Oracle® Number Portability

Concepts and Procedures

Release 12.2

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Oracle Number Portability Concepts and Procedures, Release 12.2

Part No. E49148-01

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Oracle Number Portability Concepts and Procedures, Release 12.2

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Preface

Intended Audience

Welcome to Release 12.2 of the *Oracle Number Portability Concepts and Procedures.*

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

Documentation Accessibility

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

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Structure

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Related Information Sources

Integration Repository

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

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

You can navigate to the Oracle Integration Repository through Oracle E-Business Suite Integrated SOA Gateway.

Online Documentation

All Oracle E-Business Suite documentation is available online (HTML or PDF).

- **PDF** - See the Oracle E-Business Suite Documentation Library for current PDF documentation for your product with each release. The Oracle E-Business Suite Documentation Library is also available on My Oracle Support and is updated frequently

- **Online Help** - Online help patches (HTML) are available on My Oracle Support.

- **Release Notes** - For information about changes in this release, including new features, known issues, and other details, see the release notes for the relevant product, available on My Oracle Support.

- **Oracle Electronic Technical Reference Manual -** The Oracle Electronic Technical Reference Manual (eTRM) contains database diagrams and a detailed description of database tables, forms, reports, and programs for each Oracle E-Business Suite product. This information helps you convert data from your existing applications and integrate Oracle E-Business Suite data with non-Oracle applications, and write custom reports for Oracle E-Business Suite products. The Oracle eTRM is available on My Oracle Support.

Guides Related to All Products

Oracle E-Business Suite User's Guide

This guide explains how to navigate, enter data, query, and run reports using the user interface (UI) of Oracle E-Business Suite. This guide also includes information on setting

user profiles, as well as running and reviewing concurrent programs.

You can access this guide online by choosing "Getting Started with Oracle Applications" from any Oracle E-Business Suite product help file.

Guides Related to this Product

Oracle Service Fulfillment Manager Concepts and Procedures

This guide provides an introduction to the concepts and features of Oracle Service Fulfillment Manager, on which Oracle Number Portability is largely dependent. The guide also provides task based instructions for using the application to manage service orders and their fulfillment.

Oracle Service Fulfillment Manager Implementation Guide

This guide provides implementation procedures for Oracle Service Fulfillment Manager.

Installation and System Administration

Oracle Alert User's Guide

This guide explains how to define periodic and event alerts to monitor the status of your Oracle E-Business Suite data.

Oracle E-Business Suite Concepts

This book is intended for all those planning to deploy Oracle E-Business Suite Release 12.2, or contemplating significant changes to a configuration. After describing the Oracle E-Business Suite architecture and technology stack, it focuses on strategic topics, giving a broad outline of the actions needed to achieve a particular goal, plus the installation and configuration choices that may be available.

Oracle E-Business Suite CRM System Administrator's Guide

This manual describes how to implement the CRM Technology Foundation (JTT) and use its System Administrator Console.

Oracle E-Business Suite Developer's Guide

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

customizations in features such as concurrent programs, flexfields, messages, and logging.

Oracle E-Business Suite Installation Guide: Using Rapid Install

This book is intended for use by anyone who is responsible for installing or upgrading Oracle E-Business Suite. It provides instructions for running Rapid Install either to carry out a fresh installation of Oracle E-Business Suite Release 12.2, or as part of an upgrade to Release 12.2.

Oracle E-Business Suite Maintenance Guide

This guide contains information about the strategies, tasks, and troubleshooting activities that can be used to help ensure an Oracle E-Business Suite system keeps running smoothly, together with a comprehensive description of the relevant tools and utilities. It also describes how to patch a system, with recommendations for optimizing typical patching operations and reducing downtime.

Oracle E-Business Suite Security Guide

This guide contains information on a comprehensive range of security-related topics, including access control, user management, function security, data security, and auditing. It also describes how Oracle E-Business Suite can be integrated into a single sign-on environment.

Oracle E-Business Suite Setup Guide

This guide contains information on system configuration tasks that are carried out either after installation or whenever there is a significant change to the system. The activities described include defining concurrent programs and managers, enabling Oracle Applications Manager features, and setting up printers and online help.

Oracle E-Business Suite User Interface Standards for Forms-Based Products

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

Other Implementation Documentation

Oracle E-Business Suite Diagnostics User's Guide

This guide contains information on implementing, administering, and developing diagnostics tests in the Oracle E-Business Diagnostics framework.

Oracle E-Business Suite Integrated SOA Gateway User's Guide

This guide describes how users can browse and view the integration interface definitions and services that reside in Oracle Integration Repository.

Oracle E-Business Suite Integrated SOA Gateway Implementation Guide

This guide explains the details of how integration repository administrators can manage and administer the entire service enablement process based on the service-oriented architecture (SOA) for both native packaged public integration interfaces and composite services - BPEL type. It also describes how to invoke Web services from Oracle E-Business Suite by working with Oracle Workflow Business Event System, manage Web service security, and monitor SOAP messages.

Training and Support

Training

Oracle offers a complete set of training courses to help you master your product and reach full productivity quickly. These courses are organized into functional learning paths, so you take only those courses appropriate to your job or area of responsibility.

You have a choice of educational environments. You can attend courses offered by Oracle University at any 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 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 your product 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 Oracle server, and your hardware and software environment.

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

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

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

your data and you lose the ability to audit changes to your data.

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

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

1

Overview of Oracle Number Portability

This chapter covers the following topics:

- What is Oracle Number Portability
- Why use Oracle Number Portability?
- Key Features
- Business Processes
- Integration and Dependencies

What is Oracle Number Portability

To spearhead competition for communications services in the local market, government and regulatory bodies require service providers to support number portability. Number portability refers to subscribers' ability to change communications service providers without changing their telephone numbers.

Oracle Number Portability addresses the need for telecommunications carriers to support number portability mandates. Oracle Number Portability provides for custom solution to number portability requirement in an existing operating environment. Oracle Number Portability relies on the flexibility and reliability of Oracle Work Flow technology to integrate into existing business processes easily and efficiently, and to accommodate changes in those processes. In addition, it provides for easy and flexible interconnection with existing operation systems and network elements.

Why use Oracle Number Portability?

To meet number portability related mandates, telecommunications service providers need a solution that easily integrates into the existing infrastructure and adapts to the existing business processes. The number portability solution for a carrier must also support interconnection with external entities, such as the central clearinghouse for ported numbers and other carriers involved in porting transactions.

Oracle Number Portability responds to the following business needs:

- Supports carrier needs to provide mandated number portability services

- Decreases cut over time, which allows carriers to meet mandated deadlines

- Easily integrates with carriers' existing business processes

- Flexible and reliable interconnections with the central clearinghouse, existing carriers, and new entrants to the market

- Reliable network configuration and data download for number portability services

Key Features

Oracle Number Portability architecture is based on the flexible layered architecture of Oracle Service Fulfillment Manager (SFM). It comprises of different modules that are tightly coupled to each other for performance, yet have well defined interfaces to communicate with external systems. This section describes the key features.

Short Role-Out Time

Oracle Number Portability leverages Oracle Workflow's rich process automation technology, which considerably shortens the implementation cycle. Each process is automated using the GUI-based builder and its predefined functional activities that are incorporated to model the end-to-end number portability processes. In addition, customers can create additional functional activities to be used as the building blocks of the process. As a result, the modeling of number portability processes becomes as simple as drag-and-drop of the activities in appropriate sequence.

Scalability and Automation

By utilizing the Oracle Technology Stack and Multitier architecture designed for high-performance B2B e-commerce application, Oracle Number Portability can scale to support number management requirement in any country. In addition, the modular design of Oracle Number Portability and the decoupling of the interfaces from the processing engine provides for added flexibility as well as scalability management.

Cross-Enterprise Confidentiality

By assigning ownership to the ported data, the data can only be accessed by the organizations (service providers) that have the proper access privileges. Data belonging to one operator is hidden from view and updated by others, except for the porting record containing routing information, which is public and is broadcast to all operators in the area.

Performance for Bulk Downloads and Synchronization

Oracle Number Portability is built on top of the best and most popular information management technology, namely Oracle Database and Technology Stack. Utilizing this tradition of excellence enables Oracle Number Portability to offer unsurpassed capability in terms of performance and scalability.

Ease of Process Customization

By utilizing Oracle Workflow technology, Oracle Number Portability provides GUI-based process customization. The user can manage the process flow by leveraging the drag-and-drop capabilities of the product.

Event Notifications

Oracle Number Portability provides customizable notifications. These notifications can be triggered automatically as a result of events or timeouts.

Open Interfaces to External Systems

Oracle Number Portability supports open Internet standards for message-based applications. It supports XML standards through a GUI-based message definition application. The application provides the ability to define new Message Types and generate optimized code for sending, validating, decoding and processing of messages.

Business Processes

Oracle Number Portability is uniquely positioned to serve the global number portability needs. It can address the administrative requirements of number portability, as well as provide for easy integration of the number portability solution with the existing business environment.

The major features of Oracle Number Portability include:

- Service Order Administration, page 1-3

- Service Management System, page 1-4

- Service Fulfillment Management, page 1-4

Service Order Administration

Oracle Number Portability Service Order Administration (Oracle Number Portability SOA) interfaces with the carrier's customer care or order management system to obtain customer service orders that require number portability. Oracle Number Portability SOA converts this service order into a number portability transaction and sends it to the

appropriate Number Registration Center (NRC, central database maintained by national or regional number registration centers in the United States) or uses other methods (depending on regional requirements outside the United States) to communicate the request to the other carrier.

You can also customize the Oracle Number Portability SOA to mediate orders between service providers for a firm order commitment. This ensures that the porting request is mutually agreeable, and that any porting obstacles are removed before initiating mediations with the regional NRC. The synchronization of parallel process instances allows two parallel processes (example, transactions for porting more than one telephone number ranges) to synchronize at user defined points so that they are both completed or rejected.

Service Management System

Oracle Number Portability Service Management System receives and processes ported number information from NRC (in the United States) or via other methods (depending on regional requirements outside the United States). It validates the incoming order and translates the routing information to provisioning messages that are sent to the domain level NEMS (example, Oracle Provisioning component or external activation engine) for provisioning the customer on the appropriate network elements.

Service Fulfillment Management

Oracle Number Portability is dependent on the Oracle Service Fulfillment Manager (Oracle SFM), which acts as a generic fulfillment engine to provision network elements. It will convert information given by Oracle Number Portability Service Management System to messages appropriate for provisioning the required network elements.

Oracle SFM supports complete order tracking and management functions such as Flow Through and Fallout Management, Dependency Analysis and Due Date Management. It also supports various communications protocols such as TELNET and TCP/IP. You can easily build new adapters for any other customized protocol such as E-mail, Web or batch transfers.

Integration and Dependencies

Oracle Number Portability is dependent on Oracle Service Fulfillment Manager (SFM). Oracle SFM includes new features that integrate with Oracle Inventory (optional), Oracle Bills of Material, Oracle Customer Model (optional), Oracle Install Base (optional), Oracle Applications Manager, and Oracle Generic Services Manager. Oracle Number Portability benefits from these new Oracle SFM integration points.

2

Basics of Oracle Number Portability

This chapter covers the following topics:

- Accessing the Number Portability Center
- The Number Portability Center
- Understanding Number Portability
- Service Providers
- Understanding Orders
- Porting Phases in Oracle Number Portability
- Porting Statuses
- Workflows in Oracle Number Portability
- Adapters
- Messaging in Oracle Number Portability
- The iMessage Studio
- The Event Manager
- Timers in Oracle Number Portability
- Jeopardy Management
- Geographic Area Definitions
- Subscription Versions

Accessing the Number Portability Center

At the core of Oracle Number Portability is the Number Portability Center that provides Customer Care Administrators with instant access to number porting information. A number of tabs accessible from the Number Portability Center present information about porting orders and their status, and the network elements associated with orders. Buttons in the Number Portability Center allow you to view details about service

providers or mediators, and to view notifications, if any, related to an order.

To access the Number Portability Center:

1. Log-in to Oracle Applications.

2. Select the NP Administrator responsibility. The NP System Administrator Navigator window appears.

3. Use the following navigation path to open the Number Portability Center window:

    Functions > Operations > NP Center.

The Number Portability Center

The Number Portability Center comprises a left Subscriptions list region, and a right tabs region. The Customer Care Administrator can view details pertaining to an order, using the different tabs in the Number Portability Center.

Related Topics

Tabs in the Number Portability Center, page 2-2

Buttons in the Number Portability Center, page 2-9

Tabs in the Number Portability Center

In the Number Portability Center, you can view both order information, and network element information associated with an order by choosing the corresponding tab on the left, under the subscription list region.

Orders tab allows you to view detailed information about an order that you select from the Subscriptions list.

Network tab allows you to view details of network elements associated with an order you select from the Subscriptions list.

The Number Portability center also includes the Filters tab.

Filters tab enables you to enter number filters for the service provider. A filter is the list of telephone number ranges in which a service provider is interested. You enter this information to create filters so that a Number Registration Center can broadcast your subscription version information selectively.

When you select the Orders tab to view order information, the Number Portability Center displays the following tabs:

Orders Information

Tab	Description
Summary	• Subscription Summary Customer name and telephone number, order status, routing number, etc. • Recipient Name and access code of the new service provider. This is Recipient in case of Number Porting, or the new long distance provider in case of Equal Access. • Donor Name and access code of the old service provider. This is Donor in case of Number Portability or the old long distance provider in case of Equal Access. • Mediator Name and access code of mediating service provider. This is Number Registration Center in case of Number Portability, or Local Service Provider in case of equal access.
Features	The Features tab is not available unless special features have been defined for this order. To enable features, set profile option ENABLE_FEATURES to Y (Yes).

Tab	Description
Transaction Log	• **Event Type** Type of event that affected the porting record. For example, this could be Status Change or Modification. • **Event** Actual event, for example, the status of PENDING. • **Time Stamp** Time when the event took place.
Work Items	• **Order ID** Service Delivery Platform internal order identification number. • **Order Number** External order number as entered in the Order Entry System. • **Work Item** Work item number assigned by the system for this order. • **Status** State of this work item. It can be received, running, ready, pending, or complete.

