# Oracle ® Advanced Service Online

Concepts and Procedures

Release 11*i*

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Oracle Advanced Service Online Concepts and Procedures, Release 11*i*

Part No. A95169-02

# Contents

## 6 Managing Maintenance Routes

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**Oracle Advanced Service Online Concepts and Procedures, Release 11*i***

**Part No. A95169-02**

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# Preface

## Audience for This Guide

Welcome to Release 11*i* of the Oracle Advanced Service Online Concepts and Procedures.

This guide assumes you have a working knowledge of the following:

- The principles and customary practices of your business area.
- The Oracle Applications graphical user interface.

  To learn more about the Oracle Applications graphical user interface, read the *Oracle Applications User's Guide*.

See Other Information Sources for more information about Oracle Applications product information.

## How To Use This Guide

This document contains the information you need to understand and use Oracle Advanced Service Online.

Chapter 1, "Overview of Oracle Advanced Service Online" provides overviews of the application and its components, explanations of key concepts, features, and functions.

Chapter 2, "Basics of Oracle Advanced Service Online" provides instructions on how to access the application, and introduces the tabs available on the interface.

Chapter 3, "Managing Maintenance Documents" provides process-oriented, task based procedures for using the Document Index module of Oracle Advanced Service Online to manage maintenance documents.

Chapter 4, "Working With Master Configurations" provides process-oriented, task based procedures for using the Master Configuration module of Oracle Advanced Service Online to manage master configurations of electromechanical system assemblies.

Chapter 5, "Working with Unit Configurations" provides process-oriented, task based procedures for using the Unit Configuration module of Oracle Advanced Service Online to manage the operational readiness of fleet units.

Chapter 6, "Managing Maintenance Routes" provides process-oriented, task based procedures for using the Route Management module of Oracle Advanced Service Online to manage maintenance routes.

## Typographic Conventions

The following conventions are used in this manual:

| Convention | Meaning |
|---|---|
| .<br>.<br>. | Vertical ellipsis points in an example mean that information not directly related to the example has been omitted. |
| . . . | Horizontal ellipsis points in statements or commands mean that parts of the statement or command not directly related to the example have been omitted |
| **boldface text** | Boldface type in text indicates a term defined in the text, the glossary, or in both locations. |
| < > | Angle brackets enclose user-supplied names. |
| [ ] | Brackets enclose optional clauses from which you can choose one or none. |

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Standards will continue to evolve over time, and Oracle Corporation is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For additional information,

visit the Oracle Accessibility Program Web site at http://www.oracle.com/accessibility/.

### Accessibility of Code Examples in Documentation

JAWS, a Windows screen reader, may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, JAWS may not always read a line of text that consists solely of a bracket or brace.

## Other Information Sources

You can choose from many sources of information, including online documentation, training, and support services, to increase your knowledge and understanding of Oracle Advanced Service Online.

If this guide refers you to other Oracle Applications documentation, use only the Release 11*i* versions of those guides.

### Online Documentation

All Oracle Applications documentation is available online (HTML or PDF). Online help patches are available on MetaLink.

### Related Documentation

Oracle Advanced Service Online shares business and setup information with other Oracle Applications products. Therefore, you may want to refer to other product documentation when you set up and use Oracle Advanced Service Online.

You can read the documents online by choosing Library from the expandable menu on your HTML help window, by reading from the Oracle Applications Document Library CD included in your media pack, or by using a Web browser with a URL that your system administrator provides.

If you require printed guides, you can purchase them from the Oracle Store at http://oraclestore.oracle.com.

### Documents Related to All Products

#### Oracle Applications User's Guide

This guide explains how to enter data, query, run reports, and navigate using the graphical user interface (GUI) available with this release of Oracle Advanced Service Online (and any other Oracle Applications products). This guide also

includes information on setting user profiles, as well as running and reviewing reports and concurrent processes.

You can access this user's guide online by choosing "Getting Started with Oracle Applications" from any Oracle Applications help file.

## Documents Related to This Product

### Oracle Install Base Concepts and Procedures 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 Advanced Service Online.

### Oracle Advanced Service Online Implementation Guide

Use this guide to set up Oracle ASO.

## Installation and System Administration

### Oracle Applications Concepts

This guide provides an introduction to the concepts, features, technology stack, architecture, and terminology for Oracle Applications Release 11*i*. It provides a useful first book to read before an installation of Oracle Applications. This guide also introduces the concepts behind Applications-wide features such as Business Intelligence (BIS), languages and character sets, and Self-Service Web Applications.

### Installing Oracle Applications

This guide provides instructions for managing the installation of Oracle Applications products. In Release 11*i*, much of the installation process is handled using Oracle Rapid Install, which minimizes the time to install Oracle Applications, the Oracle8 technology stack, and the Oracle8*i* Server technology stack by automating many of the required steps. This guide contains instructions for using Oracle Rapid Install and lists the tasks you need to perform to finish your installation. You should use this guide in conjunction with individual product user's guides and implementation guides.

### Oracle Applications Supplemental CRM Installation Steps

This guide contains specific steps needed to complete installation of a few of the CRM products. The steps should be done immediately following the tasks given in the Installing Oracle Applications guide.

### Upgrading Oracle Applications

Refer to this guide if you are upgrading your Oracle Applications Release 10.7 or Release 11.0 products to Release 11*i*. This guide describes the upgrade process and lists database and product-specific upgrade tasks. You must be either at Release 10.7 (NCA, SmartClient, or character mode) or Release 11.0, to upgrade to Release 11*i*. You cannot upgrade to Release 11*i* directly from releases prior to 10.7.

### Maintaining Oracle Applications

Use this guide to help you run the various AD utilities, such as AutoUpgrade, AutoPatch, AD Administration, AD Controller, AD Relink, License Manager, and others. It contains how-to steps, screenshots, and other information that you need to run the AD utilities. This guide also provides information on maintaining the Oracle applications file system and database.

### Oracle Applications System Administrator's Guide

This guide provides planning and reference information for the Oracle Applications System Administrator. It contains information on how to define security, customize menus and online help, and manage concurrent processing.

### Oracle Alert User's Guide

This guide explains how to define periodic and event alerts to monitor the status of your Oracle Applications data.

### Oracle Applications Developer's Guide

This guide contains the coding standards followed by the Oracle Applications development staff. It describes the Oracle Application Object Library components needed to implement the Oracle Applications user interface described in the *Oracle Applications User Interface Standards for Forms-Based Products*. It also provides information to help you build your custom Oracle Forms Developer 6*i* forms so that they integrate with Oracle Applications.

### Oracle Applications User Interface Standards for Forms-Based Products

This guide contains the user interface (UI) standards followed by the Oracle Applications development staff. It describes the UI for the Oracle Applications products and how to apply this UI to the design of an application built by using Oracle Forms.

## Other Implementation Documentation

### Multiple Reporting Currencies in Oracle Applications

If you use the Multiple Reporting Currencies feature to record transactions in more than one currency, use this manual before implementing Oracle Advanced Service Online. This manual details additional steps and setup considerations for implementing Oracle Advanced Service Online with this feature.

### Multiple Organizations in Oracle Applications

This guide describes how to set up and use Oracle Advanced Service Online with Oracle Applications' Multiple Organization support feature, so you can define and support different organization structures when running a single installation of Oracle Advanced Service Online.

### Oracle Workflow Guide

This guide explains how to define new workflow business processes as well as customize existing Oracle Applications-embedded workflow processes.You also use this guide to complete the setup steps necessary for any Oracle Applications product that includes workflow-enabled processes.

### Oracle Applications Flexfields Guide

This guide provides flexfields planning, setup and reference information for the Oracle Advanced service Online implementation team, as well as for users responsible for the ongoing maintenance of Oracle Applications product data. This manual also provides information on creating custom reports on flexfields data.

### Oracle eTechnical Reference Manuals

Each eTechnical Reference Manual (eTRM) contains database diagrams and a detailed description of database tables, forms, reports, and programs for a specific Oracle Applications product. This information helps you convert data from your existing applications, integrate Oracle Applications data with non-Oracle applications, and write custom reports for Oracle Applications products. Oracle eTRM is available on Metalink

### Oracle Manufacturing APIs and Open Interfaces Manual

This manual contains up-to-date information about integrating with other Oracle Manufacturing applications and with your other systems. This documentation includes APIs and open interfaces found in Oracle Manufacturing.

### Oracle Order Management Suite APIs and Open Interfaces Manual

This manual contains up-to-date information about integrating with other Oracle Manufacturing applications and with your other systems. This documentation includes APIs and open interfaces found in Oracle Order Management Suite.

### Oracle Applications Message Reference Manual

This manual describes Oracle Applications messages. This manual is available in HTML format on the documentation CD-ROM for Release 11i.

### Oracle CRM Application Foundation Implementation Guide

Many CRM products use components from CRM Application Foundation. Use this guide to correctly implement CRM Application Foundation.

## Training and Support

### Training

Oracle offers training courses to help you and your staff master Oracle Advanced Service Online and reach full productivity quickly. You have a choice of educational environments. You can attend courses offered by Oracle University at any one of our many Education Centers, you can arrange for our trainers to teach at your facility, or you can use Oracle Learning Network (OLN), Oracle University's online education utility. In addition, Oracle training professionals can tailor standard courses or develop custom courses to meet your needs. For example, you may want to use your organization's structure, terminology, and data as examples in a customized training session delivered at your own facility.

### Support

From on-site support to central support, our team of experienced professionals provides the help and information you need to keep Oracle Advanced Service Online working for you. This team includes your Technical Representative, Account Manager, and Oracle's large staff of consultants and support specialists with expertise in your business area, managing an Oracle8*i* server, and your hardware and software environment.

### Oracle*MetaLink*

Oracle*MetaLink* is your self-service support connection with web, telephone menu, and e-mail alternatives. Oracle supplies these technologies for your convenience, available 24 hours a day, 7 days a week. With Oracle*MetaLin*k, you can obtain information and advice from technical libraries and forums, download patches,

download the latest documentation, look at bug details, and create or update TARs. To use MetaLink, register at (http://metalink.oracle.com).

**Alerts:** You should check Oracle*MetaLink* alerts before you begin to install or upgrade any of your Oracle Applications. Navigate to the Alerts page as follows: Technical Libraries/ERP Applications/Applications Installation and Upgrade/Alerts.

**Self-Service Toolkit:** You may also find information by navigating to the Self-Service Toolkit page as follows: Technical Libraries/ERP Applications/Applications Installation and Upgrade.

## Do Not Use Database Tools to Modify Oracle Applications Data

***Oracle STRONGLY RECOMMENDS that you never use SQL*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle Applications 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 Applications data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

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

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

## About Oracle

Oracle Corporation develops and markets an integrated line of software products for database management, applications development, decision support, and office automation, as well as Oracle Applications, an integrated suite of more than 160 software modules for financial management, supply chain management,

manufacturing, project systems, human resources and customer relationship management.

Oracle products are available for mainframes, minicomputers, personal computers, network computers and personal digital assistants, allowing organizations to integrate different computers, different operating systems, different networks, and even different database management systems, into a single, unified computing and information resource.

Oracle is the world's leading supplier of software for information management, and the world's second largest software company. Oracle offers its database, tools, and applications products, along with related consulting, education, and support services, in over 145 countries around the world.

# 1

# Overview of Oracle Advanced Service Online

This section provides an overview of Oracle Advanced Service Online (ASO) and its components. It explains the key concepts, features, and functions of Oracle ASO. This chapter covers the following topics:



## 1.1 What is Oracle ASO?

In today's fast paced world, the need for transport of people and cargo is growing. Passengers are as concerned about on-time departure as they are about competitive fares. The operational readiness of electromechanical systems such as aircraft, land-based transportation vehicles like trucks, light and heavy rail rolling stock, and ships is, of great concern. These fleets are maintained by businesses such as airlines, railroads, and international vessel operators, with assistance from maintenance specialist firms.

Oracle ASO is an integrated, Web-enabled, software application suite designed to empower complex equipment maintenance organizations. Oracle ASO 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.

Oracle ASO reveals maintenance practice improvement opportunities, and opportunities to improve fleet readiness. Oracle ASO provides models for electromechanical systems and defines rules for assembling units. It also records unit-specific information, allowing 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.

Oracle ASO comprises the following four modules:

- Document Index
- Master Configuration
- Unit Configuration
- Route Management

## 1.2 Why Use Oracle ASO?

Transport organizations are in a race against time to keep up with customer demands for services. For example, consider the air transport industry. With harried passengers as concerned about on-time departure as they are about competitive fares, airlines maintenance operations are now in competition with each other to ensure the highest aircraft dispatch rates possible. Without cost-effective fleet maintenance, a commercial airline cannot remain in business for long. Airlines earn revenue when their aircraft fleets are in the air, carrying passengers and cargo. Lost revenue, due to equipment-related flight cancellations, is very costly. Maintaining operational readiness of fleets is paramount.

The maintenance of electromechanical systems, such as aircraft, is different from the manufacture of these systems. For example, the demand for parts in a manufacturing organization is derived from the rate at which products are assembled, and is easy to forecast. The demand for parts in a maintenance organization must be derived by statistical methods, and is difficult to predict. This reflects the need for a dedicated maintenance management application to serve the Maintenance, Repair, and Overhaul (MRO) industry.

Maintenance organizations face the challenge of managing a variety of maintenance activities:

- Maintenance visits
- Job scheduling and routing

- Labor time collection
- Cost collection
- Component monitoring
- Inventory management
- Maintenance document management

The logistics operations to maintain spare parts, fuel, consumable supplies, scheduling, and human resources require the use of integrated information systems designed to connect all of the enterprise with a powerful Web-enabled architecture. The integration of Oracle ASO with the Oracle E-Business suite enables maintenance organizations to implement a powerful set of applications to streamline and reduce the complexity of their operations.

## 1.3 Key Features

Oracle ASO enables maintenance organizations to meet customer expectations, and draw maximum benefit by improving the fleets' operational readiness. Oracle ASO enables organizations to:

- Streamline maintenance operations
- Meet the demands for transport and service
- Improve profitability

The major features of Oracle ASO include:

- Maintenance document management
- Master configuration management
- Unit configuration management
- Maintenance route management

### 1.3.1 Maintenance Document Management

Oracle ASO provides maintenance organizations with the right tools for managing documents. Oracle ASO records all technical document titles, supports centralized document revision control and organizational document distribution.

Key document management features include:

**Receipt and Registration of Documents** Oracle ASO allows organizations to register the receipt of a document or document revision. This helps organizations keep track of all technical documents.

**Document Subscription Control** Oracle ASO allows maintenance organizations to record supplier information to ensure that subscriptions are made to the right supplier. It also allows organizations to track the status of subscriptions.

