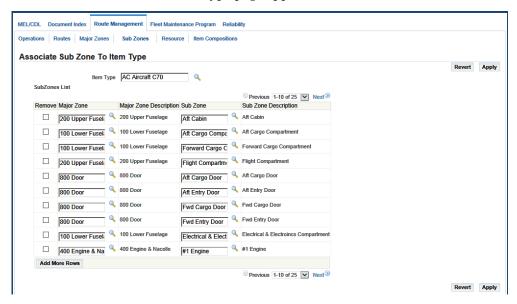
Prerequisites

❒ Item types, major zones, and sub zones must exist in the database.

❒ Associate the major zone and sub zone to the appropriate Item type.

To associate sub zones to item types:

1. Navigate to the Associate Sub Zone To Item Type page (Oracle Complex Maintenance, Repair, and Overhaul Home page > Engineering < Route Management > Sub Zones).

   The Associate Sub Zone to Item Type page appears.

2. Enter the information in the fields.

   You can remove existing sub zones by selecting the check box for the row to be deleted.

   Click the Add More Rows button to add sub zones to the item type.

3. Click the Apply button to record the sub zones associated to the item type.

Finding Oracle Complex Maintenance, Repair, and Overhaul Resources

Use this process to retrieve Oracle CMRO resource records from your database.

Oracle CMRO enables the use of metacharacters when you type a word, or part of a word, to use as a search argument. Use % to represent any string of zero or more characters. Use _ to represent any single character. For example, if the database contains a record with the value "ENGINE" in a field, typing "E%" will return all records where the field value begins with "E".

Prerequisites

❐ The resource that you want to retrieve must exist in the database.

To find Oracle CMRO resources:

1. Navigate to the Search Resources page (Oracle Complex Maintenance, Repair, and Overhaul Home page > Engineering < Route Management > Resource).

   The Search Resources page appears.

2. Enter the information in the fields, and click the Go button.

3. Click the Clear button to restart a search.

   If you have retrieved records being displayed in the lower half of the screen, these records will remain.

4. Click the Go button to retrieve the records based on your new search criteria.

5. Click the Resource link to view resource details such as:

   • **Name** and **Description**

   • **Organization**

   • **Resource Type**

Creating Oracle Complex Maintenance, Repair, and Overhaul Resources
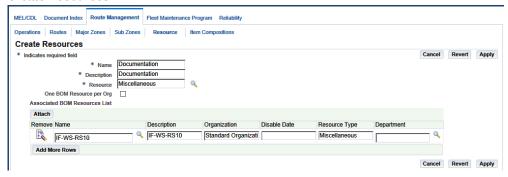
The following process initiates the creation of a resource. You can save the record in the database before defining the attributes.

To create an Oracle CMRO resource:

1. Navigate to the Create Resources page (Engineering > Route Management > Routes).

   The Search Resource page appears.

2. Click the Create button, and the Create Resources page appears.

3. Enter the information in the fields.

Create Resources

4. Use the Associated BOM Resources List on the lower half of the page to associate BOM resources to the Oracle CMRO resource. Click the Add More Rows button, and enter the information in the fields.

You must associate at least one BOM resource with the Oracle CMRO resource that you are creating.

If appropriate, select the One BOM Resource per Org check box

Name	Select a name of the resource from the drop-down list.
Description	Default value associated with the name.
Organization	Default value associated with the name.
Resource Type	Default value that comes from the resource type entered.
Department	Select a department from the drop-down list.

The Department field enables department level resource definitions for operation and route resource requirements. The department specified will appear as the default value for the CMRO work order operation (default operation) department.

If the Department field is blank, the visit task department will appear as the default work order and operation department.

5. Alternatively, click the Attach button to find and associate a specific BOM resource.

6. Click the Apply button to create the resource.

   The Update Resources page appears and displays the resource that you just created.

7. Click the Cancel button to stop the process and return to the previous page.

8. Click the Remove button for the BOM resource that you want to remove.

Editing Oracle Complex Maintenance, Repair, and Overhaul Resources

Oracle CMRO enables you to retrieve and edit existing resources.

Prerequisites

❒ The Oracle CMRO resource must exist in the database.

To edit resource records:

1. Retrieve the Oracle CMRO resource records that match your requirement (see Finding Oracle Complex Maintenance, Repair, and Overhaul Resources, page 3-26).

2. Select a resource, and click the Resource link to access the Update Resources page.

3. Make the necessary changes to the information in the fields. For more information on attaching BOM resources to an Oracle CMRO resource, see Creating Oracle Complex Maintenance, Repair, and Overhaul Resources, page 3-51.

4. Click the Apply button to save the changes.

Associating BOM Resources

Use this process to retrieve BOM resource records.

Oracle CMRO enables the use of metacharacters when you type a word, or part of a word, to use as a search argument. Use % to represent any string of zero or more characters. Use _ to represent any single character. For example, if the database contains a record with the value "ENGINE" in a field, typing "E%" will return all records where the field value begins with "E".

Prerequisites

❒ The resource that you want to retrieve must exist in the database.

To associate BOM resources:

1. Retrieve the Oracle Complex Maintenance, Repair, and Overhaul resource records that match your requirement (see Finding Oracle Complex Maintenance, Repair, and Overhaul Resources, page 3-26).

2. Select a resource, and click the Resource link to access the Update Resources page.

3. Click the Attach button, and the Search BOM Resources page appears.

4. Enter the information in the fields and click the Go button.

5. Click the Select button for the resource, and then click the Associate button. The Update Resources page appears.

Update Resources

6. You can click the Revert button to restore the fields to the last saved position.

7. You can click the Cancel button to return to the Update Resources page.

8. Click the Apply button to save the changes.

Generate Workcards

The Generate Workcards concurrent process is used to generate a work card (Jobsheet) for a specific employee, a scheduled date range, a specific visit, a specific stage of a job, or a work order range.

To run the Generate Workcards program:

1. Navigate to the Submit Requests window.

2. In the program Name field, select Generate Workcards.

3. In the Parameter field, select the following:

- Visit number if want to print for a specific visit.

- Stage number if want to print for a specific stage of job or task.

- Work order number from and to are for the work order range you want to print.

- Schedule Start Date and Schedule End Date for the Schedule Date range you want to print.

- Enter an employee number if you want to print for a specific Employee or Technician for all scheduled jobs.

4. Select any other information needed to generate this program.

5. Click the **Submit** button to generate this concurrent request.

4

Managing Maintenance Documents

This chapter covers the following topics:

- Overview
- Creating Document References
- Associating Document Sub Types to Document Types
- Finding Document References
- Maintaining Document Subscription Information
- Maintaining Document Supplier Information
- Maintaining Document Distribution Information
- Creating Document Revision Records
- Uploading Electronic Documents
- Using the Maintenance Program Document Workbench
- Working with Maintenance Program Document Revisions

Overview

The maintenance, repair, and overhaul of high-valued electromechanical systems is supported by large volumes of documentation, supplied by original equipment manufacturers (OEMs), equipment operators, governmental agencies, and third-party maintenance specialists. These numerous documents evolve during the life of the asset, and must be monitored, often for regulatory compliance. From the perspective of the organization, the complete set of maintenance documents includes self-authored documents, as well as those produced by external organizations. Oracle Complex Maintenance, Repair, and Overhaul (CMRO) includes the Document Index module that enables a maintenance organization to create a repository of meta-documentation.

The key functions supported by the Document Index module provide process-oriented, task based procedures to perform essential document management tasks in the maintenance organizations. See:

- Creating Document References, page 4-3

- Associating Document Sub Types to Document Types, page 4-5

- Finding Document References, page 4-6

- Editing Document References, page 4-6

- Maintaining Document Subscription Information, page 4-7

- Maintaining Document Supplier Information, page 4-8

- Maintaining Document Distribution Information, page 4-9

- Creating Document Revision Records, page 4-10

- Uploading Electronic Documents, page 4-11

- Using the Maintenance Program Document Workbench, page 4-12

- Working with Maintenance Program Document Revisions, page 4-14

Document Index

The Document Index is a subsystem that provides an online catalog of documents used in maintenance, repair, and overhaul operations. The Document Index is the Oracle CMRO module that you will use to manage your maintenance, repair, and overhaul documents, regardless of their source, and regardless of their form, paper or electronic.

For each document that you would like to monitor with the Document Index module, you will add a reference to the document that includes the document identifier, title, and if the document can be subscribed to. Documents can be of certain types, and subtypes, and this information is also managed with the Document Index module. You can edit the document references that you create, as well as define and edit revisions. You cannot delete document descriptions using the Document Index module. When documents are no longer required, for example, after having disposed of a unit in your fleet, you can mark the document as obsolete.

Key Business Processes

The Document Index supports the following business processes.

Document Registration

Internal documents that evolve during the life of equipment, and external documents provided by suppliers on a subscription basis, may consist of various formats that should be tracked. Oracle CMRO enables you to consolidate all the document information by registering the document titles and reference information in a single area. The various business areas can refer to the documents for the latest information on

a particular maintenance requirement. Maintaining accuracy in available documents begins with the process of registering the documents. Document registration defines only a document title; the document definition is created with the first revision.

Document Revision Control

Maintaining the latest documentation and related updates is a necessity for maintenance organizations. This includes tracking document revisions to ensure that information is up to date and accurate. Inaccurate information may not be in adherence to required rules and regulations. Oracle CMRO enables organizations to mark the current information as a reference, and the obsolete information as not considered for use, while retaining the obsolete documents for the document history.

Electronic Document Uploading

Any document that is available in an electronic form can be uploaded to the database and associated with the relevant document revision. All file types are supported.

Document Subscription Control

Organizations maintain supplier information for documents to ensure that the appropriate supplier provides the documentation requested or subscribed. Oracle CMRO enables organizations to maintain the supplier information, and to track the status of a document subscription from an associated supplier.

Document Distribution

To maintain information on document distribution, it is necessary to identify the recipient of a particular document. Missing or incorrectly identifying a recipient can cause substantial business impact. Approvals may be necessary by a specific individual before the release of a document. Oracle CMRO enables organizations to maintain the distribution of documents by defining the recipient of a document. This enables organizations to associate the documents and release them to the appropriate individuals or groups.

Creating Document References
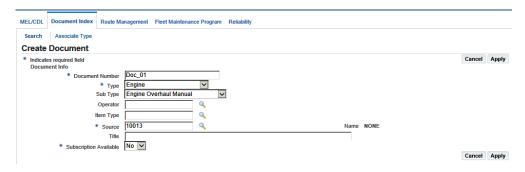
This is the primary process by which you can create references to all the maintenance documents that you want to manage. You can record any revision information, if necessary, using this process.

Prerequisites

❒ To create a document reference, you should know the document type, document source, document number, if the document is available through subscription, and if the document is subscribed to by the organization. Document types should be set up by your organization when installing Oracle CMRO.

To create a document reference:

1. Navigate to the Search Document page (Engineering > Document Index).

2. Enter the values in the fields to filter your search, and click the Create button.

   The Create Document page appears.

3. Use the information in the following table to enter document information.

Field	Description
Document Number	A unique identifier, generated by the organization to identify a maintenance document. This is a required field.
Type	The maintenance document type, and typically refers to the fleet unit, or major section division of the fleet unit. This is a required field.
Sub Type	Document category that describes the nature of the information contained in the document that you are defining.
Title	Title of the maintenance document.
Item Type	User-defined document item identifier.
Source	Internal or external supplier of the maintenance document. This is a required field.
Subscription Available	Field indicates if the document is available by subscription. This is a required field.

Field	Description
Status	Status indicates whether a document is obsolete or current.

4. Click the Apply button to save your work.

> **Note:** You can activate the Search Document page in a query-only mode by running a specific function. This will disable you from creating a new document using the Search Document page.

Associating Document Sub Types to Document Types
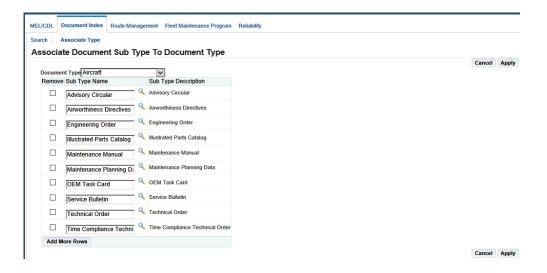
Manufacturers of transportation equipment produce many different types of documents including maintenance manuals, service bulletins, parts catalogs, and so on. Organizations may want to use sub types to identify maintenance documents that are sections of others, or related otherwise.

Prerequisites

❒ You should decide how to relate maintenance document types to sub types. Document types are user defined.

To associate document sub types to a document type:

1. Navigate to the Associate Document Sub Type to Document Type page.

2. Select the document type for which you want to create a document sub type.

   The document type represents the major topic such as power plant, fleet unit, and ground support equipment.

3. Click the Add More Rows button to add sub types.

4. Select the new document in the Sub Type Name field.

   The Sub Type Description field is automatically populated. The Sub Type Name represents the content of the document type. For example, a document type might be Powerplant, and the document sub type might be Illustrated Parts Catalog.

5. Select the Remove check box for the document sub type that you want to remove.

   > **Note:** A document sub type can only be removed from its document type if the combination is not associated to an existing document.

6. Click the Apply button to save your work.

Finding Document References

Maintenance documents undergo frequent revisions. You can retrieve document references from the Document Index database and edit these references as necessary.
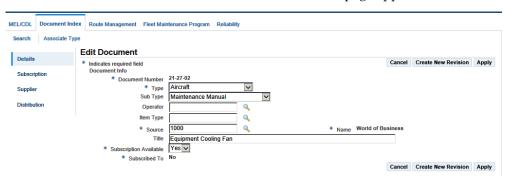
To find a document reference:

1. Navigate to the Search Document page (Engineering > Document Index).

2. Enter applicable information in the fields.

3. Click the Go button to view the results.

After you create or retrieve a document reference, you can edit it, or add more information about document subscriptions, document suppliers, and inhouse document distribution.

To edit document references:

1. Click the document number link, and the Edit Document page appears.

2. Make necessary changes to the document information.

3. Click the Apply button to save your work.

4. Click links in the left hand navigation to edit information regarding the subscription, suppliers and distribution.

5. Click the Create New Revision button to create revisions for the document.

Related Topics

Maintaining Subscription Information, page 4-7

Maintaining Supplier Information, page 4-8

Maintaining Document Distribution Information, page 4-9

Maintaining Document Subscription Information
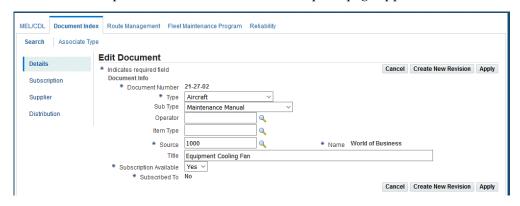
Maintenance organizations must be able to track the purchase of new subscriptions or any changes made to existing subscriptions. The supplier of a document may change over time, or the frequency of the subscription may change. Oracle CMRO tracks the document subscription information ensuring that the document is subscribed from the right supplier, and that the information regarding the subscription is correct.

Prerequisites

❒ Define subscription types and media types.

To add or update subscription information:

1. Retrieve the document reference to which want to add subscription information (See: Finding Document References, page 4-6)

2. Click the document to launch the Edit Document page.

   Click the Subscription and the Create New Subscription page appears.

3. Click the Add More Rows button, and enter the subscription information in the fields.

   - Frequency specifies the reoccurrence of the subscription; such as monthly, semiannually, or annually.

   - Requested By contains the name of the individual in your organization who has requested a subscription to this publication.

   - Subscribe From specifies the name of the organization that supplies the maintenance document.

   - From and To Date contains the date on which the document subscription started and ends.

   - Purchase Order contains a purchase order identifier.

   - Media Type indicates whether the subscription is a paper or an electronic document.

4. Select Apply to save your work.

Maintaining Document Supplier Information

Maintaining supplier information for documents is necessary to ensure that the correct supplier provides the requested or subscription documentation. You may need to
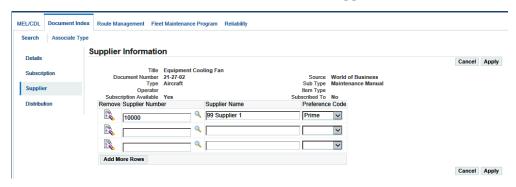
contact the supplier to verify information about a document. Therefore, the maintenance of supplier contact information is crucial.

Prerequisites

❒ Define preference codes.

To add or update supplier information:

1. Navigate to the Supplier Information page (Engineering > Document Index > Search Document > [select document record]).

2. Click the Add More Rows button to add rows for the supplier definitions.

3. Enter supplier information in the applicable fields.

4. Click the Apply button to save your work.

Maintaining Document Distribution Information

It is necessary for maintenance organizations to control the distribution of documents and software for various reasons including licensing, cost of distribution, regulatory authorities, and others. This creates the necessity to ensure that the requester has authorization to receive a document prior to distributing it. Oracle CMRO enables you to manage information about recipients in the organization to whom documents will be distributed.

To record document distribution information:

1. Navigate to the Distribution Information page.

2. Click the Add More Rows button to add the recipient name.

3. Click the Apply button to save your work.

Creating Document Revision Records

Equipment manufacturers frequently revise maintenance documents. For tractability, it is necessary to record document revision information including issue dates, dates of obsolescence, dates of effectivity, and publication part number changes. Oracle CMRO enables you to create new revisions once you retrieve the pertinent document reference from the database.

To create and edit revision records:

1. Retrieve the document reference for which you want to create new revisions, see: Finding Document References, page 4-6

2. In the Search Document page, select the document, and click the Create New Revision button. The Create New Revision page appears.

3. Enter revision information in the fields. Use the information in the following table.

Field	Description
Revision No	User-assigned document revision identifier.
Revision Date	This date should be greater than or equal to the system date.
Volume	The volume of this revision.
Issue Number	The issue of this revision. You cannot enter alphabetic characters here.
Date Received	Date document revision was received by the user organization.
Effective Date	Beginning date that the revision is effective. This date should be greater than the revision date and the approved date.
Approved By	Contains the name of the individual who is authorized to approve this document revision. Names of approvers are maintained as type persons in the Oracle Trading Community Architecture module.
Remarks	Descriptive text field.

Field	Description
Media Type	Indicates the format of the document.
Revision Type	Indicates if the revision is a Temporary Revision, Full Revision or Advanced Change Notice.
Status	Indicates whether a document revision is a Draft, Current, or Obsolete.
Issue	Description of the document issue.
Issue Date	Refers to the date on which the maintenance document was made available, or the date of issue of the document from the supplier.
Obsolete Date	Date on which the document is no longer valid.
Approved Date	Date that the revision was approved by the individual named in the Approved By field.
Location	Indicates where the document can be found.

4. Select Apply to save your work.

Uploading Electronic Documents

Documents available in an electronic format can be uploaded to the database and associated with relevant records in the Document Index module.

Prerequisites

❒ A document revision must exist with the media type of E-File.

To upload electronic documents:

1. Navigate to the Search Document page, and select a document.

2. Click the Upload button to access the Electronic File Upload page.

3. In the File Upload region, click the Browse button to open your file browser.

4. Select your document.

   The file location path and the filename are copied into the File field.

   > **Note:** There is a predefined folder set up in Oracle Content Manager for storing electronic documents. Refer to the Implementation Guide for more information on setting up Oracle Content Manager for the Document Index module.

5. Optionally, you can enter a description of the electronic document.

6. Click the Upload button.

   The document is now accessible through the Search Document page or the Edit Document Revision page.
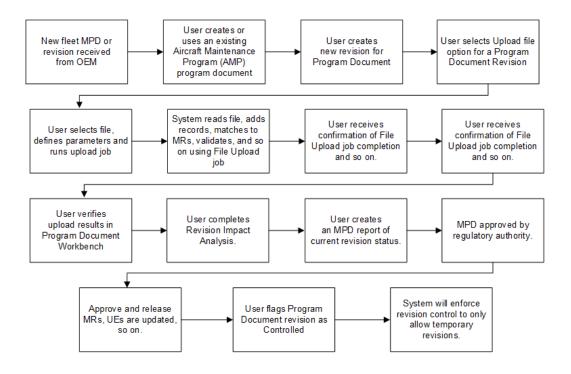
Using the Maintenance Program Document Workbench

Maintenance requirements can be managed in the context of their source Maintenance Program Document (MPD) by using the Maintenance Program Document Workbench. This workbench enables operators to manage the entire process of each revision of an MPD, including the creation, association and update of maintenance requirements for each task in an MPD revision.

Maintenance Program Document Revision Process

MPD revisions can be uploaded using their source XML, and each file upload will be recorded at the individual task level. This supports revision-specific impact analysis, and provides a historical revision archive.

The revision flow is as follows:

1. New fleet MPD or Revision is received from OEM.

2. User creates or uses an existing Aircraft Maintenance Program (AMP) program document.

3. User creates a new revision for the program document.

4. User selects Upload file option for a Program Document Revision.

5. User selects file, defines parameters and runs upload job.

6. System reads file, adds records, matches to maintenance requirements, validates, and so on using upload job.

7. User receives confirmation of File Upload job completion and so on.

8. User verifies upload results in MPD Workbench.

9. User completes Revision Impact Analysis.

10. User creates MPD report of current revision status.

11. MPD revision sent to regulatory authority.

12. MPD approved by regulatory authority.

13. Approve and release maintenance requirements, update UEs, and so on.

14. User flags Program Document Revision as Controlled.

15. System will enforce revision control to only allow temporary revisions.

Operators can then view the revised tasks and determine if the related maintenance requirements need to be associated, created, revised or terminated.

Working with Maintenance Program Document Revisions

Program document impact is reflected in the following UIs:

- Update Maintenance Requirement (Engineering > Fleet Maintenance Program > Overview

- Update Maintenance Requirement (Engineering > Fleet Maintenance Program > Overview > Search for an MR > Select the radiobutton for the MR > Data Correction (button)

- Search Unit Maintenance Plan (Planning > Unit Maintenance Plans)
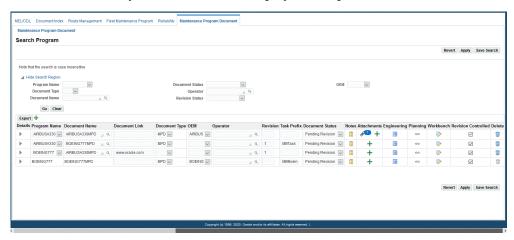
To manage revisions using the Maintenance Program Document Workbench:

1. Navigate to the Maintenance Program Document Workbench (Engineering > Maintenance Program Document).

   The Maintenance Program Document Workbench search page appears.

2. Select values for any of the following to narrow your search:

   - Program Name: User-defined values

   - Document Type: User-defined values

   - Document Name: User-defined values

   - Document Status: Seeded values of Pending Revision, Revision Approved. Can be defined at the User Extensible level

   - Operator: User-defined lookup

   - Revision Status: Seeded values of Pending Approval, Approved

   - OEM

3. Click Go, and the results appear on the page.

   Note that the Maintenance Program and Document will be the context for the results.

   The Revision History of each document displays in a separate row.

4. The following information appears on the page:

   - Program Name

   - Document Name

   - Document Link

   - Document Type

   - OEM

   - Operator

   - Revision

   - Task Prefix

   - Document Status

   - Notes

   - Attachments

   - Engineering - details icon to access the Fleet Maintenance Program UI.

   - Planning - Click eyeglasses icon to access the Unit Maintenance Program UI.

- Workbench - Click Pad/Pencil icon to access the Task Workbench.

- Delete - A Program Document can be deleted only before the first revision is approved.

5. Optionally click the New Row icon and create a new Program and Document.

6. Click Apply to save your work.

Using the Task Workbench:

1. Optionally click the Workbench icon in the MPD results region for a specific task to access the Task Workbench.

2. Use the Task Workbench to view the following details:

- Task Item Number

- ATA number and Section

- AMM Reference Number

- Source and Source Reference

- Task Code

- Last Revision

- Maintenance Requirement: Displays the number of MRs; click the link to view the maintenance requirement details at the bottom of the page

- Applicability

- Action

- Notes: Click icon to view or add notes.

- Attachments: Click icon to view or add attachments.

- Engineering: Click icon to access the Fleet Management Program UI

- Planning: Click eyeglasses icon to access the Unit Maintenance Program UI

3. Make any necessary changes and save your work.

Using Data Correction for Maintenance Program Document Revisions:

You can correct data for MPD revisions by follwing these steps:

1. Navigate to the Search Maintenance Requirement page.

2. Search for an MR.

3. Select the radiobutton for the MR.

4. Click the Data Correction button, and the Update Maintenance Requirement page appears.

   Note that the Revision Type is Data Correction.

5. Make any necessary corrections.

6. Click Apply to save your changes.

5

Working With Master Configurations

This chapter covers the following topics:

- Overview
- Master Configurations
- Creating Master Configuration Records
- Working with Positions
- Creating Positions in a Master Configuration
- Copying Existing Configurations to a Position
- Associating Item Groups with a Position
- Associating a Sub-Configuration or Alternate Sub-Configuration with a Position
- Creating Rules for a Configuration or Sub-Configuration
- Editing Position Ratios
- Attaching Documents to a Position
- Managing Alternate Items Information
- Adding Alternate Items Information
- Finding Alternate Items Information
- Editing Alternate Items Information
- Creating Item Group Revisions
- Editing Master Configuration Records
- Creating Master Configuration Revisions
- Approving Master Configurations
- Viewing Master Configuration Records
- Viewing Position Details
- Viewing Position Ratios Associated with a Position

- Viewing Documents Attached to a Position

- Viewing Alternate items Associated with a Position

- Viewing Positions Associated with an Alternate Item Group

- Viewing Rules

- Closing Master Configuration Records

- Reopening Closed Records

Overview

Modeling a complex assembly or system involves defining the hierarchy or structure, including the parts or sub-configurations allowed at each position or location, rules to control the configuration, documents which apply to the configuration, and ratios applicable between positions by which counter updates to will flow down, if other than one to one. The assembly configuration for an aircraft type, locomotive, ship, or any other complex system or assembly, is described by the Oracle Complex Maintenance Repair and Overhaul module called Master Configuration.

This chapter discusses the key functions supported by the Oracle Complex Maintenance Repair and Overhaul Master Configuration module. The chapter provides process oriented, task based procedures for using the application to perform essential tasks for managing configuration models.

See:

- Creating Master Configuration Records , page 5-5

- Working with Positions, page 5-7

- Creating Positions in a Master Configuration , page 5-8

- Copying Existing Configurations to a Position, page 5-11

- Associating Item Groups with a Position, page 5-13

- Associating a Sub-Configuration/Alternate Sub-Configuration with a Position, page 5-14

- Creating Rules for a Configuration or Sub-Configuration, page 5-16

- Editing Position Ratios , page 5-22

- Attaching Documents to a Position , page 5-24

- Adding Alternate Items Information , page 5-27

- Finding Alternate Items Information , page 5-30

Master Configurations

A master configuration is the template or control structure for an assembly, system, sub-assembly, or subsystem that provides a model of the structure of an electrical, hydraulic, pneumatic, or mechanical system or assembly, with rules for component location and component selection, and applicable maintenance operations. For example, a Boeing 757-300 can be configured with either a pair of Pratt & Whitney PW2043 engines, or a pair of slightly more powerful Rolls-Royce RB211-535E4B engines. The master configuration is used to create and maintain instances or units derived from the configuration hierarchy, parts, subassemblies, and defined rules. The presence of a master configuration simplifies route development, by serving as the basis for material requirements and their disposition in a disposition list. The master configuration also simplifies maintenance requirement development, by serving as an association point for which maintenance requirements will apply.

For more information about maintenance routes, see Route Management, page 3-3.

For more information about maintenance requirements, see Fleet Maintenance Program, page 1-6.

Key Business Processes

The Master Configuration module supports the following business processes:

Definition of Allowable Configuration

A master configuration is a template that represents the hierarchy of component positions in an assembly. The relative component positions define the parent-child relationship among the items within a master configuration. The Master Configuration module identifies the tracked parts that make up a unit, and enables you to construct a logical tree structure to illustrate the component positions in an assembly. You can define multiple master configurations for a product to suit different operation modes. You can also define the allowable part alternates for each component position.

Provide Configuration Templates for Unit Configurations

A fleet operator may have multiple units of the same configuration. The Master Configuration module provides a template to create a unit configuration, which reflects the current "as-installed" configuration of a product. A unit configuration replicates the position structure of a master configuration.

Attach Applicable Maintenance Requirements

When defining a unit's applicable maintenance requirement, organizations can use several grouping mechanisms to streamline the process. Oracle Complex Maintenance, Repair, and Overhaul (CMRO) enables you to apply maintenance requirements, directly to a unit configuration, to a node in a product classification that a unit configuration inherits, or to a position in a master configuration that a unit configuration inherits. For example, if you associate maintenance requirements to a node in a master configuration, any unit configuration that you create based on the master will receive those maintenance requirements.

Provide Checklists for User

The physical breakdown of a complex assembly decides the shop floor processes and information requirements. You can associate such information with a node or position in a master configuration. During the overhaul of an assembly, maintenance personnel, remove, reinstall, and replace serialized parts. The service provider has to provide an on-off log for such operations. The off log indicates the item number and serial number of a item installed at a certain position before the maintenance event. The on log indicates the item number and serial number of the item installed at a certain position during maintenance. Oracle CMRO enables you to provide an on-off log template indicating all the positions and item alternates for the nodes (positions) where users can install or remove items.

Definition of Air Transport Association of America (ATA) Codes

ATA codes are used in the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) functionality. This functionality identifies equipment that can be inoperative on aircraft, but still enable the aircraft to maintain airworthiness.

Creating Master Configuration Records

A master configuration represents the structure of a complete electromechanical assembly, consisting of the required nodes to fully represent the assembly. There is no limit to the number of nodes that an assembly representing a fleet unit can comprise.

To create a master configuration record:

1. Navigate to the Create Master Configuration page.

2. Select information in the following fields:

Field	Description
Name	Name for the configuration template hierarchy.
Description	Descriptive text field.
Status	Status of the master configuration. Options are: Complete, Draft, Approval Pending, Approval Rejected, Closed or Expired.
Position	Position in the assembly that is the topmost node of the master configuration hierarchy.
Position Description	Descriptive text field for this position in the configuration hierarchy.
ATA Code	Air Transport Association of America (ATA) codes used for the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) functionality. See: Minimum Equipment List (MEL) and Configuration Deviation List (CDL) Setup, page 10-10
Quantity	Number of items in the item selection option set for this position.
UOM	Unit of measure.
Start and End Dates	Effectivity of this position in the configuration hierarchy.
Item Group Name and Description	Name for the set of item option selections at this node.

Field	Description
Display Order	The order that the configuration positions are displayed.
Revision	The revision number to indicate that the master configuration is under revision control. Revision control enables multiple configuration revisions to be active at one time. This is necessary because all of the units cannot be migrated to the new master configuration at the same time. During the transition phase, the user will maintain units based on two different revisions of the same master configuration. This also aids in implementing configuration modifications throughout the master configuration lifecycle.
Necessity	Indicates if the position is mandatory or optional.
Model	Used to identify the type of document. This field is displayed on the Create Master Configuration page if you associate Enigma Configuration information to the Master Configuration module. For example, if the model is PW4000, then this corresponds to Engine Maintenance Manual in Enigma.

3. Select the Apply button to save your work.

To create the top node of the hierarchy:

1. Select a position on the Master Configuration page.

2. Optionally, associate an item group with this node.

3. Click the Apply button to save this master configuration record.

The Edit Master Configuration page appears displaying the configuration tree. The details associated with the top node appear next to the configuration tree.

4. You can perform the following tasks using the Edit Configuration page:

    •   Add, delete, and copy positions.

    •   Edit alternate items information.

    •   Attach documents to a position.

    •   Edit position ratios.

    •   Submit the configuration for approval.

    •   Create rules.

    •   Add or remove sub-configurations.

Related Topics

Editing Master Configuration Records, page 5-33

Working with Positions

After you define the general master configuration attributes, you can create each position in the hierarchy. For each position in the hierarchy, you can define a set of valid items, with maintenance requirements for each item. Oracle CMRO stores this information in the database. Also, you can retrieve master configuration records to add other master configurations, item locations, and valid items to a position in the selected configuration.

Related Topics

Creating Positions in a Master Configuration

Use the Edit Master configuration page to create a position in your master configuration. The top node in the hierarchy is created when defining the master configuration template, in the Create Master Configuration page. All additional nodes are defined later. The position you create in the Edit Configuration page will form an additional node in the selected master configuration hierarchy.

Prerequisites
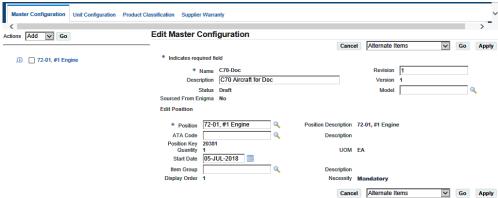
❐ The master configuration for which you want to define a position must exist in the database.

❐ Position references must have been defined. For information, refer to the master configuration setup in *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide.*

To create a position:

1. Navigate to the Search Master Configuration page (Configuration > Master Configuration).

2. Click the Create button to launch the Create Master Configuration page.

3. Enter the master configuration information in the fields. For field descriptions, see Description of fields related to master configuration records, page 5-5.

4. Create the top node of the configuration hierarchy by entering values for these required fields:

   • **Name**

   • **Position** - you must add at least one position during creation

   • **UOM**

5. Click the Apply button to save the master configuration record in the database.

   The Edit Master Configuration page appears displaying the top node of the master configuration tree.

Edit Master Configuration

6. Select the node where you want to add a position, and then choose Add from the drop-down list.

7. Click the Go button and the Create Position section appears on the page.

8. Use the information in the following table to enter information in the Create Position page.

Field	Description
Position	The positions in the assembly that can be the parent or child node in the master configuration hierarchy. Enter a partial search string with the generic substitution meta character% (example, Engine%), and click the Go button to access the Select Position page.
Position Description	The field containing phrases or sentences that describe this configuration hierarchy.
Quantity	The number of items in the item selection option set for this position in the configuration hierarchy. Enter a number greater than zero.

Field	Description
UOM	The unit of measure of the items in the current hierarchy position. You cannot enter text directly in this field because the text value must exist in the database. Enter a text search argument with the generic substitution meta character%, and click the Go button to retrieve and display all records from the database that match the search argument. Select the correct value.
Start Date	The date of the first day of effectivity of this position in the configuration hierarchy. Enter a date directly, or click the icon beside the date field access the calendar, and select a date to insert it in the field.
End Date	The date that represents the last day on which the position in the configuration is valid. Enter a date directly, or click the icon beside the date field to access the calendar. Choose a date to insert it in the field.
Item Group Name	The name for the set of item option selections at this node. You cannot enter text directly in this field because the text value must exist in the database. Enter a text search argument (example, MACHINE%), and click the Go button to retrieve and view the search results. Click the correct value.
Item Group Description	The description of the item options set, and is displayed automatically when you retrieve the item group name.
Display Order	An ordinal number that determines the order in which the configuration positions are displayed.
Necessity	Value that defines a node as Mandatory or Optional. This field defines whether the item represented by the node is a required installation, or is only an option.

9. Click the Apply button to add the position to the master configuration record.

Edit Master Configuration

The Edit Master Configuration page appears and you can edit the position details if necessary.

10. Attach position ratios, documents, or alternate items to the node position by using the appropriate buttons on this page.

11. Click the Apply button to save the changes.

Related Topics

Editing Position Ratios, page 5-22

Attaching Documents to a Position, page 5-24

Adding Alternate Items Information, page 5-27

Copying Existing Configurations to a Position
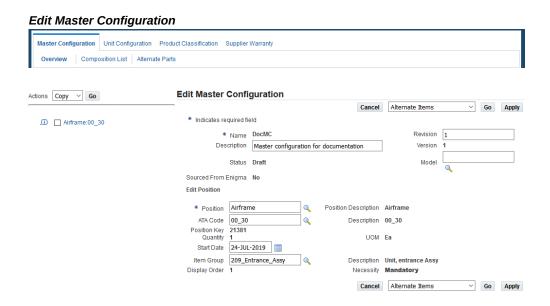
The Edit Master Configuration page enables you to access the Search Master Configuration page. Use the page to search for an existing master configuration record that you want to add to a selected master configuration position. This process enables you to build configuration template hierarchies using existing master configuration records.

Prerequisites

❏ The master configuration records that you want to add to the position must exist in the database.

To copy configurations to a position:

1. Navigate to the node to which you want to add a configuration. See Creating Positions in a Master Configuration, page 5-8.

2. To copy an existing configuration to a node, click the check box next to the node then select Copy from the drop-down menu.

3. Click the Go button, and the Search Master Configuration page appears.

4. Search for the master configuration that you want to add.

   The results appear in the lower half of the page.

5. Select the pertinent record from the Master Configuration List.

   The View Master Configuration page appears.

   For more information, refer to the following sections:

   - Viewing Position Details, page 5-38

   - Viewing Documents Attached to a Position, page 5-39

   - Viewing Alternate items Associated with a Position, page 5-40

   - Viewing Rules, page 5-41

   - Viewing Position Ratios Associated with a Position, page 5-38

6. Click the Copy button to add this master configuration to the selected position. The Edit Configuration page appears.

Edit Master Configuration

7. Click the Apply button, and the Master Configuration will now appear in the configuration tree.

Associating Item Groups with a Position

A tracked item group is comprised of items that can be assigned to a particular position in a master configuration. You can associate an item group with a position. You can then select the item instances to be added to the position. Non-tracked item groups are created for use in item compositions. Item groups can be revised independently from the master configuration. The master configuration gets updated with the changes upon the item group approval.

See Managing Alternate Items Information, page 5-26 for information on creating item groups.
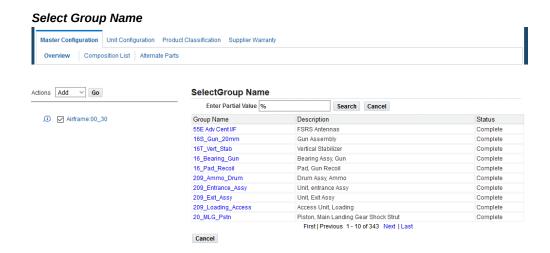
Prerequisites

❒ The item group must exist in the database.

❒ The configurations and positions must have been defined.

To associate item groups with a position:

1. Use the Create Master Configuration page to create a position and click the Apply button. See Working with Positions, page 5-7.

2. Search for an item group, and the Select Group Name page appears. Click the Go

button to view a list of item groups.

Select Group Name

| Master Configuration | Unit Configuration | Product Classification | Supplier Warranty |

| Overview | Composition List | Alternate Parts |

Actions [Add] [Go]

☐ Airframe:00_30

SelectGroup Name

Enter Partial Value [%]   [Search] [Cancel]

Group Name	Description	Status
55E Adv Cent I/F	FSRS Antennas	Complete
16S_Gun_20mm	Gun Assembly	Complete
16T_Vert_Stab	Vertical Stabilizer	Complete
16_Bearing_Gun	Bearing Assy, Gun	Complete
16_Pad_Recoil	Pad, Gun Recoil	Complete
209_Ammo_Drum	Drum Assy, Ammo	Complete
209_Entrance_Assy	Unit, entrance Assy	Complete
209_Exit_Assy	Unit, Exit Assy	Complete
209_Loading_Access	Access Unit, Loading	Complete
20_MLG_Pstn	Piston, Main Landing Gear Shock Strut	Complete

First | Previous 1 - 10 of 343 Next | Last

[Cancel]

3. Select the item, which you want to associate with the position. The Edit Master configuration page appears displaying the association.

> **Note:** If any item in item group has a quantity greater than 1, it cannot be associated to a position which has child nodes.

4. Optionally, you can choose the Alternate Items value from the drop-down list to add alternate item instances. See Managing Alternate Items Information., page 5-26

Associating a Sub-Configuration or Alternate Sub-Configuration with a Position

A master configuration can be created as a hierarchy of positions and assembly of other master configurations. A master configuration can be defined for a sub-component of a higher assembly. This sub-configuration can exist by itself, and also be added to the configuration hierarchy of another master configuration. For example, the master configuration of the engine can be included in the master configuration of the aircraft. You can add sub-configurations to the master configuration positions, thus enabling the association of configurations within a configuration.

To attach a sub-configuration to a position:

1. Create a position, and click the Apply button. See Creating Positions in a Master Configuration, page 5-8.

   The Edit Position page appears.

2. Select the Add More Rows button to add sub-configurations to the position that you defined.

3. Click the Name search button to select a sub-configuration. Enter a value in the Priority field.

   Use the information in the following table to enter information related to sub-configuration association.
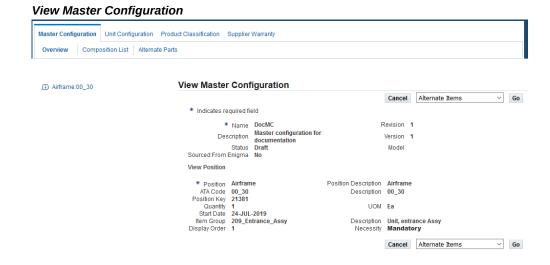
Field	Description
Name	Name of the child master configuration or sub-configuration.
Revision	The item revision identifier. The revision number indicates that the master configuration is under revision control. Revision control enables multiple configuration revisions to be active at one time.
Focus	Icon used to change the page context to the sub master configuration (sub master configuration).
Description	Description of the sub master configuration.
Status	Status of the sub master configuration. The sub master configuration should not be in Closed or Expired status.
Priority	Field used to specify the highest priority assembly to be used by Planning when planning for a replacement.
Start Date	Start date of the sub master configuration mapping.
End Date	End date of the sub master configuration mapping.
Remove	Is used to remove the sub master configuration mapping.

4. Select Apply, and the sub-configuration is associated with the position.

5. Select the sub-configuration, and click the Apply button. The sub-configuration is added to the configuration tree.

> **Note:** After adding the sub-configuration to the assembly hierarchy, the tree can be expanded and positions within the sub-configuration selected and their positions changed. The position code for a sub-configuration position defaults to the value defined within the sub master configuration. You can override that by defining the position code from the context of a higher level master configuration. The new position will only affect the sub-configuration when the subassembly is installed in this higher assembly allowing for the position to be applicable based on the installation.

6. Click the sub-configuration Focus icon to change the focus of the entire configuration to the sub-configuration. You can view the master configuration header and position details of the sub master configuration.

View Master Configuration

> **Note:** You can associate sub master configurations with a position only when a sub-assembly has been defined under that position.
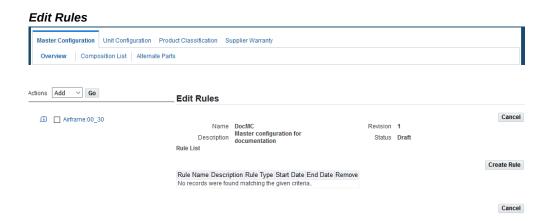
Creating Rules for a Configuration or Sub-Configuration

You can set up rules for configurations, sub-configurations, positions, and items that work together, to control the allowable items to be installed into the configuration. The definition of the configuration rules enables the enforcement of regulations for equipment configurations issued by OEM's and regulatory institutions such as the FAA.

You can create rules for:

- Restricting items for a position.

- Restricting configurations for a position.

- Restricting positions based on other positions.

- A reference for desired fleet percentages.

To create rules for a configuration:

1. Choose Rules from the drop-down list on the Edit Configuration page.

2. Click the Go button, and the Edit Rules page appears.

Edit Rules
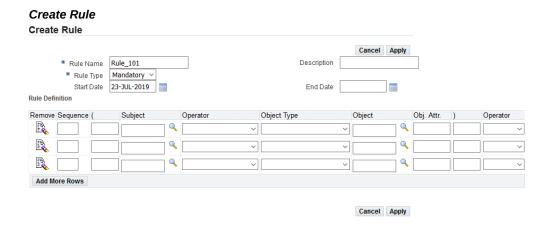
3. To create rules, click the Create Rule button, and the Create Rule page appears.

4. Use the following information to define rules.

Field	Description
Rule Name	User-defined rule name (required)
Description	Description of the rule (optional).

Field	Description
Rule Type	Can be Mandatory or Fleet (required). A rule type of mandatory indicates that the rule will be evaluated during installations, and a rule type of fleet indicates that the rule is created only as a reference to the fleet percentages.
Start Date/End Date	Select from calendar (optional). The end date must be greater than the start date.
Sequence	User defined value to determine the order of the rules defined.
Left and Right Parenthesis	Used to group two rule statements.
Subject	Use the search icon to access the Select Positions to select the position path for which you are defining the rule.
Operator (Predicate)	Conditions in a rule. The possible values are: is installed, is not installed, has, does not have, must have, must not have, has same sub-configuration installed, does not have same sub-configuration installed.
Object Type	You can select from the following object types: total quantity of children, item, configuration, configuration as position, item as position (1), or item as position.
Object	Use the search icon to select an object based on the object type chosen.
Operator	You can select And, Or, Implies, or Requires. The rule statements may be combined with these operators.

5. Choose a rule type.

6. Define the rule statement by entering data in the Rule Definition region.

Create Rule

Create Rule

7. Click the Apply button to save the rule.

8. To edit a rule, select the link under Rule Name in the Edit Rules page. The rule details are displayed.

   You can set up rule control for configurations, sub-configurations, positions, and items that work together to produce the rule or rule set to control a configuration. Each control area may be combined with one or multiple rule control methods to effectively control the assembly. Note the following rule controls:

Configuration Rule Control

The following applies to configuration rule control:

Subject: Configuration

Objects: Positions and Instances

Using a configuration as the subject, the direct object pointers are one or many positions or the percent of instances to plan. The rule will include a chain or sub-construct of the other rule controls. Referencing Positions: requires, excludes, or negates though the use of Necessity - mandatory, optional, and optional with a rule (containing Empty/Is Null, Installed / Is Not Null, Same As). Referencing Instances: implies the minimum and maximum percent or quantities by state/condition per configuration.

The outcome produces the following:

- Installation Allowed

- Installation Not Allowed

- Configuration Not Valid

- Configuration Valid

Position Rule Control

For the Position Rule Control, the following apply:

Subject: Position

Objects: Sub-Configurations/Alternate Sub-Configurations, and Items

Using positions as the subject, will be in a sub-construct, if configuration control, or as a stand alone which contain sub-constructs, if node specific.

Referencing Sub-Configurations/Alternate Sub-Configurations implies that it will be allowed by the association, excludes allowed by adding a rule, and requires by the use of mandatory or a rule.

Referencing Items though the item group association implies allowed and excludes or requires through a rule.

The outcome produces the following:

- Installation Allowed

- Installation Not Allowed

- Configuration Not Valid

- Configuration Valid

Sub-Configuration/Alternate Sub-Configuration Rule Control

For the Sub-Configuration/Alternate Sub-Configuration Control, the following apply:

Subject: Sub-Configuration/Alternate Sub-Configuration

Object: Position and Instances

Referencing Positions: Requires, excludes, or negates though the use of Necessity - mandatory, optional, and optional with a rule (containing Empty Is Null or Installed/Is Not Null).

Referencing Instances: Implies the minimum and maximum percent or quantities by state/condition per configuration.

The outcome produces the following:

- Installation Allowed

- Installation Not Allowed

- Configuration Not Valid

- Configuration Valid

Item Rule Control

For the Item Control the following apply:

Subject: Item or Item #

Object: Item #, Is Installed, Previously Installed, Interchangeability Type, Interchangeability Code, and Instances

Referencing the item number: excludes, requires, or negates based on the hierarchy for which the rule is contained.

Referencing Item # and Is Installed or Previously Installed requires, excludes, or negates based on the current or historical reference.

Referencing Interchangeability Type and Interchangeability Code with the item # requires, excludes, negates, or implies based the type, code, or combination.

Referencing the priority with the item # provides defaults.

Referencing Instances : implies the minimum and maximum percent or quantities by state / condition per configuration. This rule is not evaluated.

The outcome produces the following:

- Installation Allowed

- Installation Not Allowed

- Configuration Not Valid

- Configuration Valid

Instance Rule Control

For the Instance Control the following apply:

Subject: Instance (Implied)

Object: Minimum, Maximum, Percent, Quantity, State / Condition

Referencing the object combination implies the instance quantity allowed per condition. This rule is not evaluated.

The following table includes examples of some legal rule statements:

Subject	Predicate	Object	Outcome
Position	is installed / is not installed		T/F
Position	has / does not have	item	T/F/U if uninstalled
Position	has / does not have	sub-master configuration (rev specific	T/F/U if uninstalled
Position	must have / must not have	item	T/F

The outcome of each rule evaluation is as follows:

- Success (T)

- Unable to determine true or false (U)

- Rule failed in evaluation (F)

When a rule is applied, the units affected by the configuration are validated. Once a list of applicable rules are defined for each position, then each rule is evaluated individually. The statements will require mapping position path to UC item instance and comparing instance properties against the rule requirements. The result of validation is either status "S" for success or a table of rule violations. If the validation fails the status of the configuration changes to incomplete. When you add a rule to a configuration or update a rule for a sub-configuration, the configuration and position path information are populated into the rule when the selection is made. When updating a rule for a sub-configuration from a higher assembly the modified rule will only apply to the higher assembly. You cannot alter the base rule.

Editing Position Ratios

The Edit Position Ratio page enables you to add information about service timer ratios in cases where the value derived from a service timer should be a multiple of the timer reading. For example, a power-plant operated in a high-temperature, high-altitude environment might run at a much higher RPM to produce the same torque as compared to a less severe environment.

Prerequisites

❐ The master configuration record with the position that you want to define the position ratio for, must exist in the database. The values for the fields UOM and Rule Code should be set up by your organization.

To edit position ratios:

1. Retrieve the master configuration records that match your requirement.

2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.

3. The Edit Master Configuration page appears. Use the tree to find the position that needs to be changed. Click Position Ratio.

4. The Add Position Ratio page appears on the right.

5. Enter the information in the fields provided.

   If no position ratios are defined, the page will be empty. To define a position ratio, click Add More Rows. This will add three rows to the table. Enter information in the provided fields.

   • UOM indicates the unit of measurement that the operational service timer for this position represents.

     In most cases, this unit will be hours of time. You cannot enter text directly in this field because the text value must exist in the database. Enter a text search argument (e.g., MACHINE%), and click Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed on the Select UOM page to have the text value returned to the field.

   • Description refers to a text description of the unit of measure, and is automatically placed in this field when the UOM is selected from the database.

   • Ratio is a multiplying factor to be applied to an operational service timer to yield the service life value of the component.

     Typically, this ratio will be a number greater than or equal to 1.

   • Rule Code is a field containing a drop-down list box from which you can select a value.

     The set of values in this list is created when your configuration of Oracle Complex Maintenance, Repair, and Overhaul is installed.

6. Click Apply to retain the Position Ratio information in the database.

7. Select the record from the Position Ratio List to remove a position ratio from the configuration hierarchy.

8. Select the Remove check box.

9. Click the Apply button.

Attaching Documents to a Position

The Edit Master Configuration page enables you to access the Attach Documents page, where you can search for, and enter documents that you want to attach as references for a component position in the hierarchy. This allows maintenance personnel to refer to the right documents while carrying out maintenance activities at a specific location in a system assembly. For more information on document references, see the Document Index module.

Prerequisites

❒ The master configuration with the position to which you want to attach the documents must exist in the database.

To attach documents to a position:

1. Retrieve the master configuration records that match your requirement.

2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.

3. Click the Edit icon next to the record you want to edit. The Edit Master Configuration page appears.

4. Select a position.

5. Choose Documents from the drop-down menu.

6. Click the Go button, and the Edit Document Associations page appears.

7. The Enigma Documents region enables you to look up configuration information in Enigma's 3C application and associate it to Oracle's Master Configuration.

   Associating Enigma configuration information enables you to retrieve, view and associate Enigma 3C content on master configuration. You can associate three different types of documents namely, Illustrated Parts Catalog (IPC), Engine Manual (EM), and Wiring Diagram Manual (WDM). You can select a document

type and navigate to the relevant Enigma URL for the document selection.

The Edit Document Associations page shows buttons for viewing Engine Manual (EM), Wiring Diagram Manual (WDM) and Illustrated Parts Catalog (IPC) as applicable.

Click the Illustrated Parts Catalog, Engine Manual, and Wiring Diagram Manual buttons to navigate to the Enigma interface showing the relevant pages respectively.

> **Important:** To enable these buttons, set the following profile options to Yes:
>
> - AHL: Enigma IPC Documents associated
>
> - AHL: Enigma EM Documents associated
>
> - AHL: Enigma WDM Documents associated
>
> The Engine Manual button is available when you enable the previously mentioned profile option and if the ATA code for the corresponding node starts from the number 72.

Alternatively, you can associate documents from the document index as mentioned in the steps below.

8. Click the Add More Rows button to attach documents to the position.

   Enter the following information:

   - Document: The name of a maintenance document previously recorded using the Document Index module.

     You cannot enter text directly in this field. Enter a search string with the generic substitution meta character%, and click Go to launch the Select Document Number page. The lower half of the Select Document Number page displays the list of documents in the database.
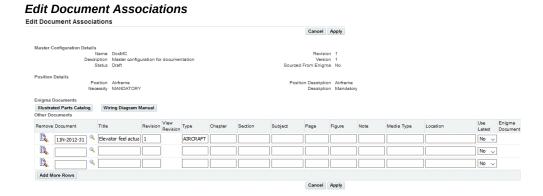
     Click the pertinent document record to return this value to the Document List fields in the Attach Documents page.

   - Title: The document title that is automatically placed in this field when the Document Name is selected.

   - Chapter: The chapter number where the required reference is available.

     If the component at this level in the hierarchy is described by a single chapter or less in the maintenance document, enter the chapter number here in this field.

   - Section: The section identifier of the maintenance document that describes

maintenance procedures for the component described by the current configuration position.

- Page, Figure, and Note fields: Fields used to provide additional information about the maintenance documentation for the items in the current configuration hierarchy position.

- The Latest field: Field contains a drop-down list where you can select a value from a set of values set up when your Oracle CMRO configuration was installed.

If you have attached a document reference to the selected position, the page will display the attached document name in the Document List field.

Edit Document Associations

9. Click the Apply button to store your maintenance document definition for the selected configuration position.

10. Click the Remove icon to delete a document reference attachment.

11. Click the Apply button.

Managing Alternate Items Information

Fleet vehicles with long service lives are designed and constructed with similar items from different suppliers. For example, aircraft can often be ordered from manufacturers with a power plant choice. A master configuration template definition that serves as a general model for a unit configuration definition, provides the fleet operator an opportunity to define an optional item group for any part position in the configuration.

The alternate items listed in the master configuration template allows you to derive a unit configuration that represents the "as-operated" configuration of a fleet unit. You can create tracked item groups for association with master configurations, and non-tracked item groups for use in item compositions. After creating the item group, you

may submit it for approval. Once approved, the new revision will replace the current revision. This allows the item group to be revised independently from the master configuration eliminating the need to revise the master configuration for each item group change. The new changes will be incorporated into the master configuration upon the item group approval.

Related Topics

Adding Alternate Items Information

The Alternate Parts tab enables you to access the Add Alternates page where you can add items to a particular group name. The group name specifies the set of item option selections at a node. You can also record any revision made to alternate item information in a group. You can create a tracked item group or a non-tracked item group.

Prerequisites

❏ Values for Group Name, Item Number, Revision, Type, Interchangeability, and Reason fields must exist in the database.

To add alternate items:

1. Navigate to the Search Alternate Items page (Configuration > Master Configuration).
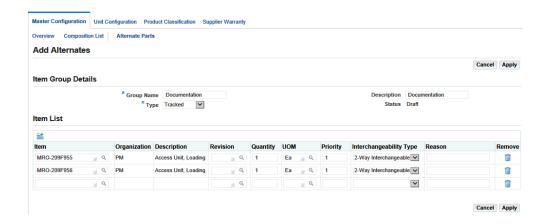
   The Master Configuration page appears.

2. Click the Alternate Parts tab to access the Search Alternate Items page.

3. Click the Create button to access the Add Alternates page.

   The Add Alternates page appears.

4. Use the information in the following table to add alternate items details.

Field	Description
Group Name	The name for the set of item option selections at this node.

Field	Description
Description	The description of the item options set.
Type	Item group types.
	Tracked: Group of Oracle Installed Base tracked items, which can be associated with positions in a master configuration.
	Non-tracked: Group of non-tracked items that are contained in a tracked item and may be required for use in a route to maintain a component.
Item	The identifier of the item that you want to add to the group of items that can be installed in this position. Select a value or if you do not know the specific item, enter a text search argument (example, MACHINE%). Click the Search button to retrieve a list of items, and select the appropriate item.
Status	Status of the item group. The options are Complete, Draft, Approval Pending, Removed, and Approval Rejected.
Description (item)	The item description automatically appears in this field when the Item Number is selected. You cannot enter a value in this field.
Organization Code	The code for the inventory organization assigned to the alternate item when the item information is created in inventory.
Revision	A item revision identifier. You cannot enter text directly in this field because the revision must exist in the inventory database. Enter a text search argument (example, MACHINE%). Click the Go button to retrieve the information and select the appropriate revision.

Field	Description
UOM	The unit of measure in which the item is usually supplied. You cannot enter text directly in this field because the text value must exist in the database. However, you can enter a text search argument (example, MACHINE%), and click the Go button to retrieve and view the results. Select the appropriate UOM value.
Quantity	Specifies the number of optional items in this group that are to be installed.
Priority	The preferred selection order of the items in the group. The most preferred item should be assigned a value of 1.
Interchangeability Type	The selection of a item for a configuration. The one-way-interchangeable means that an item is a valid item to be installed under certain circumstances. When you install an item with One-way-interchangeability in CMRO, the system displays a warning that this item is One-way-interchangeable. Two-way interchangeability means that the item can be used in multiple configurations. Other values are Deleted, Obsoleted, Reference, and Superceded.
Reason	The technical justification for one-way or 2-way interchangeability. You can enter text directly in this field.
Composition	Button that provides access to the Item Composition List Page for the selected item.

5. Click the Apply button to add the alternate items information.

Finding Alternate Items Information

Use the Search Alternate Items page to retrieve alternate item information that you want to edit. You can search for alternate items based on Group Name, Description, Item, Type, Status, and the Organization Code for the item.

Prerequisites

☐ The alternate item groups must be created.

To find alternate items:

1. Navigate to the Search Master Configuration page (Configuration > Master Configuration).

The Master Configuration page appears.

2. Click Alternate Parts tab to launch the Search Alternate Items page.

3. Enter the alternate item information in the fields.

For field descriptions, see Description of fields related to alternate items, page 5-27.

4. Click the Go button to retrieve all alternate item groups that match the search criteria.

Editing Alternate Items Information

The Search Alternate Items page enables you to access the Edit Alternates page, where you can make necessary changes to alternate item information.
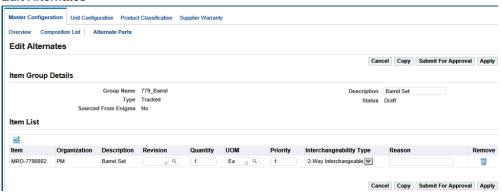
Prerequisites

❐ Values for the Item Number/Item, Revision, Type, Interchangeability, and Reason fields should exist in the database.

To edit alternate item information:

1. Retrieve the pertinent alternate item group record using the Search Alternate Items page. See Finding Alternate Items Information, page 5-30.

2. Select the group to view the configurations with which an alternate item group is associated.

3. Enter a value in any of these fields:

   • **Revision**

   • **Quantity**

   • **UOM**

   • **Reason**

Edit Alternates

4. Click the Apply button to save your work.

5. Click the Remove icon for the alternate item group that you want to delete.

   Only alternate item groups that are not associated to a master configuration position can be deleted.

   See Viewing Alternate Item Associations, page 5-40.

6. Click the Submit for Approval button to submit the alternate item group for

approval.

To initiate the approval workflow, at least one item should have the interchangeability of 1-Way or 2-Way and the quantity should not exceed 1, if any position has child position associations.

Any modifications to an item group or items in the group, impacts the associated unit configuration in the following ways:

- If the interchangeability of an item is changed to Deleted or Referenced, it affects all the units where this item is associated.

- If the interchangeability is changed to Obsolete or Supersede, there is no impact on the existing unit configuration associations; however, these items are no longer allowed for the position.

    Note: The status of the item group changes from Draft to Approval Pending and finally to Complete on approval. A newly created item group in Draft status can be associated with master configurations. When its status changes to Complete on approval, the information is recorded in the history tables.

7. Click the Copy button to copy the alternate item group.

    Note: A temporary copy of the group is created to enable the editing of a completed item group, while the completed group is in use. You can also access this page from the Edit Master Configuration page by clicking the Alternates button (Search > Search Master Configuration page > Edit > Edit Master Configuration page > Edit Master Configuration tree page >Alternate Items).