Tab	Description
Failed Downloads	- Service Provider Code Code for the Service provider who failed to download the broadcast information - Service Provider Name Service provider name - Failure Date Date when the failure took place - Final Failure Date Date when total failure was declared, meaning that there were no more retries - Attempted Retries Number of retries attempted to download the information successfully

Tab	Description
Others	• Subscription Owner Service provider code for the owner of the subscription record • Pre-Order Authorization Number which gives the authorization to the service provider to switch the subscriber to another carrier. • Activation Due Date Date when activation must take place • Status Change Date Date when the status was last updated • Invoice Due Date Date when the SP must be billed • Disconnect Due Date Date when subscriber wishes to disconnect service • Number Returned Due Date Date when the new Service Provider returns the number to the old Service Provider after disconnecting service • Effective Release Due Date Date when the subscriber is completely removed from the old SP system • Donor Cutoff Due Date Date when the donor wants to remove the subscriber from the system

When you select the Network tab to view network element details associated with an order, the Number Portability Center displays the following tabs:

Network Information

Tab	Description
Summary	• Subscription summary This includes the customer telephone number, routing Id, etc. • Routing service provider name Service provider name of the recipient provider (owning the routing number) • Routing service provider code Service provider code • Mediating Number Registration Center name Name of the mediating service provider • Mediating Number Registration Center code Service provider code
Features	The Features tab will not be available unless special features have been defined for this order. To enable features, set profile option ENABLE_FEATURES to Y (Yes).

Tab	Description
Work Items	• Order Id Order identification number • Order Number External order number as entered in the Order Entry System • Work Item Work item number assigned by the system for this order • Status State of this work item. (This could be received, running, ready, pending, or complete.)
Provisioning Map	• Features Type Indicates the feature type that has been provisioned on the network element.For example, this could be: Routing Number, LIDB, or CNAM. (If the Features functionality is not enabled, then only the Routing number for Number Portability is provisioned. This is also called the Primary Routing Number.) • Network Element Network element name on which the provisioning for this porting record has taken place. • Network Element Type Network element type on which the provisioning for this porting record has taken place. • Provision Status Status of the provisioning of the network element.

Buttons in the Number Portability Center

The following buttons are available in the Number Portability Center:

Notifications button launches the Notification Inbox, where you can view notification messages relating to an order. You can choose to view all messages, or only messages in the Open status.

Details button allows you to view details relating to the section in the Number Portability Center window to which the Details button belongs. For example, the Details button in the Recipient Service Provider section of the Summary Screen for Orders will open the Service Providers window, where you can view details about the service provider related to the order you selected from the Subscriptions list.

Understanding Number Portability

Number portability is a mechanism by which consumers can keep their telephone numbers when they switch between telecommunication service providers, move from one physical location to another, or change their services.

The concept is driven by regulatory authorities working to jump start competition, citing that consumers are more interested in moving between service providers when they can keep their telephone numbers. Number Portability is widely cited as a key driver for the explosive growth in the competitive long distance market. In order to nurture competition, legislative and regulatory bodies around the world have started to issue number portability mandates. Today, number portability is generally required for circuit switched products and services only and is implemented in the United States and a few other countries.

Number portability can be realized using several methods. The different methods fall into two main categories: Intelligent Network (IN) based, or Non-IN based number portability solutions. A well known IN based number portability solution is the Location Routing Number (LRN) solution adapted in the US. Several non-IN based solutions are available: Call Forwarding, Flexible Numbering Register (FNR) solution under consideration for adoption in Europe.

Location Routing Numbers

Location Routing Number is a ten digit number which uniquely identifies a switch in a service provider network. Before number portability was mandated, telephone number ranges were assigned to switches, which did not change, so having the telephone number was sufficient to route the call (except toll free numbers). With number portability, LRN is the new switch identifier that is needed to route the call.

The routing number is mapped to the new telecommunication switching system on the one end, and linked to the customer's current dialing number on the other end. Each service provider allocates certain numbers as routing numbers for number portability. Every service provider using Oracle Number Portability has a routing number

repository for this purpose. The numbers are located in the service provider's local database for purposes of executing the porting, as well as in the central databases maintained by national or regional number centers. These are known as Number Registration Centers (NRC) in the United States, S-NPAC (Number Portability Administration Center) in Sweden, and CRDC in Belgium.

Types of Number Portability

Types

Type	Description
Service Provider Portability	The ability of end users to retain the same telephone numbers as they change from one service provider to another.
	For example, Dr. Jon Smith moves local telephone service for his office from Euro Telecom to the new emerging carrier SuperTel. The physical location of Dr. Smith's office has not changed.
Location Portability	The ability to retain existing telecommunication numbers without impairment of quality, reliability, or convenience when moving from one physical location to another.
	For example, Dr. Jon Smith moves his office from Brussels to Gothemburg and retains his existing telecommunications numbers with SuperTel.

Type	Description
Service Portability	The ability to retain existing telecommunication numbers without impairment of quality, reliability, or convenience when switching from one telecommunications service to another telecommunication service provided by the same service provider.
	For example, Dr. Jon Smith moves a subset of the telecommunications numbers for his office from wireline service to wireless service with SuperTel. When signing up for wireless service, he retains the existing telecommunications numbers with the same set of features that he had with wireline service.

Service Providers

In order to provide number portability from one service provider to another, each of the service providers must be set up in Oracle Number Portability. This information is used by the Service Order Administrator and the Service Management System to create and activate service orders as they are received. The precise tasks that you perform for a service provider depends on the how you want to install Oracle Number Portability. The application usage types are as follows:

Types

Type	Description
Individual Service Provider	You must set up the following:
	Full information for yourself
	Basic information for all other service providers with whom you expect to interact
Number Registration Center	You must set up the following:
	Full information for yourself
	Information for all service providers in your region

Understanding Orders

You can perform a number of order activities in Oracle Number Portability. The following are examples of order activity types you can perform using the Oracle Number Portability:

Types

Type	Description
Port In	A port in request is usually initiated at the recipient service provider side by a new customer requesting that you provide a port in capability.
Port Out	A port out request can occur in two ways:
	Triggered internally at the donor service provider side based on the same customer contact as at the recipient side
	A customer contacts the donor service provider directly in order to initiate a port out request to another service provider

> **Note:** The application provides standard activities for you to build business processes of each order type. These order types are not seeded in the application.

Porting Phases in Oracle Number Portability

Oracle Number Portability contains four porting phases:

Inquiry

A customer calls the new service provider and inquires as to the feasibility of porting his/her number.

Note that it is possible for multiple porting inquiry requests to be placed for the same telephone number at the same time.

For example, Dr. John Smith may call three new service providers to ask what the rates would be if he ported his number.

Ordering

A customer calls and requests service from a new service provider, and asks to port his/her telephone number from the old service provider. The porting phase changes to Ordering after the feasibility of porting the required number is established in the Inquiry phase. The donor service provider agrees with the recipient service provider on the number porting.

Only a single porting order request can be placed for a telephone number at any given time.

For example, Dr. John Smith can only select one service provider to port his number.

Active

A customer's telephone number is currently active in the network with the new service provider.

Note that the Active phase should not be confused with the Active flag. The Active flag is defined for each porting status to indicate whether the porting status is a valid value that can be used by the application.

Old

A customer switches to another service provider, disconnects, or cancels the porting request. It is suggested that after a specified time period, porting requests in the Old phase should be archived or purged.

The service order phase in the number porting process most often (not always) determines the tasks that you perform against a service order.

For example:

- You perform the tasks associated with entering orders in the Ordering phase of number porting.

- You perform monitoring, number range maintenance, and their component tasks in any phase of a number porting process.

Porting Statuses

Porting statuses are used to track the progress of a porting request. A service order may have more than one status throughout its life cycle. You can define a new status through Oracle Number Portability for either of the following reasons:

- To better reflect the terminology and business processes of your organization

- To understand the progression of a porting request

After a status is defined, you can reference it in Workflow and process logic. This is

where status manipulation occurs.

Key Components of a Porting Status Definition

In Oracle Number Portability, each porting status is user-definable. It must also be associated with one of the pre-defined phases of a porting request (see Porting Phases in Oracle Number Portability, page 2-12). User-defined porting statuses provide flexibility to users (for example, naming conventions are different for each country). Associating a porting status with a pre-defined porting phase allows applications to categorize porting statuses, adding to the manageability of porting requests.

In effect, porting statuses enable you to more closely map your business processes to the progress of a service order, than is possible with only the four phases.

Workflows in Oracle Number Portability

Workflows in Oracle Number Portability are sub-processes which execute during the order fulfillment process. Workflows are used to automate the business processes necessary to fulfill the order. Work items perform the business and network functions necessary to fulfill a service order request. In the application, each work item typically maps to a single workflow, due to the complexity of the business process. This is why workflows are referred to as work items in Oracle Number Portability. Workflows are created using the Oracle Workflow Builder.

The Oracle Workflow Builder enables your organization to customize Oracle Number Portability to suit your business needs. Through workflow, you can route any type of information in an asynchronous manner, according to business rules.

Within the Oracle Workflow Builder, you can create, view, or modify a business process with simple drag and drop operations. In addition, you can create and modify all workflow objects, including activities, item types, processes and notifications.

At any time, you can perform the following operations on workflow objects:

• Add

• Remove

• Modify

• Set up new prerequisite relationships among the various item types

You can easily work with a summary-level model of your workflow, expanding activities within the workflow as needed, to greater levels of detail.

Adapters

You configure an adapter to interact with the external system, and to route messages to and from the external system appropriately. You configure an adapter by specifying its attributes.

Oracle Number Portability comes with the file adapter defined. This adapter enables messages to be passed to local files, or sent to a remote location using the provided FTP client. For more information on adapters, refer to the Oracle Service Fulfillment Manager documentation.

Messaging in Oracle Number Portability

Oracle Number Portability uses messages to communicate with external systems and initiate new orders in Oracle Service Fulfillment Manager. For example, Oracle Number Portability sends an outgoing message requesting a number port with the Central System. The Oracle Number Portability workflow then waits for an inbound message that confirms the request to port. This use of messaging integrates the use of workflows with external conditional elements. Messages can trigger a process, or set of processes in an application. Applications send and receive messages asynchronously using the Event Manager.

Messages

Messages are used to communicate between applications and systems. Oracle Service Fulfillment Manager messages are defined in the industry-standard XML format.

When a message is compiled, the following functions are created:

- Send()

- Publish()

- Validate()

- Process()

- Default_Process()

- Create_Msg()

These functions are used to communicate with the Number Registration Center and other service providers, as well as with any other external system or internal Operational Support Systems. Also, messages can trigger a set of processes internally within the system.

Message Definitions

You define messages in either of the following ways:

- You can select from a set of predefined and available messages that are preseeded in Oracle Number Portability.

- You can build and define any required messages through the iMessage Studio.

Message Elements

A message comprises one or more message elements. A message element consists of a set of attributes:

- Type

- Name

- Length

- Datatype

For example, area may be a message element composed of length and width. The message element name is used as a tag within the XML message. Each message element has a data source which must be defined.

The iMessage Studio

The iMessage Studio is a tool used for developing message-based Service Fulfillment applications. It enables you to perform the following functions:

- Develop a message-based application, while generating the code to construct, publish, validate, and process application messages.

- Compile and test these messages.

- Share messages between applications, allowing for their re-use in various applications.

- Prevent redefining the same message in various applications across the enterprise.

- Generate procedures through its APIs and its run-time messages.

- Customize pre-processing of outbound messages and the post-processing of incoming messages from the Event Manager to external subscribers.

- Define a message set for a particular event during processing of an order within the application.

- Construct timers (delayed messages) for use within the application.

- Define messages in the XML industry-standard format.

- Create a series of message processes to communicate with external systems, Service Providers, and internal Operational Support Systems.

Message Processing Logic in Oracle Number Portability

Incoming messages and events are handled by the Event Manager in Oracle SDP Number Portability. There are four possible ways that a message can be processed by the application.

They are:

- Default process logic

- Validate logic

- Incoming Message process logic

- Outgoing Message process logic

Following is a brief description of each type.

> **Note:** If the user does not provide any message processing logic, the default is a NULL package body.

Default Process Logic

If no application has registered for the message, the Event Manager automatically executes the default processing logic DEFAULT_PROCESS() for that message.

The following example shows how to provide an application hook using the DEFAULT_PROCESS() procedure. Consider a case in which a PORTING_CONCUR message comes in asynchronously.

The default processing logic for this message is:

```
DECLARE
    l_telephone_num
  VARCHAR2(10) ;
    l_clli
  VARCHAR2(20) ;
    l_area_code
  VARCHAR2(3)
  ;BEGIN
        /* Reset error code and error message */
        x_error_code := 0 ;
        x_error_message := NULL ;
        /*Retrieve the Telephone number message element from the XML
message
        */
        XNP_XML_UTILS.DECODE( p_msg_text,
  'TELEPHONEí',
  l_telephone_num) ;
    /*
    Retrieve the central office or the CLLI on which it has to be
provisioned
*/
    XNP_XML_UTILS.DECODE( p_msg_text,
'CLLI',
l_clli) ;
    /*
      Ensure that the right central office is used for provisioning
    */
  l_area_code := SUBSTR(l_telephone_num,1,3 ) ;
  IF ((l_area_code = ë415í) AND
     (l_clli = ëSFOí)) THEN
  /* Customized procedure to provision the number */
  /* Not part of NP core functions */
    PROVISION.ADD(l_telephone_num) ;
    ELSE/*
  Customized procedure to notify the customer care system. Not part of
NP
  core functions
    */
  NOTIFY_CUSTOMER_CARE(l_tn,
 x_error_code,
 x_error_message) ;
  END IF ;
END ;
```

Validate Logic

The VALIDATE() procedure provides a hook to include business specific validation and is automatically executed by the Event Manager on newly arrived messages.

If no validation logic is specified, the procedure is created with a "NULL;" statement. The signature for this procedure is given in the following code.