**Document Revision Control** Oracle ASO enables maintenance organizations to track revisions of a document in order to ensure information is up to date and accurate. It allows organizations to mark documents as current or obsolete.

**Document Status Look-up** Oracle ASO allows maintenance personnel to verify versions of documents from multiple levels during maintenance operations. Maintenance personnel can verify information such as revisions superseding a particular job reference, track changes to procedures, and correct revisions of manuals.

**Document Distribution Control** Oracle ASO manages document distribution within the organization ensuring that a person who requests a document is authorized to receive a document. Oracle ASO also ensures that the document provider distributes the correct document to the maintenance facility.

### 1.3.2 Master Configuration Management

Oracle ASO improves operational efficiency by providing templates for the structure of electromechanical system assemblies. It defines rules for component location and selection, and applicable maintenance operations.

Key product configuration management features include:

**Assembly Tree Structure** Oracle ASO provides a tree structure to represent the positions of tracked or required components that make up a complex assembly.

**Assembly Qualification** Oracle ASO defines the qualification of an assembly by identifying the components required to meet a certain specification.

**Tracked Parts Positioning** Oracle ASO defines positions of tracked parts within an assembly grouped by systems.

**Parent Child Relationship Definition** Oracle ASO defines the parent child relationship between components in an assembly.

**Configuration Template for Unit Configuration** Oracle ASO provides a configuration template for unit configurations. It models the general characteristics of a fleet unit.

**Routes/Work Cards Grouping** Oracle ASO associates a group of work cards or routes to master configuration nodes. It provides a set of applicable routes to repair or overhaul a unit with that master configuration.

**Cost Roll Up Structure** Oracle ASO allows maintenance personnel to divide the cost of maintenance by the modules of an assembly. The master configuration will serve as a cost roll up template.

**Group Maintenance Requirements** Oracle ASO helps to group maintenance requirements by component positions. For simple components, it defines maintenance requirements applicable to a part number. For part numbers that vary in maintenance requirements when fitted in different positions, Oracle ASO defines maintenance requirements grouped by position.

**Alternate Parts Definition** Oracle ASO defines alternate part information for each position. Oracle ASO also allows you to define constraints or restrictions that apply when alternate parts are used.

**Accumulation List** Oracle ASO provides accumulation lists of positions, which list all subsequent child positions under a particular component position. When you disassemble an assembly for repair, this list provides information on components required for re-assembly.

**Material Picking Rules** Oracle ASO defines material picking rules that set the priority for selecting inventory among different inventory groups, such as "customer supplied new" and "customer supplied used".

**Configurations Comparison** Oracle ASO allows re-configuration of assemblies for different operation requirements or missions. It provides templates to define the components required for a specific mission type.

### 1.3.3 Unit Configuration Management

Oracle ASO helps maintenance organizations plan their maintenance operations and requirements by providing structures of "as-operated" electromechanical systems. These descriptions provide models for specific characteristics of a fleet unit.

Key unit configuration management features include:

**Unit Composition** Oracle ASO provides maintenance personnel information on the hierarchical positions of parts within a unit. It helps identify parts in the assembly, based on part number and serial number. Oracle ASO also tracks parts in an "as-installed" configuration.

**Physical Location of Parts** Oracle ASO tracks transactions associated with changes in physical locations of units. These locations can include being installed with a parent unit, stored in inventory, or in transit.

**Installing and Removing Child Units** Oracle ASO records installation and removal of child units. When you install a child unit with a parent unit, Oracle ASO presents the child unit as part of the parent unit configuration. When you remove a child unit from a parent unit, it presents the child unit as a unit configuration.

**Parts Aging** Oracle ASO records the utilization, or age of parts in an assembly based on different parameters related to usage of parts and events that affect the parts.

**Utilization Population from Parent to Child Units** Oracle ASO helps maintenance personnel determine aging of components as a result of attachment to other parts, or parent units, that gain utilization. Oracle ASO also records instances where one part ages faster than other parts in a unit configuration.

**Unit Software Tracking** Oracle ASO helps organizations determine the functional capability of a unit by tracking software that is installed in the unit.

**Maintenance Requirements** Oracle ASO helps maintenance organizations indicate the type of maintenance requirements, and manage them based on factors such as utilization, hours, calendar days, and events.

**Maintenance History** Oracle ASO provides maintenance history of a unit by recording all previously accomplished maintenance requirements and attributes.

**Life of Parts** Oracle ASO helps organizations estimate the time or life that remains for a part before the next maintenance event, or retirement, by recording applicable maintenance requirements, and previous maintenance accomplishment.

**Warranties** Oracle ASO tracks all the warranties applicable to a single unit, making it easy for organizations to compare coverage period with the utilization period of the unit.

**Ownership History** Oracle ASO helps keep track of equipment ownership history, which helps organizations analyze the impact of change in ownership on business procedures.

**Temporary Part Identification** Oracle ASO allows assignment of temporary part numbers and serial numbers to parts in an acquired unit. It also allows you to update these part identification numbers when the numbers are confirmed during the maintenance events.

### 1.3.4 Maintenance Route Management

Oracle ASO empowers maintenance organizations to perform maintenance operations while accessing information and work flow from multiple levels. It provides the user with the ability to generate task instructions for maintenance, repair, and overhaul activities. A route refers to a group of repetitive maintenance tasks in one work package.

Key route management features include:

**Work Card/Route Authoring** Oracle ASO provides an intuitive interface, which the maintenance personnel can use to create work cards. Oracle ASO allows you to define the standard operations first and then select the appropriate operation to form a work card, or to write a work card directly without first defining the operation.

**Work Card Grouping** Oracle ASO allows work cards to be grouped together for bigger maintenance tasks.

**Production Planning Information** Oracle ASO helps organizations plan maintenance activities based on system, zone, work center, process, skill of technician, and significant task.

**Resource Requirements** Oracle ASO provides a set of resource requirements such as estimated labor, tools, and material associated with each maintenance operation.

**Sign-off** Oracle ASO provides sign-off requirements for each work card. It also allows defining multiple sign-off requirements to an operation.

**Resource Collection Check Point** Oracle ASO allows you to capture details of resource utilization at different maintenance operation levels. It provides check points to group consecutive operations covering the three levels of collecting resource utilization; work order level, operation level, and operation group level.

## 1.4 Business Process

The following sections explain the business process associated with Oracle ASO.

### 1.4.1 Managing Maintenance Documents

The Document Index module in Oracle ASO is the central place for managing all maintenance documents. The maintenance personnel can access an online catalog of documents used in maintenance, repair, and overhaul operations. The Document Index allows personnel to receive, distribute, and control revisions in technical documentation.

Maintenance personnel can:

- Search the database to quickly refer to a document.
- Create new documents or document revisions.
- Associate subtypes to document types for easy identification.

Maintenance document management involves tracking documents and their revisions, validating document references from multiple levels of maintenance operations, and making them easily accessible to the maintenance personnel.

### 1.4.2 Managing Master Configuration Records

The Master Configuration module in Oracle ASO provides models of electromechanical system assemblies. A master configuration model will form the basis of a fleet unit in combination with business rules that specify the systems and subsystems that may be included in the assembled fleet unit. The Master Configuration module simplifies the development of routes for maintenance by providing master configuration records to which service route definitions are attached.

Maintenance personnel can:

- Search the database for master configurations of electromechanical system assemblies.
- Create system assembly master configurations.

- Search for alternate parts that may be used in place of specified components in an assembly.

Oracle ASO allows personnel to create a service route once, and connect the route to the assembly template instead of creating duplicate service routes. This greatly aids organizations in planning their maintenance operations efficiently.

### 1.4.3 Managing Unit Configuration Records

The Unit Configuration module in Oracle ASO allows organizations to describe the structure of an assembled electromechanical system. The as-constructed configuration of an assembly will determine the specific maintenance program required to ensure the operational readiness of that unit. Maintenance personnel can easily initiate proper maintenance activities to resolve issues. Maintenance personnel can:

- Create unit configurations from existing master configurations.
- Search for unit configuration records that exist in the database.
- Add new part information to the database.
- Search for, and update existing part information.

The Unit Configuration module in Oracle ASO is a key feature that enables maintenance organizations to determine services required. Even if two units have the same part number, or belong to the same product family, their configurations are normally different due to the operation and maintenance history of each unit. Unit Configuration provides models of individual tracked parts to support unit-specific information.

### 1.4.4 Managing Maintenance Routes

The Route Management module in Oracle ASO provides a single interface for managing all maintenance tasks. Maintenance personnel can prepare and maintain work instructions. Route Management also manages grouping of scheduled and unscheduled maintenance tasks in one work package. Maintenance personnel can:

- Search the database for a specific operation for reference purposes, or for editing purposes.
- Create an operation or define instructions for carrying out a maintenance task.
- Search for maintenance routes, for reference, or for editing route information.
- Create a maintenance route.

- Associate major and sub zones in a system to a product type to facilitate tracking of maintenance operations on complex electromechanical systems.

The intuitive user interface of Oracle ASO is designed to enable maintenance personnel handle operational needs as effortlessly and quickly as possible.

## 1.5 Key Business Scenarios

The following discussion explains the business scenarios that Oracle ASO supports.

### 1.5.1 At the Library

The librarian receives and registers a document transmittal using the Document Index screen. The document transmittal may be the maintenance manual for a new equipment, a revision to an existing manual, or a maintenance requirement notification from regulatory authorities, such as the Federal Aviation Administration (FAA). The librarian initiates an impact analysis process, if required, and then releases the transmittal, making it the valid version of the document for production use. If the transmittal was an update to an existing document, the previously valid version is retired (marked as not usable for production).

The release of a document makes it visible to other modules. Maintenance personnel can refer to the documentation from multiple levels during the maintenance operation.

### 1.5.2 At the Maintenance Facility

Regulatory authorities, or other maintenance needs impose maintenance requirements on an equipment. The concerned department uses the Route Management interface to create work cards. These work cards can be associated to one or more routes. Each work card contains instructions to perform a task, and production planning information including work center, zone, process, skill, estimated work hours, and resources. The department also defines sign off requirements for each work card. The user creates re-usable routes from re-usable work cards, and groups routes that can be assigned to specific fleet or product compositions.

Department personnel access the technical documentation and configuration records (provided by the Master Configuration and Unit Configuration modules) related to the equipment while preparing work cards and routes. Maintenance facilities also use the repair knowledge base. The Route Management module develops this knowledge base by tying defects and repairs back to the original route

used for the repair. This helps the department to plan inventory requirements, and also to reduce time spent on researching repair schemes.

After the work card is ready, the department issues the work card to production in the form of a work order.

### 1.5.3 On the Production Floor

The production personnel receive the work order and performs the tasks listed. Production personnel may verify versions of technical documentation used as reference for a work order. Production personnel may also access the configuration records of assemblies they work on, and the historical repair information associated with a unit's repair. The information includes defect types, applicable repairs, and resources required.

To capture the time and material expended associated to a work order, production personnel will record their identification, working time, and material issued associated to each work order. Also, the work order may require that the production personnel sign off certain steps or operations after they complete the task.

## 1.6 Integration and Dependencies

Oracle ASO 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 ASO meets these needs through its integration with Oracle Counters application.

Oracle ASO user will use 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 ASO users can define the counters using the appropriate unit of measurement associated with a component.

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

Oracle ASO will invoke the Install 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 ASO 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 an extent, the material requirement for maintaining operational readiness of fleet units.

Oracle ASO user will use 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.

# 1.7 Information Sources

A variety of information sources, including online documentation, training, and support services, are available to you for exploring the full capabilities of Oracle ASO.

## 1.7.1 Online Documentation

All Oracle Applications User's Guides and Concepts and Procedures Guides are available online in HTML and PDF formats. Further, technical reference guides may also be available in an electronic format. The HTML version of Oracle documentation is optimized for on-screen reading. You can use this to follow hypertext links for easy access to other HTML guides in the library.

- You can use the Search feature to search by words or phrases.
- You can use the expandable menu to search for topics in the menu structure we provide. The Library option on the menu expands to show all Oracle Applications HTML documentation.

You can view HTML help in the following ways:

- From an application window, use the help icon or the help menu to open a new Web browser and display help about that window.
- Use the documentation CD.
- Use a URL provided by your system administrator.

## 1.7.2 Related Documentation

Oracle ASO shares business and setup information with other Oracle Applications products. Therefore, you may want to refer to these guides when you set up and use Oracle ASO.

### 1.7.2.1 Oracle Applications Concepts

This guide provides an introduction to the concepts, features, technology stack, architecture, and terminology for Oracle Applications Release 11i.

### 1.7.2.2 Oracle Applications User Guide

This guide explains how to navigate the system, enter data, and query information, and introduces other basic features of the User Interface available with this release of Oracle Advanced Service Online.

### 1.7.2.3 Oracle Install Base Concepts and Procedures 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 the Oracle ASO suite of applications.

### 1.7.2.4 Oracle Advanced Service Online Implementation Guide

This guide explains how to set up Oracle ASO.

# 2

# Basics of Oracle Advanced Service Online

Oracle ASO provides maintenance organizations a means to quickly access technical documentation, details of maintenance routes, master configurations of complex system assemblies, and unit specific information critical to maintaining the operational readiness of fleet units.

This chapter describes the distinct regions in the Oracle ASO suite of applications, and the functions these regions will enable you to perform:

- Accessing Oracle Advanced Service Online
- Using the Document Index Module
- Using the Master Configuration Module
- Using the Unit Configuration Module
- Using the Route Management Module

## 2.1 Accessing Oracle Advanced Service Online

You can access Oracle ASO with an up-to-date Web browser. Oracle recommends Netscape Communicator 4.78 or later, or Microsoft Internet Explorer 5.5 or later. Your systems administrator will provide you with a username and password to access Oracle ASO.

### To access Oracle ASO:

1. Using the path provided by your System Administrator, navigate to the Welcome to Oracle eBusiness Suite page.
2. If you have not already obtained a registered and approved login, click Register Here to register.

3. After you have an approved login, in the Welcome to Oracle eBusiness Suite page, enter your User ID and Password.
4. Click Go. Oracle ASO Home page appears.

Oracle ASO Home page provides tabs to access each of its modules:

- Document Index
- Master Configuration
- Unit Configuration
- Route Management

Sub tabs in each of these modules allow you to search for, and access relevant information. Oracle ASO provides a means for the various business areas in maintenance organizations to remain well connected and informed about proceedings in maintenance operations.

## 2.2 Using the Document Index Module

The Document Index provides maintenance personnel instant access to maintenance documents. The Document Index module allows you to search for documents, create new or revised document titles, and associate predefined document sub types to document types.

