Oracle Utilities
Service and Measurement Data Foundation

User's Guide

Release 2.1.0 Service Pack 3

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Contents

Chapter 1

Overview

This User Guide describes how to work with the Oracle Utilities Service and Measurement Data Foundation. This includes:

Getting Started

User Documentation

System Administration

Reference Topics

FAQs

This guide contains the same content as the Oracle Utilities Service and Measurement Data Foundation section of the online help.

Chapter 2

What's New

This section outlines the new features in Oracle Utilities Service and Measurement Data Foundation that are documented in this guide.

New Features in Version 2.1.0.3

Feature	For More Information
Service Order Management Added information about Service Order Management functionality.	*Service Order Management*
Oracle Data Integrator-based ETL for Oracle Utilities Analytics Added a section about working with the BI Configuration portal, used when integrating Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway to Oracle Utilities Analytics.	*Understanding Business Intelligence Integrations*
Demand Reset Command Added a new “Demand Reset” command to list of available smart meter commands.	*About Commands*
Data Synchronization Moved the Data Synchronization section into a new Integrations section.	*Data Synchronization*

New Features in Version 2.1.0.2

Feature	For More Information
Smart Grid Gateway Adapter Configuration Portal Added a topic about working with the SGG Adapter Configuration Portal tab in the Service Provider portal.	*Viewing SGG Adapter Configuration Information*
Network Locations of a Service Point Added sections and topics about Facilities and Network Locations.	*About Facilities* *About Network Locations* *Working with Facilities*

Feature	For More Information
Updated description of service point to include reference to “Distribution Network Facility”	*Working with Network Locations*
Dependent Measuring Component Consumption Synchronization Expanded the “About Activities” and “About Activity Types” topics to include lists of activity type categories.	*About Activities* *About Activity Types* *About Device Configuration Types*
Support for Items Expanded “About Devices” and “About Device Types” topics to include descriptions of items and item types. Added new topic about “Creating Device Type Service Quantities” Expanded “About Device Configuration Types” topic to include description of item configuration types Expanded “About Install Events” topic to include descriptions of item install events Updated description of service point types to include “Service Point Category.”	*About Devices* *About Device Types* *Creating Device Type Service Quantities* *About Device Configuration Types* *About Install Events* *About Service Point Types*

New Features in Version 2.1.0.1

Feature	For More Information
Support for Scalar Periodic Estimation Periodic estimation is supported for scalar meters with the Register Auto-Read measuring component. The Auto-Read Register Type measuring component type includes parameters to define how estimation is performed. The “Estimation Eligibility” field on the service point can be used to override period estimation for a specific service point.	*Base Package Device Management Administration Objects* *Base Package Device Installation Objects* Additional information about scalar periodic estimation can be found in the Oracle Utilities Meter Data Management Configuration Guide.

New Features in Version 2.1.0.0

Feature	For More Information
Support for Service Investigative Orders Service investigative orders are activities created by a service issue monitor when a specified set of events have occurred at a service point. The type of activity created by the service issue monitor is defined on the service issue monitor's type.	*About Service Issue Monitors and Service Investigative Orders* *Working with Service Issue Monitors*
Support for Reader Remarks Reader remarks capture and/or record specific events or circumstances encountered when a meter reader is manually reading scalar meters.	*About Reader Remarks* *Working with Reader Remarks*
New Route Management Portal Route management involves managing the order of the service points within measurement cycles and routes. When creating service points, each service point can reference a measurement cycle, route, and its sequence within the route . Over time, as service points are added and removed to and from measurement cycles and routes, it may become necessary to change	*About Route Management* *Working with the Route Management Portal*

Feature	For More Information
the sequence of service points within the measurement cycles and routes used in your implementation. The Route Management portal can be used to change the sequence of service points within a measurement cycle and route and to transfer service points from one measurement cycle and route to another.	

Chapter 3

Getting Started

This section provides an overview of Oracle Utilities Service and Measurement Data Foundation.

About Oracle Utilities Service and Measurement Data Foundation

Oracle Utilities Service and Measurement Data Foundation provides shared functionality used by Oracle Utilities Meter Data Management, Oracle Utilities Smart Grid Gateway, and other Oracle Utilities products.

Oracle Utilities Service and Measurement Data Foundation has five primary functional areas:

- **Device Management:** Used by analysts and administrators in managing and defining the devices used to record and capture meter data. Device management involves working with devices, measuring components, and device configurations. See *Understanding Device Management* for more information about these concepts.
- **Device Installation:** Used by analysts and administrators in managing the installation of devices, including defining markets and service providers, service points and contacts, and installation events. Device installation also includes defining the schedules for manual meter reading. See *Understanding Device Installation* for more information about these concepts.
- **Device Communication**: Used by analysts and administrators in managing communications between devices and head-end systems. Device communication involves working with commands (activities), communications, completion events, and device events. See *Understanding Device Communication* for more information about these concepts.

  NOTE: The communication, completion event, device event, and command functionality of the Service and Measurement Data Foundation is available only with Oracle Utilities Smart Grid Gateway.

- **Service Order Management**: Used by analysts and administrators to manage service order requests, including receipt of requests from a customer information system, sending requests for field activities to a field work system, and issuing of smart meter commands. See *Understanding Service Order Management* for more information about these concepts.

NOTE: The service order management functionality of the Service and Measurement Data Foundation is available only with Oracle Utilities Smart Grid Gateway.

- **Validation, Editing, and Estimation (VEE):** Used by analysts and administrators to define validation, editing, and estimation (VEE) rules to be applied to measurement data.

  NOTE: The VEE functionality of the Service and Measurement Data Foundation is available only with Oracle Utilities Meter Data Management. Refer to the Oracle Utilities Meter Data Management documentation for information about working with VEE groups and rules.

Starting the Application

Use this procedure to start Oracle Utilities Service and Measurement Data Foundation.

1. Click the desktop icon or program menu option to start the Oracle Utilities Service and Measurement Data Foundation server application.
2. Log in using your user ID and password.
3. If prompted, select a language.
4. Use the toolbar or menu bar (on the left edge of the screen) to select the function you want to perform.

Understanding the User Interface

This section provides basic information about the Oracle Utilities Service and Measurement Data Foundation user interface.

For information about the application's main toolbar, menu system, user setup and security, and user interface standards, see the System Wide Standards topic in the Framework Business Processes help.

Menus and Navigation

This topic describes the Oracle Utilities Service and Measurement Data Foundation menus and general rules for navigating the system.

The Oracle Utilities Service and Measurement Data Foundation menu displays on the left side of the application screen. The menu is configurable, so the options that appear may vary based on your user profile and your system's configuration.

Main Menu and Admin Menu

By default, the system provides two menus: the Main menu and the Admin menu.

The Main Menu is displayed by default. Click the Menu icon in the main toolbar to display a list of available menus, then select the menu you want to use. The selected menu appears on the left-side of the screen.

The Admin menu provides access to functions used for setup and administration. Only users who have administrative privileges will be able to see this menu. The main menu provides access to all other functions. The options displayed on each menu are based on the settings defined in your user profile. Your user profile also controls your access to different portals and dashboard zones.

Functional and Alphabetical Menus

The system supports two different menu styles: alphabetical and functional. The style used is specified on the Main tab of the Installation Options - Framework portal.
The functional menu groups menu options by function, such as Device, Device Installation, and VEE Rules. Thus, to add a new device type, you would first click the Device submenu, and then select the Device Type option.

Functional menu groups include the following:

- Common (Admin Menu)
- Communication (Admin and Main Menus)
- Customer Information (Admin and Main Menu)
- Device (Admin and Main Menus)
- Device Installation (Admin and Main Menus)
- VEE Rules (Admin Menu)

The alphabetical menu groups menu options by the first letter of the option name. Thus, to add a new device type, you would first click the D submenu, and then select the Device Type option.

The procedures in this documentation assume that you are using the functional menus. If you are using alphabetical menus instead, simply replace the functional submenu with the alphabetical submenu. For example, if the procedure instructs you to select:

Main Menu > **Device** > **Device Type**

then you would instead select:

Main Menu > **D** > **Device Type**

The menu system provides access to both Oracle Utilities Application Framework functions and Oracle Utilities Service and Measurement Data Foundation functions. If you have additional Oracle applications installed, the menu system will provide access to functions for that application as well. Framework functions are described in the Framework online help; Framework help topics are listed under the appropriate Framework heading in the help contents panel. Likewise, Oracle Utilities Service and Measurement Data Foundation topics are listed in the help contents panel under the appropriate Oracle Utilities Service and Measurement Data Foundation heading.

Navigating to Portals in Add or Edit Mode

Most menu options display a + sign next to the option name. If you click the plus sign, rather than the option name, you will go directly to a screen that lets you add a new record. For example, if you click the plus sign next to the **Device** option, the system navigates to the Device add/edit screen so you can begin creating a new device. This is referred to as 'navigating to the Device portal in add mode.' In this online help, using this option is notated as **Device+**.

If you click the option name, rather than the + sign, the system navigates to a search portal, where you can select the entity you want to view or edit. (For admin-level data maintenance, the system navigates to a screen that lists the entities and lets you select one from the list.) This is referred to as 'navigating to the Device portal in edit mode.' Once you have found the entity you want to work with, the system displays a maintenance portal listing all the actions you can take on that entity. The valid options will vary depending on the entity, your user privileges, and your system's configuration. Standard actions include Edit, Duplicate, and Delete. Valid actions also typically include changes to the entity's status.

Oracle Utilities Service and Measurement Data Foundation Menu Options

This topic describes the menu options available through the Oracle Utilities Service and Measurement Data Foundation.

The following table lists the base package menu functions.

NOTE: Note that an implementation can add or remove any of these functions from the menu system, change the menu option name or the submenus under which they appear, or restrict access to the options for some or all users.

Menu (Admin or Main)	Functional Menu	Menu Option
Admin	BI Configuration	BI Configuration
Admin	Common	Factor
Admin	Common	Service Quantity Identifier
Admin	Common	Service Type
Admin	Common	Time of Use
Admin	Common	Unit of Measure
Admin	Communications	Activity Type
Admin	Communications	Communication Type
Admin	Communications	Device Event Type
Admin	Communications	Market
Admin	Communications	Service Provider
Admin	Communications	Service Task Type
Admin	Consumption Extract Type	Consumption Extract Type
Admin	Customer Information	Contact Type
Admin	Device	Device Configuration Type
Admin	Device	Device Type
Admin	Device	Manufacturer
Admin	Device	Measuring Component Type
Admin	Device Installation	Service Point Type
Admin	Device Installation	Measurement Cycle
Admin	Device Installation	Measurement Cycle Schedule
Admin	VEE Rules	VEE Group
Admin	VEE Rules	VEE Rule
Admin	VEE Rules	Exception Type
Main	Customer Information	Contact
Main	Device Installation	Install Event
Main	Device Installation	Service Point
Main	Device Installation	Route Management
Main	Device Installation	Facility
Main	Device Installation	Network Location
Main	Device	Device
Main	Device	Device Configuration
Main	Device	Measuring Component
Main	Communication	Activity
Main	Communication	Completion Event
Main	Communication	Communication

Menu (Admin or Main)	Functional Menu	Menu Option
Main	Communication	Appointment
Main	Communication	Device Event
Main	Communication	Notification Suppression
Main	Communication	Load IMDs / Events (XML)
Main	Initial Measurement Data	
Main	Data Synchronization	Sync Request Inbound
Main	Data Synchronization	Sync Request Inbound Exceptions
Main	Data Synchronization	Sync Request Outbound
Main	Data Synchronization	Consumption Extract Request
Main	Service Task	
Main	Totals and Trends	Processing Statistics
Main	Totals and Trends	Service Order Trends Dashboard
Main	Service Order Operational Dashboard	

Chapter 4

Device Management

This section describes concepts and procedures related to managing meter-related objects such as meters, registers, and channels. This includes managing devices, device configurations, and measuring components.

Understanding Devices and Measuring Components

This section describes concepts related to device management.

About Devices

Devices are physical or virtual objects that can produce data to be handled by the system.

Examples of devices include meters, substations, transformers, demand response devices, weather stations, etc.

Attributes used to define devices include the following:

- The device type of the device
- One or more device identifiers such as serial number, badge number, meter number, etc.
- Manufacturer and model
- The status of the device (active, inactive, retired, etc.)

A device can have one or more device configurations over time. A device's measuring components (if applicable) are associated with the device via device configurations.

You use the Device portal to maintain devices. This portal includes the following zones:

- **Device**: defines the basic attributes of the device
- **Device Configuration Overview**: lists the device configurations for the device
- **Device Activities**: lists activities related to the device in date descending order

- **Device Exceptions**: lists the first 50 VEE exceptions for all measuring components for the device, sorted by the exception creation date in descending order

About Items

While the most common type of devices are meters, there are many other devices that can be involved with a customer's service. These other devices are referred to simply as "items", and are used for many different devices including lamps, poles, current transformers, backflow devices, pulse initiators, etc.

Items can be either "badged" or "unbadged". "Badged" items are those that have unique identifiers, and are represented by device records. Device records are not created for "unbadged" items. "Badged" items are installed at service points in much the same way as meters are installed (though they use an item-specific install event). For "unbagged" items, "multi-item" service points are used to define the number of each TYPE of item that is installed at the service point.

About Device Types

Device types define information about a class of devices, including properties that apply to all devices of a type.

Properties defined for a device type can be overridden for an individual device.

About Item Types

Item types represent types of devices that consume unmetered quantities of a service commodity (electricty, gas, water, etc.). Examples of items include streetlights, fire hydrants, etc. Items can be either "badged" or "unbadged". "Badged" items are those that have unique identifiers.

Item types can have one or more **Device Type Service Quantities** defined, which represent effective-dated average service quantities for the item (device) type.

About Manufacturers

Manufacturers are the companies that makes devices.

A device's manufacturer is defined as an attribute of the device itself.

Each manufacturer can have zero or more models defined. Models for a single manufacturer can have diverse service types.

About Device Configurations

Device configurations represent specific configurations of a device as of a certain time.

Over time, a device can have many configurations. Device configurations are effective-dated, allowing a device to retain its identifiers (such as serial number, badge number, etc.) even while the quantities it measures change over time.

Attributes used to define device configurations include the following:

- The device configuration type
- The parent device
- The effective date and time of the device configuration
- The time zone in which the device operates
- The status of the device configuration (active, inactive, etc.)

Each device configuration can have one or more measuring components associated with it.

About Device Configuration Types

Device configuration types define the properties of device configurations of this type, including the valid types of measuring components that can be configured for device using configurations of this type.

For devices that have two measuring components measuring the same UOM/TOU/SQI combination the 'Related MC Consumption Sync' process can be used. This process attempts to keep the consumption of both measuring components in sync by generating estimation initial measurements whenever more accurate data is received for one measuring component. The process is triggered from the completion of initial load and manual initial measurements and is executed by ‘Related MC Consumption Sync' activities which will generate estimation initial measurements for the measuring component that needs to be synchronized.

The following attributes are used in this process:

- Keep Consumption Reference MC in Sync
- Minimum Condition to Sync Primary MC
- Sum Check VEE Exception Type

See *Base Package Device Configuration Types* for detailed descriptions of these attributes.

About Item Configuration Types

Item configuration types define the properties of item configurations of a particular type. Note that device configurations are used only with "badged" items.

About Measuring Components

Measuring components are single points for which data will be received and stored in the system.

A measuring component can be associated to a physical device, which can have one or more measuring components, or it can be "virtual" or "stand-alone," meaning that it is not associated to a physical device. Examples of stand-alone measuring components include:

- **Aggregator**: A class of measuring component that stores measurements that represent a summarization of other measurements from a potentially diverse set of devices. For example, an aggregator may derive the sum of the natural gas consumption of all residential customers in a particular postal code within the utility's service territory.
- **Interval Scratchpad**: A class of measuring component that provides users with a means to manipulate "scratchpad" measurement data without affecting existing "live" measurement data.

Attributes used to define measuring components can include the following:

- The measuring component type
- The device configuration to which the measuring component is associated
- Details concerning how the measuring component is read, such as the number of digits, the type of read out (dials or digital), the meter multiplier, etc.
- The VEE groups used for validation and estimation of measurement data. The base package supports the following type of VEE groups:
  - **VEE Group for Initial Load**: the VEE group used for validation upon initial load of the measurement data
  - **VEE Group for Estimation**: the VEE group used for estimation of data for the measuring component
  - **VEE Group for Manual Override**: the VEE group used for when the measurement data is in the Manual Override state (this state allows users to edit data prior to VEE processing)

About Measuring Component Types

Measuring component types define the most important properties of a measuring component.

Measuring component types define what a measuring component measures (KWH, temperature, etc.), how regularly it measures it, and whether it should be connected to a physical device, or if it's used as a scratchpad measuring component or an aggregator measuring component. Measuring component types also specify how the measuring component's final measurements should be stored, how the measuring component's user-defined values should be calculated, and specific rules governing validation, editing, and estimation (VEE) for measuring components of the type. In addition, measuring component types define display properties and valid attribute values for measuring components belonging to the type.

Some important characteristics defined for measuring component types include:

- **Value Identifiers**: These store the values of UOM, TOU, and SQI that identify the measured amounts for measuring components of this type. Value identifiers specify the quantities stored on the measurement records for measuring components of this type.
- **Valid VEE Groups**: These define the VEE groups considered valid for measuring components of this type.
- **Fallback VEE Groups**: These define default VEE groups that can be used with all measuring components of this type. This alleviates the need to specify the same VEE groups on multiple measuring components of the same type. Each VEE group is designated a VEE group role that indicates when and how the VEE group is used (for initial load, manual override, or estimation).
- **Eligible Profile Factors (interval only)**: These define the profile factors that are considered to be eligible for interval measuring components of this type. You can also specify one or more profile factors as a default.
- **Valid Profile Factors for Conversion from Scalar to Interval (scalar only)**: These define the profile factors that are considered to be eligible for scalar measuring components of this type when converting scalar measurements to interval measurements. You can also specify one or more profile factors as a default.
- **Valid Scratchpad Measuring Component Types**: These define the scratchpad measuring component types considered valid for measuring components of this type.
- **Consumption Compatible Scalar MC Types**: Defines scalar consumption measuring component types that are considered "compatible" with the interval channel measuring component type for purposes of displaying consumption for a service point where the service point has changed from a scalar meter to an interval meter. Compatible measuring component types must have the same primary unit of measure (defined as the "Measurement" value identifier) as the interval channel measuring component type.
- **Display Properties**: Defines how measurement data for measuring components of this type is displayed, including:
  - **Display Configuration**: Details related to how measurements are displayed, including the number of hours of data to display, the default TOU map used, the TOU by Day Profile factor used, and default measurement condition.
  - **Event Bar Profiles**: The event bar profiles used when displaying measurement data for measuring components of this type. Event bar profiles are defined as values for the 360 View Event Bar Profile extendable lookup.
  - **Final Values Overlay Profiles**: The final values overlay profiles used when displaying measurement data for measuring components of this type. Final values overlay profiles are defined as values for the Final Values Overlay Profile extendable lookup.