> **Note:** The Event Manager will not process and deliver the message in case an error is returned in X_ERROR_CODE or X_ERROR_MESSAGE.
>
> However the resulting error code and error message is logged into the system log messages.

```
VALIDATE(
p_msg_header IN XNP_MESSAGE.MSG_HEADER_REC_TYPE,
p_msg_text IN VARCHAR2,
x_error_code OUT NUMBER,
x_error_message OUT VARCHAR2,
p_process_reference IN VARCHAR2 DEFAULT NULL ) ;
```

The following is an example of code that checks for a valid telephone number. (The use of XNP_XML_UTILS.DECODE works only in case of messages with no repeating elements.)

```
DECLARE
  l_telephone_num VARCHAR2(10) ;
  l_service_provider VARCHAR2(10) ;
BEGIN
   /* Reset error code and error message */
    x_error_code := 0 ;
   x_error_message := NULL ;
   /* Retrieve the telephone number */
XNP_XML_UTILS.DECODE( p_msg_text,
'TELEPHONE' ,
  l_telephone_num ) ;
   /* Retrieve the service provider */
    XNP_XML_UTILS.DECODE( p_msg_text,
   'SERVICE_PROVIDER' ,
    l_service_provider ) ;
   /*Custom procedure to check if the telephone number is in the service
providerís defined number range
   */
TN_RANGE.CHECK_SP_VALIDITY( l_telephone_num,
  l_service_provider,
  x_error_code,
  x_error_message ) ;
END ;
```

Incoming Message Process Logic

The PROCESS() procedure also provides a hook to include the application logic and is executed by the Event manager before delivering the message to the callback procedure of the registered application.

The following example code stores the PORTING_ID from an NPR_ACK for the recipient.

```
DECLARE
   l_REFERENCE_ID VARCHAR2(40) := NULL;
   l_porting_id VARCHAR2(40);
BEGIN
  x_ERROR_CODE := 0;
  /* Get the OPP_REFERENCE_ID as in the received message which is the
workitem instance id.
 */
XNP_XML_UTILS.DECODE
   (p_msg_text
   , 'OPP_REFERENCE_ID'
   , l_REFERENCE_ID
    ) ;
    -- Get the NPR PORTING_ID
XNP_XML_UTILS.DECODE
   (p_msg_text
   , 'PORTING_ID'
   , l_porting_id
    ) ;
XDP_ENGINE.SET_WORKITEM_PARAM_VALUE
  (to_number(l_REFERENCE_ID)
   ,'PORTING_ID'
   ,l_porting_id
,NULL);
  /* Set the reference to communicate with Number Registration Center,
is the
  PORTING_ID
  */
XDP_ENGINE.SET_WORKITEM_PARAM_VALUE
   (to_number(l_REFERENCE_ID)
  ,'OPP_REFERENCE_ID'
  ,l_porting_id
,NULL
   );
END;
```

Outgoing Message Process Logic

The out process logic is executed before enqueueing the message for delivery No
procedure is generated but the defined code is executed as part of the SEND()
procedure Logging an out going message can be a good use of this hook.

The following example code copies a message from the outbound to the inbound queue.

```
BEGIN
DECLARE
  my_header XNP_MESSAGE.MSG_HEADER_REC_TYPE ;
  my_xml VARCHAR2(4000);
 BEGIN
  my_header := l_msg_header ;
 my_xml := l_msg_text ;
 XNP_MESSAGE.GET_SEQUENCE(my_header.message_id) ;
  my_header.direction_indr := 'I' ;
 XNP_MESSAGE.PUSH(p_msg_header=>my_header,
 p_body_text => my_xml,
 p_queue_name=>XNP_EVENT.C_INBOUND_MSG_Q,
 p_correlation_id=>'MSG_SERVER') ;
  END;
END;
```

Messages, Events and Timers

You use the iMessage Studio to create the following message-based items:

- Messages

- Events

- Timers

The following are the message-based items with their descriptions:

Messages

A sequence of text characters that are used for communication between application systems. Messages fall into two categories:

- Messages for internal applications

    Internal applications can register a PL/SQL callback procedure via the Event Publisher, or through an API.

- Messages for external applications

    External applications do not register callback procedures, but have adapters running to relay the published event to the remote system.

    External applications can register for an event using the default subscribers screen.

Oracle Number Portability explicitly supports only the XML format.

Events

Messages that are sent to external systems and that are received from external systems. Events are published to both external and internal applications.

Timers

Messages that have a time delay and a duration interval associated with them.

Configuring iMessage Subscription

Within Oracle Number Portability, you can set applications to be default subscribers to messages. This is configured in the iMessage Subscribers utility. You can also associate default subscribers with events. For example, when a message occurs, the Event Manager ensures that an outbound message is automatically sent to the subscriber identified by a fulfillment element.

Automatic Responses

If desired, you can associate one or more responses with an event. A response is an acknowledgment to a message.

For example, valid message responses for the message "Is this an existing customer?" are:

- "Yes, this is an existing customer."

- "No, this is not an existing customer."

These responses are messages in themselves, and must be configured in the application before they can be linked as responses to a message.

Manually Driven Messaging

A variety of APIs available in Oracle Service Fulfillment Manager facilitate custom subscription, de-subscription, enqueueing and dequeueing. Consult the *Oracle Developing XML-based Message Based Applications Reference Guide* for a detailed definition of the available API calls.

The Event Manager

The Event Manager handles all messages entering the application system. Incoming messages are one of the following types:

- Request messages

- Responses to request messages

- Event notifications from remote systems

Remote applications send request messages and register for response messages with the Event Manager. The remote applications use an Oracle Number Portability API to register for messages.

When a message arrives, the Event Manager delivers the message to all registered applications after executing the validation and processing logic defined for the message. If no application has registered for a message, the application's default processing logic for that message is executed after message validation.

For more information on how the Event Manager processes messages, refer to the Oracle Service Fulfillment Manager documentation.

Timers in Oracle Number Portability

Timers in Oracle Service Fulfillment Manger, on which Oracle Number Portability depends, are used to handle events or processes that must occur at specified time intervals within the application.

In general, timers are used in either one of two ways:

- To perform a task once, after a delay

- To perform a task repeatedly, after a delay

For more information on timers in service fulfillment, refer to Oracle Service Fulfillment Manager documentation.

> **Note:** Oracle Service Fulfillment Manager timers use the Oracle Advanced Queue to perform queue operations. See the Oracle Advanced Queue documentation set for more information.

Jeopardy Management

After a timer expires, the message to which it is linked becomes visible in the Oracle Advanced Queue, and the message is published to its subscribers. This message can be used for a number of purposes, including the following:

- To notify the appropriate personnel to take any necessary action to resolve the jeopardy condition

- To initiate action within a workflow to manage the situation

You can configure these kinds of jeopardy management procedures.

Jeopardy notifications provide messages to Oracle Service Fulfillment Manager users if either of the following occurs:

- A transaction becomes overdue

- A transaction may miss its assigned completion date

For more information on jeopardy notifications and configuring a jeopardy timer, refer to Oracle Service Fulfillment Manager documentation.

Geographic Area Definitions

Geographic areas are used in Oracle Number Portability for the following purposes:

- To identify the areas covered by a Number Registration Center. The application uses this information to determine the Number Registration Center to which a message needs to be sent.

- To identify the areas covered by a number range. The geographic area of a number range can be sent to the Number Registration Center whenever a port order is submitted.

- To identify the areas that correspond to a routing number.

- To identify the areas covered by a Service Provider.

Elements of Geographic Area Definition

You can create new geographic areas or modify an existing area to meet your business needs. Each geographic area contains the following items:

Area type Geographic area types are user-defined. You must define the area type before beginning to define the geographic area. The application comes with some types already pre-defined.

Code The code for a geographic area can be defined by a publicly available directory.

Name The name of the geographic area describes the physical area involved. For example, the name of a city or a region.

> **Note:** In defining a geographic area, you can specify that other geographic areas are its children. Thus, if you want to create a hierarchy of geographic areas, then you do this by building the hierarchy from the top downwards starting with the largest geographic areas.

Subscription Versions

Subscription versions are used to maintain the status of porting requests across orders. Following are the two types of subscription versions:

Order Subscription Version: Typically created by the recipient service provider, donor service provider, and central system during the Service Order Administration phase of the porting process.

See Order Subscription Versions, page 2-26.

Network Subscription Versions: Typically created by the recipient service provider, donor service provider, and central system during the Service Management System phase of the porting process.

See Network Subscription Versions, page 2-27.

The key components of an Order Subscription Version differ from the key components of a Network Subscription Version.

Key Components

Component	Order Subscription	Network Subscription
Phase Indicator	Yes	No
Telephone Number	Yes	Yes

Component	Order Subscription	Network Subscription
Routing Number	Yes	Yes
Status	Yes	No
Porting ID	Yes	Yes
Customer	Yes	No
Change Cause Code	Yes	No
Recipient Service Provider	Yes	No
Recipient Service Provider Due Date	Yes	No
Donor Service Provider	Yes	No
Donor Service Provider Due Date	Yes	No
Mediator Service Provider (example, Central System)	Yes	Yes
Provisioning Map and Provisioning Status	No	Yes

Oracle Number Portability creates a subscription version for each telephone number. For example, if a range of telephone numbers is ported such as 1234567 through 1234569, the application creates three individual subscription versions, one for each ported number.

In general:

1. Participants typically do not have an Order Subscription Version for a given telephone number.

2. Donor and Recipient Service Providers typically have both an Order Subscription Version and a Network Subscription Version for a given telephone number.

3. Central Systems typically have only Order Subscription Versions.

Order Subscription Versions

An order subscription version is typically created by the recipient service provider, donor service provider, and central system during the Initiation phase of the porting process.

Recipient Service Provider

After a customer calls a new service provider to request service for his/her existing telephone number, the following events generally occur:

- The recipient service provider creates an order with a porting request for the customer's telephone number.

- This order is passed from the ordering system to the Service Delivery Platform.

- The Service Delivery Platform recognizes the porting request on a specific line item of the order and triggers Oracle SDP Number Portability.

- ONP executes the customized business process for a port-in request and creates a porting order called an Order Subscription Version.

- The recipient operator also sends an outgoing message to notify the central system about the porting request.

The Order Subscription Version is used by the recipient service provider to maintain status of the porting request throughout its life cycle.

Central System

When the central system receives an incoming message from the recipient operator for a new porting request, the following events generally occur:

- The central system creates a porting order called an Order Subscription Version.

- The central system also sends an outgoing message to notify the donor service provider about the porting request.

The Order Subscription Version is used by the central system to maintain status of the porting request throughout its life cycle.

Donor Service Provider

When the donor service provider receives an incoming message from the central system for a port-out request for its existing telephone number(s), the donor service provider creates a porting order called an Order Subscription Version. The Order Subscription Version is used by the donor service provider to maintain status of the porting request throughout its life cycle.

Porting ID

The Order Subscription Version for the recipient operator, donor operator and central system is identified by a single porting identifier, the Porting ID number.

- This Porting ID is typically assigned by the central system.

- After assigning a Porting ID, the central system notifies both the recipient operator and the donor operator of the porting ID through messaging.

- A porting ID can reference multiple Subscription Versions. The application does not require a unique porting ID for Subscription Versions.

Network Subscription Versions

A network subscription version is typically created by the recipient service provider, donor service provider and participant service providers during the Activation phase of the porting process.

Recipient Service Provider

After a porting request is received, the following events generally occur:

- Prior to the due date of a porting request, the recipient operator must usually make changes to its network to activate service for the new customer.

- At this time, the recipient operator creates a Network Subscription Version using the same Porting ID as the one used to create the Order Subscription Version.

The Network Subscription Version is now used to maintain details and status of each network element that has been updated and the number portability data used to update each network element.

Donor Service Provider

After a porting request is received, the following events generally occur:

- Prior to the due date of a porting request, the donor operator must also make changes to its network to de-activate service for the new customer, and transfer all incoming calls to the recipient service provider's network.

- At this time, the donor operator creates a Network Subscription Version using the same Porting ID as the one used to create the Order Subscription Version.

The Network Subscription Version is now used to maintain details and status of each network element that has been updated and the number portability data used to update each network element.

Participant Service Providers

After a porting request is received, the following events generally occur:

- On the due date or within a specified time period after the porting due date, the participant service providers epochally receives a broadcast from the central system.

  The purpose of the broadcast is to notify all participant service providers that are affected by the customers port to make the necessary changes to their network elements so that all incoming calls to the customer are now delivered to the new service provider instead of the old service provider.

  For example, this broadcast message can contain the Porting ID of the Order Subscription Version created by the central system during the Service Management System phase of the porting process.

- At this time, the participant service providers create a Network Subscription Version using the Porting ID received in the broadcast.

The Network Subscription Version is now used to maintain details and status of each network element that has been updated and the number portability data used to update each network element.

Porting ID

The Network Subscription Version for the recipient operator, donor operator and participant service providers is uniquely identified by a single porting identifier.

This Porting ID is typically the same Porting ID that was assigned by the central system to uniquely identify the corresponding Order Subscription Version.

3

Managing Number Porting Orders

This chapter covers the following topics:

- Submitting Number Port In Requests

- Viewing Order Information

- Monitoring Runtime Events

- Monitoring Runtime Messages

- Finding Timer Messages Associated with an Order

- Managing Customer Information

Submitting Number Port In Requests

A customer places an order with a carrier for a telecommunication service. Examples of services could be one, or a combination of phone lines, internet connections and wireless access.

Customer orders can be captured from an external Order Entry (OE) system. The primary capture process is through the Oracle Provisioning APIs. You can use the Process Order API, Submit Order API, or Synchronization Order API provided with the application.

Transportation channels for a request are independent from the XML format, and are handled in a generic service framework. You can submit orders for fulfillment, in XML format, through the following identified channels:

Local Invocation

- Command Line

- JAVA API

- PL/SQL, page 3-2

Remote Invocation

- XML over HTTP

- XML over FTP

User Interface

- Test Center, page 3-2

- Oracle Sales for Comms

- Oracle TeleService (Support)

Order processing and Data format for orders are independent from the transportation channels.