8. Select the Remove check box for the alternate item that you want to remove from the item group.

9. Click the Apply button.

    If the alternate item group that you edited is not attached to additional master configurations and positions, the changes are saved. If the alternate item group you selected is attached to a master configuration or position other than the one currently being edited, and if you click the Remove or Apply button, the application will prompt you with the following message:

    ```
    This item group is associated with more than one position. Do
    you want to force the changes to all positions?
    ```

Creating Item Group Revisions

You can create multiple versions of an item group. If an item group in Draft status with a version status of Complete is submitted for approval, it overwrites the existing item group, and the change is recorded in the history tables.

Prerequisites

☐ The item group that you want to revise must exist in the database.

To create item group revisions:

1. Navigate to the Search Alternates Items page. See Finding Alternate Items Information, page 5-30.

2. To create an item group revision, select the item group.

   Revisions can only be created for alternate item groups in Complete status.

3. Click the Edit button, and the Edit Alternates page appears.

4. Click the Create Revision button.

   A new revision is created, and the system displays a confirmation that the item group revision has been successfully created.

Edit Alternates

Editing Master Configuration Records
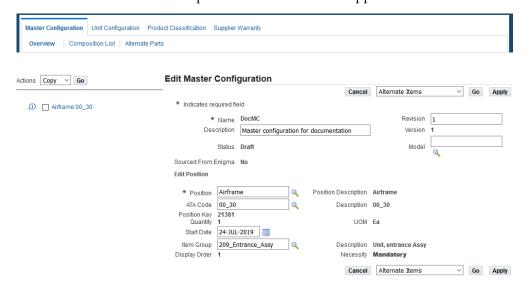
After you create a master configuration template, you can edit the record to add

additional attributes. Because the configuration template must consist of all item locations, item installation options, and pertinent maintenance documents, the configuration hierarchy is completed by retrieving a previously created master configuration record.

After you view the topmost position in the configuration template, you can drill down into the hierarchy by clicking the Position link.

To edit master configuration records:

1. Navigate to the Search Master Configuration page (Configuration > Master Configuration).

2. Click the Edit button and the Edit Master Configuration page appears.

3. Enter new values in the Description or Revision fields if applicable.

4. Navigate through the tree to the position for editing.

   Make necessary changes in the fields. For field descriptions, see Fields Associated with Master Configuration Records, page 5-5.

5. Select Item Groups to change the item groups associated with a position.

6. You can change the sub-configurations associated to a position in a master configuration by adding or deleting version specific child master configurations.

7. Click the Apply button to save your work.

8. You can choose the following options from the menu:

   • Alternate Items - to view the alternate items associated with the master

configuration or with a specific position.

- Documents - to view and edit the document references attached to the master configuration.

- View MEL/CDL Instructions - to view any associated MEL or CDL instructions.

- Submit for Approval - to submit the entire master configuration for approval. This option is only available for a master configuration in the status of Draft or Approval Rejected.

- Position Ratio - to view the position ratio for the node.

- Rules - to view the list of rules that pertain to this position.

Related Topics

Creating Master Configuration Revisions

Prerequisites

❒ The master configuration record must be the latest version of that record, and should have a status of Complete.

To create a master configuration revision:

1. Navigate to the Search Master Configuration page (Configuration > Master Configuration).

2. Retrieve the master configuration records that match your requirement.

3. Select the record from the Master Configuration List on the Search Master Configuration page.

4. Click the Go button.

5. Click the radiobutton for the master configuration record.

6. Select the Create Revision value from the Select Master Configuration drop-down list.

7. Click Go.

   If the validations pass, then the master configuration header details, relationships, counter rules, document associations, rules, and rule statements will be copied to a new version. A confirmation message appears, and the new revision will appear in the master configuration list in Draft status. You can edit the new master configuration version while it is in the Draft status.

Approving Master Configurations

You can set up an approval hierarchy to review and approve master configurations. Master configurations can be submitted for approval at the time of creation or modification. Changes made to the master configurations affect unit configurations and maintenance plans for all the units based on the updated master configuration. The Approval Workflow tracks and controls these changes. When a configuration is submitted for approval, a validation is performed to ensure that the configuration is complete, and that complete item groups or complete sub-configurations have been associated to each position. Errors are returned if the configuration is incomplete.

Prerequisites

❒ The Master configuration record that you want to submit for approval must exist in the database.

❒ • All positions must have been defined.

   • The item groups and sub-configurations associated with these positions must be in a Complete status.

To approve master configurations:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the pertinent master configuration from the Master Configuration List and choose Submit for Approval from the drop-down list.

Completeness Check - A concurrent program that checks for the completeness of the unit to determine if the unit is Complete or Incomplete.

Each mandatory position must be mapped to an instance. If any optional positions are mapped to item instances, then its child mandatory positions must be mapped to instances as well. Any sub-units mapped within the main unit must be complete. If all sub-units are Complete and all mandatory positions (except those with "Optional" parent positions and no corresponding parent item instance) are mapped, the completeness check is successful, the configuration is approved, and the status changes from Approval Pending to Complete.

If the completeness check is rejected, the configuration status changes to Approval Rejected and a list of position paths that are missing or additional mandatory item instances, and rule violations are displayed. The configuration is treated like a draft configuration, which the user can modify.

Viewing Master Configuration Records

View master configuration details using the following procedure.

Prerequisites

❐ The master configuration record must exist in the database.

To view master configuration details:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Click the Master Configuration Name link. The View Master Configuration page appears. The topmost node in the configuration appears in the Position List.

3. You can view the position ratio, documents, alternate items, and rules associated with a node in the configuration, by choosing the corresponding option from the drop-down menu.

Related Topics

Viewing Position Details, page 5-38

Viewing Position Ratios, page 5-38

Viewing Documents Associated with a Position, page 5-39

Viewing Alternate Items Associated with a Position, page 5-40

Viewing Rules, page 5-41

Viewing Position Details

You can view the position details of master configuration nodes using the following procedure.

Prerequisites

❑ The master configuration record must exist in the database.

To view position details:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the Option button next to the pertinent master configuration from the Master Configuration List.

3. Click the Master Configuration Name link, and the View Master Configuration page appears.

   The topmost node in the configuration appears in the Position List.

4. The node hierarchy is represented by the tree structure on the left. Navigate to the node that you want to view using the tree structure; click the plus icon next to a node listing to display subordinate nodes.

5. Click a node to display the node position details.

Viewing Position Ratios Associated with a Position

You can view position ratios associated with a position in a master configuration using the following procedure.

Prerequisites

❑ The position ratios of the master configuration position must be defined. See Editing Position Ratios, page 5-22.

To view position ratios associated with a position:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the option button next to the pertinent master configuration from the Master Configuration List. Click the Master Configuration Name link. The View Master

Configuration page appears. The topmost node in the configuration appears in the position list.

3. Use the tree structure to access the node for which you want to view the position ratios. Click the plus icon next to a node listing to display the subordinate nodes. Click a node to view the position details.

4. Choose Position Ratio from the drop down menu. The View Position Ratio page appears.

5. View the position ratio details.

Viewing Documents Attached to a Position

Use the following procedure to view documents attached to a master configuration node.

Prerequisites

❐ Documents relating to the master configuration node must be defined. See Attaching Documents to a Position, page 5-24.

To view the documents attached to a position:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the option button next to the pertinent master configuration from the Master Configuration List on the Search Master Configuration page.

3. Click the Master Configuration Name link. The View Master Configuration page appears showing the Name, Description, and Status of the configuration.

   The topmost node in the configuration is shown in the position list.

4. The node hierarchy is represented by the tree structure on the left.

   Navigate to the node for which you want to view the documents association for, using the tree structure; click on the plus icon next to a node listing to display subordinate nodes. Click a node to select it. The position details corresponding to the node appear.

5. Choose Documents from the drop-down list. The Documents List appears, displaying all documents associated with the selected position.

Viewing Alternate items Associated with a Position

Use the following procedure to view alternate items associated with different nodes in a master configuration.

Prerequisites

❒ Alternate items must be defined for the position prior to viewing the items associated with a position in a master configuration. See Adding Alternate Items Information, page 5-27.

To view alternate items associated with a position:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the option button next to the pertinent master configuration in the Master Configuration List.

3. Click the Master Configuration Name link, and the View Master Configuration page appears.

   The topmost node in the configuration displays in the Position List.

4. Navigate to the node you want to view documents for using the tree structure.

   Click the Expand icon next to a node listing to display subordinate nodes.

5. Click a node to view position details.

6. Choose Alternate Items and the item group details appear.

Viewing Positions Associated with an Alternate Item Group

Use the following procedure to view the configuration positions with which an alternate item group is associated.

Prerequisites

❒ The alternate item group must be created.

To view positions associated with an alternate item group:

1. Use the Search Alternate Items page to retrieve the pertinent alternate item group record from the database (see Finding Alternate Items Information, page 5-30).

2. Select the appropriate item group to view the configurations with which an alternate item group is associated and click the View Positions button.

The Edit Associated Positions page appears. The Configuration Positions List displays all the configurations and positions where the item group is associated.

Viewing Rules

Use the following procedure to view the rules defined for configurations, sub-configurations, positions, and items.

Prerequisites

❐ The rule that you want to view must exist in the database.

To view rules:

1. Navigate to the View Master Configuration page. See Viewing Master Configuration Records, page 5-37.

2. Choose Rules from the drop-down list.

The View Rules page appears, displaying the rules defined for the selected master configuration.

Closing Master Configuration Records

Prerequisites

❐ The master configuration record that you want to close must exist in the database.

❐ The master configuration must have a status of Complete, and no unit configurations can be associated to it.

To close master configuration records:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select a record, and click the corresponding icon in the Close column.

A message is displayed asking you to confirm whether you want to close the record.

3. Click the OK button.

A confirmation message is displayed, and the status for the selected master configuration changes to Closed.

Reopening Closed Records

You can reopen a master configuration record that was previously deleted.

Prerequisites

❑ The master configuration record must have been previously defined and then closed.

❑ The master configuration record must have a status of Closed or Expired.

To reopen closed master configuration records:

1. Use the Search Master Configuration page to retrieve the master configuration records that match your requirement.

2. Select the pertinent record in the Master Configuration List.

3. Select Reopen from the Select Master Configuration drop-down list.

   The status reverts to Complete or Draft, depending on the status from which it was closed.

6

Working With Unit Configurations

This chapter covers the following topics:

- Overview
- Unit Configurations
- Creating Unit Configurations
- Assigning Items to Unit Configuration Positions
- Migrating Unit Configurations
- Editing Unit Configuration Records
- Approving Unit Configurations
- Viewing Alternate Items Utilization
- Assigning Alternate Items to Unit Configuration Positions
- Creating and Updating Item Information
- Configuration Access Control Management

Overview

In the maintenance, repair, and overhaul industry, the "as-constructed" configuration of an assembly determines the specific maintenance program required to ensure the operational readiness of that asset. Even if two units have the same part number, or belong to the same product family, the as-constructed configurations may be different due to optional subsystems selected by fleet operators, and due to the asset's operational and service history. Ultimately, maintenance organizations must manage maintenance activities for each unit in the fleet. For maintenance purposes, an aircraft, for example, might consist of a thousand items that you must monitor. As you remove, overhaul, or replace items, you must associate the monitored items that have unique model and serial numbers with a fleet unit, and retain the maintenance history of those items. Many systems, such as aircraft flight management computers, contain software that is revised during their service lives. The Oracle Complex Maintenance, Repair, and

Overhaul Unit Configuration module describes the configuration for each unit, and enables maintenance organizations to define and monitor items in a fleet unit.

Key functions provide process-oriented, task based procedures for managing maintenance activities of fleet units. See:

- Creating Unit Configurations, page 6-3

- Assigning Items to Unit Configuration Positions, page 6-5

- Migrating Unit Configurations, page 6-8

- Editing Unit Configuration Records, page 6-11

- Approving Unit Configurations, page 6-13

- Viewing Alternate Items Utilization, page 6-14

- Assigning Alternate Items to Unit Configuration Positions, page 6-14

- Creating and Updating Item Information, page 6-15

Unit Configurations

The Unit Configuration feature is a subsystem that describes the structure of an assembled electromechanical system. The Unit Configuration feature also monitors components modeling to support the management of a single part of interest, or a complex assembly that consists of a hierarchy of monitored items.

The Unit Configuration feature manages information about the service readiness of any component, and implements Closed Loop Asset Tracking techniques that result in the instantaneous online intelligence about the location and the state of the components. The Unit Configuration module also enables users to precisely record the utilization of as many items or subassemblies in a fleet unit as required. Oracle Complex Maintenance, Repair, and Overhaul (CMRO) enables you to represent the part lifetime using industry-standard units of measure, such as operating hours, flight cycles, elapsed time, and calendar time. CMRO Unit Configuration also enables you to define and maintain the maintenance requirements for a subassembly or subsystem. Maintenance requirements for each fleet unit support detailed maintenance planning for the fleet as a whole.

Key Business Processes

Managing Equipment As-Installed Configurations

When a product is in service, some components may require replacement for maintenance, modification or upgrade purposes. Knowing the current configuration is critical to plan the required maintenance actions. The Unit Configuration module

enables you to track the as-installed configuration of a complex assembly, component installation and removal history, and the software installed in a unit.

Managing Configuration Changes

When a current equipment configuration does not meet the future needs, operators modify the existing equipment, instead of replacing it. Organizations also maintain multi-purpose equipment that require a configuration change between different modes of operation. Oracle CMRO enables you to compare the unit (current) configuration with its master configuration to derive the effort required for the modification. CMRO Unit Configuration also enables you to validate allowable installation, and whether a configuration is complete.

Tracking Utilization of a Unit

Utilization is a major factor determining the maintenance required to preserve an equipment's operational utility. When an assembly is comprised of different components that may require different parameters to measure utilization and aging, the resulting maintenance forecast process can be complicated. CMRO Unit Configuration will precisely track the utilization of each individual component within an assembly by tracking current utilization of units, such as age, odometer reading, and flight hours since overhaul. The Unit Configuration module applies the appropriate unit of measure to suit different types of utilization or aging.

Tracking Maintenance Requirements of a Unit

The key functions of maintenance planning include identifying the maintenance requirements of a unit, and calculating the service life before the next maintenance event. The CMRO Fleet Maintenance Program module provides this functionality. CMRO Unit Configuration enables you to model the maintenance requirement applicable to individual units, by providing a tracking mechanism for maintenance requirements.

Closed Loop Asset Management

Maintenance organizations track information about a unit using multiple systems throughout the service life of the unit. Building a continuous "cradle-to-grave" event history of a unit, may require great efforts. The Unit Configuration module identifies all the transactions required to build the full history of a unit. It tracks all transactions associated to unit location and status changes.

Tracking Unit Specific Business Information

Some critical business information resides at the individual unit level, and will require special attention and tracking. CMRO Unit Configuration provides a platform to track unit-specific information such as ownership.

Creating Unit Configurations

Master configurations provide a template for the structure of an electromechanical system with rules for component location and component selection, and applicable

maintenance operations. An instance of a master configuration models the general characteristics of a fleet unit. You can derive a unit configuration modeling the structure of an as-operated electromechanical system from a master configuration.

After retrieving a master configuration template from the database, you can create a unit configuration that represents an individual fleet unit, and shares attributes in common with other fleet units derived from the same master configuration template. To create a unit configuration, enter a name for the unit configuration, and select the item instance for the top position.

When searching for a master configuration record that will serve as the unit configuration template, you can search using the master configuration template name, or the hierarchical position reference where a master configuration is connected.

To create a unit configuration:

1. Navigate to the Search Master Configuration page, and search for a master configuration.

2. Click the Go button to view the configuration records based on your search.

3. Select radiobutton for the master configuration, and then click the Create Unit Configuration button.

4. Click the Go button, and the Create Unit Configuration page appears.

   The details for the master configuration populate this page including name, description, status, revision, and position.

5. Enter a value in the Unit Config Name field.

6. Select an instance number which is the Installed Base instance number of the tracked item.

7. Click the Apply button to save your work.

   The page is populated with information such as the description, serial number, owner, owner name, location, and location address of the fleet unit.

8. The Edit Configuration page appears, displaying the position details and the item association for the top node of the unit configuration tree.

You can now assign item instances to position references.

Related Topics
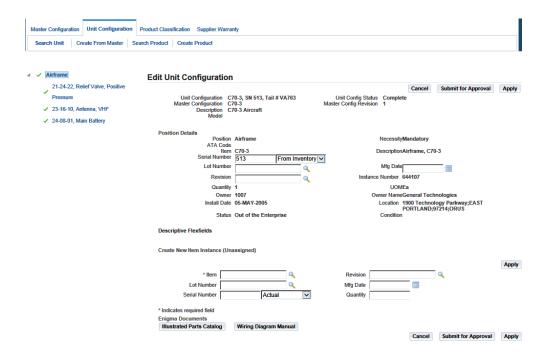
Assigning Items to Unit Configuration Positions

Creating a unit configuration logical record from a master configuration results in the connection of a unit configuration record with at least one item in the inventory catalog, and with an actual part or assembly in the inventory database. A unit configuration cannot exist without an item definition and a position definition. After you create a unit configuration header in the database, you can add item instances to all the positions that were defined in the master configuration template. All the item instances that you assign must exist in a group created using the Master Configuration module.

To assign items to a unit configuration position:

1. In the Edit Configuration page, select the position reference that you want to associate with the item.

The Create and Assign New Item Instances page appears.

This page has two regions:

- Create and Assign New Item Instance enables you to create an item instance, and associate it with the position reference.

- Assign Item enables you to assign applicable existing item instances.

2. Select the item in the Create and Assign New Item Instance region to create a new record.

3. Optionally, you can enter the following additional information for the item instance:

- Lot Number for lot controlled items

- Serial Number for serial controlled items

- Revision

- Mfg. Date

A master configuration (on which the unit configuration is based) may have sub-configurations assigned to its position reference. In the unit configuration, you must assign subunits based on that sub-configuration to the position reference. The status of available subunits must be consistent with the status of the parent unit.

4. Select the subassembly, and click the Assign button.

5. You can also create subunits for the master configuration by clicking the Create button from the Master Configuration tab. See Creating Unit Configurations, page 6-3.

> **Note:** The sub-units must be in Draft status to be assigned to the unit configuration.

6. Save your work.

7. Select an item to associate an existing item instance, and then click the Assign button.

8. Click the View Utilization button to view the utilization for an item instance, and the View Item Instance Utilization page appears.

The Unit Configuration module records the utilization of each component within an assembled hierarchy by monitoring current utilization of units and component hierarchies. CMRO Unit Configuration uses appropriate units of measurement including Time Since New, Time Since Overhaul, Time Since Repair, utilization cycles, Hobbs meter time, and many others. The Unit Configuration module also records utilization history of a revenue fleet unit, serialized part, or component hierarchy.

> **Note:** You can assign alternate items to the unit configuration positions after viewing the utilization gained by each allowable part listed for a position.

If the instance from an extra node can be installed into a missing node, then this instance will be displayed in the item instance table list together with other applicable instances. You can then select and assign it to a missing node.

You can also add a node in a unit configuration without its parent. You can do this by adding the known part numbers and serial numbers as extra positions, part numbers, and serial numbers in the unit configuration tree. Once you have modified the parent, the extras will be assigned to the correct position.

To find unit configuration records:

1. Navigate to the Search Unit Configuration page.

2. You can search for records by entering search criteria including:
   - Unit Config Name
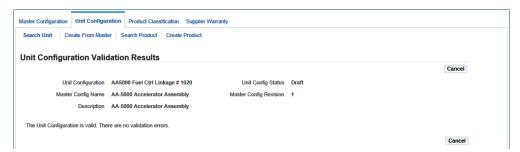
- Item

- Instance Number

- Lot Number

- Unit Config Status

- Master Config Name

- Master Config Revision

- Master Config Status

3. Click the Go button to view the results of your search.

You can validate a unit against the master configuration structure, allowed items and sub-configurations, and the applicable configuration rule. You can independently validate the completeness of a unit. You can also validate a unit after migrating it to a new master configuration, or to a revision of an existing master configuration.

To validate a unit:

1. Navigate to the Search Unit Configuration page, and select the radiobutton for the unit configuration record.

2. Select Validate.

   The Unit Configuration Validation Results page appears displaying the any errors for structure and rule violations.

Migrating Unit Configurations

Master configurations may be revised over a period of time. Often these changes can be implemented immediately across the fleet. However at times, it is necessary to transition the units throughout a given period or to a completely different master configuration. In the Unit Configuration module, the modification process is broken into steps enabling the user to choose when to migrate and to which configuration to

migrate to, allowing a staged lifecycle change. A unit configuration can migrate to a new master configuration or to another revision of the existing master configuration when needed throughout the lifecycle of the unit.
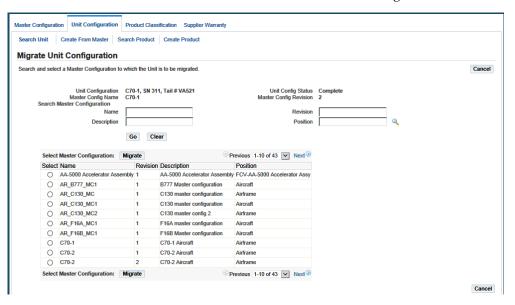
In addition, part changes through a work order are still permitted.

When a master configuration is revised, certain part positions may be added or removed from the existing configuration. When a part or sub-assembly exists that is not defined in the master configuration, it will appear as an extra part in the unit configuration tree. You can unassociate these position references. Master configuration positions that do not have item associations, and are identified by the missing items icon in the configuration tree.

The alternate items and sub-assemblies appear in the Assign Items Table for sibling positions which are empty. You can assign these items to the empty position. You can then validate the completeness as needed. Optionally, you can create item instances and sub-units, and then assign position references.
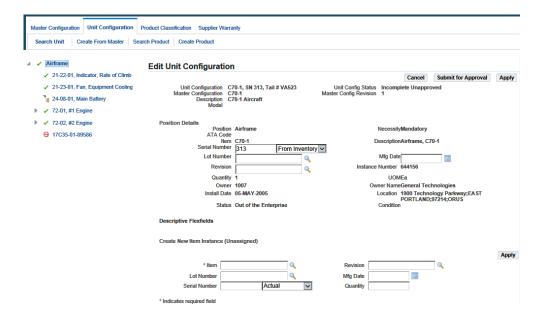
To migrate a unit configuration:

1. Select the unit configuration and navigate to the Migrate Unit Configuration page.

2. Search for the master configuration record by selecting criteria such as Name, Description, Revision, and Position.

3. Click the Go button to view the search results in the Master Configuration list.

4. Select the master configuration that you want to migrate, and click the Migrate button.

   The Edit Unit Configuration page appears, displaying the unit hierarchy and the position details for the top node.

> **Important:** Whether you can migrate the UC depends upon the setting for the AHL: Allow Unit Configuration Migration in Production profile option. See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide*.

5. The following mapping is finished when you migrate a unit configuration:

   • If the node in the unit configuration is a sub-unit and it matches one of the sub-configurations defined in that node of the new master configuration, no further mapping is required.

   • If the node in the unit is a sub-unit but it does not match any sub-configurations defined in that node of the new master, the sub-unit is treated as an extra node and its tree structure is retained.

   • If the node in the unit is not a sub-unit and it matches one of the nodes in the same level of the new master, further mapping is required.

   • If the node in the unit is not a sub-unit and it does not match any node in the same level of the new master, then the node and all its decedents in the unit are treated as extra nodes.

      > **Additional Information:** Migration is not possible if the top nodes of the templates do not match.

6. Select the node that you want to delete, and then click the Remove button.

7. Select the item instance that you want to assign to a position, and then click the Assign button.

   The extra items will be displayed in the unit hierarchy corresponding to the empty sibling position.

8. Optionally, you can assign a new item instance. To associate this item, you can select it from the Assign Item table and select Assign.

Editing Unit Configuration Records

Maintenance organizations alter fleet unit configurations to suit different modes of operation, or to comply with changes in business rules. These alterations may also result from component replacements with allowable items at certain hierarchical positions.

The AHL: Allow Unit Configuration Edit in Production profile option setting determines if updates can be made to the UC while it is in production. See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide* for more information.

In addition, part changes through a work order are still permitted.

To edit unit configuration records:

1. Navigate to the Edit Unit Configuration page.

   > **Note:** You cannot add or update position references in the unit configuration after changing the status to Complete.

   Use the tree structure to edit a position in the unit configuration hierarchy.

2. Enter values in the fields that you want to change.

3. Click the position reference that you want to remove, and click the Remove button.

   You can reuse the item represented by the position reference that you remove from the unit configuration.

   > **Note:** You cannot remove a position reference that is defined as Mandatory in the master configuration. This information in the Necessity field under Unit Configuration structure.

4. Select the position reference to unassociate the item position without removing the nodes from the unit configuration tree.

   Click the Unassociate button. This enables you to map the positions manually, when the correct installation cannot be automatically determined.

5. Select the position reference in the unit configuration to which you want to assign a part.

   Item instances for the position appear in the Assign Item region of the page. Optionally, you can create and assign a new item instance. See Assigning Items to Unit Configuration Positions, page 6-5.

6. View the associated document content.

   The Enigma integration enables you to search configuration information in Enigma's 3C application and associate it to the Oracle master configuration. The Enigma Documents region enables you to view the associated documents on the

position and part, based on the association in master configuration. The Enigma Documents region is displayed if the profile option, CMRO Enigma Integration URL, is set to Yes.

The region displays buttons to view the Wiring Diagram Manual (WDM) and Illustrated Parts Catalog (IPC) as applicable.

Click the Illustrated Parts Catalog and Wiring Diagram Manual buttons to view the associated documents.

7. Click the Submit for Approval to route the revised unit configuration for approval.

8. Click the Apply button to save your work.

Approving Unit Configurations

Creating or updating unit configurations is supported with an approval workflow.

You can set up an approval hierarchy to review and approve the unit creation. You can also submit a unit configuration for approval when you make a manual change to a complete unit configuration. Manual changes are necessary to record a discrepancy; all the other unit configuration changes should be performed through the proper production flow with work order sign off, and so on. Both the creation and the manual update of a unit configuration are critical tasks and must be controlled.

After the unit configurations have been created or edited, the unit is submitted for approval. When approved, if the unit is not complete, it will be set to the status of Incomplete Approved, and if it is complete, it will be assigned the Complete Approved status.

Prerequisites

❒ The unit configuration records that you want to submit for approval must exist in the database.

To approve unit configurations:

1. Retrieve the unit configuration record that you want to submit for approval. See Finding Unit Configuration Records, page 6-5.

2. Select the unit configuration record that you want to approve, and click the Submit for Approval button.

When a unit with a Draft status is submitted for approval, the status changes to Approval Pending. If the changes are approved, the status changes to Complete. If the changes are not approved, the status changes to Approval Rejected.

Viewing Alternate Items Utilization

CMRO the Unit Configuration records the utilization of each component within an assembled hierarchy by monitoring the current utilization of units and component hierarchies. The Unit Configuration module uses appropriate units of measure including Time Since New, Time Since Overhaul, Time Since Repair, utilization cycles, Hobbs meter time, and many others. The Unit Configuration module also records utilization history of a revenue fleet unit, serialized part, or component hierarchy.

After you have viewed the item utilization, you can assign alternate items to unit configuration positions.

Prerequisites

❒ An assigned item must exist for the pertinent position in the unit configuration, and the unit configuration record must be in the Draft status.

To view alternate item utilization:

1. Retrieve the unit configuration record that you want to edit. See Finding Unit Configuration Records, page 6-5.

2. Click the Edit button for the record for which you want to view alternate items, and the Edit Unit Configuration page appears.

3. Click the node on the tree structure that you want to edit.

4. Select the position to which you want to assign alternate items, and the alternate items will be displayed in the Assign Item table.

5. Select the item for which you want to view utilization.

6. Click the View Utilization button and view the utilization details for the alternate item.

Assigning Alternate Items to Unit Configuration Positions

When a fleet unit is in operation providing a transport service, eventually some components will require replacement to preserve the operational readiness of that unit. A unit configuration inherits the alternate items list for each component position in the hierarchy, from its master configuration template. Use this procedure to assign alternate items to a component position in an assembly. This will enable you to manage the as-installed configuration details of any fleet unit.

Prerequisites

❐ An assigned item must exist for the pertinent position in the unit configuration, and the Unit Configuration record status must be Complete.

To assign an alternate item to a unit configuration position:

1. Retrieve the unit configuration record that you want to edit. See Finding Unit Configuration Records, page 6-5.

2. Select the unit configuration record that you want to remove and click the Remove button.

3. Select the unit configuration position to which you want to assign alternate items, and then click the Edit button.

   The Edit Unit Configuration page appears.

4. Click the topmost node in the unit configuration.

   The position references under the selected node appear with the corresponding part information.

5. Select the position to which you want to assign alternate items.

6. Click the Alternates button, and the Alternate Items List page appears.

7. Select the alternate item that you want to assign to the position.

8. Click the Assign button.

   The selected alternate item is assigned to the position, and the item previously assigned to the selected position is marked Out-of-Service and returned to the Alternate Items List.

Creating and Updating Item Information

Oracle CMRO uses Oracle Installed Base, part of the Oracle e-Business Suite, to create and update item information.

- Click the Create Product tab in the Unit Configuration module to access the Create Item Instance page.

- Click the Search Product tab in the Unit Configuration module to access the Search Item Instances page.

For instructions on using these pages to create, find, and update item information using Oracle Installed Base, see the *Oracle Installed Base User's Guide.*

Configuration Access Control Management

In certain circumstances, access to a unit configuration must be restricted. This functionality is used in aircraft incident investigations where is it required that all data for the plane is preserved in its current state. Access to change anything on this configuration is stopped to avoid tampering with data. A quarantine can be requested for a unit configuration to prevent any transactions from being performed.
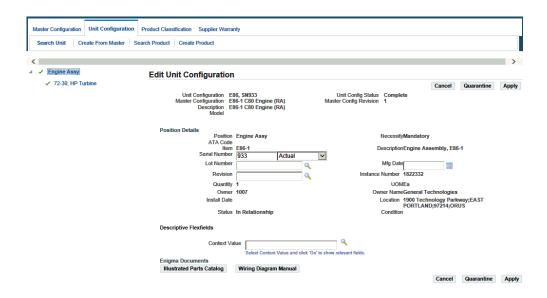
Configuration management enables that access to a specific unit to be locked or terminated to prevent viewing or updating. A locked configuration prevents any transactions to be performed. This functionality includes:

- Activate Quarantine of a unit configuration, including transactional consequences to the unit maintenance plan, visit work packages, and production and execution

- Deactivate Quarantine of a unit configuration

Access Control for a Unit Configuration

To quarantine a unit configuration:

1. Retrieve the unit configuration that you want to quarantine.

   The Edit Unit Configuration page appears.

2. Click the **Quarantine** button.

When the unit configuration is quarantined, all transactions are stopped including:

- Initializing maintenance requirements.

- Push to production.

- Position update, installation, or removal.

- Work order updates.

To deactivate a quarantined unit configuration:

1. Navigate to the Edit Unit Configuration region of the Unit Configuration page.

2. Click the Deactivate Quarantine button.

   Deactivation of a quarantined unit returns the unit configuration to the status prior to quarantine of Complete or Incomplete.

7

Updating Counters and Correcting Maintenance Record History

This chapter covers the following topics:

- Using Oracle Installed Base Counters with Unit Configurations
- Viewing and Adding IB Counter Readings to a Unit Configuration
- Adding Absolute IB Counter Readings
- Correcting IB Counter Readings for Unit Configurations
- Counter Updates: Dependencies, Interactions, Implementation Tips and Best Practices
- Managing Counter Corrections for Part Removal and Installation
- Performing Part Changes
- Understanding Part Changes and Maintenance History
- Overview of Maintenance History Audits
- Performing a Maintenance Record Audit

Using Oracle Installed Base Counters with Unit Configurations

You can enter new Oracle Installed Base (IB) counter readings for CMRO managed unit configurations. You can also view and make corrections to historical counter readings for a unit configuration and applicable sub-configurations (installed components).

This feature includes the ability to create and update historical counter readings in Installed Base. Therefore, the 'snapshot' readings for the maintenance requirement (MR) accomplishment history are not directly updated.

This functionality includes support for counter corrections and near real-time maintenance history correction ability in the Unit Maintenance Plan (UMP) such as:

- The Build Unit Effectivities (BUE) program considers the Installed Base counters

rather than the MR accomplishment history counter snapshots.

This provides an immediate recalculation of the Unit Maintenance Plan (UMP) based on the latest Installed Base counter readings.

- Exception: **Initial** accomplishment records will continue to utilize the MR accomplishment records.

- A concurrent program (Synchronize Accomplishment Counter Readings) is run to update the MR accomplishment history.

  Important: Oracle recommends that this program be run at a frequency that will correspond to the manual counter correction entry, such as on a daily or weekly basis.

  Note: The User Permission access control must be enabled to allow users to correct counter readings and accomplishments.

Limitations and Best Practices

Note the following limitations and best practices associated with this functionality:

- Archiving of historical counter records must consider that the BUE utilizes the latest counter readings for the recalculation of due dates in the UMP.

  Important: Missing readings due to archiving will cause calculation issues in the UMP.

- It is recommended that all counter adjustments occur in a single transaction to ensure the consistent, precise date/time to the minute and second.

- MR accomplishment history counter snapshots will be updated using the synchronization (concurrent) program.

- Time-based counters are available for entry using the Update Counters page.

  Important: If you are running the Time Based Counters Engine concurrent program; you should not update these counters using this page. This concurrent program automatically increments time-based counters by an amount of 1.

- **New Readings**

  You can enter new *incremental* (delta) counter readings by unit of measure (UOM) for a unit configuration. This includes Change and Absolute type counters.

For Change type counters, these new readings include both the most recent reading in history, as well as readings in the past between existing counter readings. For Absolute type counters, readings may only be created after the last reading.

You can also enter a counter reading comment, if necessary.

The readings will be automatically cascaded to all the components which were installed in the configuration as of the reading date and time. This includes both currently installed and previously removed components.

- **Counter Reading Corrections**

    You can correct a historical counter reading for Change type counters.

    > **Important:** You cannot correct a counter with an Absolute type.

    You can search and select a historical counter reading for correction and then submit a new reading value based on the UOM. The historical readings for that date and time will be disabled and recreated for the new reading value. You can also enter a counter correction reading comment, if necessary.

    The sub-configuration components, as-installed on the correction date and time, will be identified and all items will have their applicable counters adjusted. This includes both currently installed and previously removed components.
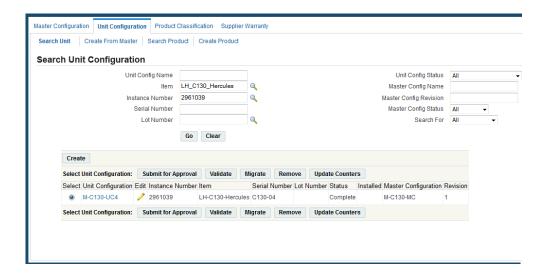
    An exception page is presented if the historical corrections include parts installed after or removed before the exception date. You can use this exception page to verify maintenance history changes due to counter corrections. You can also launch the Build Unit Effectivities program for a unit configuration to update the Unit Maintenance Plan, based on the recently updated counter values.

Viewing and Adding IB Counter Readings to a Unit Configuration
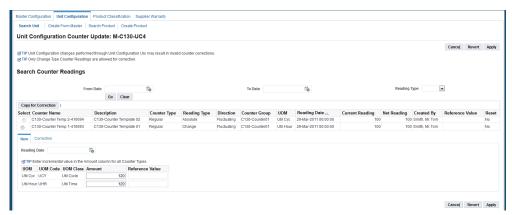
Use the Unit Configuration Counter Update page to view, add or correct CMRO-IB counter readings.

Perform the following steps to view existing counter readings or add an IB counter reading to a UC.

1. Navigate to the Search Unit Configuration page (CMRO Super User > Configuration > Unit Configuration).

2. Search for a unit configuration, entering values in the Item, Instance Number and other fields to narrow your search.

3. Select the radio button for the item instance.

4. Click the Update Counters button, and the Update Configuration Counter Update page appears.

5. Click the Go button or enter values in the From Date and To Date fields to narrow your search.

6. View any existing counter readings and associated information such:

   • Reading Date: The date and time that the reading was recorded in the application.

     The following should be noted:

     • This value can be in the past or equal to the sysdate and time.

     • Reading dates cannot be in the future.

- Value is time-zone controlled.

- Value cannot be equal to an existing counter reading date and time. If there is a duplication, an error message is displayed.

- Created By: Field indicates if a system transaction (API call) or a user created the counter readings.

- Current Reading and Net Reading: Readings can be reviewed to see values and impacts of counter readings.

- Reference Value: Field used to record notes against counter readings.

  Enter a comment that describes the nature of the counter reading, for example, if this reading is in reference to another transaction such as a flight or mission record, work order for recording, and so on.

- Reset: Value indicates if a system or manual Installed Base counter reset was accomplished.

7. Click the Go button or enter values in the From Date and To Date fields to narrow your search.

8. Enter new counter readings based on the appropriate UOM on the New tab.

   You can enter values for one or more UOMs during a transaction.

   > **Note:** You can add new readings for Change and Absolute type counters.

- Amount: This value represents the delta of the counter readings.

  This value is used in the Cascade API that applies this value to all the sub-configuration positions.

  > **Note:** Do not enter the Net Reading as this field is automatically calculated.

  For Absolute counters, the system uses the following formula:

  ```
  Amount + last reading = New Absolute reading
  ```

- Reference (optional)

9. Click the Apply button.

> **Important:** The UOM will be applied to each matching counter of the same UOM, regardless of the originating counter group for each item in the unit configuration hierarchy.

10. View the updated counter readings by refreshing the search area results.

Adding Absolute IB Counter Readings

Use the Unit Configuration Counter Update page to add Absolute IB counter readings.

1. Search for the unit configuration and item instance to which you want to add Absolute counter readings.

2. View the existing counter readings.

3. Click the New tab.

4. Enter new counter readings based on the appropriate UOM on the New tab.

    You can enter values for one or more UOMs during a transaction.

    - Amount: This value represents the **delta** of the counter readings.

      This value is used in the Cascade API that applies this value to all the sub-configuration positions.

      > **Note:** Do not enter the Net Reading as this field is automatically calculated.

      For Absolute counters, the system uses the following formula:

      ```
      Amount + last reading = New Absolute reading
      ```

    - Reference (optional)

5. Click the Apply button.

    A confirmation message displays that all changes have been saved.

    > **Important:** The UOM will be applied to each matching counter of the same UOM, regardless of the originating counter group for each item in the unit configuration hierarchy.

6. View the updated counter readings by refreshing the search area results.

Best Practices for Absolute Counters

It is recommended that you do not use Absolute counters if the following scenarios exist:

- If you plan to update configurations using parts changes in work orders and need to make a historical correction to a configuration.

  In this scenario, Absolute counters will not be considered for adjustment during past dated part removals in work orders. Only Change counters will be adjusted.

- Users will not be able to enter past dated counter corrections for Absolute counters in the Update Counters UI.

Correcting IB Counter Readings for Unit Configurations

You can correct historical IB (Change) counter readings for unit configurations.

1. Search for the unit configuration and item instance to which you want to correct the Change counter readings.

2. View the existing counter readings.

3. Select the radio button for the Change counter reading that you want to correct.

4. Click the Copy for Correction button, and the Reading Date information is populated on the page.

   By selecting an individual counter reading, this action will set the context date/time for the correction. However, the correction will impact all Change Type counter readings for each UOM Amount entered for the same date and time. Each counter reading will be disabled and recreated in Oracle Installed Base.

   > **Important:** The selected counter reading row and all the related counter readings (for Change Type counters) for each UOM will be impacted.

   Select a single row to ensure that the user is performing the correction at the exact minute and second. Otherwise, the user could accidentally enter a new counter reading if the time was a single second different.

5. Enter the corrected Amount for the counter readings based on the appropriate UOM on the Correction tab.

   You can enter values for one or more UOMs during a transaction.

   > **Note:** The Correction tab is access-controlled and it may be unavailable for use. Users must have User Permission Access Control which controls access through the function, "User

permission to correct counter reading and accomplishment."

The amount entered is for the replacement value for the incorrect reading at that date and time for the Change type counters. When the system applies the change, each existing reading will be disabled and then recreated with the newly entered amount reading.

The Net Reading value is calculated within Oracle Installed Base based on the Reading date/time forward to the sysdate/time.

- Amount: This value represents the delta of the counter readings.

    This value is used in the Cascade API that applies this value to all the sub-configuration positions.

    > **Important:** You must enter the new delta reading for the counter correction. Therefore, you may need to manually calculate the delta reading before entering an Amount reading.

    > **Note:** Do not enter the Net Reading as this field is automatically calculated.

- Reference (optional)

Any UOM Amount readings that are left with a value of Null (blank) will not be processed, meaning that no corrections will be made.

It is recommended that all counter adjustments occur in a single transaction to ensure consistent dates and times down to the second.

If you enter a zero (0) for a UOM Amount reading, then this value will be entered as the delta reading. Therefore, if you decide to create a new counter reading with a value of zero or if you want to enter a null (blank value), the system will skip these UOMs and will not create new counter readings for the UOMs.

> **Important:** If there are historical counter readings, they should be replaced by zero values and the system will recalculate the net reading value of the counter.

6. Click the Apply button. A confirmation message appears that changes have been saved.

    - Upon save, the system disables all the counter readings for the same UOM for the selected date and time for the top node and all the subcomponents (children) that were installed at this reading date and time.

- The system creates new readings to replace those which have been disabled.

> **Note:** The Exceptions page will appear if there are any counter correction exceptions.

7. View the updated counter readings by refreshing the search area results.

The Accomplishment History will be updated by the synchronize concurrent program.

Counter Updates: Dependencies, Interactions, Implementation Tips and Best Practices

This section includes dependencies, interactions, implementation tips and best practices for counter updates.

Dependencies and Interactions

Counter Cascade API

The Counter Cascade API has been enhanced to ignore formula counters of the same UOM from being updated in the sub configurations. This will allow the formulas to create the correct readings based on the counter entry reading entered at the top node.

Counter Update UI

You may choose to build an extension or customization to directly call this UI. This enables you to restrict access to the Search Unit Configuration UI. The UI can be called directly by passing the Unit Configuration reference to the UI.

Unit Configuration Changes Using the Part Change Functionality in a CMRO Work Order

- This is the supported method to control the removal and installation of position based components on a configuration.

- All transactions are tracked and can be validated by the counter correction program.

Unit Configuration Changes Using the Edit Unit Configuration UI

- This is not the supported method for controlling the removal and installation of position based components on a configuration.

- Transactions are not tracked and cannot be validated by the counter correction program. Maintenance history is compromised by this method.

- This method is typically used for setup or major adjustments where the unit

configuration is not active, nor is it receiving counter history updates.

Implementation Tips and Best Practices

- It is important to fully understand the counter group setup and behavior of Oracle Installed Base before utilizing the counter correction UIs:

  - Counter setup should follow cMRO recommendations, use of Change Type.

  - External integrations for counter creation should be reviewed as an alternative to the manual entry of counters in cMRO.

    The volume, frequency and data integrity requirements should be key drivers in deciding if an external integration is required.

  - CMRO APIs support these integrations and provide near real-time updates of top node and sub-configurations.

    See the Oracle Integration Repository regarding API information located in the Service Suite, cMRO APIs.

- User access to the counter corrections of historical counter readings should be restricted to Super Users, thereby reducing potential regulatory exposure.

- Counter entry and corrections are performed at the UOM level.

  Therefore, these updates will cascade to all matching counters, with a matching UOM, at the sub-configuration levels of current or previously installed components. The following should be considered:

  - During the counter template setup for sub-configuration items, it should be understood that the sub-configuration components will inherit reading amounts during the application of the Counter Cascade API.

  - There may be requirements for different UOMs in sub-configurations.

    Therefore the counter entry and corrections may need to be accomplished both at the top node and at the lower level nodes as well. This can be done using external integrations or manually through the cMRO UIs.

  - Formula and position ratio counters can also be utilized for similar UOMs, but there is not a direct 1:1 update of the counter reading amounts.

- Corrections performed directly in Oracle Installed Base are for the instance in context only, and do not automatically cascade the changes to the sub-configuration.

  - Therefore, it is recommended to use CMRO UIs for counter changes to the Unit Configuration top nodes.

- Sub-configuration component updates may be directly updated in native Installed Base UIs, but maintenance history records may be impacted because there is no corresponding adjustment to maintenance history records.

- Therefore, it is important to correct sub-configuration components using the install and removal transactions in the context of a work order.

- The Unit Configuration Counters Update UI can be called directly through a customer created extension:
  - This is an alternative to using the Search Unit Configurations UI.

  - Customers can use JAVA and OAF Extensions to call the Counter Correction page from within an OAF or JTT framework based UI.

  - Customers may choose to either create a custom Search Unit Configurations UI or create a clickable Button or Action Drop down from an existing OAF UI where the Unit Configuration is known or in context.

Managing Counter Corrections for Part Removal and Installation

Overview

Oracle cMRO enables you to enter part removal and installation dates in the past, and to correctly adjust counter readings and maintenance accomplishment history.

> **Important:** Oracle recommends that you continue to perform remove and install transactions that follow a sequential process to ensure correct part change history.

When counter corrections are entered, all counter readings are disabled for the removed component, based on the from removal date/time until the sysdate and time. The system will then create new counters readings from the install date until the sysdate/time for the installed component. The new counter readings will be based on the top node unit configuration for which the part has been installed.

Users will be notified during the removal transaction if a component has maintenance accomplishments during the period from the removal date/time until the sysdate and time. The user will then be required to review the parts change and accomplishment history to determine if any transactions were incorrectly recorded against the wrong component serial number, due to the removal transaction not being performed before the next counter readings or accomplishment was transacted.

This functionality relates to part changes that were accomplished through a work order on a cMRO unit configuration:

- Part removals, installation and replacements are recorded for a user-defined date and time component, including both past dated and real-time transactions.

- Counter corrections automatically performed, if applicable, for past dated parts changes to ensure correct counter history.

The Override Counter Correction Updates during Parts Change profile option controls the sequential part change check and related errors when the counter correction logic finds two installations or two removals in a row in a Unit's history. See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide* for more information.

Counter Corrections During Part Removals and Replacements

This functionality provides the following:

- Part removals will be against the "as-installed" configurations for the date and time entered.

- Utilization that was incorrectly accrued after the post removal date will be corrected by disabling the applicable Installed Base counter records at the item level, thereby correcting the additional utilization history that was recorded.

- If the removed item is a sub-configuration, then counter corrections will also be made to all the applicable instance and child instances that were installed as of the removal date and time.

Counter Corrections During Part Installation and Replacements

Counter corrections during part installation and replacement are handled as follows:

- Part installations will be against the "as-installed" configurations for the date and time entered.

- Utilization that was incorrectly accrued post installation date will be corrected by creating the applicable install base counter records at the item level, thereby correcting any missing utilization history that was not recorded.

- If the installed item is a sub-configuration, then counter creations will also be made to all the applicable instance and child instances that were installed as of the installation date and time.

Part Change, System and Record Integrity - Considerations

- Removal transactions (installation, replacement) must continue to be performed sequentially. The counter update functionality is aimed at only reviewing and

updating the **most current** part change transaction.

- Counter corrections during these transactions will be based on the current values for the current top node unit configuration for the date and time of the part change transaction.

  > **Important:** Any counter updates to the top node unit configuration, along with any cascade programs, must be accomplished *prior* to performing any part change transactions.

Part Changes: Maintenance History - Considerations

For items removed with a past date and time, there is a potential for the incorrect accrual of utilization, and for the incorrect recording of maintenance program accomplishments against the wrong item and serial number.

Such scenarios will be flagged using an exception flow highlighted by an extended delay or error in failing to correct transact part changes.

Users will receive an alert and will be able to navigate to part change and maintenance accomplishment history pages during part removal transactions. Users can search transactions and confirm that maintenance history transactions were created against the correct item or serial numbered item.

This functionality enables users who are making historical corrections of part changes to reflect an incorrectly installed part due to a data entry mistake.

Performing Part Changes

Follow these steps to perform part changes:

1. Navigate to the Update Work Order page (Execution >Production Planning >Work Orders).

2. Search for a work order and click Go.

3. Select the radiobutton for the work order, select Update Work Order value from the Select Work Order drop-down.

   Click Go, and the Work Order Operations page appears.

4. Select one of the following values from the drop-down list:

   - Perform Parts Removal/Install

   - Perform Bulk Part Removal
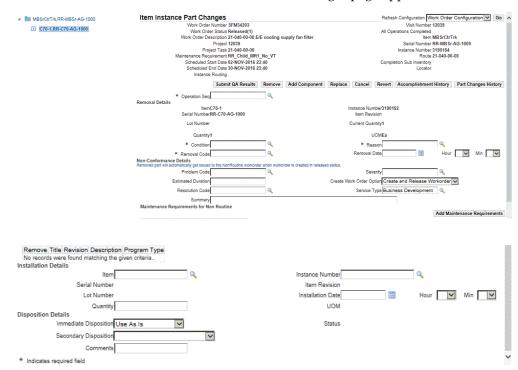
- Perform Part Installation

- Perform Disposition

    Note: Use the Parts Removal/Install UI if you want to remove one position at a time. Use the Bulk options for multiple items.

    Click the Go button, and the Unit Configuration Part Changes page appears.

    Note: The Parts Removal/Install UI is used to install or remove bulk parts.

5. Click the unit configuration on the left section of the page to drill into the unit configuration position and sub-positions.

    Select the part positions.

6. Select Visit Configuration or Work Order Configuration in the Refresh Configuration drop-down to change the context to an Installed Base work order instance.

7. Click the Go button, and the Item Instance Part Changes page appears.

8. Select a value in the Operation Seq (sequence) field; this is a required field.

9. Select an Instance Number.

10. Select an Item, if necessary.

11. For a non-routine, select the Stage Name to indicate the stage that the change is to be performed

12. Select a value in the Immediate Disposition field.

13. Click the Remove button, and enter the removal details.

   The new hour and minute level of details are added to the removal date.

Maintenance History Validations

After you click the Remove button, you may receive a warning message if there are maintenance accomplishments that have been recorded after the removal date. This message is generated because the system is searching for the maintenance history, and assumes that signoffs that occurred after a removal may need to be reviewed. These signoffs should be confirmed before clicking Yes in the message.

If you click No and stop the transaction, you can review the maintenance history before committing a removal transaction. You can do research in the areas of:

• Parts Change History: Enables the search for the sequential parts change for a component.

   Users can then confirm the dates and times of the new transaction in the context of all previous transactions.

• Accomplishment History: Enables the search for the historical maintenance signoff records.

   Users can then confirm that the removal date and time of the new transaction are correct in the context of all the maintenance signoffs.
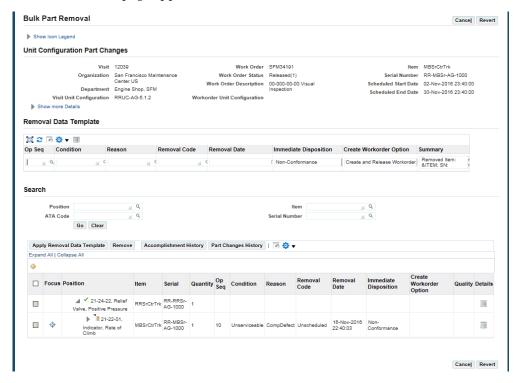
Performing Bulk Part Removals

When you perform a bulk part removal, the system creates a non-route maintenance requirement.

1. Navigate to the Update Work Order page (Execution > Production Planning > Work Orders).

2. Search for a work order and click Go.

3. Select the Update Work Order value from the Select Work Order drop-down.

   Click Go, and the Work Order Operations page appears.

4. Select Perform Bulk Part Removal from the drop-down list in the upper right-hand side of the page.

The Part Removal page appears.

5. Enter values in the Removal Data Template region:

   1. Op Seq

   2. Condition

   3. Reason

   4. Removal Code

   5. Removal Date

   6. Immediate Disposition

   7. Create Workorder Option:

      • Create Unreleased Workorder

      • Create and Release Workorder

      • Do not create Non-Routine

- Do not create Workorder

8. Summary (required): The default value for this field is "Removed Item: ITEM; SN: SERIAL; From Position: POSITION; Work Order: WORKORDER. However, this value can be edited. In addition, the size of text box can be adjusted.

   If you are removing multiple (bulk) items, the Summary text appears for each part being removed. However, the Summary text can be changed for each part by using the Details UI.

6. Select the check box for the positions where the bulk part removals will occur.

7. Optionally click the Apply Removal Data Template button to apply the removal details to multiple positions (rows).

8. Click the Remove button.

   The system validates the transaction based on the removal date and time:

   - If there are any counters recorded between the removal date and time and the system date and time, those counters will be disabled.

   - If there are any maintenance history records recorded between the removal date and time and sysdate and time, then the system will alert the user that the maintenance history must be reviewed.

   A message appears that indicates that the parts have been successfully removed.

Understanding Part Changes and Maintenance History

This section includes tips and best practices relating to part changes and maintenance history corrections.

- The parts change functionality in a work order includes a validation of the removal or installation date against maintenance history.

  The system will notify the user if the transaction could be in conflict with existing history records.

- Maintenance history transactions must be manually verified for any discrepancies or adjustments to the maintenance history records.

- It is recommended that counter updates be synchronized with maintenance transactions to ensure historical accuracy.

- Sequential processing of part changes must be maintained.

Part changes should be processed as close to the real-time (actual) part change as possible.

- Any corrections, updates or cancellations to a maintenance history record may affect the calculations and due dates and times of the Unit Maintenance Plan.

> **Note:** It is recommended that users evaluate the requirement to re-run the Build Unit Effectivities (BUE) program after changes to history records to accurately evaluate any impact to the maintenance forecast.
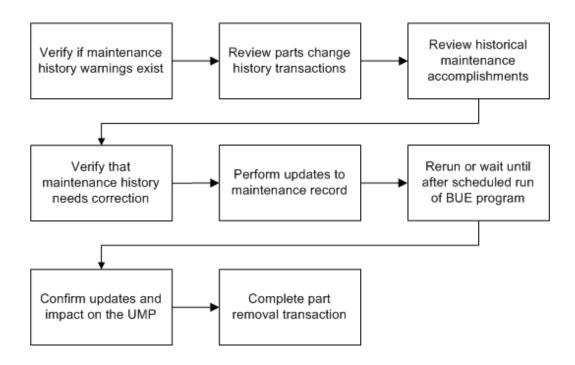
Overview of Maintenance History Audits

By using the maintenance history auditing function, you can:

- Review and audit maintenance history during parts changes and records correction activities.

- Identify potential inconsistencies with part changes relating to historical recording dates and times.

- Search part change and maintenance record history and evaluate the impact of a record correction before committing the actual change.

- Correct data entry mistakes and part change errors in a unit configuration.

Maintenance History Auditing - Business Process Flow

The following diagram outlines the major tasks involved in the auditing of maintenance records history for part changes:

Performing a Maintenance Record Audit

Follow these steps to access the parts change and maintenance accomplishment history.

1. Navigate to the Part Changes page (Administration > Reliability > Part Changes).

2. Enter search criteria for the Serial Number, Unit Configuration, Item and so on to narrow your search.

   Click Go.

3. Click the icon in the Accomplishment Details column for the item.

   The Search Maintenance Requirements page appears. The default item and serial information from the part removal/install or parts changes, but you can edit these fields.

   > **Note:** Accomplishment history can be edited if the corresponding visit has a Closed status.
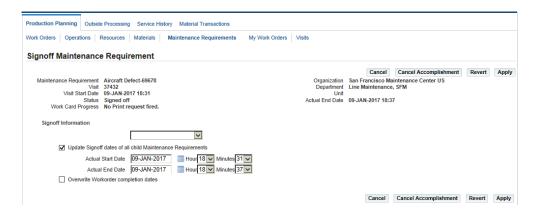
4. You must manually query for the maintenance requirements with a status of Signed Off.

5. Select an accomplishment row to view and edit the history record.

   > **Important:** You must have the appropriate security access to access

the Signoff Maintenance Requirements page.

If an MR is part of a parent-child relationship, then the parent must be signed off in order for the child MR can be edited.

> **Note:** A child requirement can be canceled without the parent being signed off. However, it cannot be edited.

6. You can perform one of these options:

- Cancel Accomplishment: There will be no association to another instance.

  You may need to cancel an accomplishment, and then create a new accomplishment in another visit to correct maintenance history.

- Change the associated instance of an existing accomplishment. Entering revised information corrects a historical maintenance accomplishment record. This correction will be reflected in the forecasting of the UMP.

During a parts change, if a warning message appears that there are maintenance accomplishments which have been recorded after the part removal date. The user should navigate to the Accomplishment history page and review each signoff record. It is important to note that signoffs of accomplishments can be recorded after the part removal date as part of the normal post maintenance business practice of data entry. Therefore, the accomplishment records can be easily verified as correct and the warning message can be disregarded.

8

Managing Product Classifications

This chapter covers the following topics:

- Overview
- Product Classifications
- Working With Product Classifications
- Creating a Product Classification
- Working With Nodes
- Associating Documents to a Node
- Attaching Units and Items to Product Classifications
- Launching the Approval Process

Overview

In the transportation business, the term 'fleet' commonly describes a group of related vehicles. A fleet may be divided into smaller groups, or subfleets, each consisting of products that are similar with regard to manufacturer, operating region, or other pertinent attribute. Because maintenance requirements are often based on such attributes, product classification is needed to provide a hierarchy within which the products can be grouped.

Throughout the maintenance industry, businesses need to define how maintenance and supporting documents apply to physical units. These documents typically represent other parts or technical information, and their purpose is to express which requirements apply to specific units.

A product classification will group products logically across multiple levels. Examples are the family-model-version classification for engines and the fleet-series-model classification for aircraft. A product classification can be represented by a tree structure in which individual units can be attached to the nodes of the tree, with the implication that maintenance requirements and maintenance documents applicable to such a node

to the attached units or parts. See:

- Creating a Product Classification, page 8-4

- Working With Nodes, page 8-7

- Associating Documents to a Node, page 8-9

- Attaching Units in Product Classification, page 8-10

- Launching the Approval Process, page 8-11

Product Classifications

A product classification is a logical categorization of units or parts pertaining to maintenance, with a unit being the physical instance of an item and a part being the general item definition from which a unit is instantiated. Product classifications enable an organization to group its units or parts together from multiple viewpoints. Examples are the general product family classification, a classification per geographical location or a classification based on the type of usage of a unit or part. The affiliation of a unit or part to certain classifications is used to define the applicability of maintenance requirements and maintenance documents. If you are changing a product classification by adding, deleting or moving a unit or a part, the unit maintenance plan of the affected units is changed automatically to represent the maintenance requirements based on the edited product classification. This gives an organization a powerful setup of maintenance applicability, with minimum maintenance of the engineering setup when implementing maintenance plan changes.

Key Business Processes

Product Classifications

A maintenance engineer has the ability to create and maintain product classifications. A product classification provides a hierarchy in which parts and units can be grouped. Organizations are able to create, copy and maintain product classifications. In addition, organizations can associate document and maintenance requirements to product classifications.

Maintenance personnel can:

- Search the database to quickly refer to a product classification.

- Create new product classifications or revise product classifications.

- Edit and copy product classifications.

- Associate documents to product classifications for a node.

- Attach parts or units to product classifications.

- View maintenance requirements associated to a product classification node.

- View a utilization forecast of a product classification.

- Check for completeness of primary product classifications.

- Launch the approval process for a draft product classification.

Parts and Unit Classification

You can group parts or units in multiple product classifications. A product classification is represented in a tree model hierarchy. This enables organizations to group parts or units together from different viewpoints, and define maintenance requirements and maintenance documents based on the association of product classifications for the parts or units.

Primary and Supplementary Classification

Primary and supplementary classifications are supported. For a primary classification, all parts or units must be associated to the product type for the specific primary classification. An organization can have one primary classification per product type. This gives the organization a view of all the parts or units for a specific product type. An example of that would be the complete fleet of an airline. A supplementary classification can represent a subset of the parts and units for a particular product type. An organization can have multiple supplementary classifications for a particular product type. This enables an organization to group the parts and units together from different viewpoints. An example of that would be a categorization by geographical location of the parts and units.

Association of Maintenance Documents

You can associate maintenance documents to any node within the product classification hierarchy.

View Maintenance Requirement Association

You can display the maintenance requirements associated to a node in a product classification.

Unit Maintenance Plan Update

When a part or unit changes, its product classification or is newly added or deleted from a product classification. The system automatically runs the recalculation of the affected maintenance plan for the effected units.

Working With Product Classifications

A product classification provides a multilevel hierarchy that permits the logical grouping of products. Product classifications are used mainly to define maintenance

requirements and documents applicability.

There are two types of product classifications:

- **Primary**: Used to give an overview of all existing units that comprise a complete list of components.

  For an operator in the transportation industry, this consists of all airplanes, trains, buses, ships, cars, and so forth. You can define multiple primary classifications. However, for validation purposes, they must be associated to an item type for the primary classification. For example, you can define multiple primary classifications for the complete fleet of airplanes and the complete list of engines. Only parts of the Airplane product type can be associated to the primary classification for the fleet of airplanes, and only parts of the Engine product type could be associated to the engine classification. Because one part can have one product type only, there is no duplication when associating parts or units to a primary classification. Each unit defined as part of the fleet has to be part of the primary product classification.