Working with Devices, Device Configurations, and Measuring Components

Working with Devices

This section describes common tasks related to working with devices.

Creating Devices

Use this procedure to create a new device.

Prerequisites: You must define at least one device type before you can create devices.

1. Select **Main Menu** > **Device** > **Device+**.
2. Select the device type for the device. This specifies the business object used to define the device.
3. Click **OK**.
4. Enter device identifier values (serial number, badge number, etc.) for the device.
5. Select a manufacturer and model for the device.
6. Complete the remaining fields and sections (if applicable).
7. Click **Save**.
8. To define device configurations for the device, click the **Add** link in the Device Configuration Overview zone title bar. See *Creating Device Configurations* for more information.

Device Search

Use this procedure to search for a device on the Device Query portal.

1. Select **Main Menu** > **Device** > **Device**.
2. Enter your search criteria.

   Base package search options include device information and address details.
3. Click **Refresh**.
4. In the search results list, click the link for the device you want to view or edit.

Maintaining Devices

Use this procedure to maintain an existing device.

You use the Device portal to maintain devices. This portal includes the following zones:

- **Device**: defines the basic attributes of the device
- **Device Configuration Overview**: lists the device configurations for the device
- **Device Activities**: lists activities related to the device in date descending order
- **Device Exceptions**: lists the first 50 VEE exceptions for all measuring components for the device, sorted by the exception creation date in descending order

To maintain a device:

1. Select **Main Menu** > **Device** > **Device** to navigate to the Device portal.

2. Search for and select the appropriate device.
3. Click the **Edit** or **Delete** button as appropriate.
4. To retire the device, click the **Retire** button.
5. To define device configurations for the device, click the **Add** link in the Device Configuration Overview zone title bar. See *Creating Device Configurations* for more information.
6. To initiate a command for the device click the **Initiate Command** link in the Device Activities zone title bar. See *Initiating Commands* for more information.

Working with Device Configurations

This section describes common tasks related to working with device configurations.

Creating Device Configurations

Use this procedure to create a new device configuration.

Prerequisites: You must define at least one device configuration type before you can create device configurations.

You create device configurations for a specific device, via the Device portal.

1. Navigate to the Device portal in edit mode.
2. Click the **Add** link in the Device Configuration Overview zone title bar.
3. Enter the effective date and time for the configuration.
4. Select the time zone for the device configuration.
5. Complete the remaining fields and sections (if applicable).
6. Click **Save**.
7. To define measuring components for the device configuration, click the **Add** link in the Measuring Components zone title bar. See *Creating Measuring Components* for more information.

Device Configuration Search

Use this procedure to search for a device configuration on the Device Configuration Query portal.

1. Select **Main Menu** > **Device** > **Device Configuration**.
2. Enter your search criteria.

   Base package search options include device information, measuring component information, and device configuration type.
3. Click **Refresh**.
4. In the search results list, click the link for the device configuration you want to view or edit.

Maintaining Device Configurations

Use this procedure to maintain an existing device configuration.

You use the Device Configuration portal to maintain device configurations. This portal includes the following zones:

- **Device Configuration**: Defines the basic attributes of the device configuration
- **Measuring Components**: Lists the measuring components for the device configuration

To maintain a device configuration:

1. Select **Main Menu** > **Device** > **Device Configuration** to navigate to the Device Configuration portal.
2. Search for and select the appropriate device configuration.
3. Click the **Edit** or **Delete** button as appropriate.
4. To define measuring components for the device configuration, click the **Add** link in the Measuring Components zone title bar. See *Creating Measuring Components* for more information.

Working with Measuring Components

This section describes common tasks related to working with measuring components.

Creating Measuring Components

Use this procedure to create a new measuring component.

Prerequisites: You must define at least one measuring component type before you can create measuring components.

You can also create measuring components for a specific device configuration, via the Device Configuration portal.

1. Select **Main Menu** > **Device** > **Measuring Component+** or navigate to the Device Configuration portal in edit mode and click the **Add** link in the Measuring Components zone title bar.
2. Select the measuring component type for the new measuring component. This specifies the business object used to define the measuring component.
3. Click **OK**.
4. Complete the fields in the Main section.
5. Select VEE groups for the measuring component.
6. Complete any remaining fields and sections (if applicable).
7. Click **Save**.

Measuring Component Search

Use this procedure to search for a measuring component on the Measuring Component Query portal.

1. Select **Main Menu** > **Device** > **Measuring Component**.
2. Enter your search criteria.

   Base package search options include measuring component information, device information, and address details.
3. Click **Refresh**.
4. In the search results list, click the link for the measuring component you want to view or edit.

Maintaining Measuring Components

Use this procedure to maintain an existing measuring component.

You use the Measuring Component portal to maintain measuring components. This portal includes the following zones:

- **Measuring Component**: defines the basic attributes of the measuring component
- **Initial Measurement Data History**: lists the last 50 initial measurements for the measuring component, in date-descending order.
- **Measuring Component Profile Use**: lists all profile factors on which the measuring component is referenced as a factor value.
- **Measurements**: lists final measurements for the measuring component, including any derived values for each measurement.

To maintain a measuring component:

1. Select **Main Menu** > **Device** > **Measuring Component** to navigate to the Measuring Component portal.
2. Search for and select the appropriate measuring component.
3. Click the **Edit** or **Delete** button as appropriate.
4. To view initial measurement data for the measuring component, click the initial measurement in the Initial Measurement Data History zone. The selected measurement opens in the Initial Measurement portal. See *Viewing Initial Measurement Data for a Measuring Component* for more information.

Viewing Initial Measurement Data for a Measuring Component

Use this procedure to view initial measurement data for a measuring component.

Prerequisite: You must be viewing a measuring component in the Measuring Component portal in order to view initial measurement data for that measuring component.

You use the Initial Measurement portal to view initial measurement data. This portal includes the following zones:

- **Initial Measurement**: defines the basic attributes, pre-VEE, and post-VEE data for the measurement
- **Measurements of Initial Measurement**: lists final measurements for the initial measurement
- **Open Exception Summary**: displays a list of open exceptions for the initial measurement. This zone appears only if open exceptions exist for the initial measurement
- **Raw Data, Pre-VEE and Post-VEE XML Data**: displays the pre- and post-VEE initial measurement data in XML.

To view initial measurement data:

1. Navigate to the Measuring Component portal in edit mode.
2. Click the initial measurement in the Initial Measurement Data History zone.

   The initial measurement opens in the Initial Measurement portal.
3. To view details of an exception, click the **Broadcast** icon in the Open Exception Summary zone. The broadcast exception opens in the Initial Measurement Exception Detail zone.
4. To perform an action, click the appropriate button.

   The specific actions available for a measurement are based on the current status of the measurement, and the measurement business object. The statuses in which each action are allowed are listed in parentheses. Action options include the following:

Trace	Turns Trace On or Off (Allowed Status: All) When tracing is On, details concerning VEE processing is captured in the IMD Trace Log on the Initial Measurement Log portal, including the VEE rules applied to the initial measurement, whether the initial measurement passed or failed each VEE rule, the type of exception generated (if applicable), and other information.
Edit	Allows user to edit the initial measurement. (Allowed Status: Pending, Error)
Delete	Deletes the initial measurement. (Allowed Status: Pending, Error)
Prepare for VEE	Prepares the initial measurement for VEE processing, and changes the status to VEE Ready, and then to either Error or VEE Complete. (Allowed Status: Pending, Error)
Remove from Processing	Removes the initial measurement from further processing (Allowed Status: Pending, Error)
Perform VEE	Performs VEE processing on the initial measurement, based on the VEE groups defined for the measuring component. This changes the status of initial measurements to VEE Complete and then either Exception (if the measurement falls one or more validations) or Complete (if the measurement passes all validations) (Allowed Status: Exception)
Force Complete	Changes the state of the initial measurement to Force Complete, regardless of whether or not the measurement passes VEE processing, (Allowed Status: Exception)
Re-Process	(Allowed Status: Error)
Discard	Discards the initial measurement. (Allowed Status: Error, Exception)

5. To view the pre-VEE data, click the expand icon in the Pre-VEE Initial Measurement Data section in the Raw Data, Pre-VEE and Post-VEE XML Data zone.

   This section displays the initial measurement data prior to VEE processing in XML format. For interval measurements, this includes a list of interval data values.

6. To view the post-VEE data, click the expand icon in the Post-VEE Initial Measurement Data section in the Raw Data, Pre-VEE and Post-VEE XML Data zone.

   This section displays the initial measurement data after VEE processing in XML format. For interval measurements, this includes a list of interval data values.

7. To view an individual measurement, click the measurement in the Measurements of Initial Measurement zone. The selected measurement opens in the Measurement zone.

Viewing Final Measurements for a Measuring Component

Use this procedure to view final measurements for a measuring component.

Prerequisite: You must be viewing a measuring component in the Measuring Component portal in order to view final measurements for that measuring component.

You use the Measurement portal to view final measurements. This portal includes the following zones:

- **Measurement**: displays details of the final measurement, including:
  - **Measuring Component**: The parent measuring component of the measurement.
  - **Measurement Date/Time**: The date and time of the measurement in standard time.
  - **Condition**: The condition code of the measurement.
  - **Measurement Use**: A flag that indicates if the measurement should be used.
  - **User Edited**: A flag that indicates if the measurement has been manually edited.
  - **Initial Measurement**: The initial measurement the measurement was derived from.

- **Measurement**: The value of the measurement.
- **Local Date/Time**: The date and time of the measurement in local time.

To view final measurements:

1. Navigate to the Measuring Component portal in edit mode
2. Click the initial measurement in the Initial Measurement Data History zone.
3. The initial measurement opens in the Initial Measurement portal.
4. Click the final measurement you wish to view in the Measurements of Initial Measurement zone.

   The selected measurement opens in the Measurement portal.

Device Management Administration

This section describes concepts and common tasks related to device management administration.

Defining Device Configuration Types

Use this procedure to define device configuration types.

Prerequisites: You must define service types before you can create a device configuration type. To specify valid measuring component types for the device configuration type, you must first define the measuring component types.

To maintain existing device configuration types, select **Admin Menu** > **Device** > **Device Configuration Type**, then use *standard actions* to edit, duplicate, or delete a device configuration type.

To define a new device configuration type, follow these steps:

1. Select **Admin Menu** > **Common** > **Device Configuration Type+**.

   NOTE: If your system supports more than one device configuration type business object, you will be prompted to select a business object for this device configuration type.

2. Enter a name and a meaningful description for the device configuration type.
3. Select the business object to use when creating device configurations of this type.
4. Select the Service Type.
5. To add or remove valid measuring component types for this device configuration type, click the + or – sign in the Valid Measuring Component Types section, select the measuring component type, and specify whether or not the measuring component type is Optional or Required.
6. Complete any additional fields as applicable.
7. Click **Save**.

Now you can create device configurations based on the device configuration type.

Defining Device Types

Use this procedure to define device types, such as manual meters, smart meters, etc.

Prerequisites: You must define service types before you can create a device type. To specify valid device configuration types for the device type, you must first define the device configuration types.

To maintain existing device types, select **Admin Menu** > **Common** > **Device Type**, then use *standard actions* to edit, duplicate, or delete a device type.

To define a new device type, follow these steps:

1. Select **Admin Menu** > **Device** > **Device Type+**.
2. Select the business object that defines the type of device type you wish to create and click **OK**.
3. Enter a name and a meaningful description for the device type.
4. Select the business object to use when creating devices of this type.
5. Select the Service Type.
6. To add or remove valid device configuration types for this device type, click the + or – sign in the Valid Device Configuration Types section and select the device configuration type.
7. Complete any additional fields as applicable.
8. Click **Save**.

Now you can create devices based on the device type.

Creating Device Type Service Quantities

Use this procedure to create device type service quantities for item types.

Prerequisites: You must define an item type before you can create device type service quantities. You must be working in the **Device Type** portal and working with an item type to create device type service quantities.

Device type service quantities represent effective-dated average service quantities for the item (device) type.

To create a new device type service quantity, follow these steps:

1. Click the **Add** link in the **Device Type Service Quantity** zone title bar.

   NOTE: If your system supports more than one device type service quantity business object, you will be prompted to select a business object for the device type service quantity .

2. Enter an effective date for the service quantity. This is date on which the service quantity is considered to be in effect.
3. Enter the quantity.
4. Click **Save**.

This service quantity will be used when calculating usage for items of this type.

Defining Manufacturers

Use this procedure to define manufacturers.

Prerequisites: You must define service types before you can create models for a manufacturer.

To maintain existing manufacturers, select **Admin Menu** > **Device** > **Manufacturer**, then use *standard actions* to edit, duplicate, or delete a manufacturer.

To define a new manufacturer, follow these steps:

1. Select **Admin Menu** > **Common** > **Manufacturer+**.

   NOTE: If your system supports more than one manufacturer business object, you will be prompted to select a business object for this manufacturer.

2. Enter a name and a meaningful description for the manufacturer.
3. To add or remove models for this manufacturer, click the + or – sign in the Models section, enter a name and description for the model, and select the service type.
4. Complete any additional fields as applicable.
5. Click **Save**.

Now you can specify this manufacturer when you create devices.

Defining Measuring Component Types

Use this procedure to define measuring component types.

Prerequisites: You must define service types before you can create measuring component types. To create value identifiers, you must first create UOMs, TOUs, and SQIs. To associate VEE groups, profile factors, scratchpad measuring component types, or event bar or final values overlay profiles to a measuring component type, you must first create those objects.

To maintain existing measuring component types, select **Admin Menu** > **Device** > **Measuring Component Type**, then use *standard actions* to edit, duplicate, or delete a measuring component type.

To define a new measuring component type, follow these steps:

1. Select **Admin Menu** > **Common** > **Measuring Component Type+**.
2. Select the business object that defines the type of measuring component type you wish to create and click **OK**.
3. Enter a name and a meaningful description for the measuring component type.
4. Select the business object to use when creating measuring components of this type.
5. Select the Measurement business object to use for measurements for measuring components of this type.
6. Select the Service Type.
7. Specify whether or not measuring components based on this type allow negative consumption.
8. Specify if measuring components based on this type are consumptive or subtractive.
9. Complete the remaining fields in the **Main** section.
10. To add or remove value identifiers to this measuring component type, click the + or – sign in the Value Identifiers section and specify the following for each:

- Value Identifier Type
- Description
- UOM
- TOU
- SQI
- Algorithm (the algorithm used to derive values for the identifier)

11. To add or remove valid VEE groups to this measuring component type, click the + or – sign in the Valid VEE Groups section and select the VEE group.

12. To add or remove VEE groups to this measuring component type, click the + or – sign in the VEE Groups section and select the VEE Group Role and VEE Group for each.

13. To add or remove profile factors to this measuring component type, click the + or – sign in the Valid for Conversion from Scalar to Interval Factors or Valid Profile Factors section, and select the profile factor and indicate if it is the default.

14. To add or remove valid scratchpad measuring component types to this measuring component type, click the + or – sign in the Valid Scratchpad Measuring Component Types section and select the measuring component type.

15. Fill out the fields in the Display Configuration section.

> **NOTE:** The fields in this section are based on the measuring component type business object you selected.

16. To add or remove event bar profiles to this measuring component type, click the + or – sign in the Event Bar Profiles section, and select the event bar profile and indicate if it is the default.

17. To add or remove final values overlay profiles to this measuring component type, click the + or – sign in the Final Values Overlay Profiles section, and select the overlay profile and indicate if it is the default.

18. Click **Save**.

Chapter 5

Device Installation

This section describes concepts and procedures related to managing installation of devices, including service points, contacts, install events, and activities.

Understanding Device Installation

This section describes concepts related to device installation.

About Service Points

Service points are locations at which a company supplies service.

Service points are used to store information describing the type of service supplied and how it is measured.

Attributes used to define service points can include the following:

- Basic information about the service point, including address, time zone, market, parent service point (if applicable), status, and main contact
- Specifics related to whether or not the current service point supplies service to life support equipment, or if the load supplied to the service point is considered sensitive.
- Information related to field work performed at the current service point, including any applicable warnings or instructions
- The measurement cycle, route, and route sequence for the service point

About Service Point Types

Service point types define a specific type of point at which service is delivered.

Specifically, service point types define how the application manages many aspects of the service point's behavior. A service point type may have one or more valid device types defined that limit the types of devices that can be installed at service points of this type.

The "Service Point Category" field defines the types of devices that can be installed at service points of this type. Valid values include:

- **Meter**: Indicates that a single meter can be installed at service points of this type.
- **Item**: Indicates that a single "badged" item can be installed at service points of this type.
- **Multi-Item**: Indicates that one or more "unbadged" items can be installed at service points of this type.

About Contacts

Contacts are individuals or business entities with which a company has contact.

Contacts are typically defined by contact information such as:

- Name (or names)
- Phone Numbers (business, home, mobile, etc.)
- Email addresses
- Other identifiers (social security number, license number, etc.)

About Contact Types

Contact types define the properties of a class of entities (businesses, persons).

About Install Events

An install event is a record of a device's installation information at a service point.

Install events link a single device configuration to a single service point, and represent both the installation and removal of a device at a service point, and also record turning the device on or off while it is installed at the service point.

Attributes used to define install events can include the following:

- The date and time of the installation.
- The installation constant for the device as installed.
- The current status of the device (On or Off).
- A history of the dates and times when the device was turned on or off.

About Item Install Events

Item installation events are a record of a "badged" item's installation information at a service point.

Install events link a single device configuration to a single service point, and represent both the installation and removal of a device at a service point, and also record turning the device on or off while it is installed at the service point.

About Route Management

Route management involves managing the order of the service points within measurement cycles and routes.

When creating service points, each service point can reference a measurement cycle, route, and its sequence within the route . Over time, as service points are added and removed to and from measurement cycles and routes, it may become necessary to change the sequence of service points within the measurement cycles and routes used in your implementation.

The **Route Management** portal can be used to change the sequence of service points within a measurement cycle and route and to transfer service points from one measurement cycle and route to another.

About Measurement Cycles

Measurement cycles define the schedule for manual meter reading of devices at service points in that cycle.

Measurement cycles can have one or more associated routes used to collect measurements.

When used with Oracle Utilities Meter Data Management, measurement cycles can also be configured to define when to create usage transactions for usage subscriptions associated to service points in the cycle.

About Measurement Cycle Schedules

Measurement cycle schedules define the dates on which devices are scheduled to be read for a given measurement cycle and the routes used to collect measurements for the measurement cycle.

About Facilities

Facilities represent the network node level closest to the service point.

In terms of electric networks, facilities represent transformers.