Submitting a Port In Request Using the Test Center Interface

Use the following procedure to submit a port in request using the Test Center interface.

Prerequisites

None

To submit a port in request using the Test Center interface:

1. Using the JTF URL, navigate to the Welcome to Oracle eBusiness Suite page.

2. Log-in using your Oracle Number Portability User ID and Password. The Oracle Service Fulfillment Manager Test Center page appears.

3. Select the Order subtab. New Order link is selected as default, and you will see the XML Query form where you can enter your port in request.

   Appendix A, page A-1 provides the XML required to submit a port in request. You can submit a test port in request by copying the example and pasting it into the XML query form, making changes to the Order Number, Version, and Parameter values of your choice.

4. Click Submit. The request is submitted as an order to Oracle Number Portability. You can now view details of this order using the Number Portability Center. See Viewing Order Information., page 3-3

Submitting a Port In Request Using a PL/SQL Interface

Use the following procedure to submit a port in request using the PL/SQL interface.

Prerequisites

None

To submit a port in request using PL/SQL interface:

1. Log-in to a PL/SQL interface using your Oracle Number Portability User ID and Password.

2. Appendix A2, page A-2 provides the PL/SQL script required to submit the order.

3. Enter required values, and then submit the order. The Order ID will appear on the screen. Note down the number. You can view details of this order from the Number Portability Center.

Viewing Order Information

You may view order details using the Number Portability Center window, or using the Contact Center window within the Oracle Number Portability system. The Number Portability Center window allows you to view the following:

- Information about an existing order, page 3-3

- Information about network elements associated with an order, page 3-4

> **Note:** The information displayed in the Number Portability Center is read-only.

Viewing Existing Order Information

Use the following procedure to view information about an existing order.

Prerequisites:

The order must exist in the system before you can view information about it.

To view information about an existing order:

1. Open the Number Portability Center window. See Accessing the Number Portability Center, page 2-1.

2. The Find Subscriptions window appears where you can enter the Telephone Number Range for which you want to view order details. You can also search for subscriptions using Porting ID, Donor Service Provider, Recipient Service Provider, or Customer Name.

3. In the Number Portability Center window, select the Orders tab.

   You will find an order under the node corresponding to its porting phase in the Subscriptions List. See Porting Phases in Oracle Number Portability, page 2-12.

   - A porting order just submitted will belong under the Inquiry node.

- A matched telephone status indicates that the donor and recipient service providers have agreed on porting the relevant telephone number. At this point, the order proceeds from the recipient service provider to the donor service provider, beginning a new order at the donor end. The porting order is now under the Ordering node.

- An order under the Active node implies that the number is ported.

- An order under the Old node implies that the porting request is cancelled. The customer may have disconnected, or switched to another service provider.

4. Select the relevant order in the Subscription List. The Summary tab shows the corresponding summarized order information.

   To view information about the service provider, click Details under the Recipient and/or Donor section of the Summary screen.

   To view information about mediators, such as the regional number registration center, click Details under the Mediator section of the Summary screen.

   To view additional information, select the Features, Transaction Log, Work Items, Failed Downloads, and Others tabs. For field descriptions, see The Number Portability Center, page 2-2.

5. Click Notifications to view the Notification Inbox. You can choose to view all notification messages in the workflow, or only notification messages with Open status. For more information on managing notifications, see the Oracle Service Fulfillment Manager documentation.

Viewing Network Element Information Associated with an Order

Use the following procedure to view network element information associated with an order.

Prerequisites:

The order must exist in the system before you can view information about it.

To view network element information associated with an order:

1. Open the Number Portability Center window. See Accessing the Number Portability Center, page 2-1.

2. The Find Subscriptions window appears where you can enter the Telephone Number Range for which you want to view order details. You can also search for subscriptions using Porting ID, Donor Service Provider, Recipient Service Provider, or Customer Name.

3. In the Number Portability Center window, select the Network tab.

4. Select the relevant order from the Subscription List. The Summary tab shows the corresponding summarized order information.

    To view information about a service provider associated with this order, click Details under the Routing Service Provider section of the Summary screen.

    To view information about mediators, such as the regional number registration center, click Details under the Mediator section of the Summary screen.

    To view additional information, select the Features, Work Items, and Provisioning Map tabs. For field descriptions, see The Number Portability Center, page 2-2.

5. Click Notifications to view the Notification Inbox. You can choose to view all notification messages in the workflow, or only notification messages with Open status. For more information on managing notifications, see the Oracle Service Fulfillment Manager documentation.

Monitoring Runtime Events

You use the Callback Event Diagnostics page to monitor the runtime activities of the callback registrations used by the Event Manager to route messages to the correct recipients (see The Event Manager, page 2-22).

Prerequisites

An order for which you want to monitor runtime events must exist in the system.

To monitor runtime activities:

1. From the NP System Administrator Navigator window, use the following navigation path to launch the Callback Event Diagnostics page:

    Functions (tab) > Diagnostics > Event.

2. In the Callback Event Diagnostics page, enter a value for any of the fields, then click Find. Any diagnostic messages that meet the search criteria appear under Event Details.

    To search on the order ID, enter a range of values in the Order ID fields and click Find.

    To search on order status, select one from the drop-down list, then click Find.

    To search on a message type sent to a given Service Provider, enter the Service Provider Code in the Receiver field, and click Find.

3. Close the browser window to exit Diagnostics.

Monitoring Runtime Messages

You use the iMessage Diagnostics page to search for runtime messages and events

based on known details.

Prerequisites

An order for which you want to monitor runtime messages must exist in the system.

To monitor runtime messages:

1. From the NP System Administrator Navigator window, use the following navigation path to launch the iMessage Diagnostics page:

   Functions (tab) > Diagnostics > Message.

2. In the iMessage Diagnostics page, enter a value for any of the displayed fields, then click Find. Any diagnostic messages that meet the search criteria appear under Message Details.

   To search for failed messages, enter FAILED in the status field and click Find.

   To search for messages sent to a given Service Provider, enter the Service Provider Code in the Receiver field, and click Find.

   To search on Code and Event Indicators, click List to open a list of the valid indicators, select one, then click Find.

3. Click the Message ID to view the details for a message returned by the search.

4. Click the XML link to view the XML version of the message (if your browser supports this option).

5. Close the browser window to exit Diagnostics.

   > **Note:** If the current message has a status of FAILED, then Message Details page shows a description of the error. A Fix Message! link also appears. Clicking this link re-enqueues a message on the internal events queue for processing. Although it is possible to correct the error through this link, it is recommended that you correct the error through the Notifications Inbox.

Finding Timer Messages Associated with an Order

You use the Timer Diagnostics page to search for timer messages based on known details. Timers are used by the system for enforcing time-based rules. This could be, for example, jeopardy or service level agreement restrictions.

Prerequisites

An order for which you want to monitor timer messages must exist in the system.

To find timer messages:

1. From the NP System Administrator Navigator window, use the following path to launch the Timer Diagnostics page:

   Functions (tab) > Diagnostics > Timer.

2. In the iMessage Diagnostics page, enter a value for any of the displayed fields, then click Find. Any diagnostic messages that meet the search criteria appear under Message Details.

   To search on the order Id, enter a range of values in the Order Id fields, and click Find.

   To search on a specific Timer type, click List to open a list of the valid types, select one, then click Find.

   To search on active timers, enter ACTIVE in the status field and click Find.

3. Close the browser window to exit this diagnostics page.

Managing Customer Information

Oracle Number Portability users can use the Contact Center window to create, view, and update customer information.

From the NP System Administrator Navigator window, you can access the Contact Center window using the following path:

Functions (tab) > Customer Management > Contact Center.

Customer accounts created using the Contact Center will enable you to retain information about that customer, which could be used as reference in case of future porting requests. You can also update customer information such as change of address. The Contact Center window also allows you to view the customer interaction history.

For detailed instructions on using the Contact Center window, refer to the *Oracle Customer Care Concepts and Procedures Guide*. The Contact Center Window Help will also provide the required instructions.

4

Setting Up Oracle Number Portability

This chapter covers the following topics:

- Work Items in Oracle Number Portability
- Workflow Activity Functions
- Working with Messages
- Defining a Message
- Adding Message Elements
- Setting Message Structure
- Defining Message Data Source
- Defining Message Processing Logic
- Compiling a Message
- Sending a Test Message
- Creating an Event
- Creating a Timer
- Associating Messages with Subscribers
- Defining Geographic Areas
- Defining Service Providers
- Defining Porting Status Types
- Interface Definition
- Fulfillment Elements
- Fulfillment Actions
- Defining Number Ranges and the Network Map
- Defining Lookup Codes
- Setting up System Profile Options

- Setting up Personal Profile Options

- Defining User Display Messages

- The Oracle AOL Generic Loader

- Transferring Lookups to Workflow

- Downloading Porting Lookups to File

- Downloading Common Lookups to File

- Managing Users

Work Items in Oracle Number Portability

Oracle Number Portability makes use of workflows to automate business processes. Work items perform the business and network functions necessary to fulfill a service order request. In the application, each work item typically maps to a single workflow, due to the complexity of the business process. This is why workflows are referred to as work items in Oracle Number Portability.

The workflows delivered with the application are created using the Oracle Workflow Builder. You need to use this application to customize the workflow to meet your business needs. Work items comprise function activities. You may need to modify some or all of these while customizing the work items for your business.

The Oracle Workflow includes a standard set of pre-defined notifications and function activities to use in building business processes. The application provides an additional set of pre-defined stub processes, notifications and function activities to support messaging and the porting process. The stub processes must be customized using Oracle Workflow Builder.

Predefined Work Items in Oracle Number Portability

Work items are organized into groups known as item types. The following table lists the standard item types delivered with Oracle Number Portability.

> **Note:** Do not modify any of the standard Oracle Number Portability item types, except NP Processes.

Item Types

Item Type	Internal Name	Description	Customizable
Standard	WFSTD	Contains standard function activities that are commonly used to create business processes.	No
SFM Standard	XDPWFSTD	XDPWFSTD Contains function activities that are commonly used across both the Oracle Service Fulfillment Manager and Oracle Number Portability applications. The following are examples of functions: • Send Message • Subscribe to Acknowledgments	No
SFM Lookup Code	XDPCODES	Contains lookup types used for easy selection in workflow activities. This could be, for example, a list of fulfillment actions, or a list of messages.	No
NP Standard	XNPWFSTD	Contains function activities that are specific to Oracle Number Portability. Use these activities in the implementation of your business processes. The following are examples of standard functions: • Creating a porting order • Determining if porting is possible	No
NP Lookup Code	XNPTYPES	Contains lookup types used for easy selection in workflow activities. This could be, for example, a list of fulfillment actions, or a list of messages.	No

Standard Work Item Parameters

Business processes in Oracle Number Portability are driven by messages or events. Messages can be exchanged between two different service providers or between different components of the same service provider.

To maintain the state or context of the business process, each work item or workflow must include the set of standard work item parameters in addition to any business specific parameters. The developer must explicitly assign standard work item parameters to the work item.

Work item parameters act as a parameter pool for all the defined work items in Oracle Number Portability. You define new work item parameters using the existing parameters in the pool. In addition, you can add parameters to the pool to define new work item parameters, or to extend existing work item parameters assigned to a work item.

Mandatory Work Item Parameters

The standard work item parameters listed in the following table are mandatory for any Oracle Number Portability work item. All standard parameters are required for any message header that is generated, except the Messaged parameter.

The Message_ID is used to identify the most recent incoming or outgoing message for a work item instance. This is essential when managing messages (for example, as in re-sending a message).

> **Note:** Oracle SDP Number Portability Work Item Parameters are shown in the application as the Display Name. Sometimes the display name differs from the parameter name. For example, SP_ Name displays in the application as Owning Service Provider.

Work Item Parameters

Parameter Name	Description
SP_NAME	Code of the service provider for which the work item is executing. Display Name: Owning Service Provider
OPP_REFERENCE_ID	Code of the service provider for which the work item is executing. Display Name: Owning Service Provider

Parameter Name	Description
SENDER_NAME	Code of the sending service provider. This is included in all messages sent from the local system to the peer system. Display Name: Sender Name
RECIPIENT_NAME	Code of the receiving service provider. This is included in all messages sent from the local system to the peer system. Display Name: Recipient Name
MESSAGE_ID	Code of the receiving service provider. This is included in all messages sent from the local system to the peer system. Display Name: Recipient Name
STARTING_NUMBER	Starting telephone number in a Service Delivery Platform order. Display Name: Starting Number
ENDING_NUMBER	Ending telephone number in an Service Deliver Platform order. Display Name: Ending Number

Default Work Items in Oracle Number Portability

> **Note:** These work items are optional. You chose whether or not to load the default work items during application installation.

The following table provides a summary of the seeded work items provided with Oracle Number Portability. These work items need to be customized to meet the needs of your application installation.

Seeded Work Items

Work Item	Internal Name	Description
Cancel Disconnect Porting Request from Order Entry	CANCEL_DISC_PORT_REQ_FROM_ OMS	Customer contacts current operator to cancel a disconnect subscription request.

Work Item	Internal Name	Description
Cancel Modify Porting Request from Order Entry	CANCEL_MODIFY_PORT_FROM_OMS	Customer contacts new operator to cancel a modification previously submitted on a porting request.
Cancel Porting Request from Order Entry	CANCEL_PORT_REQ_FROM_OMS	Customer contacts new operator to cancel a porting request.
Charge New Operator for Porting Request	REC_RECEIVE_CHARGING_NOTIF	Donor Operator charges recipient operator for the port-out transaction.
Create or Modify Ported Number	PROVISION_PORTED_NUMBER	Create or Update network elements with new porting data received from Number Registration Center.
Delete Ported Number	DELETE_PORTED_NUMBERS	Remove porting data from network elements provisioned earlier. This may be in response to a broadcast received from Number Registration Center to carry out this activity.
Disconnect Porting Request from Order Entry	DISC_PORT_REQ_FROM_OMS	Customer contacts current operator to disconnect subscription.
Hold Porting Request from Order Entry	HOLD_PORT_REQ_FROM_OMS	Customer contacts new operator to place a porting request on hold
Hold Porting Request from other Operator	HOLD_PORT_REQ_FROM_OPERATOR	Hold Porting Request received from other operator
Inquire Donor Operator for Porting Out	PORTING_INQUIRY_FROM_OPERATOR	Donor operator determines whether porting inquiry request should be approved or rejected.