- **Supplemental**: Used to group certain units for specific classification needs based on geography, or other types not covered through the primary classification or any other attribution.

  A supplementary classification does not always resemble the complete fleet; therefore, it does not require each unit to be assigned to a leaf node.
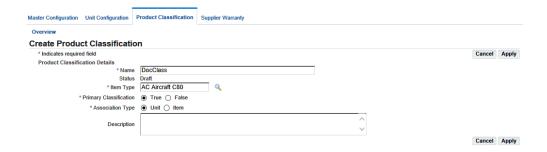
Related Topics

Creating Product Classifications, page 8-4

Creating a Product Classification

To create a product classification:
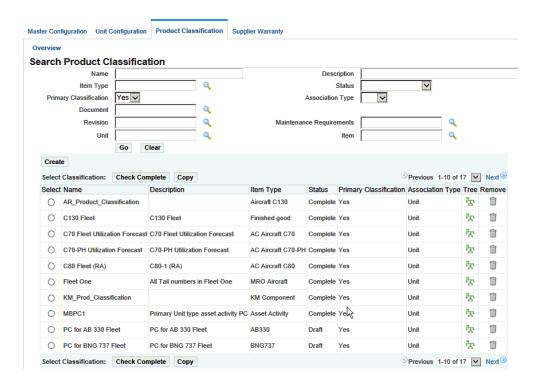
1. Navigate to the Create Product Classification page (Configuration > Product Classification > Create).

2. Enter a unique name for this product classification.

3. Select a value in the Item Type field.

4. Select the True or False option for the Primary Classification field to indicate if this classification record is the primary one.

5. In the Association Type field, indicate if this classification is associated to a Unit or Item.

6. Optionally, you can enter text in the Description field.

7. Click the Apply button to save your work.

   The Edit Product Classification page appears.
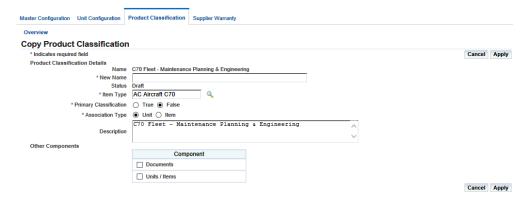
To find a product classification record:

1. Navigate to the Search Product Classification page.

2. Enter the information in the appropriate fields:

   - Name

   - Product Type

   - Status

   - Primary Classification

   - Association Type

   - Document

   - Revision

   - Maintenance Requirements

   - Unit

   - Part

3. Click the Go button to view the results of your search.

To copy a product classification:

1. Navigate to the Copy Product Classification page.

2. Enter a unique value in the New Name field.

3. Enter additional information as required.

> **Note:** Only one primary product classification is permitted for a product type. Select the check boxes for components such as associated units, parts, or documents that you want to copy.

4. Click the Apply button to save your work. The Edit Product Classification page appears.

To edit a product classification:

1. Click the Tree icon to navigate to the Edit Product Classification page.

2. Make the necessary changes in the fields. Note that only one primary product classification is permitted for a product type.

3. Click the Apply button to save your work.

To run the Building Unit Effectivities (Product Classification) process for specific product classification:

This is a subset of Building Unit Effectivity (BUE) program. This option allows you to run BUE only for a specific Product classification (PC). It runs for all MRs associated with a specific PC.

1. Navigate to the Submit Requests window.
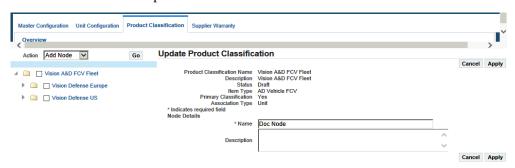
2. Select Building Unit Effectivities (Product Classification) in the program Name field.

3. Select a Product Classification Name in the Parameter field.

4. Select the other information needed to generate this program.

5. Choose Submit to generate this concurrent request.

Working With Nodes

Assigning a part, instead of the unit, to a node is an easier way to classify the products if a differentiation is not needed on the instance level. A hierarchy tree is used to graphically display the structure of product classifications and the elements related to them. You can add, edit, and remove nodes, and also attach documents, associate units and parts, and view the maintenance requirements for any selected product classification.

To add a node:

1. Select a product classification and navigate to the Edit Product Classification page.

2. Select a node, and choose Add Node from the Action menu.

3. Click the Go button to display information in the Node Details region.

4. Enter a name and descriptive text for this node.

5. Click the Apply button to save your work.

To edit a node:

1. Select the product classification and navigate to the Edit Product Classification page.

2. Select the node on the tree that you want to edit, and click the Edit Node button.

3. Make the necessary changes in the fields.

   Click the More button to associate additional documents or attach parts.

4. Click the Apply button to save your work.

To view utilization forecasts:

1. Retrieve the relevant product classification record, and navigate to the Edit Product Classification page.

2. Select the node to view the associated utilization forecast.

> **Additional Information:** Utilization forecasts cannot be associated to the top node in the tree.

3. Click the More Details button.

The Update Attached Documents page appears.

4. Click the Utilization Forecast button to access the View Utilization Forecast page to view any related utilization forecasts.

View Utilization Forecast

| Master Configuration | Unit Configuration | **Product Classification** | Supplier Warranty |

Overview

Documents	
Units/Items	
Utilization Forecast	
Maintenance Requirements	

View Utilization Forecast   Cancel

Product Classification Name	C70-PH Utilization Forecast
Description	C70-PH Utilization Forecast
Status	Complete
Item Type	AC Aircraft C70-PH
Primary Classification	Yes
Association Type	Unit

Node Details

Name	US
Description	US flights

Utilization Forecast List

Start Date	End Date	Usage Per Day	UOM
23-MAY-2005		2	UCY
23-MAY-2005		10	UHR

Cancel

Associating Documents to a Node

Product classifications use a tree structure to graphically display the structure of product classifications and the elements related to them. Documents can be associated with product classifications by attaching them to the appropriate node of this tree structure.

To associate a document to a node:

1. Select the product classification record and navigate to the Edit Product Classification page.

2. Select the node that you want to associate a document.

    Click the More Details button, and the Update Attached Documents page appears.

3. Select the document that you want to add.

Update Attached Documents   Cancel   Apply

Product Classification Name	Vision A&D FCV Fleet
Description	Vision A&D FCV Fleet
Status	Draft
Item Type	AD Vehicle FCV
Primary Classification	Yes
Association Type	Unit

Node Details

Name	Vision A&D FCV Fleet
Description	Vision A&D FCV Fleet

Document List

Remove	Number		Title	Type	Revision	View Revision	Chapter	Section	Subject	Page	Figure	Note	Media Type	Location	Use Latest	Enigma Document
	00-25-254-1		Engine Management System Engin	Engine	1										No	
															No	
															No	

Add More Rows

Cancel   Apply

4. Click the Apply button to save your work.

To view an associated maintenance requirement:

1. Select a product classification record, and navigate to the Edit Product Classification page.

2. Select the node and choose More Details. The Update Attached Documents page appears.

3. Click the Maintenance Requirements link, and the View Maintenance Requirement page appears, displaying any currently relevant maintenance requirements.

View Maintenance Requirement

Product Classification Name	Fleet One
Description	All Tail numbers in Fleet One
Status	Complete
Item Type	MRO Aircraft
Primary Classification	Yes
Association Type	Unit

Node Details

Name	C-1600
Description	C-1600 Aircraft

Maintenance Requirement List

Title	Version	Revision	Description	Program Type	Status	Effective From	Effective To
A-Check	1		Maintenance Group to be performed every 500 operation hours.	Letter Check	Complete	07-NOV-2002	11-NOV-2002
C-Check	2		Maintenance group to be performed every 2000 operation hours.	Letter Check	Complete	11-NOV-2002	
A-Check	2		*Maintenance Group to be performed every 500 operation hours.	Letter Check	Complete	11-NOV-2002	
C-Check	1		Maintenance group to be performed every 2000 operation hours.	Letter Check	Complete	07-NOV-2002	11-NOV-2002
A-Check	3		*Maintenance Group to be performed every 500 operation hours.	Letter Check	Draft	19-JUN-2018	
B-Check	2		*Maintenance group to be performed every 1000 operation hours.	Letter Check	Complete	11-NOV-2002	
B-Check	1		Maintenance group to be performed every 1000 operation hours.	Letter Check	Complete	07-NOV-2002	11-NOV-2002

Attaching Units and Items to Product Classifications

Units and items can be associated with product classifications by attaching them to the appropriate node of the tree structure.

To attach a part or unit:

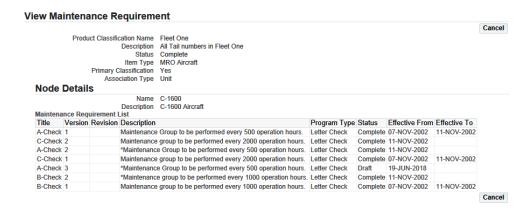1. Navigate to the Edit Product Classification page.

2. Select the tree node to which you want to attach a part or unit.

3. Select the More Details button to display the Update Attached Documents page.

4. Click the Units/Items button.

   The Update Attached Units page appears, displaying any currently attached units.

5. Click the Add More Rows button to add a unit or item.

6. Click the Apply button to save your work.

Launching the Approval Process

The completeness check enables you to check a draft product classification for completeness before launching the approval process. You cannot initiate the check complete process on a supplementary product classification.

The Oracle Complex Maintenance, Repair, and Overhaul Product Classification module enables you to start the approval process for a draft product classification.

To check the completeness of a product classification:

1. In the Search Product Classification page, select the product classification, and choose Check Complete.

   Oracle CMRO performs the check, then displays a confirmation message. If there are errors, the Unapplied Units page appears.

To launch the approval process:

1. Select the record, and navigate to the Edit Product Classification page.

2. Click the Submit button. The Product Classification status changes from Draft to Approval Pending.

9

Working with Supplier Warranty

This chapter covers the following topics:

- Overview
- Key Business Processes
- Searching Warranty Template Records
- Creating Warranty Templates
- Searching for Warranty Contracts
- Associating Supplier Warranties to Item Instances
- Using the Warranty Workbench
- Managing Warranty Entitlements
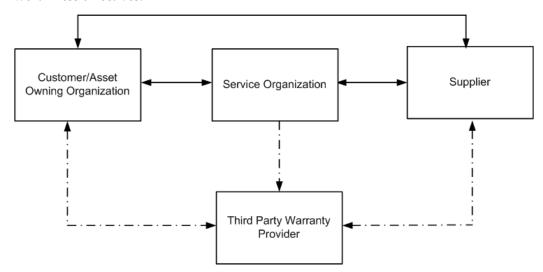- Managing Warranty Claims

Overview

Organizations acquire and deploy assets that are required to support their core business processes. When the assets are used, hey eventually break down. Organizations have service facilities that repair the assets or send them for outside servicing. The servicing of an asset can be periodic (preventive maintenance) or ad hoc (on demand).

Suppliers provide a performance or reliability guarantee that allows a customer to recover any unplanned maintenance repair costs that are incurred during a specified period of ownership for an asset. It is the responsibility of the customer to track the performance or reliability of an asset, capture any unplanned service activity, verify the activity against the warranty terms and conditions, and follow the supplier's process for claiming warranty reimbursement.

When an asset needs to be repaired and is covered by a supplier warranty, the servicing organization determines that the supplier must rectify the defects free of cost or at some negotiated price. The servicing organization makes a warranty claim if there is a link between the assets in question and established warranty terms and conditions. Supplier

warranty terms and conditions cover a wide array of activities performed on an asset during its lifetime. Sometimes it is tied to an as-delivered condition upon induction to a customer. These conditions include new purchases, used purchases, repair services, non-routines, configuration changes, reliability programs and service bulletin and air worthiness directives.

Key Business Processes

Define Warranty

Supplier warranty begins with the Warranty Administrator defining the warranty capability for a vendor and identifying the service items that have warranty applicability.

Assign Warranty

The assign warranty phase includes the following actions:

- Assigning warranty to Oracle Installed Base assets.

- Tracking warranty on Oracle Installed Base assets.

- Monitoring effectivity and expiration.

- Assigning warranty to specific maintenance requirements.

Identify Warranty

The identifying warranty phase encompasses identifying and evaluating the impact during maintenance planning. It also covers warranty applicability and terms during execution and warranty coverage for internal or external repair services.

Record Warranty

The supplier warranty feature enables you to:

- Record accomplished maintenance tasks.

- Record labor and material costs.

- Record internal or external repair service costs

Claim Warranty

When a visit task, work order, non-routine or an OSP line is flagged as warranty, the system associates them to a Warranty Claim, that is a part of claim submittal process. For these orders, the system uses the Warranty Workbench to create, update and manage warranty claims, as well as reimbursement information related to warranty recovery.

Searching Warranty Template Records

You can use the Search Warranty Template page to search, view and edit an existing warranty template as well as to view associated contracts. This page also enables you to create a new template or copy an existing template.

To search warranty template records:

1. Navigate to the Search Warranty Template page.

2. Enter any one of the following search criteria:

   - Template Name: Select the template from the list of all warranty templates.

   - Vendor Name: Shows a list of warranty vendors according to the warranty vendor setup.

     The Warranty Flag must be checked in the Vendor record.

   - Template Status: Options are All, Enabled, and Not Enabled.

   - Warranty Type: Select the appropriate warranty type.

   - Item Number: Select the required item number.

   - Item Description: Description of the selected item displays.

   - Item Status: Options are All, Enabled, and Not Enabled.

3. Click the Go button, and the warranty template records appear.

   You can also edit a template, create a copy, and view contracts if they are available.
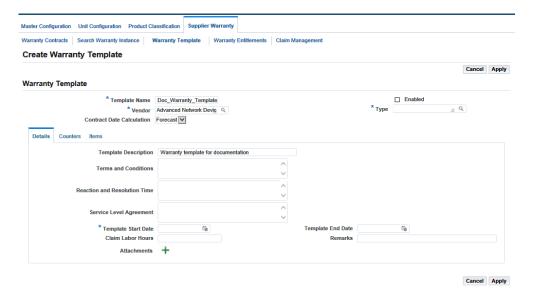
Creating Warranty Templates

The Warranty Administrator defines a warranty template for a supplier's warranty terms and conditions, setting applicable tracking counters and associating items to the template. The Administrator then selects an item in Oracle Installed Base and assigns a specific warranty contract. The item can be serialized or lot-controlled.
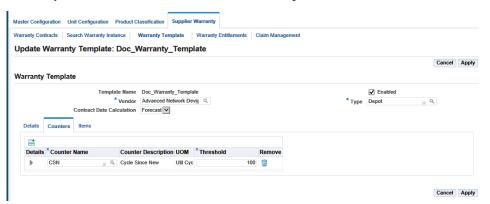
To create a warranty template:

1. Navigate to the Search Warranty Template page.

2. Click the Create button to navigate to the Create Warranty Template page.

3. Enter the following information in the header region:

   - **Template Name**: Enter a unique name for the warranty template.

   - **Vendor**: Select the appropriate vendor.

   - **Contract Date Calculation**: Select from the following three options:

     - **Date**: This option renders the Start Date and End Date fields.

       During warranty contract creation, you are automatically presented with a predefined start date and end date for the contract.

     - **Forecast**: If you select this option, the template relies only on counters to determine the expiration of a warranty contract and no contract end date is defined during warranty contract instantiation.

       The expiration date for the warranty contract is calculated using the Forecasted Utilization.

     - **Period**: If you select this option, the template relies on a period of time or a combination of period of time and counters to determine the expiration of a warranty contract.

       This option renders the Period and UOM fields and enables you to optionally define counters. During the warranty contract creation, you select options that determine the start date. This start date is used with the Period and UOM values to calculate the end date of the contract. The Start Date value is based on a user-defined date or it is calculated based on a historical counter value. If counters are defined in the warranty template, the contract calculates expiration dates for each counter row based on the user-defined start date. The system then evaluates the expiration dates from the counters and contract end date in order and considers the earliest date as the contract expiration date.

- **Enabled**: Select the check box to enable this template. Templates must be enabled to be used as a basis to create new contracts.

- **Type**: Customer-defined attributes created during system setup that can be used to differentiate templates.
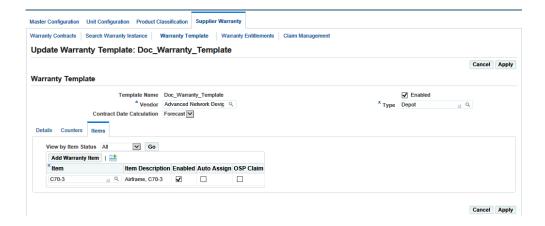
4. Click the Details tab.

5. Enter the following information on the Details tab:

- **Template Description**: Add a description of the template.

- **Terms and Conditions**: Enter the terms and conditions of the warranty template.

- **Reaction and Resolution Time**: Additional description relating to the terms and conditions.

- **Service Level Agreement**: Further description relating to the terms and conditions.

- **Template Start Date**: Defaults to the system date during Template creation.

  This value is used for reference and in conjunction with the Template End Date value in order to change the template status to Not Enabled.

- **Template End Date**: This field is optional, and is used for reference and in conjunction with Template Start Date value in order to change the template status to Not Enabled.

- **Claim Labor Hours**: Add the standard number of hours that can be claimed for contracts created from this template. This will be reflected in the contract and can be used for reporting.

- **Remarks**: Optional field that can be used capture miscellaneous information.

- **Attachments**: Select standard attachments; these attachments can be viewed on each contract when they are created.

6. Click the Apply button and the Update Warranty Template page appears.

7. Click the Counters tab to define the warranty expiration based on counter values.

8. Click Add Row to define new counters.

9. Enter the information in the following fields:

   - **Counter Name**: Select a counter.

   - **Counter Description**: Defaults from the counter that you select.

   - **UOM**: Defaults from the counter that you select.

   - **Threshold**: Refers to the value used to generate the Stop counter values when a warranty contract is instantiated. This field is required.
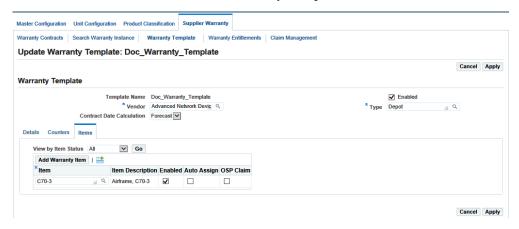

10. Click the Items tab to define the items to which the template can be associated and a warranty contract to be instantiated.

    All items that have been associated to a template appear. Items can be associated to one or many templates.

11. To associate items to the template, click the Add Rows button, and enter the following item details:

- **Item**: Select the item that you want to associate to the template.

- **Item Description**: Default value comes from the item that you select.

- **Enabled**: Click the check box to allow additional item instances to be instantiated by generating a warranty contract.

  Clear the check box to restrict the use of the warranty template to instantiate a contract for this item.

- **Auto Assign**: This option is used by a concurrent program to automatically generate new contracts, in pending status, for all enabled items as their corresponding item instances are introduced into Oracle Installed Base.

  This function automates the search and creation of contracts for newly introduced item instances.

- **OSP Claim**: Select this check box to include it on the warranty contract during instantiation.

12. Click the Apply button.

13. Click the Add Warranty Items button, and the Add Warranty Items page appears.

    Use this page to search and add items to the warranty template.

14. In the Simple Search region, enter any of the following search criteria:

    - **Master Configuration Name**

    - **Master Configuration Description**

    - **Master Configuration Position**

    - **Item**

- **Group Name**

15. Click the Go button to view the results.

16. Select an item, and click the Add To Warranty Template button.

The confirmation page indicates that the new item has been added to the warranty template.
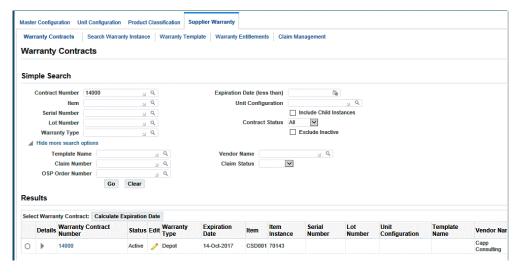
Searching for Warranty Contracts

The warranty system displays the supplier warranty contracts for an item. It enables you to search for warranty contracts and also instantiate contracts if a valid template is available. You can perform the search using warranty contracts or an asset. The search results display the warranty contracts, and you can drill down to the details of the contract.

To search for a warranty contract:
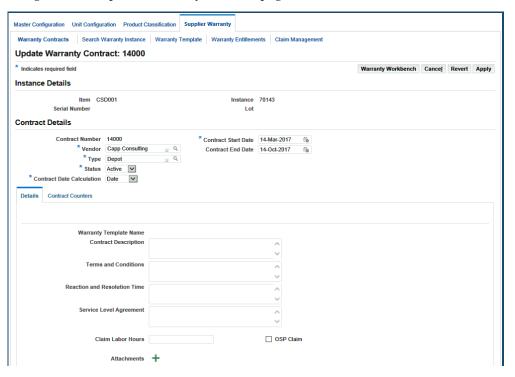
1. Navigate to the Warranty Contracts page.

2. In the Simple Search region, enter any one of the following search criteria:

- **Contract Number**: Displays a list of existing warranty contracts.

- **Item**: Displays a list of all items.

- **Serial Number**: Displays a list of all serial numbers filtered by the item if defined.

- **Lot Number**: Displays all available lots in inventory.

- **Warranty Type**: Displays a list of all warranty types defined.

- **Expiration Date**: Refers to the earliest expiration date taken from either the warranty end date or the earliest calculated end date for counter expiration.

- **Unit Configuration**: Displays a list of all unit configurations with a status of Approve.

- **Contract Status**: Options are All, Active, Pending or Inactive.

3. Click the Show more search options to display additional search criteria:

   - **Template Name**

   - **Claim Number**

   - **OSP Order Number**

   - **Vendor Name**

   - **Claim Status**

4. Click the Go button. The Results region displays all the contracts defined in the warranty contracts, according to the search criteria.

5. Select a warranty contract and click the Calculate Expiration button to recalculate the expiration due date for a selected warranty contract.

6. Click the Show/Hide drill down to view warranty claim history for the contract row.

7. Click the Warranty Contract Number link to navigate to the View Warranty Contract page.

8. In the Results region, select a warranty contract and click the Edit button to navigate to the Update Warranty Contract page.

9. Make the required changes to the contract and click the Apply button to update the warranty contract.
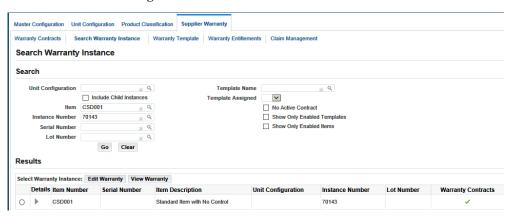
Associating Supplier Warranties to Item Instances

When a company buys an item or receives an item back from service, a supplier warranty usually covers it. Being able to define a Supplier Warranty and associate to an item allows a company to determine effectively whether an item is under warranty and what types of service are eligible for warranty recovery. It is financially beneficial for a company to use and maintain its items according to the warranty terms and conditions, with effective tracking being a critical part of warranty recovery efforts.
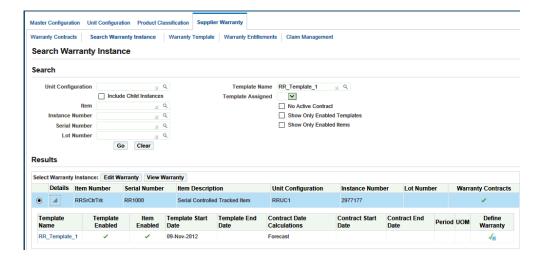
To link supplier warranties to item instances:

1. Navigate to the Search Warranty Instance page.

   This page enables you to search for the item instance to view or define a warranty contract from a warranty template.

2. Enter any of the following search criteria:

   • **Unit Configuration**

- **Item**

- **Instance Number**

- **Serial Number**

- **Lot Number**

- **Template Name**

- **Template Assigned**

- **No Active Contract**

- **Show Only Enabled Templates**

- **Show Only Enabled Items**

3. Click the Go button. The Results region displays all item instances defined in Installed Base, according to the search criteria.

4. Select the item instance and click the Edit Warranty button to access the Warranty Workbench page. For more information on the Warranty Workbench, see Using the Warranty Workbench, page 9-13.

5. Click the Show/Hide drill down to view all the associated warranty templates for the item.

6. Select an item instance, and the Warranty Workbench appears.

7. Click the Define Warranty button to navigate to the Create Warranty Contract page.

   All the predefined definitions are copied to the contract instance. A new contract number is generated by default.

   > **Note:** The Warranty Template Enabled and Warranty Item Enabled both must set to Yes so that the Define Warranty button appears.
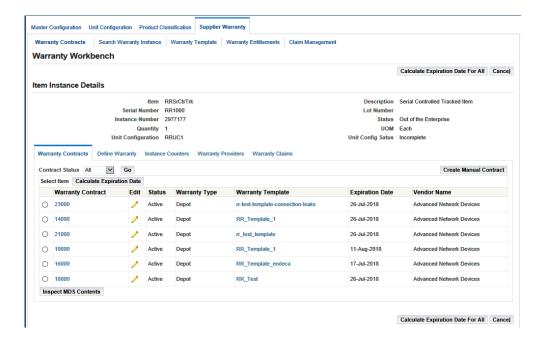
8. Edit the new warranty contract.

9. Click Apply to save your work.

Using the Warranty Workbench

The Warranty Workbench displays all the warranty information for an asset. Using this workbench, you can view or edit existing contracts, create new warranty contracts using warranty templates, create warranty contracts manually, view utilization asset counter values, view asset warranty vendors, and view asset warranty claims.

To use the Warranty Workbench:

1. Navigate to the Warranty Workbench (Supplier Warranty > Warranty Contracts > Update Warranty Contract > Warranty Workbench).

   The Warranty Workbench Header displays item instance details.

2. Click the Warranty Contracts tab. This tab displays one row for each warranty contract, sorted by status, with active contracts being displayed first.

3. To manually create a contract, click the Create Manual Contract button.

   The Create Warranty Contract page appears.

4. On the Create Warranty Contract page, a new Contract Number is generated by default.

5. Enter the following information on the Contract Details region:

   • **Vendor**

   • **Type**

   • **Status**

   • **Contract Start Date**

   • **Contract End Date**

   If you select Date as the Contract Date Calculation, you can enter the Contract End Date.

   If you select Forecast as the Contract Date Calculation, you can select a Start From value.

   • If you select a Start From value of Date, the Contract Start date is used by the system as the basis for evaluating Utilization.

   • If you select a Start From value of Counter, you are not required to enter a

Contract Start Date. You can optionally a Counter value of:

- Current Reading: The system selects a Contract Start Date equal to the system date.

- Zero: The system selects a Contract Start Date equal to the date in which the asset entered the installed base.

- If you select Period as the Contract Date Calculation, the Period and UOM must be entered and the system calculates the Contract End Date.

- Add counters that are used to calculate expiration dates.

    These counters normally default from a Warranty Template.

6. Click the Details tab and enter the required information.

7. Click the Contract Counters tab.

8. Click Add Rows to define new counters for the contract.

9. Enter the following information:

   - **Counter Name**

   - **Start**

   - **Threshold**

        Note: If you select Forecast as the Contract Date Calculation, the system uses the Contract Start date to derive the counter Start Value. This value can be manually updated and the system recalculates the Stop value and Expiration Date, based on the asset utilization.

10. Click the Apply button.

11. Click the Warranty Workbench button.

    The Warranty Contracts tab now displays the newly created warranty contract.

12. Click the Define Warranty tab to define the warranty contract based on a Warranty Template.

Warranty Template	Template Enabled	Item Enabled	Template Start Date	Template End Date	Contract Date Calculation	Contract Start Date	Contract End Date	Period	UOM	Define Warranty
RR_Template_1	✓	✓	09-Nov-2012		Forecast					✓

13. Click the Define Warranty icon to navigate to the Create Warranty Contract page.

All the predefined definitions are copied to the contract instance. A new Contract Number is automatically generated.

> **Note:** The Warranty Template Enabled and Warranty Item Enabled both must be equal to Yes for the Define Warranty Icon to appear.

14. Enter the Contract Start Date.

There are various scenarios associated with this step:

- If the Warranty Template is defined based on the Date as the Contract Date Calculation, you can enter the Contract End Date.

- If the Warranty Template is defined based on the Forecast as the Contract Date Calculation, you can select a Start From value.

  - If you select a Start From value of Date, the system uses the Contract Start date as the basis for evaluating the utilization.

  - If you select a Start From value of Counter, you are not required to enter a Contract Start Date. You can select a Counter value of Current Reading or Zero.

    > **Note:** If you select the value of Current Reading, the system selects a Contract Start Date equal to the system date. If you select a value of Zero, the system selects a Contract Start Date equal to the date in which the asset was entered into Oracle Installed Base.

  - You can validate the counters that are used to calculate expiration dates.

    These default values come from the Warranty Template. When you click the Apply button, the system populates the Start, Stop and Expiration Date values.

    You can manually update the Start and Threshold values and click the Apply button to recalculate the Stop and Expiration values.

- If the Warranty Template is defined based on the Period as the Contract Date Calculation, you must enter the Period and UOM values; the system calculates

the Contract End Date.

You can also the Warranty Template to define counters. These default values come from the warranty template.

When you click the Apply button, the Start, Stop and Expiration Date values are populated by the system. You can manually update the Start and Threshold values and click Apply to recalculate the Stop and Expiration values.

15. Click the Apply button to create the contract.

16. Click the Warranty Workbench button to navigate to the Warranty Workbench.

    The Warranty Contracts tab now displays the newly created warranty contract.

17. Click the Instance Counters tab and view all the current counters for the item instance.

Warranty Contracts	Define Warranty	Instance Counters	Warranty Providers	Warranty Claims

Counter Name	Counter Type	UOM	Current Reading
RRCNTRTEMP-411555	Regular	Each	10

18. Click the Warranty Providers tab to view the vendor and item and service relationships for Warranty Flagged vendors.

19. Click the Warranty Claim tab.

    This tab displays one row for each warranty claim record that is associated with the item instance.

Managing Warranty Entitlements

The system uses warranty entitlements to record and manage work order activity identified for an asset that is under a supplier warranty. These entitlements are initially validated during planning, updated during execution, and then used as the basis for warranty claims.

Warranty Entitlements in Planning

- When a visit task is created for an asset, the system automatically indicates through flags whether the Task and Asset are Warranty eligible.

- The Task Warranty is defined as a task in which a warranty template is associated with the maintenance requirement or route.

- The Instance Warranty is defined as an asset having one or move active warranty contracts.

- You must validate the activity on the asset for the Task, select a warranty contract if

applicable and update the Task Warranty Status.

> **Note:** The system may automatically set the warranty contract and status values if a match is validated between the task and asset warranty contract, if the warranty templates match. You can also select another contract or set the Task Warranty Status to Not Applicable.

- Warranty entitlement records are created during the push to production action for all visit tasks that are identified as having a Instance Warranty, regardless of the warranty status.

Warranty Entitlements in Execution
- Execution planners can update warranty eligibility for a work order without any approval process. The entitlement record is automatically updated through these actions.

- Technicians can also update the warranty eligibility for a work order that requires a review and approval process.

- Technicians can also request a general review of the warranty eligibility without making any changes to the entitlement record for a work order.
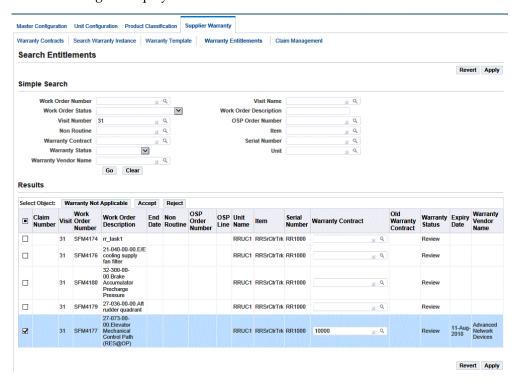
Warranty Entitlements for Claims
- Warranty administrators update entitlement records as needed before associating them to a warranty claim.

To manage warranty entitlements:

1. Navigate to the Search Entitlements page.

2. Enter any of the following search criteria to query for the required claims:

   - **Work Order Number**

   - **Work Order Status**

   - **Visit Number**

   - **Non Routine**

   - **Warranty Contract**

   - **Warranty Status**

   - **Warranty Vendor Name**

- **Visit Name**

- **Work Order Description**

- **OSP Order Number**

- **Item**

- **Serial Number**

- **Unit**

3. Click the Go button.

   The Results region displays the entitlement records based on the search criteria.

4. You can select an appropriate entitlement record and perform the following actions:

   - If the warranty status is Approval Pending, you can approve or deny the request for changes from the Technician through one of three actions:

     - Click the Warranty Not Applicable button to decline the changes to the entitlement record.

       The Warranty Contract field changes to a null value.

- Click the Accept button to accept the changes to the entitlement record and the validation for the entitlement record proceeds.

  The Warranty Contract field retains the newly approved value. The Old Warranty Contract field retains the previous value for historical reference.

- Click the Reject button to decline the changes to the entitlement record.

  The Warranty Contract field reverts to value in the Old Warranty Contract field, thus restoring the original value.

- If the warranty status is Review, you can select the record and click the Warranty Not Applicable button to change the warranty status to Not Applicable.

  You can also select a valid warranty contract and click the Apply button.

  The warranty status is set to Approved.

- If the warranty status is Warranty Not Applicable, you can update the warranty contract by choosing a valid contract.

  Click the Apply button, and the warranty status is set to Approved.

- If the warranty status is Approved, you can select the record and click Warranty Not Applicable to change the Warranty Status to Not Applicable.

  The warranty Contract field becomes null (if already null, it continues to be null).

5. Click the Revert button to discard any changes to the entitlement records; this refreshes the table results.

6. Click the Apply button to save changes to the entitlement records.

   > **Note:** Any changes made to the warranty entitlement records updates the warranty information on the Work Order Operations page for the specific visit number.

Managing Warranty Claims

- After identifying warranty entitlements in a visit work or service order, the Warranty Administrator confirms the entitlements and adds them to a warranty claim. The warranty claim process is flexible and allows multiple visits, work or service orders, and OSP orders to be included in a single claim.

- The warranty claim process is tracked by changes in claim status values, enabling
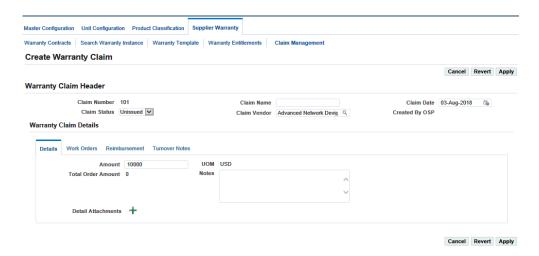
you to follow the creation, submittal, editing and resolution of a claim. You can track status changes through an automated capture in the Turnover Notes section of the claim. You can also add manual notes in the Turnover Notes section to capture key activity during the claim process. This function enables you to generate a Warranty Claim Report with order information and claim ID.

- The warranty administrator can update, resubmit, and even cancel a claim if required.

- The warranty administrator can enter claim reimbursement information regarding the acceptance and recovery of costs incurred by the service organization.

To manage warranty claims:

1. Navigate to the Search Warranty Claim page.

   Use this page to search for existing warranty claims and also create new ones.

2. Enter any of the following search criteria to query warranty claims:

   - **Claim Number**

   - **Claim Name**

   - **Claim Status**

   - **Claim Vendor**

   - **Start Date**

   - **End Date**

3. Click the Go button, and the results region displays the warranty claims matching the search criteria.

4. Click the Create button to navigate to the Create Warranty Claim page.

5. Enter the following details on the Create Warranty Claim header:

   - **Claim Number**: Defaults from the system.

   - **Claim Status**: The default value is Unissued.

     When the status is Approved, the claim becomes read only. You must change the status to make any updates.

   - **Claim Name**: Enter a unique name for your claim.

   - **Claim Vendor**: Select the vendor from the list of values.

- **Claim Date**: Refers to the date the claim is entered, and defaults to the system date.

6. Click the Details tab and enter the following information:

   - **Amount**: This reflects the amount being filed as a claim.

   - **Total Order Amount**: This is system-calculated that totals all the Order Claim Amount fields for each row of the Work Orders tab.

     When orders are added or deleted, the Details tab refreshes this value.

   - **UOM**: This is system generated based on the organization.

   - **Notes**: Enter any additional notes if any.

   - **Attachments**: Add attachments if any.

7. Click the Apply button to save the information.

8. Click the Work Orders tab.

9. Click Add Orders to access the Search Orders page to search for warranty entitlements.

10. Enter search criteria on the Simple Search region and click the Go button.

11. Select an entitlement and click Add to Warranty Claim.

    The system returns you to the Work Orders tab. The Warranty Claim field in the Entitlement Confirmations table is populated with the Claim Number when it is added to the claim.

12. Click the Apply button to save the changes.

13. Click the Reimbursement tab and enter information in the following fields:

    • **Reimbursement Type**

    • **Amount**

    • **Reference Document**

    • **Reimbursement Attachment**

    • **Date**

    • **UOM**

    • **Notes**

14. Click the Apply button.

15. Click the Turnover Notes tab.

    Use this tab to capture all status changes to the claim by a turnover log entry.

16. Click Add Row and enter information in the Notes field.

17. Click the Apply button.

Part 2

Overview of CMRO and Key Features
(Continued)

10

Working With Unit Maintenance Plans

This chapter covers the following topics:

- Overview
- Unit Maintenance Plans
- Finding Unit Maintenance Plan Records
- Associating a Maintenance Requirement to a Visit
- Minimum Equipment List and Configuration Deviation List Setup
- Creating Non-routine Requests During Unit Maintenance
- Calculating Maintenance Requirement Due Dates
- Viewing Unit Maintenance Requirement History
- Viewing Group Maintenance Requirements
- Initializing Maintenance Requirements
- Viewing Unit Maintenance Requirement Details
- Viewing Maintenance Requirement Thresholds
- Finding Item Utilization Forecasts
- Updating Item Utilization Forecasts
- Finding and Updating a Product Classification Utilization Forecast
- Finding and Updating a Unit Configuration Utilization Forecast
- Transit and Line Maintenance and Scheduling
- Overview of Unit Schedules
- Viewing Unit Schedules
- Creating a Transit Visit from a Unit Schedule
- Viewing Unit Schedule Details
- Overview of Flight Schedules

- Maintaining Flight Schedules

- Updating Transit Visit Schedules

Overview

Work in maintenance environments is typically specified by a set of maintenance requirements. The unit maintenance plan is used to ensure that all maintenance requirements are accomplished on or prior to their due date, and provides the demand over a planning time window by forecasting the due date of maintenance requirements associated to a unit. The unit maintenance plan searches and displays the maintenance requirements that are due for an equipment unit, and provides maintenance personnel with immediate access to maintenance requirements, due date estimation, accomplishment history, and planning information for a unit configuration. See:

Unit Maintenance Plans

The Unit Maintenance Plan (UMP) functionality serves as a repository of the maintenance requirements related to units and any associated subassemblies or

components. It also enables the forecasting of usage to determine due dates for fleet maintenance activities.

UMP manages information about the service readiness of any component or subassembly, and offers instantaneous online intelligence about the maintenance requirement due date, the planning status and the history of all the maintenance work performed on the unit. UMP also includes the ability to precisely forecast the maintenance due dates.

Key Business Processes

UMP supports the following business processes:

Maintain Utilization Forecasts

Enables maintenance personnel to forecast the utilization for each unit in a fleet using appropriate units of measure such as operation hours, cycles, or mileage, for a period of time specified by the personnel.

View Remaining Serviceable Time (UOM) of Units

Determining the remaining service time of units, expressed in relevant units of measure (UOM), such as hours, cycles, or mileage is critical for maintenance planning. UMP has a full featured search for viewing and determining the remaining service time of units.

Model Repetitive Maintenance Requirement Over a Time Period

Replicate the maintenance requirement for any repetitive requirements over a user defined period, and provide the appropriate unit of measure remaining for each occurrence of a maintenance requirement.

Calculate Due Dates of Maintenance Requirement

Calculate due dates based on utilization forecast and maintenance frequency if a fixed due date is not specified.

Associate a Maintenance Requirement to a Visit

UMP uses the Visit Work Package to associate a maintenance requirement to a visit. UMP enables you to schedule by associating a maintenance requirement group to visit appointments.

View Service Requests

Track unplanned maintenance by viewing service requests created to meet maintenance requirements originating from inspections, or other administrative and executive actions.

Finding Unit Maintenance Plan Records

The Unit Maintenance Plan module enables you to search for records using many combinations of the following criteria:

- Unit Name

- Part Number

- Serial Number

- MR Title

- MR Status

- Due Date Ranges

- Program Name

- Document Name

- Task Number

- Document Type

- OEM

- Operator

- Revision Type

Maintenance requirements can come from a defined maintenance plan in the Fleet Maintenance Program, or created as service requests.

Prerequisites

❑ The unit configuration records from which you want to derive a unit maintenance plan for must exist in the database.

To find Unit Maintenance Plan records:

1. Navigate to the Search Unit Maintenance Plan page (Planning > Unit Maintenance Plan > Overview).

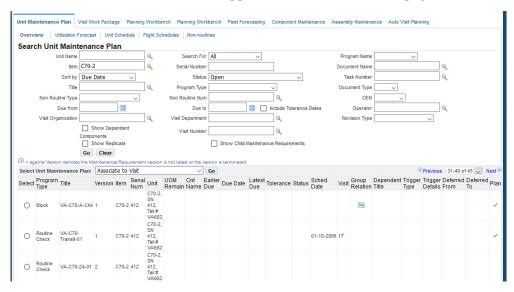   This page enables you to search and display any maintenance requirements that are due on a unit.

2. Use the information in the following table to enter details in the Search Unit Maintenance Plan page.

Field	Description
Unit Name	User-defined name for a serialized part or assembly stored in the Oracle CMRO database as a unit configuration. Enter all or part of name of an equipment record to be used to search Oracle Installed Base. For aviation users, this field may contain the FAA registration ID (the tail number) of the aircraft.
Part Number	Inventory identifying number. Note that Oracle Inventory does not store what is actually in stock, only what is available to stock, so in that way it is more like a catalog. Actual warehouse contents are stored in Oracle Installed Base. for example, this field may contain an aircraft type, such as "B777-200".
Sort By	Field used by the program to order the query results, and is not part of the database. The values displayed in the pick-one list are the names of other fields on this page. They are stored as seeded data and created by default. You can sort by due date, MR program, MR category, and implement status.
Title	Search argument field that contains a user-defined title of the maintenance requirement. The maintenance requirement itself is created using the Fleet Maintenance Program when the maintenance plans are loaded into the database.
Due From	Starting date range argument for pending maintenance requirements.
Visit Organization	The organization for the maintenance visit.
Search For	Search criteria that can be defined to select either manually planned, forecasted, or all types of requirements.

Field	Description
Serial Number	User-defined ID that identifies a part.
Status	The state of the maintenance requirement. These states are provided by default in Oracle CMRO, but can be expanded by the user as needed. This search argument field permits specifying a status in the retrieval query.
Program Type	The name of a maintenance program that will be used as a search argument in retrieving pending maintenance requirements. A maintenance program type might be "Corrosion Prevention." A maintenance requirement may be one of many that belong to the same program. Non-routine requirements can be discovered during maintenance or crew inspections.
Due To	Ending date range argument for pending maintenance requirements.
Visit Department	Field used by the maintenance planner to search requirements scheduled for a particular department.
Visit Number	Field used by the maintenance planner to identify all the maintenance requirements included for a particular visit.
Program Name	Field used by the Maintenance Program Document feature. Select from a list of user defined values.
Document Name	Field used by the Maintenance Program Document feature. Select from a list of user defined values.
Task Number	Field used by the Maintenance Program Document feature. Available values are based on the Program Name and Document Name.

Field	Description
Document Type	Field used by the Maintenance Program Document feature. Available values are based on the Program Name and Document Name.
OEM	Field used by the Maintenance Program Document feature. Select from a list of user defined values.
Revision Type	Field used by the Maintenance Program Document feature. Select Revision, Data Correction or Temporary Revision.

3. Click the Go button, and the results appear in the lower half of the page.

> **Note:** You can navigate directly to a maintenance visit requirement by clicking the link in the Visit column in the maintenance plan summary region.
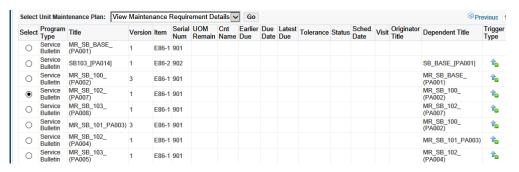
4. To restart a search for records, click Clear. All the search fields on the page will clear. (If you have retrieved records being displayed in the lower half of the screen, these records will remain.)

After entering the new search criteria, click Go to search the database for records that match.

Use the Due From and Due To fields to narrow your search to units due for maintenance between specified dates, or any units due before or after a specified date. If you are not sure of the dates you are looking for, pull up a calendar by clicking the calendar icon next to the relevant field. The Due to field represents the end of a period of time during which the Maintenance Requirement due date is valid within the Due From date.

> **Note:** Select the Show Dependent Components check box to return any maintenance requirements for any other components of the assembly or sub assembly to which the unit belongs. Select the Show Replicate check box to return the repeating maintenance requirements of the unit based on interval frequency and a rolling time window.

An icon appears in the Trigger Type column to indicate if there are MRs that require accomplishment associated with the unit. The name of the MR that must be accomplished appears in the Dependent Title column.

Select	Program Type	Title	Version	Item	Serial Num	UOM Remain	Cnt Name	Earlier Due	Due Date	Latest Due	Tolerance	Status	Sched. Date	Visit	Originator Title	Dependent Title	Trigger Type
○	Service Bulletin	MR_SB_BASE_ (PA001)	1	E86-1	901												
○	Service Bulletin	SB103_[PA014]	1	E86-2	902											SB_BASE_[PA001]	⬆
○	Service Bulletin	MR_SB_100_ (PA002)	3	E86-1	901											MR_SB_BASE_ (PA001)	⬆
●	Service Bulletin	MR_SB_102_ (PA007)	1	E86-1	901											MR_SB_100_ (PA002)	⬆
○	Service Bulletin	MR_SB_103_ (PA008)	1	E86-1	901											MR_SB_102_ (PA007)	⬆
○	Service Bulletin	MR_SB_101_PA003)	3	E86-1	901											MR_SB_100_ (PA002)	⬆
○	Service Bulletin	MR_SB_102_ (PA004)	1	E86-1	901											MR_SB_101_PA003)	⬆
○	Service Bulletin	MR_SB_103_ (PA005)	1	E86-1	901											MR_SB_102_ (PA004)	⬆

Select Unit Maintenance Plan: View Maintenance Requirement Details [▼] Go   ⊙Previous 1

Associating a Maintenance Requirement to a Visit

You can associate maintenance requirements to visits defined in the Visit Work Package. Additionally, requirements may also arise from service requests.
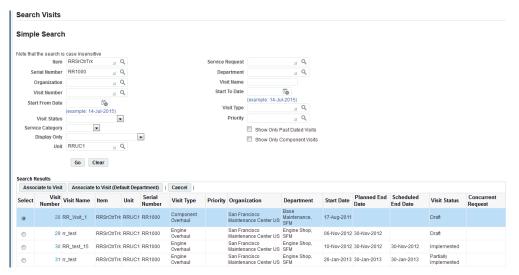
Prerequisites

❏ Any relevant maintenance requirements must already be set up in Fleet Maintenance. The unit configuration records from which you want to derive unit maintenance plan must exist in the database.

To associate a maintenance requirement to a visit:

1. From the search results page in Unit Maintenance Plan, retrieve the unit maintenance plan record that you want to associate with a visit (see Finding Unit Maintenance Plan Records, page 10-3).
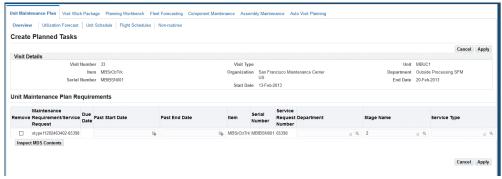
2. Select the record, and choose Associate to Visit from the drop-down list.

3. Click the Go button, and the Search Visits page appears. For more information, see Description of fields in the Search Visits page.

4. Select a visit, and associate it with the unit maintenance plan.

   The Create Planned Task page appears, displaying the association. You can click the Apply button to navigate to the Search Visit Tasks page, and define tasks for the visit.

   Create Planned Task

5. Select a value in the Stage Name field for the non-routine maintenance requirement.

   You cannot select a stage name if the non-routine MR has an associated solution MR.

   Additional Information: Deferred non-routine requirements that

were discovered but not accomplished when the visit was in production can also be scheduled for other visits.

6. Enter a Past Start Date or Past End Date for the stage. The system validates that the dates are within the start and end dates for the stage.

Minimum Equipment List and Configuration Deviation List Setup

The Minimum Equipment List (MEL) and Configuration Deviation List (CDL) functionality identifies equipment and items that can be inoperative, but still enable the aircraft to maintain airworthiness. MEL addresses defective equipment, and CDL addresses missing parts in an aircraft. This functionality is defined using Air Transport Association of America (ATA) codes, based on the associated configuration position. You specify applicable ATA codes for each position when creating a master configuration. The ATA codes are defined with the corresponding repair times, installed quantities, and minimum required quantities. Deferrals for the unit are based on the ATA code definitions in corresponding master configurations. When a requirement is deferred against the MEL or CDL, applicable Maintenance and Operation (M) and (O) procedures are automatically added to the maintenance visit.

To set up MEL and CDL functionality:

- Specify ATA codes for each position on the Master Configuration page.

- Create a maintenance requirement with a program type of Maintenance and Operation (M) and (O) procedures.

- Define repair categories and associated repair time limits.

- Associate MEL and CDL instructions and (M) and (O) Procedures with a product classification.

Prerequisites

❒ Define a value of (M) and (O) Procedure for the Procedure Type for configurations.

❒ Define profile option values for AHL:Service Request Type. This profile is used to specify component, tool, and aircraft defects.

❒ Define required ATA codes for relevant configuration positions. These lookups in the Application Object Library are type AHL_ATA_CODE.
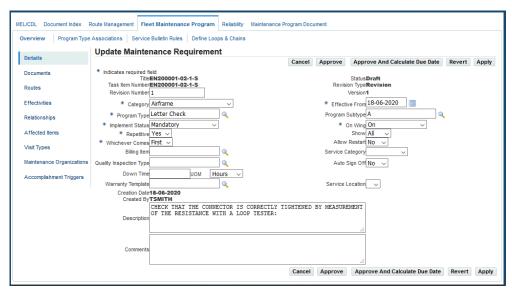
To specify ATA codes for each position:

1. Navigate to the Create Master Configuration or Edit Master Configuration pages.

2. Enter the appropriate details to create or edit your record.

   See: Creating Master Configuration Records, page 5-5, or Editing Master Configuration Records, page 5-33

3. Select a value in the ATA Code field in the Edit Position or Create Position region of the Master Configuration page.

4. Select values in the other applicable fields for your record.

5. Click the Apply button to save your work.

To create a maintenance requirement with an (M) and (O) Procedure program type:

1. Navigate to the Create Maintenance Requirement or Update Maintenance Requirement page.

2. Add the applicable information in the fields on this page. See: Creating Maintenance Requirement Records, page 2-5

3. In the Program Type field, select the M and O Procedure value.

4. Click the Apply button to save your work.

To define repair categories and associated time limits:
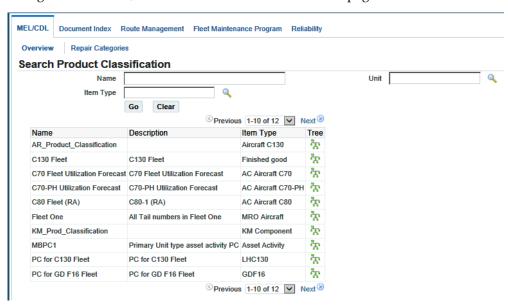
1. Navigate to the Repair Categories page.

2. Select a value in the Category field for this type of repair, and enter a description.

3. Enter a value for the repair time, in units of hours.

4. Click the Apply button to save your work.

To associate the ATA Code, repair category, and quantities with the applicable product:

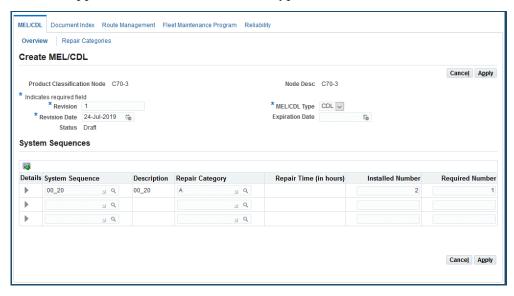1. Navigate to the MEL/CDL Search Product Classifications page.

2. Enter a record, and click the Tree icon to view the details on the View Product Classifications page.

3. Expand the tree nodes to view details, and select a record.

- The Unit Details region appears when you select the unit configuration details in the tree.

- The Node Details region appears when you select the product classification.

4. Select the product classification node to view the Node Details region.

5. Click the Create button, and the Create MEL/CDL page appears.

6. Enter a value in the Revision field.

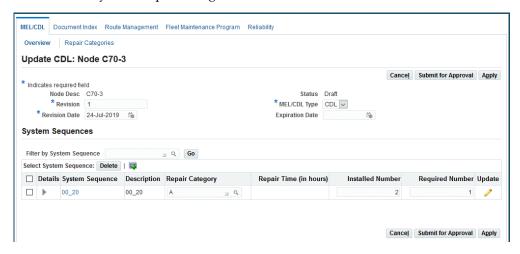7. Select the applicable value in the MEL/CDL Type field.

8. Enter a date in the Revision Date field, and optionally enter a date in the Expiration Date field.

9. In the System Sequences region, enter values in the following fields:

   - System Sequence - ATA code value for this product classification

   - Repair Code

- Installed Number - quantity of this item normally installed on the aircraft

- Required Number - minimum quantity of this item required for operation, provided conditions and limitations are met

10. Click the Apply button to save your work.

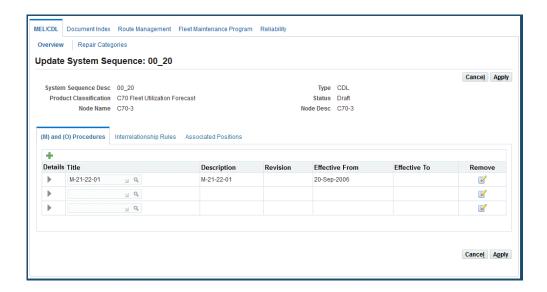The Update CDL Node or Update MEL Node page appears.

To associate applicable (M) and (O) Procedures with the product classification:

1. Navigate to the Update CDL Node or Update MEL Node page, and enter your record in the System Sequence region.

2. Click the Update button to display the Update System Sequence page.

3. Click the (M) and (O) Procedures tab, and select a value in the Title field to associate a procedure with this item.

When you select a record, information appears in the Description, Revision, and Effective From and To date fields.

4. Click the Interrelationship Rules tab, and select a value in the System Sequence field to associate other ATA codes considered in this MEL or CDL deferral.

   When you select a record, information appears in the Description, Repair Category, Number Installed, and Number Required fields for this code.

5. Click the Associated Positions tab, to view configuration positions applicable to this MEL or CDL.

   When you select a record, information appears in the Revision, Position, Position Key, ATA code, Necessity, Quantity, and Unit of Measure fields.

6. Click the Apply button to save your work.

Related Topics

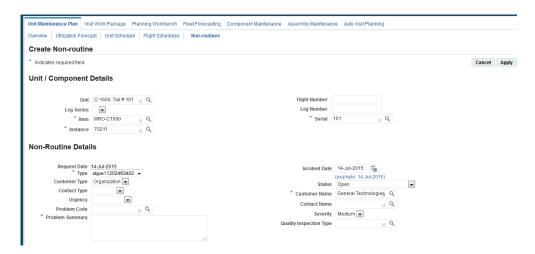Creating Non-routine Requests During Unit Maintenance, page 10-15

Creating Non-routine Requests During Unit Maintenance

When non-routine maintenance requirements are discovered during inspections, you can create service requests in the Create Non-routine page. You can:

- Create a non-routine service request requirement.

- Add the requirement to a maintenance visit and push to production.

- Optionally defer the non-routine requirement using MEL or CDL instructions.

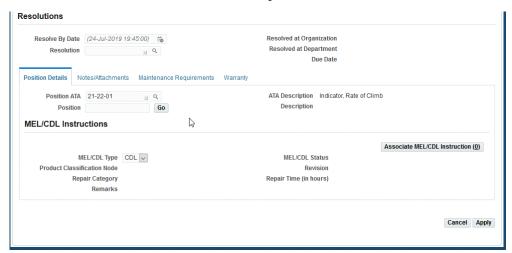## To create non-routine requests during unit maintenance:

1. Navigate to the Create Non-routine page.

2. Enter applicable values for this request in the Non-Routine Details region. This includes:

   - Type

   - Customer Type

   - Contact Type

   - Customer Name

   - Contact Name

   - Urgency

   - Problem Code

   - Problem Summary

   - Incident Date

   - Status

   - Severity

3. In the Unit/Component Details region, enter applicable values in the following fields to create unit details for this request:

   - Unit

- Log Series

- Item

- Instance

- Flight Number

- Log Number

- Serial Number

4. In the Resolutions region, you can select a value in the Resolve By Date field.

   When the maintenance task is completed, you can update the record and select a value in the Resolution field. There are four tabs in this region used to view or associate data to this non-routine service request.

5. Use the Position Details tab to select the ATA code and position. Click the Go button to navigate to the Select Position page to associate this ATA code with the master configuration.

   This tabbed region also displays fields for deferring this non-routine service request to MEL or CDL instructions.

6. Use the Notes tab to view or add detail notes.

   You have the option to add a note type, descriptive text, and set the visibility (private, public, or publish).

7. Use the Maintenance Requirement tab to view or create maintenance requirements for this non-routine request.

8. Use the Warranty tab to review warranty, update warranty and request a warranty review and approval.

    The Warranty Contract LOV is available for edit if the Warranty Item flag is Yes.

9. Select the appropriate value in the MEL/CDL Type field.

    The MEL/CDL Instructions region is used to associate one of these types of deferrals to the non-routine service request.

10. Click the Associate MEL/CDL Instructions button.

    The non-routine request is created and deferred per the applicable MEL or CDL instructions. Associated (M) and (O) procedures are added to the visit.

11. Click the Apply button to save your work.

Related Topics

Minimum Equipment List (MEL) and Configuration Deviation List (CDL) Setup, page 10-10

Calculating Maintenance Requirement Due Dates

You can use the unit maintenance plan to estimate due dates and any repetitive maintenance requirement for the selected unit.

Prerequisites

❒ Maintenance requirement records must exist in the database. The relevant maintenance requirements must be initialized, and the information for Last Accomplishment must be set up.

❒ A product classification forecast and an unit utilization forecast must be defined to calculate due dates.

To calculate maintenance requirement due dates:

1. Retrieve the unit maintenance plan record for which you want to view maintenance requirement details (see Finding Unit Maintenance Plan Records, page 10-3).

2. Select the record, and choose Calculate Due Dates from the drop-down list. Click the Go button.

3. The system will calculate the due dates for the selected record, and will display a confirmation when completed.

Viewing Unit Maintenance Requirement History

The Unit Maintenance Plan module enables you to view maintenance requirement details and history.

Prerequisites

❏ Maintenance requirement records must exist in the database. The unit configuration records from which you want to derive unit maintenance plan must exist in the database. It will help to know at least part of the unit name, part or serial number, or MR Title of the targeted units to conduct a search.

To view the unit maintenance requirement history:

1. Retrieve the unit maintenance plan record view details (see Finding Unit Maintenance Plan Records, page 10-3).

2. Select the record, and choose View Details & History from the drop-down menu. Click the Go button.

3. The View Maintenance Requirement Detail & History page appears displaying the details for the MR.

The following table provides information about the fields in the View Maintenance Requirement Detail and History page.

Field	Description
Due Date	Date on which a pending task is due to be completed. Click the calendar icon to display a calendar from which you can select a due date.
Set Due Date	Calendar due date for the maintenance requirement.

Field	Description
Accomplished Date	Date on which the maintenance was performed.
Status	State of a maintenance requirement. Maintenance requirements can be in different statuses. These are provided by default in Oracle CMRO, but can be expanded as needed. This search argument field permits specifying a status in the retrieval query.

4. Click the **Cancel** button to return to previous page.

Viewing Group Maintenance Requirements

The Unit Maintenance Plan module enables you to view group maintenance requirements.

Prerequisites

❒ Maintenance requirement records must exist in the database.

To view group maintenance requirements:

1. Retrieve the unit maintenance plan record for which you want to view group maintenance requirement details. See Finding Unit Maintenance Plan Records, page 10-3.