You can access the following sub tabs from the Document Index module:

**Search Document** This sub tab launches the Search Document page that allows you to search for documents, indicating the designated search criteria based on chosen document attributes. The document attributes include document source, number, title, type, sub type, operator, product type and subscription status. The results display the document name and the associated revision detail information. You can then select a document to edit the document, or to edit a revision, or to create a new revision.

**Create Document** This sub tab launches the Create Document page that helps you create a new document reference with all of its related information. Related information include document information, supplier information, subscription information, distribution information, and information updates if any. This creates a record of all information related to a document reference in your database.

**Associate Type** This sub tab launches the Associate Document Sub Type To Document Type page that allows you to associate a sub type to a document type,

and also to search for a document to which a sub type is associated. Sub Type refers to the maintenance document category that describes the nature of the information contained in the document that you are defining.

## 2.3 Using the Master Configuration Module

The Master Configuration module provides access to information related to an electromechanical system configuration, and the rules for component selection and component location. You can search for master configurations based on which you will create new master configurations, and find the alternate parts that are allowable in an assembly.

You can access the following sub tabs from the Master Configuration page:

**Search** This sub tab launches the Search Master Configuration page that allows you to search for a master configuration indicating the designated search criteria. The master configuration attributes include name, position and description. The lower half of the screen displays a list of master configuration references with its attributes. You can select a master configuration to edit the configuration, or to remove it from the database.

**Create** This sub tab launches the Create Master Configuration page where you can add a master configuration to the database. The attributes needed to create a master configuration include name, description, and status indicating whether the master configuration record is a draft or a completed version.

**Alternate Parts** This sub tab launches the Search Alternate Parts page where you can search for parts that can be used alternatively in place of specified components. You can execute a search based on group name and description. The search results display the alternate parts with their group names and descriptions. You can select a part to edit the information. You can also add alternate parts using the Create button on this page.

## 2.4 Using the Unit Configuration Module

The Unit Configuration module provides access to unit-specific information such as tracking unit configuration changes, unit maintenance requirements, unit utilization or aging, and the unit maintenance event history. Maintenance personnel can create unit configurations from master configurations, or directly using the Unit Configuration interface. You can also search the database for unit configurations that you want to edit or remove, and update unit configuration information.

You can access the following sub tabs from the Unit Configuration page:

**Search Unit** This sub tab launches the Search Unit Configuration page that allows you to search for a unit configuration. You can execute the search specifying the name and serial number attributes of the unit configuration. The search results appear in the form of a list of unit configurations. You can select a record to edit the configuration, or to remove it from the database.

**Create from Master Configuration** This sub tab allows you to search for master configurations indicating the designated search criteria. The master configuration attributes include Name, Position and Description. When you execute a search, the screen displays a list of master configurations that match the search criteria. You can then select the master configuration record based on which you want to create a unit configuration.

**Search Product** This sub tab launches the Oracle Install Base Search My Products page. Use this page to search for parts, and to create, save, and use, personalized, named search criteria. After you perform a search, the result list appears in the Search My products page. You can then select a part record to edit, or copy the information.

**Create Product** This sub tab launches the Oracle Install Base Create Product page. Use this page to create a product (part record) or item instance. You can also edit a partial part attribute definition that you began earlier, but want to complete. The page has regions for general part information, such as owner, current location, item flags, and item views.

## 2.5 Using the Route Management Module

The Route Management module provides access to information required for managing maintenance operations. The Route Management tab provides access to create work cards or routes, search for routes to perform a maintenance job, and to record information about the zones in a system, on which the maintenance operation is performed.

You can access the following sub tabs from the Route Management page:

**Search Operation** This sub tab launches the Search Operation page that allows you to search for an operation. The interface provides fields where you can specify a number of operation attributes to retrieve the operation record. After you retrieve the operation record, you can select the operation to edit the information. The

interface leads you through successive screens where you can edit each operation attribute.

**Create Operation** This sub tab launches the Create Operation page that allows you to create an operation. The input required to create an operation include document reference, operation identity, start date, and operation description. You can input more information related to the operation such as operator, product type, zone or position, skill level, and category of maintenance while creating an operation. This functionality lets you record in your database, the details of an operation carried out for a specific maintenance need.

**Search Route** This sub tab launches the Search Route page that allows you to search for a maintenance route. The attributes you can specify to execute a search include route number, product type, work center, major zone to which the maintenance route applies, category, system to which the route applies, status, operator, skill type, process such as cleaning or inspection, and the route type. After you retrieve the pertinent route, you can edit the route, or associate other operations to the route. This functionality allows you to use existing information about maintenance solutions as reference for similar maintenance operations.

**Create Route** This sub tab launches the Create Route page that allows you to create maintenance route references. Information that is mandatory to create a maintenance route reference include route number, title of the route, status, and start date of the maintenance route operations. Other information that you can record about the maintenance route includes operator, product type, major zone of operation, work center, major skill type, route category, route type, process, the system to which the route applies, and the end date of maintenance route operations.

**Associate Major Zone** This sub tab launches the Associate Major Zone To Product Type page where you can select the product type, and the major zone in the electromechanical system to which a route applies. You can also specify the start and end dates of the maintenance operation, which will help you record the details of operations performed on a specific zone in an electromechanical system.

**Associate Sub Zone** This sub tab launches the Associate Sub Type to Product Type page where you can select the major zone, and the sub zone that you want to associate with a product type, along with the start and end dates of the operation. This enables you, for management purposes, to retrieve details of maintenance operations performed on a sub zone or major zone within an electromechanical system.

# 3

# Managing Maintenance Documents

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 ASO includes the Document Index module that permits a maintenance organization to create a repository of meta-documentation.

This chapter discusses the key functions supported by the Oracle ASO Document Index module. The chapter provides process-oriented, task based procedures for using the application to perform essential document management tasks in maintenance organizations.

See:

## 3.1 What is Document Index?

Document Index is a subsystem that provides an online catalog of documents used in maintenance, repair, and overhaul operations. Document Index is the ASO 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 Document Index, you will add a reference to the document that includes the document identifier, its title, and whether or not the document can be subscribed to. Documents can be of certain types, and subtypes, and this information is also managed with Document Index. You can edit the document references that you create, as well as define and edit revisions. You cannot delete document descriptions using Document Index. When documents are no longer required, for example, after having disposed of a unit in your fleet, you can mark the document as obsolete.

## 3.2 Key Business Processes

The Document Index supports the following business processes:

**Document Registration** Internal documents that evolve during the life of an equipment, and external documents provided by suppliers on a subscription basis, may consist of various formats that should be tracked. Oracle ASO allows 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 Revision Control** Maintaining the latest documentation and related updates is a necessity for maintenance organizations. This includes tracking revisions of a document to ensure information is up to date and accurate. Inaccurate information may not be in adherence to required rules and regulations. Oracle ASO allows organizations to mark current information as reference, and obsolete information as not considered for use, while retaining the obsolete documents for document history.

**Document Subscription Control** Organizations maintain supplier information for documents to ensure that the right supplier provides the documentation requested or subscribed to. Oracle ASO allows organizations to maintain supplier

information, and to track the status of a subscription for a document from an associated supplier.

**Providing Document Reference** Organizations can greatly improve the efficiency of maintenance operations by defining the documents that relate to specific maintenance tasks, master configurations, or part numbers. Oracle ASO allows users to define the association of documents with other ASO objects, such as routes, operations, master configurations, or part numbers.

**Document Distribution** To maintain information on document distribution, it is necessary to map out who or what group is 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 ASO allows organizations to maintain the distribution of documents by defining the recipient of a document. This enables organizations to map the documents and release them to the right individuals or groups.

## 3.3 Fields Associated with Document References

The following fields appear on Document Index pages that relate to maintaining document references:

**Document Number** contains a unique identifier, generated by the organization to identify a maintenance document.

**Type** refers to the maintenance document type, and typically refers to the fleet unit, or major section division of the fleet unit. The set of values of this field is created when Oracle ASO is installed, and you cannot enter a new value here. Select the correct value for the type of document that you are creating from the drop-down list.

**Sub Type** is the maintenance document category that describes the nature of the information contained in the document that you are defining in this field. Select the appropriate value from the drop-down list. Also see Associating Document Sub Types to Document Types.

**Operator** is the name of the company that owns or uses the document that you are recording. To find all operator codes, use the generic substitution metacharacter %, and click Go. This launches the Select Operator Page. All the records in the database appear on the page in groups of ten. Click on the operator you want, to enter this value in the Operator field in the Create Document page.

**Product Type** contains a user-defined document product identifier. To find all product types, use the generic substitution metacharacter %, and click Go. This launches the Select Product Type page. All the records in the database appear on the page in groups of ten. Click on the product type you want, to enter this value in the Product Type field on the Create Document page.

**Source** refers to the internal or external supplier of the maintenance document. To find all source codes, use the generic substitution metacharacter %, and click Go. This launches the Select Source page. All the records in the database appear on the page in groups of ten. Click on the source you want, to enter this value in the Source field on the Create Document page.

**Title** refers to the title of the maintenance document.

**Subscription Available** is a true or false flag that indicates whether or not this maintenance document is available by subscription. Select Yes or No from the drop-down list.

**Subscribed To** is a true or false flag that indicates whether or not your organization has subscribed to this maintenance document. Select Yes or No from the drop-down list.

**Status** indicates whether a document is obsolete or current. Select the value from the drop-down list. The values for this field is defined when Oracle ASO is installed.

## 3.4 Creating Document References

This is the primary process by which you can create references to all of the maintenance documents you would like 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, the document source, the document number, whether the document is available through subscription, and whether the document is subscribed to by the organization. Document types should be set up by your organization while installing Oracle ASO.

### To create a document reference:

1. Select Document Index from the Oracle ASO Home page.

2. Select Create Document sub tab to display the Create Document page.

   You can also access the Create Document Page from the Search Document page (Document Index > Search > Search Document page) by clicking the Create button.

3. Enter the document information in the fields provided. Information in fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Document References.

4. Click Save.

   When you click Save, Oracle ASO checks to ensure that all required fields have been completed with valid entries. The application rejects invalid records with error messages.

## 3.5 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 others. Organizations may wish to use sub types to identify maintenance documents that are sections of others, or related otherwise. For example, a document type might be "Powerplant". A powerplant will probably be supplied with an "Illustrated Tool and Equipment Manual", so you might create a document sub type called "ITEM".

### Prerequisites:

You should decide how to relate maintenance document types to sub types. Your organization should have set up document types while installing Oracle ASO.

### To associate document sub types to a document type:

1. Select Document Index from the Oracle ASO Home page.
2. Select Associate Type sub tab to display the Associate Document Sub Type to Document Type page.
3. Select the document type for which you wish to create a document sub type using the Document Type drop-down list. The field below shows all document sub types in the database in groups of three.

Document Type represents the major topic such as powerplant, fleet unit, and ground support equipment that is described by the document in question. This field is populated when Oracle ASO is installed.

4. Enter the new document Sub Type Name and Sub Type Description.

   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". Sub Type Description contains the text description of the document Sub Type Name.

5. To use document sub types that already exist in the database, click Go. This launches the select Document Sub Type page. Use the generic substitution metacharacter % to find all sub type records in the database. Click the pertinent document sub type to return this value to the field on the Associate Document Sub Type to Document Type page.

6. Click Save.

### To remove a document sub type from a document type:

1. Select Document Index from the Oracle ASO Home page.
2. Select Associate Type sub tab to display the Associate Document Sub Type to Document Type page where you can define sub types.
3. Select a document type using the Document Type drop-down list. The field below shows all document sub types in the database.
4. Select the sub type record that you want to delete.
5. Click Remove. You can remove only a single document sub type at a time.

## 3.6 Finding Document References

Maintenance documents undergo frequent revisions. You can retrieve document references from the Document Index database and edit these references as necessary.

Oracle ASO permits 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".

Oracle ASO allows you to specify one or more search criteria to retrieve maintenance document references from the database. You can enter search strings in any of the fields for which you know the value. By using a combination of parameters in more than one field, you can restrict the search to retrieve only those document references that you want. After you retrieve the required document reference, click the buttons on the page to activate required functions.

### Prerequisites:

The document reference must exist in the database.

### To find a document reference:

1. Select Document Index from the Oracle ASO Home page.
2. Select Search sub tab to display the Search Document page where you can enter the search criteria.
3. Enter the document information in the fields for which you know the value. For field descriptions, see Fields Associated with Document References.
4. Click Search. Search results appear in the Document List field in the lower half of the screen.
5. To restart a search for records, click Clear. All the search fields on the page 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 Search to begin searching the database for records that match.

## 3.7 Editing Document References

After you create a document reference, you can edit it, or add more information about document subscriptions, document suppliers, and in-house document distribution.

### To edit document references:

1. Retrieve the document reference that you want to edit (see Finding Document References).
2. Select the document reference from the Document List.
3. Click the Edit Document button to launch the Edit Document page.

4. Make necessary changes to the document information in the fields provided. The fields in the Edit Document page are the same as in the Create Document page with the exception of the Document Number, which you cannot change. For field descriptions, see Fields Related to Document References.
5. Click Save to store your changes in the database.

   You can edit subscription information, supplier information, and distribution information from the Edit Document page using the Subscription, Supplier, and Distribution buttons. You can also create new revisions for the document from the Edit Document page using the Create New Revision button.

   See:

   - Maintaining Subscription Information
   - Maintaining Supplier Information
   - Maintaining Document Distribution Information

## 3.8 Maintaining Document Subscription Information

When maintenance organizations purchase a new subscription, or want to update subscription information, tracking this information for reference is necessary. The supplier of a document may change over time, or the frequency of the subscription may change. Oracle ASO tracks such information ensuring that the document is subscribed from the right supplier, and that the information regarding the subscription is correct.

### Prerequisites:

Your organization should have set up the Subscription Type and Media Type values while installing Oracle ASO.

### To add subscription information:

1. Retrieve the document reference for which you want to add subscription information (see Finding Document References).
2. Select the document reference from the Document List.
3. Click the Edit Document button to launch the Edit Document page.
4. Click Subscription on the Edit Document page to launch the Create New Subscription page.

5. Enter the subscription information in the fields provided. Information in fields marked with asterisk is mandatory.

   - Subscription Type indicates whether the subscription is free, or paid for. The field contains a drop-down list box from which you can select a value. These values are set up when your configuration of ASO is installed. You cannot type a string in this field.
   - Requested By contains the name of the individual in your organization who has requested a subscription to this publication. This is a quick lookup field. You can enter a value if you know the value. Otherwise, enter a partial search string with the generic substitution metacharacter % (example John%), and click Go to launch the Select Requested By page. The system returns all records in the database that match the search argument. Click on a search result to return that record to the field on the Edit Subscription Information page.
   - From Date contains the date on which the document subscription started. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.
   - Status contains a drop-down list box from which you can select a value from a set of values created when your configuration of ASO was installed. You cannot type a string in this field.
   - Purchase Order contains a purchase order identifier supplied by your accounts payable department.
   - Frequency indicates the frequency of the subscription such as monthly or yearly. The field contains a drop-down list box from which you can select a value. These values are set up when your configuration of ASO is installed. You cannot type a string in this field.
   - Subscribe From contains the name of the organization that supplies the maintenance document. This is a quick lookup field. Enter a partial search string with the generic substitution metacharacter %, and click Go to launch the Select Subscribe From page. The system returns all matching supplier records in the database. Click on the pertinent record to return this value to the field on the Create New Subscription page.
   - To Date contains the date on which the subscription ends. This date should be later than the From Date. Click on the calendar selector icon beside the date field and select the date as you did the From Date.