Work Item	Internal Name	Description
Inquire Recipient Operator for Porting In	PORTING_INQUIRY_FROM_OMS	New Operator receives porting inquiry from customer care.
Load, Disaster Recovery and Backup of Local Database	LOAD_DISASTER_RECOVERY_BACKUP	Synchronize local database with Number Registration Center.
Modify Porting Request from Operator	MODIFY_PORT_REQ_FROM_OPERATOR	Modifies the Porting Request on receiving such a request from the other operator.
Modify Porting Request from Order Entry	MODIFY_PORT_REQ_FROM_OMS	Customer contacts new operator to modify a porting request.
Number Range Split Request from Order Entry	NUMBER_RANGE_SPLIT	Number Range Split declared by a regulatory board.
Porting Notification Concurrence	RECEIVE_CONCURRENCE	Donor Operator and Recipient Operator receives concurrence notification from Number Registration Center for a porting transaction.
Porting Order initiated by Recipient Operator	PORTING_ORDER_FROM_OMS	Recipient Operator receives porting order from Customer Care.
QueryPorting Data	QUERY_REFERENCE_DATA	Query Number Registration Center for porting data.
Reject Porting Request	PORTING_NOTIFICATION_REJECTION	Donor Operator and Recipient Operator receive rejection notification from Number Registration Center for a porting transaction.

Work Item	Internal Name	Description
Remind Operator for Porting Response	PORTING_NOTIFICATION_REM INDER	Number Registration Center reminds operator that a response is required to proceed with the porting process.
Respond to Porting Order Received by Donor operator	PORTING_ORDER_FROM_OPER ATOR	Donor Operator responds to a Porting Request.
Transfer Number Range Holder from Order Entry	TRANSFER_NUMBER_RANGE_ HOLDER	Transfer Number Range Holder declared by a regulatory board.

Workflow Activity Functions

When defining a workflow, it is important to understand the interaction between Oracle Workflow and Oracle Number Portability. See Workflows in Oracle Number Portability, page 2-14.

In simple terms, you build your workflow using any or all of the following types of function activities:

- Standard function activities provided by Oracle Workflow, page 4-8

- Standard function activities provided by Oracle Service Fulfillment Manager (Oracle SFM), page 4-9

- Standard function activities provided by Oracle Number Portability, page 4-9

- Your own user-defined function activities, page 4-12

Standard Function Activities Provided by Oracle Workflow

Standard function activities provided by workflow are actions that simply progress a workflow to the next activity, or change standard workflow information.

These functions are defined during workflow installation, in the Standards section. These procedure types are held in the WF_STANDARD package in any Oracle database. Do not adjust these procedures.

Standard Function Activities Provided by Oracle Service Fulfillment Manager

For standard function activities provided by Oracle Service Fulfillment Manager, refer to *Oracle Service Fulfillment Manager Implementation Guide*.

Standard Function Activities Provided by Oracle Number Portability

You receive the following number portability standard function activities with the application:

Standard Function Activities

Name	Description
Check Flag Value	Checks the flag value for the given PORTING_ID workitem parameter.
Check if Donor is eligible to Port Out	Checks whether or not the donor service provider in this porting transaction has provisioned the number range, or has assigned the number range. If either condition is true, then the activity completes with Y.
Check if Donor is Initial Donor	Checks whether or not this donor is also the initial donor.
Create or Modify SMS Porting Records	Creates or modifies a Porting Record for each telephone number in the range. The Porting ID for the first record is the same as that set in the work item parameter.
Create Porting Order	Creates a porting order based on the Service Provider role.

Name	Description
Deprovision FEs	Sets the fulfillment elements to be deprovisioned for this feature type and number range. For each fulfillment element, the Oracle Service Fulfillment Manager provisioning procedure (Execute FA) is invoked.
	At the end of this activity, control passes to the provisioning subsystem which executes the fulfillment procedure. An FA_ DONE message is subscribed for each fulfillment action being executed which gives the execution result of the fulfillment procedure. The callback procedure associated with the FA_DONE handles the responses received.
	The immediate next activity following this activity must be the Oracle Service Fulfillment Manager Standard Wait For Flow. This is to ensure proper hand-off from the provisioning system back to the Number Portability system.
	Only fulfillment elements that were earlier provisioned by this service provider can be modified. Otherwise, the fulfillment elements are ignored.
Determine Current Service Provider Role	Determines whether or not a given service provider is the donor, original donor, or recipient for the current porting transaction, and completes the activity with the appropriate result code.
Determine if Subsequent Porting Request	Checks whether or not this is a subsequent porting request.
	Returns either Y or N.
Does Porting Record exist for Donor	Check whether or not there exists a porting record with the given status in this telephone number range that belongs to the given donor's service provider ID.
	Returns either Y or N.
Does Porting Record exist for Recipient	Check whether or not a porting record with the given status exists in this telephone number range that belongs to the given recipient's service provider ID.
	Returns either Y or N.
Get Porting Status	Retrieves the status of the porting record for the given PortingID
Prepare Notification Message	Prepares a default notification message.

Name	Description
Provision or Modify Provisioned FEs	Sets or retrieves the fulfillment elements to be provisioned or modified for this feature type and number range. For each fulfillment element, the Service Delivery Platform's provisioning procedure (Execute FA) is invoked. At the end of this activity, control passes to the provisioning subsystem which executes the fulfillment procedure. An FA_ DONE message is subscribed for each fulfillment action being executed which gives the execution result of the fulfillment procedure. The callback procedure associated with the FA_DONE handles the responses received. The immediate next activity following the activity must be SDP Standard Wait For Flow. This is to ensure proper hand-off from the provisioning system back to the Number Portability system. Only fulfillment elements that were earlier provisioned by this service provider can be modified.
Set Date Value	Sets the Date value
Set Flag Value	Sets the flag to the given value for the entries in XNP_SV_SOA for the given PORTING_ID workitem parameter, and FLAG_ NAME for the current Service Provider. The Value is 'Y' or 'N'.
Set SMS Provisioning Done Date	Sets the date when the Service Management System completes provisioning
Update Charging Information	Updates the Subscription Version in the Service Order Administrator for each telephone number with the given Porting ID, with invoice information.
Update Comments and Notes Information	Updates the comments and notes for the current Porting ID and the current service provider.
Update Customer Information	Updates the customer information for the current Porting ID and the current service provider.
Update Network Information in SOA	Updates the network information in the XNP_SV_SOA for the current Porting ID and the current service provider.

Name	Description
Update Porting Status for Number Range	Updates the status type code in the XNP_SV_SOA with the new status type code. All records with the porting ID belonging to the current service provider are updated to the new status. If the new status belongs to the ACTIVE phase, and if records exist for this number range in ACTIVE phase, then these records are first reset to the OLD phase. The actual update of the records with the given porting ID is performed after this step.
Update Porting Status for Porting Id	Updates the status type code in the XNP_SV_SOA with the new status type code. All records with the porting id and belonging to the current service provider are updated to the new status. If the new status belongs to the ACTIVE phase, and if there exists records for this number range already in ACTIVE phase, then they first are reset to OLD phase. The actual update of the records with the given porting id is done next.
Validate Runtime Data	Validates runtime data
Verify Porting Status	Checks if the STATUS_TYPE_CODE from XNP_SV_SOA for the given PORTING_ID is same as the given status type code (in STATUS_TO_COMPARE_WITH). Returns T if the two statuses match. Returns F if the two statuses do not match.

User-Defined Function Activities

Some actions that take place in a process are user specific actions. These actions may or may not have standard workflow or Oracle Number Portability implications.

For example, it is possible that a number in a log table must be incremented every time a status change has occurred. As this activity is not an order specific action, this is merely an example of a procedure that retrieves the number from the table and adds one to it.

In contrast, a user-defined procedure contains some workflow or Oracle Number Portability API calls in it.

For example, returning to the previous log table example, it is possible that there is a requirement to log the From Status and the To Status when an order status change takes place. In order to perform this action, a user-defined procedure must first retrieve the order parameters or the work item parameters using an Oracle Number Portability API call, and then insert them into the log table.

Another example of a user-defined procedure that is referenced by a workflow function is the process of retrieving the Existing Service Provider Name parameter from the Oracle Number Portability order, and then using the retrieved value to determine the service provider identifier. The procedure code can then update the work item parameter SP_ID in the Oracle Number Portability order.

Working with Messages

You use the iMessage Studio to manage the task of creating new messages. In creating a message, you must perform the following tasks in the order listed:

- Define message details, page 4-13

- Add message elements, page 4-14

- Set the message structure, page 4-15

- Define message data source, page 4-16

- Define message processing logic, page 4-17

- Compile the message, page 4-18

- Test the message, page 4-19

You also use the iMessage Studio to create events and timers.

Related Topics

Creating an event, page 4-20

Creating a timer, page 4-21

Defining a Message

To define a new message, perform the following steps.

Prerequisites

None

To define a new message:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage studio

2. Click the New icon on the tool bar to create a new message.

3. Enter a name for the message.

4. Select the Details tab.

5. Select Message from the drop-down list of available types.

6. Enter a short name for the message in the Display Name field. This name is referenced by the message studio when generating procedures.

7. Enter a brief description of the message.

8. Select a priority for the message. This value sets the priority for the message in the outbound or inbound message queue.

9. Select a queue name from the drop-down list. If you are uncertain of which to choose, then keep the default value unchanged.

10. Choose a user Responsibility for this message from the drop-down list.

11. Enter the DTD Location path. This value sets the path structure to the file that holds all the schema (Document Type Definitions) for this message. The file is named <message>.dtd, where <message> corresponds to the name of the message you are currently defining.

12. Close the window. You will be prompted to save your changes.

Refer to Adding Message Elements, page 4-14 for instructions on entering information for each message element that makes up this message.

Adding Message Elements

When creating a message definition, the Message Code and MESSAGE are automatically shown as mandatory messages elements. The message code is defined as the root element.

To add a message element to a message, perform the following steps.

> **Warning:** You must never delete the root element, which is the message code for this message.

Prerequisites

You must create the message details first, before you can add message elements to it. See Defining a Message, page 4-13 for details.

To add message elements:

1. From the NP System Administrator Navigator window, use the following path to

navigate to the iMessage Studio:

Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the message to which you wish to add elements from the Message Codes list on the left.

3. Select the Elements tab.

4. Enter a name for the element that you are adding.

5. Enter the datatype for your message element. The message element datatype is the XML tag that appears in the message for this element. Supported datatypes are:

   • Text

   • Number

   • Date and time

6. Enter the maximum allowed length of the data.

7. Enter a default value for this message element. You only specify default values for message elements that are parameters. The Send and Publish generated procedures raise an error at run-time if an element does not have a value.

8. Check Mandatory if the message element must be included with the message.

9. Check Parameter if this element is to be used as an argument in generated procedures.

   If a message element is marked as a parameter, then the default value is used. The iMessage Studio generates a CREATE_MSG(), SEND_MSG(), and a PUBLISH_MSG() procedures with the element as a parameter defaulted to the value specified.

10. Enter a value for the sequence order that you wish the parameter to appear in all the generated procedures.

11. Close the window. You will be prompted to save your changes.

Setting Message Structure

The iMessage Studio provides a hierarchical diagramming that you use to define the message structure, and to set relationships between message elements. Only predefined elements can be part of this hierarchy.

You can format an XML message by defining its structure here. This allows for complex

messages, with master detail relationships.

To define the message structure, perform the following steps.

> **Note:** Elements can be defined more than once within the structure. Also, message elements can be used multiple times throughout the message.

Prerequisites

You must create the message details first, before you can set the message structure. See Defining a Message, page 4-13 for details.

To set the message structure:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the Structure tab. Use the Structure tab to set up the message element hierarchy you require for this message. The onscreen Usage Notes describe how to modify the hierarchy.

3. Close the window. You will be prompted to save your changes.

Defining Message Data Source

To set the source for the information in a message, perform the following steps.

> **Note:** Message elements that are not parameters require a data source.

Prerequisites

You must create the message details first, before you can define the message source. See Defining a Message, page 4-13 for details.

To define the message data source:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the Data Source tab.

3. Select a message element in the structure tree.

4. Choose a value for Cardinality from the drop-down list, if necessary. This value decides whether or not this element is used more than once within this message.

You can define the cardinality only if the data source type is set to SQL Query.

- One or More: This choice provides the ability to repeat elements within the same message. For example, choose this if you need to set multiple phone numbers for a subscriber.

- One and Only One: This choice prevents the message element from repeating itself within the message. If more than one value exists, the first value is used and the other values are ignored. For example, choose One and Only One if a request can have only one donor.

5. Select the source type from the drop-down list provided. Note that if you choose either PL/SQL Procedure or SQL Query, then you must enter the appropriate code into the Source field also.

6. Enter one of the following in the Reference field:

- If the element type is SQL Query, then enter the column number used to provide the value of this element.

- If the element type is SDP Parameter, SDP Order Parameter, or SDP FA Parameter, then enter the name of the parameter.

7. Enter one of the following in the Source field:

- If the source type is SQL Query, then enter an SQL query. Do not terminate the SQL query with a semicolon.

- If the source type is PL/SQL Procedure, then enter an SQL function.

8. Close the window. You will be prompted to save your changes.

Defining Message Processing Logic

Incoming messages and events are handled by the Event Manager. There are multiple ways in which a message can be processed. See Message Processing Logic in Oracle Number Portability.

To define the message processing logic, perform the following steps.

Prerequisites

You must create the message details first, before you can define the message processing logic. See Defining a Message, page 4-13 for details.

To define your own message processing logic:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the Processing Logic tab.

3. Choose a processing logic type from the drop-down list.

   • Default Processing Logic

     If no application has registered for the message, the Event Manager automatically executes the default processing logic DEFAULT_PROCESS() for that message.