2. Click the icon in the Group Relation column.

   The Unit Maintenance Plan - Group Maintenance Requirement page displays the group maintenance requirements relevant for the selected record.

   The following table provides information about several fields in the Group Maintenance Requirement page.

Group Maintenance Requirement

			Title		Test-Group-MR Level0		
			Item		MBSrCtrTrk		
			Parent Title				

Test-Group-MR Level0 > Test-Group-MR Level1 > Test-Group-MR Level2

Select Maintenance Requirement: **View Maintenance Requirement Relationships**

Select	Focus	Relationship Type	Title	Description	Item	Serial Number	Status
○	✛	Parent	Test-Group-MR Level1		MBSrCtrTrk	PDSrl002	
○		Child	Test-Group-MR Level3		MBSrCtrTrk	PDSrl002	

Cancel

Field	Description
Parent Title	The name of the parent maintenance requirement.
Serial Number	The serial number associated with the item.
Relationship Type	Value can be Parent or Child
Status	The state of the maintenance requirement. Maintenance requirements can be in different states. These states are provided by default in Oracle CMRO, but can be expanded as needed. This search argument field permits specifying a status in the retrieval query.

3. Click the Cancel button to return to previous page.

Initializing Maintenance Requirements

To initialize a maintenance requirement:

1. Retrieve the unit maintenance plan record. See: Finding Unit Maintenance Plan Records, page 10-3.

2. Select Initialize Maintenance Requirement, and click the Go button. The Initialize Maintenance Requirement page appears.

3. Select an initializing action in the Unit Action drop-down list. Options are First Due

or Initial Accomplishment.

4. Select an initialization date in the Set Date field.

5. Click the Add More Rows button to define first due or last accomplished counter values for the requirement, and enter information in the fields.

6. Click the Apply button to save your work.

Viewing Unit Maintenance Requirement Details

The Unit Maintenance Plan module can display all maintenance requirements applicable to a selected unit. You can sort the results by due date, category, program type, implement status, or group type. Maintenance requirements with unspecified due dates automatically appear at the top of the list. You can calculate the remaining time of a maintenance requirement based on many factors, including the usage counter, UOM time remaining, and utilization forecast and maintenance requirement thresholds.
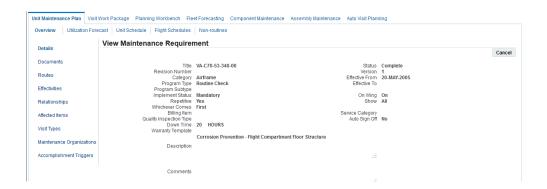
The system enables the user to filter by maintenance requirement type or by status: Accomplish, Terminate, Initialized or Open.

Prerequisites

❒ The maintenance requirement records must exist in the database.

To view maintenance requirement details:

1. Retrieve the unit maintenance plan record for which you want to view maintenance requirement details. See Finding Unit Maintenance Plan Records, page 10-3.

2. Select the record, and choose View Maintenance Requirement Details from the drop-down list. Click the Go button.

3. The View Maintenance Requirement details page appears displaying the information for that record.

4. From the View Maintenance Requirement page, click the appropriate link to navigate to the following pages:

- Documents

- Routes

- Action

- Effectivities

- Relationships

- Effected Items

5. Click the Cancel button to return to the previous page.

Viewing Maintenance Requirement Thresholds

The Unit Maintenance Plan module enables you to view maintenance requirement thresholds.

Prerequisites

❐ Any relevant maintenance requirements must already be set up in Fleet Maintenance.

❐ The Unit configuration records from which you want to derive unit maintenance plan must exist in the database.

To view maintenance requirement thresholds:

1. Retrieve the unit maintenance plan record for which you want to view maintenance requirement thresholds. See Finding Unit Maintenance Plan Records, page 10-3.

2. Select the record, and choose View Threshold from the drop-down menu. Click the Go button.

3. The Unit Maintenance Plan - View Threshold page appears, displaying the thresholds relevant for the selected record.

    The following table describes the fields in the View Threshold page.

Field	Description
Start Value	The start counter value of the range from which the interval specified is valid. The Start Value field is mutually exclusive with the Stop value field, and begins the range for the interval in relation to the associated counter. This field does not apply for one time maintenance requirements.
Stop Value	The stop counter value of the range before which the interval specified is valid. This value is mutually exclusive with the Start value field, and ends the range for the interval in relation to the associated counter. This field does not apply for one time maintenance requirements.
Interval Value	The interval value for repetitive maintenance requirements, and drop-dead counter values for one time maintenance requirements. When used with one time maintenance requirements, the interval will be a count down of the associated counter. When used with repetitive maintenance requirements, the interval will represent the frequency of occurrence according to the associated counter.
Tolerance Before	The number of counter units of measure that is acceptable for maintenance requirement accomplishment before the specified interval. This aids in planning maintenance jobs.

Field	Description
Tolerance After	The number of counter units of measure that is permissible for maintenance requirement accomplishment after the specified interval. This value aids in planning maintenance jobs.
Start Date	The start date of the range before which the interval specified is valid. This value is mutually exclusive with the Stop Date, and begins the range for the interval in relation to the associated counter. This field does not apply for one time maintenance requirements.
Stop Date	The stop date of the range before which the interval specified is valid. This value is mutually exclusive with Start Date, and ends the range for the interval in relation to the associated counter. This field is not applicable for one time maintenance requirements.
Counter UOM	The unit of measure as per the associated counter. This value is returned when the counter is selected. This value is view only.

4. Click the Cancel button to return to previous page.

Finding Item Utilization Forecasts

Oracle CMRO enables the use of meta characters when you type a word, or part of a word, to use as a search argument. Use % to represent any string of zero or more characters. Use _ to represent any single character. For example, if the database contains a record with the value "ENGINE" in a field, typing "E%" will return all records where the field value begins with "E".

Prerequisites

❒ Any relevant maintenance requirements must already be set up in Fleet Maintenance.

❒ The Unit configuration records from which you want to derive unit maintenance

plan must exist in the database.
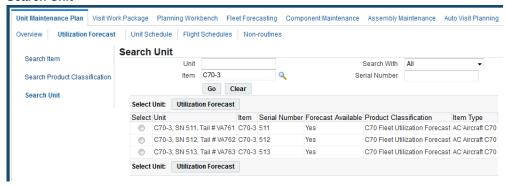
To find an item utilization forecast:

1. Navigate to Planning > Unit Maintenance Plan > Search Unit Maintenance Plan.

2. Click the Utilization Forecast tab. The Search Item page appears.

   The following table provides information about the fields in the Search Item page.

Field	Description
Item	The Inventory identifying number. Note that Oracle Inventory does not store what is actually in stock, only what is available to stock, similar to a catalog. Actual warehouse contents are stored in Oracle Installed Base. This field might contain an aircraft type, like B777-200.
Search With	A drop-down list that enables you to specify items with an associated forecast, or with no forecast, or with both.
Forecast Available	Indicates if a forecast is available for this item.
Product Classification	The product classification number for the item.
Item Type	The group to which the product belongs to according to its use or category.

3. You can also enter search criteria using the Search Product Classification or Search Unit links.

4. Click the **Go** button, and the results appear on the page.

Search Unit

5. Click the Select button for the unit.

6. Click the Utilization Forecast button and the Update Unit Utilization Forecast page appears.

Updating Item Utilization Forecasts
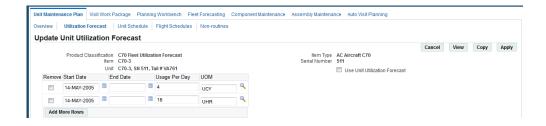
The Unit Maintenance Plan module enables you to create and update item configuration utilization forecasts.

Prerequisites

❒ Any relevant maintenance requirements must already be set up in Fleet Maintenance.

❒ The unit configuration records from which you want to derive unit maintenance plan must exist in the database.

To update an item utilization forecast:

1. Retrieve the part record with the forecast that you want to update. See Finding Item Utilization Forecasts, page 10-25.

2. Select the record, and click the Utilization Forecast button. The Update Item Utilization Forecast page appears.

Use the information in the following table to enter item utilization forecast details.

Field	Description
Start Date	The start of a utilization forecast period.
End Date	The end of a utilization forecast period. If left empty, the Unit Maintenance Plan module assumes there is no end date and that the forecast is unlimited.
Usage Per Day	The estimated usage per day (such as 100 miles per day).

3. Enter the information in the fields provided. If no utilization forecast is defined, the page will be empty.

   Click the Add More Rows button to define a forecast.

4. Click the Apply button to save the utilization forecast information in the database.

5. Select the Remove check box for the forecast that you want to remove, and then click the Apply button.

6. Optionally click the Cancel button to return to the previous page.

Finding and Updating a Product Classification Utilization Forecast

To estimate the due dates for the maintenance requirement applied to the unit maintenance plan, you must be able to convert the remaining time of a maintenance requirement UOM in a form other than a calendar date into a calendar date. The Utilization Forecast page facilitates this calculation. For example, an estimate of driving 50 miles a day will convert the requirement to change the engine oil every 3000 miles to 60 days.

Prerequisites

❐ The unit configuration records on which you want to base the utilization forecast and the primary product classification must exist in the database.

To update a product classification utilization forecast:

1. From the Oracle Complex Maintenance, Repair, and Overhaul Home page, click the Planning link. The Search Unit Maintenance Plan page of the Unit Maintenance Plan appears.

2. Click the Utilization Forecast tab. The Search Part page appears.

3. Enter the information in the appropriate fields, and then click the Go button. The results appear in the lower half of the page.

4. Select the part for which you want to create or update the product classification for, and click the Utilization Forecast button.

5. The Update Item Utilization Forecast page appears. Make any necessary changes. Click the Add More Rows button to enter new forecast data.

6. Click the Apply button to save the changes.

> **Note:** All product classification records are read-only.

To reset the form and start a new search, click the Clear button.

Finding and Updating a Unit Configuration Utilization Forecast

The Unit Maintenance Plan module enables you to create and update unit configuration utilization forecasts.

Prerequisites

❐ Any relevant maintenance requirements must be set up in Fleet Maintenance.

To create an Unit Configuration Utilization Forecast:

1. Using the Result Product Classification Tree Structure, double-click the product classification or unit for which the utilization forecast is to be added or updated.

2. The Update Product Classification Utilization Forecast section appears directly to the right of the Product Classification Tree.

3. Click the Add More Rows Icon to add a utilization forecast.

4. Enter a date in the Start Date field or click the calendar selector icon next to the date field to access a calendar from which you can select the desired date.

5. Enter the date in the End Date field or click the calendar selector icon next to the date field to access a calendar from which you can select the desired date. Note that the end date must be later or the same date as the start date.

6. Enter a value in the Usage Per Day field.

7. Enter a value directly to the UOM field or generic substitution meta character% in UOM field, and click the Search icon. Select the UOM from the search result.

8. Click the Apply button to save the record. Before saving the record, the system will check for duplicate records and for any overlap of the utilization forecast.

Transit and Line Maintenance and Scheduling

Transit maintenance and scheduling functionality enables users to import, view, update, edit or create a unit's utilization schedule, and then schedule maintenance at the defined opportunities. In addition to the normal transit visit inspections and requirements, various non-routine requirements may arise due to defects discovered on the production floor or during the operation of the unit. These non-routine requirements may delay the next scheduled utilization. The flight schedule is imported into the application through the integration with a flight operation system. Optionally, users may manually define a flight schedule using the Create Flight Schedule page. The Unit Schedules page displays the flight schedule for a particular unit over the time period specified by the planner. This page provides complete visibility over the unit's schedule and enables transit visit planners to plan visits for the various maintenance opportunities, and deal with potential conflicts.

Related Topics

Overview of Unit Schedules

The Unit Schedule page displays the different flight segments for a tail number and the

scheduled visits or maintenance opportunities between flights. Flight schedules are imported into the application through an application program interface (API). You can also create a flight schedule manually using the Create Flight Schedule page. Transit visit planners can view flight details and identify where visits can be created. Select the appropriate related topic link to either view unit schedules from Unit Schedules page or from the Transit Technician Workbench.

Related Topics

Viewing Unit Schedules, page 10-31

Transit Technician Workbench, page 19-11

Viewing Unit Schedules

The unit schedules are displayed in context of a unit in increments of minutes, hours or days. Planners may drill into the applicable unit and period intersection to create a visit for a maintenance opportunity, view an existing flight or visit, view potential conflicts or view a combination of these.

To view unit schedules:

1. Navigate to the Unit Schedules page.

   Query for a unit schedule by unit name, item number, or serial number. Specify the start date and time. Enter a Display Increment and select a UOM to define the time period. Schedules are divided in specified time increments, for example, 2 hours or 2 days.

2. Click the Go button, and the unit schedule appears in a table in the lower part of the page.

   The flight information spreads across the time frame defined by the display increment and corresponding unit of measure.

The icons represent a conflict, maintenance opportunity, visit scheduled, flight scheduled, multiple events, or multiple events with maintenance opportunity. The following table defines each entity.

Maintenance Opportunity	Any time period when a unit is available for maintenance.
Conflict	An overlap of successive events (visit or flights) or when the arriving/departing/visit organizations do not match.
Flight Scheduled	A flight is scheduled during the corresponding time slot.
Visit Scheduled	A visit has been scheduled in the corresponding time slot.
Multiple Events	Many events are found for a time period. This may happen if the user has selected a large display increment.
Multiple Events with Maintenance Opportunity	Icon represents the following two conditions: Multiple Events and Maintenance Opportunity. The user can differentiate between a multiple events condition with or without an embedded maintenance opportunity.

You can:

- Create a transit visit.

- View conflict details.

- View the flight information for a time slot and view the preceding and the following event.

- View visit details such as the visit number, department, organization, start and end times, status, and so on.

- View multiple events found within a specified time period.

- Create visits if opportunities exist between multiple events.

Related Topics

Creating a Transit Visit from a Unit Schedule

A transit visit is a visit created for a maintenance opportunity. The visit is created to fill the ground time slot for a unit. Maintenance planners can create visits with a status of Planning or with work orders with a status of Released or Unreleased.

Prerequisites

❒ • A maintenance opportunity must exist for a unit.

• The default maintenance requirement (MR) must be created with association to a visit type.

• MR must have a type of Unplanned implementation.

• The unit configuration must exist in Complete status.

• Flight schedule must be created for the unit, with the behavior of the following transit visit as Always Reschedule, Delete Visit, or Never Reschedule.

For flight schedule details, see Maintaining Flight Schedule, page 10-37.

To create a transit visit:

1. Click the Maintenance Opportunity icon for the time period during which you want to schedule the visit.
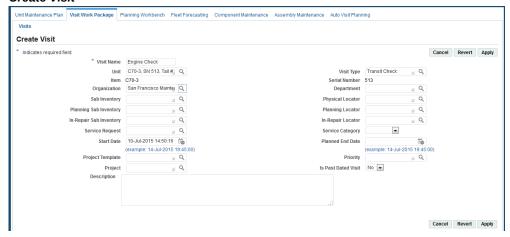
   The Create Transit Visit page appears. The default values for the Unit Name, Organization and Department fields appear based on the unit flight schedule information. The Item and Instance values are derived based on the unit name. The Preceding and Succeeding Event information appear in the lower half of the page. You must consider this to calculate the visit duration information (Start and End time).

   > **Additional Information:** The Preceding event can be an arrival flight or a visit. The Succeeding event can be a visit or a flight.

2. Select a visit type.

   The maintenance requirements with an Implement Status of Unplanned and associated by default with the selected visit type, are automatically associated with the transit visit being defined. Maintenance requirements are associated when the visit type is defined at the MR effectivity level. For more information, see Associating Visit Types with a Maintenance Requirement, page 2-34.

Create Visit

Enter other visit details. For information on visit definition, see Creating Maintenance Visit Records, page 11-5.

3. Select the status in which to create the visit.

    You can create a visit with a status in planning (no work orders are created yet), status production for scheduling (work order created in an Unreleased status for shop floor scheduling) or status production released (work order created in a Released status for immediate start of execution). The project parameters and project information are automatically created prior to moving the visit to production in a Released or Unreleased status.
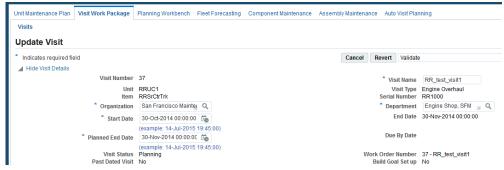
4. Click Apply to save the record.

    Unplanned maintenance requirements can be added (associated) automatically upon visit creation. The AHL: Enable Visit Creation Automation profile option controls this function. For more information, see Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide*.

    The Update Visit page appears.

    The controller can also add requirements to the newly created visit.

Update Visit

If MRs are associated and the visit is created in the Planning status, tasks corresponding to the MR are automatically created for the visit.

Alternatively, if MRs are associated and the visit is created in Push to Production status, work orders corresponding to the MR are automatically created for the visit. A visit will not be created for a period that will not accommodate the total default MRs for the visit type. You can add Planned Tasks or Unplanned tasks to the visit in addition to any default tasks. For more information, see Associating Tasks with Maintenance Visits, *Oracle Complex Maintenance, Repair, and Overhaul User's Guide*.

> **Additional Information:** A warning appears if the visit duration is not sufficient to complete the associated tasks to the visit as well as a Calculated End Date will also appear.
>
> The system will automatically adjust the visit schedule if the flight data changes between the visit creation and the visit execution.

Viewing Unit Schedule Details

The Unit Schedule page identifies where flights and maintenance visits have been created, as well as where visits can be created or maintenance opportunities exist. The unit schedules appear in increments of minutes, hours or days. Maintenance opportunities are identified whenever there are available times between flights or flights and other scheduled visits. You can also view schedule conflicts. Conflicts occur whenever two flights or a flight and a maintenance visit overlap either in the scheduled arrivals and departures (start and end dates for visits) or in the defined organizations. Maintenance planners can quickly identify where visits may need to be canceled or rescheduled, drill into the applicable unit or period intersection to create a visit for a maintenance opportunity, view an existing flight or visit, view potential conflicts, or view a combination of these.

To view unit schedule details:

1. Navigate to the Unit Schedules page and query for a unit record.

   The schedule, based on the time increment specified in the search criteria, appears in the lower half of the page.

2. Click the Visit Scheduled icon to navigate to the Update Visit page and view the visit details.

   You can update the information of the visit. If the visit is in the Planning status, you can push the visit to production in a Released or Unreleased status.

3. Click the Flight Scheduled icon to navigate to the View Unit Schedule page.

   The unit flight schedule appears with information on the unit, flight number, segment, departure and arrival organization and departments, departure and arrival estimated and actual times, and so on. You can also view the Preceding and Succeeding events, which can be visits or flights.

   A link to view the preceding and succeeding flight or visit is displayed. If multiple visits start at the same time (for a preceding or following event), a warning display message appears at top of the page and either the preceding or succeeding event information is blank.

4. Click the Conflicts icon to view the conflict in the unit flight schedules and previously created visits for the same unit.

   A conflict can exist when the ending date and time, or the arrival times for flights, overlaps with the subsequent events' date and time, or departure times for flights. A conflict also appears when the preceding and subsequent locations differ. These locations can be based on organization or organization and department, depending on the defined profile value.

   The Multiple Events Found with Conflicts page includes the list of visits and flights that are in conflict with the preceding or the following event or with one another. The list of visits shows the visit number, visit name, department, organization, start and end date and time, and visit status. The list of flights shows the flight number, segment, department, organization, and estimated and actual times.

5. You can modify the planned start and end times for a visit.

   Optionally, click the Visit Number link to navigate to the Visit Details page and modify the details of the visit.

6. Click the Multiple Events icon to navigate to the Multiple Events Found page.

   This page is similar to the Unit Schedule Conflict Details page and displays all the events found within the specified time period. You can also drill into a particular event to view the event's details.

7. Click the Multiple Events with Maintenance Opportunity icon to navigate to the Multiple Events Found with Maintenance Opportunities page.

An icon representing a maintenance opportunity enables you to differentiate between a multiple events condition with or without an embedded maintenance opportunity. Click this icon to navigate to a page displaying all events found within the specified time period, and also providing a link to the Create Transit Visit page. You can create a maintenance visit during the unit's downtime, and based on the facility's capabilities and the applicable unit's defined maintenance plan.

Overview of Flight Schedules

Flight schedules are imported into the application through integration with Flight Operation Systems. You can also view flight schedules for a particular unit over a specified time using the Unit Schedules page. You can set up flight schedules in two ways: through the Create Flight Schedule page or through the Transit Technician workbench. Select the appropriate related topic link to set up flight schedules.

Related Topics

Create Flight Schedule page, page 10-37
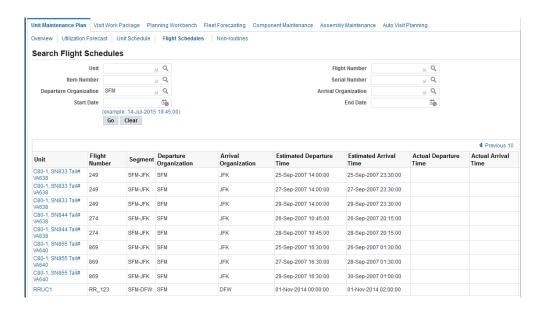
Transit Technician Workbench, page 19-11

Maintaining Flight Schedules

You can define flight schedules manually through the Flight Schedule page. You can search for, view, edit, create or remove the applicable flights.

To view a flight schedule:
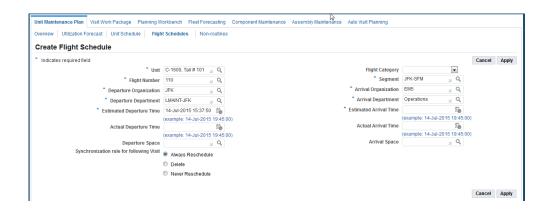
1. Click the Flight Schedule tab, and the Search Flight Schedules page appears.

2. Enter your search criteria to view the list of flights scheduled and the flight details.

3. Click the **Go** button.

The page refreshes with details regarding the unit, flight number, segment, departure organization, arrival organization, estimated departure and arrival time, actual departure and arrival time.

4. Click the View/Edit icon to access the Update Flight Schedule page to view or edit the flight details.

Unit Maintenance Plan | Visit Work Package | Planning Workbench | Fleet Forecasting | Component Maintenance | Assembly Maintenance | Auto Visit Planning

Overview | Utilization Forecast | Unit Schedule | **Flight Schedules** | Non-routines

Search Flight Schedules

Unit			Flight Number		
Item Number			Serial Number		
Departure Organization	SFM		Arrival Organization		
Start Date			End Date		

(example: 14-Jul-2015 19:45:00)

Go   Clear

◄ Previous 10

Unit	Flight Number	Segment	Departure Organization	Arrival Organization	Estimated Departure Time	Estimated Arrival Time	Actual Departure Time	Actual Arrival Time
C80-1, SN833 Tail# VA638	249	SFM-JFK	SFM	JFK	25-Sep-2007 14:00:00	25-Sep-2007 23:30:00		
C80-1, SN833 Tail# VA638	249	SFM-JFK	SFM	JFK	27-Sep-2007 14:00:00	27-Sep-2007 23:30:00		
C80-1, SN833 Tail# VA638	249	SFM-JFK	SFM	JFK	29-Sep-2007 14:00:00	29-Sep-2007 23:30:00		
C80-1, SN844 Tail# VA638	274	SFM-JFK	SFM	JFK	26-Sep-2007 10:45:00	26-Sep-2007 20:15:00		
C80-1, SN844 Tail# VA638	274	SFM-JFK	SFM	JFK	28-Sep-2007 10:45:00	28-Sep-2007 20:15:00		
C80-1, SN855 Tail# VA640	869	SFM-JFK	SFM	JFK	25-Sep-2007 16:30:00	26-Sep-2007 01:30:00		
C80-1, SN855 Tail# VA640	869	SFM-JFK	SFM	JFK	27-Sep-2007 16:30:00	28-Sep-2007 01:30:00		
C80-1, SN855 Tail# VA640	869	SFM-JFK	SFM	JFK	29-Sep-2007 16:30:00	30-Sep-2007 01:00:00		
RRUC1	RR_123	SFM-DFW	SFM	DFW	01-Nov-2014 00:00:00	01-Nov-2014 02:00:00		

To create a flight schedule:

1. Navigate to the Flight Schedule tab, and the Search Flight Schedules page appears.

2. Click the **Create** button to create a new flight schedule.

   The Create Flight Schedule page appears.

3. Define a flight for a unit with the relevant arrival and departure information.

4. Select a synchronization rule for the visit that will be created for the maintenance opportunity after this flight.

   The synchronization rule determines if the system will automatically reschedule a subsequent visit (Always Reschedule), delete it (Delete) or allow the planner to manually make the required changes (Never Reschedule). This behavior is always in relation to a transit visit (created for a maintenance opportunity) that follows the flight in context.

5. Click the **Apply** button to save your work.
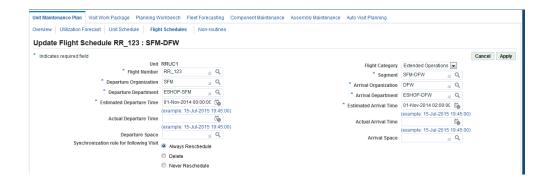
Updating Transit Visit Schedules

Maintenance planners can modify a visit as requirements arise or when the visit is out of sync with the utilization of the applicable unit. The important attributes to keep in synchronization are the preceding utilization's end date, time, organization, department and space (optional) and the subsequent utilization's start date. A conflict is created when visits are out of sync, that is, overlap with each other or with scheduled flights.

To update a transit visit:

1. Navigate to the Update Visit page by clicking the Visit Scheduled icon or though the Unit Schedule Conflict Details page.

2. You can modify the Organization and Department (until the visit has been released), Planned End Time, Visit Name, and Start Time fields.

   For associated tasks, you can update the department (until the visit has been released), service request, cost, start from hours, and task name.

   > **Additional Information:** If the visit has been pushed to production, the organization cannot be updated and the visit must be cancelled and re-created.

- The Actual date and time for a flight arrival and departure can be recorded only if the prior event's actual date and time have been recorded.

- You cannot update the department, organization or estimated date and time if the actual date and time has been entered for the following event of the same unit.

- You can delete a flight schedule for a unit if the actual date or time for this event has not been recorded.

3. You can delete a visit from the Unit Schedule Conflict Details page as well as from the Multiple Events pages.

    When a unit schedule is deleted, the transit visit created for the unit schedule and the work orders in production are deleted. If the visit is in the Planning status, all the visit tasks are deleted and the associated work orders (if created in Draft status for costing purposes) and scheduled materials are cancelled. If the visit is in Released status, all the visit tasks, associated work orders, and scheduled materials are cancelled.

4. Click the **Apply** button to save your work.

11

Working with Maintenance Visits

This chapter covers the following topics:

- Overview
- Creating Maintenance Visit Records
- Push to Production
- Associating Tasks with Maintenance Visits
- Associating Maintenance Requirements to a Visit
- Creating Visit Tasks Unassociated with Routes
- Setting Up Stages for Tasks
- Updating Visit Task Headers
- Visit Costing and Pricing
- Visit Pricing
- Closing a Visit

Overview

Transportation services, including aviation, railway and marine require complex and high-valued unit maintenance. Maintenance of such systems is complex and expensive, and organizations seek to minimize operational costs while maximizing operational revenues.

In addition to the conflicting requirements of service availability versus service reliability, a maintenance planner seeks to optimize a maintenance plan by considering the following:

- Service efficiency: Do not replace a unit component or the unit itself any sooner than economically necessary.

- Constrain offline maintenance duration: Organizations earn revenue when their

units are in operation, and not when under maintenance.

- Constrain maintenance cost: Provide an infrastructure that enables maximum skilled worker productivity. Sequence maintenance tasks based on efficiency dependencies, and historical service records that help predict maintenance requirements.

- Meet safety and regulatory mandates.

The Visit Work Package module permits a maintenance planner to organize a maintenance visit for an equipment unit, whether the unit is at a maintenance base, or in the field. The module provides process-oriented, task-based procedures to perform essential maintenance visit management tasks. See:

- Creating Maintenance Visit Records, page 11-5

- Associating Tasks with Maintenance Visits, page 11-10

- Associating Item Serial Numbers and Service Requests to Tasks, page 11-12

- Creating Visit Tasks Unassociated with Routes, page 11-19

- Defining Visit Task Hierarchy, page 11-21

- Defining Visit Cost Structure, page 11-23

Visit Work Package

The Visit Work Package provides planning capabilities to an organization. The Visit Work Package enables a maintenance planner, skilled in the maintenance of the firm's units, and aware of cost and complexity, to organize maintenance tasks for a unit based on unit availability and forecasted maintenance requirement due dates.

A unit is treated as a hierarchy of other units and positions. The advantage of supporting such a unit structure is the capability to associate maintenance requirements with increasing component granularity. Maintenance requirements can be tracked at the unit level or at any of the unit's subcomponents. This enables forecasted requirements to move with the subcomponents from one unit to another. This is especially important in an industry such as aviation.

The Visit Work Package enables the planner to group maintenance requirements applicable to a unit and its subcomponents into a single maintenance event. When the maintenance visit is created using the Autocreate process or manually, the system automatically adds planned and unplanned maintenance requirements and individual maintenance tasks to the visit workscope.

> **Note:** The AHL: Enable Visit Creation Automation profile option

controls the automatic association of MRs during visit creation. For more information, see Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide*.

The individual tasks within a visit can be structured to optimize work performed on the production floor. Planners can also manage maintenance visits to the individual task level, based on the estimate costs at the task, route, task group, task package, and visit levels.

Key Business Processes

The Visit Work Package supports the following business processes:

Equipment-Based Maintenance Visit Definition

The Visit Work Package enables a maintenance planner to create and manage a maintenance visit. A visit definition connects a unit with a block of tasks, a location where the maintenance work takes place, and a period of time in which the work is accomplished.

Adding Forecasted Maintenance Requirements to Visits

When creating tasks for a maintenance visit, the planner will usually select forecasted requirements from the unit maintenance plan. By adding these requirements, the associated routes, and all the routes for any child maintenance requirements are added to the visit as tasks. Through the associated routes, the material and resource requirements are planned for at the task level. Additionally, any technical dependencies between associated routes and defining the sequence in which the work must be accomplished, are automatically created between the visit's tasks.

Adding Unplanned Maintenance Requirements to Visits

In an industry such as aviation, unplanned or non-routine requirements comprise the majority of the work performed during production. These requirements are added to a visit based on the discoveries made during the inspection process. These requirements may be added to a visit any time during the planning and production phases of a visit. When adding them during the production phase, the Push to Production function must be manually initiated from the Visit Work Package to create work orders for the new visit tasks.

In addition to non-routine maintenance added to a visit, unplanned requirements may be used for maintenance performed on third-party units. In this case, the forecasted maintenance is being tracked by outside parties and contracted to the CMRO user. After adding these requirements to a visit, maintenance will be tracked through the production process in the same way, regardless of whether the requirement is planned or unplanned.

Adding Unassociated Repair Tasks to Visits

The planner will create an unassociated repair task for a job that needs to be performed

on an equipment unit for a requirement not tracked by the Unit Maintenance Plan or defined in the Fleet Maintenance Program. These tasks are not associated with a route, but the scope of the work to be accomplished is manually described at the task header. Unassociated tasks are intended to address minor, non-routine repairs.

Resource Schedule Definition

Efficient maintenance planning seeks to smooth the workload curve. Before a shop visit duration can be accurately determined, an organization's skilled workers' schedules and availability must be considered. Using the Planning Workbench, the planner can view the resource capacities for visit requirements defined in the Visit Work Package.

Visit Task Cost Structure Definition

To calculate the costs incurred during a maintenance visit, a cost structure must be defined, so that labor, parts, and materials cost transactions associated with tasks can be configured, recorded, and accumulated using other Oracle eBusiness Suite modules, and used to account for overall visit costs. The cost structure is implied by the parent-child relationship between tasks. After costs have been defined by the item and unit of measure, summary tasks, representing the maintenance requirements, can be defined as control breaks for the subtotal cost calculations at any point in the visit hierarchy.

Visit Task Hierarchy Definition

The Visit Work Package enables the maintenance planner to precisely define the order of completion of all tasks that comprise a maintenance facility visit. The precedence order is established by parent-child relationships so that a child task has as many parents to which it is technically dependent. This feature ensures that complex routes are correctly planned and accomplished. Technical dependencies defined between routes for a maintenance requirement in the Fleet Maintenance Program are automatically used to create a hierarchical relationship between a visit's tasks. This sequence of tasks within a visit is used to calculate the derived completion date of a visit, enabling the planner to make sure that it does not exceed the visit's defined end date.

Visit Costing and Pricing

Costing and estimating the price for a service is very important for any service organization. The Visit Work Package enables the maintenance planner to estimate the cost of an in-house maintenance visit, and calculate the visit price as a third-party service provider. The visit cost and price estimation enables the maintenance organization to calculate the profit to provide such a service before sending the quotation to the customer. By comparing the historical data including estimated costs and actual costs for visits, maintenance requirements, and tasks, the maintenance planner can plan the cost of future visits effectively.

Creating a Project for a Maintenance Visit

Oracle CMRO uses Oracle Projects as part of its maintenance planning and production flows. A project is created for each visit work package and project tasks assigned to it. A visit's corresponding project is used in the maintenance execution flow to collect costs associated with resource and material transactions performed in CMRO's Production

module. Project Manufacturing's standard billing functionality can be used to generate the required reports for the corresponding visit work packages.

Creating Maintenance Visit Records

A maintenance visit represents the intersection of several entities:

- Equipment to be maintained

- Location where the maintenance jobs will take place

- Period of time, called a visit slot, during which the maintenance will be accomplished

- Maintenance requirements to be completed during the visit
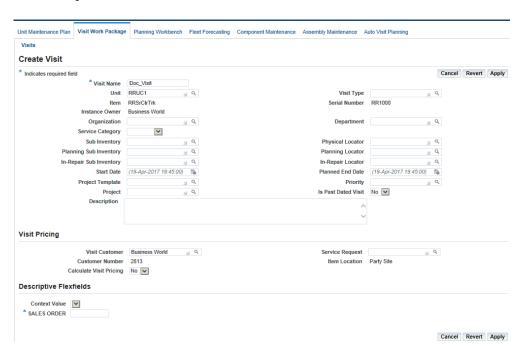
There is no limit to the number of tasks that can be in a visit or the duration of a visit.

The goal of the maintenance planner is to schedule requirements within the forecasted due dates at capable facilities, while minimizing a unit's down time. The first step to create a visit is to define the visit header. Its attributes include a name, number, organization, description, department, visit type, inventory item, serial number, and so on. After the header has been created, maintenance requirements are added to the visit, which create tasks to complete the visit definition. Tasks can be attached to the visit from the maintenance plan associated through the Unit Maintenance Plan module, through unplanned requirements from the Fleet Maintenance Program, or as ad hoc tasks.

To create a maintenance visit record:

1. Navigate to the Create Visit page (Planning > Visit Work Package).

   The Search Visit page appears.

2. Click the Create button to launch the Create Visit page.

3. Select information in the following fields:

   - Visit Name

   - Visit Type

   - Item

   - Service Request

   - Category

   - Serial Number

- Organization

- Department

- Start Date

- Priority: A value that defines the priority assigned to a visit. For example, High, Medium, and Low, or 1,2, and 3, respectively. Visit priority values should be the same as currently used by WIP and defined by the lookup WIP_EAM_ACTIVITY_PRIORITY.

- Project Template

- Project Name

- Description

To create a single visit record for multiple units or tracked items, leave the Unit field blank. When a unit is selected, the visit record is created only for that unit.
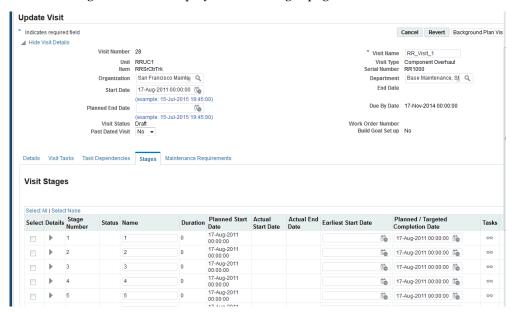
4. Click the Apply button to save your work and to view the Update Visit page. See Associating Tasks with Maintenance Visits, page 11-10.

Defining Stages for a Visit

You can define the stages for a visit. Stages can also be specified when associating a route to a maintenance requirement. When a maintenance requirement is assigned to a

visit, the visit tasks automatically inherit the stages specified during the MR-Route association. The stage numbers are predefined for all visits.

To set up stages for a visit:

1. Navigate to the Update Visit page.

2. Select the Stages subtab to display the Visit Stages page.

3. In the Stage List table, enter a name and duration for the stage. The Stage Start/End Time is derived from on the Visit Start Time, Visit Department, Department Shift, and Stage Duration. The Duration must be an integer greater than or equal to 0 and the stage name must be unique within one visit.

> **Additional Information:** If you do not want all of the stages defined for a particular visit, you can leave the name blank and the duration left at 0.

4. Click the Apply button to save your work. The Planned Start and End time changes based on the duration specified.

Preparing the Maintenance Visit for Production Planning

Once you have finished developing and refining the structure of a maintenance visit, you can transfer the visit, including the visit header and all the associated tasks to the Oracle CMRO Production Planning module for final adjustments before the maintenance project is started.

To validate a visit:

1. Navigate to the Visit page.

2. Select the visit record and choose Validate.

Retrieving Existing Maintenance Visit Records

Maintenance planners need to retrieve existing maintenance visit records for reference or create new visits based on an existing visit. The Search Visit page provides the ability to search and display all maintenance visits regardless of their status.

To retrieve existing maintenance visit records:

1. Navigate to the Search Visit page and search for records.

2. Select the appropriate record to validate it before it is released to production, and then click the Validate button.

> **Note:** Only visits with a status of Planning can be validated.

3. Choose Cost and Price Information to view the cost and price information for the visit, and the Visit Cost and Price page appears.

4. Choose Maintenance Requirements to view the MR for the visits.

5. Select Search Tasks to search for tasks associated with the visit, and the Search Visit Task page appears.

6. Select Cost Structure to view the task cost structure for a visit.

Push to Production

If the visit structure is logically correct, push the visit to production on the Visit Overview page. This function is also available in the Visit Details page. The visit structure logic is checked, and the process creates an associated project and task. A master work order is created for the visit and the visit's requirements, and associated work orders are created for the visit tasks. Visit tasks are exported to Oracle Projects as a complete set.

To push a job to production:

1. Navigate to the Search Visit page, and search for your visit record.

2. A complete visit, or selected maintenance requirements in a visit, are pushed to

production. To push a complete visit to production, with a visit in context from the Visit Details page, or select the visit from the results table and choose either Push to Production (Jobs Released) or Push to Production (Jobs Unreleased).

When you create work orders for tasks with item-based resource requirements, the requirement quantities are multiplied by the work order's instance quantity.

Both Push to Production (Jobs Released) and Push to Production (Jobs Unreleased) create work orders for the visit and tasks. If you choose to push the visit to production with jobs in the Unreleased status, all the date validations, accounting period validations and scheduling hierarchy are skipped.

> **Note:** Only complete sets of tasks are transferred to Projects and to the CMRO Production module. If an error occurs during the export of tasks to the production jobs, the Projects object is not rolled back. Instead, the relationships between visit tasks and tasks in Projects are maintained, and another attempt is made to export production jobs when pushing the visit structure to production.

The following visit attributes are verified when a visit and its tasks are exported to maintenance production:

- The visit is associated with a valid department, and a valid organization.

- The visit has a starting date and time. The visit end date and time is automatically calculated.

- The visit is associated with a valid item, and a correct unit from Installed Base.

- The visit is in the Planning status.

- A correct visit type is selected for the visit.

- The visit definition is a member of a primary simulation plan. See the Planning module for more details.

- All visit tasks not based on a repair or service route defined by the Fleet Maintenance Program as pertinent to the equipment being serviced cannot have a duration of zero.

- Visit tasks based on an expired maintenance requirement or route cannot be scheduled for maintenance production.

- Each department in which a maintenance task is planned must belong to the related organization.
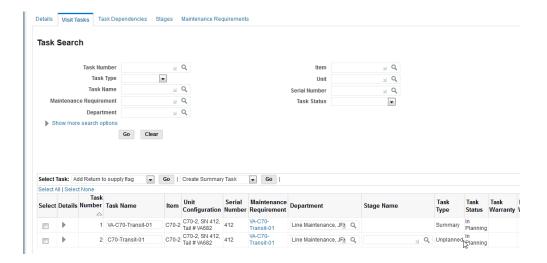
Associating Tasks with Maintenance Visits

After a maintenance planner has completed the visit header creation, the planner can add new tasks to the visit structure. A maintenance plan consists of three task types:

- Tasks based on routes that comprise a maintenance requirement, and can have required completion dates based on the forecast in the unit maintenance plan. See: Associating Unplanned and Planned Maintenance Requirements to a Visit, page 11-12.

- Tasks based on routes from unplanned requirements that are not forecasted in the unit maintenance plan, but might apply, in the judgment of the planner, to the equipment being maintained. These tasks are created from routes associated with maintenance requirements that pertain to the equipment type.

- Tasks can be added on an ad hoc basis, even if no corresponding route exists. The description of the work to be accomplished is stored as a task remark. See: Creating Visit Tasks Unassociated With Routes, page 11-19.

To associate tasks with maintenance visits:

1. Navigate to the Update Visit page for your record if the visit record is in the Planning status.

   If the visit record is in the Released or Closed status, the View Visit Details page appears.

2. Click the Visit Tasks subtab. The Search Visit Task page appears with the visit context information, and the list of existing tasks associated with the visit.

3. Click the right arrow in the Details column for the appropriate task that you want to update. See Updating Visit Task Headers, page 11-21.

4. Select Create Summary Task and click the Go button to create a summary task. The Create Summary Task page appears.

5. Enter task details and click the Apply button to save your work.

   Summary tasks are created automatically for each maintenance requirement in the process of creating planned and unplanned tasks. You can create summary tasks until the visit is closed. If new summary tasks are created for a visit with a Released status, then the status of the visit will not change to Partially Released.

6. Select Create Unassociated Task to create a new task that is not associated to any maintenance route. This launches the Create Unassociated Task page, see: Creating Visit Tasks Unassociated with Routes, page 11-19.

7. Select the applicable fields in the Task Header Information region. Click the Apply button to save your work.

8. Click the Remove icon for the associated task that you want to remove.

   When you remove a task associated to a maintenance visit, note the following:

   • If all tasks associated to a MR summary task are deleted, the summary task is deleted as well.

   • You can delete a task that is the originating task for another only if the association is first removed.

   • You must first remove the association to delete a task with associated child tasks.

- You cannot delete a task that has other tasks dependent on it.

You can add tasks (Planned, Unplanned, Unassociated and Summary) to a visit after the visit is exported to production and until the visit is closed. The tasks are automatically added to the cost structure. You can adjust the cost structure for the newly added tasks. You can also create a technical dependency for the new tasks, if none of the subsequent jobs for the tasks have been released.

You can push unreleased tasks to production. The jobs are created in Unreleased status. After tasks are added to a visit that is in a Released status, the visit status changes to Partially Released until all the remaining tasks are released to production.

Associating Maintenance Requirements to a Visit

When a planned maintenance requirement is associated to a visit, all the routes associated with the maintenance requirements are automatically assigned to the visit. If a group maintenance requirement is associated to a visit, the routes of the group requirement and the routes of all the individual requirements in the group are assigned to the visit. You can also associate a planned service request to a visit. The routes for all the maintenance requirements associated with the service request are automatically assigned to the visit.

> **Note:** You can schedule a maintenance requirement multiple times to the same instance in a single maintenance visit.

Unplanned or non-routine maintenance requirements are requirements that are not factored into the planning process in the unit maintenance plan, and may occur due to ad hoc service needs or during work on third-party units, aircraft, or engines. Adding unplanned requirements to visits that are in production is especially useful for third-party customers whose aircraft and engines are not tracked in the unit maintenance plan. When an unplanned maintenance requirement from the Fleet Maintenance Program is added to a visit, all the routes associated with the requirement are assigned to the visit.
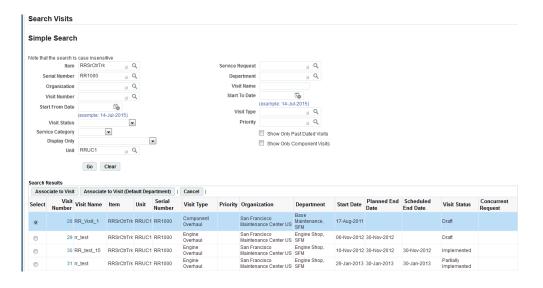
> **Additional Information:** If these unplanned requirements cannot be accomplished during the visit, it will show in the unit maintenance plan as Non-Routine requirements. These deferred maintenance requirements can then be scheduled with other visits in the unit maintenance plan.

> **Note:** Maintenance requirements are added to a visit for any available instance, regardless of the unit associated to the visit's header.

To associate planned maintenance requirements to a visit:

1. Navigate to the Update Visit page and retrieve the appropriate visit.

2. Click the Maintenance Requirements link, and the Search Maintenance Requirements page appears.

3. Choose Add Planned Requirements from the drop-down list.

4. The Search Unit Maintenance plan page appears.

5. Search for the unit maintenance requirements, and the results appear in the Unit Maintenance Requirements table.

6. Select one or more maintenance requirements.

7. Select Associate to Visit, and the Create Planned Task page appears.

8. Select a value in the Stage Name field for the non-routine maintenance requirement.

   You cannot select a stage name if the non-routine MR has an associated solution MR.

9. Click the Apply button to add the task to the visit.

   A summary task is automatically created for each maintenance requirement and service request during the process of creation of Planned tasks. Summary tasks are used as the originating task and the cost parent of planned tasks. If you select Associate to Visit (Default Department), the task is automatically added to the visit without requiring association using the Create Planned Task page.

Search Visits

Simple Search

Note that the search is case insensitive

Item	RRSrCtrTrk	Service Request	
Serial Number	RR1000	Department	
Organization		Visit Name	
Visit Number		Start To Date	
Start From Date			(example: 14-Jul-2015)
	(example: 14-Jul-2015)	Visit Type	
Visit Status		Priority	
Service Category			
Display Only			☐ Show Only Past Dated Visits
Unit	RRUC1		☐ Show Only Component Visits

[Go] [Clear]

Search Results

[Associate to Visit] [Associate to Visit (Default Department)] | [Cancel] |

Select	Visit Number	Visit Name	Item	Unit	Serial Number	Visit Type	Priority	Organization	Department	Start Date	Planned End Date	Scheduled End Date	Visit Status	Concurrent Request
⦿	28	RR_Visit_1	RRSrCtrTrk	RRUC1	RR1000	Component Overhaul		San Francisco Maintenance Center US	Base Maintenance, SFM	17-Aug-2011			Draft	
○	29	rr_test	RRSrCtrTrk	RRUC1	RR1000	Engine Overhaul		San Francisco Maintenance Center US	Engine Shop, SFM	06-Nov-2012	30-Nov-2012		Draft	
○	30	RR_test_15	RRSrCtrTrk	RRUC1	RR1000	Engine Overhaul		San Francisco Maintenance Center US	Engine Shop, SFM	10-Nov-2012	30-Nov-2012	30-Nov-2012	Implemented	
○	31	rr_test	RRSrCtrTrk	RRUC1	RR1000	Engine Overhaul		San Francisco Maintenance Center US	Engine Shop, SFM	26-Jan-2013	30-Jan-2013	30-Jan-2013	Partially Implemented	

If a unit is specified in the visit header, then tasks can only be created for units on the configuration tree of the visit header unit.
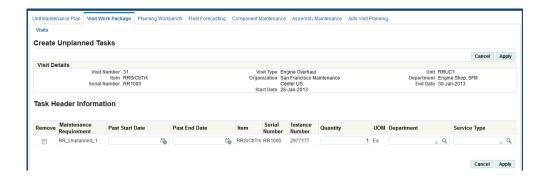
You can associate a department to the tasks. Alternatively, the department associated to the visit header is associated to all the tasks created. You can create unplanned tasks until the visit is closed. If new unplanned tasks are created for a Released visit, then the status of the visit changes to Partially Released. You can delete a maintenance requirement from the visit when the visit in the Planning status. When a task is deleted, all the tasks with the requirement are deleted.

To associate unplanned maintenance requirements to a visit:

1. When you add a MR for non serialized instances, you can select the instance quantity for which the applicable maintenance must be performed. This quantity is associated to the applicable tasks and the corresponding work orders.

   Select your maintenance requirement record on the Search Maintenance Requirements page, and click the Associate to Visit button.

   The Create Unplanned Visit Task page appears.

2. Click the Apply button to add the task to the visit.

   The maintenance requirement is added to the visit record. The tasks inherits the same status as the corresponding route. A summary task is created automatically for each requirement when creating unplanned tasks. Summary tasks are used as the originating task and the cost parent of unplanned tasks.
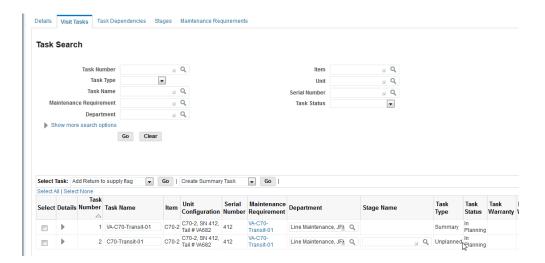
After a maintenance planner creates a visit structure, the Search Visit Tasks page enables the planner to retrieve tasks associated with a particular visit, or to add new tasks to the visit structure.

After retrieving visit tasks, the planner can select a task for subsequent editing. The Search Visit Tasks page also enables maintenance personnel to link to pages that enable the creation of tasks associated with serialized inventory items, for both pending and undated maintenance requirements, and tasks associated only with non-serialized assemblies.
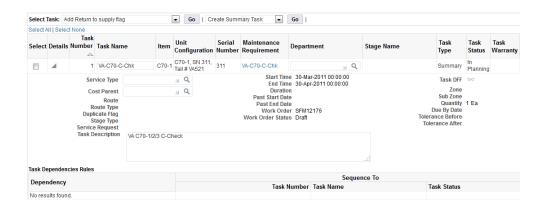
To retrieve existing visit tasks:

1. Navigate to the Search Visit page.

2. Enter your search criteria to find your visit. Click the Go button and the Search Visit Task page appears.

   - Task Number

   - Task Name

   - Maintenance Requirement

   - Route

   - Task Type

   - Task Due By.

   - Work Order

- Work Order Status

- Service Request

- Department

- Item

- Serial Number

- Route Type

- Stage

- Status

3. Enter information in specific fields to query for tasks related specifically to your search criteria.

4. Click the right arrow to view or update the visit task details and any associated task dependencies.

Select Task: Add Return to supply flag [▾] | Go | Create Summary Task [▾] | Go |
Select All | Select None

Select	Details	Task Number	Task Name	Item	Unit Configuration	Serial Number	Maintenance Requirement	Department	Stage Name	Task Type	Task Status	Task Warranty
☐	◢	1	VA-C70-C-Chk	C70-1	C70-1, SN 311, Tail # VA521	311	VA-C70-C-Chk	[ ] ⌐ Q		Summary	In Planning	

Service Type [ ] ⌐ Q   Start Time 30-Mar-2011 00:00:00   Task DFF ∞

Cost Parent [ ] ⌐ Q   End Time 30-Apr-2011 00:00:00   Zone

Route   Duration   Sub Zone

Route Type   Past Start Date   Quantity 1 Ea

Duplicate Flag   Past End Date   Due By Date

Stage Type   Work Order SFM12176   Tolerance Before

Service Request   Work Order Status Draft   Tolerance After

Task Description   VA C70-1/2/3 C-Check

Task Dependencies Rules

Dependency	Sequence To		
	Task Number	Task Name	Task Status
No results found.			

You can update the visit task details and associated information only if the visit is in the Planning status. If the visit is in the Released or Closed status, the system generates the Visit Task Details page in view-only mode.
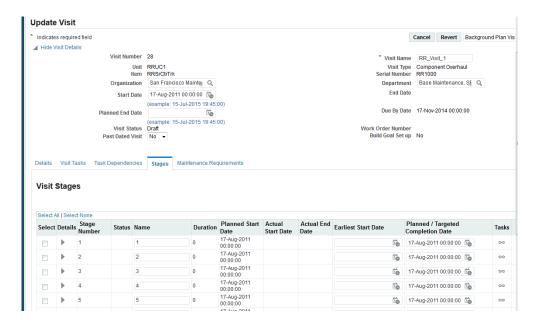
5. Click the Remove button for the task that you want to delete from the visit.

    You can only remove a task that is in the Planning status. To delete a task from a Primary visit, any task associated to it in a simulation visit must have the association removed. If you delete all tasks associated to a maintenance requirement summary task, the summary task is also deleted. To remove a task that is the originating task for another task, the associations must be first removed. To remove a task with associated children tasks, the association must first be removed. Also, a task with other technically dependent tasks cannot be removed. Any material requests defined in the Planning module for a task must be cancelled before it can be deleted.

To update visit details:

1. Navigate to the Update Visit page.

    You can update these attributes only for a visit record with a status of Planning. If the selected visit is in the Released or Closed status, the application generates the details and visit tasks pages in view-only mode.

2. Make the necessary changes to the field values.

3. Click the Apply button to save your work.
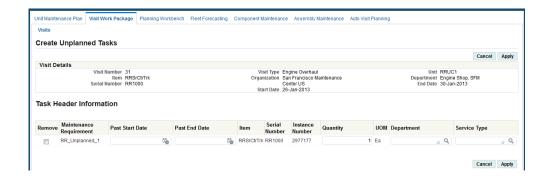
Associating Item Serial Numbers with Tasks

A repair job required to fix a defect reported by built-in test equipment, monitoring and control systems, operating personnel, or maintenance personnel during inspections, might not have a corresponding route in the unit maintenance plan. In such cases, it may be necessary to select a maintenance requirement and routes to add to a visit for the equipment type.

After a technician has inspected a part, the equipment type task must be associated with an actual part in the unit configuration. If the part to be serviced or repaired is not serialized, or not of sufficient importance to describe in the unit configuration, the task can be associated with the visit header's equipment type and serial number.

To associate serial numbers and service requests with a task:

1. Navigate to the Create Unplanned Visit Task page. The Visit Number, Visit Type, Item, Unit, Start Date and End Date values appear. The item subcomponent in the visit package to which the service request or serial number is to be associated also appears.

2. Enter values in the Item, Serial Number, Department, and Service Request fields.

3. Click the Apply button to associate the item serial number to the selected task.

Creating Visit Tasks Unassociated with Routes

You can create ad hoc tasks, usually to repair or replace a component, to be included in a shop or field maintenance visit. Tasks can be added to a visit on an ad hoc basis, even if no corresponding route exists. The description of the work to be accomplished, and the required tools and materials is stored as a task remark. Use the Create Unassociated Task page to create a task that is not associated with any maintenance route.

> **Note:** Unassociated tasks are added to a visit for any available instance, regardless of the unit associated to the visit's header.

To create visit tasks unassociated with routes:

1. Select a visit number record and navigate to the Create Unassociated Task page.

2. Enter a value for Task name, and select a department and stage for this visit.

    > **Additional Information:** If the unit is specified in the visit header, you can create unassociated tasks only for one of the components of the unit.

3. When you create tasks for non serialized instances, you can select the instance quantity for which the applicable maintenance must be completed. This quantity is associated to the task and the corresponding work order.

    Select values in the Item and Serial Number fields.

4. Enter a Start From Hours value for this unassociated task.

    This is the time offset for this task, in decimal hours from the beginning of the visit being planned. Use this field to specify when this task should start relative to the beginning of the visit.

5. Enter a value in the Duration/Hour to represent the duration in hours of this task.

6. Select the appropriate Instance Number.

7. Enter the Quantity.

8. Select a value for the Cost Parent Task field.

   This is the summary task in the task hierarchy at which a subtotal of cost transactions, including the costs attached to the task being created, will be calculated. A top task must be a summary task.

9. Select a value in the Originating Task field.

   The task that requires the inclusion of the current task in the visit task package. A task may not originate itself. The originating task is usually part of a scheduled maintenance requirement.

10. Enter the relevant Service Type.

    For more information about defining service types, see the *Oracle Projects Implementation Guide.*

11. Enter any descriptive text in the Task Description box.

12. Click the **Apply** button to save your work.

    You can create unassociated tasks until the visit is closed. If new unassociated tasks are created in a released visit, the status of the visit changes to Partially Released.

Setting Up Stages for Tasks

You can associate tasks with the stages defined for a visit. Stages can be determined when associating routes to a maintenance requirement. When this requirement is assigned to a visit, the task automatically inherits the stage definition specified during route association. Stages cannot be assigned to summary tasks.

You can add and modify stage information until the task is pushed to production. A task with no defined stage is planned at the end of the visit and is not considered for long term planning. A stage with no duration and tasks in a visit implies that the stage is not applicable for that visit.

Task hierarchy honors stage sequence. If there are two tasks and one is dependent on the other, the second task will be in the later stage or in the same stage as the first task.

To associate stages with tasks:

1. Navigate to the Create Unassociated Task page.

2. In the Stage field, query the stages defined.

3. Select the stage to which you want to associate the task.

4. Click the Apply button to save your work.

Updating Visit Task Headers

You can retrieve existing maintenance visit task records, and edit the header and task hierarchy information.

The planner can modify the task attributes that are unique to the current visit association. Attributes inherited from the route definition cannot be updated.

Use the Update Task page to update visit task header details.

From the Search Task page:

1. Select a record and navigate to the Update Task page.

2. Enter update values in the Update Task page.

   You cannot update a task if a maintenance requirement or maintenance requirement route is associated with the task.

3. You can update the following fields: Task Number, Task Name, Maintenance Requirement, Service Request, Cost Parent Task, Description, Duration/Hour, Route, Start From Hours, Originating Task, and Stage.

   Use the Warranty Details region to manage warranty for the visits. This region displays the following information:

   • Task Warranty flag is Yes if there is a warranty template associated to the task.

     This information comes from the maintenance requirement or route.

   • The Instance Warranty flag is Yes if there is at least one active warranty contract for the unit.

     • The default status value is Review, unless the system validates and selects a warranty contract.

     • Warranty Contract LOV displays only active contracts for selection.

       If the Warranty Contract field is blank, you can add a new contract at any time and the system changes the Warranty Status from Not Applicable to Approved when you click the Apply.

     • The Warranty Contract can be changed easily and the status can remain as Approved.

- • If you set the Warranty Contract field to null, the system sets the Warranty Status to Not Applicable.

- • If the Instance Warranty flag is No, you cannot edit the Warranty Contract LOV.

- • The default value for the Warranty Claim field is the unique warranty claim identifier and is used for historical purposes.

- • The default value for the Claim Status field is the current status of the claim and is used for historical purposes.

4. Click the Apply button to save your work.

Defining the Visit Task Hierarchy:

After visit tasks are attached to the visit header, further refinement of the visit structure involves three processes: removing redundant tasks, defining the task hierarchy for costing purposes, and arranging the tasks sequence. It may be possible to remove the redundant tasks if more than one job will be performed in the same area of the equipment. To support cost transaction summarization during and after production, a task hierarchy specifies the summary tasks for subtotal calculations using the Oracle Projects features. The tasks sequence specifies the sequential order of tasks to be performed during the visit, while also considering the technical task dependencies.

After defining task dependencies, the planner can create a final task structure by deriving the task network connecting tasks to each other in a parent-child relationship. The task network complies with the technical dependencies between tasks while becoming the optimal structure for more efficient maintenance resources utilization.

The Visit Work Package module enables maintenance planners to retrieve visit tasks, select a task record, and define the parent-child relationship between the selected task and other tasks in the visit structure using the Task Hierarchy page.

To define a visit task hierarchy

1. Retrieve the desired visit task records and navigate to the Update Task Header page.

2. Click the Hierarchy link, and the Task Hierarchy page appears. Optionally, you can click the Hierarchy icon in the Search Visit Task page, to navigate to the Task Hierarchy page for a particular task.

3. Select the task for which you want to edit the workflow hierarchy information, and then select Edit Hierarchy.

4. Enter a task name select a Relationship value. Your choices are Parent or Child.

5. Select a relationship. Options are Parent or Child.

6. Click the Apply button to save your work.

Visit Costing and Pricing

You can calculate the cost and price for a maintenance visit. Costs can be estimated at any stage of the visit planning, based on the resource and material requirements. Actual costs are calculated based on the material and resource transactions for a job.

Prices are calculated for third-party maintenance visits. When performing third-party maintenance, a predefined price list is associated with the visit. Prices are estimated based on the required materials and resources. The actual price of the visit is generated based on the used materials and resources. Additionally, you can calculate the cost for such a visit, and determine the profit for a service provided, by comparing it with the visit price. The difference between the visit price and the cost is your profit.

Defining a Visit Cost Structure

A maintenance planner may not want to export all planned visit definitions to Oracle Projects. The maintenance planner may define a set of visit options, called simulations. Each member of a simulation set is a complete visit definition. The simulation set is used to determine the task package that is optimal relating to the scheduling of repair facilities, and the materials necessary to complete each job.