Attributes used to define facilities can include the following:

- Facility type (based on the facility's business object)
- The type of service provided by the facility.
- Current status
- An ID used to identify the facility in external systems.

About Network Locations

Network locations define the location of a facility within a larger network.

Network locations hold the network nodes that provide service to a facility. In the case of electric networks, network locations define the feeder and substation associated with a transformer (facility). Because these network nodes can change over time, a facility can have many network locations (this is an effective-dated relationship). For example, for electric service points, whenever the substation or feeder that provides power to a given transformer is changed, a new record that references the latest substation and feeder should be created.

Attributes used to define network locations can include the following:

- The facility connected at the network location

- The start and end date/times that indicate when the facility is connected at the network location
- Nodes above the facility within the network. For electric networks, this most often includes the feeder and substation.
- An ID used to identify the network location in external systems.

Whenever a network node is switched, a new network location should be created for every facility level impacted by the change. For example, if the substation that supplies a feeder changes, a new network location should be created for every transformer linked to the feeder.

Working with Service Points

This section describes common tasks related to working with service points.

Creating Service Points

Use this procedure to create a new service point.

Prerequisites: You must define at least one service point type before you can create service points.

1. Select **Main Menu** > **Device Installation** > **Service Point+**.
2. Select the service point type for the new service point. This specifies the business object used to define the service point.
3. Click **OK**.
4. Select a time zone, market, and status for the service point.
5. Search for and select a main contact for the service point.
6. Enter address information for the service point.
7. Complete the remaining fields and sections .
8. Click **Save**.

Service Point Search

Use this procedure to search for a service point on the Service Point Query portal.

1. Select **Main Menu** > **Device Installation** > **Service Point**.
2. Enter your search criteria.

   Base package search options include address details, service point information, device information, and contact name.
3. Click **Refresh**.
4. In the search results list, click the link for the service point you want to view or edit.

Maintaining Service Points

Use this procedure to maintain an existing service point.

You use the Service Point portal to maintain service points. This portal includes the following zones:

- **Service Point**: defines the basic attributes of the service point

- **Device History**: lists all device configurations that have been installed for the service point, in reverse-chronological order
- **Usage Subscriptions**: lists all usage subscriptions linked to the service point, sorted in descending order by Start Date/ Time of Usage Subscription/Service Point
- **Children Service Points**: lists the first 50 children service points of the parent service point
- **SP/Measurement Cycle Schedule Route List**: lists all the Measurement Cycle Schedule Routes linked to the service point.
- **Service Issue Monitors Related to SP**: displays a list of service issue monitors and related service investigative orders related to the current service point, in reverse chronological order.

To maintain a service point:

1. Select **Main Menu** > **Device Installation** > **Service Point** to navigate to the Service Point portal.
2. Search for and select the appropriate service point.
3. Click the **Edit** or **delete** button as appropriate.
4. To activate the service point, click the **Activate** button.
5. To deactivate the service point, click the **Deactivate** button.

Working with Contacts

This section describes common tasks related to working with contacts.

Creating Contacts

Use this procedure to create a new contact.

Prerequisites: You must define at least one contact type before you can create contacts.

1. Select **Main Menu** > **Customer Information** > **Contact+**.
2. Select the contact type for the new contact. This specifies the business object used to define the contact.
3. Click **OK**.
4. Complete the remaining fields and sections (if applicable).
5. Click **Save**.

Contact Search

Use this procedure to search for a contact on the Contact Query portal.

1. Select **Main Menu** > **Customer Information** > **Contact**.
2. Enter your search criteria.

   Base package search options include name, identifiers, and contact ID.
3. Click **Refresh**.
4. In the search results list, click the link for the contact you want to view or edit.

Maintaining Contacts

Use this procedure to maintain an existing contact.

You use the Contact portal to maintain contacts. This portal includes the following zones:

- **Contact**: defines the basic attributes of the contact

To maintain a contact:

1. Select **Main Menu** > **Customer Information** > **Contact** to navigate to the Contact portal.
2. Search for and select the appropriate contact.
3. Click the **Edit** or **Delete** button as appropriate.

Working with Install Events

This section describes common tasks related to working with install events.

Creating Install Events

Use this procedure to create a new install event.

1. Select **Main Menu** > **Device Installation** > **Install Event+**.
2. Search for and select the device configuration for the install event.
3. Search for and select the service point for the install event.
4. Click **OK**.
5. Enter the installation date and time for the install event.
6. Enter installation constant for the install event.
7. Complete any remaining fields and sections .
8. Click **Save**.

Install Event Search

Use this procedure to search for an install event on the Install Event Query portal.

1. Select **Main Menu** > **Device Installation** > **Install Event**.
2. Enter your search criteria.

   Base package search options include address details, service point information, and device information.
3. Click **Refresh**.
4. In the search results list, click the link for the install event you want to view or edit.

Maintaining Install Events

Use this procedure to maintain an existing install event.

You use the Install Event portal to maintain service points. This portal includes the following zones:

- **Install Event**: defines the basic attributes of the install event, the on/off history for the install event, and removal information.

To maintain a install event:

1. Select **Main Menu** > **Device Installation** > **Install Event** to navigate to the Install Event portal.
2. Search for and select the appropriate install event.
3. Click the **Edit** or **Delete** button as appropriate.
4. To turn the device off or on, click the **Off** or **On** button (as appropriate), enter the event date and time, and click **OK** in the **Enter Event Date/Time** dialog.
5. To change the commissioned/connection status of the device, do one or more of the following:
   a) To commission the device, click the **Commission** button.
   b) To connect the device, click the **Connect** button.
   c) To disconnect the device, click the **Disconnect** button.
   d) To decommission the device, click the **Decommission** button.

   When using Oracle Utilities Smart Grid Gateway, commissioning, connecting, disconnecting, and decommissioning a device can be performed via commands. See *Initiating Commands* for more information.
6. To remove the device, click the **Remove** button, enter the event date and time, and click **OK** in the **Enter Event Date/Time** dialog.
7. To undo the removal of the device, click the **Undo Removal** button, enter the event date and time, and click **OK** in the **Enter Event Date/Time** dialog.

Working with the Route Management Portal

Use the procedures in this topic to manage the service points associated with measurement cycles and routes.

1. Select **Main Menu** > **Device Installation** > **Route Management**.
2. Select the measurement cycle associated with the service points you wish to manage from the **Measurement Cycle** drop-down list.
3. Select the route associated with the service points you wish to manage from the **Route** drop-down list.
4. Specify the starting and ending sequence numbers of the service you wish to manage in the **Sequence From** and **Sequence To** fields.
5. Click **Refresh**.

   A list of service points based on the selected measurement cycle, route, and sequence range displays in the search results area of the **Route Management Search** zone.
6. Select the service points you wish to manage by checking the corresponding checkbox for each.

   To select all the service points listed, check the checkbox in the header row.

7. To renumber the sequence of selected service points for the route, click **Renumber Sequence**.

   Use the **Renumber Sequence** page to renumber the sequence of service points in a measurement cycle route.

   - The **Service Points** section displays a list of the service points selected from the **Route Management Search** zone.

   To renumber sequence of service points;

   a) To manually resequence individual selected service points within the route, edit the values in the **Sequence** column as appropriate and click **Save**.

   b) To resequence all selected service points within the route, enter the start sequence value in the **Start Sequencing From** field, the amount by which to increment in the **Increment Sequences By** field and click **Renumber**.

8. To transfer the selected service points to another route, click **Transfer Measurement Cycle Route**.

   Use the **Transfer Measurement Cycle Route** page to transfer the selected service points to another measurement cycle route. You can also renumber the sequence of service points in their new route as part of the transfer.

   - The **Transfer From** section displays the **Measurement Cycle** and **Route** from which the service points will be transferred.
   - The **Transfer To** section displays the **Measurement Cycle** and **Route** to which the service points will be transferred.
   - The **Service Points** section displays a list of the service points selected from the **Route Management Search** zone.

   To transfer service points between measurement cycle routes:

   a) Select the **Measurement Cycle** and **Route** to which you wish to transfer the service points from the drop-down lists.

   b) To resequence all of the service points when you transfer them, enter the start sequence value in the **Start Sequencing From** field, the amount by which to increment in the **Increment Sequences By** field and click **Transfer**.

   c) To manually resequence the selected service points when you transfer them, edit the values in the **Sequence** column as appropriate and click **Transfer**.

Working with Facilities

This section describes common tasks related to working with facilities.

Creating Facilities

Use this procedure to create a new facility.

1. Select **Main Menu** > **Device Installation** > **Facility+**.
2. Select the facility business object for the new facility.

   This step applies only if there is more than one facility business object in your system.
3. Click **OK**.
4. Enter a description for the facility.
5. Select the service type for the facility.
6. Enter an external ID for the facility.

7. Click **Save**.

Facility Search

Use this procedure to search for a facility on the Facility Query portal.

1. Select **Main Menu** > **Device Installation** > **Facility**.
2. Enter your search criteria.

   Base package search options include facility identifier, service point address, and associated meter/item.
3. Click **Refresh**.
4. In the search results list, click the link for the facility you want to view or edit.

Maintaining Facilities

Use this procedure to maintain an existing facility.

You use the Facility Maintenance portal to maintain facilities. This portal includes the following zones:

- **Facility**: defines the basic attributes of the facility
- **Network Locations Related to Facility**: displays a list of network locations associated with the current facility in reverse chronological order.
- **Service Points Related to Facility**: displays a list of service points related to the current facility, in reverse chronological order.

To maintain a facility:

1. Select **Main Menu** > **Device Installation** > **Facility** to navigate to the Facility Query portal.
2. Search for and select the appropriate facility.
3. Click the **Edit** or **Delete** button as appropriate.
4. To activate the facility, click the **Activate** button.
5. To deactivate the facility, click the **Deactivate** button.

Adding a Network Location for a Facility

Use this procedure to add a network location for a facility

You must have created a facility before you can add a network location. If a network location already exists for the facility, you must specify the End Date/Time for the existing location before you can create a new network location.

You use the **Network Locations Related to Facility** zone to add a network location for a facility.
To add a network location for a facility:

1. Select **Main Menu** > **Device Installation** > **Facility** to navigate to the Facility Query portal.
2. Search for and select the appropriate facility.
3. Click **Add** in the **Network Locations Related to Facility** zone title bar.
4. Select the network location business object.

   This step applies only if there is more than one network location business object in your system.
5. Click **OK**.

6. Enter a start date/rme for the network location.

   This is the date and time on which the network location is in effect for the facility. This must be a date/time after the End Date/Time of any prior existing network location for the facility.

7. Enter an end date/time for the network location.

   This is the date and time after which the network location is no longer in effect for the facility.

8. Enter an ID for the feeder associated with the network location.
9. Enter an ID for the substation associated with the network location.
10. Enter an external ID for the network location.
11. Click **Save**

The new network location opens in the **Network Location** portal.

Working with Network Locations

This section describes common tasks related to working with network locations.

Creating Network Locations

Use this procedure to create a new network location for a facility.

You must have created a facility before you can create a network location. If a network location already exists for a facility, you must specify the End Date/Time for the existing location before you can create a new network location.

1. Select **Main Menu** > **Device Installation** > **Network Location+**.
2. Select the network location business object for the new network location.

   This step applies only if there is more than one network location business object in your system.

3. Click **OK**.
4. Search for and select the facility for the network location.
5. Enter a start date/rme for the network location.

   This is the date and time on which the network location is in effect for the facility. This must be a date/time after the End Date/Time of any prior existing network location for the selected facility.

6. Enter an end date/time for the network location.

   This is the date and time after which the network location is no longer in effect for the facility.

7. Enter an ID for the feeder associated with the network location.
8. Enter an ID for the substation associated with the network location.
9. Enter an external ID for the network location.
10. Click **Save**.

Network Location Search

Use this procedure to search for a facility on the Network Location Query portal.

1. Select **Main Menu** > **Device Installation** > **Nework Location**.
2. Enter your search criteria.

   Base package search options include network location identifier, facility identifier, service point address, and associated meter/item.
3. Click **Refresh**.
4. In the search results list, click the link for the network location you want to view or edit.

Maintaining Network Locations

Use this procedure to maintain an existing network location.

You use the Network Location portal to maintain network locations. This portal includes the following zones:

- **Network Location**: defines the basic attributes of the network location
- **Service Points Related to Network Location**: displays a list of service points related to the current network location, in reverse chronological order.

To maintain a network location:

1. Select **Main Menu** > **Device Installation** > **Network Location** to navigate to the Network Location Query portal.
2. Search for and select the appropriate network location.
3. Click the **Edit** or **Delete** button as appropriate.

Device Installation Administration

This section describes common tasks related to device installation administration.

Defining Service Point Types

Use this procedure to define service point types.

Prerequisites: You must define service types before you can create service point types.

To maintain existing service point types, select **Admin Menu** > **Device Installation** > **Service Point Type**, then use *standard actions* to edit, duplicate, or delete a service point type.

To define a new service point type, follow these steps:

1. Select **Admin Menu** > **Device Installation** > **Service Point Type+**.

   NOTE: If your system supports more than one service point type business object, you will be prompted to select a business object for this service point type.

2. Enter a name and a meaningful description for the service point type.

3. Select the service type for the service point type.
4. Select a parent service point (if applicable).
5. Select the business object to use when creating service points of this type.
6. Complete any additional fields as applicable.
7. To add or remove valid device types for this service point type, click the + or – sign in the Valid Device Types section and select the device type.
8. Click **Save**.

Now you can use this service point type when creating service points.

Defining Contact Types

Use this procedure to define contact types.

To maintain existing contact types, select **Admin Menu** > **Customer Information** > **Contact Type**, then use *standard actions* to edit, duplicate, or delete a contact type.

To define a new contact type, follow these steps:

1. Select **Admin Menu** > **Customer Information** > **Contact Type+**.

   NOTE: If your system supports more than one contact type business object, you will be prompted to select a business object for this contact type.

2. Enter a name and a meaningful description for the contact type.
3. Select the business object to use when creating contacts of this type.
4. Complete any additional fields as applicable.

   See *Base Package Contact Types* for detailed descriptions of the fields used to define contact types.
5. Click **Save**.

Now you can use this contact type when creating contacts.

Defining Measurement Cycles

Use this procedure to define measurement cycles.

To maintain existing measurement cycles, select **Admin Menu** > **Device Installation** > **Measurement Cycle**, then use *standard actions* to edit, duplicate, or delete a measurement cycle.

To define a new measurement cycle, follow these steps:

1. Select **Admin Menu** > **Device Installation** > **Measurement Cycle+**.

   NOTE: If your system supports more than one measurement cycle business object, you will be prompted to select a business object for this measurement cycle.

2. Enter a name and a meaningful description for the measurement cycle.
3. Select the business object to use when creating measurement cycle schedules for measurement cycles of this type.

4. To add or remove measurement cycle route business objects for this measurement cycle, click the + or – sign in the Measurement Cycle Route Business Object section and select the business object.
5. Complete any additional fields as applicable.
6. Click **Save**.

Once the measurement cycle has been saved, you can define routes for the measurement cycle in the Measurement Cycle List zone.

Defining Measurement Cycle Routes

Use this procedure to define measurement cycle routes.

Prerequisites: You must define measurement cycles before you can create measurement cycle routes.

You can add, edit, and delete measurement cycle routes using the Measurement Cycle Route List zone. Use *standard actions* to edit or delete a processing method.

To define a new measurement cycle route, follow these steps:

1. Click **Add** in the Measurement Cycle Route List zone title bar.
2. Enter a meaningful description for the measurement cycle route.
3. Select the service provider for the route.
4. Select the schedule type for the route.
5. Complete any additional fields as applicable.
6. Click **Save**.

Now you can use this measurement cycle route when creating measurement cycle schedules.

Working with Measurement Cycle Schedules

This section describes common tasks related to working with measurement cycle schedules.

Creating Measurement Cycle Schedules

Use this procedure to create a new measurement cycle schedule.

Prerequisites: You must define measurement cycles before you can create measurement cycle schedules.

1. Select **Admin Menu** > **Device Installation** > **Measurement Cycle Schedule+**.

   NOTE: If your system supports more than one measurement cycle business object, you will be prompted to select a business object for the measurement cycle the schedule will be based on.

2. Enter the schedule selection date and expected work date for the schedule.
3. To add or remove measurement cycle routes for this schedule, click the + or – sign, and select the Service Route, Schedule Type, and Schedule Status for each.
4. Complete any additional fields as applicable.
5. Click **Save**.

Measurement Cycle Schedule Search

Use this procedure to search for a measurement cycle schedule on the Measurement Cycle Schedule Query portal.

1. Select **Admin Menu** > **Device Installation** > **Measurement Cycle Schedule**.
2. Enter your search criteria.

   Base package query options include measurement cycle and schedule selection date.
3. Click **Refresh**.
4. In the search results list, click the link for the measurement cycle schedule you want to view or edit.

Maintaining Measurement Cycle Schedules

Use this procedure to maintain an existing measurement cycle schedule.

1. Select **Admin Menu** > **Device Installation** > **Measurement Cycle Schedule** to navigate to the Measurement Cycle Schedule portal
2. Search for and select the appropriate measurement cycle schedule.
3. Click the **Edit**, **Duplicate**, or **Delete** button as appropriate.
4. Click **Save**.

Chapter 6

Measurements

This section describes concepts and procedures related to uploading, searching, and viewing measurements, including initial and final measurements.

Understanding Measurements

This section describes concepts related to measurements.

About Initial Measurement Data

Initial measurement data is the term for measurement data in its initial (or raw) form when received from a head-end system.

Measurements read from a measuring component are referred to as “initial measurement data” (or initial measurements) and are used to record how much of the quantity (defined by UOM, TOU, and SQI) measured by the measuring component was consumed.

Initial measurement data for scalar measuring components contain a single “reading” or value, while initial measurement data for interval measuring components can contain multiple readings, one for each interval that falls between the start time and stop time of the measurement.

At a simple level, initial measurement data goes through the following process:

1. Initial measurements are loaded into the system.
2. Initial measurement data is validated, edited, and estimated.
3. Initial measurements are converted into final measurements.
4. If using Oracle Utilities Meter Data Management, final measurements are used to calculate usage (bill determinants, etc.).

Only initial measurements can be edited directly by end users.

Initial measurement data contains both the original and final versions of the quantities recorded by the measuring component.

- Pre VEE quantities are consumption values derived from the measurements recorded by the head-end system or meter reader.
- Post VEE quantities are the “final” values, after VEE processing.

Pre VEE and Post VEE quantities in an initial measurement often differ based on a number of conditions, including:

- The measuring component has a multiplier other than 1. In this case, the Post VEE value is equal to the Pre VEE value times the multiplier.
- The installation event has a constant other than 1. In this case, the Post VEE value is equal to the Pre VEE value times the installation constant.
- VEE rules have changed the quantities because they are missing or obviously wrong. In this, the Pre VEE values are adjusted based on the specifics of the VEE rules applied to the initial measurement to create the Post VEE values
- Manual changes by a user.