   • Validate Logic

     The VALIDATE() procedure provides a hook to include business specific validation. It is automatically executed by the Event Manager on the newly arrived message.

   • Incoming Message Process Logic

     The PROCESS() procedure also provides a hook to include the application logic. It is executed by the Event Manager before delivering the message to the callback procedure of the registered application.

   • Outgoing Message Process Logic

     The outgoing process logic is executed before the message is put on the Outgoing Queue for delivery. The user-defined code is executed as part of the SEND() procedure.

4. Enter the appropriate PL/SQL script.

5. Close the window. You will be prompted to save your changes.

Compiling a Message

Perform the following steps to compile a message.

You can also select Setup > Message Definition > Compile iMessage to compile a single message, or Setup > Message Definition > Compile All iMessages to perform a batch compile.

> **Warning:** Always ensure that no dequeuers of adapters are running when compiling messages in production.

Prerequisites

The message must exist before you can compile it.

To compile a message:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the Details tab.

3. Select the message you wish to compile from the list at the left.

4. Click Compile. The Decision window appears confirming successful compiling. You can click OK, or choose to View the compiled message, displayed in the Generated Message Process Logic window.

5. Close the iMessage Studio window. You will be prompted to save your changes.

Sending a Test Message

You test how a message functions in Oracle Service Fulfillment Manager using the iMessage Studio Test Message interface. You use this utility to send a test message to a queue.

The message can also be tested using the standard SQL*PLUS interface. You may use the Order Flowthrough utility, or the Workflow Monitor to monitor the progress of the message. Errors during processing appear in the Notifications utility. Use this information to correct the error, then resubmit it to the queue for processing, if necessary.

To test a message, perform the following steps.

> **Note:** The Test Message interface can be accessed either from the iMessage Studio or from the Test Center menu.

Prerequisites

You must first compile the message before you can test it.

To send a test message:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage Studio

2. Select the Test Message tab.

3. Select the message code from the list at the left for the message you wish to test. The Parameter and Data Type fields fill in automatically.

4. Enter a value in the Reference Id field.

5. This reference value relates the message being sent or received with the current application transaction. For example, this value could be the Order ID.

6. Enter a value in the Opposite Reference Id field.

7. This reference value relates the message being sent or received with the remote application transaction. For example, this value could be the workflow instance.

8. Enter a (comma-separated) list of fulfillment element names in the Consumer List field to which the message or event will be sent (published).

9. Enter the Service Provider Code of the current service provider in the Sender Name field.

   For example, this value could be 9501.

10. Enter the Service Provider Code of the intended recipient service provider in the Recipient List field.

    For example, this value could be 9502. This field may be left empty for events that are being published.

11. Enter the version number of the message being sent. This value is increment only if the original message cannot be processed due to some error.

12. Click Send to send the test message.

13. Click OK to exit. A confirmation window opens containing the Message ID and similar information. It is suggested that you manually record this data as it is useful in tracking a message within the system.

Creating an Event

To create a new event message, perform the following steps.

Prerequisites

None

To create an event:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

   Functions (tab) > Setup > Message Definition > iMessage Studio

2. Click the New icon on the tool bar to create a new event message.

3. Select the Details tab.

4. Select Event from the drop-down list of available types.

5. Enter a short name for the event in the Display Name field. This name is referenced by the message studio when generating procedures.

6. Enter a brief description of the event.

7. Select a priority for the event. This value sets the priority for the event message in the outbound or inbound message queue.

8. Select a queue name from the drop-down list. Select either:

    • Inbound Message Queue

    • Outbound Message Queue

    If you are uncertain of which queue to choose, then keep the default value unchanged.

9. Select a user Responsibility for this message from the drop-down list.

10. Enter the DTD Location path. This value sets the path structure to the file that holds all the schema (Document Type Definitions) for this message. The file is named <message>.dtd, where <message> corresponds to the name of the message you are currently defining.

11. Close the window. You will be prompted to save your changes.

Creating a Timer

All timers must have a delay and an interval defined as elements. These two elements, Delay and Interval, can be any of the following:

These elements can be default values.

These values can be retrieved from a message store using a user-defined procedure.

> **Warning:** Delay and Interval cannot be parameters.

Prerequisites

None

To create a timer:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Studio:

    Functions (tab) > Setup > Message Definition > iMessage Studio

2. Click the New icon on the tool bar to create a new timer message.

3. Select the Details tab.

4. Select Timer from the drop-down list of available types.

5. Enter a short name for the event in the Display Name field. This name is referenced by the iMessage Studio when generating procedures.

6. Enter a brief description of the timer.

7. Select a priority for the timer. This value sets the priority for the timer message in the Timer Message Queue.

8. Select Timer Message Queue from the drop-down list.

9. Chose a user responsibility for this message from the Responsibility drop-down list.

10. Enter the DTD Location path. This value sets the path structure to the file that holds all the schema (Document Type Definitions) for this message. The file is named <message>.dtd, where <message> corresponds to the name of the message you are currently defining.

11. Close the window. You will be prompted to save your changes.

> **Note:** You cannot add new elements to a timer.

Associating Messages with Subscribers

You can associate one or more responses with each defined event, and register default message subscribers using the iMessage Subscribers window.

Related Topics

Associating responses with events, page 4-22

Registering default message subscribers, page 4-23

Associating Responses with Events

Responses associated with events are used by the application workflow in the performing activities.

To associate a response with an event, perform the following steps.

> **Note:** If a message has an associated timer, the timer must be configured as a response for the event.

Prerequisites

You must first define an event before you can associate a response with it.

To associate a response with an event:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Subscribers window:

   Functions (tab) > Setup > Message Definition > iMessage Subscribers

2. Select the Responses tab.

3. Select an event from the Events pane at the left-hand side of the window.

4. Choose an Event Code from the drop-down list. Note that it is possible to link multiple events to the selected event, if desired.

5. Close the window. You will be prompted to save your changes.

Registering Default Message Subscribers

To register message subscribers to receive automatic notification when an event occurs, perform the following steps.

Prerequisites

None

To register default message subscribers:

1. From the NP System Administrator Navigator window, use the following path to navigate to the iMessage Subscribers window:

   Functions (tab) > Setup > Message Definition > iMessage Subscribers

2. Select the Default Subscribers tab.

3. Select an event from the list at the left.

4. Choose a fulfillment element to associate with the event from the drop-down list.

5. Add additional fulfillment elements, if desired, in the spaces provided.

6. Repeat steps 3 through 5, as many times as necessary.

7. Close the window. You will be prompted to save your changes.

> **Note:** You can also register message subscribers by registering an API using the Callback Registration tab.

Defining Geographic Areas

Defining geographic areas comprise:

- Defining geographic area types

- Defining geographic areas

For more information on geographic areas, see Geographic Area Definitions, page 2-23.

Defining Geographic Area Types

Oracle Service Fulfillment Manager, on which Oracle Number Portability is dependent, provides certain seeded geographic area types. To add new area types, perform the following steps.

Prerequisites

None

To define geographic area types:

1. From the NP System Administrator Navigator window, use the following navigation path to open the Application Object Library Lookups window.

   Functions (tab) > Application Definition > Lookup Codes

2. Enter XNP_AREA_TYPE_CODE in the Type field.

3. Enter the name of the new Lookup Code and its Meaning. The Meaning will appear when you prepare to create the new geographic area.

4. Close the window. You will be prompted to save your changes.

Defining Geographic Areas

Oracle Service Fulfillment Manager provides a seeded WORLD node to which all other geographic areas belong. Do not delete this root node, and do not define any other root node.

To define a new geographic area, perform the following steps.

Prerequisites

You must have defined the area type to which the new geographic area will belong.

To define geographic areas:

1. From the NP System Administrator Navigator, use the following navigation path to open the Geographic Areas window:

   Functions (tab) > Setup > Service Definitions > Geographic Areas

2. Click the New icon on the tool bar to create a new geographic area.

3. Enter the name of the new geographic area in the field on the left.

4. Enter the Display Name and Brief Description of the geographic area, and select the Area Type from the drop-down list.

5. Select the Hierarchy tab if you want to assign child areas to this area, otherwise, proceed to step 7.

6. Use the Add/Delete Node icons on the screen to structure the tree hierarchy.

7. Close the window. You will be prompted to save your changes.

Defining Service Providers

To define a service provider, perform the following steps. For more information, see Service Providers, page 2-11.

Prerequisites

None

To define a service provider:

1. From the NP System Administrator Navigator window, use the following navigation path to open the Service Providers window:

   Functions (tab) > Setup > Service Definitions > Service Providers

2. Click the New icon on the tool bar to create a new service provider.

3. Enter the Name for the new service provider.

4. Use the Details tab to enter basic information about the service provider.

5. Use the Contacts tab to enter contact information for the service provider. It is possible to enter more than one contact for a service provider.

6. Use the Numbers tab to enter a number range for each service provider. It is possible for one service provider to own a particular number range, but they may have chosen to assign it to another service provider. For the purposes of number portability, ONP always uses the assigned service provider.

7. Use the Filters tab to enter number filters for the service provider. A filter is the list of telephone number ranges in which a service provider is interested. You enter this information to create filters so that a Number Registration Center can broadcast your subscription version information selectively.

8. Use the Coverage tab to enter geographic areas supported by a Number Registration Center service provider. If you are setting up a Number Registration Center as one of the service providers on your system, then you must provide information about those geographic areas supported by this Number Registration Center. You do not have to perform this step for other types of service providers. If you do not see the desired area name in the Available box, enter the name in the Filter field and click Find. If the area is not defined yet, click New Geographic Area to open the Geographic Area setup window and then add it. See Defining Geographic Areas, page 2-23.

9. Use the Routing# tab to enter routing numbers for the service provider. Each service provider designates certain number ranges for the purpose of routing ported calls. These routing numbers provide the necessary information for routing a ported call. The numbers are mapped to the service provider's network elements and to the Oracle Number Portability subscriber's dialing number. Routing numbers are provided by the Number Registration Center for service providers apart from you, or for those service providers on whose behalf you act. All other service provider's entries are added to and deleted from this table upon instruction from the Number Registration Center.

10. Click the Adapter Configuration tab to enter information about a service provider adapter. Click New Adapter Configurations to create a new fulfillment element, or to modify an existing fulfillment element.

11. Close the window. You will be prompted to save your changes.

Defining Porting Status Types

A service order may have one, or a number of different statuses throughout its life cycle. You can define statuses that reflect the terminology and business processes of your organization.

Prerequisites

Each porting status must be associated with one of the four phases:

- Inquiry

- Ordering

- Active

- Old

To define a porting status type:

1. From the NP System Administrator Navigator window, use the following navigation path to open the Porting Status Types window: Functions (tab) > Setup > Service Definitions > Porting Status Types

2. Click the New icon on the tool bar to create a new porting status type.

3. Enter a value at the left in the Porting Status Code field.

4. Enter a Display Name and Brief Description for the new status.

5. Select a phase for the new status from the Phase Indicator drop down list.

6. Enter the desired display sequence.

7. Check the Active box to enable the use of this status by Oracle Number Portability.

8. Close the window. You will be prompted to save your changes.

Interface Definition

A fulfillment procedure is composed of specific commands that are sent to a fulfillment element when a fulfillment action is invoked. Examples of such commands might be to open a Telnet session or to provide element-specific routing commands to the element. For instructions on managing fulfillment elements and modifying fulfillment element configuration, refer to the Oracle Service Fuldfillment Manager documentation.

A fulfillment procedure comprises the following elements:

- Fulfillment element type

- Adapter

- Software version to be used on this fulfillment element type

- Fulfillment action to be performed

Fulfillment Elements

A fulfillment element is either one of the following:

- A network element

- An external system

For example, Service Switching Points and Signal Transfer Points are types of network elements typically provisioned for number portability.

Fulfillment Elements as Network Elements

You configure each network element as a fulfillment element. This process includes specifying the following items for the fulfillment element:

- Network ID

- Type

- Attributes

- Software versions

- Supported communication protocols

- Adapter type

Fulfillment Elements as External Systems

Every service provider (external system) with which the application interacts must have a corresponding fulfillment element created for it. This fulfillment element represents the configuration setup for the gateway to that external system.

You must define the appropriate fulfillment element in order for the application to interact with an external system. You must configure adapters that can interact with that external system. Adapters route messages to and from the external system appropriately.

Fulfillment Element Types

Every fulfillment element belongs to a fulfillment element type group. The application supports the creation of new element types, if necessary.

Typically, you need fulfillment element types that correspond to the following categories:

- SCP (service control point)

- SSP (signal switching point)

- STP (signal transfer point) types

- SP (service provider) gateways

- NRC (number registration center) gateways

> **Note:** If the fulfillment element is a network element of type SCP, SSP, or STP, then you must define the number ranges served by this network element for a given feature type.

Fulfillment Actions

Fulfillment actions apply fulfillment procedures to fulfillment elements. Each fulfillment element is of a certain fulfillment type, and has a software version and an adapter assigned to it. From this information, the fulfillment action determines which fulfillment procedure to perform on this fulfillment element. One fulfillment action is written for every action that is performed on a fulfillment element.

A fulfillment action acts upon only a single fulfillment element (true at runtime only). A fulfillment action can act on multiple fulfillment element types, however, by specifying for each element type the adapter, the software version, and the procedure to be applied.

If fulfillment actions are defined for use in Oracle Number Portability, then they are assigned internal names such as Provision Number Portability, Deprovision Number Portability, or Modify Number Portability. Display names correspond to these internal names. A user may define fulfillment actions as well.

Predefined Fulfillment Element Types

The Oracle Number Portability application comes with a number of predefined fulfillment element types. The following table lists these predefined element types.