To define a visit cost structure:

1. Select a visit and navigate to the Visit Cost Structure page.

2. Enter a unique value in the Task Name field.

3. Select appropriate values in the Serial Number, Maintenance Requirement, and Service Request fields.

4. Select a value in the Cost Parent Task field.

   The Cost Parent Task field determines which other task is the current task's immediate predecessor in the cost accounting structure. The tree-structured task graphic shows the relationships between the tasks. This is the mid-level task connected to the current task as a low-level task. Only low-level tasks can have associated cost transactions.

5. Select a value in the Originating Task field.

   This task requires the inclusion of the current task in the visit task package. A task may not originate itself. The originating task is usually part of a scheduled maintenance requirement.

6. In the Description field enter any appropriate descriptive text.

7. Select Apply.

Visit Costing

Visit costing is the collection of all costs incurred to execute a maintenance project. Costs include the materials and resources allocated for the visit. You can estimate the cost of a visit based on these material and resource requirements. When the visit is pushed to production, the actual cost of the execution is calculated from the shop floor transactions. Costs are rolled up at every level of the visit's costing structure. You can view the cost at the task, maintenance requirement, and visit level.

To set up visit costing, set billing items in Oracle Inventory as non-stockable and non-transactable items.

To estimate the cost of a visit:

1. Navigate to the Visit Cost and Price page.

2. Select information in the following fields

- Price List: A list containing the base selling price per unit for a group of items, item categories, or service offered.

- Estimated Cost: Value calculated based on the material and resource requirements for a job.

- Actual Cost: Actual cost of material and resource.

- Estimated Price: The price quoted by a maintenance organization for performing a third-party service, and is based on the price of the required material and resources for the service.

- Actual Price: The price to perform a service at a third-party location, calculated based on the actual price of the used material and resources.

  Estimated Profit: The value calculated by subtracting the estimated cost from the estimated price.

  Actual Profit: The value calculated by subtracting the actual cost from the actual price.

3. Click the Estimate Cost button to initiate the cost estimation process. The cost appears in the Cost/Price Details region.

  The following occurs in the cost estimation process:

- You will be prompted to estimate costs when tasks are added or deleted from the visit.

- If you modify a material or resource requirement, or perform a material or

resource transaction, the system automatically displays the updated estimated and actual costs.

- For records without an associated work order, a corresponding work order in Draft status is created in Work in Process, when you click the Estimate Cost button.

- The actual task cost is the sum of the cost of the service item for the route, and the actual cost calculated. When a task has an associated OSP work order, the actual cost will be sum of the cost of the OSP line and actual cost calculated. The estimated task cost is the same as the actual cost.

- The estimated cost of the maintenance requirement is the sum of the estimated costs of the tasks in that requirement. The actual cost is the sum of the actual costs of the tasks.

- The estimated cost of the visit is the sum of the estimated costs of the maintenance requirements and other tasks that are associated with the visit. The actual cost of the visit is the sum of the actual costs and other tasks that are associated with the visit.

To view cost information:

1. Select a visit to view the cost rollup. Select Cost Structure and click the Go button.

   The Cost Structure page appears. Select a node in the tree structure to view the cost details. If the node does not have a corresponding work order, the Estimated Cost and Actual Cost fields are null.

2. To view cost information at the visit level, select the visit in the Search Visits page, and select Cost and Price Information. Click the Go button to display the Visit Cost and Price page with the estimated and actual cost information.

3. Navigate to the Task Cost and Price page showing the estimated and actual task costs.

4. Access the Maintenance Requirement Cost and Price page to view the costs associated with a MR.

   Select Cost Snapshot to store the cost estimate that you are viewing. This snapshot can be used for comparison with other snapshots of the same visit with different tasks or in a different location.

   > **Note:** If the visit cost has not been estimated, then the system will automatically calculate the actual and estimated costs, when a visit is closed.

Visit Pricing

A maintenance organization may perform a service for an outside party or customer. Pricing is the calculation of costs arising out of third-party maintenance. You can define a price list at a visit or task level. The price list at the task level is optional and supersedes the price list defined at the visit level. For price information at the task level, you must define the material and resource requirements as price items in the price list. You can also calculate prices for maintenance requirements. Billing items must be created, and linked to the maintenance requirement. The Visit Work Package process then takes the price of the maintenance requirement from the price list associated at visit work package level.

To calculate the price for a visit:

1. Create a visit, and associate a service request with it.

2. In the Update Visit page, click the Cost Details link. The Visit Cost and Price page appears. Select the Visit for Outside Party check box.

3. Select a price list. You can only associate a price list that has been created for the customer specified in the service request, and is valid for the period between the visit start and end date.

4. Click the Apply button. The Estimate Price button appears in the Cost/Price Details region.

5. Create tasks for the visit. For information, see Associating Tasks with Maintenance Visits, page 11-10.

   > **Note:** Each BOM resource used in the task resource requirements or work order transactions must be associated with an Item. To calculate the task price, all the billing items for materials and resources should be orderable, and defined in the price list associated with the task or visit.

6. Click the Estimate Price button on in the Visit Cost and Price page, to initiate the price calculation process.

   The following can be applied to the price calculation process:

   • The price of a task, associated with a route, is estimated by adding the price of the materials and resources required to perform that task. The estimated price for a task without a route association is always zero. The actual price is calculated by adding the prices of the materials and resources transacted. If the task price is recalculated, and the amount differs from the former estimate, then

the MR and visit prices are adjusted accordingly.

- For an MR with a billing item associated, the estimated price is the price of the billing item. For an MR with no billing item associated, the estimated price is the sum of the estimated prices of the tasks in the MR. The actual price of the MR is calculated by adding the actual prices of the tasks in the MR. If the MR price is recalculated, and the new price differs from the old one, then the visit price will be adjusted accordingly.

- The estimated price of the visit is the sum of the estimated prices of the MRs and other tasks that are not associated with an MR. The actual price of the visit is the sum of the actual prices of the MRs and other tasks that are not associated with an MR. When an MR or a task is deleted from the visit, the MR or task price is subtracted from the visit price.

To view price information:

1. Retrieve the visit task record, for which you want to view the price information. For information, see Retrieving Existing Visit Task Records., page 11-12

2. Select the visit and click the Cost Structure icon to view the cost rollup.

3. To view price information at the visit level, select the visit in the Search Visits page, and choose Cost and Price Information from the drop-down menu. Click Go. The Visit Cost and Price page appears displaying the estimated and actual prices.

4. To view price at the task level, click the Visit Tasks link. The Search Visit Task page appears, displaying a list all the tasks associated with the visit.

5. Click the Cost/Price icon to view the task price. The Task Cost and Price page appears displaying the estimated and actual task prices.

6. On the Visit Cost and Price page, click Maintenance Requirements link. The Search Maintenance Requirement page appears, displaying the list of MRs associated with the visit.

7. Click the Cost/Price icon for the MR price that you want to view. The Maintenance Requirement Cost and Price page appears.

8. Click the Items without Price button to view a list of the items not defined in the price list, for a task, MR or visit. The Items Without Price page appears.

   You can take a snapshot of the task, MR, or visit price by clicking Price Snapshot in the Visit Cost and Price page.

   Note: The profit and loss information is displayed only when both

the cost and price have been calculated for a visit.

Closing a Visit

Once you have completed the maintenance visit and implementing any required changes, you can close the maintenance visit record.

To close a visit:

1. Navigate to the Search Visit page and enter the visit that you want to close.

   Note: You can only close visits with an Implemented status.

2. Click the Visit Number link to navigate to the Update Visit page.

3. Choose the Close option from the drop down list and click the Go button.

   The Close Visit page opens.

4. The Visit Close Warning for Open POs profile option controls whether a warning will display if there any purchase orders with an unfulfilled quantity related to a visit task before the visit can be closed.

   See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul Implementation Guide* for more information.

5. In the Signoff Information region, verify if the check boxes for signoff are selected.

6. Select or clear the Overwrite Workorder Completion Dates check box.

   This option enables users to override the work order completion dates in the Visit and MR Signoff UIs.

7. Click the Apply button to close the visit permanently.

12

Material Marshalling

Overview

The aerospace, defense, and transportation industries need to maintain complex configurative and regulated equipment systems at optimum service levels. The Marshalling functionality of Oracle Complex Maintenance, Repair, and Overhaul (CMRO) enables maintenance, repair, and overhaul organizations to define, plan, and execute the reassembly of various parts specific to engine shops.

This chapter discusses the key functions supported by the CMRO Material Marshalling module, including the following:

- Setting up Material Marshalling, page 12-2

- Searching for a Visit using the Marshalling Workbench, page 12-3

- Viewing Visit Configuration using the Marshalling Workbench, page 12-3

- Viewing required item details per position, page 12-4

- Viewing available item details per position, page 12-5

- Viewing unavailable item details per position, page 12-6

- Viewing work order progress per position, page 12-7

Marshalling the Engine Shop

The Material Marshalling module consists of the planning and grouping of worn-out, reconditioned, and new materials for constructing complex assemblies, such as aircraft engines. In an engine overhaul shop, once you initiate the tear down, a large number of parts are released from assemblies and subassemblies that comprise a single working engine. Some parts are replaced with new parts, some parts are inspected and reused,

while others are repaired and reused. Marshalling is the process of organizing these parts and then planning for their use in reassembly.

Key Business Processes

The CMRO Material marshalling module supports the following business processes:

Creating and Managing a Marshalling Area

A marshalling area is created to enable the users to easily transfer the materials for an upcoming visit. This marshalling area acts as the staging area for a visit. The user can then stage all expected materials in this area, including specific work orders and material requirements.

Monitoring the Marshalling Area

Select a marshalling area to monitor and view the following information:

- Units using the marshalling area and their assembly status.

- The material requirements and their associated jobs.

- The materials staged for installation.

- Open positions on the unit and the needed parts.

Requesting Required Materials

The requisition for materials begins when the user identifies a missing part required to fill a unit's position. If users are unable to locate the part for transfer from other inventory organizations, they make a request, which alerts the material planner. The material planner takes the necessary steps to acquire the part, and after it is received, it is automatically transferred into the correct marshalling area.

Viewing Visit Status

Users can view a unit, its related visits, and the status of each visit. To view a visit's status, users search for the specific unit. The unit is displayed with the installed, missing, and staged parts that qualify for installation. Related visits and jobs are also displayed with progress meters.

Setting Up Material Marshalling

The marshalling area for staging parts is created using the existing CMRO setup. You create Marshalling areas using subinventory and locator associations, which can be accessed by navigating to the CMRO Administration responsibility, Department Location tab. When you create each visit, you then link the associated subinventory and locator, which creates the marshalling area.

For information to set up a department location, see Creating Department Locations, page 20-2.

Searching for a Visit Using the Marshalling Workbench

A visit is the process of organizing maintenance tasks for a unit based on unit availability and forecasted maintenance requirement due dates. The Marshalling Workbench enables you to search a visit using the criteria such as visit number, visit start date, and visit end date.

To search for a visit using the Marshalling Workbench:

1. Navigate to the Marshalling Workbench page.

2. Enter any of the following search criteria:

   - Visit Number: Select a visit from the list in an Implemented or Partially Implemented status.

   - Unit: Select the unit that you want to use.

   - Visit Status: Closed, Implemented, and Partially Implemented visits are displayed.

   - Organization: Select the value associated to the visit.

   - Department: Select the value associated to the visit.

   - Sub Inventory: The name of the marshalling area for the visit.

   - Locator: The marshalling area for visit.

   - Start Date: The first day of the visit.

   - End Date: The last day of the visit.

3. Click the Go button to view the visits that meet your search criteria.

Viewing Visit Configurations Using the Marshalling Workbench

The Material Marshalling page enables you to view the details of a visit. The Marshalling Workbench displays marshalling details related to each position in the configuration. The visit configuration is displayed in an H-grid format that is expandable down to each position level. After retrieving a visit, you can view its progress visually, the percentage of completed work orders, and the status of the visit.

To view a visit configuration using the Marshalling Workbench:

1. Navigate to the Marshalling Workbench page.

2. Retrieve the visit using search criteria to view the details. The visit details appear in

the Results region of the page.

3. Click the Details icon. The Visit Details page appears and you can view the Visit configuration.

4. You can monitor the status of the configuration in the visit by viewing the column results. The following information appears in the Unit Configuration Details region:

- Focus: Enables you to move the row to the top of the page.

- Position: Displays the position name for the unit master configuration.

- Allowed Quantity: Displays the unit position's required quantity.

- Installed Quantity: Displays the unit position's current installed quantity.

- Required Items: Displays the total number of required items, as work order material requirements.

- Issued Items: Displays the total number of items issued to the work orders that are associated to item instances installed in the unit position.

- Available Items: Displays the total number of items in a visit's subinventory and locator that meet the requirements displayed in the Required Items column.

- Not Available Items: Displays the total number of items still required to meet the requirements in the Required Items column.

- Work Orders Complete/Total: Displays the number of work orders that have been completed and the total number of work orders for the visit.

Viewing Required Item Details Per Position

Use the Visit Details page in the Marshalling Workbench to view the total required materials for a position and all of its child positions.

To view required item details:

1. Navigate to the Marshalling Workbench page.

2. Query for the visit.

3. Click the Details icon in the Results region to navigate to the Visit Details page.

The Required Items column displays the total number of required materials as work order material requirements. This total includes the position and all of the child positions. These required items are indirectly associated to positions through work

order item instances in the unit.

Viewing Available Item Details Per Position

You can drill down to the Available Items details from the Visit Details page. The available items represents the total number of items in a visit's subinventory and locator that meet the requirements in the Required Items column. The Available Items quantity includes the position and all of its child positions.

To view available item details:

1. Navigate to the Visit Details page.

2. Click the Available Items Quantity link.

The Available Items page displays the required items in a subinventory and the items that will meet the requirements. These items are located in other work orders within the same visit. This page also enables you to issue items to the work order from the subinventory. In addition, you can issue items from another work order to the work order with the requirement.

Issuing Materials from the Visit Subinventory

You can view the materials available in the visit subinventory and other work orders in the visit. Using the Available Items page, you can transact these materials to the context work order.

To issue materials from the visit subinventory:

1. Select the Required Item check box for the items for which you want to issue materials.

2. Enter the following in the Issue Details region:

   • Sub Inventory: The visit subinventory.

   • Locator: The locator of the default visit subinventory.

   • Transaction Date: The material issue date.

   • Serial/Quantity: Quantity required for serial number specific materials.

   • Lot Revision: The revision associated with the lot, if applicable.

3. Click Issue.

The confirmation page shows that the material has been issued to the work order. The Issued Items field matches the number of items issued to the work order. This confirms that the materials have been issued successfully.

Viewing Unavailable Item Details Per Position

Unavailable materials are those materials that are required by a work order requirement, but are not available in the visit subinventory. The unavailable materials in a visit appear as a single total. This total represents the required materials for a position including all of its child positions.

To view unavailable item details:

1. Navigate to the Visit Details page.

2. Click the Not Available Items quantity link to navigate to the Unavailable Items page.

The Unavailable Items page displays the items not available for the selected configuration position. This page enables you to locate, view, and issue materials from alternate subinventories. These materials must be transacted before the required date.

Issuing Materials from an Alternate Subinventory

The Unavailable Items page enables you to locate subinventories that have required materials. You can issue those materials to the current work order. Additionally, you can identify the materials not available in any subinventory and make alternative arrangements to secure them.

To issue materials from an alternate subinventory:

1. Retrieve the appropriate visit and access the Unavailable Items page.

2. Select the item for which you want to view the unavailable items and click the Show button.

3. Enter information such as:

   - Sub Inventory: Lists the inventories other than the visit subinventory.

   - Locator: The locator values based on the selected subinventory.

   - Transaction Date: The material issue date.

   - Serial/Quantity: The applicable quantity for serial number specific materials. You can select a serial number for the item selected.

     > **Note:** When the selected item is a non serial item, the serial number LOV is disabled. However, you can manually enter the quantity.

   - Lot Revision: Defaults from the serial number details.

4. Click the Issue button.

The confirmation page displays the material that has been issued to the work order. Note that quantity in the Issued Items field has increased confirming that the materials have been successfully issued.

Viewing Work Order Progress Per Position

The work orders in a visit appear as totals. These totals are shown as the number completed versus the total number of work orders. It represents the total required materials for a position and all of its child positions.

To view work order progress per position:

1. Navigate to the Visit Details page.

   The Work Orders Complete/Total represents the total number of work orders associated to the item in a position and all of its child positions.

For more details, please see: Viewing Visit Configuration Using the Marshalling Workbench, page 12-3.

13

Managing Planning

This chapter covers the following topics:

- Overview
- Finding Scheduled and Unscheduled Visits
- Scheduling a Visit
- Assigning Spaces to a Visit
- Material Demand Planning and Scheduling
- Reliability Planning
- Supply Chain Planning
- Checking the Material Schedule
- Checking Material Availability
- Serial Number Reservation
- Managing Simulation Plans
- Creating a New Simulation Plan
- Adding Visits to a Simulation Plan
- Setting a Simulation Plan as a Primary Plan
- Copying a Visit to a New Simulation Plan
- Running Resource Leveling Plans

Overview

The Oracle CMRO Planning module maximizes maintenance scheduling by balancing maintenance requirements with available maintenance capacity. It enables you to simulate a visit or sequence of visit combinations to find the optimal maintenance visit schedule.

Key functions supported by the Planning module provide essential tasks for planning the long term maintenance needs of fleet units. See:

- Finding Scheduled and Unscheduled Visits, page 13-4

- Assessing a Work Schedule, page 13-4

- Scheduling a Visit, page 13-6

- Assigning Spaces to a Visit, page 13-9

- Material Demand Planning and Scheduling, page 13-10

- Checking Material Availability, page 13-21

- Checking the Material Schedule, page 13-20

- Managing Simulation Plans, page 13-25

- Creating a New Simulation Plan, page 13-26

- Adding Visits to a Simulation Plan, page 13-26

- Setting a Simulation Plan as Primary, page 13-27

- Copying a Visit to a New Simulation Plan, page 13-28

- Running Resource Leveling Plans, page 13-28

Planning Module

The Planning module is used by a maintenance planner to schedule maintenance visits based on the optimal use of capable maintenance facilities, available resources and material constraints. The maintenance planner using the Planning module can make a complete assessment of the maintenance resources available at all maintenance locations. The maintenance planner makes an assessment by balancing visits created for forecasted maintenance requirement information from the unit maintenance plan against projected maintenance capacity. The maintenance planner schedules maintenance visits, assesses capacity and reserves required materials.

Key Business Processes

Create a Visit

A visit is created in the Visit Work Package module and is a group of events created by the maintenance planner comprised of selected maintenance requirements and associated routes, with projected compliance times based the unit's forecasted operational times defined in the Unit Maintenance Plan module or directly from the

Fleet Maintenance Program. This visit is used to group events together for long and short term capacity planning, and to facilitate scheduling to a maintenance base. Visits are used for production through the Visit Work Package and Production Planning. Creation of a maintenance visit consists of selecting and creating tasks for maintenance requirements and associated routes, and projecting compliance times based on the unit's forecasted operational times.

Define a Visit's Resource Requirements

Maintenance visit resource requirements must be defined to enable accurate scheduling and capacity planning. Visit resource requirements are based on the maintenance requirement's associated routes - which are created in Route Management - and the man hour requirements by skill, skill level and certification, required tooling, required materials, duration and required completion times as defined by the unit maintenance plan.

Schedule a Visit

After a visit has been created, it must be scheduled at a maintenance facility. Availability to perform the visit is based on currently scheduled visits, material constraints, and the forecast resources of the maintenance facility. The visit start time is set by considering due dates calculated for maintenance requirements by the unit maintenance plan. Required materials are reserved and the maintenance planner can determine if capacity is exceeded or does not fulfill requirements.

Schedule Required Materials

 After a visit has been created and scheduled to a capable maintenance facility, the associated material requirements are factored into the supply chain plan through Oracle's Advanced Supply Chain Planning. The visit's required materials, defined through the routes associated to each task, are scheduled based on the start date and time of each task for the applicable organization. The Planning tab provides the planner with the functionality to identify any schedule conflicts, and if the required materials will not be available by the start date of the applicable visit task. Alternate items for these requirements may be selected and scheduled, or the planner may make scheduling changes to ensure that the materials will be available by the start of the associated work order.

Capacity Versus Work Load Requirements

You can compare resource capacity versus resources required for the projected workload, which is an essential tool for accurate scheduling and planning and ensures that available resources are used as efficiently as possible. This is accomplished through the Resource Leveling feature of the Planning module. To derive the optimal schedule, you must have the ability to adjust visit schedules, change maintenance locations, and remove and add visit requirements.

Simulations

The simulation function works with both the scheduling and resource leveling functions of the Planning module. This enables the user to test different scheduling scenarios without changing the original visits. Visits can be copied into a simulation

plan and their schedule or structure changed. After evaluating these visits, and considering schedule and resource consumption, the changes can be implemented for the entire simulation plan, or for individual visits within the plan.

Finding Scheduled and Unscheduled Visits

The Search Visit page enables you to search and view all maintenance visits regardless of their status.

To find a visit:

1. Navigate to the Search Visits page (Planning > Visit Work Package > Visits).

   You can view all primary visits, scheduled and unscheduled. This includes visits that need to be associated to an item (model) or serial number, all visits of a certain visit type, all visits due during a defined period, or all visits associated to an organization and department.

2. Select values in the applicable fields:

   - Organization

   - Department

   - Item

   - Due From, Due To: These two attributes enable the user to filter the displayed visits based on when a visit is due.

   - Start From, Start To: The date of the first day of effectivity of an operation.

   - Display Only: Used to filter displayed visits by Scheduled, Unscheduled, or Visits with conflicting end dates. This field is empty by default. A visit is considered scheduled if its start date is defined and it is associated with a department and organization. Visits not assigned to any organization and/or department and with no Start Date are Unscheduled Visits. Conflicting visits are visits whose Derived End Date is greater than it's Planned End Date.

   - Visit Type: Defines what kind of maintenance visit is required, such as C-Check, D-Check, Preflight. The types are user defined. This allows maintenance to be classified into categories. Larger visits can include many different maintenance requirements, but can still be grouped together under one visit type.

   - Visit Number

3. Click the Go button to view the results.
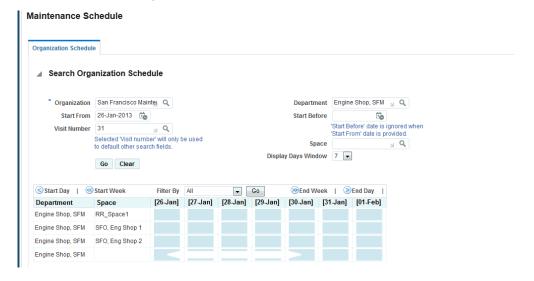
4. Choose Visits with Confliction End Dates from the Display Only drop-down menu to search for a visit, in production or in planning stage, whose derived end date has exceeded the manually defined planned end date.

5. Click the Go button.

6. Manually adjust the planned end date in the Schedule Visit page, if necessary. See Scheduling a Visit, page 13-6.
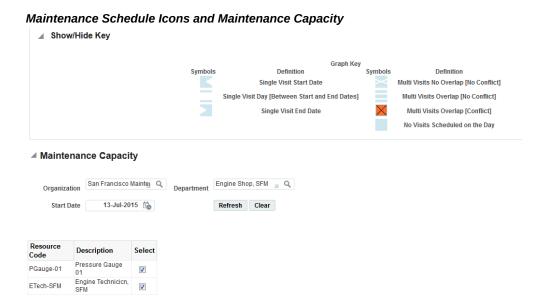
Assessing a work schedule:

CMRO Planning enables quick identification of the workload for a maintenance base. This assessment identifies the current scheduled visits at an organization's capable department and spaces for a given maintenance visit.

To assess a work schedule:

1. Retrieve the visit that you want to view.

2. Select Schedule and then click Go to navigate to the Maintenance Schedule page.

3. Enter the schedule information in the applicable fields.

4. Click the Go button to view the results based on your selection criteria. The schedule is indicated by icons.

Maintenance Schedule Icons and Maintenance Capacity

Scheduling a Visit

The Planning module enables maintenance organizations to schedule visits, which can be created specifically for a maintenance requirement. An empty visit can be created and associated to requirements at a later time.

> **Note:** You can also schedule a maintenance requirement more than once to the same instance in a single maintenance visit.

Prerequisites
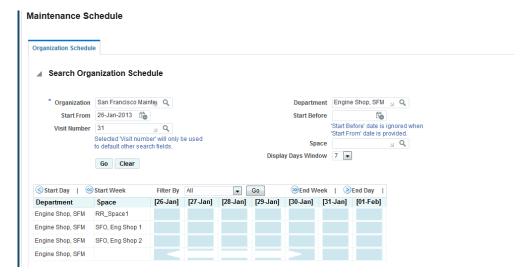
❒ The visit to be scheduled must exist in the database.

To schedule a visit:

1. Navigate to the Search Visits page (Planning > Visit Work Package > Visits).

2. Select the visit that you want to schedule. The visit cannot have a status of Draft to be scheduled.

   If the status is Draft, you must first select Plan Visit and then click Go. The status is changed to Planning, and it can then be scheduled.

3. Select Schedule in the Select Visit action list; click Go.

4. Select information in the following fields.

This page enables you to assign a visit to an organization and department. You also must define its start date. All three of these attributes must be assigned to define a visit as scheduled. After a visit has been scheduled, spaces can be assigned and Planning's resource leveling functionality can be used. You can also reschedule a visit from this page if it is in the Planning status.

- Visit Number: All maintenance visits are assigned a unique visit number. All visit numbers for all visits that have been created are available for selection.

- Duration: The total length of the visit in days. The duration is the sum total of the durations of the associated visit tasks. Maintenance visits can be any length, from an hour to an unlimited number of days.

- Visit Type: Type that enables maintenance to be classified into categories. Some of the larger visits, like a D-Check, will often include many different maintenance requirements, but can still be grouped together under one visit type.

- Due By: The due date of a visit defined by the associated maintenance requirements from the unit maintenance plan. The maintenance requirements are associated to the visit's tasks.

- Item: Item to which the visit is associated. All visits must be associated with an item.

- Unit: Serial number of a specific item.

- Simulation Plan: The visit in the simulation plan or a visit in the primary plan. When using the Search Visits page, the visit will always be part if the primary

plan. When using the View Simulation Plan page, the value is defined by the retrieved plan.

- Organization

- Department

- Start Date

- Planned End Date

- Planned End Time

- Service Category

You can also adjust the planned end date for a visit with conflicting planned and derived end dates.

You can schedule and reschedule a visit while viewing current visit details in the Scheduled Visits page. You can search for availability periods using various search criteria.

5. Click the Apply button to save your work.

To schedule and reschedule visits:

1. Navigate to the Scheduled Visits page to view details for a currently scheduled visit number.

2. Enter information in the applicable fields and click the Go button. The schedule details appear.

3. Click the intersecting icon, between the start date and corresponding department or space, to schedule the visit to the applicable organization, department and space. The Schedule Visit page appears.

4. Enter the schedule details, and click the Apply button to save your work.

5. To reschedule a visit, select the icon for the visit in the results table. Make the necessary changes, and click Apply.

6. Optionally, assign spaces. See: Assigning Spaces to a Visit, page 13-9. The space information is carried over to the Schedule Visit page for assignment.

7. Click the View icon for the row to view the visit details assigned to a department or space. The View Details page displays the department and all scheduled visits starting during the previously defined period.

The Additional Spaces Assigned column indicates whether or not additional spaces are assigned to the visits.

8. To return to the Scheduled Visits page, select the visit and click the Schedule button.

To unschedule a maintenance visit:

1. Retrieve the visit that you want to remove from the schedule.

2. Select Unschedule.

   The visit is removed from the schedule and no longer appears in the Visits results. The organization, department, start date and any associated spaces are removed from the visit.

To view scheduled visit details:

1. Retrieve the visit that you want to view.

2. Click the Plan Visit link. The Schedule Visit page appears, displaying the currently scheduled visits for the relevant visit number.

Assigning Spaces to a Visit

Planning uses spaces to assign locations to the maintenance work required during a visit. One or more spaces may be assigned to a visit.

Prerequisites

❒ A visit must be exist in the database, and it must be scheduled.

❒ A space must exist in the database.

To assign spaces to a visit:

1. Use the Schedule Visit page to retrieve that visit to which you want to assign a space. Click the Plan Visit link.

   The Schedule Visit page appears. The Assigned Spaces information is displayed in the lower half of the page.

2. Click the Add More Rows button, and add information in the provided fields.

3. Select a value in the Space field.

4. Select Apply to save your work.

Material Demand Planning and Scheduling

The integration between Oracle CMRO and Oracle Advanced Supply Chain Planning (ASCP) provides comprehensive material planning, scheduling and rescheduling capabilities. Planners have complete visibility into forecasted, planned, and unplanned material requirements. You can plan materials well in advance to accommodate fluctuations in demand and supply for both planned and unplanned material requirements. You can also maintain optimum stock to meet specific service levels under the defined inventory budget constraints. The ASCP integration includes the following:

- **Material Demand Planning** - Material demand arises out of the planned maintenance requirements forecasted by the Unit Maintenance Plan (UMP), which defines when they must be accomplished.

  This forecast is based on the utilization of the applicable units. The material demand for all planned maintenance requirements in UMP is automatically stored each time the utilization forecast is updated or the build unit effectivities process is run. The replace and rework percentages defined in the disposition lists and the material requirements defined for the routes are factors influencing material demand. Material demand associated to unplanned, non-routine maintenance requirements is discovered during the production phase. Additionally, unplanned demand can be predicted based on the historical demand for each organization. This unplanned demand can be refined based on the historical relationship between the planned maintenance requirements, associated units and the unplanned material requirements.

Demand Planning collects these material requirements, factors them into the global demand, and feeds the global demand to Inventory Planning and SCP.

The forecast or demand variability along with the supply variability (such as supplier capacity and lead-times) is then used to specify time phased safety stock recommendations for the supply chain.

- **Supply Chain Planning** - After the planned maintenance requirements have been associated with a visit work package and scheduled to capable maintenance facilities, the required materials are scheduled through Oracle Advanced Supply Chain Planning.

  The APS will first net the existing supplies, and then generate planned orders to procure the required materials.

Material Demand Planning:

The three primary material streams into the ASCP engine are:

- Global material demand from forecasted maintenance requirements.

- Scheduled maintenance requirements.

- Historical non-routine material requirements.

Demand Planning factors the required materials into global material demand, and pushes it into Inventory Planning where the supply and demand variability is considered to compute safety stocks at all locations. Demand plans created in the process, provide visibility into the upcoming material requirements long before the applicable maintenance is scheduled to a facility.

Demand Planning includes the following procedures.

Create demand plans:

1. Navigate to the Demand Plans window in Oracle Demantra.

2. Create a demand plan. See: Procedure to Define a Demand Plan, *Oracle Demand Planning User's and Implementation Guide*

   You must define the following Input Parameters:

   - Material Requirements - Scheduled

   - Material Usage History - Unplanned

   - Material Usage History - Planned

   - Material Requirements - Planned

   These streams consider global demand from UMP, scheduled requirements in Planning and historical requirements from non-routine maintenance defined during the production process.

Run data collections:

1. Navigate to the Custom Stream Collection window in Oracle Demantra.

2. Select the CMRO streams, and run collections.

   See: Procedure for Collecting Data, *Oracle Demand Planning User's and Implementation Guide*. This process collects the material requirements from CMRO and includes the information in the demand plans.

Build demand plans:

Once a demand plan has been defined in the Demantra server, you build the demand plan in the Demantra Engine. This process builds the Demantra databases, and downloads data from the Demantra server to these databases.

1. Navigate to Demand Plan Administration in Oracle Demantra, and a list of demand

plans appears.

2. Select the demand plan that you want to work with, and build it. See: Building a New Demand Plan, *Oracle Demand Planning User's and Implementation Guide*.

Reliability Planning

Reliability Planning enables you to reduce inventory levels at maintenance facilities and transient stations. This functionality provides forecast capabilities for non-routine items, based on identified failure probabilities, using the Supply Chain Planning engine. You can avoid costly interruptions to flight schedules if the correct parts are available, and also avoid situations of overstocking inventory by providing a query to analyze the reliability of rotable parts.

Reliability Planning functionality uses historic part change reports and identifies failure probabilities. Earlier inspections and possible item replacements at more opportune times can reduce unplanned maintenance and associated costs. Historic calculations use standards such as part and age. For example, if a standard engine requires an overhaul every 8000 hours under certain operational conditions, but historical data shows it is actually closer to every 7500 hours, the future performance is compared to the standard. You can then determine if the proposed action should be used for the overall maintenance. Reliability Planning includes the following features:

- Calculation of historical information used for predicted failure rate of installed components. Anticipated failure rates of installed components are identified in configuration positions within a unit.

- Manual calculation of predicted failure rate of components when historical data is not available. You can manually identify the Mean Time Between Failure (MTBF) for applicable items.

- Creation of material demand for anticipated part changes based on a utilization schedule. Based on identified failure rates and the projected flight schedule of units, material demand is identified at locations. This demand is factored into planning with the associated probability failure rates.

Reliability Planning is set up in Oracle Inventory, Oracle Planning, and in Complex Maintenance Repair and Overhaul's Administration mode. The Reliability tabbed region in the Administration mode is used to:

- Define conditions for data included, and codes for removing the data for analysis and reporting.

- Define counters for tracking the usage of installed parts.

- Associate the applicable forecast sets and define associated planning probabilities.

- Define manual reliability definitions.

- Generate the Submit Request function for the Reliability Analyzer Process.

- View the history of transactions for items and configurations, and export the data for reporting.

Prerequisites

❑ Create planning forecasts for each organization for the applicable probability range.
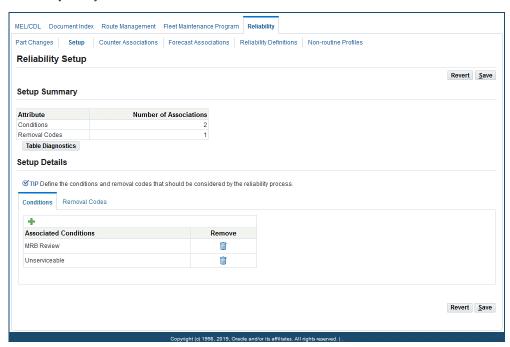
To view and define conditions and removal codes for Reliability Planning:

1. Navigate to the Reliability Setup page.

   The Setup Summary region displays the conditions and removal codes, and the number of records associated with each attribute.

   The Setup Details region is used to add or delete condition and removal codes.

2. In the Setup Details region, click the Conditions tab to view the conditions set for reliability analysis.
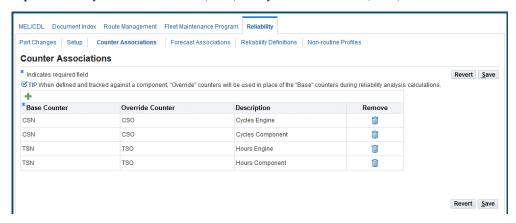
3. Click the Add Another Row button to add a condition.

4. Select a value and click the Select button to refresh the Reliability Setup page with the new record.

5. Click the Removal Codes tab to view the codes to remove the condition in the reliability analysis.

6. Click the Add Another Row button to add a removal code.

7. Select a value and click the Select button to refresh the Reliability Setup page with the new record.

8. Save your work.

To view and define base and override counter associations:

1. Navigate to the Counter Associations page to display base and override counters.

2. Click the Add Another Row button to add records. Select a value in the Base Counter field.

   Counters track usage, for example, each time an engine is started counts as one cycle. Base counters represent the total hours or cycles on a part, usually represented by Time Since New (TSN) or Cycles Since New (CSN).
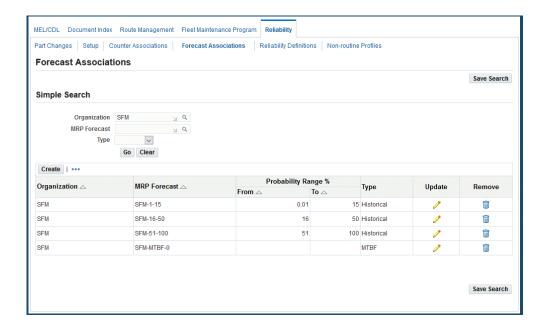
3. Click the Search icon next to the Override Counter field, and select a value from the Search and Select page.

   Override counters are used to factor in a more accurate time component in the reliability analysis. For example, when a part is overhauled, time is more accurately represented by the Time Since Overhaul (TSO), but for accountability purposes, the TSN counter is tracked.

4. Enter a counter description for the override counter, for example, hours, cycles or formula.

5. Save your work.

To view planning forecasts associated with probability rates:

1. Navigate to the Forecast Associations page.

2. You can search for forecasts associated with predicted failure rates by entering information in these fields:

    *   Organization

    *   MRP Forecast

    *   Type:
        *   Historical: Uses historical data for calculation

        *   MTBF (Mean Time Between Failure): Uses a manual figure for calculation

3. Click the Go button to display the results of your search.

To associate forecasts with reliability data:

1. Navigate to the Forecast Associations page, click the Create button, and the Create Forecast Associations page appears.

2. Select values in the Organization and Forecast Designator fields.

    The forecast designator is the planning forecast name.

3. Select a reliability planning type to be used for the calculation. Options are:

- Historical: Calculation of anticipated component failure using historical information.

- MTBF (Mean Time Between Failure): A manual calculation of predicted component failure.

4. Enter a percentage value in the Probability Failure Rate From and To fields.

These fields are used to determine which forecast is used to populate a material requirement. Reliability planning calculates the average life of an item, and predicts the probability of failure as the larger unit arrives at each service station. The requirements are added to the applicable forecast, identified by these two fields.

MEL/CDL	Document Index	Route Management	Fleet Maintenance Program	**Reliability**		
Part Changes	Setup	Counter Associations	**Forecast Associations**	Reliability Definitions	Non-routine Profiles	

Create Forecast Association

* Indicates required field   Cancel   Apply

                              * Organization   SFM
                       * Forecast Designator   SFM-1-10
                                       Type   Historical
             Probability Failure Rate - From
               Probability Failure Rate - To

TIP Please note that a 100% upper Probability Failure Rate limit is always taken into consideration inclusively.

                                                                            Diagnostic Console

                                                                              Cancel   Apply

5. Click the Apply button to save your work.

Some failure rates are manually defined when an item is new and has no historical data attached it. Once there is historical data, you can delete this information. For the MTBF flow, you define known average failure rates for items in a specific position within a configuration.
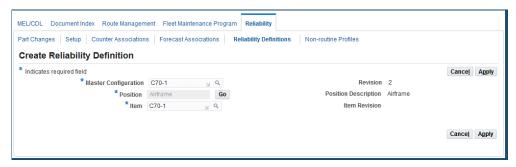
To view or define manual reliability definitions:

1. Navigate to the Reliability Definitions page.

2. Enter values in the following fields to retrieve master configuration details:

- Master Configuration

- Position

- Revision

- Item Number

The results of your search appear in the Master Configuration Details region.

3. Select the Remove check box to delete the records that have accumulated historical data and that longer require manual definition.

4. Click the Create button to create new definitions.
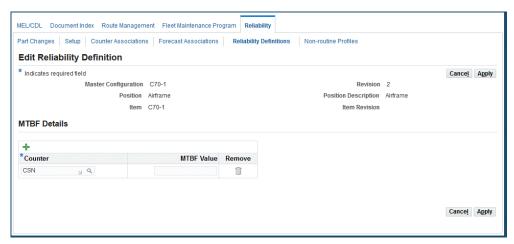
   he Create Reliability Definition page appears.

5. Select a value in the Master Configuration field.

6. Click the Go button next to the Position field. See: Select Position Page, page 3-23

7. Select a position and click the Associate button to add this record to the reliability definition.

   The Edit Reliability Definition page appears.

8. In the MTBF Details region, choose Add Another Row to enter counter and MTBF definitions.

9. Click the Search icon next to the Counters field, and select a counter value.

10. Enter a value in the MTBF field.

    This is the average failure rate for the item in this specific position, within a

configuration.

11. Click the Apply button to save your work.

The last step in the Reliability Planning analysis is running the Reliability Analyzer Process. The reliability process identifies the probability of component failures. This information is used for material requirements in applicable planning forecasts.

To run the Reliability Analyzer Process for a defined period:

1. Navigate to the Submit Requests window.
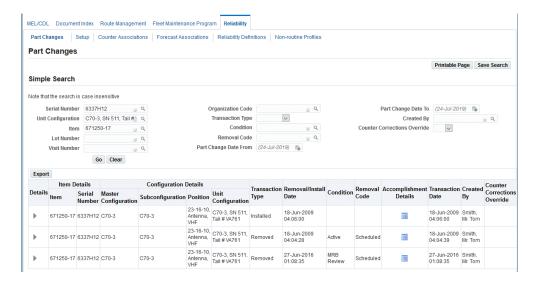
2. Select the Reliability Analyzer Process value in the program Name field.

3. Select a date range in the Parameters field.

4. Select the other information needed run this process.

   See: Submitting a Request, *Oracle E-Business Suite User's Guide*

5. Click the Submit button to generate this concurrent request.

Viewing Historic Part Changes:

Part change transactions can be viewed and used in planning calculations. A summary of the part change transactions appears on the Part Changes page. This information can be exported to other reporting programs.

To view historic part changes

1. Navigate to the Part Changes page.

2. Enter values in these search fields:

   • Serial Number

   • Unit Configuration

   • Item

   • Lot Number

   • Visit Number

   • Organization Code

   • Transaction Type

3. Click the Go button to display the results of your search.

The Part Changes page appears where you can view the information such as the serial number, lot number, master configuration, sub-configuration, position, unit configuration, transaction type, date, visit number and name, work order, organization, condition, and removal code.

4. Click the Export button to export the results to another document program.

Supply Chain Planning

When forecasted, routine, or non-routine maintenance requirements are scheduled to an organization through a visit, the associated material requirements are automatically picked up through the Oracle Advanced Supply Chain Planning (ASCP) collection process. The required materials are pegged against the applicable visit and task. Material requirements associated with the scheduled visits then appear in the Scheduled Materials page as scheduled. Scheduled materials are then removed from the global demand defined for planned MRs to ensure that the requirements are not counted twice by the planning engine.

The scheduled dates and quantities appear on the Scheduled Materials page. The collection process also returns exception dates, that is, the dates on which the material is required but will not be available. If the scheduled date or the scheduled quantity for a particular material requirement is unsatisfactory, the maintenance planner can select alternate items, and schedule the items using the same process.

The planner then creates an ASCP Plan to process the net existing supplies and generate planned orders. Material demand is reflected as a sales order in ASCP. The sales order number is displayed as a concatenated visit number, task number and Complex MRO, (such as 100.2.Complex MRO). When the sales order is released, the scheduled date and scheduled quantity are automatically updated.

Supply Chain Planning involves the following processes:

Create a supply chain plan:

1. Navigate to the Supply Chain Plans window in Oracle Advanced Supply Chain Planning.

2. Create a supply chain plan and set it to ATP enabled. See: Creating a Supply Chain Plan, *Oracle Advanced Supply Chain Planning Implementation and User's Guide*

Run data collections:

1. Navigate to the Planning Data Collection concurrent program in Oracle Advanced Supply Chain Planning.

2. In the Parameters field for the Planning Data process, the following two parameters must be set up to collect data from Oracle CMRO:

   • Select the applicable CMRO instance from the Instance list of values.

   • Select Yes for Sales Orders.

   This ensures that the material requirements from CMRO are collected as sales orders for the correct organization and instance. See: Running Standard Collections, *Oracle Advanced Supply Chain Planning Implementation and User's Guide*

3. Generate the plan.

Checking the Material Schedule

The CMRO Planning module provides the ability to check the material schedule to assess available material resources. When a visit is planned, materials are automatically scheduled. The scheduled materials appear on the Scheduled Materials page. The ASCP collections process can run on a regular basis to collect the requirements and provide exception dates if the material will not be available by the required date. When a conflict exists between a maintenance visit and the associated material schedule, the planner can select alternate items or reschedule the applicable visit, tasks within a visit, or maintenance requirements.

Prerequisites

❒ Disposition lists must be defined in Route Management and tasks must be associated with the routes.

To check the material schedule:

1. Navigate to the Schedule Visit page, and click the Scheduled Materials link.

The Scheduled Materials page appears displaying information about the materials scheduled for the visit. The scheduled date and quantity appears for each scheduled material requirement. The Item Description column enables the planner to identify the correct material requirement when the item number is not sufficient.

Items defined with a 100% replacement percentage in the associated disposition list are automatically planned and scheduled by ASCP. Items defined as material requirements in Route Management are assumed to be 100 % replacement items. Planners must manually specify the quantity to be scheduled for replacement items with a quantity less than 100%. Only scheduled items will be defined as material requirements in the work orders.

2. To manually check for exception dates when collections have not run, select Schedule Conflicts from the Display Only drop-down menu.

3. Click the **Go** button.

The exception dates appear in the Materials table.

4. Optionally, you can retrieve and plan materials using the following search criteria:

- Enter a task and an item to search for material requirements for a specific task or item.

- Enter a value in the Replace % or Rework % fields to search for materials by a disposition percentage.

  These percentages indicate the probability of the materials being required when executing the task.

5. Click the **Go** button to display results matching the search criteria.

6. Select an Item value to replace the item that appears in the Materials list.

For a sub-configuration or position, the installed item is automatically selected to be planned. When no item is installed, the planning engine picks up the alternates defined based on priority.

7. Enter a value in the Scheduled Quantity field.

8. Click the Apply button to save your work.

Click the Cancel button to return to the previous page.

Checking Material Availability

The CMRO Planning module provides the ability to check the availability of materials for task starting time and location through Oracle Available to Promise. The ASCP collection runs periodically to automatically schedule materials, when visits are

assigned to organizations. Alternatively, maintenance planners can also manually schedule materials using the Material Availability page.

Prerequisites

❐ The material requirements must be defined in Route Management and tasks must be associated to the routes.

To check material availability:

1. Navigate to the Schedule Visit page, and click the Material Availability link.

   The Material Availability page appears.

   You can also use the filter to search material requirements by the department that is associated to the route or operation's associated task.

2. Select the appropriate material requirement and click the Schedule Materials button to schedule materials, based on the current material supply for the organization.

   The applicable requirements are passed through ATP and scheduled into the correct ASCP plan. Optionally, you can click the Schedule Materials for All button to schedule all the materials in the visit.

   > **Note:** This feature enables the maintenance planner to manually initiate the scheduling process, and determine any conflicts between the available quantities and the required quantities. This may be required for visits that have been recently scheduled or rescheduled, or when additional maintenance requirements have been associated with a visit.

3. To check availability for all the materials, click Check Availability For All.

   Optionally, to check material availability for one material requirement at a time, select an item, and click the Availability button. A warning message appears if the material will not be available by the required date.

4. Select Cancel to return to the previous page.

Serial Number Reservation

Oracle CMRO integrated with the Oracle Inventory serial number reservation functionality, enabling you to select a serialized item and reserve it for a specific task in a visit. Only serial controlled items can be reserved. You can select items to reserve using associated conditions and counter values. This is used to reduce aircraft down times and increase the life expectancy of subcomponents by providing a method to track the usage of installed parts.

This integration provides a global view of material requirements across maintenance visits. You can identify material availability at the required location and for a specific date. You can search for requirements by exception dates to identify material shortages. This integration also enables you to identify when materials are not available at the required location and date.

After you have reserved serialized items, the last step in the process is to issue the items to the production work orders.

Prerequisites

❑ The serial number reservation functionality is set up in Oracle Inventory.

To search for material requirement information:

1. Navigate to the Material Requirements page.

2. You can search for records using the following fields:

    • Organization

    • Visit Number

    • Required Item

    • Required From and To Dates

    • Maximum Rework %

    • Maximum Replace %

    • Visit Status

    • Visit Type

    • Task Number

    • Work Order Number

3. You can also specify if you want filter your search for reservations and exception dates by selecting the following check boxes:

    • View only requirements with reservations

    • View only requirements with exception dates

4. Click the Go button to display the results of your search in the Select Material Requirement region.

The Material Requirement region provides a global view of all requirements. The Exception Date field enables you to easily identify material requirement shortages.

To view reserved items:

1. Navigate to the Material Requirements page and select a record.

2. Click the View Reserved Items button to display the Reserved Items page.
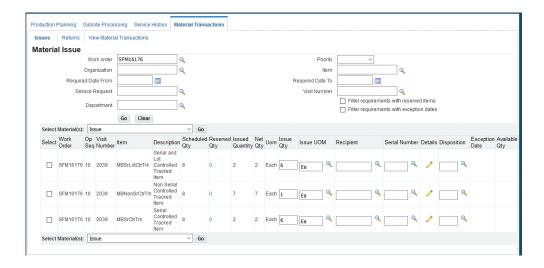
   The list of reserved items is displayed for each visit number. The visit number quantities are shown for required, scheduled, reserved, and completed items. Reserved items are displayed in table rows by item, serial number, organization, and subinventory.

To reserve items:

1. Select Reserve Items - either in the Material Requirements or Reserve Items page - to display the Reserve Items page.

2. In the Search region, you can query items to reserve by counter values and condition. Results of your query display in the details table rows.

3. Select the items that you want to reserve, and click the Apply button to save your work.

To issue reserved serialized items to applicable work orders:

1. Navigate to the Material Issue page, and search for the work order to issue serialized items.

2. In the Select Material region select your work order record, and the details for the issue transaction including Issue Quantity, Recipient, Serial Number, and Disposition.

3. Select Issue and then click the Go button.

Related Topics

Item Reservations, *Oracle Inventory User's Guide*

Setting Up Serial Number Control, *Oracle Inventory User's Guide*

Generating Serial Numbers, *Oracle Inventory User's Guide*

Assigning Serial Numbers, *Oracle Inventory User's Guide*

Managing Simulation Plans

An important function of CMRO Planning is to balance the resources of workload requirements versus maintenance base resource capacity. This is important for scheduling purposes, to assure that the available resources are used as efficiently as possible. Simulation plans enable you to compare various plans before implementing them to enable selection of the most efficient maintenance plan.

Related Topics

Creating a New Simulation Plan

Prerequisites

❒ There must be a primary plan in the database. At least one visit associated to the primary plan must exist in the database.

To create a new simulation plan:

1. Navigate to the Simulations Plan page.

2. Use the information in the following table to define a simulation plan.

Field	Description
Plan Name	All visits are associated with a simulation plan.
Primary Plan	Indicates whether or not the plan is set as the primary plan. When visits are created in the Visit Work Package, they are automatically included in the primary plan. Copies of these visits can then be added to other simulation plans. See: Setting a Simulation Plan as Primary, page 13-27
Number of Visits in Plan	Visits included in the specified plan.

3. Click the Add More Rows button to enter information in the provided fields.

4. Click the Delete button to delete a simulation plan.

   If the simulation plan is not the primary plan, it is deleted.

5. Click the Apply button to save your work.

Adding Visits to a Simulation Plan

Prerequisites

❒ A primary plan, a non-primary plan with a visit, and at least one visit associated to the primary plan must exist in the database.

To add a visit to a simulation plan:

1. Navigate to the Simulations Plan page.

2. Select the simulation plan that you want to add a visit. Click the View Plan to display the View Simulation Plan page.

3. Click the Add More Rows button to add several rows to the table.

4. Select values in the Visit Number and Item fields.

   The item refers to a model name - such as Boeing 747-200B - to which visit is associated. All visits must be associated to an item.

5. Select the type of maintenance visit is required. This enables maintenance to be classified into categories.

6. Select the serial number for the specific item.

7. Select the organization and department.

8. Select the Start Date for effectivity of this operation.

9. Click the Go button to save your work.

10. To delete a record, select the record and choose the Delete icon.

To view simulation plans:

1. Navigate to the Simulations Plan page.

   All simulation plans appear, showing the number of visits in the plan, and if the plan is set to primary. Plan names may be changed, but must remain unique.

2. Select the plan and click the View Plan button. The View Simulation Plan page appears, displaying the visit list.

Setting a Simulation Plan as a Primary Plan

To calculate maintenance requirement due dates:

1. Navigate to the Simulations Plan page.

2. Select the simulation plan you want to set as the primary plan.

3. Select Set Plan as Primary.

Copying a Visit to a New Simulation Plan

Prerequisites

❒ A primary plan with at least one visit and a simulated plan must exist in the database. Visits may only be added to non-primary plans.

To copy a visit to a new simulation plan:

1. Navigate to the Simulations Plan page.

2. Select a simulation plan and the View Simulation Plan page appears.

3. Click the button next to the visit that you want to copy, and click the Copy to a New Plan button. The Copy to a New Plan page appears.

   When a primary visit is copied to a simulation plan, the new visit inherits all the unit effectivity information association with the parent visit. You can view the applicable visit's due by date, derived from the associated unit effectivity.

4. Click the Apply button to save your work.

Running Resource Leveling Plans

CMRO Planning enables you to assess resources associated with the maintenance requirements of scheduled visits against the capacity of maintenance locations. Ideally, a certain percentage of maintenance capacity remains available for non routine maintenance needs. Resource leveling identifies shortages in your plan so that you can reschedule a visit or adjust it in the Visit Work Package to better manage the available resources. Running resource leveling on different simulation plans enables you to identify the best plan regarding resource capacity.

Resource leveling takes task level department assignments into consideration. Resource leveling enables you to filter and display only those required resources that exceed a defined level of capacity.

> **Note:** Resource leveling requires that the full set of procedures must now be run at the beginning of the process, as opposed to the previous function that drilled into each resource requirement before making these calculations. Enter a value in the Required Capacity field to set the reserve level.

The resource leveling process enables you to identify where a potential problem exists regarding conflicts or shortages in available resources. When planning visits, a scheduler must be able to leave a certain percentage of resources available in

anticipation of non-routine maintenance. If the planned requirements consume too much of these resources, the over plan must be changed by rescheduling entire visits, tasks within a visit or maintenance requirements associated with a visit. Setting a reserve with the Required Capacity field resolves this requirement. A resource's unused capacity is defined by summing the required units, subtracting these from the total number of applicable persons or machines defined for the appropriate department, and dividing that by the number of available units. Available units are the total number of persons or machines minus those that are not available due to existing work order assignments.

The results in resource leveling can be filtered to display only those required resources that exceed a defined level of capacity.

> **Note:** Resource leveling can only be done for one organization and simulation plan at a time.

To run resource leveling:

1. Navigate to the Resource Leveling page.

2. Enter values in the fields to search for resources:

   - Organization

   - Department

   - Start and End Dates

   - Simulation Plan

   - Required Capacity %

     This field sets the percentage of capacity that you want to hold in reserve. All resources required for each period for all visits in the selected simulation plan are balanced against the total available resources.

3. Click the Go button to view the results of your search.

4. Select your record and click the View Resources button, and the Resource Availability page appears.

5. Select View Details and the Resource Consumption Details page appears. Select the Visit or Task column to edit the respective visit or task in the Visit Work Package.

14

Production Planning and Production

This chapter covers the following topics:

- Overview
- Managing Work Orders
- Releasing Work Orders
- Deferring Work Orders
- Canceling Work Orders
- Deferring Maintenance Requirements
- Scheduling Work Orders Using the Scheduler Workbench
- Viewing the Scheduling Hierarchy
- Viewing Serial Number Change History
- Working with Maintenance Requirements
- Updating Material Requirement Details
- Tracking Work Order Materials
- Editing Resource Requirements
- Updating Resource Requirement Details
- Viewing Resource Assignments
- Editing Resource Assignments
- Charging Resources
- Working with Material Transactions
- Viewing and Issuing Materials Across Work Orders
- Returning Materials Across Work Orders
- Identifying the Employee that Items are Issued To or Returned By
- Viewing the Material Transaction History

- Item Disposition

- Disposition Association During Material Transactions

- Updating Dispositions

- Viewing Item/Part Service History

- My Work Orders Interface

Overview

In the maintenance, repair, and overhaul industry, it is necessary to identify, perform, and track maintenance execution to form a complete history of an unit, while maintaining the unit's condition to ensure service availability and capture the costs associated with the maintenance execution. Unit maintenance requires identifying defects, the corrective action steps, material, and resource requirements as well as charging resources, performing material transactions, and maintaining the quality for a job.

The objective of production planning is to evaluate a work package and develop a feasible project plan, including resource allocation by mechanics' skill, material, breakdown man hour by zone or process, and estimate the turn around time for each major process. When a visit work package is updated with non-routine or repair jobs, the production plan will include this information.

The Production Planning module is used by production planners to manage shop floor activities, assign personnel and equipment to jobs, fine tune work schedules, manage procurement, create material requirements for unplanned maintenance, and track components sent out for repair against the maintenance visit.

This module is also used by maintenance personnel to execute the organizations' maintenance program. Technicians and supervisors can view job assignments, view component and material availability, record maintenance activities, material and component consumption, and job completion, update maintenance compliance details, issue quality inspection results to satisfy regulatory requirements, and initiate new service requests for unplanned maintenance discovered during planned maintenance visits. See:

- Managing Work Orders, page 14-5

- Working with Maintenance Requirements, page 14-13

- Updating Material Requirement Details, page 14-14

- Tracking Work Order Materials, page 14-16

- Viewing Employee Assignments, page 19-37

- Viewing Documents, page 19-37

- Viewing Resource Requirements, page 19-37

- Viewing Resource Assignments, page 14-21

- Charging Resources, page 14-22

- Working with Material Transactions, page 14-23

- Item Disposition, page 14-28

Production

The Production module supports the execution of the tasks against an Installed Base Tracked Item. Production is the actual execution of the work required for a maintenance visit. The execution of the visit accumulates the entire history of the work performed, the inspection findings, and component changes. The production activity provides the information necessary for the records that is required for commercial and regulatory purposes. Production manages the key processes such as receiving a unit for service, disassembling, cleaning and inspecting it as well as dispositioning the parts.

The Production Planning module automates production tasks such as job creation, maintenance and job completions. Once a job is released to the floor, it can be executed. The execution of a job can be routine, disassembly, inspection, assembly, disposition that can lead to scrap, or a part request and repair job creation to correct a deviance. All costs associated with the jobs are collected throughout the repair cycle.

Routine Tasks

A routine task is a job that has been generated from a predefined route setup in the CMRO Route Management module. If a routine task is defined through a maintenance requirement, it may have a schedule and due date as defined by the Unit Maintenance Plan module. The task has been associated with a maintenance visit in the Visit Work Package and released to Production, optionally scheduled in the Planning Workbench, and optionally has resources scheduled by Production Planning.

Non-Routine Tasks

When a non-routine requirement is discovered, these non-routine, or unplanned jobs can be completed in the originating visit or deferred to subsequent visits. Non-routine tasks consist of a service request tracking the problem, and a job consisting of the steps required to resolve the problem. A non-routine task may have additional routes associated with it in the Visit Work Package to support the resolution. You can create service requests using the Service Request window in Oracle TeleService. You can also create non-routine service requests in the Unit Maintenance Plan region of the Planning module. These requests can be deferred to subsequent visits using MEL or CDL instructions. See: Creating Non-routine Requests During Unit Maintenance, page 10-15

The Production module of Oracle CMRO supports the following business processes:

Search for Routine and Non-Routine Work Orders

After a routine work order or non-routine work order is created, the work order can be selected from the results of a search using the specific filtering elements.

Create Work Orders from Visit Tasks for Scheduled, Unscheduled, and Convenience Maintenance

Work orders are created in production when the tasks are pushed to production from visit work package or when a service request, from Oracle CMRO Production module is created in a visit where the tasks have been pushed to production.

Create Service Requests to Track Reported Problems

Service requests are created when an item has a service difficulty, requiring an action to address the issue. During the service request creation, a visit task is created and a job is created if the visit's tasks have been pushed to production. The service request creation will also be generated when an Installed Base tracked item is returned or removed in the Unserviceable or MRB condition.

Create Operations to Non-Routine Work Orders for Work Definition and Tracking

For on-route based work orders the user can create operations to describe the steps required to correct the service difficulty. For route based work orders, the operation steps are created from the definition in Route Management including the associated material and resource requirements that are valid for the execution organization.

Maintain Work Orders

The user maintains the work order by adjusting the schedule, the status, completing, deferring, and selecting the actual start and end for a work order. In addition, the user can select if the work order is confirming the jobs necessity by selecting the confirmed failure flag. When a work order is completed, it triggers a check to determine if the work order is the last part of a maintenance requirement. If the work order was the last work order to be completed for a maintenance requirement, the counters are reset as defined by the Fleet Maintenance Program, and the unit maintenance plan is updated to reflect that the maintenance requirement is complete.

Maintain Operations

The user maintains the operations by updating the operations, updating the material and resource requirements, capturing costs by charging resources, issuing and returning materials, viewing the resource assignments, recording part changes, and completing the operations.

Maintain Quality

Quality is maintained using the route setup from Route Management for the work order and operation compliance, and from the profile options for non-routine work order and operation compliance, job deferral, MRB part disposition support, and by

capturing counter readings at the job completion. The quality results are captured based on the storage setup in Oracle Quality.