- Quantity contains the number of subscriptions to this document that your organization will receive. Enter a number with a value not less than1.
- Media Type indicates whether the subscription is a paper or an electronic document. The field contains a drop-down list box from which you can select a value. These values are set up when your configuration of ASO is installed. You cannot type a string in this field.

6. Click Save to store the subscription information in the database.

## 3.9 Maintaining Document Supplier Information

Maintaining supplier information for documents is necessary to ensure that the correct supplier provides the documentation requested or subscribed to. You may need to contact the supplier to verify information about a document, and for this reason maintenance of supplier contact information is crucial. Oracle ASO helps you record and update document supplier information.

### Prerequisites:

The values for Preference Code should be set up by your organization while installing Oracle ASO.

### To add supplier information:

1. Retrieve the document reference for which you want to add supplier information (see Finding Document References).
2. Select the document reference from the Document List.
3. Click the Edit Document button to launch the Edit Document page.
4. Click Supplier on the Edit Document page to launch the Supplier Information page.
5. Enter supplier information in the fields provided. Information in fields marked with asterisk is mandatory.
   - Supplier Name refers to the name of the organization that supplies this maintenance document. This is a quick lookup field. Enter a partial search string with the generic substitution metacharacter %, and click Go to launch the Select Supplier page. The system returns all matching records in the database. Click on the supplier name you want. This record returns to the Supplier Name field on the Supplier Information page.

- Supplier Description value is returned along with the Supplier Name to the Supplier Information page.
- Preference Code contains a drop-down list box from which you can select a value from a set of values created when your configuration of ASO was installed. You cannot type a string in this field.

6. Click Save to store the document supplier information in the database.

## 3.10 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 ASO allows you to manage information about recipients in the organization to whom documents will be distributed.

### To record document distribution information:

1. Retrieve the document reference for which you want to record distribution information (see Finding Document References).
2. Select the document reference from the Document List.
3. Click the Edit Document button to launch the Edit Document page.
4. Click Distribution on the Edit Document page to launch the Distribution Information page.
5. Enter the supplier information in the fields provided. Information in fields marked with asterisk is mandatory.
   - Recipient Name is the name of the individual or department that will receive a copy of the document. This is a quick lookup field. You can enter a value if you know the value, otherwise, enter a partial search string with the generic substitution metacharacter % (example, John%), and click Go to launch the Select Recipient page. The system returns all matching records in the database. Click on the recipient name you want to enter. This record returns to the Recipient Name field on the Distribution Information page.
   - The system also returns the corresponding Recipient Description to the field on the Distribution Information Page.
6. Click Save to store the document recipient information in the database.

### To update document distribution information:

1. Retrieve the document reference for which you want to update document distribution information (see Finding Document References).
2. Click Distribution on the Edit Document page (Search Document page > Edit Document > Edit Document page) to navigate to the Distribution Information page. The lower half of the screen displays the distribution information about the document.
3. To remove a recipient from the list, select the name that you would like to remove, and click Remove. The application saves this change automatically.
4. To change a recipient, enter the recipient's name in the Recipient Name field, or click Go to move to the Select Recipient page. Select a recipient from the list by clicking the name, and the record returns to the Distribution Information page.
5. Click Save to store your changes in the database.

## 3.11 Fields Associated with Document Revisions

The following fields appear on Document Index pages that relate to managing document revisions:

**Revision No** is a field that holds a user-assigned document revision identifier.

**Revision Date** is usually provided by the source company of the document. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Volume** contains a string that identifies the volume of this revision.

**Issue Number** contains a number that identifies the issue of this revision. You cannot enter alphabetic characters here.

**Date Received** is the date on which the document revision was received by the user organization. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Effective Date** is the date on which the document is technically effective. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Approved By** contains the name of the individual who is authorized to approve this document revision. You cannot enter text directly in this field because the text value must already be in the database. However, you can enter a text search argument (example, John%), 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 to have the text value returned to the field.

**Electronic Link** is a Uniform Resource Identifier string that locates a document or similar file somewhere in the World Wide Web.

**Remarks** refer to any notes that are pertinent to this maintenance document revision. This long text field behaves much like a simple word processor.

**Revision Type** values are defined while installing Oracle ASO. Select the correct value for this field from the drop-down list.

**Status** indicates whether a document revision is a draft, current, or obsolete. Select the correct value for this field from the drop-down list box.

**Issue** contains a description of the document issue.

**Issue Date** refers to the date on which the maintenance document was made available. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Media Type** indicates whether the document is in paper or electronic format. Select the correct value for this field from the drop-down list box.

**Obsolete Date** is the date on which the document is no longer valid. If the Status of this revision is Current, this field should remain blank. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Approved Date** is the date on which the document revision was approved by the individual named in the Approved By field. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

## 3.12 Creating Document Revision Records

Equipment manufacturers frequently revise maintenance documents. For tractability purposes, it is necessary to record document revision information including issue dates, dates of obsolescence, dates of effectivity, and publication part number changes. Oracle ASO allows you to create new revisions once you retrieve the pertinent document reference from the database.

### Prerequisites:

The document reference for which you want to create a new revision must exist in the database.

### To create new revision records:

1. Retrieve the document reference for which you want to create new revisions (see Finding Document References).
2. Click Create New Revision to launch the Create New Revision page.

   You can also access the Create New Revision page by clicking Create New Revision on the Edit Document page (Search Document page > Edit Document > Edit Document Page).
3. Enter revision information in the fields provided. Information in fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Document Revisions.
4. Click Save to add the document revision to the database.

   You can revise the maintenance document reference by clicking Edit Document, but your revision could be lost if you do not click Save first.

## 3.13 Editing Document Revision Records

Documents related to an equipment often continue to evolve during the life cycle of the equipment. Maintenance organizations require to track and update such document revisions. Oracle ASO allows you to record and edit document revision information.

### Prerequisites:

The document revision you want to edit must exist in the database.

### To edit document revision records:

1. Retrieve the document revision record for which you want to edit information (see Finding Document References).
2. Select the document revision that you want to edit from the Document List at the bottom of the page.
3. Click Edit Revision to navigate to the Edit Revisions page. If you selected a document record that has no revisions defined, clicking the Edit Revision button will launch the Create New Revision page.
4. Enter the document revision information in the fields provided. The fields on the Edit Revision page are the same as on the Create New Revision page with the exception of the Revision Number field, which you cannot change. For field descriptions, see Fields Associated with Document Revisions.

   If the Revision Number is incorrect, create a new revision, noting in the Remarks field, the reason for the new revision (for example, " Typo in the original revision entry."). This feature preserves the tractability of document revisions to maintenance procedures, should questions about the effectiveness of maintenance procedures be raised in the future.
5. Click Save when you have finished entering revised document information.

   You can switch to the document reference editing page by clicking the Edit Document button.

# 4

# Working With Master Configurations

Modeling a fleet involves describing entire fleet attributes, and the members of a fleet. For example, an airline might operate a mixed fleet consisting of Boeing 717s, 737s, 747s, and 767s. Some aircraft attributes apply to all the aircraft in the fleet, whereas other attributes apply to individual airplanes. Complex systems consist of parts or assemblies, in a tree structure, and these parts may be provided by different suppliers. A commercial jet aircraft for example, can have engines supplied by General Electric, Rolls-Royce, or Pratt & Whitney. The assembly configuration set for an aircraft type, locomotive, ship, or any other fleet group, is described by an Oracle ASO module called Master Configuration.

This chapter discusses the key functions supported by the Oracle ASO Master Configuration module. The chapter provides process-oriented, task based procedures for using the application to perform essential tasks for managing models of fleet group configurations.

See:

- Finding Alternate Parts Information
- Editing Alternate Parts Information
- Viewing Master Configuration Records
- Viewing Position Details
- Viewing Position Ratios Associated with a Position
- Viewing Documents Attached to a Position
- Viewing Alternate Parts Associated with a Position
- Viewing Positions Associated with an Alternate Part Group
- Closing (Removing) Master Configuration Records
- Reopening Closed Records

## 4.1 What is Master Configuration?

Master Configuration is a subsystem that provides a model of the structure of an electromechanical system 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 power plants, or a pair of slightly more powerful Rolls-Royce RB211-535E4B power plants. The power plants must be installed in matching pairs, and cannot be mixed. An instance of a master configuration will describe the components and subassemblies that might comprise a fleet unit, as well as the maintenance requirements and schedules that apply to those components and assemblies. You can derive the configurations of "as-operated" fleet units from corresponding Master Configuration instances.

The presence of a master configuration simplifies route development (see Managing Maintenance Routes for more information about maintenance routes). This is because a master configuration record, to which a service route definition is attached, will also exist for each component that might be present in a unit configuration. The Master Configuration module enables maintenance organizations to create a service route once, and connect the service route to the template of an assembly instead of creating duplicate service routes, one for each part.

## 4.2 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 parts within a master configuration. Master Configuration identifies the tracked parts that make up a unit, and allows 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 Template for Unit Configuration** 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 Requirement** When defining a unit's applicable maintenance requirement, organizations can use several grouping mechanisms to streamline the process. Oracle ASO allows you to apply a maintenance requirement, 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. If you associate a maintenance requirement to a node in a master configuration for example, any unit configuration that you create based on the master will receive those maintenance requirements.

**Provide Checklist for User** The physical breakdown of a complex assembly decides shop floor processes and information requirement. You can associate such information with a node or position in a master configuration. During the overhaul of an assembly, maintenance personnel, remove, re-install, and replace serialized parts. The service provider has to provide an on-off log for such operations. The off log indicates the part number and serial number of a part installed at a certain position before the maintenance event. The on log indicates the part number and serial number of the part installed at a certain position during maintenance. Oracle ASO allows you to provide an on-off log template by printing the master configuration indicating all the positions and part alternates for the nodes (positions) where users can install or remove parts.

## 4.3 Working with Master Configuration Records

After you create a master configuration record using Oracle ASO, you can retrieve the record to edit the information, to create new master configurations, or to create unit configurations based on existing master configuration records.

See:

- Creating Master Configuration Records
- Finding Master Configuration Records
- Editing Master Configuration Records

## 4.4 Fields Associated with Master Configuration Records

The following fields appear on Master Configuration pages that relate to creating and editing master configuration records:

**Name** refers to an appropriate name for the configuration template hierarchy.

**Description** is the field where you can enter phrases or sentences that describe this configuration hierarchy.

**Status** indicates whether a master configuration record is complete, expired, or in the draft stage. The Status field contains a drop-down list box from which you can select a value. These values are set up when your Oracle ASO configuration is installed.

**Position** refers to the position in the assembly that acts as the topmost node of the master configuration hierarchy. Enter a partial search string with the generic substitution metacharacter % (example, Engine%), and click Go to launch the Select Position Reference page that displays all matching records in the database. Click the appropriate record to return this value to the Position field in the Search Master Configuration page.

**Position Description** is the field containing phrases or sentences that describe this position in the configuration hierarchy.

**Quantity** refers to the number of parts in the part selection option set for this position in the configuration hierarchy. Enter a number greater than zero.

**UOM** field identifies the unit of measure of the parts in the current hierarchy position. You cannot enter text directly in this field because the text value must exist in the database. Enter a search argument with the generic substitution metacharacter %, 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.

**Start Date** refers to the date of the first day of effectivity of this position in the configuration hierarchy. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**End Date** refers to the last day on which the position in the configuration is valid. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Part Group Name** is the name for the set of part 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed, to have the text value returned to the field.

**Part Group Description** refers to a description of the part options set, and is displayed automatically when you retrieve the Part Group Name.

**Display Order** refers to an ordinal that determines the order in which the configuration positions are displayed.

## 4.5 Creating Master Configuration Records

A master configuration represents the structure of a complete electromechanical assembly, consisting of as many nodes as necessary to fully represent the assembly. There is no limit to the number of nodes that an assembly representing a fleet unit can comprise. This process allows the user to add the master configuration of a fleet unit to the database.

### Prerequisites:

Values for Status types should be set up by your organization while installing Oracle ASO.

### To create a master configuration record:

1. Select Master Configuration from the Oracle ASO Home page.
2. Select Create sub tab to launch the Create Master Configuration page.

You can also launch the Create Master Configuration page using the Create button on the Search Master Configuration page (Master Configuration > Search > Search Master Configuration page).

3. Enter the master configuration information in the fields provided. Information in fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Master Configuration Records.

4. Click Add to save this master configuration record in the database.

   When you click Add, the Create Position page appears. Every configuration template must have at least one position, which serves as the topmost node in the configuration hierarchy. See Creating Position References.

## 4.6 Finding Master Configuration Records

Fleet operators can use a master configuration as a template to create unit configurations, as well as to create multiple master configurations (for a single product) to suite different operation modes. Master configurations also provide checklists for users on the shop floor to ensure the validity of assembly models. This necessitates the efficient retrieval of master configuration records in maintenance organizations.

Oracle ASO permits 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".

### To find a master configuration record:

1. Select Master Configuration from the Oracle ASO Home page.
2. Select Search sub tab to display the Search Master Configuration page.
3. Enter the master configuration information in the fields for which you know the value. For field descriptions, see Fields Associated with Master Configuration Records.
4. Click Search. The lower half of the screen displays the Master Configuration List of all matching records in the database. The Remove, Edit, Reopen, and View buttons appear along with the search results.

   See:

   - Editing Master Configuration Records

- Closing Master Configuration Records
- Reopening Closed Records
- Viewing Master Configuration Details

## 4.7 Editing Master Configuration Records

After you create a fleet unit configuration template, you can edit the record to add additional attributes. Because the configuration template must consist of all part locations, part installation options, and pertinent maintenance documents, the configuration hierarchy is completed by retrieving a previously created Master Configuration record from the database, and extending it, using the Edit Master Configuration page. Remember that the hierarchy must include a topmost position (the fleet unit itself), which must be valid in the inventory database.

After you view the topmost position in the configuration template, you can drill down into the hierarchy by clicking on the Position link. You have reached the bottom of the configuration tree when Master Configuration finds no more records. Do not attempt to add any attributes at this point by clicking the Add Configuration, Position Ratio, Documents, or Alternates buttons. You will see a message about a "StringIndexOutOfBoundsException" error.