Element Types

Element Type	Description
BILLING_GATEWAY	Refers to billing system gateway
DIRECTORY_GATEWAY	Refers to directory assistance gateway
NRC_GATEWAY	Refers to the Number Registration Center gateway
SCP	Refers to the LNP database for all service control points
SP_GATEWAY	Refers to messaging gateways for remote systems of other service providers
SSP	Refers to signal switching point

Element Type	Description
STP	Refers to signal transfer point

Defining Number Ranges and the Network Map

You use the Network Map form window to perform the following tasks:

• Defining the served number ranges for a given network element

• Defining a network map

Defining Served Number Ranges

Perform the following steps to define the served number ranges for a given network element.

Prerequisites

You must define a fulfillment element before you can associate a range of telephone numbers to it.

To define served number ranges:

1. From the NP System Administrator Navigator window, use the following navigation path to open the Fulfillment Elements window: Functions (tab) > Setup > Interface Definition > Fulfillment Elements

2. Select a fulfillment element from the list on the left.

3. Click Network Map. The Network Map for <fulfillment element> window opens (where <fulfillment element> is the fulfillment element you selected earlier).

4. Select the Served Number Ranges tab.

5. Enter a start and an end number to define the range of telephone numbers with which this fulfillment element is associated.

6. Choose a feature type from the list of values that matches your business process.

7. Select the check box for Primary if the defined number range is to be stored in the primary source for routing information.

8. Select the check box for Active, if the defined number range is to be stored in the active database (as opposed to a backup system).

9. Close the Network Map window. You will be prompted to save your changes.

Defining a Network Map

Prerequisites

None

To define a network map:

1. From the NP System Administrator Navigator window, use the following navigation path to open the Fulfillment Elements window: Functions (tab) > Setup > Interface Definition > Fulfillment Elements

2. Select a fulfillment element from the list on the left.

3. Click Network Map. The Network Map for <fulfillment element> window opens (where <fulfillment element> is the fulfillment element you selected earlier).

4. Select the Associated Network Elements tab. The information in this tab is for future use and is currently read-only.

5. Close the Network Map window.

Defining Lookup Codes

Prerequisites

None

To define Oracle Number Portability specific Lookup Codes:

1. From the NP System Administrator Navigator window, use the following path to navigate to the Applications Object Library Lookups window:

   Functions (tab) > Setup > Application Definition > Lookup Codes

2. Run a query to display the details of the lookup type under which you want to define the lookup code. Several lookup types are pre-seeded in Oracle Number Portability.

3. Click anywhere in the spread table. Now click the New tool bar button to open a blank row.

4. Enter a name for the lookup code in the Code field. The code name is internal to the system.

5. Enter a user name for the lookup code in the meaning field. This value is displayed in the LOV.

6. Optionally enter a description in the Description field.

7. If you want the lookup code to be effective only for a specific period, set the period by using selecting the Effective Dates From and To fields.

8. Verify that the Enabled check box is selected. Only enabled lookup codes will appear in the List Of Values.

9. Save your work.

Setting up System Profile Options

Profile is a set of changeable options that affect the way your application looks and behaves. As System Administrator, you control how Oracle Number Portability operates by setting profile options to the values you want. You can set profile options at four different levels: site, application, responsibility, and user. For a detailed discussion of User Profile options, please refer to the Oracle E-Business Suite Setup Guide.

When a profile option may be set at more than one level, site has the lowest priority, superseded by application, then responsibility, with user having the highest priority. For example, a value entered at the site level may be overridden by values entered at any other level. A value entered at the user level has the highest priority, and overrides values entered at any other level.

Use the System Profile Values window to set up the system profile values.

From the NP System Administrator Navigator window, use the following path:

Functions (tab) > Setup > Application Definitions > Profile > System.

In the Find System Profile Values window, enter the necessary search criteria, and click Find. The System Profile Values window appears.

You can set the following profile options in Oracle Number Portability.

Profile Option

Profile Option Name	Description
XNP: Acknowledgement Required Flag for Send Message	Ensures guaranteed delivery of messages. Adapters will send ACK back to calling program. The default is N.
XNP: Default Initial Porting Status	Initial porting status that is assigned to a porting record.

Profile Option Name	Description
XNP: Enable Features	Determine if features such as CNAM, LIDB are available for Installation.
XNP: Enable NRC	Determines if this installation requires use of a central reference database.
XNP: Installation Mode	Installation mode for operation of Number Portability.
XNP: Maximum Send Message	Retries The maximum number of attempts that Send Message makes.
XNP: Send Message Pop Time Out	Send Message Pop Time-out
XNP: Show Protected Messages Flag	Determines whether iMessage Studio Form displays seed messages
XNP: Service Provider Code for Service Bureau Mode	Service Provider Code for Service Bureau mode
XNP: Remote Acknowledgement Time Out Duration	Defines the Time-out duration while waiting for an Acknowledgment messages from the Remote System. Duration is in seconds.

Setting up Personal Profile Options

Use the Personal Profile Values window to set up your local profile options. For a detailed discussion of User Profile options, please refer to the *Oracle E-Business Suite Setup Guide*.

To set up personal profile options:

1. From the NP System Administrator Navigator window, use the following path to open the Personal Profile Values window:

    Functions (tab) > Setup > Application Definition > Profiles > Personal

    This window displays all your user profile options and their values. If you wish to display only specific user profile options, first choose Enter from the View > Query by Example menu to enter search criteria in the Profile Name field, then choose Run from the View > Query by Example menu to run the search.

    The name of the user profile option appears in the Profile Name field while the

Default Value field displays the runtime value of that option. The System Administrator sets default values for many of the profile options. Some profile options may not display a default value.

2. Move your cursor to the User Value field of the option the value of which you wish to modify.

3. Enter a new value for the option if it is updatable, or if the List lamp appears, choose a value from the list of available values.

    You can change most of your user profile options; values you enter in the User Value field override values preset by the System Administrator. A few profile options cannot be changed, but are displayed for informational purposes only.

    For most personal profile options, the application automatically checks the value you enter to ensure it is valid.

    > **Note:** Number or date values are not validated, therefore, you must make sure that you enter a valid value for profile options that require a number or date; otherwise, your personal profile option may not work as you expect.

    Though you cannot delete a profile option from your personal profile, you can clear its value (if it can be updated) by highlighting the field and pressing [Backspace] or by choosing Clear > Field from the Edit menu. If you clear the value, the change does not take effect until you sign on again or change responsibilities.

4. Choose Save from the File menu to save your change. Your change will take effect when you either change responsibilities, or log out and log back in.

Defining User Display Messages

Before defining user display messages, register your application, and create a message directory (or some other location if your operating system does not support directories) directly under your application's base directory where Oracle Application Object Library (AOL) can store your message files. You need a message directory on both the Forms Server machine(s) and the concurrent processing server machine(s).

Use the Message window to define user display messages. From the NP System Administrator Navigator window, use the following path to navigate to the Messages window:

Functions (tab) > Setup > Application Definition > User Display Messages.

For detailed discussion, refer to the *Oracle E-Business Suite Security Guide*.

The Oracle AOL Generic Loader

The Oracle Application Object Library loader is a general purpose data migration tool that is used for patching seed data, delivering translations, or copying setup or transaction data from development to production systems.

The loader is a concurrent program named FNDLOAD. To use this utility, enter the following command at a UNIX prompt.

FNDLOAD apps/pwd 0 Y mode configfile datafile entity [param ...] The following table lists the parameters used with this executable, and describes them.

Parameters

Parameter	Description
apps/pwd	Specifies the APPS schema and password.
	If the connect_string is omitted, it is taken in a platform-specific manner from the environment using the name TWO_TASK
0 Y	Concurrent program flags
mode	Specifies either UPLOAD or DOWNLOAD operation.
	• UPLOAD causes the specified data file to be uploaded to the database.
	• DOWNLOAD causes the loader to fetch rows and write them to the specified data file.
configfile	Specifies the configuration file to use.
	• The configuration file usually ends with a suffix of .lct, but this rule is neither enforced nor supplied by the loader.

Parameter	Description
datafile	Specifies the data file to write.
	• (DOWNLOAD) If the data file already exists, then it is overwritten.
	• The configuration file usually ends with a suffix of .lct, but this rule is neither enforced nor supplied by the loader.
entity	Specifies the entity type to begin the download or upload.
	• If you wish to upload all of the entity types in a data file (.ldt), specify a dash (-) as the entity type.
param	Specifies zero or more additional parameters that are used to provide bind values in the access SQL (for both the UPLOAD and DOWNLOAD operations).
	Each parameter is of the form NAME=VALUE. The given NAME must not conflict with an attribute name for the entities being loaded.

Loader File Definitions

You can find the FNDLOAD configuration files for XNP at the following location:

$XNP_TOP/patch/115/import/*.lct

The following table lists the Loader files used with Oracle Number Portability, and provides the entities and download parameters supported by each. See the contents of the individual configuration file for complete documentation on usage.

Loader Files

Name	Description	Entity	Parameters
xnpcbevt.lct	Callback Events	XNP_CALLBACK_EVENTS	MSG_CODE
xnpevtsb.lct	Event Subscribers	XNP_EVENT_SUBSCRIBERS	MSG_CODE FE_NAME

Name	Description	Entity	Parameters
xnpgeoas.lct	Geographic Areas and Hierarchy	XNP_GEO_AREAS XNP_GEO_HIERARCHY	CODE CODE
xnpmsgak.lct	Message Acknowledgm ents	XNP_MSG_ACKS	MST_CODE
xnpmsgps.lct	Messages	XNP_MSG_TYPES	MSG_CODE
xnpsnumr.lct	Served Number Ranges	XNP_SERVED_NUM_RANGES	STARTING_ NUMBER FE_NAME FEATURE_TYPE
xnpsptre.lct	Service Providers	XNP_SERVICE_PROVIDERS	CODE
xnpstats.lct	Porting Status Types	XNP_SV_STATUS_TYPES	STATUS_TYPE_CO DE
xnptmrpb.lct	Timer Publishers	XNP_TIMER_PUBLISHERS	MSG_CODE

The following table lists dependencies between the various files.

Dependencies

Parameter	Dependency
xnpcbevt.lct	First run xnpmsgps.lct
xnpevtsb.lct	First load the fulfillment element data
xnpgeoas.lct	First load the Areas, then the Hierarchy
xnpmsgak.lct	First run xnpmsgps.lct
xnpsnumr.lct	First load the fulfillment element data, then run xnpsptre.lct
xnptmrpb.lct	First run xnpmsgps.lct

References

For additional information, see the files in the following application directories.

- Template configuration file

  /fnddev/fnd/11.5/admin/import/fndstd.lct

- Existing AOL configuration files

  /fnddev/fnd/11.5/admin/import/*.lct

Transferring Lookups to Workflow

To transfer common lookup codes from the configuration tables to workflow, perform the following steps.

Prerequisites

None

To transfer Lookups to Workflow:

1. From the NP System Administrator Navigator window, use the following path to navigate to the LOAD NP AND SFM LOOKUPS ONTO WORKFLOW window:

   Functions (tab) > Setup > Application Definition > Transfer Lookups to Workflow

2. The window opens with the correct default values already set.

3. Click Submit to accept the defaults and start the transfer process.

4. Close this window when the process is complete.

   > **Note:** To access the output files generated by the Lookup download, refer to the Oracle E-Business Suite Security Guide.

Downloading Porting Lookups to File

To download the porting lookup codes from workflow into an ASCII file, perform the following steps.

Prerequisites

You must first transfer the lookups to workflow. See Transferring Lookups to Workflow, page 4-38 for details.

To download Porting Lookups from Workflow:

1. From the NP System Administrator Navigator window, use the following path to navigate to the DOWNLOAD PORTING LOOKUPS FROM WORKFLOW window:

Functions (tab) > Setup > Application Definition > Download Porting Lookups to File.

The Download NP Lookups from Workflow window opens with the correct default values already set.

2. Click Submit to accept the defaults and start the download process. This action retrieves the NP lookup codes from the database and stores them in file XNPDNPLK.wft.

3. Close this window when the process is complete.

Downloading Common Lookups to File

For instructions on downloading common lookup codes from workflow into an ASCII file, refer to the Oracle Service Fulfillment Manager documentation.

Managing Users

This section details how to access Oracle Number Portability. It also discusses user management issues.

Login Interfaces

There are two types of login interfaces within Oracle applications - the Oracle Applications Forms login, common to all Oracle applications, and the HTML JTF login screen. The Forms-based applications utilize Oracle Developer 2000, while the HTML applications present the JTF interface to the customer.

In Oracle Applications Forms, the System Administrator controls a variety of parameters relating to fulfilling porting orders, and the Provisioning Managers monitor order statuses.

The JTF console is where you can submit a port in request to Oracle Number Portability. The menus that appear after login depend upon the roles and responsibilities assigned to the log in parameters assigned to the Customer Care or System Administrator.

Roles, Responsibilities, and Permissions

During the implementation process and throughout the life span of Oracle Number Portability, it will be necessary for an administrator to assign roles, responsibilities, and permissions to users.

A role is a collection of page and function level permissions that are granted to maintain application security. A permission is the smallest unit making up a role. The two types of permissions are: Functional and Data Access Control (DAC).

Permissions dictate the actions that a user can perform.

Responsibilities control the presentation of menus, tabs, and screens. For example, the responsibility NP_SYSADMIN gives administration users a different set of menus than the responsibility NP_CUST_CARE_ADMIN given to Provisioning Managers, or Customer Care Administrators.

The following are the seeded roles available in Oracle Number Portability. Note that all roles and responsibilities associated with Oracle Number Portability uses the prefix NP.

Roles

Responsibility Name	Responsibility Key
NP Customer Care Administrator	NP_CUST_CARE_ADMIN
NP System Administrator	NP_SYSADMIN

For information on registering users, approving users, associating roles, associating responsibilities to the user, and verifying user setup, refer to the *Oracle E-Business Suite Security Guide*.

5

Administering Oracle Number Portability

This chapter covers the following topics:

- Resubmitting an Order

- Managing System Queues

- Managing Network Connections

- Oracle Number Portability Start and Stop

- Recompiling Fulfillment Procedures

- Purging Transactional Data

- Validating System Configuration

Resubmitting an Order

You use the Resubmission Utility to re-run orders that have been previously submitted to Oracle Service Fulfillment Manager provisioning engine. This is useful, for example, if a network switch fails, or experiences service disruption that causes a provisioning order to fail. The order, however, has not been lost by the system, and can be resubmitted when the unit becomes available.