In addition to recorded consumption values, measurements also have condition codes, used to indicate the source and quality of a measurement. For example:

- Regularly recorded measurements might have a condition code of “Regular”
- Missing measurements might have a condition code of “Missing”
- Estimated measurements might have a condition code of “External Estimated” or “System Estimated” based on where the estimation was performed.

Both Pre VEE and Post VEE values have their own condition code, which can also change during VEE processing.

About Reader Remarks

Reader remarks are a type of device event used to capture and/or record specific events or circumstances encountered when a meter reader is manually reading scalar meters.

Reader remarks are submitted with scalar initial measurements when received from a head-end system or meter read collection system. Reader remarks are NOT uploaded along with other device events. Reader remarks are ALWAYS associated with a scalar initial measurement.

Attributes used to define reader remarks include the following:

- **Reader Remark Type**: The type of reader remark. The reader remark type defines parameters common to all reader remarks of that type.
- **Status**: The current status of the reader remark. When "Pending" reader remarks are executed, additional processing performed, which can include creating To Do entries and Service Issue Monitors, based on the **Eligible for Processing** flag on the reader remark type.
- **Initial Measurement Data ID**: The ID of the scalar initial measurement that originally contained the reader remark.
- **Device ID**: The ID of the device from which the initial measurement that originally contained the reader remark was obtained.

In addition, reader remarks also reference details specific to the head-end system that sent the measurement that contains the reader remark, including the following:

- Sender: the head-end system (defined as a service provider) from which the reader remark was sent.

About Final Measurements

Final measurements are measurements that have been validated, and if necessary, edited & estimated, and is ready for use in downstream processing such as bill determinants calculations.

When an initial measurement is considered “final,” that is, it has passed all VEE processing and no additional modifications or changes need to be made, it is transformed into a Final Measurement, or simply a Measurement (the terms measurement, final measurement, and final consumption all reference this same “final” measurement data). Only one final measurement can exist for a given date/time for a given measuring component; one final measurement exists per interval, and likewise one final measurement exists for each scalar reading. In both cases, the final measurement value stored represents the amount consumed between its date/time and the prior final measurement's date/time

When creating final measurements from initial measurement data:

- Final measurements are created using Post VEE quantities
- Each final measurement's condition is copied from the Post VEE condition
- Initial measurements are normalized into final measurements where each final measurement is for a specific date and time.
- Because a single initial measurement may contain many “readings,” a separate final measurement is created for each interval in the initial measurement. For example, if an initial measurement contains 24 hours of 15 minute readings, 96 measurements will be created, each with a specific date and time.

About Daylight Saving Time

This section describes how the Oracle Utilities Service and Measurement Data Foundation and its related products support Daylight Saving Time (DST) for measurement data.

Types of Devices

In Oracle Utilities Service and Measurement Data Foundation initial measurement data processing, the application understands a device that is either:

a) Aware of the fact that Local time in the device's time zone has been shifted from "Standard", or

b) Unaware of any such shifting

Devices in the "unaware" category ("b") will always send Oracle Utilities Service and Measurement Data Foundation initial measurement data with measurements in Standard time. Devices in the "aware" category ("a") will always send the application initial measurement data in Local time.

Whether a device falls into category "a" (Aware) or "b" (Unaware) is configured via the **Incoming Data Shift** flag on the device type (which can be overridden on the device). The values of the flag are:

- Always in Local Time (used with "aware" devices, or category "a")
- Always in Standard Time (used with "unaware" devices, or category "b")

This flag is used by pre-processing algorithms (Perform Date/Time Adjustments and Undercount/Overcount Check) in the IMD Seeder business object to convert any date/times on the initial measurement into standard time. Note that this conversion is only done if the device falls into category "a."

Date/Time Storage and Display

Within the database, measurements are stored with two (2) date/times: Standard and Local. The Service and Measurement Data Foundation uses the date/time in Standard as part of the prime key of the measurement table. The presence of the Local date/time field facilitates querying measurement data using local time.

When displaying dates and times for initial measurement data:

- Display of the data on the Oracle Utilities Meter Data Management **360 View** is in Local time.
- The **IMD Lens** zone (in the Oracle Utilities Meter Data Management version of the Initial Measurement portal) also displays data in Local time.
- The **Raw Data, Pre-VEE and Post-VEE XML Data** zone on the Initial Measurement portal does not shift the data into Local time, so if that the pre-processing algorithm has shifted the data into standard time, the date/times displayed will be in Standard time.

  NOTE: The only two date/times visible in that zone will typically be the Start date/time and End date/time of the intial measurement; the Service and Measurement Data Foundation strips off the date/times from the individual intervals of the initial measurement at pre-processing time.

- The **Measurement** zone shows both the local and standard date/times as-is.

Oracle Utilities Application Framework

Oracle Utilities Application Framework utilizes the configuration of an Olson DB time zone code on the time zone metadata. This Olson DB contains the shift date/times for every time zone across the globe.

In North America for example, the available Olson DB time zone codes are much more specific than "Eastern/Central/ Mountain/Pacific", and include details for areas places such as Arizona and Indiana where there may or may not be shifting for daylight saving time.

Oracle Utilities Application Framework provides business services that wrap the application services that perform time shifting. These services use the time zone metadata to retrieve shift date/times using the Olson DB.

Typical Daylight Saving Time Scenarios

The following table illustrates typical daylight saving time scenarios.

Time Springs Forward		**Other Days**		**Time Falls Back**	
DST Shifted Meter in Local Time	**Shift & Store time as standard in IMD**	**DST Shifted Meter in Local Time**	**Shift & Store time as standard in IMD**	**DST Shifted Meter in Local Time**	**Shift & Store time as standard in IMD**
03/14/2011	03/14/2011	7/18/2011	7/18/2011	11/7/2011	11/7/2011
1:00	**1:00**	1:00	**0:00**	1:00	0:00
3:00	**2:00**	2:00	1:00	**2:00**	**1:00**
4:00	3:00	3:00	2:00	**2:00**	**2:00**
5:00	4:00	4:00	3:00	3:00	3:00
6:00	5:00	5:00	4:00	4:00	4:00
7:00	6:00	6:00	5:00	5:00	5:00
8:00	7:00	7:00	6:00	6:00	6:00
9:00	8:00	8:00	7:00	7:00	7:00
10:00	9:00	9:00	8:00	8:00	8:00
11:00	10:00	10:00	9:00	9:00	9:00
12:00	11:00	11:00	10:00	10:00	10:00
13:00	12:00	12:00	11:00	11:00	11:00
14:00	13:00	13:00	12:00	12:00	12:00

15:00	14:00	14:00	13:00	13:00	13:00
16:00	15:00	15:00	14:00	14:00	14:00
17:00	16:00	16:00	15:00	15:00	15:00
18:00	17:00	17:00	16:00	16:00	16:00
19:00	18:00	18:00	17:00	17:00	17:00
20:00	19:00	19:00	18:00	18:00	18:00
21:00	20:00	20:00	19:00	19:00	19:00
22:00	21:00	21:00	20:00	20:00	20:00
23:00	22:00	22:00	21:00	21:00	21:00
0:00	**23:00**	23:00	22:00	22:00	22:00
		0:00	**23:00**	23:00	23:00
				0:00	**0:00**
23 hours	23 hours	24 hours	24 hours	25 hours	25 hours

Bold-faced entries indicate times that are impacted by daylight saving time conversion.

Working with Measurements

This section describes common tasks related to working with measurements.

Initial Measurement Data Search

Use this procedure to search for initial measurement data using the IMD Query portal.

1. Select **Main Menu** > **Initial Measurement Data**.
2. Enter your search criteria.

   Base package search options include measuring component/device, and initial measurement data identifier.
3. Click **Refresh**.
4. In the search results list, click the link for the initial measurement data you want to view.

   The selected initial measurement is displayed in the Initial Measurement portal.
5. To view the initial measurement data's measuring component, click the Measuring Component link.
6. To view the initial measurement data's device, click the Device link.

Uploading Initial Measurement Data and Device Events

Use this procedure to manually upload initial measurement data and device events.

1. Select **Main Menu** > **Device** > **Online Upload for IMD and Events**.
2. Paste the contents of an XML document containing the initial measurement data or device events you wish to upload in the text box.

- Click the **Online IMD Upload** help icon (?) for the XML format for initial measurement data.
- Click the **Online Event Upload** help icon (?) for the XML format for device events.

3. Click **Submit**.

Viewing Initial Measurement Data

Use this procedure to view initial measurement data.

You use the Initial Measurement portal to view initial measurement data.
The Initial Measurement portal includes the following zones:

- **Initial Measurement**: defines the basic attributes, pre-VEE, and post-VEE data for the measurement
- **Measurements of Initial Measurement**: lists final measurements for the initial measurement
- **Reader Remarks of Initial Measurement**: lists reader remarks associated with the initial measurement (applicable to scalar initial measurements only).
- **Open Exception Summary**: displays a list of open exceptions for the initial measurement. This zone appears only if open exceptions exist for the initial measurement
- **Raw Data, Pre-VEE and Post-VEE XML Data**: displays the pre- and post-VEE initial measurement data in XML.

The Initial Measurement Log portal includes the following zones:

- **Initial Measurement Log**: displays log entries for the initial measurement.
- **IMD Trace Log**: displays tracing information about the initial measurement, including details concerning VEE processing (the VEE rules applied to the initial measurement, whether the initial measurement passed or failed each VEE rule, the type of exception generated (if applicable), etc.). This zone only appears if tracing is enabled for the initial measurement.
- **Exception Summary**: displays a list of exceptions for the initial measurement. This zone appears only if exceptions exist for the initial measurement.
- **Initial Measurement Exception Detail**: displays details of a broadcast exception listed in the Exception Summary zone.
- **Audit List**: displays a list of changes made to the initial measurement, including the date and time of the individual measurement value, the date and time of the change, the quantity to which the measurement was changed, and the user who made the change.

To view initial measurement data:

1. Search for the initial measurement data to view as described in *Initial Measurement Data Search*.
2. Click the link for the initial measurement data you wish to view.

   The initial measurement opens in the Initial Measurement portal.
3. To view details of an exception, click the **Broadcast** icon in the Open Exception Summary zone. The broadcast exception opens in the Initial Measurement Exception Detail zone.
4. To perform an action, click the appropriate button.

   The specific actions available for a measurement are based on the current status of the measurement, and the measurement business object. The statuses in which each action are allowed are listed in parentheses. Action options include the following:

Trace	Turns Trace On or Off (Allowed Status: All). When tracing is On, details concerning VEE processing is captured in the IMD Trace Log on the Initial Measurement Log portal, including the VEE rules applied to the initial measurement, whether the initial measurement

	passed or failed each VEE rule, the type of exception generated (if applicable), and other information.
Edit	Allows user to edit the initial measurement. (Allowed Status: Pending, Error)
Delete	Deletes the initial measurement. (Allowed Status: Pending, Error)
Prepare for VEE	Prepares the initial measurement for VEE processing, and changes the status to VEE Ready, and then to either Error or VEE Complete. (Allowed Status: Pending, Error)
Remove from Processing	Removes the initial measurement from further processing (Allowed Status: Pending, Error)
Perform VEE	Performs VEE processing on the initial measurement, based on the VEE groups defined for the measuring component. This changes the status of initial measurements to VEE Complete and then either Exception (if the measurement falls one or more validations) or Complete (if the measurement passes all validations) (Allowed Status: Exception)
Force Complete	Changes the state of the initial measurement to Force Complete, regardless of whether or not the measurement passes VEE processing, (Allowed Status: Exception)
Re-Process	(Allowed Status: Error)
Discard	Discards the initial measurement. (Allowed Status: Error, Exception)

5. To view the pre-VEE data, click the expand icon in the Pre-VEE Initial Measurement Data section in the Raw Data, Pre-VEE and Post-VEE XML Data zone.

   This section displays the initial measurement data prior to VEE processing in XML format. For interval measurements, this includes a list of interval data values.

6. To view the post-VEE data, click the expand icon in the Post-VEE Initial Measurement Data section in the Raw Data, Pre-VEE and Post-VEE XML Data zone.

   This section displays the initial measurement data after VEE processing in XML format. For interval measurements, this includes a list of interval data values.

7. To view an individual final measurement, click the measurement in the Measurements of Initial Measurement zone. The selected measurement opens in the Measurement zone.

Viewing Final Measurements

Use this procedure to view final measurement.

You use the Measurement portal to view final measurements.
The Measurement portal contains the following zones:

- **Measurement**: displays details of the final measurement, including:
  - **Measuring Component**: The parent measuring component of the measurement.
  - **Measurement Date/Time**: The date and time of the measurement in standard time.
  - **Condition**: The condition code of the measurement.
  - **Measurement Use**: A flag that indicates if the measurement should be used.
  - **User Edited**: A flag that indicates if the measurement has been manually edited.
  - **Initial Measurement**: The initial measurement the measurement was derived from.
  - **Measurement**: The value of the measurement.
  - **Local Date/Time**: The date and time of the measurement in local time.

To view final measurements:

1. Search for the initial measurement data to view as described in *Initial Measurement Data Search*.
2. Click the link for the initial measurement data you wish to view.

   The initial measurement opens in the Initial Measurement portal.
3. Click the measurement you wish to view in the Measurements of Initial Measurement zone. The selected measurement opens in the Measurement zone.

   The selected measurement opens in the Measurement portal.

Working with Reader Remarks

This section describes common tasks related to working with reader remarks.

Creating Reader Remarks

Use this procedure to create a new reader remark for an existing initial measurement.

Reader remarks must always be associated with an initial measurement.

Reader remarks are most often imported into the application with an initial measurement. However, users can also create reader remarks using the following procedure.

1. Search for and select the initial measurement that the new reader remark is to be associated with..
2. Click the **Add** link on the **Reader Remarks of Initial Measurement** zone on the **Initial Measurement** portal.
3. Select the reader remark type for the reader remark from the **Reader Remark Type** drop-down list.
4. *Optional*. If you need to create more than one reader remark for the initial measurement, click the plus sign, and select the reader remark type for the reader remark from the **Reader Remark Type** drop-down list. Repeat as needed.

   Note that only a single reader remark of any given type can be associated with a single initial measurement.
5. Click **OK**.

   The new reader remark is displayed in the **Reader Remarks of Initial Measurement** zone on the **Initial Measurement** portal.

Reader Remark Search

Use this procedure to search for reader remarks on the Device Events Query portal.

1. Select **Main Menu** > **Communication** > **Device Events**.
2. Select “Reader Remarks” from the **Query Option** drop-down list.
3. Search for and select the device ID associated with the initial measurement associated with the reader remarks you wish to view.
4. Select whether or not (“Yes” or “No”) you wish the search result to display all reader remarks on the **Show All** drop-down list.

   By default (“No”), the search results show only “Pending” reader remarks. Selecting “Yes” on the **Show All** drop-down list includes “Complete” and “Discard” reader remarks in the search reuslts.
5. *Optional*. Specify a date and time to filter the search results. Only reader remarks that occurred before the specified date and time are included in the search results.

6. Click **Refresh**.
7. In the search results list, click the link for the reader remark you want to view or edit.

Maintaining Reader Remarks

Use this procedure to maintain an existing reader remark.

You use the Device Event portal to maintain reader remarks. This portal includes the following zones:

- **Device Event**: defines the basic attributes of the device event/reader remark.

To maintain a reader remark:

1. Select **Main Menu** > **Communication** > **Device Event** to navigate to the Device Event portal.
2. Search for and select the reader remark you wish to view or change.

   NOTE: Changes are only allows on reader remarks in the “Pending” state. “Complete” and “Discarded” reader remarks can not be modified.

3. Click the **Delete**, **Execute**, or **Discard** button as appropriate.

   When you execute a reader remark, its status is changed to “Complete” and if applicable, To Do entries and Service Issue Monitors may be created, based on the configuration of the reader remark’s type.

Chapter 7

Device Communication

This section describes concepts and procedures related to managing device communication, including activities, communications , completion events, device events, and meter commands.

NOTE: The communication, completion event, device event, and command functionality of the Service and Measurement Data Foundation is available only with Oracle Utilities Smart Grid Gateway.

Understanding Device Communication

This section describes concepts related to device communication.

About Activities

An activity is a record of a communication or event related to a device, measuring component, or other entity in the system.

Activities and activity types fall into several categories based on how they are used in the system. Examples include:

- Outage events
- Smart Meter Commands
- Service order requests
- Field activities
- Payload statistics

About Activity Types

Activity types define properties common to a specific type of activity.

Activity types include types of communications between an application and a head-end system, such as a connection requests, meter ping requests, or on-demand meter readings, as well as device event types.

The attributes used to define an activity type vary.

Activities and activity types fall into several categories based on how they are used in the system. The table below lists the base package activity type categories and how they are used.

Activity Type Category	Activities of this type category are used to:
Bulk Activity	Initiate a smart meter command for a group of meters using Oracle Utilities Smart Grid Gateway
Command Request	Initiate a smart meter command for an individual meter using Oracle Utilities Smart Grid Gateway
Consumption Sync	Trigger related measuring component estimation synchronization
Device Event Activity	Represent a device event. These are used when viewing usage and events with the Oracle Utilities Meter Data Management 360 Degree View.
Dimension Scanner	Trigger dimension scanning when aggregating usage, statistics, and other data.
Error Activity	Represent errors in activity processing.
Extract Request	Retrieve usage and device events from a head-end system using Oracle Utilities Smart Grid Gateway
Field Activity	Initiate field work via a message to a field work external system, such as Oracle Utilities Mobile Workforce Management. Activities of this type are most often created by a request orchestration activity.
Meter Read Download Activity	Download a list of meters to be read.
Multi Device Command Request	Initiate a smart meter command for multiple meters (for head-end systems that support multi-device commands) using Oracle Utilities Smart Grid Gateway
Non-Dispatchable Activity	Represent steps or stages in a larger process in which the system is waiting for a resolution from another system. Examples include “Wait for Measurement” or “Wait for Scheduled Read.”
Orchestration Maintenance	Update or cancel an active service order activity.
Payload Statistics	Calculate processing statistics for usage and device event import processing
Request Orchestration	Orchestrate the steps necessary to fulfill a service request, based on the current state of the service point related to the request.
Suppression	Suppress sending of device events to subscribing systems (such as Oracle Utilities Network Management System)
Usage Transaction Correction Processor	Trigger correction processing for usage transactions when corrected usage is received that would impact an existing usage transaction

Some activity types can be configured to create Service Issue Monitors when created, which are in turn used to generate “Service Investigative Order” activities.

About Communications

Communications are records of messages sent between Oracle Utilities Smart Grid Gateway and an external system, such as a head-end system or edge application as a result of initiating a command for a device. Communications can flow both inbound and outbound, and can be both one-way and two-way.