### Prerequisites:

The master configuration record that you want to edit must exist in the database.

**Note:** You cannot edit or update master configuration records with status Closed.

### To edit master configuration records:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.
3. Click Edit to launch the Edit Master Configuration page. The Position List shows the topmost node in the master configuration.
4. To change the description or status of the master configuration record, enter the relevant values in the Description and Status fields, and click Save.

5. To edit the topmost node position details, select the position using the radio button, and click Edit. The Edit Position page appears. Make necessary changes to the position information in the fields provided. For field descriptions, see Fields Associated with Master Configuration Records.
6. To edit the position references at subsequent levels of the configuration tree, click the Position link. The position references below the chosen node appear in the Position List field. Select the position, and click Edit. This will launch the Edit Position page. Make necessary changes in the fields provided. For field descriptions, see Fields Associated with Master Configuration Records.
7. Click Save to store the changes in the database.
8. Use the Position Ratio, Documents, and Alternates buttons on this page to edit position ratios, document references attached to the master configuration, and the part alternates information for a selected component position. Use the Add button to add new position references beneath a position node, and the Copy Positions button to add existing master configurations beneath a node.

   See:

   - Editing Position Ratios
   - Attaching Documents to a Position Reference
   - Editing Alternate Parts Information
   - Adding Position References to a Master Configuration
   - Adding Existing Configurations to a Position Reference

## 4.8 Working with Position References

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 parts, with maintenance requirements for each part. Oracle ASO stores this information in the database. Also, you can retrieve master configuration records to add other master configurations, part locations, and valid parts to a position reference in the selected configuration.

See:

- Creating Position References in a Master Configuration
- Adding Position References to a Master Configuration
- Adding Existing Configurations to a Position Reference

- Editing Position Ratios
- Attaching Documents to a Position Reference
- Editing Alternate Parts Information

## 4.9 Fields on the Create Position Page

The following fields appear on Master Configuration pages that relate to creating and editing position reference details in a master configuration:

**Position** refers to the position in the assembly that acts as the topmost node in the master configuration hierarchy. Enter a partial search string with the generic substitution metacharacter % (example, Engine%), and click Go to launch the Select Position Reference page that displays all matching records in the database. Click the appropriate record to return this value to the Position field in the Search Master Configuration page.

**Position Description** is the field containing phrases or sentences that describe this configuration hierarchy.

**Quantity** refers to the number of parts in the part selection option set for this position in the configuration hierarchy. Enter a number greater than zero.

**UOM** field identifies the unit of measure of the parts 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 metacharacter %, 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.

**Start Date** refers to the date of the first day of effectivity of this position in the configuration hierarchy. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**End Date** refers to the date that represents the last day on which the position in the configuration is valid. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Part Group Name** is the name for the set of part 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed, to have the text value returned to the field.

**Part Group Description** refers to a description of the part options set, and is displayed automatically when you retrieve the Part Group Name.

**Display Order** refers to an ordinal that determines the order in which the configuration positions are displayed.

**Necessity** sets 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.

## 4.10 Creating Position References in a Master Configuration

Use the Create Position page to create a position reference in your master configuration. When you access the Create Position page from the Create Master Configuration page, the position reference that you create will form the topmost node in the hierarchy of the master configuration. When you access the Create Position page from the Edit Master Configuration page, the position reference you create will form an additional node in the selected master configuration hierarchy.

### Prerequisites:

The master configuration for which you want to define a position reference must exist in the database.

### To create a position reference:

1. Select Master Configuration from the Oracle ASO Home page.
2. Select Create sub tab to launch the Create Master Configuration page.
3. Enter the master configuration information in the fields provided. For field descriptions, see Fields Associated with Master Configuration Records.
4. Click Add to save this master configuration record in the database, and to launch the Create Position page.

   The Create Position Page also appears when you click Add on the Edit Master Configuration page, to add a part location to a selected position in an existing

master configuration (see Adding Position References to Master Configurations).

5. Enter the values in the fields provided on the Create Position page. Information in the fields marked with asterisk is mandatory. For field descriptions, see Fields on the Create Position Page.

6. Click Save to add the position reference to the master configuration record.

   This will launch the Edit Master Configuration, Edit Position page where you can edit the position details if necessary. Click Save to save any changes. You can attach position ratios, documents, or alternate parts to the node position by using the appropriate buttons on this page. For more information, refer to the appropriate sections in this chapter. The Edit Master button will launch the Edit Master Configuration page. See Editing Master Configuration Records.

7. To return to the Create Master Configuration page, click Previous.

## 4.11 Adding Position References to a Master Configuration

The Edit Master Configuration page allows you to access the Create Position page where you can add position references to a selected master configuration record. Use this process to add position nodes to build your master configuration hierarchy.

### Prerequisites:

The master configuration record to which you want to add position references must exist in the database.

### To add position references to a master configuration:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).

2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.

3. Click Edit to launch the Edit Master Configuration page. The Position List shows the topmost node in the master configuration.

4. To add a position reference to the topmost node, select the position using the radio button, and click Add. The Create Position page appears.

5. To add a position reference to a subsequent position in the hierarchy, click the topmost node Position link. The position references beneath the node appear.

Use the radio button to select the position to which you want to add a position reference, and click Add. The Create Position page appears.

6. Enter values in the fields provided on the Create Position page. Information in the fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Master Configuration Records.
7. Click Save to add the position reference to the master configuration record.
8. Use the Position Ratio, Documents, and Alternates buttons to associate position ratios, documents, and alternate parts with the position.

   See:

   - Editing Position Ratios
   - Attaching Documents to a Position Reference
   - Adding Alternate Parts Information

## 4.12 Adding Existing Configurations to a Position Reference

The Edit Master Configuration page allows you to access the Search Master Configuration page, where you can retrieve an existing master configuration record that you want to add to a selected master configuration position. This process allows you to build configuration template hierarchies using existing master configuration records.

### Prerequisites:

Master configuration records that you want to add to the position reference must exist in the database.

### To add configurations to a position reference:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.
3. Click Edit to launch the Edit Master Configuration page. The Position List shows the topmost node in the master configuration.
4. To add an existing configuration to the topmost node, select the position using the radio button, and click Copy Position. The Select Master Configuration page appears.

5. Search for the master configuration that you want to add. See Finding Master Configuration Records.
6. Select the pertinent record from the Master Configuration List generated when you execute the search.
7. To view master configuration details before copying it, click View. This will launch the View Master Configuration page. For more information, refer to the following sections:
   - Viewing Position Details
   - Viewing Position Ratios Associated with a Position
   - Viewing Documents Attached to a Position
   - Viewing Alternate Parts Associated with a Position
8. To add this master configuration to the selected position reference, click Copy.
9. To add an existing configuration to a subsequent position in the hierarchy, click the topmost node Position link. Position references beneath the node appear. Use the radio button to select the position to which you want to add a configuration, and click Add Configuration. The Search Master Configuration page appears. Repeat steps 5-7.

## 4.13 Editing Position Ratios

The Edit Position Ratio page allows 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 powerplant operated in a high-temperature, high-altitude environment might run at much higher RPM to produce the same torque as compared to a less severe environment.

### Prerequisites:

The master configuration record with the position reference 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 (see Finding Master Configuration Records).

2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.
3. Click Edit to launch the Edit Master Configuration page. The Position List shows the topmost node in the master configuration.
4. To edit position ratio for the topmost node, select the position using the radio button, and click Position Ratio. The Edit Position Ratio page appears.
5. To edit position ratios for subsequent positions in the hierarchy, click the Position link. Position references beneath the node appear. Use the radio button to select the position for which you want to edit position ratio. Click Position Ratio. The Edit Position Ratio page appears.
6. Enter the information in the fields provided.
   - 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 ASO is installed.
7. Click Save to retain the Position Ratio information in the database.
8. To remove a position ratio from the configuration hierarchy, select the record from the Position Ratio List, and click Remove.

## 4.14 Attaching Documents to a Position Reference

The Edit Master Configuration page allows 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 Working With Maintenance Documents.

### Prerequisites:

The master configuration with the position reference to which you want to attach the documents must exist in the database.

### To attach documents to a position reference:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.
3. Click Edit to launch the Edit Master Configuration page.
4. To attach document references to the topmost node, select the position using the radio button, and click Document. The Attach Documents page appears.
5. To attach document references to subsequent positions in the hierarchy, click the Position link. Position references beneath the node appear. Use the radio button to select the position to which you want to attach documents. Click Document. The Attach Documents page appears.

   If you have attached a document reference to the selected position, the Attach Documents page will display the attached document in the Document List field.
6. To remove a document reference attachment, select the document you want to remove, and click Remove.
7. To add a document reference, enter the information in the fields provided on the Attach Documents page.
   - Document refers to 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 metacharacter %, 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 is the document title that is automatically placed in this field when the Document Name is selected from the database.

- Chapter refers to 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 refers to 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 allow you to provide more specific information about the maintenance documentation for the parts in the current configuration hierarchy position.
- Use Latest field contains a drop-down list box from which you can select a value from a set of values set up when your Oracle ASO configuration was installed.

8. Click Save to store your maintenance document definition for the selected configuration position in the database.

## 4.15 Managing Alternate Parts Information

Fleet vehicles with long service lives are designed and constructed with similar parts from different suppliers. For example, aircraft can often be ordered from manufacturers with powerplant 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 parts set for any part position in the configuration.

The alternate parts listed in the master configuration template allows you to derive a unit configuration that represents the "as-operated" configuration of a fleet unit.

See:

- Adding Alternate Parts Information
- Finding Alternate Parts Information
- Editing Alternate Parts Information

## 4.16 Fields Associated with Alternate Parts Information

The following fields appear on Master Configuration pages that relate to managing alternate parts information:

**Group Name** is the name for the set of part 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 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 Group page, to have the text value returned to the field.

**Description** refers to the description of the part options set, and is displayed automatically when you retrieve the Group Name.

**Part Number** field contains the identifier of the part that you want to add to the group of parts that can be installed in this position. 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed to have the text value returned to the field.

**Description (Part)** is the part description automatically placed in this field when the Part Number is selected from the database. You cannot enter a value in this field.

**Organization Code** refers to the code for the organization assigned to the alternate part when the part information is created in inventory. This information exists in the database. Enter the generic substitution metacharacter % in the field, and click Go to retrieve and display all records from the database. Click the record of your choice to return this value to the Organization Code field on the Search Alternate Parts page.

**Revision** field contains a part revision identifier. 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed to have the text value returned to the field.

**UOM** field contains a unit of measure in which the part 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 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.

**Quantity** specifies the number of optional parts in this group that is to be installed.

**Priority** specifies the preferred selection order of parts in the group. The most preferred part should be assigned a value of 1.

**Type** specifies the status of the part information such as deleted, or obsolete. 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed to have the text value returned to the field.

**Interchange** refers to the selection of a part for a configuration. One-way interchangeability means that the part can only be used for a single configuration. Two-way interchangeability means that the part can be used in multiple configurations. 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed to have the text value returned to the field.

**Reason** refers to the technical justification for one-way interchangeability. You can enter text directly in this field.

## 4.17 Adding Alternate Parts Information

The Alternate Parts sub tab allows you to access the Add Alternates page where you can add parts, identified by part numbers existing in the database, to a particular group name. The group name specifies the set of part option selections at a node. You can also record any revision made to alternate part information in a group.

### Prerequisites:

Values for Group Name, Part Number, Revision, Type, Interchangeability, and Reason fields should exist in the database.

### To add alternate parts:

1. Select Master Configuration from the Oracle ASO Home page.
2. Select Alternate Parts sub tab to launch the Search Alternate Parts page.
3. Click Create to launch the Add Alternates page.

4. Enter the information in the fields provided. For field descriptions, see Fields Associated with Alternate Parts Information.
5. Click Save to add the alternate parts information to the database.

## 4.18 Finding Alternate Parts Information

Use the Search Alternate Parts page to retrieve alternate part information that you want to edit. You can search for alternate parts based on Part Group, Part Description, Part Number, or the Organization Code for the part.

### Prerequisites:

The alternate part groups must be created.

### To find alternate parts:

1. Select Master Configuration from the Oracle ASO Home page.
2. Select Alternate Parts sub tab to launch the Search Alternate Parts page.
3. Enter the alternate part information in the fields provided. For field descriptions, see Fields Associated with Alternate Parts Information.
4. Click Search to generate all alternate part groups that match the search criteria.

## 4.19 Editing Alternate Parts Information

The Search Alternate Parts page allows you to access the Edit Alternates page, where you can make necessary changes to alternate part information.

### Prerequisites:

Values for Part Number, Revision, Type, Interchangeability, and Reason fields should exist in the database.

### To edit alternate part information:

1. Retrieve the pertinent alternate part group record from the database (see Finding Alternate Parts Information).
2. To delete an alternate part group, select the required group from the Part Group List on the Search Alternate parts page, and click Remove.
3. To view the configurations with which an alternate part group is associated, select the pertinent group from the Parts Group List on the Search Alternate

Parts page, and click View Positions. This will launch the View Alternate Part Associations page. See Viewing Alternate Part Associations.

4. To edit alternate part details, select the required alternate part group record from the Part Group List on the Search Alternate Parts page, and click Edit. This launches the Edit Alternates page showing the alternate parts contained in the selected Part Group.

   Note: You can also access this page from the Edit Master Configuration page using the Alternates button (Search > Search Master Configuration page > Edit > Edit Master Configuration page > Alternates > Edit Alternates page).

5. Select the part record that you want to modify, and make the necessary changes in the fields provided. For field descriptions, see Fields Associated with Alternate Parts Information.

   You can also add alternate part records to the group, using the fields provided in the Parts List section on the Edit Alternates page (see Adding Alternate Parts Information).

6. To remove an alternate part from the part group, select the part that you want to remove, and click Remove.

7. Click Save. If the alternate part group you edited is not attached to additional master configurations and positions, the changes are saved.

8. If the alternate part group you selected is attached to a master configuration or position other than the one currently being edited, and you click Remove or Save, the application will prompt you, "This item group is associated with more than one position. Do you want to force the changes to all positions?"

9. To apply the changes to all the configuration positions to which the part group is attached, click OK.

10. To cancel the changes and return to the Edit Alternates page, click Cancel.

## 4.20 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. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent master configuration from the Master Configuration List on the Search Master Configuration page.
3. Click View. 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.

   You can use the View, Position Ratio, Documents, and Alternates buttons to view position details and the position ratio, documents, and alternate parts associated with a node in the configuration.