For example, a particular fulfillment element fails at 3:02 a.m. on a particular date. It remains unavailable for service until 5:20 a.m. the same day. This fulfillment element was to be used to provision a number of orders during that span of time, but as it was unavailable, the orders failed to complete. After the fulfillment element (or its replacement) becomes available, it is necessary to resubmit all orders that were to be provisioned by that particular fulfillment element during the window of time from 3:02 to 5:20 a.m. The order information is not lost, and can be re-used to resubmit the original provisioning orders.

You use the Resubmission Utility to perform the following tasks:

- Creating a new resubmission job

- Verifying the status of a resubmission job

For instructions, refer to the Oracle Service Fulfillment Manager documentation.

Managing System Queues

You perform a number of tasks with system queues. These include:

- Viewing summary information about queues

- Finding an order in the queue

- Viewing errors in a queue

- Starting up a queue

- Viewing Summary Information about Queues

- Shutting down a queue

- Suspending a queue

- Resuming queue operation

- Viewing XML messages

Use the Queue Console window (Navigator window > Functions (tab) > Administration > Queue Console) to perform these tasks. For instructions, refer to the Oracle Service Fulfillment Manager documentation.

Managing Network Connections

Use the Connection Manager (Navigator window > Functions (tab) > Administration > Connection Manager) to manage all types of fulfillment elements and their network adapters. You can also use the Connection Manager to control network connections.

The Connection Manager allows you to perform the following tasks:

- Monitor network connections

- Define a new adapter

- Redefine an adapter

- Schedule an adapter

- Delete an adapter

- View adapter request errors

- Issue a disconnect request

- Issue a connect request request

- Issue a suspend request

- Issue a resume operation

For instructions on performing these tasks, refer to the Oracle Service Fulfillment Manager documentation.

Oracle Number Portability Start and Stop

Application Start and Stop are mutually exclusive processes. If one is pending, the opposite operation does not proceed until the first finishes. In addition, the Oracle Provisioning Concurrent Manager processes must be up and running. Note that you set the number of running dequeuers through the Queue Console (Navigator window > Functions (tab) > Administration > Queue Console).

Start

Application Start (Navigator window > Functions (tab) > Administration > Application > Start) is a concurrent request that is performed by the Oracle Provisioning Concurrent Manager. You use the Application Start process to perform the following tasks:

- Start the entire application, including the Controller, dequeuers and all adapters

- Start only the Controller and the dequeuers

- Start the Controller, the dequeuers and a subset of the adapters

The system automatically starts all the dequeuers and the Controller during the start process. If any dequeuers are already started, the number actually running is first determined, and matched against the number that are required to be started. The system automatically starts as many dequeuers as needed.

For instructions on performing the tasks, refer to the Oracle Service Fulfillment Manager documentation.

Stop

Application Stop is a concurrent request that is performed by the Oracle Provisioning Concurrent Manager. You use the Application Stop process to perform the following tasks:

- Stop the entire application, including the Controller, dequeuers and all adapters

- Stop a subset of the adapters

For instructions on performing these tasks, refer to the Oracle Service Fulfillment Manager documentation.

Recompiling Fulfillment Procedures

Use the Recompile Fulfillment Procedure window (Navigator window > Functions (tab) > Administration > Recompile Fulfillment Procedures) to perform the following tasks:

- Creating a new procedure

- Deleting an existing procedure

- Viewing procedure parameters

- Editing an existing procedure

For instructions, refer to the Oracle Service Fulfillment Manager documentation.

Purging Transactional Data

Oracle Number Portability is an event-based application. It uses Oracle Advanced Queue and Oracle Workflow extensively in order to facilitate the asynchronous communication required by the business processes. A large number of events are recorded in the system, and the numbers grow with time. Once an event expires, or the associated host objects such as orders have been processed or canceled, the record may be purged from a transactional database.

The Purge window (Navigator window > Functions (tab) > Administration > Purge) in Oracle Number Portability allows you to selectively purge transactional data recorded in Oracle Service Fulfillment Manager. This utility helps you to better serve business needs without impeding transactional performance.

A set of predefined business areas are available for purging. In Oracle Number Portability, the following data parameters are defined in the purging utility:

- Orders

- Messages

- SOA (Service Order Administration)

- Miscellaneous Data

Note that the data parameter SOA, defined in the purging utility, is exclusive to Oracle Number Portability. See Service Order Administration, page 1-3 for more information.

For instructions on purging obsolete data, refer to the Oracle Service Fulfillment

Manager documentation.

Validating System Configuration

You use the Configuration Diagnostics tool to validate the existing system configuration. The validation process consists of two levels:

Error indicates the items that must be corrected for the system to work as expected.

Warnings indicates potential problems, but which in some case, are acceptable.

> **Tip:** It is recommended that you run this utility after any major change in the system configuration.

Prerequisites

None

To validate the existing system configuration:

1. From the NP System Administrator Navigator window, use the following navigation path to launch the Configuration Diagnostics page:

   Functions (tab) > Diagnostics > Configuration.

   This action dynamically executes a validation tool that returns information on the validity of the system configuration

2. Close the browser window to exit this diagnostics page.

A

Submitting an Order

This appendix covers the following topics:

- XML for Submitting an Order from the Test Center Interface
- PL/SQL Script for Submitting an Order

XML for Submitting an Order from the Test Center Interface

```
<FULFILL_SO_001>
 <CNTRLAREA>
  <BSR>
    <VERB>FULFILL</VERB>
    <NOUN>SO</NOUN>
    <REVISION>001</REVISION>
  </BSR>
 </CNTROLAREA>

<DATAAREA>
    <SOHEADER execmode = "ASYNC">
    <ORDERNUM>RV_22004004</ORDERNUM>
    <VERSION>1</VERSION>

<SCHEDULE>
    <PRIORITY>100</PRIORITY>
    <JEOPARDYENABLED>N</JEOPARDYENABLED>
</SCHEDULE>

<PARAM>
    <PARAMNAME>FULFILLMENT_STATUS</PARAMNAME>
    <PARAMVALUE>Open</PARAMVALUE>
</PARAM>
<PARAM>
    <PARAMNAME>FULFILLMENT_RESULT</PARAMNAME>
    <PARAMVALUE>Submitted</PARAMVALUE>
</PARAM>

<EXTENSION>
    <ATTRIBUTE index = "1">Test</ATTRIBUTE>
    <ATTRIBUTE index = "2">Test 2</ATTRIBUTE>
</EXTENSION>
</SOHEADER>
```

```
<SOLINEITEM fulfillrequired = "Y">
    <LINENUM>1</LINENUM>
    <ACTIONCODE>ADD</ACTIONCODE>
     <SERVICE>
  <ITEMNAME>SFM_NUM_PORT</ITEMNAME>
  </SERVICE>
  <ORGANIZATION>
  <ORGID>204</ORGID>
  </ORGANIZATION>
  <IBINSTANCEID source = "NONE"/>
  <SEQUENCE>2</SEQUENCE>
  <SCHEDULE>
  <PRIORITY>100</PRIORITY>
  <JEOPARDYENABLED>N</JEOPARDYENABLED>
  </SCHEDULE>

<PARAM>
   <PARAMNAME>SP_NAME</PARAMNAME>
    <PARAMVALUE>SUPERTEL1</PARAMVALUE>
  </PARAM>
<PARAM>
  <PARAMNAME>DONOR_SP_ID</PARAMNAME>
  <PARAMVALUE>SUPERTEL2</PARAMVALUE>
</PARAM>

<PARAM>
  <PARAMNAME>RECIPIENT_NAME</PARAMNAME>
  <PARAMVALUE>SUPERTEL1</PARAMVALUE>
</PARAM>
<PARAM>
  <PARAMNAME>RECIPIENT_SP_ID</PARAMNAME>
  <PARAMVALUE>SUPERTEL1</PARAMVALUE>
</PARAM>

<PARAM>
  <PARAMNAME>ROUTING_NUMBER</PARAMNAME>
  <PARAMVALUE>2100</PARAMVALUE>
</PARAM>
<PARAM>
   <PARAMNAME>STARTING_NUMBER</PARAMNAME>
   <PARAMVALUE>22004004</PARAMVALUE>
</PARAM>

<PARAM>
   <PARAMNAME>ENDING_NUMBER</PARAMNAME>
   <PARAMVALUE>22004004</PARAMVALUE>
 </PARAM>
</SOLINEITEM>
</DATAAREA>
</FULFILL_SO_001>
```

PL/SQL Script for Submitting an Order

```
--SET SERVEROUTPUT ON
UNDEFINE SUFFIX
UNDEFINE SUFFIX_TO
```

```
DECLARE
l_error_code NUMBER := NULL;
l_error_message VARCHAR(2000) := NULL;
l_ORDER_HEADER XDP_TYPES.ORDER_HEADER;
l_ORDER_PARAMETER_LIST XDP_TYPES.ORDER_PARAMETER_LIST;
l_ORDER_LINE_LIST XDP_TYPES.ORDER_LINE_LIST ;
l_PARAM_LIST XDP_TYPES.LINE_PARAM_LIST ;
l_ORDER_ID NUMBER := 0;
l_PORTING_ID NUMBER := 0;
l_porting_date date := SYSDATE;
l_can_porting_date varchar2(40) := NULL;

BEGIN

l_ERROR_CODE := 0;
SELECT XNP_SVA_ID_SEQ.NEXTVAL INTO l_PORTING_ID FROM DUAL;
-- Get the date to provision in the Canonical format
l_can_porting_date := XNP_UTILS.DATE_TO_CANONICAL(l_porting_date);

-- Set the Order Header values
l_ORDER_HEADER.order_number := 'SUP1_22&GROUP.6&SUFFIX';
l_ORDER_HEADER.order_version := '1';

-- Set the number of Line items and number
-- them sequentially. In this case there is just one
l_ORDER_LINE_LIST(1).LINE_NUMBER := 1;
-- l_ORDER_LINE_LIST(1).provisioning_required_flag := 'Y';
-- l_ORDER_LINE_LIST(1).PROVISIONING_DATE := SYSDATE;

-- Set the line item name as the Work Item name
-- l_ORDER_LINE_LIST(1).LINE_ITEM_NAME := 'SUP1_PORT_IN';
l_ORDER_LINE_LIST(1).LINE_ITEM_NAME := 'PORTING_ORDER_FROM_
OMS';
l_ORDER_LINE_LIST(1).IS_WORKITEM_FLAG := 'Y';

-- Set all the parameters needed for the
-- porting inquiry Work Item
l_PARAM_LIST(1).line_number := 1;
l_PARAM_LIST(1).parameter_name := 'STARTING_NUMBER';
l_PARAM_LIST(1).parameter_value := '22&GROUP.6&SUFFIX';

l_PARAM_LIST(2).line_number := 1;
l_PARAM_LIST(2).parameter_name := 'ENDING_NUMBER';
l_PARAM_LIST(2).parameter_value := '22&GROUP.6&SUFFIX_TO';

l_PARAM_LIST(3).line_number := 1;
l_PARAM_LIST(3).parameter_name := 'CUSTOMER_ID';
l_PARAM_LIST(3).parameter_value := 'CUST_&SUFFIX';

l_PARAM_LIST(4).line_number := 1;
l_PARAM_LIST(4).parameter_name := 'NEW_SP_DUE_DATE';
l_PARAM_LIST(4).parameter_value :=
XNP_UTILS.DATE_TO_CANONICAL(TRUNC(SYSDATE) + 0);

l_PARAM_LIST(5).line_number := 1;
l_PARAM_LIST(5).parameter_name := 'DONOR_SP_ID';
l_PARAM_LIST(5).parameter_value := 'SUPERTEL2'; /* SuperTel 2 */

l_PARAM_LIST(6).line_number := 1;
l_PARAM_LIST(6).parameter_name := 'RECIPIENT_SP_ID';
l_PARAM_LIST(6).parameter_value := 'SUPERTEL1'; /* SuperTel 1 */
```

```
      -- Assign routing numbers belonging to the
      -- recipient SP id only
      l_PARAM_LIST(7).line_number := 1;
      l_PARAM_LIST(7).parameter_name := 'ROUTING_NUMBER';
      l_PARAM_LIST(7).parameter_value := to_char(2100);

      l_PARAM_LIST(8).line_number := 1;
      l_PARAM_LIST(8).parameter_name := 'SP_NAME';
      l_PARAM_LIST(8).parameter_value := 'SUPERTEL1';

      l_PARAM_LIST(9).line_number := 1;
      l_PARAM_LIST(9).parameter_name := 'PORTING_ID';
      l_PARAM_LIST(9).parameter_value := to_char(l_porting_id);

      l_PARAM_LIST(10).line_number := 1;
      l_PARAM_LIST(10).parameter_name := 'RV_FILENAME';
      l_PARAM_LIST(10).parameter_value := 'RVfile1'; /* SuperTel 1 */

      l_PARAM_LIST(11).line_number := 1;
      l_PARAM_LIST(11).parameter_name := 'PTO_FLAG';
      l_PARAM_LIST(11).parameter_value := 'N'; /* SuperTel 1 */

      -- Invoke the API to submit this order
      XDP_INTERFACES.PROCESS_ORDER
        (l_ORDER_HEADER
        ,l_ORDER_PARAMETER_LIST
        ,l_ORDER_LINE_LIST
        ,l_PARAM_LIST
        ,l_ORDER_ID
        ,l_ERROR_CODE
        ,l_ERROR_MESSAGE
        );

      IF l_ERROR_CODE != 0
       THEN
        DBMS_OUTPUT.put_line(
      'Error Code: '||substr(to_char(l_error_code),1,400));
        DBMS_OUTPUT.put_line('Error Message:
      '||substr(l_error_message,1,400));
       RETURN;
      ELSE
      DBMS_OUTPUT.put_line(
       'PROCESS_ORDER: SUCCESS: ORDER ID =
       '||to_char(l_ORDER_ID));
       END IF;
       COMMIT;
      END;
      /
```