Attributes used to define communications include the following:

- Device ID: the ID of the device related to the communication. All communications (and their related commands) are related to a device.
- AMI Device Identifier Number: the identifier for the device used by the head-end system.
- Event Date/Time: the date and time of the message.
- Command Information: details concerning the command that created the communication, including:

- Recipient: the recipient of the command (recipients are defined as service providers)
- Transaction ID: an ID for the command that created the communication.
- External Transaction ID: ID for the command that created the communication in the external system that sent or received the communication.
- Event Date/Time: the date and time of the command that created the communication.

About Communication Types

Communication types define properties common to a specific type of communication

Communication types include types of communications between an application and a head-end system, such as notifications (used to notify an head-end system of a command request), or message responses (sent from a head-end system to confirm receipt of a message).

About Completion Events

Completion events are created upon successful receipt of inbound communications related to an activity or command, and are used to create or update data to reflect the effect of an activity. For example, a commission device command could result in the creation or update of an install event, while a on-demand read command could result in the creation of an initial measurement.

Attributes used to define completion device events include the following:

- Activity: the activity (command) that initiated the completion event.
- Sequence: defines the relative order by which completion events for the activity are executed (in the event that more than one completion event is created for an activity).
- Inbound Communication: the inbound communication that triggered the completion event.
- Event Date/Time: the date and time of the completion event.

About Device Events

Device events are events of some sort that have taken place relative to a device, and can include power outages, power restorations, tampering alerts, command completions, and other events.

Attributes used to define device events include the following:

- Device Event Date/Time: the date and time of the event. For events with a duration, such as a power outage, this is the start date and time of the duration.
- Device Event End Date/Time: the end date and time of events with durations (such as power outages). Not applicable to events with no duration, such as a tampering alter or power restoration.

In addition, device events also reference details specific to the head-end system that sent the event, including the following:

- Sender: the head-end system (defined as a service provider in SGG) from which the event was sent.
- External Sender ID: the external ID for the head-end system that sent the event.
- External Event Name: the external, head-end-specific name for the event. This name is translated into a "standard" event name within SGG.
- External Source Identifier: an identifier for the source of the event.

Receipt of device events can trigger the creation of Service Issue Monitors, which are service tasks that analyze service points to determine if service is needed.

About Device Event Types

Device event types define properties common to specific types of events.

Device event types represent different types of events that can take place relative to a device. Examples of device events include power outages, power restoration, tampering alerts, and other events.

Device event types can be defined by the following attributes

- **Standard Event Name**: the "standard" name of the event type in Smart Grid Gateway. Device vendors may have their own specific names for device events.
- **Device Event Category**: a category (defined as an Extendable Lookup) used to group device event types.
- **Reporting Category**: a category used to group device event types for reporting purposes.
- **Activity Type**: the activity type for activities created for device events of this type.
- **Service Issue Monitor Type**: The type of service issue monitor to create when a device event of this type is received.

About Reader Remark Types

Reader remark types define properties common to specific types of reader remarks.

Reader remarks are a type of device event used to capture and/or record specific events or circumstances encountered when a meter reader is manually reading scalar meters. Reader remark types the represent different types of remarks that meter readers can record. Examples of reader remark types include evidence of tampering, broken seals, damaged meter, dog on premises, and other notices.

You should define reader remark types for every type of remark that meter readers may need to record.

Reader remark types can be defined by the following attributes

- **Reader Remark Status**: the current status of the reader remark type. Valid values include "Active" and "Inactive".
- **Device Event Category**: the category of device events to which reader remarks of this type belong. Should always be "Reader Remark".
- **Reporting Category**: the category of device event to which reader remarks of this type belong for reporting purposes. This allows grouping of similar types of reader remarks for summary reporting.
- **Eligible for Processing**: a flag that indicates if reader remarks of this type should create To Do entries, create Service Issue Monitors, or send information to subscribing systems.
- **To Do Types**: The To Do Type for To Do entries created as a result of reader remarks of this type. Applicable only if the **Eligible for Processing** flag is set to "Yes".
- **To Do Roles**: The To Do Role for To Do entries created as a result of reader remarks of this type. If not specified, the default To Do role for the specified **To Do Type** will be used. Applicable only if the **Eligible for Processing** flag is set to "Yes".
- **Service Issue Monitor Type**: The type of service issue monitor to create when a reader remark of this type is received. Applicable only if the **Eligible for Processing** flag is set to "Yes".

About Notification Suppressions

A notification suppression is used by Oracle Utilities Smart Grid Gateway to prevent device event notifications from being sent to an external system. For example, a notification suppression can be used to prevent the system from sending tamper, power down, and power up device event notifications to an outage management system while a field worker performs

scheduled maintenance on a group of meters. The device events that should be suppressed are defined on a device event notification suppression activity type.

Attributes used to define notification suppressions include the following:

- Device Event Suppression Type: The activity type that defines the device events to suppress.
- Requester Transaction ID: The transaction ID provided by the system requesting the notification suppression.
- Service Point ID: The ID of the service point that is associated with the suppressed event notifications.
- External Service Point ID: The ID of the service point as defined by the requester.
- Device ID: The ID of the device associated with the suppressed event notifications.
- Utility Device Identifier Number: The identifier number of the device as defined by the requester.
- Suppressed Service Provider: The subscribing system for which the notification suppression is created.

About Commands

Commands are activities that represent messages sent from Oracle Utilities Smart Grid Gateway to devices to invoke a specific type of action.

Oracle Utilities Smart Grid Gateway supports the following types of commands:

- Commission Device: A command issued to establish communication between a device and the head-end system. The goal is to ensure connectivity has been established with the device, that any information needed to communicate with the device has been defined in both Oracle Utilities Smart Grid Gateway and the head-end system, and that the device will begin capturing usage and events.
- Decommission Device: A command issued to inform the head-end system when a device needs to be removed from a service point, so that no further reads or events will arrive from the device. Decommissioning is invoked when a device must be removed or deactivated. The goal is to stop any communication between the device and the head-end system.
- Demand Reset: A command issued to reset the demand measured on a meter. These commands are typically used when a device is disconnected, or when a device is at a location where a change in customer occurs. Note that this command is only supported via the Landis+Gyr Adapter.
- Device Status Check: A command used to test whether the device is communicating with the network, determine the connection status of the device, and when possible, and check if there are any known malfunctions.
- On-Demand Read: A request for the most up-to-date reading from a particular device. These commands are not guaranteed to return immediately. In some cases, completing the command might require a person to manually read the device. The purposes are to check the operational status of the device and/or obtain a more recent reading than is currently available.
- Remote Connect: A command issued when a device needs to be connected at a service point.
- Remote Disconnect: A command issued when a device needs to be disconnected or shut off at a service point.

Attributes used to define commands include the following:

- Parent Activity: the parent activity (if any) for the command.
- Command Effective Date/Time: the date and time on which the command takes effect. Commands issued prior to this date and time remain in the "Waiting for Effective Date" status until this time, at which time the command is executed.
- Command Expiration Date/Time: the date time when the command expires. The command cannot be executed after this date and time.
- Priority: the priority for the command.
- Requester: the application sending the command.
- Requester User: the user who initiated the command.

- Requester Transaction ID: an ID for the command, defined by the requester.
- Utility Device ID: ID of the device used by the utility. Used to derive the device ID if the device ID is not provided.

About Bulk Commands

A Bulk command is an activity that is sent to multiple devices. For example, you can use a bulk command to send commissioning commands to a set of meters installed on a particular day.

Attributes used to define a bulk command include the following:

- **Activity Type:** the activity type for the command
- **Business Object:** The business object for the command
- **Creation Method:** the creation method for the command
- **Expiration Date/Time:** the date and time when the command expires. The command cannot be executed after this date and time
- **Requester:** the application sending the command
- **Requester User:** the user who initiated the command
- **External Bulk Header ID:** an ID for the command, defined by the requester

About Service Tasks

Service tasks are task-related records, such as tasks performed by users of other Oracle Utilities applications, such as Oracle Utilities Customer Self Service.

Attributes used to define service tasks include the following:

- Service Task Type: the type of service task (service task types define basic attributes of specific types of service tasks).
- Service Task User ID: the user ID of the user who created the service task.
- Email Address: the email address of the user who created the service task.
- IP Address: The IP address of the server hosting the application used to create the service task.

Self service meter read service tasks also reference details specific to the meter and meter read submitted:

- Usage Subscription.
- Service Point
- Device Configuration:
- Meter Read Details: details of the meter read, including read sequence, measuring component, reading, and initial measurement created from the meter reading.

About Service Task Types

Service task types define properties common to specific types of service tasks.

Service task types represent different types of tasks that can be performed by users of other Oracle Utilities applications, such Oracle Utilities Customer Self Service or Oracle Utilities Network Management System. Examples of service tasks include self service meter reads, in which users enter their own meter reads via the Customer Self Service application.

Service task types can be defined by the following attributes

- Service Task Type: the name of the task type.

- Service Task Business Object: the business object instantiated when service tasks of this type are created.
- Service Task Class: a category used to service task types for reporting purposes (outage, self-service, etc.).
- Other data based on the specific type of service task (Service Provider, Data Source, Exception Handling, etc.)

About Service Issue Monitors and Service Investigative Orders

Service Issue Monitors are service tasks that analyze service points to determine if service is needed. If service is determined to be needed, the Service Issue Monitor creates a Service Investigative Order.

Device events, VEE exceptions, and failed smart meter commands can trigger the creation of a service issue monitor (the type of service issue monitor created is based on the Service Issue Monitor Type specified on the device event type, exception type, or activity type). Once created, service issue monitors analyze the service point where the device associated with the device event, VEE exception, or failed command, based on evaluation criteria specified on the service issue monitor's type. If the criteria are met (in other words, if a specified number of command failures, device events, or VEE exceptions are found for the service point), the service issue monitor creates a service investigative order.

Attributes used to define service issue monitors include the following:

- **Service Task Type**: The Service Issue Monitor Type upon which the Service Issue Monitor is based.
- **Status**: The current status of the Service Issue Monitor. Can be "Pending", "Approval In Progress", "Processed", or "Discarded".
- **Service Point**: The service point at which the event that triggered the creation of the Service Issue Monitor occurred.
- **VEE Exception ID**: The ID of the VEE exception that triggered the creation of the Service Issue Monitor.
- **Device Event ID**: The ID of the device event that triggered the creation of the Service Issue Monitor.
- **Initiating Command**: The failed command that triggered the creation of the Service Issue Monitor.
- **Resulting Activity**: The Service Investigative Order activity created as a result of the Service Issue Monitor.
- **Events**: Details of the events that triggered the creation of the Service Investigative Order created by the Service Issue Monitor.
  - **Sequence**: The order in which the event occurred.
  - **Event Date/Time**: The date and time at which the event occurred.
  - **Events**: The information string for the event.

Service Investigative Orders

Service investigative orders are activities created by a service issue monitor when a specified set of events have occurred at a service point. The type of activity created by the service issue monitor is defined on the service issue monitor's type.

Service issue monitors are often configured to create field activities that are in turn sent to an external field work system, such as Oracle Utilities Mobile Workforce Management.

About Service Issue Monitor Types

Service issue monitor types are a category of service task types used to define the conditions under which service issue monitors are created.

Service issue monitors monitor and analyze service points to determine service is needed.

Service monitor issue types can be defined by the following attributes:

- **Related Transaction BO**: The business object used to create Service Issue Monitors when the evaluation criteria is met.

- **Service Task Class**: The class of service task. For Service Issue Monitor Types, this should be set to "Service Issue Monitor".
- **Approval Required**: Specifies whether or not approval is required before creating a Service Investigative Order based on this Service Issue Monitor Type.
- **Evaluation Criteria**: Defines the criteria used to determine if a Service Investigative Order should be created. Service Investigative Order are created if a specified number of command failures, device events, or VEE exceptions are found for the service point. Evaluation criteria are defined by the following:
  - **Sequence**: The order in which the criteria is evaluated.
  - **Evaluation Criteria Relationship**: The relationship between this criteria and other criteria (based on sequence). Valid options are "And" and "Or". If set to "And", a Service Investigative Order is only created if this criteria and all other "And" criteria are met. If set to "Or", a Service Investigative Order is created if this criteria or any other "Or" criteria are met.
  - **Service Issue Monitor Evaluation Types**: The type of evaluation to perform for this criteria. This pecifies the type of issue to search for. Valid options include Command Failure, Device Event, or VEE Exception.
  - **Evaluation Details**: Specific details for the evaluation criteria, based on the evaluation type:
    - **Command Failure**: One or more command (activity) types that indicate a Service Investigative Order should be created
    - **Device Event**: A device event category and one or more device types that indicate a Service Investigative Order should be created
    - **VEE Exception**: The VEE exception type that indicates a Service Investigative Order should be created
  - **Number of Occurrences**: The number of occurrences of the command failure, device event, or VEE exception that must occur before a Service Investigative Order is created.
  - **Number of Days Back**: The number of days in the past to check for other instances of the command failure, device event, or VEE exception.
- **Discard Rules**: Defines rules for discarding new Service Issue Monitors based on existing Service Investigative Orders. New Service Issue Monitors are always discarded when created if an existing Service Investigative Order created by an Service Issue Monitor of the same type exists for the service point. Discard rules are defined by the following:
  - **If Existing SIO Found with Different SIM Type**: A flag that indicates if the current Service Issue Monitor should be discarded if an outstanding Service Investigating Order of a different type is found.
  - **If Completed SIO Found**: A flag that indicates if the current Service Issue Monitor should be discarded if a completed Service Investigative Order created from a Service Issue Monitor of the same type is found. If Set to "Yes" the "If Existing SIO Found with Different SIM Type" is also evaluated to determine whether or not to discard the Service Issue Monitor if an outstanding Service Investigating Order of a different type is found.
  - **Number of Days Back**: The number of days in the past to check for existing Service Investigative Orders when determining whether or not to discard the Service Issue Monitor.
- **Service Investigative Order**: Defines the type of Service Investigative Order to create if the evaluation criteria are met.
  - **Service Investigative Order Type**: The activity type for activities created when the evaluation criteria are met
  - **Field Task Type**: Specifies the type of field activity. Used only if/when the Service Investigative Order Type is a field activity.

Working with Activities

This section describes common tasks related to working with activities.

Creating Activities

Use this procedure to create a new activity.

Prerequisites: You must create at least one activity type before you can create new activities.

Activities are related to a specific device. Some types of activities require no user input, while others require the use to enter parameters for the activity. The steps below are based on creating an activity that requires user input.

1. Select **Main Menu** > **Communication** > **Activity+**.

   Activities can be created using the device's context menu by selecting **Go To Activity+** on the context menu of the device for which you wish to create the activity.
2. Select the activity type for the activity. This specifies the business object used to define the activity.
3. Click **OK**.
4. Search for and select the parent activity (if applicable).
5. Search for and select the device ID for the device for which you wish to create the activity.
6. Enter the Start and End date and time for the activity.
7. Complete any remaining fields and sections.

   NOTE: Remaining fields and sections are based on the activity type you selected.

8. Click **Save**.

Activity Search

Use this procedure to search for an activity on the Activity Query portal.

1. Select **Main Menu** > **Communication** > **Activity**.
2. Enter your search criteria.

   Base package search options include name and address, related object, identifier, and payload statistics. See *Searching Upload Statistics* for more information about searching payload statistics.
3. Click **Refresh**.
4. In the search results list, click the link for the activity you want to view or edit.

Maintaining Activities

Use this procedure to maintain an existing activity.

You use the Activity portal to maintain activities. This portal includes the following zones:

- **Activity**: defines the basic attributes of the activity, based on the activity type.
- **Activity Hierarchy Tree**: displays activities, communications, and device events related to the activity.
- **Activity Related Completion Event**: displays completion events (if any) related to the activity.

To maintain an activity:

1. Select **Main Menu** > **Communication** > **Activity** to navigate to the Activity portal.
2. Search for and select the appropriate activity.
3. To perform a action, click the appropriate button.

   The specific actions available for an activity are based on the current status of the activity, and the activity business object. The statuses in which each action are allowed are listed in parentheses. Action options include the following:

Commission Ready	Used with commission device commands to initiate the command. (Allowed Status: Waiting for Effective Date)
Communication in Progress	Used with commands to changes the status to "Communication In Progress" and initiates communication with the head-end system. (Allowed Status: Waiting for Effective Date)
Complete	Attempts to complete the activity. (Allowed Status: Waiting)
Connect	Used with remote connect commands to complete the command. (Allowed Status: Waiting for Effective Date)
Delete	Deletes the activity. (Allowed Status: Communication In Progress, Validation Error, Waiting, Waiting for Effective Date)
Discard	Discards the activity. (Allowed Status: Communication In Progress, Validation Error, Waiting, Waiting for Effective Date)
Edit	Allows user to edit the activity. (Allowed Status: Communication In Progress, Validation Error, Waiting, Waiting for Effective Date)
Retry	Used with commands to re-initiate the command. (Allowed Status: Communication In Progress)
Revalidate	Used with commands to re-validate the command, (Allowed Status: Validation Error)

Working with Communications

This section describes common tasks related to working with communications.

Creating Communications

Use this procedure to create a new communication.

Prerequisites: You must create at least one communication type before you can create new communications.

Communications are related to a specific device, and most often created as a result of an activity (such as a meter command) related to the device.

1. **Main Menu** > **Communication** > **Communication+**.
2. Select the communication type for the communication. This specifies the business object used to define the communication.
3. Click **OK**.
4. Search for and select the device ID of the device related to the communication.
5. Complete any remaining fields and sections.

   NOTE: Remaining fields and sections are based on the communication type you selected.

6. Click **Save**.

Communication Search

Use this procedure to search for a communication on the Communication Query portal.

1. Select **Main Menu** > **Communication** > **Communication**.
2. Enter your search criteria.

   Base package search options include name and address, device information, and communication identifier.
3. Click **Refresh**.
4. In the search results list, click the link for the communication you want to view or edit.

Maintaining Communications

Use this procedure to maintain an existing communication.

You use the Communication portal to maintain communications. This portal includes the following zones:

- **Communication**: defines the basic attributes of the communication, based on the communication type.

To maintain an communication:

1. Select **Main Menu** > **Communication** > **Communication** to navigate to the Communication portal.
2. Search for and select the appropriate communication.
3. Click the **Edit** or **Delete** button as appropriate.

   NOTE: Other actions available for the communication are based on the business object used to define the communication, and the current status of the communication.

Working with Completion Events

This section describes common tasks related to working with completion events.

Creating Completion Events

Use this procedure to create a new completion event.

Completion events are most often created upon successful receipt of inbound communications related to an activity or command, and are used to create or update data to reflect the effect of activity. However, users can also create completion events using the following procedure.

1. **Main Menu** > **Communication** > **Completion Events+**.
2. Select the completion event business object for the completion event.
3. Click **OK**.
4. Search for and select the activity (the command) to which the completion event is related.
5. Enter a sequence for the completion event. This defines the relative order by which completion events for the related activity (command) are executed.