View Service History

During the planning phase of a service or the execution of a work order, planners access the history of service performed against a unit or part. Planners will then compare the current and future requirements and schedule the tasks to be performed. Planners can also review the past, current and future maintenance requirements against a part or item.

Managing Work Orders

The Production module is the interface used to perform the various activities related to work orders. You can update, release, cancel, defer, and complete work orders, and create non-routine work orders arising out of maintenance needs discovered on the production floor. You can also view documents, scheduling hierarchy, material, and resource requirements associated with the work orders. See:

- Finding Work Orders, page 19-19

- Updating Operations, page 19-22

- Completing Operations, page 19-29

- Creating Non-Routine Work Order, page 19-26

- Releasing Work Orders, page 14-5

- Completing Work Orders, page 19-29

- Deferring Work Orders, page 14-6

- Signing Off Maintenance Requirements, page 19-29

- Changing the Serial Number of Items Associated with Work Orders, page 19-34

Releasing Work Orders

To release a work order:
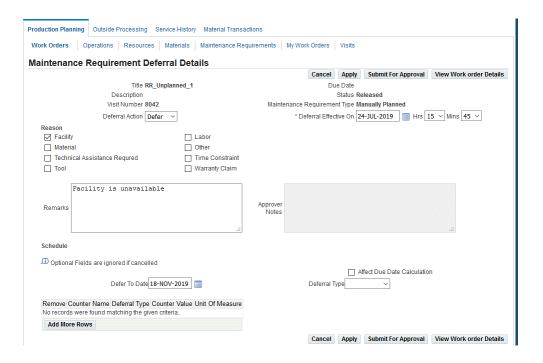
1. Navigate to the Execution region, and select the Production Planning tab. The Work Order Overview page appears.

2. Enter information in the applicable fields and click the Go button. All jobs matching your search criteria appear in the Work Order List Results table.

3. Select the work order that you want to release and choose Release Work order from the drop-down menu.

   Optionally, you can navigate to the Work Order Operations page and update the work order status to Released.

4. To release all the work orders within a particular visit, choose Release Visit Work Order from the drop-down menu. Optionally, you can also navigate to the Search Visit page under the Production Planning tab. Search for a visit and release all the work orders associated with that visit.

5. To release work orders for a particular maintenance requirement, choose Release Maintenance Work Order from the drop-down menu in the Work Order List table. This option is also available in the Search Maintenance Requirements page under the Production Planning tab.

Deferring Work Orders

To defer a work order:

1. Navigate to the Execution region, and select the Production Planning tab. The Work Order Overview page appears.

2. Enter information in the applicable fields and click the Go button. All work orders matching your search criteria appear in the Work Order List Results table.

3. Select a work order, and select Defer/Cancel from the drop-down menu.

   Optionally, you can defer the work order from the Work Order Operations page.

   The Maintenance Requirement Deferral Details page appears.

4. Enter deferral information on the page.

5. Click Apply to save your work.

Canceling Work Orders

A method is introduced to restrict access for canceling work orders to specific users. Users can cancel work orders based on a status of Released, Unreleased, or both.

These two security functions must be set for all users:

- AHL_PRD_CANCEL_REL_JOBS

- AHL_PRD_DISALLOW_CANCEL_JOBS

The function, AHL_PRD_CANCEL_REL_JOBS, enables the users to use the Cancelled option for any work order if the work status change rules allow the canceling of the work order.

The AHL_PRD _DISALLOW_CANCEL_JOBS function does not include the Cancelled work order option.

If both these functions are not enabled, the users can cancel Unreleased work orders only.
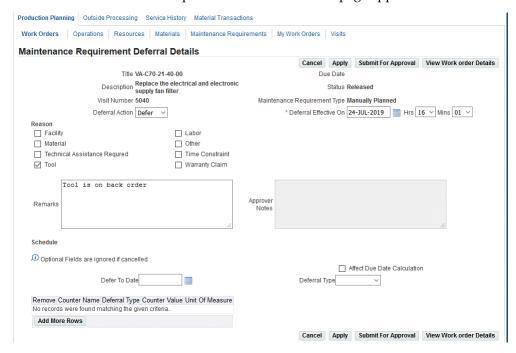
Deferring Maintenance Requirements

You can defer routine and non-routine maintenance requirements not completed during a visit, either due to the shortage of material and resources, or because the unit was put back into service for an emergency assignment. You can also defer maintenance requirements belonging to a group maintenance requirement (MR). The group MR is signed off at the end of the visit, and the deferred MR is carried out at a later date, and accomplished with the group MR on the next group MR event. Maintenance requirements can be deferred to a future date (hard date when this MR will be performed), or they can be based on counter threshold values. A deferred maintenance requirement with a new due date is created in the Unit Maintenance Plan module.

You can skip a planned maintenance requirement to the next repetitive MR, and also push the next due date based on the deferred date.

To defer a maintenance requirement:

1. Navigate to the Search Maintenance Requirements page.

2. Select the maintenance requirement that you want to defer, and click the Defer button. The Maintenance Requirement Deferral Details page appears.

Use the information in the following table to enter deferral details.

Field Name	Description
Title	The title of the maintenance requirement, that you want deferred.
Description	Maintenance requirement description.
Visit Number	An alphanumeric value that uniquely identifies the visit definition that you wish to retrieve.
Due date	Due date of the maintenance requirement.
Status	Seeded work order status of the maintenance requirement.
Reasons	User-defined reasons to apply to the deferral.
Remarks	Multiple lines field to enable users to enter additional information related to their deferral request.
Approver Notes	Multiple lines field to enable the approver to enter approval or rejection information.
Defer To Date	The date to which the maintenance requirement is going to be deferred.
Deferral effective on	Date that the deferral is being created. The default value is the system date.
Counter Name	Fleet Maintenance Requirement threshold counter name.
Deferral Type	Deferred By counter UOM or Deferred To counter UOM value.

3. Choose the deferral reasons by selecting the corresponding check boxes in the Reasons region. You can select more than one deferral reason. Enter information in the Remarks field.

4. Enter the Defer to Date or select a date from the Oracle calendar to defer the maintenance requirement.

5. Enter a date in the Deferral Effective On field. Alternatively, select a date using the Oracle Calendar.

6. To defer the maintenance requirement based on counter readings, select Add More Rows, and enter the counter threshold values.

7. Enter a counter name. UOM that appears is based on the selected Counter Name.

8. Choose Defer By or Defer To from the Deferral Type drop-down menu. Enter a counter value.

> **Note:** The system will return an error message if the deferred date or deferred counter is equal to or greater than the next due date or due counter for the repetitive maintenance requirement.

9. If you select the Affect Due Date Calculation check box, the unit maintenance plan uses the new deferred date or counter value, to calculate when repetitive requirements will be due again.

10. Select the Skip Maintenance check box to remove this instance of the requirement from Unit Maintenance Plan without affecting subsequent forecasted requirements.

11. Click the Apply button to save the record. You can optionally click the Cancel button to cancel the transaction.

12. Select View Work Order Details. The Work Order Overview page appears where you can view all the work orders related to MR that you want to defer.

13. Select Submit for Approval to submit the deferral for approval. The status changes to Approval Pending.

    - When the deferral is submitted for approval, all the work orders associated with the MR are put on hold.

    - On approval, all work orders in the Released status and associated with the MR are completed, and all Unreleased work orders are cancelled. A new UMP is created to track the deferred requirement in the Unit Maintenance Plan module if the deferral is not to skip the MR.

    - If the deferral is rejected, all associated jobs statuses are reverted to their previous statuses. You can resolve the errors and resubmit for approval.

        > **Note:** You cannot submit a deferral for approval if a child MR is pending deferral approval.

Scheduling Work Orders Using the Scheduler Workbench

Before a work order is executed, the planner must balance the requirements (resource and materials) with the available supply and capacity, also known as resource leveling. The planner assigns the work orders so that the resources are consumed at a balanced rate. The Scheduler Workbench provides a graphical user interface of the visit's work hierarchy, and enables the planner to schedule work orders and operations, manage dependencies, and assign resources. The scheduling decisions are validated against the applicable maintenance visit's start and end dates, as well as the defined technical dependencies between production work orders.

A large maintenance operation can have multiple visits and thousands of work orders at a single facility. The Scheduler Workbench enables the planner to quickly schedule and reschedule work orders, while viewing the required and available resources, and the work order dependencies.

The scheduling hierarchy and the completion dependencies of a visit are pushed to Oracle Work-In-Process (WIP). Completion dependencies are the technical dependencies between visit tasks in the Visit Work Package module. For example, Task 3 is executed after Task 1.

Prerequisites

❒ To use the Enterprise Asset Management Scheduler Workbench, work orders must have been created.

❒ After creating a visit in Visit Work Package, associating the applicable maintenance requirements and schedule the visit to an available organization and department, work orders are created by pushing the visit to production.

Related Topics

Using the Scheduler Workbench, *Oracle Enterprise Asset Management User's Guide*

Viewing the Scheduling Hierarchy

You can view the completion dependencies for a work order using the View Work Order Scheduling Hierarchy page. The selected work order information appears as read-only information.
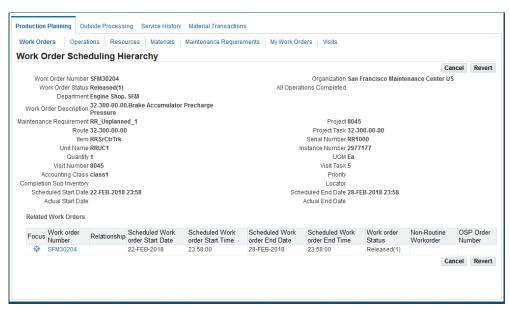
To view the scheduling hierarchy:

1. Navigate to the Work Order Overview page.

2. Enter information in the applicable fields and select Go. All work orders matching

your search criteria appear in the Work Order List Results region.

3. Select the work order, and choose View Scheduling Hierarchy from the drop-down menu.

Click Go. The Work Order Scheduling Hierarchy page appears, displaying the work order details, and the related work orders.

4. Click the Focus icon for a specific work order to view the relationships.

5. Click the Work Order number link to access the Work Order Operations page.

Viewing Serial Number Change History

You can view all serial number changes performed for the work order item instance using the Serial Number History page.

To view the serial number change history:

1. Navigate to the Item Number/Serial Number Change page. See Changing Item and Serial Numbers Associated with Work Orders, page 19-34.

2. Select View History. The Serial Number History page appears, displaying the following information about the serial number changes:

   • Date

   • Old Serial Number

- Old Serial Tag

- New Serial Number

- New Serial Tag
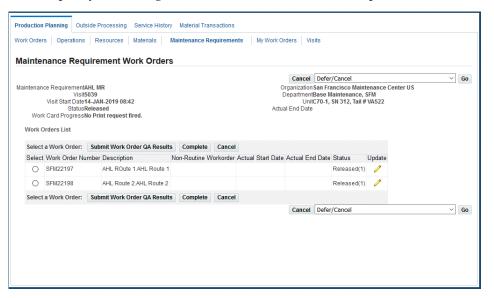
Working with Maintenance Requirements

You can search for maintenance requirements associated with work orders and perform all actions including deferring, signing off, submitting quality results, and viewing relationships using the Maintenance Requirements tab.

To work with maintenance requirements:

1. Access the Production Planning tab, and click the Maintenance Requirements tab. The Search Maintenance Requirements page appears.

2. Enter your search criteria and click the Go button.

3. You can select a maintenance requirement and perform one of the following:
   - Defer

   - Submit Quality Results

   - Sign off

   - View associated work orders

   - View relationships

4. Click the Maintenance Requirements link. The View Maintenance requirement page appears where you can view details, associated documents, routes, effectivities, relationships, and affected items.

5. Optionally, select a maintenance requirement and click View Work Orders. The Maintenance Requirement Work Orders page appears displaying information about the work orders associated with a maintenance requirement. You can perform the following:
   - Submit quality results and complete work orders.

   - Navigate to the Update Work Order Operations page by clicking the Update button in the work order results.

   - Navigate to the View Service Request page by selecting Service Request.

- Submit quality results, sign off and defer the maintenance requirement.
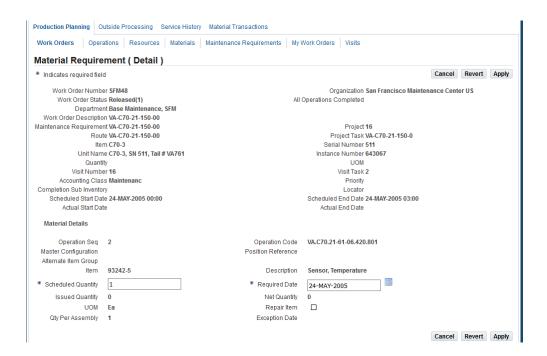
Updating Material Requirement Details

Prerequisites

❑ A work order with a status of Draft, Unreleased, Parts Hold, Hold, or Pending QA status must exist in the database. The WIP Mass Load Concurrent Program must be running. The operation must have a Uncomplete or Pending QA status.

To update material requirement details:

1. Click the Execution link, and select the Production Planning tab. The Work Order Overview page appears.

2. Enter information in the fields, and then click the Go button. All work orders matching your search criteria appear in the Work Order List Results region.

3. Click the Work Order number. The Work Order Operations page appears.

4. Click the Materials link, and Update Material Requirement page appears.

5. Select the material requirement that you want to update, and click the Details button. The Material Requirement (Detail) page appears.

Use the information in the following table to modify the material requirement details.

Field Name	Description
Operation Sequence	The job's operation sequence number.
Operation Code	The standardized operation code.
Item	The item number for the requirement.
Description	The description of the item defined.
Scheduled Quantity	The quantity scheduled by Planning.
Required Date	The date on which the requirement is expected.
Issued quantity	Part quantity issued.
Net Quantity	The difference between total quantity issued and total quantity.
UOM	The unit of measure for the item's quantity.

Field Name	Description
Quantity per Assembly	Part usage quantity.
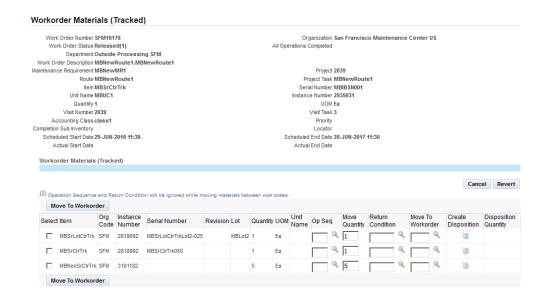
6. Make the required changes, and click the Apply button. Click the Cancel button to cancel any changes and return to the previous page.

> **Note:** When changing an existing requirement defined in Route Management, the selection is limited to the alternates for the item.

Tracking Work Order Materials

Use the Workorder Materials link to access the Workorder Materials (Tracked) page.

1. Click the Execution link, and select the Production Planning tab. The Work Order Overview page appears.

2. Enter information in the fields, and then click the Go button. All work orders matching your search criteria appear in the Work Order List Results region.

3. Click the Work Order number. The Work Order Operations page appears.

4. Click the Workorder Materials link in the side navigation.

Workorder Materials (Tracked)

Work Order Number **SFM16176**	Organization **San Francisco Maintenance Center US**
Work Order Status **Released(1)**	All Operations Completed
Department **Outside Processing SFM**	
Work Order Description **MBNewRoute1.MBNewRoute1**	
Maintenance Requirement **MBNewMR1**	Project **2039**
Route **MBNewRoute1**	Project Task **MBNewRoute1**
Item **MBSrCtrTrk**	Serial Number **MBIBSN001**
Unit Name **MBUC1**	Instance Number **2935031**
Quantity **1**	UOM **Ea**
Visit Number **2039**	Visit Task **3**
Accounting Class **class1**	Priority
Completion Sub Inventory	Locator
Scheduled Start Date **29-JUN-2016 11:30**	Scheduled End Date **28-JUN-2017 11:30**
Actual Start Date	Actual End Date

Workorder Materials (Tracked)

Cancel   Revert

ⓘ Operation Sequence and Return Condition will be ignored while moving materials between work orders.

Move To Workorder

Select Item	Org Code	Instance Number	Serial Number	Revision	Lot	Quantity	UOM	Unit Name	Op Seq	Move Quantity	Return Condition	Move To Workorder	Create Disposition	Disposition Quantity
☐ MBSrLotCtrTrk	SFM	2819092	MBSrLotCtrTrkLot2-025		MBLot2	1	Ea		🔍	1	🔍	🔍	🗐	
☐ MBSrCtrTrk	SFM	2818992	MBSrCtrTrk050			1	Ea		🔍	1	🔍	🔍	🗐	
☐ MBNonSrCtrTrk	SFM	3191182				5	Ea		🔍	5	🔍	🔍	🗐	

Move To Workorder

5. The tracked items that exist in the work order display.

   This is a list of materials (by serial number) that have been issued to the WIP job and operation sequence, removed from a configuration through a Parts Change transaction, or moved to this work order from a different work order through a Move To Workorder transaction.

   You can change the Move Quantity.

6. Select the item and click the Move To Workorder button to move or transfer the material to the destination work order indicated in Move To Workorder column.

7. Click the Create Disposition icon to create a disposition against the work order material item.

Editing Resource Requirements

Prerequisites
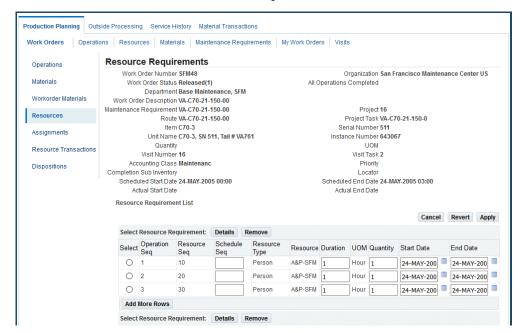
❑ A visit or work order with associated requirements must exist in the database.

To edit resource requirements and view summaries and details:

1. Find the work order or operation you want to edit. See Finding Work Orders, page 19-19

2. Navigate to the Resource Requirements page.

3. Make any necessary changes to the items displayed in the Resource Requirement

list.

4. Click Add More Rows to add a resource requirement.

Use the information in the following table to modify resource requirements.

Field Name	Description
Operation Sequence	The work orders operation sequence number.
Resource Sequence	The sequence number for the resource within an operation.
Resource Type	The type of resource requirement.
Resource	The resource name within the operations department.
Duration	The length of time required.
UOM	The unit of measure for the time required.
Quantity	The quantity of resources required.
Start Date	The start date for the resource.
End Date	The end date for the resource.

5. Click the Apply button to save your changes.

Click the Cancel button to cancel changes and return to the Work Order Overview page.
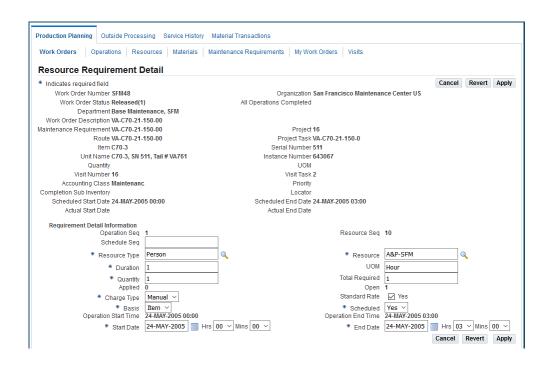
Updating Resource Requirement Details

Prerequisites

❒ A work order with a status of Draft, Unreleased, Parts Hold, Hold, or Pending QA status must exist in the database.

❒ The WIP Mass Load Concurrent Program must be running.

❒ The operation must have a Uncomplete or Pending QA status.

To update the resource requirement details:

1. Navigate to the Work Orders page (Execution > Production Planning >Work Orders. The Work Order Overview page appears.

2. Enter information in the fields then click the Go button. All work orders matching your search criteria appear in the Work Order List Results region.

3. Click the work order number. The Work Order Operations page appears.

4. Select Resources from the left-hand navigation bar. The Update Resource Requirement page appears.

5. Select the requirement you want to update and click the Details button. The Resource Requirement Detail page appears.

Field Name	Description
Operation Sequence	The work order operation sequence number.
Resource Sequence	The sequence number for the resource within an operation.
Resource Type	The type of resource requirement.
Resource	The resource name within the operations department.
Duration	The length of time required.
UOM	The unit of measure for the time required.
Quantity	The quantity of resources required.
Total Required	The total amount of time required derived my multiplying the duration with the quantity.
Applied	The duration of the resource charged to date.
Open	The duration of the resource difference between the Total Required and the Applied amount.

Field Name	Description
Charge Type	The expected method of charging the resource.
Standard Rate	Determines if the resource is to be charged at the standardized rate.
Basis	Provides the basis for determining the resource requirement.
Operation Start Time	The date on which the operation is scheduled to start.
Operation End Time	The date on which the operation is scheduled to end.
Start Date	The start date for the resource.
End Date	The end date for the resource.

6. Make the required changes, and click the Apply button. Click the Cancel button to cancel any changes and return to the previous page.

> **Note:** When changing an existing requirement defined in Route Management, the selection is limited to the alternates for the item.

Viewing Resource Assignments

To view a resource assignment:

1. Find the work order for which you want to view assignments. See Finding Work Orders, page 19-19

2. Navigate to the Work Order Operations page. Click the Assignments link and the Resource Assignments page appears.

3. Make any necessary changes to the items displayed in the Resource Assignment list. Click the Add More Rows button to add assignments.

4. Click the Apply button to save your changes.

Editing Resource Assignments
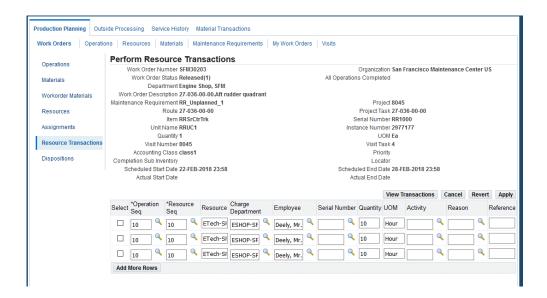
To edit resource assignments:

1. Find the work order with the assignments that you want to edit. See Finding Work Orders, page 19-19

2. Navigate to the Resource Assignments page.

3. Make any necessary changes to the items displayed in the Resource Assignment list.

4. Click the Apply button to save your changes.

Charging Resources

To charge resources:

1. Navigate to the Work Order Overview page (CMRO Super User > Execution > Production Planning).

2. Enter information in the fields,

3. Click Go.

4. Click the work order number, and the Work Order Operations page appears.

5. Click the Resource Transactions link, and the Perform Resource Transactions page appears.

6. Make any necessary changes and click the Apply button to save your changes.

> **Note:** You can disable the Resource Transactions side menu bar in the Resource Requirements page by running a specific function. This minimizes the chances of incorrect labor and usage costing.

7. Click the Add More Rows button to add charged resources.

Working with Material Transactions

Using the Production Planning module, users can issue and return materials to inventory with a single work order, identify the employee that items are issued to or returned by, and view the material transaction history. This enables a user to perform material transactions across work orders rather than having to drill into all work orders.

See:

- Viewing and Issuing Materials Across Work Orders, page 14-23

- Returning Materials Across Work orders, page 14-25

- Identifying the Employee that Items are Issued To or Returned By, page 14-26

- Viewing the Material Transaction History, page 14-27

Viewing and Issuing Materials Across Work Orders

Users can view material requirements, identify the materials previously issued against
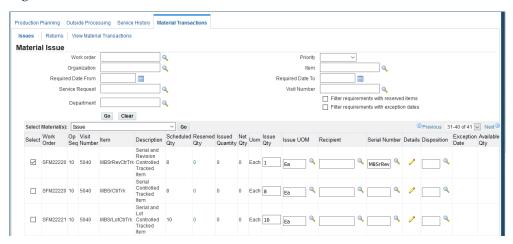
these requirements, and determine which items must be issued for each job, based on the defined requirements.

To view material requirements and issue materials across work orders:

1. Navigate to the Material Issue page (CMRO Super User > Execution > Material Transactions).

   The Material Issue page appears.

2. Enter search criteria and click the Go button. Material requirements across work orders matching your search criteria appear in the Work Order Requirements region.

3. The item and the required quantity appear for each work order.

   The Issued Quantity default value comes from the material requirements and the net quantity is calculated as the difference between total quantity issued and total quantity returned. You can change the quantity as required.

4. Select the UOM and the Recipient.

   If the issued quantity is 1, select the serial number of the item from the Serial Number list of values. Optionally, you can associate disposition to the material issued by selecting it from the Disposition list of values.

5. Optionally, click the Details icon to navigate to the Material Issue Details page and enter the lot, revision, locator, and subinventory information if the item is controlled in inventory.

6. Click Done to apply this information and return to the Material Issue page.

7. Select the work orders for which you have entered the issue details and click Issue. The required items are issued to the work order.
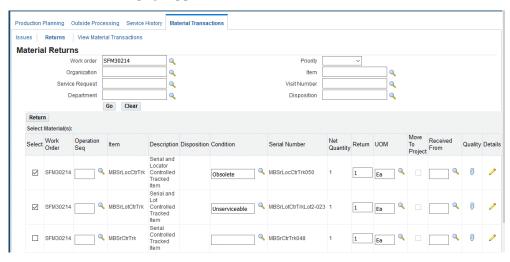
Returning Materials Across Work Orders

Users can query for items that have already been returned or that need to be returned and also search for items that were issued, but not completely used to complete the applicable job. Multiple items can be returned at the same time without the user having to navigate to a single job or associated visit. Users can also manually identify the issued items that will replace the non-tracked parts that will be returned.

To return materials across work orders:

1. Under the Material Transactions tab, click the Returns tab.

    The Material Returns page appears.

2. Enter your search criteria and click Go. The work orders matching your search criteria are listed in the Work Order Return Results region. The following two types of material are available for return:

    -   Material that was issued to the job. If the material has associated dispositions, then each disposition is shown as a separate return line.

        For non-serialized items, the default net quantity available to return will be (Total of all Issues - Total of all Returns) for the given material. The returned material should not be more than the disposition quantity if a disposition is associated.

    -   Material that was not issued to the job but has a disposition associated to it.

        For tracked items removed from the unit configuration, a disposition will be created automatically, if it does not already exist.

        The item and the net quantity appear for each work order.

3. Enter the quantity to be returned.

   The quantity to be returned must be 1 if the item number is serial number controlled. In addition, the quantity should not be more than the net quantity. When a disposition is associated to the return, the quantity to be returned should not be more than the net disposition quantity.

4. Select the UOM and the employee from which it is received from the UOM and Received From respectively.

5. Optionally, choose the condition in which the item is returned. The condition default value appears when a disposition is associated.

6. Click the Details button to enter additional information, and the Material Return Details page appears.

   The serial, lot, and locator information must be provided if the item is controlled in inventory.

   The Locator and Subinventory fields are populated with default values that come from WIP_PARAMETERS. The Transaction Date should not be later than the system date. The Reason and Problem Code will not appear if a disposition is associated with the item.

7. To enter quality results, click the Quality icon.

   You must enter quality results if the condition is MRB and when no disposition is associated with the material return.

8. After entering the required details, select the work order and click the Return button to return materials.

   A service request is created for all unserviceable tracked parts that are returned.

9. Click the Done button to apply changes and return to the Material Returns page.

Identifying the Employee that Items are Issued To or Returned By

A high level of accountability is maintained whenever a material transaction is performed. Material transaction details items, serial numbers (if applicable), quantity, employee, operations and the date of the transaction are stored. Organizations track each issue and return made against work orders. Users can identify the employees to whom the material is issued and also the employees who return the items.

The AHL_MTL_ISSUE_RETURN_EMPLOYEE profile must be set to Yes.

Users can query for employee names using the Recipient and Received From values in the Material Issue and Material Return pages respectively.

Viewing the Material Transaction History
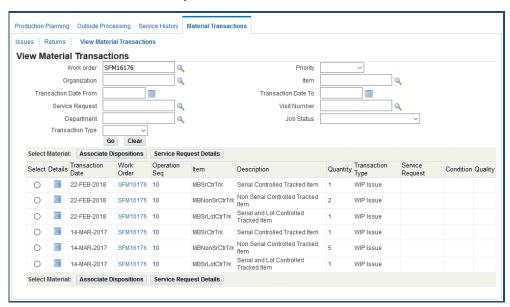
The View Material Transactions page displays a summary of all material requirements and their associated transactions.

Prerequisites

❐ Valid work orders must exist, and materials associated with and transacted against them.

To view the material transaction history:

1. Under the Material Transaction tab, click the View Material Transactions tab. The View Material Transactions page appears.

2. Enter your search criteria and click the Go button. The results display both issue and return transactions history.

3. You can perform the following actions:

    •   View the details of the transaction by clicking the Details icon.

    •   Associate the transaction to existing dispositions.

    •   View the Service Request details.

    •   Click the Work Order number link to navigate to the Work Order Operations page and view details associated with the work order.

Item Disposition

Disposition lists are defined in Route Management as a subset of a composition list or master configuration to compliment material requirements and to set up planning percentages. Disposition lists can also act as a superset if additional materials are defined for the item or configuration. When a work order is created based on a route, the disposition list associated with the route is carried over into production where the maintenance user can specify the disposition details as well as add items from the composition list, which have not been previously defined in engineering. Maintenance or inspection personnel use the disposition details to transact the material (serviceable/non-serviceable) and initiate overhaul, repair or scrap requirements. Maintenance or inspection personnel can create and view the discrepancies/non-conformances recorded, create a material requirement based on the disposition item, initiate the removal and installation of tracked parts, and initiate the capturing of the MRB quality disposition information.

> **Note:** For an unserviceable part, if you first create a non-routine requirement and subsequently remove the part, process the part removal results in the part being transferred to the non-routine work order.

Prerequisites
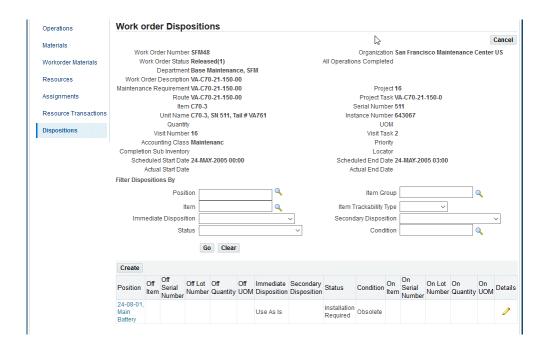
❒ Items must have been set up in inventory.

❒ A composition list must exist for the item.

❒ A disposition list must have been created for the item- route or the master configuration- route combination. There must be a work order for which to disposition the item or position against.

To disposition items in production:

1. From the Work Order Overview page, select a work order and navigate to the Work Order Operations page

2. Click the Dispositions link.

   The Work Order Dispositions page appears displaying the disposition list associated with the work order.

   The Disposition List includes all the default dispositions which are automatically generated when the work order is created (based on the route_ID associated with this work order), dispositions created by the user and the dispositions created or updated by the corresponding part changes.

You can perform the following:

- Create a new entry by clicking the Create button.

- Edit or view an existing record by clicking the Details icon.

- View position information by clicking the Position link.

The on /off log displays the removal and installation information as they are accomplished, and the disposition status reflects the progression of the disposition. You can query for specific dispositions by entering your search criteria in the Filter Dispositions By region.

3. Click the Details icon corresponding to the item that you want to include in the disposition. The Disposition Details page appears. You can include both tracked as well as non-tracked items in a disposition list.

   You can select the item and instance information if the process of combining the disposition list definition with the instance information did not result in an instance being found for some of the defined positions or alternate part groups. If you select an item group, the item list of values will comprise only items allowed for the configuration position and item group.

4. Select the immediate disposition. The immediate disposition and secondary disposition types drive the transaction requirements. The disposition options and actions are different for a tracked and non-tracked item.

   Tracked Item Disposition

   The following table describes the immediate disposition types and the action that

the user must perform consequently for a tracked item.

Disposition Type	User Action
BFS (Bad From Stock)	Enter Non-Conformance and Secondary Disposition
Not Applicable	No Action Required
Non-Conformance	Enter Non-Conformance and Secondary Disposition
Not Received	No Action Required
Not Removed	No Action Required
RTC (Return to Customer)	Remove Instance
RTV (Return to Vendor)	Remove Instance
Scrap	Enter Non-Conformance, Removal Details, and MRB QA results
Use As Is	Remove Instance from Installed Base keeping the item in serviceable condition

When the immediate disposition and condition are selected, the secondary disposition is enabled if applicable. The following table describes the secondary disposition types and user actions for a tracked item.

Disposition Type	User Action
Hold	Further Secondary Action Required
Rework - Removal Not Required	No Further Action Required
Rework -Removal Required	Remove Item Instance
RTC (Return to Customer)	Remove Item Instance
RTV (Return to Vendor)	Remove Item Instance
Scrap	Remove Item Instance and Enter MRB QA

- If the disposition is for a position, click the position link to navigate to the View Position Path page to view the position path across all sub-configurations.

- Click Create to create additional non-conformances. A service request is created when you enter the primary non conformance information. The Non Conformance Log lists all the service requests associated to this disposition either directly or indirectly (through parts change or material transactions).

  The Primary column indicates if the Non Conformance is a primary (auto generated) service request. You can enter the problem code, summary, stage name, work order start date, and severity Non Conformance section) only when the Immediate type is Non Conformance or BFS and the condition is Unserviceable or MRB.

  Click the Incident number link in the Non Conformance Log section to navigate to the View/Edit SR page to view or edit the service request details.

- Click Material Requirement to create a material requirement for the disposition item and quantity.

- Click Submit QA Results to navigate to the quality collection user interface to enter the MRB quality results.

  You can enter quality results only when the item condition is set to MRB when defining the item in inventory.

- Click Terminate to close the disposition.

- Click Apply to save the changes made or click Cancel to discard the changes.

Non-Tracked Item Disposition
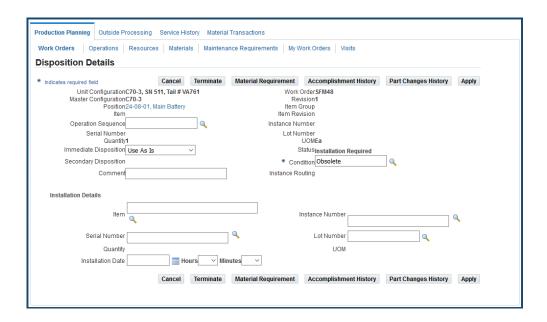
The following table describes the immediate disposition types and the user action for a non-tracked item.

Disposition Type	User Action
Non-Conformance	Secondary Disposition Required
Not Received	No Action Required
Not Removed	No Action Required
RTC (Return to Customer)	Material Transaction Required
RTV (Return to Vendor)	Material Transaction Required

Disposition Type	User Action
Scrap	Material Transaction Required
Use As Is	No Action Required

When the immediate disposition and condition are selected, the secondary disposition is enabled if applicable. The secondary disposition types and actions are as follows:

Disposition Type	User Action
Hold	Further Secondary Action Required
RTC (Return to Customer)	Material Transaction Required
RTV (Return to Vendor)	Material Transaction Required
Scrap	Material Transaction Required

- Click the Terminate button to close the disposition.

- Click the Material Requirement button to create a material requirement for the disposition item and quantity.

- Click the Apply button to save the changes.

5. Click the Create button on the Work Order Disposition page to create a new disposition.

   Select an item to include in the disposition using the Position, Item Group or Instance search criteria. Enter the disposition details as required. Select the condition for the disposition.

6. Click Apply.

   The page will refresh with the applicable disposition details listed in the lower half of the page. If the item being dispositioned is a tracked item, you must perform the parts change as required. If the item being dispositioned is non-tracked, you can associate the appropriate material transactions with it.

   Additionally, you can create material requirements to support the disposition, submit quality results if submitting for the disposition MRB review, or create additional service requests if necessary.

   Disposition Items from the Parts Change User Interface:

7. You can enter disposition details when performing an item or a unit configuration parts change.

   Navigate to the Work Order Operations page and select Perform Part Removal/Install.

   The Unit Configuration Part Changes page appears displaying the configuration tree.

8. Select the position against which you want to perform the disposition.

   The page refreshes displaying the position details. The input parameters for disposition appear in the lower half of the page.

9. Enter the required information.

10. Click the Apply button to save your changes.

Disposition Association During Material Transactions

Use the Material Issue page to issue materials to a work order. You can associate the existing dispositions for the work order and issue parts directly to disposition. Click the Disposition search icon in the Work Order Requirements table to navigate to the Select Disposition page and select the appropriate disposition.

When returning materials issued to a work order, the dispositions associated with the work order appear in the Work Order Return Results region. This enables for the disposition to be directly associated with a material transaction.

You can associate a disposition to a material transaction for a non-tracked item after the transaction has occurred. Query for the material transaction in the View Material Transaction page. Select the transaction and click Associate Dispositions to navigate to the Update Associated Dispositions page to select the dispositions to associate. Select the dispositions to associate with the material transaction.

Updating Dispositions

To update dispositions:

1. Navigate to the Work Order Dispositions page.

2. Query for specific dispositions using the search criteria in the Filter Dispositions By region. Select the disposition that you want to update.

3. Click the Position link to view the position details. Click the Details icon to navigate to the Disposition details page.

4. Modify the information as required.

5. Click the Apply button to save your changes.

Viewing Item/Part Service History

Maintenance planners can access the history of service performed against a unit or part during the planning phase of a service or the execution of a work order. The history of the performed service, enables the planner to plan and execute decisions about the currently planned service, as well as provides support for the maintenance engineer during work order execution. The planner or maintenance engineer is able to view a detailed service history on a work order part such as maintenance requirements, jobs, visits and operations that have been performed on the part. The service history includes both inhouse service as well as supplier-performed service (OSP).

You must enter the item and serial number or instance number to view the service history of an item and serial number. You can search for work orders for the entered part or serial number or search for maintenance requirements associated to the part or serial number. You can restrict the search by providing additional filters such as the work order scheduled Start and End date range, work order Actual Start and End dates, mechanic, organization, department, machine, visit, program type, and so on.

To view work order history:

1. Click the Execution link, and then click the Service History tab. The Search Work Orders page appears.

   Enter your search criteria and click the Go button.

2. Click the Work Order Number link to navigate to the Work Order Operations page and view the work order details, the materials, resources, assignments, resource transactions, and dispositions associated to the work order.

3. You can perform the following:

    • Select a work order with an associated OSP order number and click View OSP Details to view the order details.

    • View the visit task details.

    • View maintenance requirements associated with the visit.

    • View service requests associated with the visit.

To view maintenance requirements history:

1. Click the Maintenance Requirements tab. The Search by Maintenance Requirements page appears.

2. Enter your search criteria and click the Go button. The date range filter must be applied against the MR's effective from and effective to date. Maintenance requirements meeting your search criteria are listed in the maintenance requirements results region.

3. Click the Maintenance Requirement link to view the details of the selected maintenance requirement.

4. Click the Work Order Details icon to view work orders associated with the maintenance requirement.

    The Maintenance Requirements Work Orders Listing page appears displaying the details of the associated work orders. Click the Work Order Number link to navigate to the Work Order Operations page and view all the materials, resources, assignments, resource transactions, and dispositions associated with the work order.

5. Click the Visit Task Details button to view the visit details, hierarchy, and cost information pertaining to the visit associated with the work order.

6. Click the Relationships icon to view relationships for a group MR. The Maintenance Requirement Relationships Listing page appears displaying all the child MRs.

My Work Orders Interface

The My Work Orders user interface displays all the work orders for the user logged in the system. Employees can record labor time and sign off work orders and operations

assigned to them from one central location. Users can sign off and transact simple work orders especially those associated with standard line maintenance visits. Additionally, users can also perform other work order execution actions such as parts change, non-routine creation, quality recording, and so on.

> **Note:** You can now create a non-routine work order from an existing non-routine work order by selecting the appropriate non-routine work order from the My Work Orders page. You can perform this action by adding the function, Allow creation of a Non-Routine originating from a Non-Routine. The corresponding function is AHL_ALLOW_CREATE_NR_FROM_NR to the menu associated to a responsibility.

15

Managing Outside Processing

This chapter covers the following topics:

- Overview
- Working With Outside Processing Work Orders
- Inventory Service Order Outside Processing
- Creating an OSP Order
- Reviewing Purchase Orders
- Synchronizing Outside Processing Work Orders with Purchase Orders
- Updating and Approving Purchase Orders
- Shipping and Receiving
- Working with Exchange Orders
- Creating an Exchange Order
- Editing Exchange Orders
- Converting Service/Exchange OSP to Exchange/Service OSP

Overview

In the maintenance, repair, and overhaul industry, there will be occasions when a part must be serviced outside of the organization. This may be due to the lack of resources, skilled or certified personnel or cost considerations. The planner needs the flexibility of determining when, where and how the service will be performed in the most cost effective manner. In addition, a planner must have the ability to borrow parts from third parties when the same is not available in inventory, as well as loan parts to a third party when it is requested.

This chapter discusses the key functions supported by the Oracle CMRO Outside Processing module and covers the key Outside Processing (OSP) functions supported by the Oracle CMRO Production Planning module. The processes for creating and

maintaining OSP work orders are explained. See:

Key Business Processes

The Outside Processing module supports the following business processes:

Assign Production Jobs for a Third-Party Service

After it is determined that the job will be performed by a third-party organization, you can assign the production job to any department with a class of Vendor. This assignment to a outside department can be done either in the Planning or Production Planning modules. The job must be assigned to a department with a department class of 'Vendor' to be included in an OSP work order.

Assign Production Jobs to an OSP Work Order

After assigning a job to an outside department, create an OSP work order and add to it the jobs that the third-party organization will perform. You can include jobs with multiple parts or for a single instance. An OSP work order can be issued for one supplier and can have multiple jobs associated with it.

Determine the Supplier for Outside Processing

Determine which supplier should perform the service based on the service history of the part, warranties that may be applicable and then pick a supplier from a specified approved vendor list.

Add or Remove Production Jobs to an Existing OSP Work Order

You can add production jobs to an existing OSP work order if the order has not yet been submitted for purchase order creation. If a job is not necessary you can remove it, if the order has not been submitted. Once an OSP work order is submitted to create a purchase order in Oracle Purchasing, any additions or deletions must be performed in the Oracle Purchasing Module.

Determine Shipping and Receiving Logistics

Determine how and when the parts will be shipped to the supplier by creating a shipping order against the OSP work order. You define the shipment date, receipt date, freight terms and carrier. The shipment of the parts do not occur until the OSP work order has been submitted to create a purchase order in Oracle Purchasing and the buyer has approved the purchase order.

Create and Approve Purchase Orders

After required services from a supplier are finalized, submit them to create a purchase order. The buyer completes the purchase order by providing shipping and accounting

distribution details. When the purchase order is ready to be shared with the supplier, the buyer approves it in Oracle Purchasing. Upon approval, the shipment order is marked as ready for the shipping clerk to pick, pack, and ship the parts. Any deletion or cancellation of purchase order line items are reflected in the corresponding OSP work order, meaning the production job is no longer associated with the OSP work order. The planner makes the decision regarding the disposition of the production job. If the buyer adds line items to a purchase order, the planner must decide if those items have to be included in the OSP work order. The planner also must use a manual process to associate the new purchase order line items to existing eligible production jobs.

Shipping and Receiving of Parts

Once the purchase order is approved, the shipping clerk can pick, pack and ship the parts. The shipping clerk receives a notification of the shipment order number that indicates that the parts are ready to be shipped. The shipping order provides shipping details such as ship to organization and location, part number, quantity, serial numbers, the location from which to pick the part, and any shipping or packing instructions. Each time the part is shipped and received, the current location of the part and ownership is automatically reflected in the Oracle Installed Base module. Shipping is handled in Oracle Shipping. Receipt of parts after servicing is accomplished with Oracle Purchasing.

Inspect Parts After Service

After receipt of the part that has been serviced by a supplier and received into inventory, the production planner will reassign to the same production job that initiated the outside processing to an internal department.

The designated technician assigned to this job uses the Production module to complete and document the quality process. This ensures that the service has been performed correctly according to the maintenance requirement and the part is in good condition.

Acknowledge Supplier Service

In order to pay the supplier for the service provided, the purchase order line may specify that the service has to be accepted (received) without any quality assurance or the service has to be accepted and approved by quality assurance team (inspected). If the purchase order line specifies that Receipt is required, then the technician must receive the service in Oracle Purchasing module (three-way matching). If the purchase order line has Inspection required specified, then the technician has to receive the service and enter the quality assurance code (four-way matching). The buyer may indicate in the Purchase Order line that the services need not be received, in which case the supplier is paid upon the approval of the purchase order.

Close OSP Work Order

You can close the OSP work order provided that all shipped parts have been received, the serviced parts are in good condition, all of the production jobs associated with the OSP work order are closed, and the purchase order is closed. All these conditions must be met, or the OSP work order cannot be closed.

Perform Item Exchange

Replace an item or part with another part from a supplier. Item exchange is an integral part of the production process in most service industries. Most service stations send out specialized components to be repaired at outside repair facilities. The item exchange process speeds up the production process by allowing like parts to be sent and received without waiting for the repair of the originals.

OSP Work Orders

An OSP work order is an order that contains the information required to service parts by a third-party organization. It contains information about the supplier, the parts that need to be serviced, what services will be performed, and when and where the part will be shipped and received. If parts have to be shipped out to a third party there is a shipment order associated with the OSP work order.

Exchange Orders

An exchange order is used to replace an item or part with another similar or dissimilar part from a supplier. The exchange can be of two types; Simple Exchange or Advanced Exchange. In a Simple Exchange, the servicing organization sends out the item for repair to a supplier and receives an item of similar kind. In Advanced Exchange, the supplier sends the replacement item ahead of time. An exchange order is created for an existing job scheduled to a vendor class department. Outside Processing work orders that require an item exchange are identified at the work order header. These exchange orders contain information about the parts that will be shipped out and received back from the supplier, including: the inbound and outbound part number and serial numbers, the shipment and return dates, and the costs of item exchange through an interface to the procurement system.

Working With Outside Processing Work Orders

An OSP work order enables you to group together production jobs that have been earmarked for outside servicing. You can base the creation of purchase orders, which describe the services ordered from the supplier and ship orders, which describe the shipping and receiving logistics of the serviceable parts on OSP work orders.

Related Topics

Inventory Service Order Outside Processing

Defective parts are often removed and put in an inventory location before the work order is created. Inventory service orders enable you to create orders for items directly from an inventory location, without creating a visit and work order. This process is automated using default data.

The service item is an inventory master item with specific attributes such as non transactable and non stockable. It is derived from the setup of the item and vendor association. Service items are set up primarily to track costs, outside processing orders can then be created for shipment purposes. The features of inventory service orders for outside processing include:

- Automatic service order creation.

- Vendor sourcing and shipping rules are defined based on the item and location.

- Attachments can be defined and maintained.

- Ability to convert the service order into an exchange order.

Inventory service order creation is comprised of defining vendors, creating associations of parts at specific locations, creating vendor and customer connections, and submitting the information for purchase order creation.

Prerequisites

❒ Define profile options to default information to automate the creation of service orders. This includes:

- AHL:Service Order Default Shipment Priority

- AHL:OM Tax Exempt Reason

- AHL:Vendor Service Duration

- AHL:OM Shipment Priority

- AHL:OM Line Return Reason

- AHL:OM Mixed Order Type ID

- AHL:OM Ship Only Line Type ID

- AHL:OM Return Line Type ID

- AHL:Service Order Ship IB Transaction SubType

- AHL:Service Order Return IB Transaction SubType

- AHL:Exchange Order Ship IB Transaction SubType

- AHL:Exchange Order Return IB Transaction SubType

- AHL:Overwrite PO line description with Item/Serial Number

- AHL: PO line description Item number prefix

- AHL: PO line description Serial number prefix

- AHL:PO Line Type ID

- AHL:OSP Default PO Distribution Creation

For more information, see Setting Up Inventory Service Order Outside Processing, *Oracle Complex Maintenance, Repair, and Overhaul Implementation Guide*.

To search and add vendors for inventory service orders:

1. Navigate to the Vendors page.

2. In the Search Vendor region, you can select search criteria using the Vendor Name, Vendor Location, and Primary Contact.

   Select Go to display the results of your search.

3. Enter information in the appropriate field to add vendors for outside processing and inventory service orders.

4. Select the Warranty check box to identify a vendor as providing warranty. This vendor can now be selected in the Vendor Service Item Relationships page as providing warranty service.
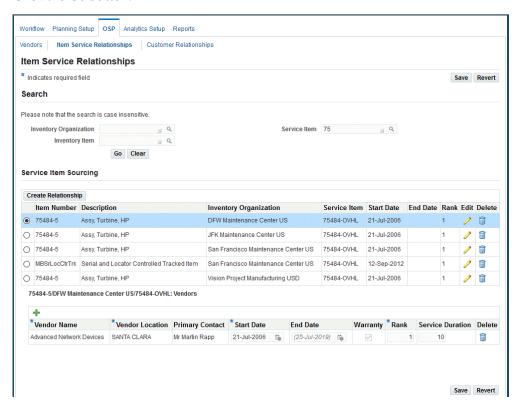
   > **Note:** Supplier Warranty begins with the Warranty Administrator defining the warranty capability for a vendor and identifying which service items will have warranty applicability.

5. Save your work.

To query and edit existing vendor and item associations:

1. Navigate to the Item Service Relationships page.

2. Enter values in the fields to search for existing associations.

3. Click the Go button.

The selected Warranty field in the Service Item Sourcing region validates a Warranty Service Item and an applicable Warranty Vendor.

4. Click the Edit button to change information in the End Date or Rank fields. The Edit Relationship page appears.

5. Save your work.

To create a new vendor and item association:

1. Navigate to the Item Service Relationships page, and select Create Relationship to display the Create Relationship page.

2. Select values in the Inventory Organization, Inventory Item, and Service Item fields.

3. Enter a start date, end date, and a rank.

Vendors are ranked using item, inventory organization, and service item relationships. The priority is calculated with the lowest number being the highest in rank.

4. Click the Apply button to save your work, and refresh the Item Service Relationships page.

5. Select the item to which you want to associate the vendor and location.

6. In the Vendor region, select values in the following fields:

   - Vendor Name

   - Vendor Location

   - Start and End Date

   - Rank

   - Service Duration

7. Save your work.

To view and define vendor and customer associations:
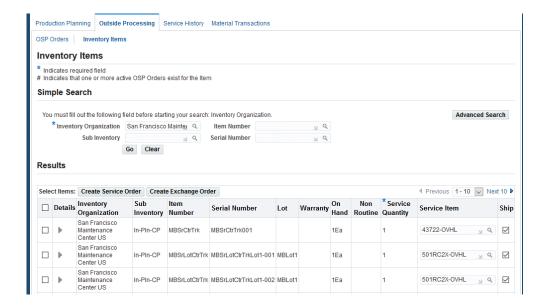
1. Navigate to the Customer Relationships page.

2. You can search for existing relationships by selecting criteria in the Search region, and choosing Go.

3. Click the Add Another Row button to add a vendor and customer association.

4. Save your work.

To create an inventory service order:

1. Navigate to the Inventory Items page.

2. You can search for records using the following criteria: Inventory Organization, Sub Inventory, Item Number, or Serial Number. Select Go to display the results of your query.

3. In the results region, select items for this service order. Choose a different Service Item using the LOV if necessary.

   Ensure that the Ship check box is selected to use default shipping information to create this order. This includes shipping method, freight terms, FOB, and payment terms.

   The Warranty column displays a Warranty flag if at least one Active warranty contract is defined for the Instance. You must use the Warranty flag to appropriately choose the Service Item for warranty service.

4. Choose Create Service Order to create your inventory service order record.

To create a purchase order for the associated inventory service order record:

1. Navigate to the Edit OSP Order page for your inventory service order record.

2. Choose Submit OSP.

   See: Editing an OSP Work Order, page 15-10

To convert an inventory service order into an exchange order:

1. Navigate to the Edit OSP Order page for your inventory service order record.

2. Delete the return shipment lines for this order.

   See: Editing an OSP Work Order, page 15-10

3. Convert the inventory service order to an exchange order.

   See: Converting Service/Exchange OSP to Exchange/Service OSP, page 15-25

4. Create new return shipment lines.

Creating an OSP Order

To create an outside processing work order:

1. Navigate to the Search Jobs page, and select each job to include in the outside processing work order.

2. Select Create to display the Edit OSP Order pages.

3. Select values in the Vendor, Vendor Name, and Buyer Name fields.

4. For each line item displayed in OSP Order Lines region, select information in the applicable fields for Job Number, Item, Line Status, Instance Number, Service Item Quantity.

5. Select Apply to save your work.

To find an OSP work order:

1. Navigate to the Outside Processing Orders page.

2. Select search criteria in the applicable fields, and click the Go button to display the results. You can select information in the following fields:

    *   Order Number

    *   Order type

    *   Order Status

    *   Description

    *   Requisition Number

    *   PO Number

    *   Shipment Number

    *   Vendor Name

    *   Has New PO Lines

    *   Work Order Number

    *   Project Name

- Task Name

- Item

- Serial Number

- Department

- Ready for Receipt

3. You can perform the following transactions:

    - Close: To close the outside processing work order.

    - Submit: To create a purchase requisition or a purchase order using the outside processing order.

    - Delete Shipment: To delete the associated ship order.

To edit an OSP work order:

1. Select the OSP Order on the OSP Search page, and choose the Update icon.

2. Use the Warranty Details region to manage warranty for the OSP order.

    This region displays the following information:

    - Task Warranty flag is Yes if there is a warranty template associated to the originating work order. If the instance was from inventory, this flag will always be set to No.

    - The Instance Warranty flag is Yes if there is at least one active warranty contract for the unit.

        - The Warranty Contract LOV contains only active contracts available for selection.

            If the Warranty Contract field is blank, you can add a new contract at any time and the system changes the Warranty Status from Not Applicable to Approved when you click Apply.

        - The Warranty Contract can be changed and the status can remain as Approved.

        - If you set the Warranty Contract field to null, the system sets the Warranty Status to Not Applicable.

    - If the Instance Warranty flag is No, you cannot edit the Warranty Contract

LOV.

- Warranty Claim default value comes from the warranty claim identifier and is used for historical purposes.

- Claim Status default value comes from the current status of the claim and is used for historical purposes.

Make the required changes, and select Apply to save your work.

3. Select the appropriate value in the drop-down box to navigate to these pages:

    - Convert to Service

    - Create Shipment

    - Close OSP

4. Click Create Item Order Line or Create Work Order Line to create a new order line. The Create OSP Line page appears.

5. Search for the required items or jobs.

6. Click the Create Order Lines button.

    > **Note:** If you want to ship the part associated with the newly created line, then you must create a new ship order line.

To create a purchase requisition using an OSP order:

You can create a purchase requisition from an OSP order, in addition to the ability to create a purchase order. Upon submission of an OSP order, the system initiates the creation of a purchase requisition.

Set the profile option, AHL: Initialize Purchase Requisition to Yes to create purchase requisitions rather than purchase orders.

1. Create an OSP order and submit.

    Alternatively, navigate to the OSP Search page to retrieve the OSP order that you want to submit.

2. Select the OSP order, and click Submit OSP Order.

    This will trigger the creation of a purchase requisition in Oracle Purchasing if the AHL: Initialize Purchase Requisition profile value is set toYes.

3. Click the Synchronize POs button; this updates the OSP order status and its

association with the newly created requisition (if any).

4. If a requisition was created successfully, the status of OSP order changes to Requisition Created.

5. Click the Update icon to navigate to the Edit OSP Order page.

6. Click the Requisition Details link.

    The Requisition Details page displays the details of the purchase requisition.

7.

8. You create a purchase order from existing requisition using the Oracle Purchasing module.

9. If a PO was created for the OSP requisition, you can drill down to navigate to the Purchase Order Details page by clicking the link in the PO Number column.

    The PO header information and purchase order lines appear.

    You can select any PO line to view shipments and receipts.

10. You can close the OSP order after its completion.

    > **Additional Information:** When you update the purchase requisitions in Oracle Purchasing, it results in the following:
    >
    > - If you delete the requisition lines using Oracle Purchasing, and trigger the PO Sync process in CMRO, the associated OSP order lines shows a status of Requisition Deleted.
    >
    > - If you delete the requisition lines and requisition header from Oracle Purchasing, and trigger the PO Sync process in CMRO, the associated OSP order lines are deleted.

To submit an OSP work order:

1. Retrieve the OSP work order that you want to submit.

2. Select the OSP work order, and click Submit. This will create a purchase order or a requisition in Oracle Purchasing.

To close an OSP work order:

If no further activity occurs on an OSP work order, you can close it. You cannot work on the order again once it is closed. All shipped parts must be received from the supplier. All parts must be in good condition and the inspector has approved the performed service. The associated purchase order and all associated jobs must be closed.

1. Retrieve the OSP work order that you want to close.

2. Select Close.

   If all prerequisites are met, the OSP work order will be closed.

Reviewing Purchase Orders

To review a purchase order:

1. Retrieve the OSP work order that you want to review.

2. Navigate to the Edit OSP Work Order page for the selected work order.

3. Select PO Details to display the Purchase Order Details page. It shows summary information about the related OSP work order and the line item details.

4. Select a line item to view associated shipping or receiving details for that item.

   > **Note:** A list of errors will appear if the purchase order was not successfully created. Edit the relevant OSP work order to fix any errors, then submit the purchase order again.

5. Click the View PO Shipments button to view the purchase order shipments.

6. Select a shipment number and click Accounting Distributions to view accounting distributions associated with the shipment.

7. Click Receipts in the Purchase Order Details page to view receipts associated with the purchase order line item. To view quality results for the receipt, select a receipt and click QA Result.

   > **Note:** There may be a delay between the submission and actual creation of a purchase order in Oracle Purchasing. If you notice that the submission request has a Pending status for a long time, notify your system administrator. Review submission status on the Concurrent Requests page.

Synchronizing Outside Processing Work Orders with Purchase Orders

A buyer may add purchase order lines manually after a purchase order has been created in Oracle Purchasing through a Submit action on OSP Work Order page. If you decide that the newly added purchase order lines should be reflected in the source OSP work order, then you must assign the new purchase order lines to existing production

jobs.

To synchronize an OSP work order with a purchase order:

1. Retrieve the OSP work order that you want to synchronize and navigate to the Edit OSP Work Order page.

2. Select PO Details.

   The Purchase Order Details page appears, displaying summary information about the related OSP work order and the line item details.

   If there are line items without job numbers, the items must be added to the current OSP work order.

3. Select a job number and click the Apply button.

   A list of jobs appear with the following conditions:
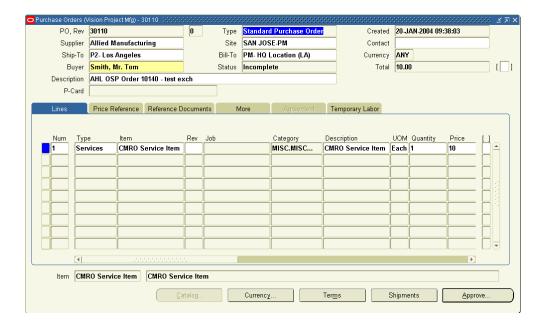
   - If the purchase order line has a service item number:

      - List of jobs that have same service item number associated with the route.

      - List of jobs that have no service item number associated with the route.

   - If the purchase order line does not have a service item number, then you will see a list of jobs that have no service item number associated with the route.

4. Click the Apply button to save your work.

   > **Note:** The Synchronize POs process synchronizes the purchase orders with OSP orders that exist in the operating unit for the user.
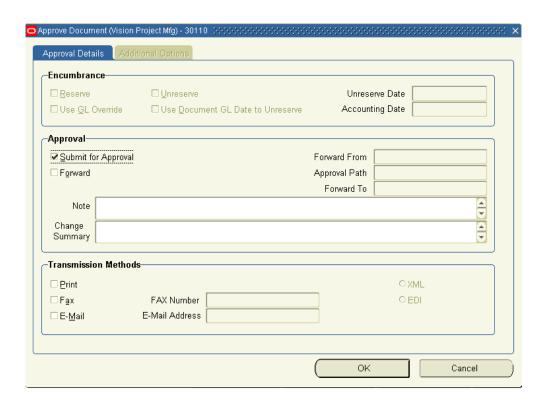
Updating and Approving Purchase Orders

To update or approve a purchase order:

1. Switch to the Oracle Purchasing responsibility.

2. Query the purchase order number. The window displays purchase order details.

3. Select Approve to initiate the order approval process. The Approve Document page appears.

4. Choose OK to submit the purchase order for approval.

Shipping and Receiving
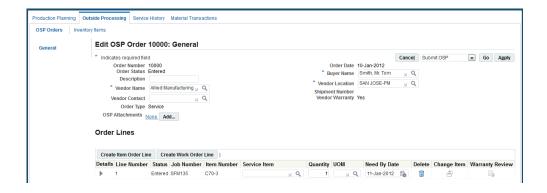
Outside processing work orders and purchase orders are shipped to your locations, and received into your plant. These tasks consists of Shipping Parts, page 15-17, and Receiving Parts, page 15-17

Shipping Parts

You can create a ship order for OSP work orders involving parts that need to be shipped for an outside service. An OSP work order can have only one associated ship order.