   See:

   - Viewing Position Details
   - Viewing Position Ratio
   - Viewing Documents Associated with a Position
   - Viewing Alternate Parts associated with a Position

## 4.21 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. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent configuration from the Master Configuration List on the Search Master Configuration page.
3. Click View. 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. To view the topmost node position details, select the radio button corresponding to the node, and click View. The View Position page appears showing the position details.
5. To view details of subsequent positions in the hierarchy, click the Position link. The position references below the chosen node appear in the Position List field. Select the position you want to view using the radio button, and click View. This will launch the View Position page showing the position details.

## 4.22 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.

### To view position ratios associated with a position:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.
3. Click View. 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. To view the topmost node position ratio, select the radio button corresponding to the node, and click Position Ratio. The View Position Ratio page appears showing the details.
5. To view position ratios of subsequent positions in the hierarchy, click the Position link. The position references below the chosen node appear in the Position List field. Select the position you want to view using the radio button, and click Position Ratio to launch the View Position Ratio page. The Position Ratio List displays position ratios associated with the selected position.

## 4.23 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 Reference.

### To view the documents attached to a position:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent master configuration from the list on the Search Master Configuration page.
3. Click View. The View Master Configuration page appears showing the Name, Description, and Status of the configuration. The Position List displays the topmost node in the configuration.
4. To view documents attached to the topmost node, select the radio button corresponding to the node, and click Documents. The View Documents page appears showing the Document List.
5. To view documents attached to subsequent positions in the hierarchy, click the Position link. The position references below the chosen node appear in the Position List field. Select the position for which you want to view the documents using the radio button. Click Documents to launch the View Documents page. The Documents List displays all documents associated with the selected position.

## 4.24 Viewing Alternate Parts Associated with a Position

Use the following procedure to view alternate parts associated with different nodes in a master configuration.

### Prerequisites:

Alternate parts must be defined for the position prior to viewing the parts associated with a position in a master configuration. See Adding Alternate Parts Information.

### To view alternate parts associated with a position:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent configuration from the Master Configuration List on the Search Master Configuration page.
3. Click View. 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. To view the topmost node part alternates, select the radio button corresponding to the node, and click Alternates. The View Alternates page appears showing the Parts List associated with the node.
5. To view alternate parts for subsequent positions in the hierarchy, click the Position link. The position references below the chosen node appear in the Position List field. Select the position for which you want to view alternate parts using the radio button, and click Alternates. This launches the View Alternates page. The Parts List displays alternate parts associated with the selected position.

## 4.25 Viewing Positions Associated with an Alternate Part Group

Use the following procedure to view the configuration positions with which an alternate part group is associated.

### Prerequisites:

The alternate part group must be created.

### To view positions associated with an alternate part group:

1. Retrieve the pertinent alternate part group record from the database (see Finding Alternate Parts Information).
2. To view the configurations with which an alternate part group is associated, select the pertinent group from the Parts Group List on the Search Alternate Parts page, and click View Positions.

   This will launch the View Alternate Part Associations page. The Configuration Positions List displays all the configurations and positions where the part group is attached.

## 4.26 Closing Master Configuration Records

You can delete a master configuration record using the Remove button on the Search Master Configuration page. The status of this record is then changed to Closed.

### Prerequisites:

The master configuration record that you want to close must exist in the database.

### To close master configuration records:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent master configuration from the list on the Search Master Configuration page.
3. Click Remove. The search results list is refreshed with the status of the selected master configuration record changed to Closed.

## 4.27 Reopening Closed Records

You can reopen a master configuration record that was previously deleted using the following procedure.

### Prerequisites:

The master configuration record must have been previously defined, and then removed.

---

**Note:** You can only reopen master configuration records with status Closed.

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### To reopen closed master configuration records:

1. Retrieve the master configuration records that match your requirement (see Finding Master Configuration Records).
2. Select the pertinent record from the Master Configuration List on the Search Master Configuration page.

3. Click Reopen. The search result list is refreshed with the status of the selected master configuration changed to Draft.

# 5

# Working With Unit Configurations

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 parts that you must monitor. As you remove, overhaul, or replace parts, you must associate the monitored parts that have unique model and serial numbers with a fleet unit, and retain the maintenance history of those parts. Many systems, such as aircraft flight management computers, contain software that is revised during their service lives. The Oracle ASO Unit Configuration module describes the configuration for each unit, and enables maintenance organizations to define and monitor parts in a fleet unit.

This chapter discusses the key functions supported by the Oracle ASO Unit Configuration module. The chapter provides process-oriented, task based procedures for using the application to perform essential tasks for managing maintenance activities of fleet units.

See:

- Assigning Parts to Unit Configuration Positions
- Viewing Alternate Parts Utilization
- Assigning Alternate Parts to Unit Configuration Positions
- Creating and Updating Part Information (Create Product and Search Product)

## 5.1 What is Unit Configuration?

Unit Configuration is a subsystem that describes the structure of an assembled electromechanical system. Unit Configuration is also concerned with monitored components modeling to support the management of a single part of interest, or a complex assembly that consists of a hierarchy of monitored parts.

Unit Configuration manages information about the service readiness of any component, and implements Closed Loop Asset Tracking techniques, the result of which is instantaneous online intelligence about the location and state of components. Another important feature of Unit Configuration is the ability to precisely record the utilization of as many parts or subassemblies in a fleet unit as required. Oracle ASO allows you to represent the part lifetime using industry-standard units of measure, such as operating hours, flight cycles, elapsed time, and calendar time. Unit Configuration also allows 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.

## 5.2 Key Business Processes

The Unit Configuration module of Oracle ASO supports the following business processes:

**Managing Equipment As-Installed Configurations** When a product is in service, some components may need replacement for maintenance and modification, or upgrade purposes. Knowing the current or "as-installed" configuration is critical to plan the required maintenance actions. The Oracle ASO Unit Configuration module allows 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 ASO allows

you to compare the unit (current) configuration with its master configuration to derive the effort required for the modification. Unit Configuration also allows 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 made up of different components that may require different parameters to measure utilization and aging, the resulting maintenance forecast process can be complicated. 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. Unit Configuration 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. 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. To build a continuous "cradle-to-grave" event history of a unit, may require great efforts. The Unit Configuration module provides an anchor to tie 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. Unit Configuration provides a platform to track unit-specific information such as ownership.

## 5.3 Creating Unit Configuration Records

Master configuration provides 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.

Creating a unit configuration from an existing master configuration record involves three stages:

1. Finding the master configuration record (that serves as the unit configuration template)
2. Creating the unit configuration header
3. Assigning parts to unit configuration positions

## 5.4 Finding Master Configuration Records

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. You can also retrieve all records by providing no search criteria, and clicking Search. For more information about master configurations, see Working With Master Configurations.

### Prerequisites:

Master configuration records from which you want to derive unit configurations must exist in the database.

### To find a master configuration record:

1. Select Unit Configuration from the Oracle ASO Home page.
2. Select Create From Master sub tab to launch the Search Master Configuration page.
3. To retrieve master configuration templates by name, enter part of the master configuration name followed by the generic substitution metacharacter % (example, Air%) in the Name field, and click Search.
4. To retrieve master configuration records by position in the hierarchy, enter part of the position name followed by the generic substitution metacharacter % in the Position field, and click Search.
5. If you do not know the name or position of the master configuration, use the Description field to enter your search string, and click Search. The Description field contains a text description of the master configuration that will serve as the basis for the new unit configuration.
6. The lower half of the page displays all matching master configuration records.

The application will display all master configuration records matching the search criteria you provided, as long as the Status of the master configuration record is "Complete". The system will not permit you to create unit configuration records from master configuration templates of any other Status value.

## 5.5 Creating Unit Configuration Headers

After retrieving a master configuration template from the database, you can create a unit configuration header 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 header, provide a name for the unit configuration, a part number that represents an existing part definition, and a range of effective dates.

### Prerequisites:

The master configuration record that serves as template for the unit configuration must exist in the database. The part that the unit configuration definition represents must exist in the database (or you must have created the product).

### To create unit configuration headers:

1. Retrieve the master configuration record that serves as the template for creating the new unit configuration (see Finding Master Configuration Records).
2. Select the pertinent master configuration record, and click Create Unit Configuration to launch the Unit Configuration Header page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory.
   - Name represents a descriptive name for this unit configuration record. Your organization must have established a naming convention for you to follow.
   - Part Number is a number that identifies this particular fleet unit. The part number must already exist in the database. This is a quick lookup field. You can enter a value if you know it, otherwise, enter a partial search string with the generic substitution metacharacter %, and click Go. This returns all part number records in the database. Click the pertinent record to return this value to the field.
   - Start Date represents the beginning of a period of time during which this unit configuration is valid. You cannot enter a date directly in this field.

Click on the calendar selector icon beside the date field, and select the correct date, which will be copied into the field.

- End Date represents the end of a period of time during which this unit configuration is valid. While the configuration is valid, this field remains empty. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field, and select the correct date, which will be copied into the field.
- Status indicates whether the unit configuration record is in the draft stage, or completed.
- The application populates the Party Type, Description, Serial Number, Owner, Owner Name, Location, and Location Address fields when you select a part number. These field values represent the description, and the attributes of the fleet unit, such as serial number, owner, and current location. The attributes are defined when a part information is added or updated. You cannot update the values in these fields, you can only view them.

4. Click Save to add the unit configuration record to the database.
5. To assign parts to the unit configuration, click Next. See Assigning Parts to Unit Configuration Positions.

## 5.6 Finding Unit Configuration Records

After you create a unit configuration header in the database, you can continue to add parts to all the positions that were defined in the master configuration structure. Oracle ASO helps you retrieve any unit configuration record that exists in the database, by name, or by serial number. You can also retrieve all records in the database by providing no search criteria, and clicking Search.

### Prerequisites:

The unit configuration record you want to retrieve must exist in the database.

### To find unit configuration records:

1. Select Unit Configuration from the Oracle ASO Home page.
2. Select Search Unit sub tab to launch the Search Unit Configuration page. This is also the default Unit Configuration page.

3. To retrieve unit configuration records by name, enter part of the unit configuration name followed by the generic substitution metacharacter % (example, Air%) in the Name field, and click Search.
4. To retrieve unit configuration records by serial number, enter the value in the Serial Number field, and click Search. Serial Number represents a unique identifier for the fleet unit, provided by the original equipment manufacturer, or the re builder.
5. The lower half of the screen displays the Unit Configuration List of all matching records in the database.

## 5.7 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 parts at certain hierarchical positions. Oracle ASO allows you to retrieve and update unit configuration records to reflect these changes.

### To edit unit configuration records:

1. Retrieve the unit configuration record that you want to edit (see Finding Unit Configuration Records). The search results appear in the lower half of the page.
2. To remove a unit configuration record, select the pertinent record from the Unit Configuration List, and click Remove. You can reuse the item represented by the unit configuration that you remove.
3. To edit a unit configuration record, select the pertinent record from the Unit Configuration List, and click Edit. This launches the Edit Unit Configuration (Unit Configuration Structure) page.
4. Note that you cannot add or update position references in the unit configuration after changing the Status to Complete. Make sure that you assign parts to all the positions in the unit configuration hierarchy before changing the Status to Complete.

   To change the status of the unit configuration record from Draft to Complete, make the necessary change in the Status field, and click Save. The application validates whether all mandatory positions have been filled, and issues an error message if not.
5. To edit a position in the unit configuration hierarchy, click the topmost node Position link that appears under Unit Configuration Structure. The position

references beneath the selected node in the unit configuration appear with corresponding part information.

6. To remove a position reference from the unit configuration record, select the position reference, and click Remove. You can reuse the item represented by the position reference that you remove from the unit configuration.

   Note that you cannot remove a position reference that is defined as Mandatory in the master configuration. The Edit Unit Configuration page presents this information in the Necessity field under Unit Configuration Structure.

7. To assign a part to a position in the unit configuration, select the pertinent position reference, and click Assign. The Assign Part page appears. See Assigning Parts to Unit Configuration Positions.

## 5.8 Assigning Parts 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 a part definition and a position definition. After you create a unit configuration header in the database, you can continue to add parts to all the positions that were defined in the template master configuration. All the parts that you assign must exist in a group created using the Master Configuration module.

### Prerequisites:

The unit configuration record for which you want to assign parts must exist in the database, and the Status must be flagged as Draft.

### To assign a part to a unit configuration position:

1. Retrieve the unit configuration record that you want to edit (see Finding Unit Configuration Records). Search results appear in the lower half of the page.
2. To remove a unit configuration record, select the pertinent record from the Unit Configuration List, and click Remove.
3. To assign parts to a unit configuration position, select the pertinent record from the Unit Configuration List, and click Edit. This launches the Edit Unit Configuration page.

4. Click the topmost node Position Link that appears under Unit Configuration Structure. The position references beneath the selected node appear with corresponding part information.
5. To remove a position reference from the unit configuration structure, select the position reference you want to remove, and click Remove. You can reuse the item that you remove.
6. Click Assign to launch the Assign Part page.
7. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory.
   - Part Number field contains the identifier of the part that you want to add from the group of parts that can be installed in this position. 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 Go to retrieve and display all records from the database that match the search argument. Click the correct value from the records displayed to have the text value returned to the field.
   - The application populates the Description, Serial Number, UOM, and Quantity fields when you select a part number. These field values represent the description, and the attributes of the assigned part, such as serial number, unit of measurement, and quantity. The attributes are defined when a part information is added or updated.

     The Serial Number value is not returned if not defined in the database. You can assign a temporary Serial Number to the part, but make sure that you enable the Temporary check box beside the field. This will allow you to change the Serial Number later. You cannot change the serial number later if you do not enable the Temporary check box.
   - Lot No. is an identification number representing the part's manufacturing lot. Enter the generic substitution metacharacter % in the field, and click Go to launch the Select Lot Number page. If lot control is defined for the part, the page lists all the lot number records for this part. If no lot control is defined when the part information is created in the database, you cannot enter a value in this field. The application will return error messages if you enter a value in this field for a part with no lot control defined.
   - Mfg. Date represents the date of manufacture of the part. You can enter a value in this field only if manufacturing date control is defined for the part when this part record is created in the database. To enter a value in this

field, click the calendar icon beside the field. Click the correct date to copy this value into the field.

- Revision represents the part revisions introduced by manufacturers. Part revisions are made to accommodate changes that may somehow improve the efficiency of the part. You can enter a value in this field only if revision control definitions exist for this part record in the database. The application returns errors when you enter revision values for parts that do not have revision control defined. To enter a value in this field, follow the same procedure as you did for the Lot No.

8. Click Save to add the part to the unit configuration structure.

   When you click Save, the application checks to ensure that all required fields have been completed with valid entries. The application rejects invalid records with error messages.