6. Search for and select the inbound communication to which the completion event is related (if applicable).
7. Search for and select the device to which the completion event is related. This is the device for which the related activity (command) was initiated.
8. Enter the date and time of the event (if applicable).
9. Complete any remaining fields and sections.

   NOTE: Remaining fields and sections are based on the completion event business object you selected.

10. Click **Save**.

Completion Event Search

Use this procedure to search for completion events on the Completion Events Query portal.

1. Select **Main Menu** > **Communication** > **Completion Events**.
2. Enter your search criteria.

   Base package search options include completion event and related foreign key object (service point, device, initial measurement data, or install event).
3. Click **Refresh**.
4. In the search results list, click the link for the completion event you want to view or edit.

Maintaining Completion Events

Use this procedure to maintain an existing completion event.

You use the Completion Event portal to maintain completion events. This portal includes the following zones:

- **Completion Event**: defines the basic attributes of the completion event.
- **Completion Event Related Objects**: displays objects related to the completion event, such as devices, service points, or initial measurement data.

To maintain an completion event:

1. Select **Main Menu** > **Communication** > **Completion Events** to navigate to the Completion Event portal.
2. Search for and select the appropriate completion event.
3. Click the **Edit** or **Delete** button as appropriate.

   NOTE: Other actions available for the completion event are based on the business object used to define the completion event, and the current status of the event.

Working with Device Events

This section describes common tasks related to working with device events.

Creating Device Events

Use this procedure to create a new device event.

Device events are most often imported into the application from a head-end system. However, users can also create device events using the following procedure.

1. **Main Menu** > **Communication** > **Device Events+**.
2. Search for and select the device event type on which the device event is based.
3. Enter a date and time for the device event. For events with a duration, such as a power outage, this is the start date and time of the duration.
4. Enter an end date and time for the device event. For events with a duration, such as a power outage. this is the end date and time of the duration. Not applicable to events with no duration, such as a tampering alter or power restoration.
5. Enter the device identifier number for the device to which the device event is related (if known). This field is used in place of the device ID field, and should be used only if the user can't locate the device via the device ID field.
6. Search for and select the device to which the device event is related.
7. Complete the fields in the **Sender** section to identify the system from which the device event was received.
8. Complete the fields in the **Event Information** section to provide additional details of the device event.
9. Complete any remaining fields and sections .
10. Click **Save**.

Device Event Search

Use this procedure to search for device events on the Device Events Query portal.

1. Select **Main Menu** > **Communication** > **Device Events**.
2. Enter your search criteria.

   Base package search options include device and device event ID.
3. Click **Refresh**.
4. In the search results list, click the link for the device event you want to view or edit.

Maintaining Device Events

Use this procedure to maintain an existing device event.

You use the Device Event portal to maintain device events. This portal includes the following zones:

- **Device Event**: defines the basic attributes of the device event.

To maintain a device event:

1. Select **Main Menu** > **Communication** > **Device Event** to navigate to the Device Event portal.
2. Search for and select the appropriate device event.
3. Click the **Edit** or **Delete** button as appropriate.

NOTE: Other actions available for the device event are based on the device event type and business object used to define the device event, and the current status of the event.

Working with Notification Suppressions

This section describes common tasks related to working with notification suppressions.

Creating Notification Suppressions

Use this procedure to create a notification suppression.

Prerequisites: You must configure a device event notification suppression activity type that defines the device events to be suppressed by the notification suppression.

Notification suppressions are related to a device or service point. They are created to prevent the propagation of device event notifications to a subscribing system.

1. Select **Main Menu** > **Communication** > **Notification Suppression+**, or navigate to the Service Point portal for a service point and click the **Add** link in the Suppressions Related to SP zone title bar.
2. Complete at least one of the following fields for the service point or device:
   - Service Point ID
   - External Service Point ID
   - Device ID
   - Utility Device Identifier Number
3. Select the suppressed service provider.

   The suppressed service provider is the subscribing system to which notifications will be suppressed.
4. Click **Save.**

Notification Suppression Search

Use this procedure to search for service points that can have device event notifications suppressed or unsuppressed. You can use the results of the search to create notification suppressions for a service point, or to unsuppress service points that have notifications suppressed.

1. Select **Main Menu** > **Communication** > **Notification Suppression**.
2. Use the Query Option to select the type of search that you want to perform:
   - Select **Suppress Service Point and Device Query – Query Zone** to search for service points for which device event notifications can be suppressed.
   - Select **Unsuppress Service Point and Device Query – Query Zone** to search for service points that currently have notifications suppressed for a given service provider.
3. Enter your search criteria.

   Base package search options include Service Provider to Suppress/Unsupress, Address, City, Postal, Device Type, and Head End. Other options are available based on the type of query option that you have chosen.
4. Click **Refresh.**

5. In the search results list, select the service points for which you want to suppress or unsuppress notifications.
6. Click **Create/Maintain Suppression for All Selected** to create notification suppressions for the selected service point, or to maintain existing notification suppressions.

Maintaining Notification Suppressions

Use this procedure to maintain an existing notification suppression.

1. Select **Main Menu** > **Communication** > **Notification Suppression** to navigate to the Notification Suppression portal.
2. Search for the appropriate notification suppression.
3. Select the Activity ID to go to the activity page for the suppression.
4. The Record Actions section will display the valid actions for maintaining the suppression activity.

Working with Commands

This section describes common tasks related to working with commands.

Initiating Commands

Use this procedure to initiate a command for a device.

You initiate commands via the Device portal.

1. Select **Main Menu** > **Device** > **Device** to navigate to the Device portal.
2. Search for and select the appropriate device.
3. Click the **Initiate Command** link in the Device Activities zone title bar.
4. Select the command to initiate from the **Command Request BO** drop-down list.
5. Click **Save**.
6. Search for and select a parent activity for the command, if applicable.
7. Enter a Command Effective date and time for the command.

   This is the date and time on which the command takes effect. Commands issued prior to this date and time remain in the "Waiting for Effective Date" status until this time, at which time the command is executed.
8. Enter a Command Expiration date and time.

   This is the date and time when the command expires. The command cannot be executed after this date and time.
9. Select the priority for the command.
10. Select the requesting system for the command. Requesting systems are defined as service providers.
11. Search for and select a requester user. This is the user who is initiating the command.
12. Enter a requester transaction ID for the command.
13. Complete any remaining fields.

> **NOTE:** Remaining fields and sections are based on the command request business object you selected. For example, remote connect commands can optionally retrieve a start measurement from the device and remote disconnect

commands can optionally retrieve a final measurement from the device. For these types of commands, you must provide details concerning if and how those measurements are retrieved.

Initiating Bulk Commands

Use this procedure to initiate a bulk command for multiple devices.

Initiate bulk commands via the Device portal.

1. Select **Main Menu** > **Device** to navigate to the Device portal.
2. Search for the appropriate devices.
3. Use the select boxes in the search results zone to select the appropriate devices.
4. Click the **Initiate Command for All Selected** link in the search results zone title bar.
5. Select the command to initiate from the **Activity Type** drop-down list.
6. Click **OK**.

   The Activity portal displays information about your bulk command request.

Cancelling Commands

Use this procedure to cancel a command for a device.

You cancel commands via the Device portal.

1. Select **Main Menu** > **Device** > **Device** to navigate to the Device portal.
2. Search for and select the appropriate device.
3. Click the **Cancel Command** link in the Device Activities zone title bar.
4. Search for and select the parent activity for the command to cancel, if applicable.
5. Select the requesting system for the command to cancel. Requesting systems are defined as service providers.
6. Search for and select a requester user. This is the user who is canceling the command.
7. Select the recipient of the command cancellation. This is the external system (defined as a service provider) that will receive notification of the cancellation.
8. Select the priority for the command cancellation.
9. Search for and select the command to cancel.

   When searching for the command to cancel, the **Retrieve Command to Cancel** dialog automatically displays commands currently in the "Waiting" status. You can refresh this list by searching for and selecting a device and specifying the "On or Before Creation" date and time.

Uploading Measurements and Device Events

Use this procedure to upload an initial measurement or device event.

This feature allows users to manually upload initial measurements and device events in XML format.

1. Select **Main Menu** > **Device Communication** > **Load IMDs / Events (XML)**.

   The Online IMD and Event Upload screen opens.

2. Enter an XML document that contains the initial measurement or device event in the box.
   - To view the XML format for initial measurements, click the Online IMD Upload help icon.
   - To view the XML format for device events , click the Online Event Upload help icon.

3. Click **Submit**.

Searching and Viewing Service Tasks

Use this procedure to search for and view service tasks using the Service Tasks Query portal.

1. Select **Main Menu** > **Service Tasks**.
2. Enter your search criteria.

   Base package search options include self-service task and service task ID.

   Self-service task search criteria include:

   - Self-Service User ID (required)
   - Email Address
   - Service Task Type
   - On or Before Creation Date/Time

3. Click **Refresh**.
4. In the search results list, click the link for the service task you want to view or edit.

   The selected service task opens in the Service Task portal.

Working with Service Issue Monitors

Use this procedure to search for and maintain service issue monitors using the Service Tasks Query portal.

1. Select **Main Menu** > **Service Tasks**.
2. Select “Service Issue Monitor Query” from the **Query Option** drop-down list.
3. Enter your search criteria

   Service issue monitor search criteria include:

   - Service Point ID
   - Service Task Type
   - On or Before Creation Date/Time

4. Click **Refresh**.
5. In the search results list, click the link for the service issue monitor you want to view or edit.

   The selected service issue monitor opens in the Service Task portal.

6. To modify the service issue monitor, click the appropriate button:
   - **Analyze Service Point**: Analyzes the service point to determine if the specified number of command failures, device events, or VEE exceptions have occurred for the service point. If so, a service investigative order activity is created. Available only if the service issue monitor is currently in the “Pending” status.

- **Discard**: Discards the service issue monitor. Available only if the service issue monitor is currently in the "Pending" status.
- **Approve**: Used to manually approve the creation of a service investigative order based on this service issue monitor. Available only if the service issue monitor is currently in the "Approval in Process" status.
- **Reject**: Used to manually reject the creation of a service investigative order based on this service issue monitor. Available only if the service issue monitor is currently in the "Approval in Process" status.

Device Communication Administration

This section describes common tasks related to device communication administration.

Defining Activity Types

Use this procedure to define activity types.

Prerequisites: You must create at least one activity type business object and related activity business object before you can create new activity types.

To maintain existing activity types, select **Admin Menu** > **Communications** > **Activity Type**, then use *standard actions* to edit or delete an activity type.

To define a new activity type, follow these steps:

1. Select **Admin Menu** > **Communication** > **Activity Type**.

   The Activity Type portal opens displaying the Activity Type List zone.
2. Click the **Add** icon in the row of the activity/activity type for which you wish to create an activity type.
3. Enter a name and a meaningful description for the activity type.
4. Select a Service Issue Monitor Type for the activity type (if applicable).
5. Complete any remaining fields and sections .

   NOTE: Remaining fields and sections are based on the activity type business object.
6. Click **Save**.

Activities can now be created based on this activity type.

Defining Communication Types

Use this procedure to define communication types.

Prerequisites: You must create at least one communication type business object and related communication business object before you can create new communication types.

To maintain existing communication types, select **Admin Menu** > **Communications** > **Communication Type**, then use *standard actions* to edit or delete an communication type.

To define a new communication type, follow these steps:

1. Select **Admin Menu** > **Communication** > **Communication Type**.

   The Communication Type portal opens displaying the Communication Type List zone.

2. Click the **Add** icon in the row of the communication/communication type for which you wish to create an communication type.
3. Enter a name for the communication type.
4. Search for and select the business object for the communication type (if not populated).
5. Search for and select the related transaction business object for the communication type (if not populated).
6. Select the communication flow for the communication type (inbound or outbound).
7. Enter an external communication type for the communication type (the name of the communication type used by the external system which will send or receive communications based on this type).
8. Select the status of the communication type (active or inactive).
9. Enter a meaningful description for the communication type.
10. Complete any remaining fields and sections .

    NOTE: Remaining fields and sections are based on the communication type business object.

11. Click **Save**.

Communications can now be created based on this communication type.

Defining Device Event Types

Use this procedure to define device event types.

To maintain existing device event types, select **Admin Menu** > **Communications** > **Device Event Type**, then use *standard actions* to edit, duplicate, or delete a device event type.

To define a new device event type, follow these steps:

1. Select **Admin Menu** > **Communications** > **Device Event Type+**.

    NOTE: If your system supports more than one device event type business object, you will be prompted to select a business object for this device event type.

2. Enter a name and a meaningful description for the device event type.
3. Select a status for the device event type.
4. Select the business object to use when creating device events of this type.
5. Search for and select the standard event name for device events of this type. Standard event names are defined as values for the Standard Event Name extendable lookup.

    Note that each device event type must have a unique standard event name.
6. Select a device event and reporting category for device events of this type.
7. If applicable, select an activity type that corresponds to device events of this type. This is used to define the activity type for activities created based on device events of this type.
8. If applicable, select the type of service issue monitor to create when a device event of this type is received from the **Service Issue Monitor Type** drop-down list.
9. Complete any additional fields as applicable.
10. Click **Save**.

Now you can use this device event type when creating device events.

Defining Reader Remark Types

Use this procedure to define reader remark types.

Note: If your reader remark types will specify To Do Types, To Do Roles, or Service Issue Monitor Types, you must define those before you can define your reader remark types.

To maintain existing reader remark types, select **Admin Menu** > **Communications** > **Device Event Type**, then use *standard actions* to edit, duplicate, or delete a device event type.

To define a new reader remark type, follow these steps:

1. Select **Admin Menu** > **Communications** > **Device Event Type+**.
2. Select "Reader Remark Type" from the **Device Event Type Business Object** drop-down list, and click **OK**,
3. Enter a name and a meaningful description for the reader remark type.
4. Select a reporting category for reader remarks of this type.
5. Specify whether or not (Yes or No) reader remarks of this type should create To Do entries, create Service Issue Monitors, or send information to subscribing systems from the **Eligible for Processing** drop-down list.
6. If applicable, select the To Do Type for To Do entries created as a result of reader remarks of this type from the **To Do Types** drop-down list.

   Applicable only if the **Eligible for Processing** flag is set to "Yes".
7. If applicable, select the To Do Role for To Do entries created as a result of reader remarks of this type from the **To Do Roles** drop-down list. If not specified, the default To Do role for the specified **To Do Type** will be used.

   Applicable only if the **Eligible for Processing** flag is set to "Yes".
8. If applicable, select the type of service issue monitor to create when a reader remark of this type is received from the **Service Issue Monitor Type** drop-down list.

   Applicable only if the **Eligible for Processing** flag is set to "Yes".
9. Click **Save**.

Now this reader remark type can be used when creating reader remarks.

Defining Service Task Types

Use this procedure to define service task types.

To maintain existing service task event types, select **Admin Menu** > **Communications** > **Service Task Type**, then use *standard actions* to edit, duplicate, or delete a service task type.

To define a new service task type, follow these steps:

1. Select **Admin Menu** > **Communications** > **Service Task Type+**.

   NOTE: If your system supports more than one service task type business object, you will be prompted to select a business object for this service task type.
2. Enter a name and a meaningful description for the service task type.
3. If needed, select the business object to use when creating service tasks of this type.

4. Select the service task class applicable to service tasks of this type.

   Service tasks types used with Oracle Utilities Customer Self Service have a default class of “Self-service”.

5. Enter a detailed description for the service task type

6. Complete the remaining fields and sections (if applicable).

7. If applicable, select a To Do type and corresponding To Do role to use when creating To Do entries related to service tasks of this type.

   The base package contains a “Service Task Type To Do” To Do type for use with service task types.

8. Complete any additional fields as applicable.

9. Click **Save**.

This service task type can now be used when service tasks are received from other Oracle Utilities applications, such as Oracle Utilities Customer Self Service.

Defining Service Issue Monitor Types

Use this procedure to define service issue monitor types.

To maintain existing service issue monitor event types, select **Admin Menu** > **Communications** > **Service Task Type**, then use *standard actions* to edit, duplicate, or delete a service issue monitor type.

To define a new service issue monitor type, follow these steps:

1. Select **Admin Menu** > **Communications** > **Service Task Type+**.

2. Select “Service Issue Monitor Type” from the **Service Task Type Business Object** drop-down list and click **OK**.

3. Enter a name and a meaningful description for the service issue monitor type.

4. Enter a detailed description for the service issue monitor type

5. Select the service task class applicable to service issue monitors of this type.

   Service issue monitor types have a default class of “Service Issue Monitor”.

6. Specify the **Evaluation Criteria** for the service issue monitor type.

7. Specify the **Discard Rules** for the service issue monitor type.

8. Specify the **Service Investigative Order** for the service issue monitor type.

9. Click **Save**.

This service issue monitor type can now be used to create service issue monitors when device events, VEE exceptions, or failed commands are encountered for a service point.

Chapter 8

Initial Measurement and Device Event Upload Statistics

This section describes concepts and procedures related to searching and viewing statistics related to uploading of initial measurement data and device events from head-end systems.

NOTE: The upload statistics functionality of the Service and Measurement Data Foundation is available only with Oracle Utilities Smart Grid Gateway.

Understanding Upload Statistics

This section describes concepts related to initial measurement and device event upload statistics.

About Upload Statistics

Upload statistics (or upload stats) are statistics related to the uploading of initial measurement data and device events sent from a head-end system.

Upload statistics are defined as activities in Oracle Utilities Smart Grid Gateway.

There are three types of upload statistics activities:

- **Payload Statistics**: Contains statistics related to a specific payload (file) containing one or more initial measurements or device events. Payload Statistics activities contain:
  - Basic information about the payload (head-end system, file name, and status
  - Middleware statistics including specifics about the file, the total number of initial measurements or device events processed, the number of initial measurement or device events errors, and total processing time
  - Initial measurement statistics including the number of initial measurements processed
  - Device event statistics including the number of device events processed

- **Payload Error Notification**: Contains details concerning processing errors encountered in an individual payload (file) containing one or more initial measurements or device events. Payload Error Notification activities are related to Payload Statistics activities.
- **Payload Summary**: Contains processing summary statistics for an individual payload (file) containing one or more initial measurements or device events. Payload Summary activities are related to Payload Statistics activities, and are used to update related payload statistics upon the completion of payload processing.

Upload statistics activities are created during processing of payload files as follows:

- When processing begins for a payload, a Payload Statistics activity is created to record the process.
- If an error occurs during processing, a Payload Error Notification activity is created.
- When payload processing is complete, a Payload Summary activity is created, which in turn, updates the Payload Statistics activity with details concerning the processing of the payload, including (the start and end time of the processing, the total processing time, the number of initial measurements or device events processed, and the number of initial measurement or device event errors (if any).