To create a ship order:

1. Retrieve the OSP work order and navigate to the Edit OSP Order page.

2. Click the Shipments link to access the Edit OSP Order: Shipment page.

3. Enter the required information and select Apply to save your work.

4. Select the Warranty icon to navigate to the Warranty Workbench for the Item Instance. You can review current contacts, edit current contracts, define new contracts, or terminate existing contracts.

5. Select the Delete link in the Shipment Lines region to delete a ship order.

   This action cannot be undone. All associated ship line items will be deleted with the ship order. You cannot delete a ship order if parts related to the order have already shipped.

To create a ship order line:

1. Select a shipment and navigate to the Edit OSP Order: Shipment page.

2. Choose Create Shipment Line. The Shipment Line page appears.

3. In the Line Type field, select the appropriate line type.

4. Select the warehouse from where the part will be shipped.

5. Select the Sub-Inventory from where the part will be shipped or received.

6. Select the Item Number that you want to ship.

7. Select the Lot and Serial number of the item.

8. Enter the quantity to be shipped.

9. Specify the UOM.

10. Enter the Schedule Shipment Date: this is a required field.

11. Select values in the Shipment Priority, Shipment Method, Freight On Board terms, and Freight Terms fields.

12. You have the option to enter information for the shipping clerk in the Packing and Shipping Instructions field.

13. Choose Apply to save your work.

To edit or delete a ship order line:

1. Retrieve the OSP order associated to the ship order you want to edit or delete.

2. Navigate to the Edit OSP Order page. Select Shipments.

3. In the Shipment Lines region, select a shipment and click Update. The Shipment Line page opens.

4. Make changes to the shipment line as required, and choose Apply.

5. To delete a shipment line, choose Delete corresponding to the line number.

> **Note:** The delete action cannot be reversed.

6. Select Apply to save your work.

Receiving Parts

Receiving redesign for Outside Processing feature handles return of items or equipment that have been shipped out of an operation for service. The OSP receiving clerk will record the physical receipt, the receipt of the purchase order items, and update the necessary attributes on the item record in the system.

OSP Receiving enables you to receive items into the organization referenced in the RMA. You must change the RMA line information if you want to receive items into a different organization.

To find an OSP order related to received items:

1. Navigate to the Advance Search page.

2. Enter any of the following search criteria:

- Order Number

- Order Type

- Order Status

- Description

- Requisition Number

- PO Number

- Shipment Number

- Vendor Number

- Work Order Number

- Project Name

- Task Name

- Item

- Serial Number

- Department

3. Select the Ready for Receipt check box to filter the OSP orders that have shipped out and have not yet been received.

4. Click Go. The result page displays OSP orders related to the search criteria.

To receive an OSP item:

1. Navigate to the Outside Processing Orders page.

2. Select the appropriate order from the Results region.

3. After clicking the Update icon in the search page, you must click on the Shipment side navigation menu option.

4. Identify the RMA line to receive against and click the Receive Item icon and navigate to the Receive Shipment page.

5. To receive an item enter the following information:
   - Receiving Organization name defaults

   - Location

   - Condition

   - Subinventory

   - Locator

   - Receiving Quantity

   - UOM

   - Receiving Date

6. To receive an unexpected item, enter the following information in the Perform Item Change/Exchange region:

   - Exchange Item Number

   - Exchange Serial Number

   - Exchange Lot Number

7. To receive an item with a new item or serial number, enter the following information in the Perform Item Change/Exchange region:

   - New Item Number

   - New Serial Number

   - New Lot Number

   - New Revision

   - New Serial Tag

8. Click Apply. You will receive an item to the appropriate subinventory and locator with new item details.

Working with Exchange Orders

During the production planning or execution process, the planner may decide to replace an item or part with another similar or dissimilar part from a supplier. The servicing organization may ship out the item first (simple exchange) and then receive the exchange item or may receive the exchange item from the supplier first (advanced exchange) and then ship the item out. Exchange orders are created for each item being shipped, and contains information about the parts that will be shipped out and received back from the supplier, the shipment and return dates, and the costs of item exchange through an interface to the procurement system.

An exchange instance must be created in Installed Base, and associated to an order line before an item can be received in exchange.

An exchange order can be converted into a service order and vice versa if the return shipment has not occurred.

- Creating an Exchange Order, page 15-22

- Editing Exchange Orders, page 15-24

- Converting an Exchange OSP to a Service OSP, page 15-25

Creating an Exchange Order

To create an exchange order:

1. On the Oracle Complex Maintenance, Repair, and Overhaul Home page, select Execution. The Job Overview page of the Production Planning module appears.

2. Select the Outside Processing tab. The Search OSP Order page appears.

3. Click Create under the OSP Order Search Results header. The Search Work Order page appears.

4. Enter your search criteria in the fields and click Go. The production jobs matching your search criteria are displayed. Click Clear if you want to clear all fields and perform a new search.

5. Under Work Order Search Results, select the work order you want to include in the exchange order. Click the Exchange button. The Edit OSP Order page opens.

   Enter details in the fields on the Edit OSP Order page.

Field	Description
Order Number	Displays the order number.
Order Type	Displays the order type of exchange for the Exchange work orders.
Vendor Name	Select a vendor name from the list of vendors that will perform the service.
Vendor Location	Select the location from the list. This will be the ship to location of the supplier.
Buyer Name	Name of the buyer.

Field	Description
Order Status	Display-only information about the order status. Possible values are:
	• **Entered** - the OSP work order is still in processing mode; you can edit the OSP work order.
	• **Submitted** -the OSP work order has created a purchase order in Oracle Purchasing; no edits allowed. Further edits should be done in Oracle Purchasing.
	• **Submit Failed** -the OSP work order has failed to successfully create a purchase order in Oracle Purchasing. Edits to OSP work order are allowed. Re-submit the OSP work order when all edits are completed.
	• **Closed** -the OSP work order has been closed and no further activity will be allowed.
Order Date	Enter the date of ship order. Defaults to the current date.
Job Number	The number generated for a job.
Item	The tracked item for which the job has been created against.
Line Status	The current status for each delivery line.
Instance Number	The Installed Base Instance Number of the tracked item.
Exchange Instance	Instance of the item that will be received as part of the exchange.
Service Item Quantity	Quantity of the service item required.

6. To create a new order line, select Create Item Order Line or Create Work Order

Line. The Create OSP Line page appears.

7. Search for the OSP order number, and select the required items or jobs from the search results.

8. Enter the following information:

   • Need by date

   • Service Item Details: You can select the service item to be exchanged and its corresponding quantity and unit of measure.

   • Exchange Instance: Select an exchange instance that the supplier sends in place of the job's existing instance. For an exchange order, you will select an exchange instance before the supplier creates a return shipment line.

     > **Note:** Multiple items may be exchanged with a supplier using a single exchange order with multiple lines.
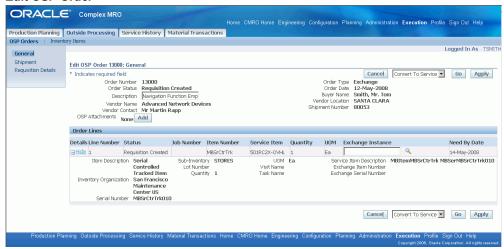
9. Click the **Apply** button to save the record.

Editing Exchange Orders

To edit an exchange order:

1. Navigate to the Outside Processing Orders page.

2. Enter information in the fields. The Order type should be Exchange. Click Go. The exchange orders matching your search criteria appear in the OSP Order Search Results table.

3. Click the Update icon for the order that you want to edit. The Edit OSP Order page appears.

Edit OSP Order

4. Make the necessary changes and click Apply to save the record. Click Cancel to discard any changes and return to the Search OSP order page.

5. Select the work order and click Submit to create a related purchase order in Oracle Purchasing. You can view the PO details by clicking the link on the side navigation menu option.

6. Click Delete Shipment to remove the shipping order associated with the current OSP work order.

7. Click **Close** to permanently close the current OSP Work Order. This will be successful if all the following conditions are met:

   • The item requested in exchange has been received.

   • All listed production jobs are closed.

   • The associated purchase order is closed.

Converting Service/Exchange OSP to Exchange/Service OSP

You can change an exchange order to a service order and vice versa if the return shipment has not occurred.
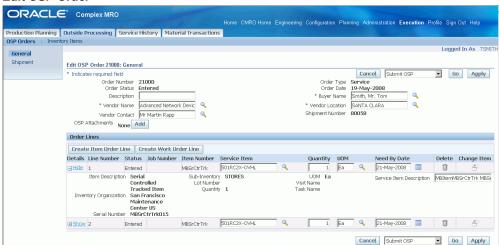
Prerequisites

❑ If the exchange order is in the Closed state, conversion will not occur.

❐ If there is a return shipment line with the received quantity greater then zero, conversion cannot occur.

To convert an OSP order:

1. On the Oracle Complex Maintenance, Repair, and Overhaul Home page, select Execution. The Job Overview page of the Production Planning module appears.

2. Select the Outside Processing tab. The Search OSP Order page appears.

3. Enter information in the fields. The OSP orders matching your search criteria are displayed.

4. Click the Update icon for the order that you want to convert.

Edit OSP Order

5. Select the Convert to Exchange option from the list of values. Click the Go button. A notification appears that the order had been converted.

Part 3

CMRO Seeded Responsibilities, Business Types, and Roles

16

CMRO Seeded Responsibilities

This chapter covers the following topics:

- CMRO Seeded Responsibilities

CMRO Seeded Responsibilities

CMRO Responsibilities

Responsibility	Usage
Complex MRO Component Technician	Used to execute work orders based on component demand. Use this responsibility to access the Component Maintenance feature.
Complex MRO Data Clerk	Used in environments where the shift work records are updated by data entry clerks. Use the Data Clerk Workbench to perform component-related tasks such as update work orders based on repair batches, and generate work cards.
Complex MRO Material Marshalling User	Used to perform materials maintenance tasks such as marshalling, demand and supply management (work order material demand), and access the Marshalling Workbench. Replaces the Complex MRO Marshalling Workbench responsibility.
Complex MRO Super User	Used by heavy maintenance, line maintenance, UMP, MC, and the Aircraft Maintenance Planning Workbench.

Responsibility	Usage
Complex MRO Technician	Used by heavy maintenance and engine shop technicians to display work orders, and perform maintenance tasks for large jobs. Work orders are assigned to a specific technician.
Complex MRO Transit Technician	Used by transit maintenance technicians to work on smaller maintenance visits that last for a few hours rather than days.

17

CMRO Business Types

This chapter covers the following topics:

- CMRO Business Types

CMRO Business Types

CMRO has grouped four primary business types that may exist in the industry as independent businesses or as some combination of the primary groupings. These business types can be used to visualize and explain the roles and tasks within each business type. This is specifically done for organization and simplicity in describing both the design direction of CMRO and to begin to map the CMRO solution to the known requirements of each business.

The business types defined here are of generic nature and are intended to be used as a starting point for communication of the CMRO offering and direction. As with all Oracle eBusiness applications, specific functional groupings can always be customized at implementation, using the standard Role Based Access Control (RBAC) setups.

The following are the four primary business types:

- **Aircraft Operator**

  Includes aircraft maintenance airworthiness monitoring, line maintenance planning and execution, progressive and light to medium checks, strategic planning support, material handling, records entry, and OSP support.

  See Aircraft Operator, CMRO Responsibilities and Business Types, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information and the associated CMRO roles for this business type.

- **Heavy Maintenance**

  Performs D Checks and overhauls as a separate entity to the aircraft operator or as an internal division.

  See Heavy Maintenance, CMRO Responsibilities and Business Types, *Oracle*

Complex Maintenance, Repair and Overhaul Process Guide for more information and the associated CMRO roles for this business type.

- **Complex Assembly Maintenance**

  Engine and large assembly maintenance provider, with engineering and planning tools to support internal or external aircraft operators.

  See Complex Assembly Maintenance, CMRO Responsibilities and Business Types, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information and the associated CMRO roles for this business type.

- **Component Shop**

  Repair shop set up for high volume, low to medium complexity repairs.

  See Component Shop, CMRO Responsibilities and Business Types, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information and the associated CMRO roles for this business type.

18

CMRO Roles, Tasks, and Processes

This chapter covers the following topics:

- Overview of CMRO Roles, Tasks, and Processes
- Role 1.0 - Strategic Operations Planner
- Role 2.0 - Maintenance Controller (MCC)
- Role 3.0 - Local Maintenance Planner
- Role 4.0 - Reliability Engineer
- Role 5.0 - Technical Services - Document Manager
- Role 6.0 - Technical Services - Configuration Engineer
- Role 7.0 - Engineering - Engineer
- Role 8.0 - Warranty Administrator/Analyst
- Role 9.0 - Maintenance Records - Data Clerk
- Role 10.0 - Line Maintenance Supervisor
- Role 11.0 - Line Maintenance Technician
- Role 12.0 - AOG Planner
- Role 13.0 - Material Clerk (Issues/Returns)
- Role 14.0 - Heavy Maintenance Planner
- Role 15.0 - Heavy Maintenance Supervisor
- Role 16.0 - Crew Lead
- Role 17.0 - Heavy Maintenance Technician
- Role 18.0 - Aircraft Inspector
- Role 19.0 - Marshaller
- Role 20.0 - OSP Planner/Clerk
- Role 21.0 - Complex Assembly Maintenance Planner

- Role 22.0 - Shop Maintenance Supervisor

- Role 23.0 - Shop Inspector

- Role 24.0 - Component Shop Planner

Overview of CMRO Roles, Tasks, and Processes

Complex MRO has been and will continue to be built according to the roles outlined by the Product Management team. These roles have been, and are continuously adjusted, amended, expanded, and modified according to field input. This field input comes from Product Management experience, CMRO implementation feedback, customer interaction, and the CMRO development vision. Currently, 24 roles have been accounted for, described, and mapped to solutions within the CMRO footprint, including UIs and user flows. These roles have major tasks, the tasks have processes, and the processes have steps.

See CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this feature.

Role 1.0 - Strategic Operations Planner

This role is focused on projecting operational maintenance forecasts from three to seven years into the future to evaluate the impact on aircraft availability, maintenance program costs, and facility and resources requirements. The planner can create operational or engineering simulation plans, which will be used to produce simulated maintenance forecasts for evaluation. The simulation plans can be edited, refined, and regenerated as needed to produce different forecasts. These forecasts can also be used as the basis for budget planning, or the planner may drive different simulation scenarios to create an operational plan that does not exceed a defined budgetary threshold.

See Role 1.0 - Strategic Operations Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 2.0 - Maintenance Controller (MCC)

This role is focused on maintaining the airworthiness of all aircraft assigned to the flight schedule. This role manages the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) for each aircraft, planning and monitoring the scheduled and unscheduled maintenance, and evaluating and communicating the operational status for each aircraft to operations.

See Role 2.0 - Maintenance Controller (MCC), CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 3.0 - Local Maintenance Planner

This role is focused on planning maintenance at the local maintenance base or station. This can include managing the execution of preplanned maintenance visits, utilizing flight down times to correct open MEL or CDL maintenance items, and coordinating the repair and return of an out of service aircraft. The planner will coordinate with the Maintenance Planning and Maintenance Control groups to ensure the execution of all preplanned maintenance visits. These visits would be scheduled during downtime periods in the flight schedule and are used to accomplish scheduled maintenance such as inspections, line checks, and planned component removals and to correct open Pireps and MEL and CDL maintenance items.

See Role 3.0 - Local Maintenance Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 4.0 - Reliability Engineer

This role is responsible for the necessary data collection and analysis to support internal reliability and continuous improvement initiatives. Additionally, regulatory bodies may require certain operators to create and submit an official Reliability Program to be followed with regulatory oversight. This role will also be responsible for the reporting and interfacing with the regulatory agency requiring such a program.

See Role 4.0 - Reliability Engineer, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 5.0 - Technical Services - Document Manager

This role is responsible for maintaining and distributing the OEM documents such as an Illustrated Parts Catalog (IPC), Aircraft Maintenance Manual, Engine Maintenance Manual, Component Maintenance Manual, Service Bulletin, and so on, in electronic form within the CMRO system. The distribution is handled by the distribution list associated to each document. The latest version is controlled by retrieving new copies of the relevant document. This is achieved with the help of subscription and supplier information associated with each document in the document index.

See Role 5.0 - Technical Services - Document Manager, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 6.0 - Technical Services - Configuration Engineer

This role is responsible for maintaining the configurations of aircraft, engines and all subassemblies. This role must possess a detailed understanding of OEM data about

parts, assemblies, and subassemblies that make up aircraft, engines, major assemblies, and components. This OEM data is then used to maintain traceability and airworthiness as required to be reported to regulatory bodies. A configuration engineer is responsible for the initial translation and creation of these configurations, the revisions and updates to the OEM data over time, and the verification that the service life data is correctly represented.

See Role 6.0 - Technical Services - Configuration Engineer, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 7.0 - Engineering - Engineer

This role is responsible for creating and maintaining the Approved Maintenance Program (AMP) for the aircraft within the system. This AMP is developed from manuals issued by the manufacturers and approved by the regulatory bodies that oversee an operation. This role has expertise with interpretation and translation of the AMP into an electronic system. The electronic representation is critical to the operation of the business, and must also include ways to update and revise the AMP when new or revised information is received from OEMs and regulatory agencies.

See Role 7.0 - Engineering - Engineer, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 8.0 - Warranty Administrator/Analyst

This role is responsible for maintaining and administering the supplier warranty program for both internal and external customer assets within CMRO. This includes managing warranty information in the form of vendor-based warranty templates, asset-based warranty contracts, activity-based warranty entitlements, and vendor-based warranty claims.

See Role 8.0 - Warranty Administrator/Analysis, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 9.0 - Maintenance Records - Data Clerk

This role is responsible for updating records of maintenance performed. This role is usually required in businesses that do not enable the technicians (or persons performing the work) to update the system directly. Updates can be performed when the work associated with an operation is captured on paper and then transferred to the system. There is normally up to a one work shift lag when a data clerk is involved. This role can also be responsible for inserting omitted work after it is discovered, or making corrections to erroneous data.

See Role 9.0 - Maintenance Records - Data Clerk, CMRO Roles, Tasks and Processes,

Oracle Complex Maintenance, Repair and Overhaul Process Guide for more information regarding this role.

Role 10.0 - Line Maintenance Supervisor

This role is responsible for coordinating and monitoring work assigned to line maintenance, which includes both transit and overnight jobs. The Line Maintenance Supervisor (LMS) will also oversee the technicians who are assigned to execute jobs in these areas. Because the major focus in line maintenance is to ensure the on time dispatch of aircraft and airworthiness status, this supervisor will update the Maintenance Control Center (MCC) of the ongoing maintenance status and potential delays derived from transit or overnight visits. The MCC will then use the LMS advice to inform the Operational Control Center (OCC) of the Estimated Time of Repair (ETR), to properly plan and adjust the flight schedules.

See Role 10.0 - Line Maintenance Supervisor, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 11.0 - Line Maintenance Technician

This role is primarily involved in the execution of the work scope associated with aircraft transits and overnight checks. The Line Maintenance Technician is assigned tasks which are required for an aircraft release (return to service) within short periods of time, such as transit stops or a first flight of the day (overnight release). In addition, this role may also be responsible for preparing execution requirements prior to aircraft arrival including materials, tools, and documentation. Depending upon the line station size, this role may also be responsible for tasks that belong to a Line Maintenance Supervisor.

See Role 11.0 - Line Maintenance Technician, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 12.0 - AOG Planner

This role is responsible for locating and securing materials that cannot be fulfilled by the standard supply chain plan. These unresolved material shortages will affect scheduled flights if left unattended. The AOG Planner works in a fast-paced environment and looks across multiple supply sources to immediately resolve last minute demands. This role requires the understanding of all material requirements, organization and inventory structures, priorities of ongoing and planned work, and flight operation impact. An AOG planner will work diligently to minimize the impacts to line maintenance and flight schedules, while balancing the material allocation against other known material demands within the business. This role focuses on demand dates and procuring items, with little consideration of build goals.

See Role 12.0 - AOG Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 13.0 - Material Clerk (Issues/Returns)

This role is responsible for the oversight of an inventory store location. Material is either issued out to support maintenance jobs or received as unused, in need of repair, or scrapped (red tagged) from an inventory store location. The Material Clerk represents the interface between the work performed and the inventory locations. This role will receive the job-bound materials and place them on the shelves and initiate the routing of the post-job materials to the next appropriate location. This role will also be responsible for the common tools and equipment that will be checked in and checked out by technicians to perform work.

See Role 13.0 - Material Clerk (Issues/Returns), CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 14.0 - Heavy Maintenance Planner

This role is focused on projecting the aircraft heavy maintenance forecast for a period of one to three years into the future, managing the heavy maintenance visit plan for a period of less than one year, as well as supporting the current and next due repair visits. The Heavy Maintenance Planner will create the heavy maintenance forecast by evaluating the impact of required inspections and servicing, service bulletins, modifications and reliability improvement programs, and the historical analysis of non-routine maintenance. The planner can also create a simulated heavy maintenance forecast by evaluating the impact of different operational scenarios; which can involve different mixes of fleet types, number of aircraft, fleet utilization rates, aircraft ages, engineering effectivity, operating locations or areas.

See Role 14.0 - Heavy Maintenance Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 15.0 - Heavy Maintenance Supervisor

This role is responsible for coordinating aircraft work scope in heavy maintenance visits from an execution perspective. Examples of these heavy visits include major checks (C and D checks) and overhauls. This role also coordinates scheduling jobs with other departments and shops participating in the scheduled maintenance, such as sheet metals, composite materials, inspection, and painting.

See Role 15.0 - Heavy Maintenance Supervisor, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 16.0 - Crew Lead

This role is responsible for the work cards, required materials, and paperwork preparation prior to the assignment to technicians or inspectors. This role acts as a supervisory entity over a set of resources and work scope. The crew lead will ensure that the scheduled jobs are worked in a timely and effective manner. This role also verifies that the latest job status (on time, late, waiting for materials, and so on) is reported, so that appropriate scheduling can be adjusted and the best visit completion date is understood by all. In addition, this role will plan for jobs across shifts and with other Crew Leads, ensuring the accuracy of the materials and notes transferred.

See Role 16.0 - Crew Lead, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 17.0 - Heavy Maintenance Technician

This role is responsible for execution of hangar jobs planned according to an approved maintenance plan, usually termed *major checks.* This type of work is likely performed across all shifts for multiple days. Typical heavy maintenance planned activities include the staging of aircraft for engine runs, cleaning and washing, and other pre-visit checks to detect abnormal conditions (fluid leaks, engine parameters, cabin pressurization, and so on) which would be logged as non-routines to be corrected once the heavy maintenance is underway. Aircraft will be maneuvered into the appropriate spaces based on planned work, and may be adjusted according to findings upon aircraft receipt (such as painting hangars, jacking, or specific equipment needed). This role will handle the logistics and physical moves of the aircraft in addition to the execution of the jobs that make up the visit.

See Role 17.0 - Heavy Maintenance Technician, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 18.0 - Aircraft Inspector

This role supports both heavy and line maintenance work. In general, aircraft inspectors are assigned to specific work tasks, which require additional approval based on certified skills. Some examples are skin tap testing, NDT (non-destructive testing) requirements testing, engine on-wing boroscope inspections, and so on. Additionally, some routine work or repairs also require this role as a second approval before the job is completed. This role requires a tight coordination within Heavy and Line Maintenance to guarantee access in the areas to be inspected. In most cases, inspection requirements are planned and scheduled as integral parts of the associated work performed by a technician, and the aircraft inspector follows this schedule to perform their duties. This role also plays a part in continuous improvement programs, collecting and recording information for specific analysis, such as reliability programs, workplace safety

programs, and so on.

See Role 18.0 - Aircraft Inspector, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 19.0 - Marshaller

This role is responsible for the support of the engine build process to ensure that the right parts are in the right location at the right time. As parts are located, the Marshaller can reserve and route these parts to the location of the build to ensure that the intended configuration is assembled to desired specifications.

See Role 19.0 - Marshaller, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 20.0 - OSP Planner/Clerk

The CMRO OSP Planner/Clerk is responsible for the shipping and receiving transactions associated with material maintenance provided by third-party vendors and the correct routing of material. The OSP Planner/Clerk also ensures that the warranty for items are tracked and processed.

See Role 20.0 - OSP Planner/Clerk, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 21.0 - Complex Assembly Maintenance Planner

This role is focused on projecting the complex assembly maintenance forecast for a period that is greater than one year into the future, managing the maintenance plan for a period of less than one year, and supporting next due and currently in production repair visits.

The complex assembly maintenance forecast will be created by evaluating the impact of life limit, soft limit, optional and required modifications, and the historical analysis of non-routine removals. The output will be a forecast which can be used to create a supply chain plan and to determine costs for budgeting. The forecast will also be used to determine the maintenance capacity and resource requirements, and to evaluate the in-sourcing opportunities and outsourcing requirements. The planner will also work with in-sourced customers to evaluate the impact of planned and unplanned repair streams on the forecast.

See Role 21.0 - Complex Assembly Maintenance Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 22.0 - Shop Maintenance Supervisor

The responsibilities for this role revolve around component and complex assembly repair shops, ensuring that part repairs are performed on a timely basis and follow approved OEM information. The Shop Maintenance Supervisor will oversee and coordinate all activities, related components, and final assembly scheduling according to requirement due dates or shop commitment. This role can oversee maintenance activities for owned parts and third-party repairs, and will balance shop capacities and capabilities against part repair demands or commitments. In addition, this role is accountable to ensure that all personnel are trained and qualified under assigned jobs.

See Role 22.0 - Shop Maintenance Supervisor, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 23.0 - Shop Inspector

This role supports engine and component shops. Generally, shop inspectors are assigned to specific work tasks which require additional approval based on certified skills such as NDT requirements testing, boroscope inspections, parts sandblast repairs, and so on. Shop repairs may also require this role as a second approval before the job is completed. Shop inspectors are assigned to jobs which require items to be double checked: RII (required inspection items) dimensions to be measured or compared among OEM data, items to be weighed, wear to be checked or special devices to be used, special components tests (hydrostatic tests), and so on. This role requires coordination within engine or component shop processes and personnel to guarantee the least interruption in shop progress. In most cases, inspection requirements are planned and scheduled as integral parts of the associated work performed by a shop technician, and the shop inspector follows this schedule to perform their duties.

See Role 23.0 - Shop Inspector, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

Role 24.0 - Component Shop Planner

This role is focused on projecting the component repair forecast for a period that is greater than one year into the future, managing the component repair plan for a period of less than one year, and supporting the next due and currently in production repair of components.

See Role 24.0 - Component Shop Planner, CMRO Roles, Tasks and Processes, *Oracle Complex Maintenance, Repair and Overhaul Process Guide* for more information regarding this role.

19

Maintenance Technician Roles

This chapter covers the following topics:

- Overview
- Using the Technician Workbench
- Updating Work Orders
- Using the Transit Technician Workbench
- Using the Data Clerk Workbench
- Viewing Enigma Documents
- Viewing Operation Resources and Visit Details
- Maintenance Requirement Recording
- Finding Work Orders
- Operations
- Creating Non-Routine Work Orders
- Completing Work Orders and Operations
- Performing Part Removal/Install
- Changing Item and Serial Numbers Associated with Work Orders
- Viewing and Updating Material Requirements
- Viewing Assignments, Documents, and Resources

Overview

Maintenance technician role based functionality consists of workbenches and pages supporting different types of maintenance tasks for production technicians, transit technicians, and data entry clerks. This includes the following roles and user interfaces:

- Heavy Maintenance and Engine Shop Technician

These pages focus on a technician working on medium to large sized maintenance visits, lasting for days and weeks, where technicians are assigned to specific work orders based on their skill set. You can identify the work order assigned, log in and log out, update quality plans, create transactions for part charges and dispositions, and automatically transact time performed on a job. See: Using the Technician Workbench, page 19-2

- Line and Transit Maintenance Technician

  These pages focus on a technician working on a small visit, either on the flight line, or between flights. These visits are simpler than a heavy maintenance visit, and last for a few hours rather than days. The visit tasks are usually for smaller inspections, quicker maintenance issues, and non routine handling. A technician is not necessarily assigned to specific work orders. See: Transit Technician Workbench, page 19-11

- Data Entry Clerk

  Data clerks do not perform the work on the equipment; the clerk is entering data after the work is performed work. These pages focus on the records that the clerk enters for tasks performed by a technician during a shift. See: Using the Data Clerk Workbench, page 19-14

Using the Technician Workbench

The Technician Workbench is used by heavy maintenance and engine shop technicians to display work orders, and perform maintenance tasks for large jobs. Work orders are selected from assigned and unassigned lists. Work orders are assigned to a specific technician; unassigned work orders are displayed based on resource associations. This workbench also enables you to:

- Update operations and work orders.

  You can complete operations and work orders using this interface. Set the following profile options to Yes to enable completion to be performed at either the work order level or at an operation level. This is dependent upon whether you have logged into a specific work order or a specific operation.

  - AHL: Completion restricted to logged in Work Order or Operation

  - AHL: Enforce bottom up completions for maintenance requirement sign off

  See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul implementation Guide* for more information.

- View resource assignments and transactions.

- View and update visit details.
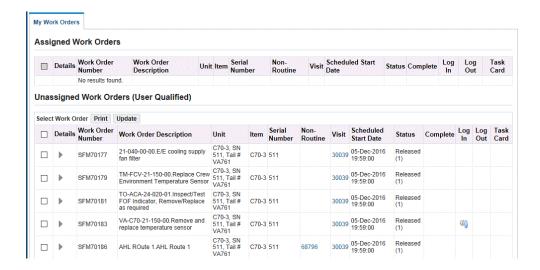
- View non routine orders.

- Update work orders by deferring maintenance requirements, changing parts, and collecting quality information.

- Print maintenance work cards.

- Record maintenance requirements .

- Access task cards.

Maintenance Work Card Printing

A template is provided for a maintenance work card enabling you to print, or create a file, of the details displayed in the Technician Workbench. This is designed as a hard copy of the work order for data entry. You can print a range of work orders, and use sorting options such as scheduled date, work order number, visit, or visit stage.

To view work orders in the Technician Workbench:

1. Navigate to the Technician Workbench.

2. You can search for work order records by entering search criteria in the applicable fields including Work Order Number, Work Order Status, Visit Number, and Start and End Dates.

3. Select Go to display the results of your search.

Information appears in the Assigned Work Orders and Unassigned Work Orders regions. You can view information such as work order number, non-routine request number, visit number, status and so on.

Integration with Enigma enables a technician to view and print associated Enigma documents related to a specific work order in Oracle CMRO. To identify and troubleshoot a defect, the technician can view the Fault Identification Manual (FIM) that is linked to Enigma's interface.

Click the Task Card icon for any work order to display the corresponding Aircraft Maintenance Manual (AMM). The AMM task cards are associated with a route in Oracle CMRO. These task cards include content from AMM, IPC, and WDM manuals. Oracle CMRO maintains the revision of the tasks and stores a PDF file as an attachment to the route.

4. Select a work order and click the Print button to view or print a maintenance work card.
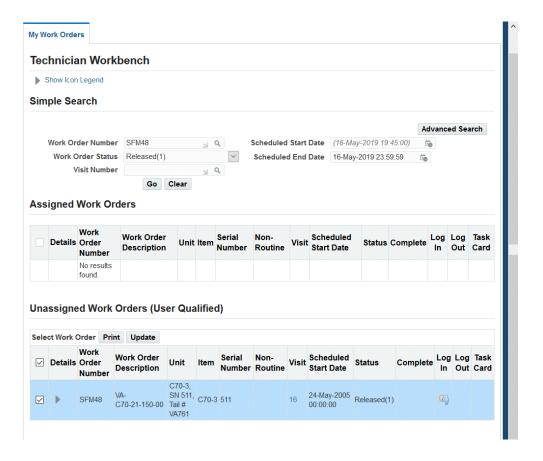
   Maintenance work card printing provides printed or file information of the details that appear in the Technician Workbench. This provides a hard copy of the work order to give technicians before each shift.

5. You can complete the entire work order or complete operations.

   Set the following profile options to Yes to enable completions to be performed for a specific work order or at an operation level. This is dependent upon whether you have logged into a specific work order or a specific operation.

   • AHL: Completion restricted to logged in Work Order or Operation

   • AHL: Enforce bottom up completions for maintenance requirement sign off

   See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul implememtation Guide* for more information.

6. You can complete an operation from the Search page of the Technician Workbench. Expand the Show Details link for a work order and click the Complete icon for each operation to complete the operation.

7. You can perform the following actions:

   - Choose Update to access the Update Work Orders page, see: Updating Work Orders, page 19-6

   - View resource assignments and transactions, see: Viewing Operation Resources, page 19-16

   - View and update visit details, see: Viewing Operation Resources and Visit Details, page 19-16

   - View non routine orders, see: Creating Non-routine Work Orders, page 19-26

   - Print maintenance work cards.

   - To complete the entire work order.

To complete an entire work order:

1. Select the work order that you want to complete. Note that the Complete icon is unavailable for all other work orders and associated operations.

2. Log into the work order.

3. Click the Complete icon at the work order level (Assigned Work Orders or Unassigned Work Orders).

    The Operation Resources region appears. All operations will be available

	Operation Sequence	Operation Code	Description	Status	Complete	Resource Name	Assigned Start	Total Hours	Hours Worked	Log
☐	1	VA.C70.21-61-06.020.801	Remove temperature sensor	Uncomplete	✓	A&P-SFM	24-May-2005 00:00:00	3:0:0	0:0:0	
	2	VA.C70.21-61-06.420.801	Install temperature sensor	Uncomplete	✓	A&P-SFM	24-May-2005 00:00:00	3:0:0	0:0:0	
	3	VA.C70.21-61-06.720.801	Functional test temperature sensor	Uncomplete	✓	A&P-SFM	24-May-2005 00:00:00	3:0:0	0:0:0	

4. Complete operations.

5. Log out of the work order.

To complete specific operations for a work order:

1. Select the operation that you want to complete.

2. Log into the operation.

3. Click the Complete icon, and enter completions information.

4. Save your work.

Updating Work Orders

The Update Work Orders page displays the work order, and its associated operations and maintenance requirements. You can update the work order by performing a number of transactions, and view detail information in five tabbed regions. This page also displays a notes area for technicians to communicate between shift turnovers.

During the creation of work orders and if operation resources are planned at a department level, the operation department defaults from the operation resource if the associated BOM resource is available in the visit's organization. See: Creating Oracle Complex Maintenance, Repair, and Overhaul Resources, page 3-51.

You can complete operations and work orders using this interface. Set the following profile options to Yes to enable completions to be performed at either the work order level or at an operation level. This is dependent upon whether you have logged into a specific work order or a specific operation.

- AHL: Completion restricted to logged in Work Order or Operation

- AHL: Enforce bottom up completions for maintenance requirement sign off

See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul implememtation Guide* for more information.

To update work orders:
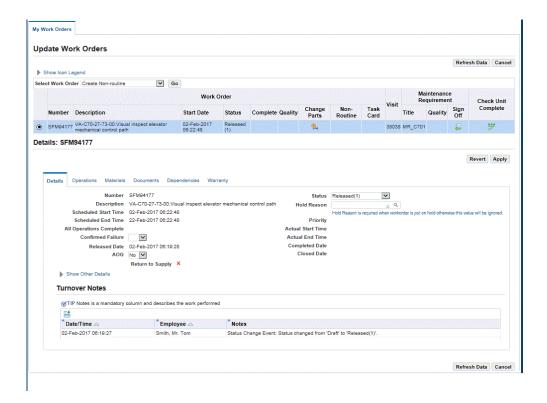
1. Select a work order and the Update Work Orders page appears.

   This page enables you to access other pages to perform work order tasks. Select a task in the Select Work Order region, and click the Go button to access the appropriate page:
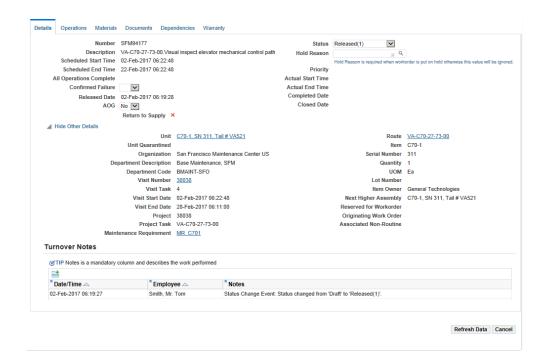
   - Click the Complete icon to complete operations for the selected work order.

     > **Note:** All other work orders and their associated operations do not appear,

   - Create non-routine work orders, see: Creating Non-routine Work Orders, page 19-26 and Creating a Non-Routine from an Existing Non-Routine Work Orders, page 19-26.

   - Defer Maintenance Requirement, see: Deferring Maintenance Requirements, page 14-8

   - Generate Work Card provides a file or printed maintenance work card of details of the Technician Workbench.

   - Request Warranty Review: You can select this option only when the warranty status is not Approval Pending.

     Select Request Warranty Review and click Go. A notification is generated and the warranty status moves from Not Applicable to Approval Pending.

   - View/Create Dispositions, see: Item Disposition, page 14-28

2. In the Select Work Orders row, you can perform the following actions:

   • Change Parts enables you to navigate to the Unit Configuration Part Changes page, see: Performing Part Removal/Install, page 19-31

   • Update Non-Routine.

   • Task Card enables you to access the Enigma associated documents. Click the Task Card icon to display the Aircraft Maintenance Manual if the corresponding route of the work order has an external document association.

   • Record Quality collection information, see Entering Quality Results, *Oracle Quality User's Guide*

   • Sign Off enables you to end maintenance requirement transactions. See: Maintenance Requirement Recording, page 19-17

3. Click the Details tab to view a summary of work order details and turnover notes.

   Click the Show Other Details link to display more information on the selected work order.
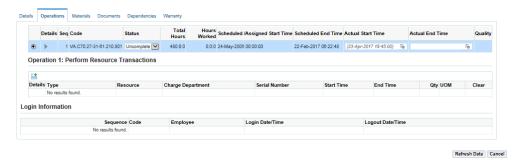
This region enables you to:

- Update the status of the work order.

- Enter a reason when the status of the work order is On Hold or Parts Hold.

- Update Scheduled Start and End Time.

- Navigate to the View Unit Configuration page, see: Creating Unit Configurations , page 6-3

- Navigate to the View Visit Details page, see:Viewing Operation Resources and Visit Details, page 19-16

- Navigate to the View Maintenance Requirement page, see: Viewing Maintenance Requirement Details, page 2-37

- Navigate to the View Route page, see: Creating Maintenance Route Records, page 3-8

4. The Turnover Notes region displays the date and time, employee, and a short description of the work performed. You can add additional notes for a specific date and time period.

5. Select Operations tab to view work order operation details, such as: the operation status, hours worked, scheduled, and actual time worked.

- Total Hours: For assigned work orders, this column represents the total required hours according to the assignment. For the unassigned work orders, this column represents the sum of all the required hours for the work order.

- Hours Worked: This column represents the amount of time technician is logged into the work order, plus the other time transacted for this work order.

In the Perform Resource Transactions region, you can record resource information for machine type resources.

6. Click the Materials tab to view item information. This region displays operation sequence, scheduled and issued quantities, and required date. You can update the scheduled quantity and add new items to the work order.

7. Select Documents tab to view any work order documents associated to the maintenance requirements, operations, product classification, or configuration items. You can access the Illustrated Parts Catalog and Wiring Diagram Manual from this region.

To enable these buttons, you must set the following profile options to Yes:

- AHL: Enigma IPC Documents associated
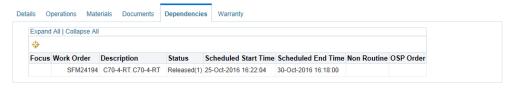
- AHL: Enigma WDM Documents associated

Click the Illustrated Parts Catalog and Wiring Diagram Manual buttons to view the associated documents.

This page lists the applicable document revision, chapter, section, subject, page, figure, and note. See: Attaching Documents to a Maintenance Requirement, page 2-10

8. The Dependencies tab displays any scheduling dependencies for this work order including work order status, scheduling time and dates, non-routine, and outside

processing orders.

9. The Warranty tab enables you to review warranty, update warranty and request Warranty Review and approval. The Warranty Contract LOV is available for edit if the Warranty Item flag is Yes.

This tab displays the following information:

• Task Warranty flag is Yes if a warranty template is associated at the task level.

• Instance Warranty flag is Yes if there is at least one active warranty contract for the unit.

• Warranty Contract: Only active contracts are available for selection.

• Warranty Status: Defaults from the warranty status.

• Warranty Claim: Refers to the Warranty Claim Unique Identifier.

• Claim Status: Defaults from the status of the claim.

> **Note:** If the Instance Warranty field is set to Yes, you can edit the warranty contract. The status changes to Approval Pending when you click Apply. The Technician sees a change in status from Approval Pending to Approved or Not Applicable, based on the outcome of the review and approval process.

10. Click the Apply button to save your work.

Using the Transit Technician Workbench

Transit maintenance technicians are working on smaller maintenance visits that last for a few hours rather than days.

 The workbench provides three tabbed regions:

• Unit Schedule

This page displays the different flight segments for a tail number, and the scheduled visits or maintenance opportunities between flights. The unit schedules are displayed in increments of minutes, hours or days. You can also access conflict

messages which show an overlap of events. See: Viewing Unit Schedule, page 10-31

- Flight Schedule

  Flight schedules are imported into the application using an API, or can be created manually. See: Maintaining Flight Schedule, page 10-37

- Visits
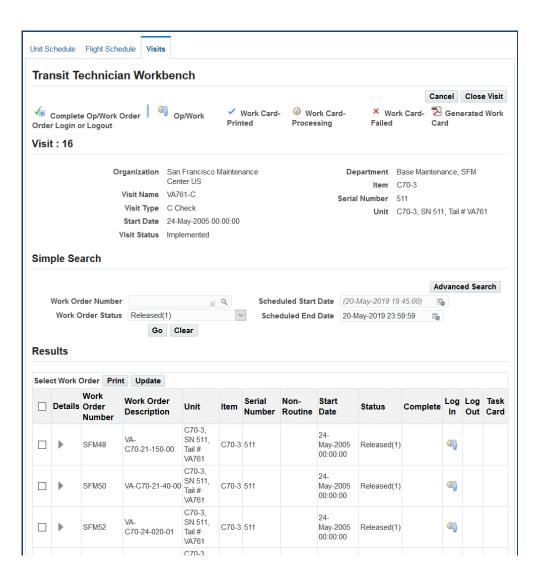
  You can view flight details and identify where visits can be created. The Visit tabbed region enables you to search for visits, create new records, and update visit information. See: Creating Maintenance Visit Records, page 11-5

Enigma Integration enables a transit technician to view associated Enigma documents related to a maintenance work order.

To view associated Enigma documents:

1. Click the Visits tab and search for the relevant work order.

   The work order results appear.

2. Select a work order, and click the Log In icon.

   select the Operations subtab.

3. Click the work order link, and the Update Visit page appears.

4. Select Visit Workorders from the action dropdown list and click Go.

   The Transit Technician Workbench appears.

5. Update operations and other work order information, if applicable.

   You can complete specific operations and specific work orders at the work order level or at an operation level if the following profile options are set to Yes. The level at which you can perform completions is dependent upon whether you have logged into a specific work order or a specific operation.

- AHL: Completion restricted to logged in Work Order or Operation

- AHL: Enforce bottom up completions for maintenance requirement sign off

See Setting Up Visit Work Package, *Oracle Complex Maintenance, Repair and Overhaul implememtation Guide* for more information.
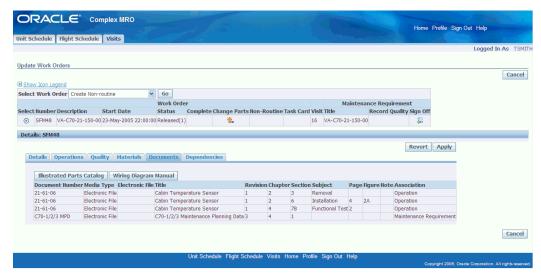
6. Select the Documents subtab.

   The Task Card column in the Results region is visible if the corresponding route of the work order has an external document association.

7. Click the Task Card icon for a work order to view the corresponding Aircraft Maintenance Manual (AMM).

The Enigma integration enables you to view any other work order documents associated to the maintenance requirements, operations, product classifications, or configuration items. You can access the Illustrated Parts Catalog and Wiring Diagram Manual from the Update Work Orders page.

Using the Data Clerk Workbench

The Data Clerk Workbench is used in environments where the shift work records are updated by data entry clerks. The work orders are not filtered per user, and the pages do not contain default information. Data clerks can search and record data for work orders that have been assigned to any technician, and can record job tasks, start and stop times, and completions.

To view work orders using the Data Clerk Workbench:

1. Navigate to the Data Clerk Workbench.

2. You can search by entering values in the following fields: Work Order Number, Work Order Status, Visit Number, and Start and End Date. Click the Go button to view the results of your search.

3. Select a work order to perform the following transactions:

   • Print maintenance work cards.

   • Update work orders, see: Updating Work Orders, page 19-6

   • View operation resources, see: Viewing Operation Resources and Visit Details, page 19-16

   • View non-routine work orders, see: Creating Non-routine Work Orders, page 19-26

   • View visit details, see: Viewing Operation Resources and Visit Details, page 19-16

   • View Enigma documents, see: Viewing Enigma Documents, page 19-15

Viewing Enigma Documents

The Enigma integration enables a data clerk to view associated Enigma documents related to a maintenance work order. The Task Card column in the Data Clerk Workbench is visible if the corresponding route of the work order has an external document association.

Click the Task Card icon for a work order to view the corresponding Aircraft Maintenance Manual (AMM).

This integration also enables you to view any other work order documents associated to the maintenance requirements, operations, product classifications, or configuration items. You can access the Illustrated Parts Catalog and Wiring Diagram Manual from the Update Work Orders page.
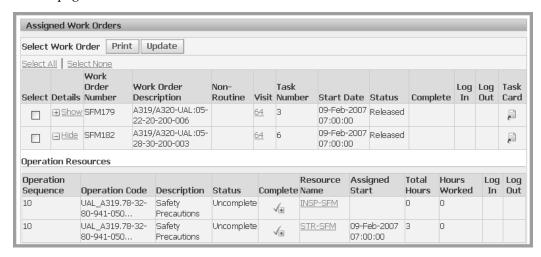
Viewing Operation Resources and Visit Details
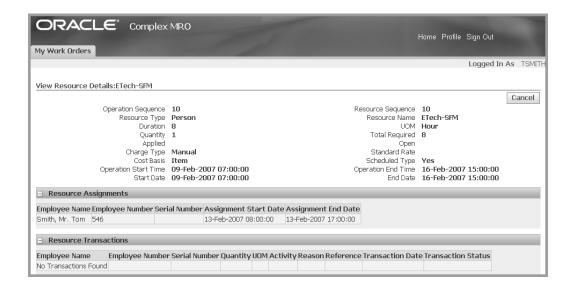
Viewing and Updating Operation Resources

Operation resources are accessed from both the Technician and Data Clerk Workbenches by selecting the details for specific work orders. This page displays the labor resources, operation sequence, operation code, description, status, resource name, assigned start date and time, total hours and hours worked, and log in and log out data.

You can complete the operation using this page, and navigate to the View Resource Details page.

Select the Resource Name to navigate to the View Resource Detail page. This page displays the details on the particular resource, and includes resource assignment and resource transactions.

See: Defining Resource Requirements for an Operation, page 3-33

Viewing Visit Details

The View Visit Details page enables you to view the maintenance visit information, and navigate to pages to create visit transactions. See: Creating Maintenance Visit Records, page 11-5

You can cancel or close this visit record, and navigate to the Cost Structure page. See: Visit Costing and Pricing, page 11-23
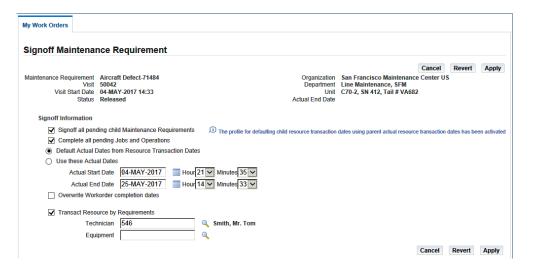
Maintenance Requirement Recording

You can initiate and stop the recording of maintenance requirement transactions in the maintenance technician workbenches. When all the work orders for a particular maintenance requirement are completed, and quality collection plan information is

updated and you can sign off on the maintenance requirement. All associated work orders for the maintenance requirement must be complete.

To stop maintenance requirement transactions:

1. Select a work order and navigate to the Signoff Maintenance Requirement page.

    Maintenance requirement and visit details appear for this record.

2. In the Signoff Information region, enable the check boxes for the appropriate information including:

    *   Sign off all pending child maintenance requirements.

    *   Complete all pending work orders and operations.

3. Choose one of the date range values for signing off your requirements.

    *   Default operation actual dates from scheduled dates.

    *   Enter date and time information in the Use these Actual Dates region.

4. You can optionally select the Transact Resource by Requirements check box. You can then select another technician or select equipment for this record.

5. Click the Apply button to save your work.

Finding Work Orders
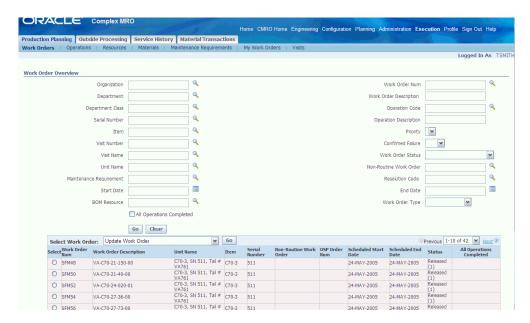
To search for work orders:

1. Navigate to the Work Order Overview page.

2. Select applicable search criteria, and click the Go button to display the results of your search.
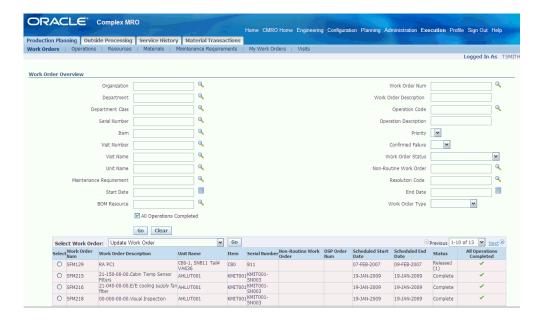
   You can use the following fields:

   • Organization

   • Department

   • Department Class

   • Serial Number

   • Item

   • Visit Number

   • Visit Name

   • Unit Name

   • Maintenance Requirement

   • Start Date

   • BOM Resource

   • Work Order Number

   • Work Order Description

   • Operation Code

   • Operation Description

   • Priority

   • Confirmed Failure

   • Work Order Status

- Non-Routine Work Order

- Resolution Code

- End Date

- Work Order Type

- All Operations Completed

The All Operations Completed option enables you to limit the search results to work orders that are ready for sign off. This identifies only the work orders that all operations are in Complete status. The completed work orders are displayed in the All Operations Complete column.

3. You can choose the following actions from the drop-down menu:

- Update Work Order

- Complete Work Order

- Release Work Order

- Defer/Cancel

- Create Non-Routine Work Order

- Update/View Non-Routine Work Order

- Record Work Order QA Results

- Record Maintenance Requirement QA Results

- View Documents

- View OSP

- View Scheduling Hierarchy

- Update Material Requirements

- Update Resource Requirements

- Perform Resource Assignments

- Perform Resource Transactions

- Release Visit Work Order

- Release Maintenance Work Order

- Cancel Work Order

- Close Visit

- Sign Off Maintenance Requirement

Operations
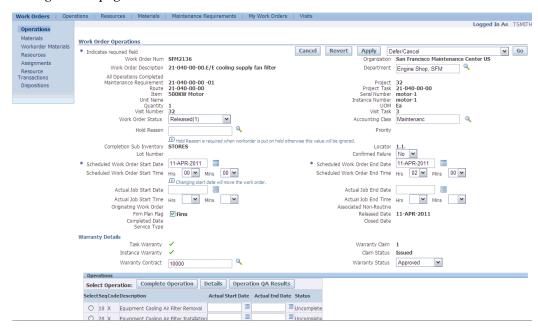
You can navigate to the Work Order Operations page by selecting a work order and choosing Update Work Order. This page enables you to perform the following options:

- Defer/Cancel

- Complete Work Order

- Create Non-Routine Work Order

- Update/View Non-Routine Work Order

- Perform Part Removal/Install

- Item/Serial Number Change

- Record Work Order QA Results

- Record Maintenance Requirement QA Results

- Sign Off Maintenance Requirement

- Release Visit Work Order

- Release Maintenance Work Order

- Cancel Work Order

- Close Visit

A technician can access the Unit Configuration page from the Work Order Operations page to update the unit configuration directly from the shop floor. These configuration updates are allowed for routes that have the Allow Unit Receipt Update option enabled at the time of creation.

When a visit task is created for a route that has Allow Unit Receipt Update option as Yes and a work order is created for this task, you can choose the new option Update Unit Configuration from Actions drop down list.

You can use the Update Unit Configuration page to identify the condition of the items. This facilitates in the creation of reports used to evaluate the condition in the Edit Unit Configuration page.

To update operations:

1. Navigate to the Work Order Overview page.

2. Select a work order and choose Update Work Order. In the Work Order Operations page, you can update the following fields:

   - Work Order Status

   - Hold Reason

        Note: Hold Reason applies only when the work order is put on hold.

   - Scheduled Start and End Dates

   - Scheduled Start and End Time

   - Actual Start and End Dates

- Actual Start and End Time

- Department

- Accounting Class

> **Note:** This field allows you to change the WIP Accounting Class when updating a work order. You can select the appropriate Accounting Class. This field becomes read-only if the work order is in a status of closed, complete, complete-no-charge, and canceled.

> **Note:** This page shows an icon next to the work order number that displays a page showing current AMM manual section if Enigma Integration is applied.

3. Use the Warranty Details region to manage warranty for the visits. This region displays the following information:

- Task Warranty flag is Yes if there is a Warranty Template associate at the Task.

- The Instance Warranty flag is Yes if there is at least one active warranty contract for the unit.

  - Warranty Contract LOV displays only Active Contracts for you to select. Field is grayed out if Warranty Status is Approval Pending. If the Warranty Contract field is blank, you can add a new contract at any time and you can change the Warranty Status from Not Applicable to Approved and click Apply.

  - The Warranty Contract can be changed easily and the status can remain as Approved.

  - Warranty Status defaults to the current status. You can update the status here in conjunction with changes to the Warranty Contract LOV.

  - If a warranty review is requested and the Instance Warranty is blank, the Warranty Contract cannot be edited.

  - If you set the Warranty Contract field to null, you must set the Warranty Status to Not Applicable and click Apply.

- If the Instance Warranty flag is No, you cannot edit the Warranty Contract LOV.

- Warranty Claim defaults to the unique warranty claim identifier.

- Claim Status defaults to the current status of the claim.

4. Click the Apply button to save your work.

To update operation details:

1. Navigate to the Operation (Detail) page .

2. You can update the following fields:

- Department

- Scheduled Start and End Dates

- Schedule Start and End Times

- Actual Start and End Dates

- Actual Start and End Times

3. Click the Apply button to save your work.

To enter Quality results for an operation:
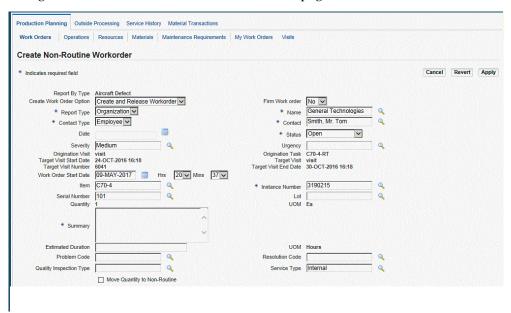
1. In the Work Order Operations page, choose Operation QA Results.

   The Submit Quality Results page appears.

2. Enter your quality collection information. See: Entering Quality Results, *Oracle*

Creating Non-Routine Work Orders

You can create non-routine work orders originating from other inspection or repair tasks or for problems discovered in the production floor when a work order is being executed. During this process, a service request, an unassociated task and a work order are created.

To create a non-routine work order against an existing work order:

1. Navigate to the Create Non-Routine Work Order page.

2. Select information in the applicable fields to create the work order.

   - Create Work Order Option: Values are Create and Release Workorder, Create Unreleased Workorder, Do not create Workorder

   - Firm Work Order

   - Report Type (required)

   - Name (required)

   - Contact Type (required)

   - Contact (required)

- Date

- Status

- Severity

- Urgency

- Origination visit

- Origination Task

- Target Visit Start Date

- Target Visit End Date

- Target Visit Number

- Stage Name

- Work Order Start Date

- Item

- Instance Number (required)

- Serial Number

- Lot

- Summary (required)

- Estimated Duration

- Problem Code

- Resolution Code
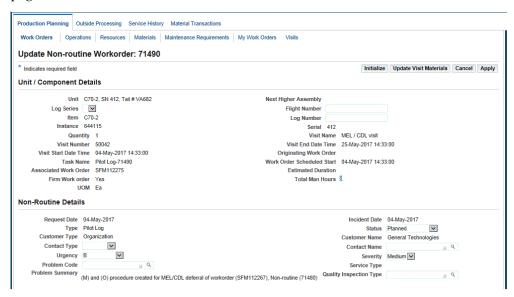
  > **Note:** You can optionally make the Resolution Code field
  > mandatory. You can do this by setting the profile option, AHL:
  > Enable Resolution Code to be Mandatory, to Yes. If the field is
  > not made mandatory, the users will not need to enter the value.
  > Using a resolution code as one of the parameters enhances the
  > results while searching for work orders.

- Quality Inspection Type

- Service Type

3. Click the Apply button to save your work.

To view and update an existing non-routine work order:

1. Select a work order and navigate to the Update or View Non-Routine Work Order page.

2. You can update the applicable fields including: Contact Type, Contact, Status, Urgency, Problem Code, and Resolution Code.

> **Note:** You can click the Warranty tab to update the warranty information if the Instance Warranty field is available. If the ron-routine is based on an existing work order that contained warranty entitlements, the Warranty Contract and Status carry over to the non-routine and can be edited. When solution MRs are added to a non-routine, these requirements do not inherit any warranty entitlements from the non-routine; you must redefine them to create warranty entitlements.

> **Note:** The Maintenance Requirements tab enables an engineer to add MRs to resolve the non-routine work order.

3. Optionally click the link in the Total Man Hours field to view the Person type resources used for the work order.

This total amount includes total man hours for the Person resource for both existing routine and non-routine maintenance requirements (MRs) associated with the work order.

Source	Title	Resource	Description	Quantity	Duration	Total Man Hour
Engineering	(M) 21-22-01 Requirement	A&P-SFM	Airframe and Powerplant Mechanics, SFM	2	2	4
Engineering	(O) 21-22-01 Requirement	A&P-SFM	Airframe and Powerplant Mechanics, SFM	2	2	4

Total Man Hour by Resource

Man Hours Estimate by Resources for Non-routine: 71490

4. Click the Apply button to save your work.

To create a non-routine work order from an existing non-routine work order:

Oracle CMRO enables you to create a non-routine work order from an existing non-routine work order. Administrators can now enable this functionality for a user or a responsibility by assigning the seeded user function, Allow creation of a Non-Routine originating from a Non-Routine. The corresponding function, AHL_ALLOW_CREATE_NR_FROM_NR is added to the menu associated to a responsibility.

This functionality is restricted in the seeded CMRO menus and responsibilities by default. You cannot create a non-routine work order from another non-routine work order.

However, if the seeded user function is added to the responsibility, you can create a non-routine from the context of another non-routine work order. Otherwise, you will receive an error message.

1. Navigate to the Work Order Overview page.

2. Query for a non-routine work order.

3. Select the work order and choose Create Non-Routine Work Order from the drop down menu.

   This creates a new non-routine work order if the mentioned functionality is associated to the responsibility.

Completing Work Orders and Operations

Work orders can be completed with the statuses of Draft, Unreleased, Parts Hold, Hold, or Pending QA.

If the work order is the final work order completed as part of a planned maintenance requirement, the completion also completes the maintenance requirement and updates

the unit maintenance requirement.

To complete an operation:

1. Select a work order and navigate to the Work Order Operations page.

2. Select the operation that you want to complete, and choose Complete Operation.

To complete a work order:

1. Navigate to the Work Order Overview page and choose Complete Work Order

Oracle CMRO provides integration with Oracle Quality pages to enter collection plan data. You can set up collection plans and enter quality data results for mandatory or optional collection plans. The Quality Collection plan must be set up and the inspection type associated with the Job Deferral Inspection Type profile option, or with the route header in Route Management, or to the Non-Routine Job Inspection profile option. See:

- Overview of Collection Plans, *Oracle Quality User's Guide*

- Creating Collection Plans, *Oracle Quality User's Guide*

- Defining Collection Plan Elements, *Oracle Quality User's Guide*

- Defining Collection Plan Element Actions, *Oracle Quality User's Guide*

- Associating Transactions with Collection Plans, *Oracle Quality User's Guide*

Once you complete a work order in CMRO, the concurrent program, WIP Close Jobs (SRS), closes the work order in WIP. CMRO provides a concurrent program, Close Work Orders that identifies all such work orders closed in WIP but are not in Closed status in CMRO.