## 5.9 Viewing Alternate Parts Utilization

Unit Configuration records the utilization of each component within an assembled hierarchy by monitoring current utilization of units and component hierarchies. 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. Unit Configuration also records utilization history of a revenue fleet unit, serialized part, or component hierarchy.

You can assign alternate parts to unit configuration positions after viewing the utilization gained by each allowable part listed for a position.

### Prerequisites:

An assigned part must exist for the pertinent position in the unit configuration, and the Unit Configuration record Status must be flagged Complete.

### To view alternate part utilization:

1. Retrieve the unit configuration record that you want to edit (see Finding Unit Configuration Records). Search results appear in the lower half of the page.
2. To remove a unit configuration record, select the pertinent record from the Unit Configuration List, and click Remove.
3. To view utilization of alternate parts, select the pertinent record from the Unit Configuration List, and click Edit. This launches the Edit Unit Configuration (Unit Configuration Structure) page.

4. Click the topmost node in the unit configuration that appears in the Position field under Unit Configuration Structure. The position references beneath the selected node appear with corresponding part information.
5. Select the position to which you want to assign alternate parts.
6. Click Alternates to launch the Alternate Parts List page. This is the allowable parts list defined for the selected position. Note that the Alternates button is enabled only when the unit configuration status is Complete.
7. Select the alternate part for which you want to view the utilization.
8. Click Utilization to launch the Alternate Part & Utilization page. The page displays the Name, Description, Unit of Measurement, and the Reading for the selected part.

## 5.10 Assigning Alternate Parts 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 parts list for each component position in the hierarchy, from its master configuration template. Use this procedure to assign alternate parts 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 part must exist for the pertinent position in the unit configuration, and the Unit Configuration record Status must be flagged Complete.

### To assign an alternate part to a unit configuration position:

1. Retrieve the unit configuration record that you want to edit (see Finding Unit Configuration Records). Search results appear in the lower half of the page.
2. To remove a unit configuration record, select the pertinent record from the Unit Configuration List, and click Remove.
3. To assign alternate parts to a unit configuration position, select the pertinent record from the Unit Configuration List, and click Edit. This launches the Edit Unit Configuration (Unit Configuration Structure) page.
4. Click the topmost node in the unit configuration that appears in the Position field under Unit Configuration Structure. The position references beneath the selected node appear with corresponding part information.

5. Select the position to which you want to assign alternate parts.
6. Click Alternates to launch the Alternate Parts List page. This is the allowable parts list defined for the selected position.
7. Select the alternate part that you want to assign to the position.
8. Click Assign. This assigns the selected alternate part to the position, and the part previously assigned to the selected position is marked Out-of-Service and returned to the Alternate Parts List.

## 5.11 Creating and Updating Part Information

Oracle ASO uses Oracle Install Base, part of the Oracle e-Business Suite, to create and update part information.

- Click the Create Product sub tab in the Unit Configuration module to launch the Create Product page.
- Click the Search Product sub tab in the Unit Configuration module to launch the Search My Products page.

For instructions on using these pages to create, find, and update part information, refer to *Oracle Install Base Concepts and Procedures*. The chapter, "Using the Product Tabbed Page" in this guide provides all the information you need to use the Create Product and Search My Product pages.

# 6

# Managing Maintenance Routes

A maintenance route describes a series of maintenance, repair, or overhaul tasks on a fleet unit, subassembly, or subsystem. Maintenance tasks are grouped into 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 powerplant of a commercial aircraft. Other attributes of maintenance routes include work location (for example, engine overhaul shop, machine shop, painting facility), supporting process types (for example, inspection, cleaning), skill types (for example, electronics technician, airframe technician, powerplant technician), and supporting significant maintenance tasks (for example, ship in dry-dock with all cargo and engines removed). Oracle ASO includes the Route Management module that manages work cards and resource requirements.

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

See:

## 6.1 What is Route Management?

Route Management is a subsystem that manages grouping of scheduled and unscheduled maintenance tasks. It allows 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 check point definitions for labor cost collection, and progress reporting.

The Route Management module uses data managed by the other modules comprising Oracle ASO. For example, airlines may create task cards in response to an Airworthiness Directive by the Federal Aviation Administration, but only for a subset of the aircraft in the operational fleet. Route Management uses the Unit Configuration subsystem to identify the aircraft in the fleet to which the regulation applies, and schedules maintenance visits for those fleet units.

## 6.2 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 ASO supports the authoring of routes. Each work card is made up of one or several operations. The route authoring process allows maintenance personnel to select pre-defined operations, and associate them to a maintenance route.

**Production Planning Information** Operational data is essential to 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 ASO allows 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 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 allows the material planner to schedule and forecast material needs. Oracle ASO allows 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 ASO allows 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 require to collect actual labor expended, material usage, and other job cost data at the completion of different operations during a maintenance job. Oracle ASO allows you to collect this data by creating check points that group successive operations together. You can carry over these check points to the production work order in the form of sub jobs. Oracle ASO allows resource collection at the work order level, operation level, and operation group level.

## 6.3 Fields Associated with Operation Records

The following fields appear on Route Management pages that relate to maintaining operation records:

**Standard** indicates whether the operation is standard or not. The set of values in the drop down list box is defined when your configuration of Oracle ASO is installed. You cannot enter a string here.

**Operation** field contains the operation code, which is a series of sub operation identifiers. If you do not know the value for a segment in the operation, enter the generic substitution metacharacter %, and click Go to launch the Select Operation page. This returns all operation records in the segment. You can then click on the pertinent record to return the value to the corresponding field. Repeat for each segment.

**Product Type** refers to the classification by category of the electromechanical system. If you do not know the value, enter the generic substitution metacharacter%, and click Go to launch the Select Product Type page. This returns all product type records in the database. Click on the pertinent record to return the value to the corresponding field.

**Operator** refers to the organization operating the fleet. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Operator page. This returns all operator records in the database. Click on the pertinent record to return the value to the corresponding field.

**Major Zone and Sub Zone** refer to the user-defined zones used as a method for identifying locations in the electromechanical system under maintenance. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Major Zone page. This returns all major zone records in the database. Click on the pertinent record to return the value to the corresponding field. Follow the same procedure for Sub Zone.

**Category** refers to the type of maintenance process, such as a routine maintenance activity, or a repair maintenance activity due to an unpredictable damage. Select a value from the drop down list.

**Operation Type** refers to the type of operation, for example, whether the operation is being performed on an aircraft, or a subsystem of the aircraft. Your organization sets up the values for operation types while installing Oracle ASO.

**Work Center** refers to the location in the maintenance facility where the maintenance activity will be carried out. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Work Center page. This returns all work center records in the database. Click on the pertinent record to return the value to the corresponding field.

**Process** refers to the type of operation such as cleaning or inspection. If you do not know the value, enter the generic substitution metacharacter %, and click Go to

launch the Select Process page. This returns all process records in the database. Click on the pertinent record to return the value to the corresponding field.

**Revision Status** indicates whether the operation record is current, or in the draft stage. Your organization defines the revision status types while installing Oracle ASO.

**Major Skill Type** represents the skill required to perform the operation. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Skill Type page. This returns all product type records in the database. Click on the pertinent record to return the value to the corresponding field.

**Start Date** refers to the date of the first day of effectivity of this operation. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**End Date** refers to the date before which the operation is to be completed. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**System** refers to the electromechanical system on which you perform the maintenance activity. This field contains three values indicating three hierarchical levels of the system on which you want to perform the maintenance activity.

**Description** refers to a text description of the maintenance operation.

**Remarks** is a field where you can enter any additional information that the maintenance personnel should know regarding the operation.

**Revision** is a field that holds a user-assigned document revision identifier.

**Revision Note** is a description of why the revision is made.

## 6.4 Creating Operation Records

The Route Management module leads you through eight steps to create an operation record. The first step creates a record of the operation in the database, while the steps that follow help you define the attributes of the operation including sign off requirement, phase codes, document references, labor requirement, material requirement, machine requirement, and tool requirement.

The following process initiates the creation of an operation. The Create Operation page lets you save the record in the database, before proceeding to define the attributes in the following pages.

### Prerequisites:

You should know the Product Type, the Major and Sub Zones of the system on which the operation is to be carried out, the Work Center, the Skill Type required to perform the operation, the Operation Type, and the Category type. These values must exist in the database.

### To create operation records:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Operation sub tab to launch the Create Operation page that allows you to perform the first of eight successive steps in the process of creating an operation record.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Operation Records.
4. Click Save to record the operation in the database.
5. To define the attributes of the operation, such as phase codes, reference documents, labor requirements, and resource (machine, material, tool etc.) requirements, click Next.

   See:

   - Defining Reference Documents for an Operation
   - Defining Labor Requirements for an Operation
   - Defining Resource Requirements for an Operation
   - Defining Phase Codes for an Operation

## 6.5 Fields Associated with Maintenance Route Records

The following fields appear on Route Management pages that relate to managing maintenance route records:

**Route Number** is the user-assigned identifier for a maintenance route.

**Title** refers to the text description of the maintenance route.

**Operator** refers to the organization operating the concerned fleet. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Operator page. This page displays all operator records in the database. Select the pertinent record to return the value to the field on the Create Route page.

**Product Type** refers to the classification by category, of the electromechanical system. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Product Type page. This page displays all product type records in the database. Select the pertinent record to return the value to the field.

**Major Zone** refers to 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 page. This page displays all records in the database. Select the pertinent record to return the value to the field.

**Route Category** refers to the type of maintenance process such as a routine maintenance route, or a repair maintenance route due to an unpredictable damage. Select a value from the drop down list. These values are set up while installing Oracle ASO.

**Work Center** refers to the location in the maintenance facility where the maintenance activity will be carried out. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Work Center page. This page displays all records in the database. Select the pertinent record to return the value to the field.

**Major Skill Type** represents the skill required to perform the tasks in the maintenance route. If you do not know the value, enter the generic substitution metacharacter %, and click Go to launch the Select Skill Type page. This page displays all records in the database. Select the pertinent record to return the value to the field.

**Route Type** refers to the type of route, for example, whether the route applies to an entire aircraft or to a subsystem in the aircraft. The route types are defined while installing Oracle ASO.

**Process** refers to the type of the maintenance route such as cleaning or inspection.

**System** refers to the electromechanical system on which you perform the maintenance activity. This field contains three values indicating three hierarchical levels of the system on which you want to perform the maintenance activity.

**Start Date** refers to the date of the first day of effectivity of this maintenance route. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**End Date** refers to the date that represents the last day before which the maintenance route is to be completed. You cannot enter a date directly in this field. Instead, click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**Revision** is a field that holds a user-assigned document revision identifier.

**Status** indicates whether the route record is completed, or in the draft stage.

## 6.6 Creating Maintenance Route Records

The Route Management module takes you through eight steps to create a maintenance route record. The first step creates a record of the route in the database, while the steps that follow help you define the attributes of the route including sign off requirement, document references, labor requirement, material requirement, machine requirement, and tool requirement. The final step involves associating existing operations with a route.

The following process initiates the creation of a route. The Create Route page lets you save the record in the database, before proceeding to define the attributes in the following pages.

### Prerequisites:

You should know the Product Type, the Major and Sub Zones of the system to which the maintenance route applies, the Work Center, the Skill Type required to perform the tasks in the maintenance route, the Operation Type, and the Category type. These values must exist in the database.

### To create a route record:

1. Select Route Management from the Oracle ASO Home page.
2. Select Create Route sub tab to launch the Create Route page.

3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory. For field descriptions, see Fields Associated with Maintenance Route Records.
4. Click Save to create the maintenance route record in the database.
5. To define the attributes of the route such as reference documents, labor requirement, resource (material, tool, machine etc.) requirement, and associated operations, click Next.

   See:

   - Defining Reference Documents for a Route
   - Defining Labor Requirements for a Route
   - Defining Resource Requirements for a Route
   - Associating Operations to a Maintenance Route

## 6.7 Finding Operation Records

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

Oracle ASO permits 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. Select Route Management from the Oracle ASO Home page.
2. Select Search sub tab to display the Search Operation page where you can enter the search criteria.
3. Enter the information in the fields for which you know the value. For field descriptions, see Fields Associated with Operation Records.

4. Click Search. The lower half of the screen displays the Master Configuration List of all matching records in the database.
5. 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 Search to begin searching the database for records that match.
6. To edit a maintenance operation record, select the pertinent record, and click Edit.

## 6.8 Finding Maintenance Route Records

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

Oracle ASO permits 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 maintenance route that you want to retrieve must exist in the database.

### To find maintenance route records:

1. Select Route Management from the Oracle ASO Home page.
2. Select Search Route sub tab to launch the Search Route page.
3. Enter the information in the fields for which you know the value. For field descriptions, see Fields Associated with Maintenance Route Records.
4. Click Search. The lower half of the screen displays the Route List of all matching records in the database.
5. 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 Search to begin searching the database for records that match.
6. To edit a maintenance route record, select the pertinent record, and click Edit.

7. To associate operations with a maintenance route record, select the pertinent route, and click Associate Operations.

## 6.9 Defining Reference Documents

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

See:

- Defining Reference Documents for an Operation
- Defining Reference Documents for a Maintenance Route

### 6.9.1 Fields on the Reference Document Page

The following fields appear on the Reference Document page:

**Document Number** contains 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 Go to launch the Select Doc Number page that displays all the document references in the database.

**Type** represents the major topic such as powerplant, fleet unit, and ground support equipment that is described by the document in question. This field value is returned when you enter the Document Number.

**Title** refers to the title of the maintenance document. This field value returns when you enter the Document Number.

**Revision** is a field that holds a user-assigned document revision identifier.

### 6.9.2 Defining Reference Documents for an Operation

#### Prerequisites:

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

#### To define reference documents for an operation:

1. Select the Route Management tab from the Oracle ASO Home page.

2. Select the Create Operation sub tab to launch the Create Operation page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Operation Records).
4. Click Next on the Create Operation page to navigate to the Sign Off page, from where you can access the side navigation menu.
5. Click Reference Document on the side navigation menu to launch the Reference Document page.
6. Enter the information in the fields provided. For field descriptions, see Fields on the Reference Document Page.
7. Click Save to add the reference document information to the operation record.
8. To remove a reference document associated to the operation, select the check box beside the document definition that you want to remove, and then click Save.
9. To define other attributes for the operation, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Operation page, click Create Operation.

## 6.9.3 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. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Route sub tab to launch the Create Route page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Maintenance Route Records).
4. Click Next on the Create Route page to navigate to the Sign Off page, from where you can access the side navigation menu.
5. Click Reference Document on the side navigation menu to launch the Reference Document page.

6. Enter the information in the fields provided. For field descriptions, see Fields on the Reference Document Page.
7. Click Save to add the reference document information to the maintenance route record.
8. To remove a reference document associated to the route, select the check box beside the document definition that you want to remove, and then click Save.
9. To define other attributes for the operation, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Route page, click Create Route.