About Head-End System Processing Statistics

Head-end system processing statistics are summarized processing statistics for payloads received from a given head-end system.

As Oracle Utilities Smart Grid Gateway processes payloads containing initial measurements or device events, statistics for each payload are captured in Payload Statistics activities. Over time, payload statistics for each head-end system are summarized to allow administrators to view statistics summary for the head-end system.

Head-end system processing statistics are stored as aggregated measurements for aggregator measuring components. A separate aggregator measuring component must be set up for each head-end system for which processing statistics will be aggregated.

Working with Upload Statistics

This section describes common tasks related to working with upload statistics and head-end system processing statistics.

Searching Upload Statistics

Use this procedure to search for upload statistics using the Activity Query portal.

1. Select **Main Menu** > **Activity**.
2. Select "Payload Statistics Query" from the **Query Option** drop-down list.
3. Enter your search criteria.

   Base package search criteria include head-end system, file name, status, and creation date/time.
4. Click **Refresh**.
5. In the search results list, click the link for the upload statistics activity you want to view or edit.

Viewing Upload Statistics

Use this procedure to view and maintain upload statistics.

You use the Activity portal to view and maintain upload statistics. This portal includes the following zones:

- **Activity**: defines the attributes of the selected Payload Statistics, Payload Error Notification, or Payload Summary activity.

To view or maintain an upload statistics activity:

1. Select **Main Menu** > **Activity** to navigate to the Activity Query portal.
2. Search for and select the appropriate upload statistics activity.
3. Click the action button as appropriate.

   Available actions include:

   - **Edit**: allows you to edit the upload statistics activity
   - **Delete**: deletes the upload statistics activity
   - **Inactive**: changes the status of the activity to "Inactive." Applicable only if the activity has a current status of "Active."
   - **Validate**: validates the upload statistics activity
   - **Accumulate Statistics**: calculates and updates statistics for the upload statistics activity. Applicable only to Payload Statistics activities.

   NOTE: Actions available for the activity are based on the business object used to define the activity, and the current status of the activity.

Creating Processing Statistics Aggregators

Processing statistics aggregators are used to aggregate processing statistics for device events and initial measurements. Use this procedure to create an processing statistics aggregator measuring component.

Note: You must create one or more processing statistics measuring component types before you can create processing statitics aggregators.

1. **Main Menu** > **Total and Trends** > **Processing Statistics**.
2. Click the **Add** link in the **Processing Statistics Search** zone title bar.
3. Select the measuring component type for the new aggregator.

   This should be an processing statistics measuring component type.

   The list of available measuring component types is filtered by Measuring Component Category to display only Aggregator measuring component types.
4. Click **OK**.
5. Indicates how the aggregator is used (additive, subtractive, peak, or check) when aggregating processing statistics.
6. Select the time zone in which processing statistics are to be aggregated (this is one of the aggregation dimensions).
7. Select the head-end system for aggregating processing statistics (this is one of the aggregation dimensions).

8. If applicable, define the Next Aggregation Horizon for the aggregator.
9. Click **Save**.

Once the aggregator has been created, aggregated processing statistics can be calculated manually, or via batch process.

Defining Processing Statistics Measuring Component Types

Processing statistics measuring component types define common properties of processing statistics measuring components. Use this procedure to define an processing statistics measuring component type.

Prerequisites: You must define service types and payload statistics activity types before you can create upload statistics measuring component types.

To define a new processing statistics measuring component type, follow these steps:

1. Select **Admin Menu** > **Common** > **Measuring Component Type+**.
2. Select the business object that defines the type of measuring component type you wish to create and click **OK**.

   For processing statistics measuring component types, select **Activity Upload Statistic Aggregator Type**.
3. Enter a name and a meaningful description for the processing statistics measuring component type.
4. Select the business object to use when creating processing statistics measuring components of this type. Base package processing statistics business objects include:
   - Payload Statistics Aggregator — Event
   - Payload Statistics Aggregator — IMD
5. Select the Measurement business object to use for measurements for processing statistics measuring components of this type.
6. Select the Service Type.
7. Select the Fallback Time Zone
8. Select the Statistic Type that processing statistics measuring components of this type will aggregate. Base package processing statistics types include:
   - Events
   - Initial Measurements

   Note that Statistic Type selected should match the business object selected (events or IMDs)
9. Specify the Aggregation Horizon and Aggregation Lag for processing statistics measuring components of this type.
10. Select one or more Valid Activity Types to Aggregate.
11. To add or remove value identifiers to this measuring component type, click the + or – sign in the Value Identifiers section and specify the following for each:
    - Value Identifier Type
    - Description
    - UOM
    - TOU
    - SQI
12. Fill out the fields in the Display Configuration section.

> **NOTE:** The fields in this section are based on the measuring component type business object you selected.

13. To add or remove event bar profiles to this measuring component type, click the + or – sign in the Event Bar Profiles section, and select the event bar profile and indicate if it is the default.
14. To add or remove final values overlay profiles to this measuring component type, click the + or – sign in the Final Values Overlay Profiles section, and select the overlay profile and indicate if it is the default.
15. Click **Save**.

Searching Head-End System Processing Statistics

Use this procedure to search for head-end system processing statistics using the Processing Statistics portal.

1. Select **Main Menu** > **Total and Trends** > **Processing Statistics**.
2. Enter your search criteria.

   Base package search criteria include head-end system.
3. Click **Refresh**.
4. In the search results list, click the link for the processing statistics you want to view or edit.

   Processing statistics are represented as aggregator measuring components.

Viewing Head-End System Processing Statistics

Use this procedure to view and maintain head-end system processing statistics.

You use the Total and Trends portal to view and maintain head-end system processing statistics. This portal includes the following zones:

- **Measuring Component**: defines the basic attributes of the aggregator measuring component that stores processing statistics for the head-end system
- **Statistics Summary View**: displays processing statistics aggregated from the upload statistics activities for the head-end system. The statistics displayed are based on the Value Identifiers configured on the aggregator measuring component's type. The base package can calculate the following statistics:
  - **Total**: the total number of initial measurements or device events processed for the head-end system
  - **Outstanding**: the total number of outstanding initial measurements or device events for the head-end system, calculated by subtracting the number of initial measurements or device events completed from the number processed
  - **Errors**: the total number of initial measurement or device event errors for the head-end system
  - **Pending**: the total number of pending initial measurements or device events still to be processed for the head-end system
  - **Completed**: the total number of initial measurements or device events successfully uploaded for the head-end system
- **Final Values Overlay Zone**: allows users to graphically view measurement data that represents processing statistics.

  NOTE: This zone is only displayed if Oracle Utilities Meter Data Management is installed alongside Oracle Utilities Smart Grid Gateway.

To view or maintain an upload statistics record:

1. Select **Main Menu** > **Total and Trends** > **Processing Statistics** to navigate to the Processing Statistics portal.

2. Search for and select the appropriate processing statistics aggregator measuring component.
3. Use the Statistics Summary View zone to view aggregated statistics for the head-end system.
4. Use the Final Values Overlay zone (if present) to view graphic representations of the processing statistics for the head-end system.

Chapter 9

Integrations

This section describes concepts and procedures related to integrating products that utilize the Service and Measurement Data Foundation, including Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway to other systems.

Data Synchronization

This section describes concepts and procedures related to managing data synchronization between customer information systems (such as Oracle Utilities Customer Care and Billing) and products that utilize the Service and Measurement Data Foundation, including Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway.

Understanding Data Synchronization

This section describes concepts related to data synchronization.

About Inbound Data Synchronization Requests

Inbound data synchronization requests (or inbound sync requests) are messages sent from an external system used to synchronize data between the external system and the target system (in this case, Oracle Utilities Meter Data Management or Oracle Utilities Smart Grid Gateway).

Inbound data synchronization is done most often between a customer information system (such as Oracle Utilities Customer Care and Billing) and Oracle Utilities Meter Data Management. In a typical implementation, the customer information system serves as the "system of record" for accounts, customers, contacts, and meters (devices). When this data is updated, the corresponding data in Oracle Utilities Meter Data Management must be updated accordingly.

In addition, inbound sync requests can be received from other systems, such as an asset management system (such as Oracle Utilities Operational Device Management) to synchronize asset/device data.

Inbound data synchronization can be performed for any maintenance object defined in Oracle Utilities Meter Data Management (the target system), but the primary maintenance objects used for data synchronization are Contact, Service Point, Device, Device Configuration, Measuring Component, Install Event, and Usage Subscription.

There are two types of data synchronization requests:

- Initial synchronization requests are used to initially populate data with Oracle Utilities Meter Data Management from the customer information system.
- Ongoing synchronization requests are used to receive updates from the customer information system

About Data Synchronization Request Exceptions

Data synchronization request exceptions (or sync request exceptions) are errors that occur as part of the data synchronization process.

Typical types of errors that occur during data synchronization include:

- Missing Data (one or more required data elements is missing from the sync request)
- Invalid Data (one or more data elements contain invalid data. This type of error includes situations where specific combinations of data are not valid, such as Manufacturer/Model, as well as situations where the values provided are not valid.)
- Duplicate Request (a sync request already exists for the maintenance object, external system, and external primary key).

Data synchronization request exceptions are based on message types defined using the Message administration portal (accessed via**Admin** > **System** > **Message**).

About Outbound Data Synchronization Requests

Outbound data synchronization requests (or outbound sync requests) are messages sent from Oracle Utilities Meter Data Management (or other Service and Measurement Data Foundation based application) to an external system to synchronize data between the external system and the target system (such Oracle Utilities Operational Device Management).

Outbound data synchronization is done most often between Oracle Utilities Meter Data Management and an asset management system (such as Oracle Utilities Operational Device Management). In a typical implementation, Oracle Utilities Meter Data Management serves as the "system of record" for contacts, service points, and install events. When this data is updated, the corresponding data in Oracle Utilities Operational Device Management must be updated accordingly.

Outbound data synchronization can be performed for any maintenance object defined in Oracle Utilities Meter Data Management, but the primary maintenance objects used for data synchronization are Contact, Service Point, and Install Event.

Working with Synchronization Requests

This section describes common tasks related to working with data synchronization requests.

Searching Inbound Synchronization Requests

Use this procedure to search for inbound synchronization requests using the Sync Request Inbound Query portal.

1. Select **Main Menu** > **Data Synchronization** > **Sync Request Inbound**.
2. Enter your search criteria.

Base package search options include sync request inbound information (maintenance object, external system, and external primary keys) and sync request inbound ID.

NOTE: Wildcards are NOT supported in this query zone.

3. Click **Refresh**.
4. In the search results list, click the link for the synchronization request you want to view or edit.

Viewing Inbound Synchronization Requests

Use this procedure to maintain an existing inbound synchronization requests.

You use the Sync Request Inbound portal to maintain inbound synchronization requests. This portal includes the following zones:

- **Sync Request Inbound**: defines the basic attributes of the synchronization request, including the original request (in XML format), and the transformed request (also in XML)
- **Sync Request Inbound Exceptions**: lists any exceptions associated with the synchronization request

To maintain an inbound sync request:

1. Select **Main Menu** > **Data Synchronization** > **Sync Request Inbound** to navigate to the Sync Request Inbound portal in edit mode.
2. Search for and select the appropriate inbound sync request.
3. Click the action button as appropriate.

   Available actions include:

   - **Monitor**: manually transitions the sync request from its current state to the next. This action is limited to ongoing sync requests where the current business object status is a non-final, non-transitory state, and has a defined Monitor Process.
   - **Discard**: discards the request.
   - **Send Negative Acknowledgement**: sends an acknowledgement to the external system that sent the request indicating that an error has occurred.
   - **Synchronize with Error**: used after an error occurs during the Additional Processing stage (for example, to perform connection or commissioning activities for a smart device). Sends a positive acknowledgement to the external system that sent the request indicating that the request has been received.

   NOTE: Actions available for the request are based on the business object used to define the request, and the current status of the request.

Searching Outbound Synchronization Requests

Use this procedure to search for outbound synchronization requests using the Sync Request Outbound portal.

1. Select **Main Menu** > **Data Synchronization** > **Sync Request Outbound**.
2. Enter your search criteria.

Base package search options include sync request inbound information (maintenance object, external system, and external primary keys) and sync request inbound ID.

NOTE: Wildcards are NOT supported in this query zone.

3. Click **Refresh**.
4. In the search results list, click the link for the synchronization request you want to view or edit.

Viewing Outbound Synchronization Requests

Use this procedure to maintain an existing outbound synchronization requests.

You use the Sync Request Display portal to maintain outbound synchronization requests. This portal includes the following zones:

- **Sync Request Outbound**: defines the basic attributes of the synchronization request, including the initial snapshot (in XML format), and the final snapshot (also in XML)
- **Sync Request Outbound Exceptions**: lists any exceptions associated with the synchronization request
- **Related Sync Requests**: displays related outbound synchronization requests in a non-final state for the same object (contact, service point, or install event) and primary key as the request being displayed

To maintain an outbound sync request:

1. elect **Main Menu** > **Data Synchronization** > **Sync Request Outbound** to navigate to the Sync Request Outbound portal in edit mode.
2. Search for and select the appropriate outbound sync request.
3. Click the action button as appropriate.

   Available actions include:

   - **Send Request**: sends the request to the external system. Used with outbound sync requests in an error state.
   - **Cancel**: cancels the request.

   NOTE: Actions available for the request are based on the business object used to define the request, and the current status of the request.

Working with Synchronization Request Exceptions

This section describes common tasks related to working with data synchronization request exceptions.

Searching Synchronization Request Exceptions

Use this procedure to search for inbound synchronization request exceptions using the Sync Request Inbound Exceptions portal.

1. Select **Main Menu** > **Data Synchronization** > **Sync Request Inbound Exceptions**.

   The **Sync Inbound Request Exception Summary** zone displays a list of exceptions grouped by the following:

- Maintenance Object: the maintenance object related to the sync requests which generated the exceptions
- Message Category: the message category for the exceptions
- Message Number: the message number for the exceptions
- Count: the number of exceptions in the group
- Message Text: the default message text (displaying message tokens) for the exceptions

2. In the **Sync Inbound Request Exception Summary** zone, click the broadcast icon for the group of exceptions you wish to view or edit.

   The selected exception type opens in the **Sync Request Inbound Exception Details** zone.

Viewing Synchronization Request Exceptions

Use this procedure to maintain an existing inbound synchronization request exceptions.

You use the Sync Request Inbound Exceptions portal to view inbound synchronization requests and associated exceptions. This portal includes the following zones:

- **Sync Request Inbound Exception Summary**: lists groups of inbound sync request exceptions, grouped by maintenance object, message category, and message number.
- **Sync Request Inbound Exception Details**: displays a list of sync requests that generated exceptions for a broadcast group of exceptions listed in the **Sync Request Inbound Exception Summary** zone.

To view inbound sync request exceptions:

1. Select **Main Menu** > **Data Synchronization** > **Sync Request Inbound Exceptions** to navigate to the Sync Request Inbound Exceptions portal.
2. Click the broadcast icon for the exception group you wish to view.

   The selected group is displayed in the **Sync Request Inbound Exception Details** zone.
3. To view a specific inbound sync request, click the **Sync Request** link.

   The selected sync request opens in the Sync Request Inbound portal. See *Viewing Inbound Synchronization Requests* for more information about viewing synchronization requests.

Integration with Business Intelligence Applications

This section describes concepts and procedures related to integration products that utilize the Service and Measurement Data Foundation, including Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway to business intelligence applications such as Oracle Utilities Analytics.

Understanding Business Intelligence Integrations

This section describes concepts related to integrating with business intelligence applications.

About the BI Configuration Portal

The BI Configuration Portal is used to define configuration settings used with integrations to business intelligence applications.

The BI Configuration portal is used to define configuration settings for the Extract, Transform, and Load (ETL) process used to move data from the Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway databases into a data warehouse used by Oracle Utilities Analytics. There are two types of ETL process supported, based on the specific version of Oracle Utilities Analytics being used:

- Oracle Warehouse Builder (OWB) based ETL is used with versions prior to v2.5.2
- Oracle Data Integrator (ODI) based ETL is used with version 2.5.2 and later.

The BI Configuration portal supports defining configuration settings for both types of ETL processing.

ODI-Based BI Configuration

The ODI-Based BI Configuration portal (available on the Main tab) contains the following zones:

- **BI-Oriented Master Configuration:** This zone displays the ODI-based master configuration (also accessible via the **Master Configuration** portal). This includes the following:
  - **Market Relationship Types**: Defines the market relationships used to determine which service providers to use during the data extract process. A service point may have several service providers (eg distributor, retailer, etc.) where each is defined with a specific market relationship type on either the service point directly or on the service point‘s market indirectly. Service point-oriented facts can extract up to two of these service provider’s information based on the configuration in this section. If a specific service point does not have a value for the given market relationship type, the service provider will be taken from the market referenced on the service point (it is not an error if no such provider is defined).
  - **Subscription Types**: Defines the usage subscriptions to include in the data extract process. A service point may have several usage subscriptions. Service point-oriented facts can extract information for up to two of these based on the configuration in this section. The **CCB Subscription Type** is used to define the usage subscription that contains the natural key to the CCB service agreement so that references to the CCB dimensions can be populated on the facts.
  - **Activity Category Types**: Defines the specific activity type categories extracted in the Activity Accumulation Fact . Only activities whose **Activity Type Category**is listed here will be included in the extract.
  - **Device Event BOs to Exclude**: Filters the Device Event Accumulation Fact to exclude certain device events. Device events whose **Device Event BO** is listed here will be excluded from the extract.
- **BI-Oriented Extendable Lookup List**: This zone displays a list of extendable lookups used by the ETL process.
- **Service Point Configuration List**: This zone displays a list of service point types and indicates whether or not snapshot configuration has been defined for each. Note that this zone is only available with Oracle Utilities Meter Data Management.

OWB-Based BI Configuration

The **OWB-Based ETL** tab on the BI Configuration portal contains the following zones:

- **O/B Sync BO Option & MO Audit Algo List**: This zone lists outbound data synchronization business objects and audit algorithms for each Fact/Dimension ETL source (maintenance object).
- **BI-Oriented Extendable Lookup List**: This zone displays a list of extendable lookups used by the ETL process.
- **External Data Source Indicators List**: This zone displays a list of external data sources defined in the **Business Intelligence Configuration** Feature Configuration. The “CCB Data Source Indicator” should be defined as the value of

the “External Data Source Indicator 1” option type on this configuration. The “CCB Data Source Indicator” value should match the Environment Id on the CCB system's installation options.

Working with Business Intelligence Integrations

This section describes common tasks related to working with integrations to business intelligence applications.

Using the BI Configuration Portal for ODI-Based ETL

Use this procedure to define business intelligence integration configuration settings using the **BI Configuration** portal for ODI-based ETL processing.

1. Select **Admin Menu** > **B** > **BI Configuration**.

   The **BI Configuration** portal opens. By default, this portal opens on the Main tab displaying the **ODI-Based BI Configuration** portal.