You can run these two concurrent programs simultaneously so that after the WIP concurrent manager closes work orders in WIP, the system starts CMRO concurrent manager and closes those work orders in CMRO.

Signing Off Maintenance Requirements:

When all the work orders for a particular maintenance requirement have been completed, you can sign off on the maintenance requirement. You can associate a quality plan with a maintenance requirement.

All the work orders associated with the maintenance requirement must be complete, and all associated child maintenance requirements must also be signed off.

To sign off maintenance requirements:

1. Navigate to the Work Order Overview page and select a record.

2. Choose Sign Off.

You can also sign off maintenance requirements using the Work Order Operations or the Maintenance Requirement Work Orders pages.

Performing Part Removal/Install
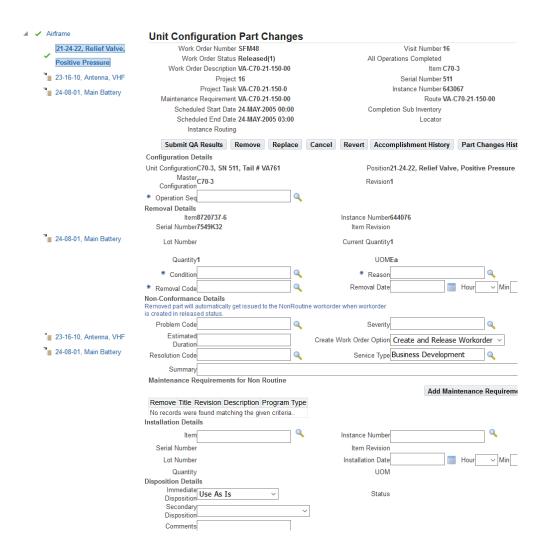
During installations, assemblies are mapped based on the position key, the position reference, sub-configuration, and item. If the position association is not determined the part or subassembly appears as an extra. You can manually map the hierarchy to the correct positions. If a position reference has been modified in the higher assemblies master configuration, the position reference is automatically updated to reflect the correct installation position. In addition to the structure of the hierarchy being validated during the installation, the configuration rules are validated, ensuring that the assembly complies with the rules established in master configuration. Maintenance personnel have increased visibility into missing and extra items, and subassemblies.

You can assign the extra items and subassemblies to the appropriate sibling positions for which installation is allowed. Identifying parts that need to be installed or removed is easily accomplished through the use of the missing and extra icons. In addition to parts issued to a work order, any installed sibling identified as an extra item, which meets the installation criteria, will appear in the search results for an empty position.

During a part removal, if an instance is identified as unserviceable and a non-routine work order is created in the Released status, the removed part's location is set to the non-routine work order instead of the work order where it is removed.

To perform part removal or install:

1. Select a record on the Work Order Operations page, and choose Perform Part Removal/Install. The Item Part Changes or Unit Configuration Part Changes page appears.

2. Using the Unit Configuration Part Changes page, select the sub-configuration.

Using the Item Part Changes page, select the item.

3. Make any necessary changes in the appropriate fields.

Field name	Description
Operation Seq	Operation sequence number for the work order.
Condition	The condition of the part being removed.
Subinventory	The subinventory, if desired, to return the part.
Locator	The locator within the sub inventory, if locator controlled.
Reason	The reason for the part being removed.

Field name	Description
Removal Code	The code associated with the part being removed.
Removal Date	The date the removal was performed.
Problem Code	The code associated with the problem being reported.
Estimated Duration	The time in hours that it is estimated to correct the service task.
Severity	The severity of the service difficulty, if the part is being removed in the unserviceable or MRB condition.
Summary	The summary of the service difficulty, if the part is being removed in the Unserviceable or MRB condition.
Part Number	The part number of the Item being installed.
Stage Name	The stage name where the part removal/change is scheduled to be performed.
Work Order Start Date	The date that the work order is scheduled to begin.
Instance Number	The Installed Base Instance Number of the part being installed.
Installation Date	The date the part was installed.
Service Type	Defined in CMRO for visit tasks and work orders to identify routine and non routine maintenance.
	For more information about defining service types, see the *Oracle Projects Implementation Guide*.

4. Select Remove to remove a part.

5. Select Install to add a position.
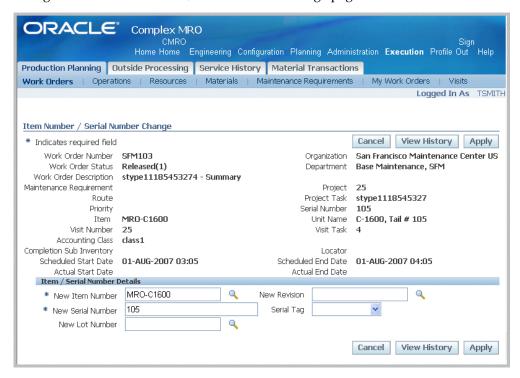
> **Additional Information:** You can remove a part as unserviceable without creating a non-routine. The Create Work Order Option provides this functionality.

Changing Item and Serial Numbers Associated with Work Orders

You can change both item numbers and serial numbers of a tracked configuration component, in the Item Number/Serial Number Change page. This process updates the applicable unit configuration, and the item instance.

To change item and serial numbers:

1. Navigate to the Item Number/Serial Number Change page.

2. Select the applicable value in the New Item Number field to change items. You can also select an applicable revision for the item.

3. Select the applicable value in the New Serial Number field to change serial numbers. Optionally, you can also select a Serial Tag value.

4. You have the option to select a value in the New Lot Number field for lot controlled items.

5. Click the Apply button to save your work.

Viewing and Updating Material Requirements

The Required Materials page provides an overview of all material requirements, across

work orders. You can query for a work order number and view material requirements for that particular work order. Optionally, you can query for an item and view requirements against that item across all work orders. You can also update the quantity of item required and the date on which it is required.

Prerequisites
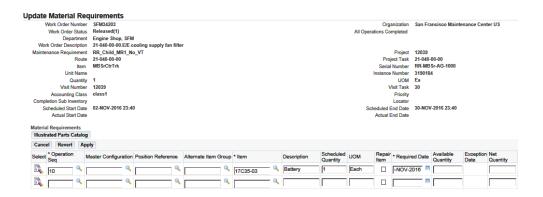
❐ A work order with a status of Draft, Unreleased, Parts Hold, Hold, or Pending QA status must exist in the database. The WIP Mass Load Concurrent Program must be running. The operation must have a Uncomplete or Pending QA status.

To view material requirements:

1. Navigate to the Workorder Overview page.

2. Click the Material tab. The Required Materials page appears.

3. Click the Go button to view material requirements across all work orders. Material requirements for all work orders and against all items appear in the Materials result.

4. Enter information in the Work Order Number field to view material requirements for a particular work order number. Click the Go button, and all requirements matching your search criteria appear.

5. To view material requirements against a particular item, enter information in the Item field and click Go.

6. To update the required quantity or the required date for a work order, select the job number and enter information in the corresponding fields. Click Apply to save the changes.

7. Click the work order number. The Work Order Operations page appears.

To update material requirements:

1. Navigate to the Work Order Overview page.

2. Enter information in the fields and click the Go button. All work orders matching your search criteria appear in the Work Order List Results table.

3. Select the work order number and choose Update Work Order from the drop-down menu. The Work Order Operations page appears.

4. Click the Materials link and the Update Material Requirement page appears.

Use the information in the following table to update material requirements.

Field Name	Description
Operation Sequence	The work orders operation sequence number.
Item	The Item Number for the requirement.
Description	The Description of the item defined.
Required Quantity	The quantity desired for the requirement.
Scheduled Quantity	The quantity scheduled by the Long Term Plan.
UOM	The unit of measure for the Item's quantity.
Required Date	The date on which the requirement is expected.
Scheduled Date	The date on which the quantity is scheduled by Long Term Plan.
Issued Quantity	The quantity issued to an operation (only for a work order in Released status)

5. You can then perform the following:

- Select the Item, Required Quantity, and a Required Date and click the Apply button to save your changes.

- Select the requirement and click the Remove button to remove the requirement.

- Click the Add More Rows button to add requirements.

- Click the Cancel button to cancel any changes.

> **Note:** When changing an existing requirement defined in Route Management, the selection is limited to the alternates for the item.
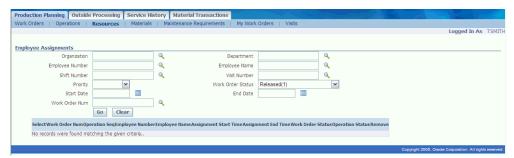
Viewing Assignments, Documents, and Resources

Viewing Employee Assignments

For a work order or an associated operation, you can assign employee and machinery to the resource requirement. Use the Search Employee Assignments page to view these employee assignments, and perform all of the production functions applicable to the assignment and associated work order. You can search for employee assignments by the employee's name, number, the associated work order job number, department, and other related criteria.

To view employee assignments:

1. Navigate to the Work Order Overview page.

2. Select the Resources tab. The Employee Assignments page appears.

3. Enter information in the appropriate fields and click the Go button. All assignments matching your search criteria appear in the Results table.

4. You can select a work order and perform the following actions, which are available as selections in a drop-down menu:

- Update Work Order

- Resource Transactions

- Perform Parts Change

- View Documents
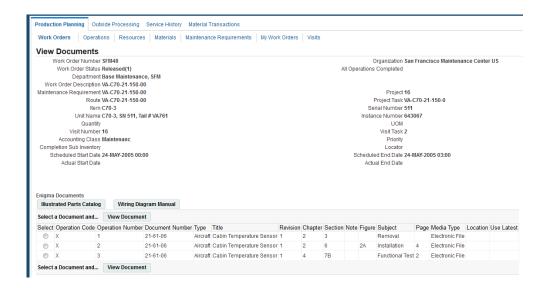
- Complete Work Order

- Complete Operation

- Record Work Order QA Results

- Record Operation QA Results

- Sign Off Maintenance Requirements

- Record Maintenance Requirement QA Results

- View Resource Transactions

- Create Service Requests

Viewing Documents

Documents may be associated with maintenance requirements, routes, and operations. You can view all the documents pertaining to work orders, work order operations, and material requirements in the View Documents page.

To view documents associated with work orders:

1. Navigate to the Work Order Overview page.

2. Enter information in the appropriate fields and select Go. All work orders matching your search criteria appear in the Work Order List Results table.

3. To view documents associated with a work order's route, select the work order and choose View Documents from the drop-down menu. The View Documents page appears, displaying the work order details and the documents defined for the routes associated with the work order.
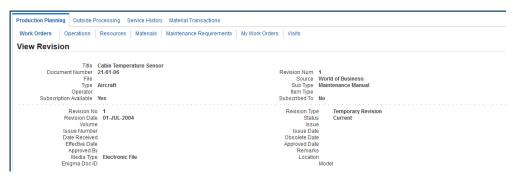
Enigma Integration displays buttons to view Wiring Diagram Manual (WDM) and Illustrated Parts Catalog (IPC) as applicable.

The following table provides information about fields in the View Documents page.

Field Name	Description
Route Number	The user-assigned identifier for a maintenance route.
Route Title	The text description of the maintenance route.
Document Number	A unique identifier, generated by the organization to identify a maintenance document. If you do not know the document number, enter the generic substitution meta character% in the field, and click on the LOV icon to launch the Select Doc Number page that displays all the document references in the database.
Type	The major topic such as powerplant, fleet unit, and ground support equipment that is described by the document in question.
Title	The title of the maintenance document.
Revision	A user-assigned document revision identifier.
Chapter	A specific chapter in the associated document. The value is defined by the user when the association is created.

Field Name	Description
Section	A specific section in the associated document. The value is defined by the user when the association is created.
Note	A specific note in the associated document. The value is defined by the user when the association is created.
Figure	A specific figure in the associated document. The value is defined by the user when the association is created.
Subject	A specific subject in the associated document. The value is defined by the user when the association is created.
Page	A specific page in the associated document. The value is defined by the user when the association is created.

Select the document and click the View Documents button. You can view the details of the document in the View Revision page.

4. To view documents associated with the work order's operations, click the Operation button.

5. To view documents associated with maintenance requirements, select the Maintenance Requirement tab under the Production Planning tab.

6. Enter your search criteria and click the Go button.

   The maintenance requirements matching your search criteria appear in the Maintenance Requirements Results table.

7. Click the Maintenance Requirement link to navigate to the View Maintenance Requirement page.

8. Click the Documents link and the View Attached Documents page appears, displaying the documents associated with the maintenance requirement.
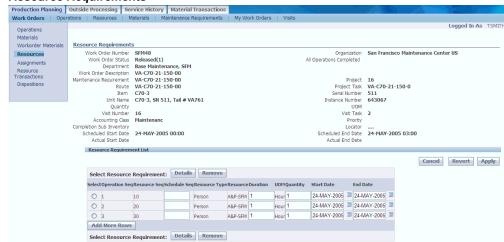
Viewing Resource Requirements

A visit or work order with associated resources must exist in the database in order to view resources.

To view resource requirements for a work order:

1. Find the work order or operation for which you want to view dependencies. See Finding Work Orders, page 19-19.

2. Select the work order, and select Update Work Order from the drop-down menu.

   The Work Order Operations page appears.

3. Click the Resources link and the Resource Requirements page appears.

Resource Requirements

Part 4

CMRO Administration

20

Administration

This chapter covers the following topics:

- Overview
- Creating Department Locations
- Creating a Maintenance Space
- Finding the Unavailability Period of a Space
- Using Reliability Planning
- Managing Vendor Sourcing
- Using Compliance Reports

Overview

Efficient maintenance planning seeks to smooth the workload curve. Before a shop visit duration can be accurately determined, the schedules of an organization's skilled workers must be considered. Using the Visit Work Package, the planner can select shift schedules for the workers who will perform the inspections and repairs. As the task-to-shift matching is completed, the time required for the visit tasks to be completed can be calculated. The administrative functions related to the Visit Work Package and Planning modules are described in the following topics:
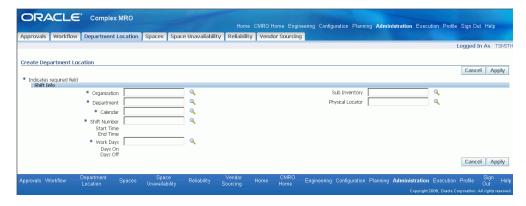
- Creating Department Locations, page 20-2
- Creating a Maintenance Space, page 20-3
- Using Reliability Planning, page 20-6
- Managing Vendor Sourcing, page 20-6

Creating Department Locations

You use the Department Location tab to set up a marshalling area to stage parts. It is done through the subinventory and locator association in the Administration menu. The subinventory and locator are then associated to each visit upon creation, thereby creating a marshalling area for each visit.

To create a department location:

1. Navigate to the Create Department Location page.
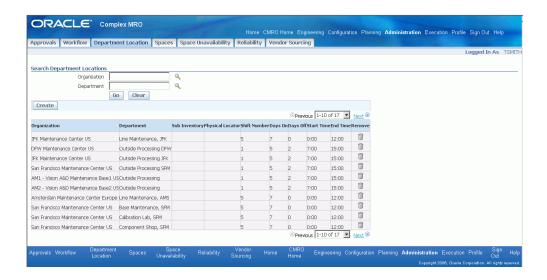
2. Select an organization and department.

3. Select a value in the Calendar field.

4. Select a Shift Number and Start and End Time values.

5. In the Work Days field, select a value that identifies the workday patterns associated with the shift, calendar, and department.

6. Click the Apply button to save your work.

Retrieving Department Location Records

Once departmental location records are created, you can view or delete them from the database. Location records cannot be updated; they must be deleted and recreated.

To retrieve departmental location records:

1. Navigate to the Search Department Locations page.

2. Select the organization and department, and click the Go button to display your results.

Creating a Maintenance Space

A maintenance space is used in CMRO Planning as a subgroup of departments. Maintenance spaces define the specific locations where maintenance tasks can be done, the type of work that can be performed there and the item on which the work can be performed.

To create a maintenance space:

1. Navigate to the Add Space page.

2. Select Organization and Department values.

3. Select a Service Category value.
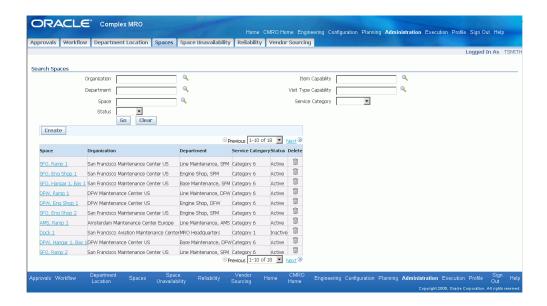
   This represents the level of maintenance that can be performed in a space. A common method of categorization would be based on the equipment type.

4. Select a Space Name value.

5. Click Apply to save your work, and the Edit Space page appears.

6. Define the space capabilities by selecting values for the item and visit type.

7. Click Apply to save your work.

To search for maintenance spaces:
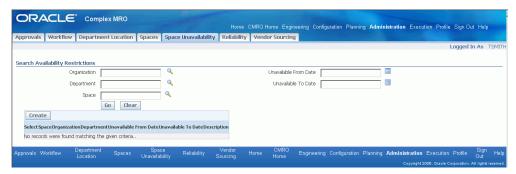
1. Navigate to the Search Spaces page.

2. You can enter search criteria using the following fields:

   • Organization

   • Department

   • Space

   • Status

   • Item Capability

   • Visit Type Capability

   • Service Category

3. Click Go to view the results of your search.

Finding the Unavailability Period of a Space

To find the unavailability of a space:
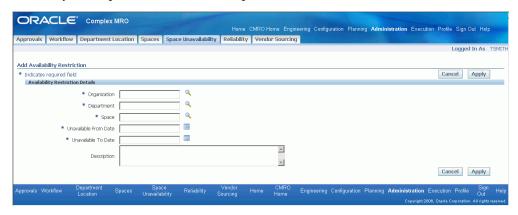
1. Navigate to the Search Availability Restrictions page.

2. You can enter the search criteria for the following fields: Organization, Department, Space, Unavailable From and To.

3. Click the Go button to view the results of your search.

To set a space as unavailable:

1. Click the Create button to open the Add Availability Restriction page.

2. Select values in the following fields: Organization, Department, Space, Unavailable From and To.

Enter any descriptive text in the Description box.

3. Click the Apply button to save your work.

Using Reliability Planning

Reliability Planning enables you to reduce inventory levels at maintenance facilities and transient stations. This functionality provides forecast capabilities for non-routine items, based on identified failure probabilities, using the Supply Chain Planning engine. You can avoid costly interruptions to flight schedules if the correct parts are available, and also avoid situations of overstocking inventory by providing a query to analyze the reliability of rotable parts.

For more information, see Reliability Planning, page 13-12.

Managing Vendor Sourcing

Vendor sourcing operates with the Outside Processing setup. The feature consists of defining vendors, creating part associations at specific locations, and creating vendor and customer connections.

For more information, see Inventory Service Order Outside Processing, page 15-5.
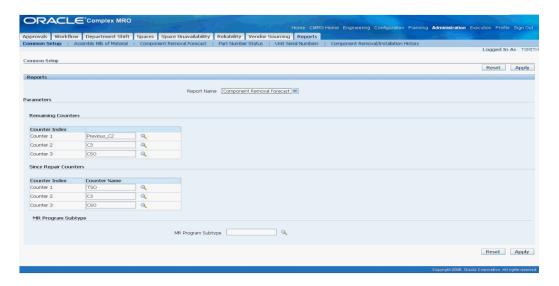
Using Compliance Reports

Reports tab

The Common Setup page enables you to set up parameters as per your selection for three dynamic counters: Counter 1, Counter 2 and Counter 3. Once you define the counters, these counter names are visible as labels on the following reports:

• Assembly Bill of Materials (for Remaining counters)

- Component Removal Forecast (for Remaining and Since Repair Counters)

- Unit Serial Number (for Spec Limit Counters)

This page enables you to perform the following actions:

1. In the Reports region, select the appropriate report name from the list of values.

2. In the Remaining Counters region, select the three counters for the Remaining column.

3. In the Since Repair Counters region, select the three counters for the Since Repair column.

4. In the MR Program Subtype region, select the program subtype for the Component Removal Forecast page.

5. Click the **Apply** button to save your counter definitions.

The Reports tab lists the following compliance reports:
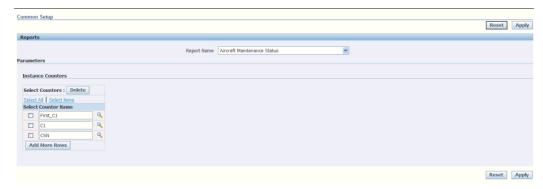
- Assembly Bills of Material Report, page 20-8

- Component Removal Forecast Report, page 20-11

- Part Number Status Report, page 20-13

- Unit Serial Numbers Report, page 20-17

- Component Removal/Installation History Report, page 20-19

Maintenance Requirement Status Reports tab

The Common Setup page enables you to configure the following parameters for Maintenance Requirement Status Reports:

- Aircraft Maintenance Status - Instance Counters

- Component Maintenance Status - Instance Counters

- Maintenance Requirement Information and Status Display - Accomplished Counters

The same functionality is applicable for all three Maintenance Requirement Status reports.

Follow these steps to define new parameters:

1. Select a report from the Report Name list of values (LOV). The parameter applicable for that report is displayed.

2. Click Add More Rows to add new parameters.

3. Select the appropriate value from the Counter LOV and click the **Apply** button to save the new parameters.
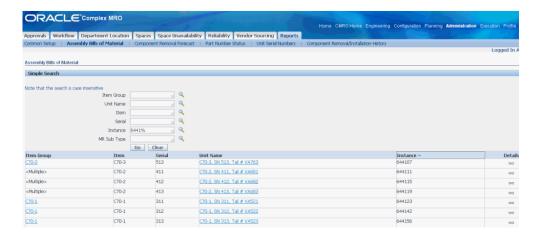
The Maintenance Requirement Status Reports tab lists the following compliance reports:

- Component Maintenance Status Report, page 20-20

- Aircraft Maintenance Status Report, page 20-23

- Maintenance Requirement Information and Status Report, page 20-26
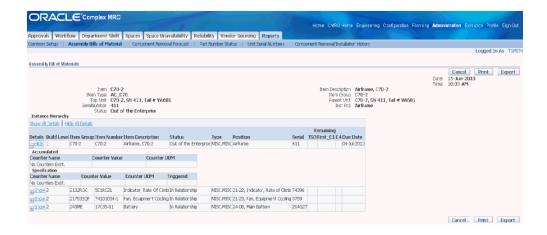
Assembly Bills of Material Report

1. Click the Assembly Bills of Material sub tab.

2. Use the Simple Search region of the Assembly Bills of Material page to query existing records. Enter any of the following search criteria:

   - Item Group

   - Unit Name

   - Item

   - Serial

   - Instance

   - MR Sub Type

3. Click the **Go** button to display the results.

4. Click the Details button of an Item Group to navigate to the Assembly Bill of Materials Details page.

5. The Assembly Bill of Materials Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item: The item selected on the Search page.

- Item Type: Item type of the selected item.

- Top Unit: Root unit of the selected instance.

- Serial: Serial number associated to the selected item instance.

- Status: Status of the selected instance.

- Item Description: Description of the selected item.

- Item Group: In accordance with selected Item Group in the Search page.

- Parent Unit: Serial Parent unit of the selected instance.

- Inst pos: In accordance with the selected instance.

- Build Level: Gives the level of the instance in the hierarchy.

- Item Group: In accordance with the instance position at the selected component master configuration.

- Item Number.

- Item Description.

- Type: IAW ITEM ENGINEERING category.
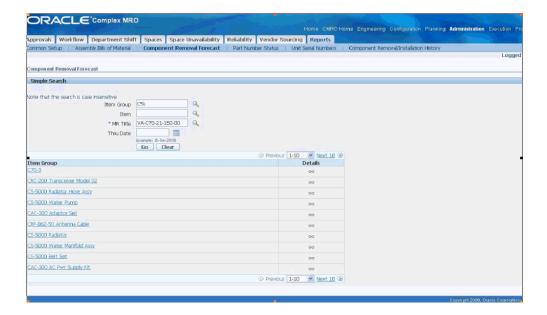
- Position: The position of item instance.

- Due date: Indicates the due date for particular instance.

- Remaining columns: Must be calculated, IAW the more restrictive applicable RST MR limits if any.

- Accumulated: Displays the accumulated values for an instance.

- Counter Name, Counter Value, Counter UOM: Counter Name, Value and Unit of Measure respectively

- Triggered: Indicates if the counter has been triggered.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

Component Removal Forecast Report

1. Click the Component Removal Forecast sub tab.

2. Use the Simple Search to query for existing records.

   Enter the mandatory field, MR Title, and other search criteria such as:

   - Item Group

   - Item

   - MR. Title

   - Thru Date

3. Click Go to display the results.

4. Click the Details icon of an item group to navigate to the corresponding Component Removal Forecast Details page.
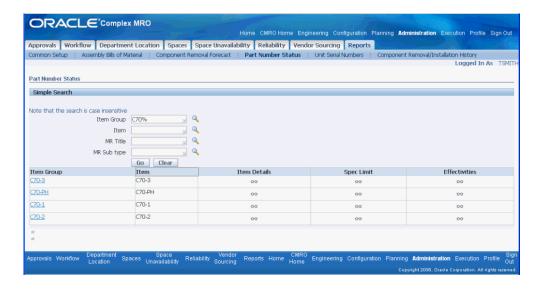
5. The Component Removal Forecast Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item Group: Associated with the selected item group in the search page.

- Forecast Thru: Associated with the specified date in the search page.

- Item Group Description: Description associated with the selected item group in the search page.

- MR Title: Associated with the selected MR in the search page.

- From ACN: Unit name associated with the selected item instance in the table.

- Removal Item: Items belonging to the item group.

- Removal Serial: Serial number of the item instance in the table.

- Position: The position of that particular item instance.

- Removal Date: Due Date for the most restrictive unit effectivity for the specific item instance and MR.

- Remaining: Counter for the difference between the counter value for the most restrictive UE and the current value of the counter.

- Since Repair: Counter having the difference between the counter value of the last accomplished UE and the current value of the counter.

6. Click Print to print the results.

7. Click Export to download the data to your local drive.

Part Number Status Report

1. Click the Part Number Status sub tab.

2. Use the Simple Search region to query for the existing records. Enter any of the following search criteria:

   - Item Group

   - Item

   - MR. Title

   - MR Sub Type

3. Click Go to display the results.

4. Click the Item Details icon for an item group to navigate to the corresponding Part Number Status: Item Details page.
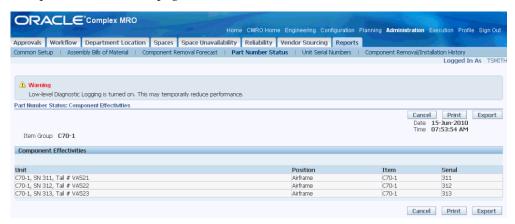
5. The Part Number Status: Item Details page displays the following information:

   • Date: Current system date.

   • Time: Current system time.

   • Item Group: Item group name.

   • Item: Name of the item.

   • Item Type: Type of the item.

- Necessity: Position Necessity from MC relationships.

- Low level: Display order from MC relationships.

- Item Group Description: Description of the item group.

- Parent Item Group: Name of the parent item group.

- Item Description: Description of the item.

- Related MRs: Link to search associated MRs.

- Item Model, Tax Denomination: Descriptive flexfield values, whose attributes and its values are dependent on the selected Item Group - Item.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

8. Click Cancel to navigate back to the Part Number Status page.

9. Click the Spec Limit icon of an item group to navigate to the Part Number Status: Spec Limits page.

10. The Part Number Status: Spec Limits page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item Group: Name of the item group.

- Item: Associated Item.

- A/C Model: Aircraft Model.

- Counter Name, Counter Value, and Counter UOM: Refers to Counter Name, Value and Unit of Measure values.

11. Click Print to print the search results.

12. Click Export to download the data to your local drive.

13. Click Cancel to navigate back to the Part Number Status page.

14. Click the Effectivities icon of an item group to navigate to the Part Number Status: Component Effectivities page.
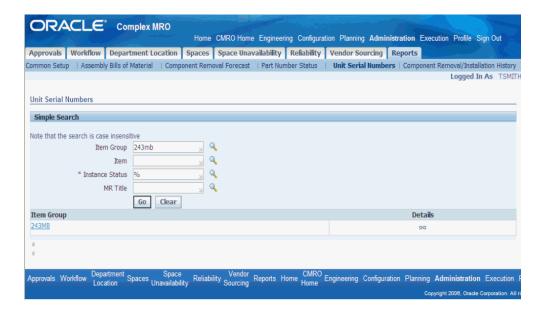
15. The Part Number Status: Component Effectivities page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item Group: Name of the item group.

- Unit: Name of the unit, under the current item group.

- Position: Installed position of the instance.

- Item: Item name for this unit-position combination.

- Serial: Serial number for this unit-position combination.
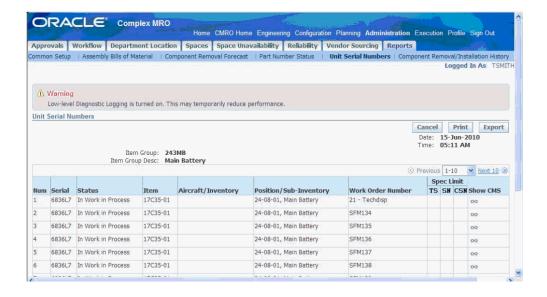
16. Click Print to print the search results.

17. Click Export to download the data to your local drive.

Unit Serial Numbers Report

1. Click the Unit Serial Numbers sub tab.

2. Use the Simple Search region to query for the existing records. Enter the mandatory field, Instance Status, and any of the following search criteria:

- Item Group

- Item

- Instance Status

- MR. Title

3. Click Go to display the results.

4. Click the Details icon of an Item Group to navigate to the Unit Serial Numbers Details page.
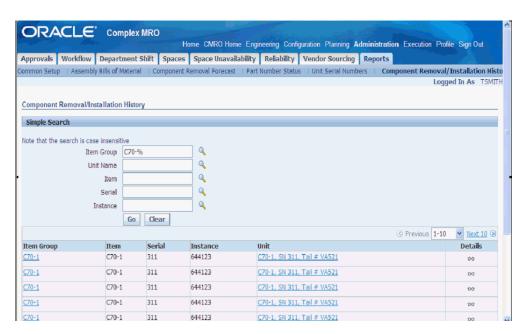
5. The Unit Serial Numbers Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item Group: Associated with the selected item group in the search page.

- Item Group Desc: Associated with the selected item group in the search page.

- Num: Line number.

- Serial: Associated with the selected item group, search all items and then present all the serial numbers belonging to those items.

- Item: Associated with the selected item group, search and present all the item names for the items belonging to that Item Group.

- Aircraft/Inventory: Unit Configuration name or Organization name for the item instance depending on whether the instance status is installed or in inventory.

- Position/Sub-Inventory: Master Configuration Position or Subinventory name for the item instance depending on whether the instance status is installed or in inventory.

- Work Order Number: Associated with the item instance. This is the work order number if any work order is open whose department class is Comp M.

- Spec Limit: MR interval value calculated associated with the item instance, thereby finding the restrictive unit effectivity ID and MR interval.

- Show CMS: Click to access the Component Maintenance Status Report Details page.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

Component Removal/Installation History Report

1. Click the Component Removal/Installation History sub tab.

2. Use the Simple Search page to query for the existing records. Enter any of the following search criteria:

   - Item Group

   - Unit Name

   - Item

   - Serial

   - Instance

3. Click Go to display the results.

4. Click the Details icon of an item group to navigate to the Component Removal/Installation History Details page.
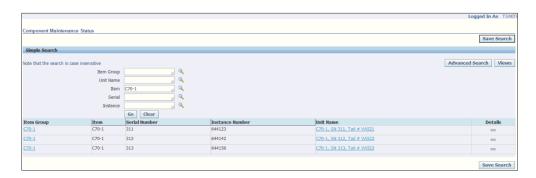
5. The Component Removal/Installation History Details page displays the following information:

   • Date: Current system date.

   • Time: Current system time.

   • Item Group: Associated with the selected item group in the search page.

   • Item: Associated with the selected item in the search page.

   • Serial: Serial number associated with the selected item instance.

   • Desc: Associated with the selected item group in the search page.

   • Item Type: Associated with the selected item in the search page.

   • Line: Line number.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

Component Maintenance Status Report
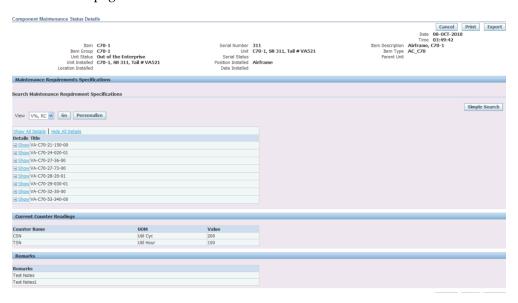
1. Click the Component Maintenance Status sub tab.

2. Use the Simple Search region to query for the existing records. Enter any of the following search criteria:

   • Item Group

- Unit Name

- Item

- Serial

- Instance

3. Click Go to display the search results.

4. Click the Details icon of an item group to navigate to the Component Maintenance Status Details page.

5. The Component Maintenance Status Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Item: Item name.

- Item group: Item Group name associated with the item instance.

- Unit Status: Unit status.

- Unit Installed: Name of the unit installed. If not installed, displays the subinventory name.

- Location Installed: Location to which the unit instance is installed.

- Serial Number: Serial number of the selected item instance.

- Unit: Unit name.

- Serial Status: Status of the serial.

- Position Installed: Position to which the unit instance is installed. If not installed, display the locator value.

- Date Installed: Installation date.

- Item Description: Description of the item.

- Item Type: Item type of the selected item.

- Parent Unit: Next higher unit there is an IAW configuration tree.

- Maintenance Requirements Specifications: Applicable MRs and their corresponding counter readings.

- Current Counter Readings: Displays the current counter readings applicable for the item instance.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

8. Click the **Simple Search** button on the Search Maintenance Requirement Specifications region.

9. Enter any of the following search criteria to query the required information:

   • MR Title

   • Program Type

   • Program Subtype

   • Category

   • Implementation Status

   • Service Type

10. Click Go to display your search results.

11. Click the **Save Search** button to save your search results. When you click this button, you can specify additional criteria and view name that uniquely identifies the search.

12. Click Apply to save the search criteria for future MR Counter reading search.

13. Once a view (set of search criteria) is saved, a Views drop-down appears in the Maintenance Requirement Specification search region. Select a view and click Go to view the filtered results.
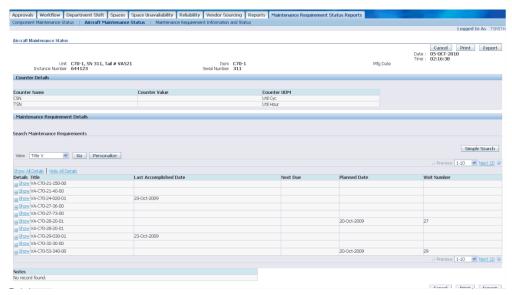
Aircraft Maintenance Status Report

1. Click the Aircraft Maintenance Status sub tab.

2. Use the Simple Search region to query for the existing records. Enter any of the following search criteria:

   • Unit Name

   • Item

   • Serial Number

- Instance Number

3. Click Go to display the search results.

4. Click the Details icon to navigate to the Aircraft Maintenance Status Details page.

5. The Aircraft Maintenance Status Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Unit: Unit Configuration name.

- Instance Number: Instance number of UC root node.

- Item: Name of Item.
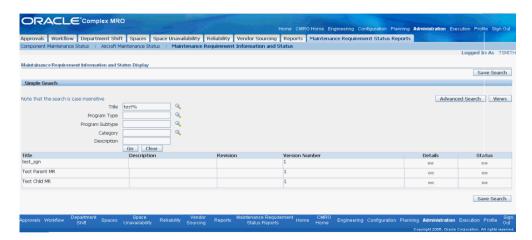
- Serial Number: Serial number of UC root node.

- Mfg Date: Date of manufacture.

- Title: MR Title.

- Last Accomplished Date: Date when MR was last accomplished.

- Next Due: Next due date.

- Planned Due: Planned visit date.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

8. Click the **Simple Search** button on the Search Maintenance Requirements region.
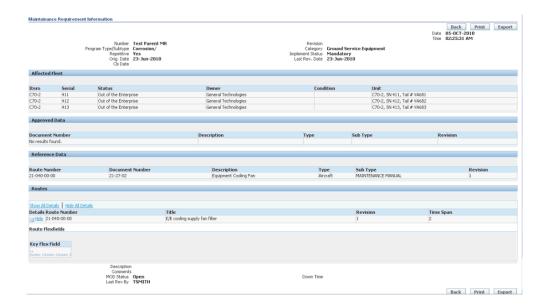
9. Enter any of the following search criteria to query the required information:

- Title

- Program Type

- Program Subtype

- Category

10. Click Go to display your search results.

11. Click the **Save Search** button to save your search results. When you click this button, you can specify additional criteria and view name that uniquely identifies the search.

12. Click Apply to save the search criteria for future MR Counter reading search.

13. Once a view is saved, a Views drop down menu appears in the Maintenance Requirement Specification search region. Select a view and click Go to view the filtered results.

Maintenance Requirement Information Details and Status Report

1. Click the Maintenance Requirement Information Details and Status sub tab.

2. Use the Simple Search region to query for existing records. Enter search criteria such as:

   • Title

   • Program Type

   • Program Subtype

   • Category

   • Description
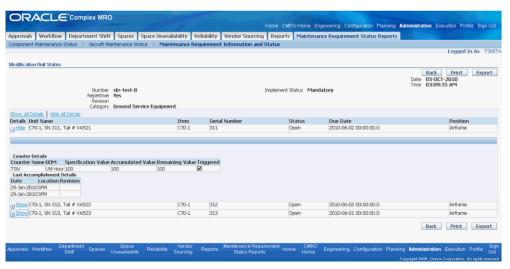
3. Click Go to display the search results.

4. Click the Details icon to navigate to the Maintenance Requirement Information Details page.

5. The Maintenance Requirement Information Details page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Number: MR Title.

- Revision: MR revision.

- Program Type/Subtype: Program Type/ Program Subtype of the MR.

- Category: Category of the MR.

- Repetitive: Flag to show if the MR is repetitive or not.

- Implement Status: Implement status of the MR.

- Orig. Date: Effective from date of the MR with version 1.

- Last Rev. Date: Effective from date of the oldest MR version with the same revision number.

- Cls. Date: Only for non-repetitive MR's. MR accomplished (or initial accomplishment) date for the last of the effectivities to be accomplished.

- Affected Fleet: The affected fleet for the MR.

- Item: The items affected for the MR.

- Serial: The serial number of the item instance.

- Status: Item status.

- Owner: The owner party of the Item instance.

- Condition: The condition of the item instance.

- Unit: The unit at which the item is installed.

- Approved Data Number: Document number of the documents attached to the MR.

- Approved Data Description: Document description of the documents attached to the MR.

- Approved Data Type: Document type of the documents attached to the MR.

- Approved Data Subtype: Document subtype of the documents attached to the MR.

- Approved Data Revision: Document revision of the documents attached to the MR.

- Reference Data Number: Document number of the documents attached to the routes of the MR.

- Reference Data Description: Document description of the documents attached to the routes of the MR.

- Reference Data Type: Document type of the documents attached to the routes of the MR.

- Reference Data Subtype: Document subtype of the documents attached to the routes of the MR.

- Reference Data Revision: Document revision of the documents attached to the routes of the MR.

- Route Number: Number of route attached to MR.

- Title: Title of route attached to MR.

- Revision: Revision of route attached to MR.

- Time Span: Time span of the route.

- Key Flexfield: Route key flexfields (KFFs).

- Description: Description of the MR.

- Comments: Comments for the MR.

- Last Rev By: The user name that made the last modification to the current MR version.

6. Click Print to print the search results.

7. Click Export to download the data to your local drive.

8. Click Cancel to navigate back to the Maintenance Requirement Information Details and Status page.

9. Click the Status icon to navigate to the Maintenance Requirement Information Status page.

10. The Maintenance Requirement Information Status page displays the following information:

- Date: Current system date.

- Time: Current system time.

- Number: MR Title.

- Revision: MR revision.

- Category: Category of the MR.

- Repetitive: Indicates if the MR is repetitive or not.

- Implement Status: Implement status of the MR.

- Unit Name: IAW the affected Item-Serial and configurations.

- Item: The item number of the item associated with MR.

- Serial Number: The serial number of the Item.

- Status: Status is Open if repetitive or non-repetitive not yet accomplished. Status is Closed if not repetitive but already accomplished.

- Due Date: Date that the MR is due.

- Position: The current applicable unit configuration.

- Counter Name: Name of the counter associated.

- UOM: Unit of measure of the counter.

- Specification Value (HRS, CYC DYS): Interval threshold value for the MR.

- Accumulated Value (HRS, CYC, DYS): Accumulated readings for the MR.

- Remaining Value (HRS, CYC, DYS): Calculated as accumulated reading less net counter reading.

- Date: The last accomplished date of the MR.

- Location: The organization where the MR is accomplished.

- Revision: Revision for the MR.

A

Windows and Navigation Paths

This appendix covers the following topics:

*   Windows and Navigation Paths

Windows and Navigation Paths

This appendix provides the navigation paths for Oracle Complex Maintenance, Repair, and Overhaul:

*   Brackets surrounding an entity in a path indicates a button selection.

*   Braces surrounding an entity indicates a drop-down menu option.

*   Tabs, Secondary tabs, Links, and Icons are noted for the related entity.

Navigation Paths

Window or Page Name	Navigation Path
Add Alternates	Configuration > Master Configuration (tab) > Alternate Parts (secondary tab) > [Create]
Add Availability Restriction	Administration > Space Unavailability (tab) > [Create]
Add Space	Administration > Spaces (tab) > [Create]
Associate Document Sub Type To Document Type	Engineering > Document Index (tab) > Associate type (secondary tab)

Window or Page Name	Navigation Path
Associate Major Zone To Item Type	Engineering > Route Management (tab) > Major Zones (secondary tab)
Associate Operations	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Associate Operations
Associate Sub Zone To Item Type	Engineering > Route Management (tab) > Sub Zones (secondary tab)
Attach Reference Documents (for an Operation)	Engineering > Route Management (tab) > Operations (secondary tab) > select record > Operation > Reference Documents
Attach Reference Documents (for a route)	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Reference Documents
Available Items	Marshalling Workbench > Visit Details > Available Items (link)
Common Setup	Administration > Reports > Common Setup
Component Maintenance Status	Administration > Reports > Component Maintenance Status
Component Removal Forecast	Administration > Reports > Component Removal Forecast
Component Removal/Installation History	Administration > Reports > Component Removal/Installation History
Composition Selection	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Disposition Associations > Disposition Details > [Select from Composition]
Copy Product Classification	Configuration > Product Classification (tab) > [Copy]

Window or Page Name	Navigation Path
Cost Structure	Planning > Visit Work Package (tab) > select record > Cost structure
Counter Associations	Administration > Reliability (tab) > Counter Associations
Create Composition List	Engineering > Route Management (tab) > Item Compositions (secondary tab) > [Create]
Create Department Shift	Administration > Department Shift (tab) > [Create]
Create Document	Engineering > Document Index (tab) > [Create]
Create Exchange Order	Execution > Outside Processing (tab) > {Create OSP] > select job record > [Create Exchange]
Create Forecast Association	Administration > Reliability (tab) > Forecast Associations > [Create]
Create Loan Order	Execution > Outside Processing (tab) > {Create OSP] > select job record > [Create Loan]
Create Maintenance Requirement	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > [Create]
Create Master Configuration	Configuration > Master Configuration (tab) > Overview (secondary tab) > Create
Create MEL/CDL	Engineering > MEL/CDL (tab) > Overview > Search Product Classification > [Go] > [Tree] > [select Node] > Node Details > [Create]
Create New Revision	Engineering > Document Index (tab) > Search (secondary tab) > select record > [Create New Revision]
Create Non-routine	Planning > Unit Maintenance Plan > Non-routines > Search Non-routine > [Create]
Create Operation	Engineering > Route Management (tab) > Operations (secondary tab) > [Create]

Window or Page Name	Navigation Path
Create OSP Line	Execution > Outside Processing (tab) > select record > Order Number > [Create Order Line]
Create OSP Order	Execution > Outside Processing (tab) > {Create OSP] > select job record > [Create OSP]
Create Planned Task	Planning > Visit Work Package (tab) > select record > Visit number > Visit Tasks > [Create Planned Task] > select unit maintenance plan > {Associate to Visit} > [Go]
Create Product Classification	Configuration > Product Classification (tab) > [Create]
Create Relationship	Administration > Vendor Sourcing > Item Service Relationships > Create Relationship
Create Reliability Definition	Administration > Reliability (tab) > Reliability Definitions > [Create]
Create Resources	Engineering > Route Management (tab) > Resources (secondary tab) > [Create]
Create Route	Engineering > Route Management (tab) > Routes (secondary tab) > [Create]
Create Rule	Configuration > Master Configuration (tab) > Overview (secondary tab) > select record > Name > {Rules} > [Create Rule]
Create Service Request	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Create Service Request} > [Go]
Create Shipment Line	Execution > Outside Processing (tab) > select record > Order Number > Shipments > [Create Shipment Line]
Create Summary Task	Planning > Visit Work Package > Visits > Select visit (link) > Visit Tasks tab > {Create Summary Task} from Select Task drop-down

Window or Page Name	Navigation Path
Create Unassociated Task	Planning > Visit Work Package > Visits > Select visit (link) > Visit Tasks tab > Create Unassociated Task from Select Task drop-down)
Create Unit Configuration	Configuration > Unit Configuration (tab) > Create From Master (secondary tab) > [Create Unit configuration]
Create Unplanned Task	Planning > Visit Work Package (tab) > select record > {Search Task} > Create Unplanned Task > select maintenance requirement > [Associate to Visit]
Create Visit	Planning > Visit Work Package (tab) > [Create]
Create Warranty Claim	Configuration > Supplier Warranty > Claim Management > Search Warranty Claim > [Create]
Create Warranty Template	Configuration > Supplier Warranty > Create Warranty Template > [Create]
Customer Relationships	Administration > Vendor Sourcing > Customer Relationships
Data Clerk Workbench	Complex MRO Data Clerk > Data Clerk > Work Orders
Define Disposition Associations	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Disposition Associations
Define Material Requirements (for an operation)	Engineering > Route Management (tab) > Operations (secondary tab) > select record > Operation > Material Requirements
Define Material Requirements (for a route)	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Material Requirements

Window or Page Name	Navigation Path
Define Resource Requirements (for an operation)	Engineering > Route Management (tab) > Operations (secondary tab) > select record > Operation > Resource Requirements
Define Resource Requirements (for a route)	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Resource Requirements
Disposition List Details	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Disposition Associations > Disposition Details
Distribution Information	Engineering > Document Index (tab) > Search (secondary tab) > select record > Document Num > Distribution
Edit Access Panels	Engineering > Route Management (tab) > Operations (secondary tab) > Access Panels
	Engineering > Route Management (tab) > Routes (secondary tab) > Access Panels
Edit Alternates	Configuration > Master Configuration (tab) > Alternate Parts (secondary tab) > select record > Group Name
Edit Associated Positions	Configuration > Master Configuration (tab) > Alternate Parts (secondary tab) > select record > {View Positions} > [Go]
Edit Availability Restriction	Administration > Space Unavailability (tab) > select record > Space
Edit Document	Engineering > Document Index (tab) > Search (secondary tab) > select record > Document Num
Edit Document Associations	Configuration > Master Configuration (tab) > Overview (secondary tab) > select record > Name > {Documents}

Window or Page Name	Navigation Path
Edit Exchange Order	Execution > Outside Processing (tab) > select record > order number
Edit Master Configuration	Configuration > Master Configuration (tab) > Overview (secondary tab) > select record > [Edit]
Edit Operation	Engineering > Route Management (tab) > Operations (secondary tab) > select record > Operation
Edit OSP Order	Execution > Outside Processing (tab) > select record > Order Number
Edit OSP Line	Execution > Outside Processing (tab) > select record > Order Number > Line Number
Edit Product Classification	Configuration > Product Classification (tab) > select record > Tree
Edit Reliability Definition	Administration > Reliability (tab) > Reliability Definitions > Select Position > [Associate]
Edit Revision	Engineering > Document Index (tab) > Search (secondary tab) > select record > [Edit Revision]
Edit Rules	Configuration >Master Configuration (tab) > Overview (secondary tab) > select record > Name > {Rules}
Edit Shipment Header	Execution > Outside Processing (tab) > select record > Order Number > Shipments
Edit Shipment Line	Execution > Outside Processing (tab) > select record > Order Number > Shipments > select record > Line Number
Edit Space	Administration > Spaces (tab) > Space

Window or Page Name	Navigation Path
Edit Subscription Information	Engineering > Document Index (tab) > Search (secondary tab) > select record > Document Num > Subscription
Edit Unit Configuration	Configuration > Unit Configuration (tab) > Search Unit (secondary tab) > select record > Edit
Electronic File Upload	Engineering > Document Index (tab) > Search (secondary tab) > select record > [Upload]
Fleet Downtime Percentage Report	Administration > Maintenance Requirement Status Reports > Fleet Downtime Percentage Report
Forecast Associations	Administration > Reliability (tab) > Forecast Associations
Group Maintenance Requirement	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab) > Click the Group Relation icon for the record
Initialize Maintenance Requirement	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab) > select record > {Initialize MR} > [Go]
Item Number/Serial Number Change	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > {Item/Serial Number Change} > [Go]
Item Service Relationships	Administration > Vendor Sourcing > Item Service Relationships
Items without Price	Planning > Visit Work Package (tab) > select record > {Cost and Price Information} > [Go] > Maintenance Requirements > select requirement > Cost/Price > [Items Without Price]

Window or Page Name	Navigation Path
Maintenance Requirement Cost and Price	Planning > Visit Work Package (tab) > select record > {Cost and Price Information} > [Go] > Maintenance Requirements > select requirement > Cost/Price
Maintenance Requirement Deferral Details	Execution > Production Planning (tab) > Maintenance Requirements (secondary tab) > select record > [Defer]
Maintenance Requirement Information Details and Status	Complex MRO > Administration > Reports >Maintenance Requirement Information Details and Status
Maintenance Requirement Relationships	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title > Relationships
Marshalling Workbench	Complex MRO > Marshalling Workbench
Material Availability	Planning > Visit Work Package > Search Visits > Update Visit > Maintenance Requirements > Check Availability
Material Requirements	Planning > Visit Work Package > Search Visits > Update Visit > Maintenance Requirements
MEL/CDL Associations	Engineering > MEL/CDL (tab) > Overview > [Go] > Tree
Migrate Unit Configuration	Configuration > Unit Configuration (tab) > Search Unit (secondary tab) > select record > [Migrate]
Job Operations	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go]
Job Overview	Execution > Production Planning (tab) > Work Orders (secondary tab)

Window or Page Name	Navigation Path
Operation (Detail)	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > select operation record > [Details]
Part Changes	Administration > Reliability (tab) > Part Change History
Perform Material Transactions	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Material Transactions
Perform Resource Transactions	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Resource Transactions
Purchase Order Details	Execution > Outside Processing (tab) > select record > Order Number > PO Details
Primary Visit Default Parameters Quick Removal and Installation	Execution > Production Planning > Work Orders > Perform Search > Update Work Orders (Action Item) > Work Order Operations Page > Item Bulk Part Install (Select Action Item)
Receive Shipment	Execution > Outside Processing (tab) > OSP Orders (secondary tab) > Receive Shipment
Reliability Definitions	Administration > Reliability (tab) > Reliability Definitions
Reliability Setup	Administration > Reliability (tab) > Setup
Repair Categories	Engineering > MEL/CDL (tab) > Repair Categories
Resource Assignments	Planning > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Assignments

Window or Page Name	Navigation Path
Resource Requirements	Planning > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Resources
Resource Requirement Detail	Planning > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Resources> select requirement > [Details]
Required Materials	Execution > Production Planning (tab) > Materials (secondary tab)
Route Dependencies	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title > Routes > Dependency
Search Alternate Items	Configuration > Master Configuration (tab) > Alternate Parts (secondary tab)
Search Availability Restrictions	Administration > Space Unavailability (tab)
Search BOM Resource	Engineering > Route Management (tab) > Resources (secondary tab) > [Create] > [Attach]
Search Department Location	Administration > Department Location (tab)
Search Department Shift	Administration > Department Shift (tab)
Search Document	Engineering > Document Index (tab)
Search Item	Planning > Unit Maintenance Plan (tab) > Utilization Forecast (secondary tab)
Search Item Compositions	Engineering > Route Management (tab) > Item Compositions (secondary tab)
Search Maintenance Requirements	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab)
Search Maintenance Requirements (for a visit)	Planning > Visit Work Package (tab) > select record > {Maintenance Requirements} > [Go]

Window or Page Name	Navigation Path
Search Maintenance Requirements (in the Execution module)	Execution > Production Planning (tab) > Maintenance Requirements (secondary tab)
Search Master Configuration	Configuration > Master Configuration (tab) > Overview (secondary tab)
Search Non-routine	Planning > Unit Maintenance Plan > Non-routines
Search Operation	Engineering > Route Management (tab) > Operations (secondary tab)
Search OSP Order	Execution > Outside Processing (tab)
Search Product Classification	Configuration > Product Classification (tab)
Search Program	Engineering > Maintenance Program Document
Search Resources	Engineering > Route Management (tab) > Resources (secondary tab)
Search Route	Engineering > Route Management (tab) > Routes (secondary tab)
Search Spaces	Administration > Spaces (tab)
Search Unit Configuration	Configuration > Unit Configuration (tab) > Search Unit (secondary tab)
Search Unit Maintenance Plan	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab)
Search Visits	Planning > Visit Work Package (tab) > Visits
Search Visit Task	Planning > Visit Work Package (tab) > Search Visits > select record > {Search Tasks} > [Go]
Search Warranty Claim	Configuration > Supplier Warranty > Claim Management

Window or Page Name	Navigation Path
Search Warranty Instance	Configuration > Supplier Warranty > Search Warranty Instance
Search Warranty Template	Configuration > Supplier Warranty > Search Warranty Template
Search Warranty Template	Configuration > Supplier Warranty > Search Warranty Template
Serial Number History	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > {Item/Serial Number Change} > [Go] > [View History]
Signoff Maintenance Requirement	Execution > Production Planning > Work Orders (secondary tab) < select record > {Sign Off Maintenance Requirement} > [Go]
Simulation Plans	Planning > Fleet Forecasting > Simulations > [Go]
Submit Quality Results (for a job)	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Record Job QA Results} > [Go]
Supplier Information	Engineering > Document Index (tab) > Search (secondary tab) > select record > Document Num > Supplier
Task Cost and Price	Planning > Visit Work Package (tab) > select record > {Search Tasks} > [Go] > select task > Cost/Price
Task Hierarchy	Planning > Visit Work Package (tab) > select record > {Search Tasks} > [Go] > select task > Task Number > Hierarchy
Unavailable Items	Material Workbench > Visit Management > Results > Details icon > Unavailable Items (link)
Unit Serial Numbers	Administration > Reports > Unit Serial Numbers

Window or Page Name	Navigation Path
Unit Configuration Parts Change/Item Instance Parts Change	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > {Perform Part Removal/Install} > [Go]
Unit Configuration Validation Results	Configuration > Unit Configuration (tab) > Search Unit (secondary tab) > select record > [Validate]
Unit Maintenance Plan - View Threshold	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab) > select record > {View Threshold} > [Go]
Update Attached Actions	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Actions
Update Attached Documents	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Documents
Update Attached Documents (for a product classification)	Configuration > Product Classification (tab) > select record > Tree > Documents
Update Attached Routes	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Routes
Update Attached Units	Configuration > Product Classification (tab) > select record > Tree > Units/Items
Update Composition List	Engineering > Route Management (tab) > Item Compositions (secondary tab) > select record > Item
Update Costing Parameters (for an operation)	Engineering > Route Management (tab) > Operations (secondary tab) > select record > Operation > Resource Requirements > Costing Parameters

Window or Page Name	Navigation Path
Update Costing Parameters (for a route)	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number > Resource Requirements > Costing Parameters
Update Effectivity	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Effectivities
Update Effectivity Details	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title > Effectivities >Effectivity Details
Update Item Utilization Forecast	Planning > Unit Maintenance Plan (tab) > Utilization Forecast (secondary tab) > select record > [Utilization Forecast]
Update Interval Threshold	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title > Effectivities >Interval Threshold
Update Maintenance Requirement	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title
Update Material Requirements	Execution > Production Panning (tab) > Work Orders (secondary tab) > select record > {Update Work Order} > [Go] > Materials
Update MEL/CDL	Engineering > MEL/CDL (tab) > Overview > [Go] > Tree
Update Resources	Engineering > Route Management (tab) > Resources (secondary tab) > select record > Resource
Update Route	Engineering > Route Management (tab) > Routes (secondary tab) > select record > Route Number

Window or Page Name	Navigation Path
Update Service Request (in the Execution module)	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {Update/View Service Request} > [Go]
Update Task Header	Planning > Visit Work Package (tab) > select record > {Search Tasks} > [Go] > select task > Task Number
Update Visit	Planning > Visit Work Package (tab) > select record > Visit number
Update Warranty Claim	Configuration > Supplier Warranty > Claim Management > Search Warranty Claims > [Edit] for the warranty line item
Update Warranty Template	Configuration > Supplier Warranty > Search Warranty Template > [Edit] for the template line item
Vendors	Administration > Vendor Sourcing > Vendors
View Affected Items	Engineering > Fleet Maintenance Program (tab) > Overview (secondary tab) > select record > Title > Affected Items
View Item Instance Utilization	Configuration > Unit Configuration (tab) > Search Unit (secondary tab) > select record > Edit > [View Utilization]
View Maintenance Requirement (for a product classification)	Configuration > Product Classification (tab) > select record > Tree > Maintenance Requirements
View Maintenance Requirement Detail & History	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab) > select record > {View Details & History}
View Maintenance Requirement (for an Unit Maintenance Plan)	Planning > Unit Maintenance Plan (tab) > Overview (secondary tab) > select record > {View MR Details} > [Go]
View Composition Lists	Configuration > Master Configuration (tab) > Composition List (secondary tab)

Window or Page Name	Navigation Path
View Documents	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {View Documents} > [Go]
View Maintenance Requirement	Execution > Production Planning (tab) > Maintenance Requirements (secondary tab) > select record > Maintenance Requirement
View Product Classifications	Engineering > MEL/CDL (tab) > Overview > [Go] > Tree > select unit configuration
View Purchase Accounting Distributions	Execution > Outside Processing (tab) > select record > Order Number > PO Details > select line item > [PO Shipments] > select Shipment Number > [Accounting Distributions]
View Purchase Order Shipments	Execution > Outside Processing (tab) > select record > Order Number > PO Details > select line item > [PO Shipments]
View Receipts	Execution > Outside Processing (tab) > select record > Order Number > PO Details > select line item > [Receipts]
Search Fleet-Unit Associations	Planning > Fleet Forecasting > Fleet-Unit Association > Select Simulation Plan >[Go]
View Warranty Claim	Configuration > Supplier Warranty > Claim Management > Search Warranty Claims > Click the Claim Number
View Warranty Template	Configuration > Supplier Warranty > Search Warranty Template > Click the Template Name link
View Warranty Workbench	Configuration > Supplier Warranty > Warranty Contracts > Warranty Contracts > Click Warranty Contract Number link > View Warranty Contract > [View Warranty Workbench]

Window or Page Name	Navigation Path
Visit Cost and Price	Planning > Visit Work Package (tab) > Search Visits > select record > {Cost and Price Information} > [Go]
Visit Details	Execution Production Planning > Visits (secondary tab) > select record > Update Visit
Visit Details: Marshalling	Complex MRO > Marshalling Workbench > Visit Details
Visit Errors	Planning > Visit Work Package (tab) > select record > {Validate} > [Go]
Visits	Complex MRO Transit Technician > Transit Technician > Visits
Warranty Contracts	Configuration > Supplier Warranty > Warranty Contracts
Warranty Workbench	Configuration > Supplier Warranty > Warranty Contracts > Warranty Contracts > {Edit} (for the warranty contract line item) > [Warranty Workbench]
Work Order Overview	Execution > Production Planning (tab) > Work Orders (secondary tab)
Work Order Scheduling Hierarchy	Execution > Production Planning (tab) > Work Orders (secondary tab) > select record > {View Scheduling Hierarchy} > [Go]

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