## 6.10 Defining Labor Requirements

Oracle ASO allows you to compile labor requirements related to a maintenance task. This information is necessary for pre-planning activities. Also, most maintenance activities in the maintenance, repair, and overhaul industry require that a completed task be inspected by an individual possessing a certain skill. The Labor Requirement page allows you to define the skill type and skill level of individuals required for actual labor, as well as for sign-off.

See:

- Defining Labor Requirements for an Operation
- Defining Labor Requirements for a Maintenance Route

### 6.10.1 Fields on the Labor Requirement Page

The following fields appear on the Labor Requirement page:

**Skill Type** refers to the type of skill the individual performing the maintenance operation should possess. If you do not know the value, enter a partial search string using the generic substitution metacharacter %, and click Go to launch the Select Skill Type page. Click on the skill type that matches your requirement to return this value to the Skill Type field on the Labor Requirement page.

**Skill Level** refers to the skill level an individual performing the maintenance task should possess. If you do not know the value, enter a partial search string using the generic substitution metacharacter %, and click Go to launch the Select Skill Level page. Click on the skill level that matches your requirement to return this value to the Skill Level field on the Labor Requirement page.

**Head Count** refers to the number of personnel required to do the task.

**Time per Head Count** refers to the number of hours required of each personnel to complete the task.

**Time Span** refers to the elapsed time for a head count, and is not necessarily the same as the value obtained by multiplying the Head Count and Time per Head Count. Entering this value is optional.

**Sign Off** checkbox indicates whether a particular skill type has sign-off capability. Since the sign-off skill can be one that is not used for actual labor, the Head Count, Time per Head Count, and Time Span field values for this entry are optional.

## 6.10.2 Defining Labor Requirements for an Operation

### Prerequisites:

The operation record for which you want to define labor requirements should exist in the database. The Skill Type and Skill Level values required to carry out the operation must exist in the database.

### To define labor requirements for an operation:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Operation sub tab to launch the Create Operation page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Operation Records).
4. Click Next on the Create Operation page to navigate to the (Create Operation) Phase page, from where you can access the side navigation menu.
5. Click Labor Requirement on the side navigation menu to launch the Labor Requirement page.
6. Enter the information in the fields provided. For field descriptions, see Fields on the Labor Requirement Page.

   Note: To define skill types for operation sign off requirements, use the Sign Off checkbox.
7. Click Save to add the labor requirement information to the operation record.

8. To remove a labor requirement associated to the operation, select the check box beside the labor requirement definition that you want to remove, and then click Save.
9. To define other attributes for the operation, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Operation page, click Create Operation.

## 6.10.3 Defining Labor Requirements for a Maintenance Route

### Prerequisites:

The maintenance route record for which you want to define labor requirements must exist in the database. The Skill Type and Skill Level values required to carry out the tasks should exist in the database.

### To define labor requirements for a maintenance route:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Route sub tab to launch the Create Route page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Maintenance Route Records).
4. Click Next on the Create Route page to navigate to the (Create Route) Reference Document page, from where you can access the side navigation menu.
5. Click Labor Requirement on the side navigation menu to launch the Labor Requirement page.
6. Enter the information in the fields provided. For field descriptions, see Fields on the Labor Requirement Page.

   Note: To define skill types for task sign off requirements, use the Sign Off checkbox.
7. Click Save to add the labor requirement information to the maintenance route record.
8. To remove a labor requirement associated to the route, select the check box beside the labor requirement definition that you want to remove, and then click Save.
9. To define other attributes for the route, navigate to the corresponding attribute page using the side navigation menu.

10. To return to the Create Route page, click Create Route.

# 6.11 Defining Resource Requirements

Oracle ASO allows you to define the resource requirements related to a maintenance task. Resource requirements may range from machine, material or tool requirements to consulting or training requirements. Such information allows you to plan and schedule maintenance activities.

See:

- Defining Resource Requirements for an Operation
- Defining Resource Requirements for a Maintenance Route

## 6.11.1 Fields on the Resource Requirement Page

The following fields appear on the Resource Requirement page:

**Item Type** refers to the category to which the resource required for a task belongs, such as Consulting, Training, and Equipment. 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 Go to retrieve and display all records from the database that match the search argument. Click the pertinent value from the records displayed to have the text value returned to the field.

**Part Number** field contains the identifier of the part that you want to add to the group of parts required to carry out the operation. 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 Go to retrieve and display all records from the database that match the search argument. Click the pertinent value from the records displayed to have the text value returned to the field.

**Organization** refers to the organization associated with the item (part) as defined in inventory. An organization is an entity that conducts business with your company.

**Description** is the part description automatically placed in this field when the Part Number is selected from the database. You cannot enter a value in this field.

**Quantity** specifies how many parts belonging to this group is to be installed.

**UOM** field contains a unit of measure in which the part is usually supplied. You cannot enter text directly in this field because the text value must already exist in the database. Enter a text search argument (example, MACHINE%), and click Go to retrieve and display all records from the database that match the search argument. Click the pertinent value from the records displayed to have the text value returned to the field.

**Time per Quantity** is a numeric attribute that enables you to store the time per quantity of resource. Entering a value in this field is optional.

**Time Span** is a numeric attribute containing the elapsed time for an item requirement. This field value is optional, and is not necessarily the value obtained by multiplying the Quantity by the Time per Quantity.

## 6.11.2 Defining Resource Requirements for an Operation

### Prerequisites:

The operation record for which you want to define resource requirements should exist in the database. The Item Type and Part Number values must also exist in the database.

### To define machine requirements for an operation:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Operation sub tab to launch the Create Operation page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Operation Records).
4. Click Next on the Create Operation page to navigate to the (Create Operation) Phase page, from where you can access the side navigation menu.
5. Click Resource Requirement on the side navigation menu to launch the Resource Requirement page.
6. Enter the information in the fields provided. For field descriptions, see Fields on the Resource Requirement Page.
7. Click Save to add the resource requirement information to the operation record.
8. To remove a resource requirement definition associated to the operation, select the check box beside the requirement definition that you want to remove, and then click Save.

9. To define other attributes for the operation, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Operation page, click Create Operation.

## 6.11.3 Defining Resource Requirements for a Maintenance Route

### Prerequisites:

The maintenance route record for which you want to define machine requirements must exist in the database. The Item Type and Part Number values should exist in the database.

### To define machine requirements for a maintenance route:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Route sub tab to launch the Create Route page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Maintenance Route Records).
4. Click Next on the Create Route page to navigate to the Reference Document page, from where you can access the side navigation menu.
5. Click Resource Requirement on the side navigation menu to launch the Resource Requirement page.
6. Enter the information in the fields provided. For field descriptions, see Fields on the Resource Requirement Page.
7. Click Save to add the machine requirement information to the maintenance route record.
8. To remove a resource requirement definition associated to the route, select the check box beside the requirement definition that you want to remove, and then click Save.
9. To define other attributes for the route, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Route page, click Create Route.

## 6.12 Defining Phase Codes for an Operation

Use the Phase Code page to define the different phases in an operation. This allows close monitoring of a maintenance operation at its different phases.

### Prerequisites:

Phase Code values must exist in the database.

### To define phase codes for an operation:

1. Select the Route Management tab from the Oracle ASO Home page.
2. Select the Create Operation sub tab to launch the Create Operation page.
3. Enter the information in the fields provided. Information in fields marked with asterisk is mandatory (see Fields Associated with Operation Records).
4. Click Next on the Create Operation page to navigate to the Sign Off page, from where you can access the side navigation menu.
5. Click Phase Code on the side navigation menu to launch the Phase Code page.
6. Enter the information in the fields provided.
   - Phase contains the code representing a phase in a maintenance operation. If you do not know the value, enter a partial search string using the generic substitution metacharacter %, and click Go to launch the Select Phase Code page. Click on the phase code that matches your requirement to return this value to the field on the Phase Code page.
   - Description refers to the description of the phase, and the field value is returned when you select the Phase Code.
7. Click Save to add the phase information to the operation record.
8. To remove a phase associated with the operation, select the check box beside the phase that you want to remove, and then click Save.
9. To proceed to defining other attributes for the operation, navigate to the corresponding attribute page using the side navigation menu.
10. To return to the Create Operation page, click Create Operation.

## 6.13 Associating Operations to a Maintenance Route

The Associate Operation to a Route page allows you to associate operations to a selected maintenance route. The application simplifies the creation of maintenance

routes by allowing 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 to maintenance routes:

1. Retrieve the route record for which you want to associate operations (see Finding Maintenance Route Records).
2. Select the pertinent route record from the Route List on the Search Route page.
3. Click Edit to launch the Edit Route page, where you can make changes to the route record.
4. Click Next on the Edit Route page to launch the Sign Off page from where you can access the side navigation menu.
5. Click Associate Operations on the side navigation menu to launch the Operation page.

   You can also access the Edit Route Operation page by clicking Next on the Create Route page. See Creating Maintenance Route Records.
6. Enter the information in the fields provided.
   - Step refers to the serial order of the operation in the maintenance route. This field value is user assigned.
   - Operation field contains the pre-defined operation that you want to associate with the maintenance route.
     * Some operations may already be associated with the Route. Enter any number in the Step field of the next line to add an operation.
     * Do not use the List Of Values to enter the value in the Operation field, but click Search to select the operation from the Search Operation page.
     * Select one or more operations, and click Copy. This will return the (Edit Route) Associate Operations page. You will see that the values in the Operation fields are not in the same line as that of the step for which you entered the operation, but on the next empty line.
     * For entering the Operation field value against the Step field for which you initially entered a value, use the List of Values.

* For the operations copied from Search Operation page, enter the values in the Step fields later, along with the rest of the fields.

- Standard indicates whether the operation is standard or not. The set of values in the drop down list box is defined when your configuration of Oracle ASO is installed. You cannot enter a string here.
- Description is the description of the operation, and the field value is returned when you select the Operation.
- Check Point indicates whether you would require to collect actual labor expended, material usage, and other job cost data at the completion of the operation. Select YES if you want to define a check point after the specific operation.
- Start Date refers to the date of the first day of effectivity of this operation. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.
- End Date refers to the date before which the operation is to be completed. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

7. To narrow down your search for operations, click Search to launch the Associate Operation to a Route page. You can specify your search criteria in the fields provided.
8. Click Search. The lower half of the screen displays all matching records in the database.
9. Select the operation you require, and click Copy to return this value to the Operation page.
10. Click Save to associate the operations to the maintenance route record.

## 6.14 Editing Operation Records

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

This first step in the process allows you to edit the basic operation record information.

### Prerequisites:

The operation record must exist in the database.

### To edit operation records:

1. Retrieve the operation records that match your requirement (see Finding Operation Records).
2. Select the operation that you want to edit, and click Edit to launch the Edit Operation page.
3. Make the necessary changes to the information in the fields provided. For field descriptions, see Fields associated with Operation Records.
4. Click Save to record the changes.
5. To edit labor or other resource definitions associated with the operation, click Next.

   See:

   - Defining Reference Documents for an Operation
   - Defining Labor Requirements for an Operation
   - Defining Resource Requirements for an Operation
   - Defining Phase Codes for an Operation

## 6.15 Editing Maintenance Route Records

Oracle ASO allows you to retrieve existing maintenance route records and edit the information associated with the route, including sign off, material, machine, and tool requirements. You can also edit document reference and phase code definitions associated with the operation.

This first step in the process allows you to edit the basic maintenance route record information.

### Prerequisites:

The maintenance route record must exist in the database.

### To edit maintenance route records:

1. Retrieve the maintenance route records that match your requirement (see Finding Maintenance Route Records).

2. Select the route record that you want to edit, and click Edit to launch the Edit Route page.
3. Make the necessary changes to the information in the fields provided. For field descriptions, see Fields Associated with Maintenance Route Records.
4. Click Save to record the changes.
5. To edit reference document, labor or other resource requirement, or associated operations, click Next.

   See:

   - Defining Reference Documents for a Route
   - Defining Labor Requirements for a Route
   - Defining Resource Requirements for a Route
   - Associating Operations to a Maintenance Route

## 6.16 Defining Component Locations in Fleet Units

Maintenance organizations define zones to identify component locations in an electromechanical system. Oracle ASO allows you to associate major zones and sub zones in electromechanical systems to product types. Product Type refers 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.

See:

- Associating Major Zones to Product Types
- Associating Sub Zones to Product Types

## 6.17 Fields on the Associate Zone to Product Type Pages

The following fields appear on the Associate Major Zone to Product Type and Associate Sub Zone to Product Type pages:

**Product Type** refers to the classification by category of the electromechanical system. Enter the value of the product type to which you want to associate zones. If you do not know the value, enter a partial search string with the generic substitution metacharacter %, and click Go. This launches the Select Product Type

page with all the matching records in the database. Click the pertinent record to return this value to the field.

**Major Zone** refers to 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 a partial search string with the generic substitution metacharacter %, and click Go. This launches the Select Major Zone page with all the matching records in the database. Click the pertinent record to return this value to the field.

**Description (Major Zone)** is the zone description automatically placed in this field when the Major Zone is selected from the database.

**Sub Zone** refers to the user-defined zones within a major zone used as a method for identifying locations 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 Go. This launches the Select Sub Zone page with all the matching records in the database. Click the pertinent record to return this value to the field.

**Description (Sub Zone)** is the sub zone description automatically placed in this field when the Sub Zone is selected from the database.

**Start Date** refers to the date from which this definition for component location is valid. You cannot enter a date directly in this field. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

**End Date** refers to the date up to which this component location definition for the product type would remain valid. Click on the calendar selector icon beside the date field and select the correct date, which will be copied into the field.

## 6.18 Associating Major Zones to Product Types

### Prerequisites:

Product Type, and Major Zone values must exist in the database. You should decide on the major zone that you want to associate with the selected Product Type.

### To associate major zones to a product type:

1. Select Route Management tab from the Oracle ASO Home page.

2. Select Associate Major Zone sub tab to launch the Associate Major Zone to Product Type page.
3. Enter the information in the fields provided. For field descriptions, see Fields on the Associate Zone to Product Type Pages.
4. Click Save to record the major zones associated to the product type.

## 6.19 Associating Sub Zones to Product Types

### Prerequisites:

Product Type, Major Zone, and Sub Zone values must exist in the database. You should decide on the major zone and sub zone that you want to associate with the selected Product Type.

### To associate sub zones to product types:

1. Select Route Management tab from the Oracle ASO Home page.
2. Select Associate Sub Zone sub tab to launch the Associate Sub Zone to Product Type page.
3. Enter the information in the fields provided. For field descriptions, see Fields on the Associate Zones to Product Type Pages.
4. Click Save to record the sub zones associated to the product type.