2. To edit the configuration settings, click **Edit** in the **BI-Oriented Master Configuration Details** zone. Configuration options include the following:

   - Market Relationship Types
   - Subscription Types
   - Activity Category Types
   - Device Event BOs to Exclude

   Click **Save**.

3. To go to the **Master Configuration** portal click the **Go To Master Configuration** link.

Using the BI Configuration Portal for OWB-Based ETL

Use this procedure to define business intelligence integration configuration settings using the **BI Configuration** portal for OWB-based ETL processing.

1. Select **Admin Menu** > **B** > **BI Configuration**.

   The **BI Configuration** portal opens on the Main tab displaying the **ODI-Based BI Configuration** portal.

2. Click the **OWB-Based ETL** tab.

   The **O/B Sync BO Option and MO Audit Algo List** zone lists outbound data synchronization business objects and audit algorithms for each Fact/Dimension ETL source (maintenance object).

3. To define the outbound data synchronization business object for an ETLsource, click the **Set-up outbound sync business object** link. This opens the **Maintenance Object** portal on the **Options** tab.

   a) Click the **Add** icon to add a new maintenance object option.

   b) Select the “Sync Request BO” option from the **Option Type** drop-down list.

   c) Search for and select the appropriate outbound data synchronization business object.

      The specific outbound data synchronization business object for each source can be found by clicking the “Click For Help” icon.

   d) Click **Save** to save the maintenance object.

4. To define the maintenance object audit algorithm for an ETLsource, click the **Set-up MO Audit Algorithm** link. This opens the **Maintenance Object** portal on the **Algorithms** tab.

a) Click the **Add** icon to add a new maintenance object algorithm.

b) Select the “Audit” option from the **System Event** drop-down list.

c) Search for and select the appropriate audit algorithm.

   The specific audit algorithm for each source can be found by clicking the “Click For Help” icon.

d) Click **Save** to save the maintenance object.

5. To go to the **Master Configuration** portal click the **Go To Master Configuration** link.

Chapter 10

Service Order Management

This section describes concepts and procedures related to managing service orders. This includes working with service order activities, field activities, appointments, and the Service Management dashboards.

Understanding Service Order Management

This section describes concepts related to service order management.

About Service Order Activities

Service order activities represent specific service order requests either received from an external system or created from within Oracle Utilities Smart Grid Gateway.

Service order activities are created when specific types of requests for service are received in the system. These activities orchestrate the steps necessary to fulfill the request, based on the current state of the service point related to the request. For example, the system creates an “enable service” activity when a request is made to enable service at a particular service point. This activity examines the current state of the service point, and creates one or more additional activities if appropriate. For example:

- If there is no meter currently installed at the service point, the service order activity would create an “install meter” field activity and send it to a field work system (such as Oracle Utilities Mobile Workforce Management).
- If there is a meter installed, but the meter is not currently registered with the head end system, the service order activity might create a “commission meter” smart meter command.
- If the meter is active and commissioned, but not currently connected, the service order activity might create a “remote connect” smart meter command.
- Etc.

Service order requests are typically received from the customer information system such as Oracle Utilities Customer Care and Billing, but can also be created from within Oracle Utilities Meter Data Management or Oracle Utilities Smart Grid Gateway.

The base package provides the following types of service order orchestration activities:

- Enable Service: Used to enable service at a service point.
- Disable Service Used to disable service at a service point.
- Cut for Non-Payment: Used to cut off service at a service point due to non-payment of past due amounts.
- Reconnect Service for Payment: Used to restore service at a service point after receipt of past due payment.
- Exchange Meter: Used to orchestrate the exchange of meters at service point, such as in the event that a customer upgrades their meter.
- Back to Back Service: Used to orchestrate a change of service when the customer at a service point changes (such as when owners/tenants change).

Service order orchestration activities are defined by the following:

- **Activity Type**: The service order's activity type.
- **Service Date/Time**: The date and time the service order request was received.
- **Service Point**: The service point associated with the service order request.
- **Service Agreements**: A list of one or more service agreements related to the service order request (not used with all service order orchestration activities).
- **Request Information**: Details of the service order request, including requester and external system information.
- **Collection Data Details**: Details regarding past due balances (used with Cut for Non-Payment activities only).
- **Contact Details (or Customer Information)**: Contact details for the customer associated with the service order request.
- **Activity Hierarchy**: A tree that displays the activity and related activities (including field activities and smart meter commands), inbound and outbound communications, and completion events.

NOTE: Some service order activities use additional data.

In the event that an active service order activity needs to be updated and/or cancelled, the system also supports the following maintenance service order activities:

- Cancel Orchestration: Used to cancel a currently active service order activity.
- Update Orchestration: Used to update a currently active service order activity.

Service order maintenance activities are defined by the following:

- **Activity Type**: The service order's activity type.
- **Orchestration Activity**: The original orchestration activity related to the maintenance activity.
- **Related Activity**: A specific activity (such as a field activity or smart meter command) related to the maintenance activity.
- **Cancel Reason**: The reason for cancelling the original activity (for cancel activities only).
- **Comments/Instructions**: Specific comments and/or instructions applicable to the maintenance activity (for update activities only).
- **Start Date/Time**: The date and time the maintenance activity was initiated (for update activities only).
- **Request Information**: Details of the service order request, including requester and external system information.
- **Activity Hierarchy**: A tree that displays the activity and related activities (including field activities and smart meter commands), inbound and outbound communications, and completion events.

About Service Order Management Activity Types

Service order management activity types define information about activities used with service orders.

There are three primary categories of service order management activity types:

- Service Order Orchestration Activity Types
- Field Activity Types
- Smart Meter Command Types

Service Order Orchestration Activity Types are activity types that define properties common to different types of service order orchestration activities. The base package provides the following service order orchestration activity types:

- Enable Service
- Disable Service
- Cut for Non-Payment
- Reconnect Service for Payment
- Exchange Meter
- Back to Back Service
- Cancel Orchestration
- Update Orchestration

Service order orchestration activity types are defined by the following:

- **Activity Expiration Days**: The number of days after which activities of this type expire.
- **Exception Handling**: Defines how exceptions related to activities of this type are handled.
- **Find Measurement Criteria**: Defines options used to identify and process readings associated with activities of this type (not used with Meter Exchange, Cancel Orchestration, or Update Orchestration).

NOTE: Some service order activity types define additional data.

Field Activity Types: are activity types that define properties common to field activities. The base package provides a single field activity type.

Field activity types are defined by the following:

- **Activity Expiration Days**: The number of days after which activities of this type expire.
- **Exception Handling**: Defines how exceptions related to activities of this type are handled.
- **To Do Information**: Defines options used when creating To Do Entries related to field activities.

Smart Meter Command Types: re activity types that define properties common to smart meter commands. See *About Commands* for more information about smart meter commands.

About Field Activities

Field activities are specific types of tasks performed by field personnel. Examples include installing meters, repairing/replacing meters, etc.

Field activities are created when completing specific types of requests for service requires field work. Once created, field activities are sent to a field work system (such as Oracle Utilities Mobile Workforce Management) where they are

scheduled and assigned to a field work crew. When the task is completed by the crew, the field work system sends an response to the system and the field activity is updated as appropriate.

When communicating with field work systems, field activities create outbound communications to send the required information to the field work system. When the field work system sends its response, the system creates an inbound communication. See *About Communications* for more information about communications.

Field activities are created when a service order orchestration activity examines the current state of the service point, and determines that field work is required to completed the service request. For example, if an “enable service” activity determines that there is no meter currently installed at the service point, the service order activity would create an “install meter” field activity and send it to a field work system.

Field activities are defined by the following:

- **Activity Type**: The field activity type.
- **Status**: The current status of the field activity.
- **Service Date/Time**: The date and time the field activity was created.
- **Service Point**: The service point associated with the field activity.
- **Field Task Type**: The field task type for the field activity.
- **Recipient**: The service provider to which the field activity is sent for scheduling and assignment.
- **Device**: The device related to the field activity (if applicable).
- **Request Information**: Details of the service order request, including requester and external system information.
- **Contact Details (or Customer Information)**: Contact details for the customer associated with the service order request.
- **Address Information**: The address of the service point associated with the field activity.
- **Activity Hierarchy**: A tree that displays the field activity and related activities, including inbound and outbound communications, and completion events.

About Field Task Types

Field task types define business processing logic for different types of field activities.

Field task types are defined via the **Field Task Type** extendable lookup. An extendable lookup value is defined for each type of field task used in the system.

Field task types are defined by the following:

- **Routing**: Indicates if field tasks of this type can only be performed at a service point.
- **Appointment Option**: Indicates if an appointment (via a mobile workforce application) is required or applicable to field tasks of this type.
- **Completion Events When Successful**: Defines one or more completion events that are executed upon successful completion of field tasks of this type.
- **Completion Event When Canceled**: Defines one or more completion events that are executed upon cancellation of field tasks of this type.
- **Duplicate Task Type Information**: Defines processing rules for handling potential duplicate field tasks, including:
  - **Allow Duplicates**: Specifies whether or not duplicate field tasks are allowed
  - **Duplicate Threshold**: A number of hours used to determine if a newly instantiated field task type should be considered a duplicate.
  - **Field Task Types:** A list of one or more field task types that are considered to be duplicates of the field task type
- **Conflict Task Type Information**: Defines processing rules for handling potentially conflicting field tasks, including:

    - **Allow Conflicts**: Specifies whether or not conflicting field tasks are allowed
    - **Conflict Threshold**: A number of hours used to determine if a newly instantiated field task type should be considered a conflict.
    - **Field Task Types**: A list of one or more field task types that are considered to conflict with the field task type
- **Processing Scripts**: Defines one or more processing scripts to extract supplemental information needed by the mobile workforce application to schedule field tasks of this type.

About Appointments and the Appointment Booking Portal

The **Appointment Booking** portal is used to request and track appointments related to field activities that have been scheduled in an external field work scheduling system such as Oracle Utilities Mobile Workforce Management.

When field activities send outbound communications to the field work system, appointments are created in field work system so that the work can be assigned to a crew. Requests for appointments are most often requested automatically when the field activity is created, but if needed, users can request appointments manually.

Users work with the **Appointment Query** portal to search for activities and related appointments.

Users work with the **Appointment Booking** to request and track appointments for field activities. This portal includes the following zones:

- **Service Point Activities**: Displays a list of activities and related appointments for the current service point in date descending order. This zone also includes a filter area which allows the user to define the inclusion or exclusion of activities according to certain criteria
- **Activity Summary**: Displays details of a selected activity in the **Service Point Activities** zone (indicated by a star).
- **Appointment Booking Results**: Displays a list of available appointment slots as returned by the scheduler. This zone allows the user to book an appointment by selecting a slot and subsequently updating the orchestration or field activity.

About Service Order Management Dashboards

Users work with Service Order Management Dashboards to view the current status of service order activities in the system.

There are three service order dashboards:

- Service Order Operational Dashboard
- Service Order Trends Dashboard
- Activity Statistics

The Service Order Management Master Configuration can be used to configure details concerning how data is displayed on these dashboards.

Users work with the **Service Order Operational Dashboard** to view the current status of active (“in-flight”) activities. The data displayed on the zones in this dashboard can be filtered by Activity Category and Service Type using the **Activity Statistics** dashboard zone. This dashboard contains the following zones:

- **In-Flight Activities By Type**: Displays the distribution of in-flight activities (in progress or in error) by Activity Type.
- **In-Flight Activities By Field Task Type**: Displays a bar chart that indicates the number of in-flight field activities, with different bar colors for those activities with issues and those without issues.
- **In-Flight Activity Trend**: Displays the trend of the number of activities that are in-flight on a given day.
- **In-Flight Activities with Issues**: Displays a bar chart that indicates the number of activities with issues.
- **In-Flight Activities Status Distribution**: Displays a pie chart showing the distribution of statuses of in-flight activities. This zone can be filtered by Activity Type.

- **Efficiency Trend for In-Flight Activities**: Displays a stacked bar chart showing the distribution of in-flight activity processing efficiency relative to a configurable tolerance. This zone can be filtered by Activity Type and Field Task Type.
- **Service Order To Do Summary**: Displays horizontal bars to highlight the relative number of open To Dos for a set of To Do Types related to Service Order Management. This zone can be filtered by date, user, Activity Type, and Activity Category Restriction.

Users work with the **Service Order Trends Dashboard** to view operational data trends, such as issue distribution over time, activity success/creation/issues, and activity completion. The data displayed on the zones in this dashboard can be filtered by Activity Category and Service Type using the **Activity Statistics** dashboard zone. This dashboard contains the following zones:

- **Orchestration Issues Trend**: Displays a stacked bar chart showing the number of issues related to orchestration activities. This zone can be filtered by Activity Type and Issue Category (Error in Field, Error in Command, Error in Orchestrator).
- **Issue Distribution Over Time**: Displays a pie chart showing the distribution of types of in-flight activities. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.
- **Field Issue Distribution Over Time**: Displays a bar chart that indicates the trend of field activities issues, with different bar colors for those activities with issues and those without issues. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.
- **Activity Success Trend**: Displays a line chart for trends related to activity success.
- **Activity Creation Trend**: Displays a stacked bar chart for trends related to activity creation. This zone can be filtered by Activity Type or Field Task Type.
- **Activity Issues Trend**: Displays a stacked bar chart for trends related to activity issues. This zone can be filtered by Activity Type or Field Task Type.
- **Activity Completion Efficiency Over Time**: Displays a bar chart that indicates the trend of completion efficiency over time, with different bar colors for different completion spans. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.

Users work with the **Activity Statistics** dashboard to filter the data displayed on the Service Order Operational Dashboard and Service Order Trend Dashboard. Filters include Activity Category (Command Request, Field Activity, Orchestration Maintenance, and Request Orchestration) and Service Type.

About the Service Order Management Master Configuration

The Service Order Master Configuration defines application–level options for the service order management functionality.

The Service Order Management Master Configuration allows configuration of the following options:

- **Field Work System**: The service provider that represents the field work system used with service orders (such as Oracle Utilities Mobile Workforce Management).
- **CIS External Requester**: The service provider that represents the customer information system used with service orders (such as Oracle Utilities Customer Care and Billing).
- **Asset External Requester**: The service provider that represents the asset management system used with service orders (such as Oracle Utilities Operational Device Management).

- **Appointment Handling**: Details related to how appointments are managed, including the default and override appointment handling systems.
- **Completion Event Exception Handling**: Details related to how exceptions related to completion events are managed.
- **Cut for Non-Payment Service Restrictions**: Defines restrictions related to Cut for Non-Payment service orders, such as life support or sensitive load circumstance.
- **FA Cancelability Criteria**: Specifies whether or not a field activity can be cancelled, based on its current status in the field work system.
- **Management Dashboard Configuration**: Defines details related to how management dashboard statistics are calculated, including the number of days to include and default expected completion time. Other options related to management dashboard configuration include the following:
  - **Override Expected Completion Time Configuration**: Defines override expected completion times for specific activity types.
  - **Hours Beyond Expected Activity Completion Time**: Defines tolerances (on time, late, and very late) and time ranges (normal, long, and very long) for activity completion times.
  - **Summary To Do Types**: Defines To Do Types and Roles for summary statistics
  - **Updates Statistics**: Specifies the batch control used to update statistics for the management dashboard.
- **Chart Options**: Defines details for how data is displayed on management dashboard charts, including the number of historical days to display in summary charts, and color definitions for processing statistics, aging statistics, activity, types, field task types, and To Do durations.

Working with Service Order Activities

This section describes common tasks related to working with service order activities.

Searching and Viewing Service Order Activities

Use this procedure to search and view service order activities.

You search and view service order activities using the **Activity Query** and **Activity** portals.

1. Select **Main Menu** > **Communication** > **Activity**.
2. Select an appropriate query option.

   Base package query options include name and address, related object, identifier, and payload statistics queries.
3. To search for service order orchestration and orchestration maintenance activities, select **Identifier Query** from the **Query Option** drop-down list.
4. Select either **Request Orchestration** or **Orchestration Maintenance** from the **Activity Type Category** drop-down list.
5. Enter other search criteria as appropriate, such as an activity identifier, activity type, creation date, or activity ID.
6. Click **Refresh**.
7. In the search results list, click the link for the activity you want to view or edit.

Service order activities are viewed and maintained in the **Activity** portal. This portal contains the following zones:

- **Activity**: Displays basic information about the selected service order activity, based on the activity type.

- **Activity Hierarchy**: Displays activities, communications, and device events related to the service order activity. To view a communication or completion event listed in this zone, click the link for the item you wish to view.
- **Activity Related Completion Event**: Displays completion events (if any) related to the service order activity. To view a completion event listed in this zone, click the link for the item you wish to view.

Working with Field Activities

This section describes common tasks related to working with field activities.

Searching and Viewing Field Activities

Use this procedure to search and view field activities.

You search and view field activities using the **Activity Query** and **Activity** portals.

1. Select **Main Menu** > **Communication** > **Activity**.
2. Select an appropriate query option.

   Base package query options include name and address, related object, identifier, and payload statistics queries.
3. To search for field activities, select **Identifier Query** from the **Query Option** drop-down list.
4. Select **Field Activity** from the **Activity Type Category** drop-down list.
5. Enter other search criteria as appropriate, such as an activity identifier, activity type, creation date, or activity ID.
6. Click **Refresh**.
7. In the search results list, click the link for the activity you want to view or edit.

Field activities are viewed and maintained in the **Activity** portal. This portal contains the following zones:

- **Activity**: Displays basic information about the field activity, based on the activity type.
- **Activity Hierarchy**: Displays activities, communications, and device events related to the field activity. To view a communication or completion event listed in this zone, click the link for the item you wish to view.
- **Activity Related Completion Event**: Displays completion events (if any) related to the field activity. To view a completion event listed in this zone, click the link for the item you wish to view.

Working with Appointments

This section describes common tasks related to working with appointments.

Searching and Viewing Activities and Appointments

Use this procedure to search for and view field activity appointments.

You search for and view field activity appointments using the **Appointment Query** and **Appointment Booking** portals.

1. Select **Main Menu** > **Communication** > **Appointment**.
2. Select an appropriate query option.

Base package query options include address details, service point identifier, and activity details.

3. To search for field activity appointments based on a specific requester and field task type, select **Activity Details** from the **Query Option** drop-down list.
4. Select an appropriate requester (such as a customer information system) from the **Requester** drop-down list.
5. Select the type of field activity from the **Field Task Type** drop-down list.
6. Enter other search criteria as appropriate, such as a requester transaction ID, creation date, or activity ID.
7. Click **Refresh**.
8. In the search results list, click the link for the field activity you want to view or edit.

The **Appointment Booking** portal opens, including the following zones:

- **Service Point Activities**: Displays a list of activities and associated appointments (if applicable) related to the selected service point in date descending order. This zone also includes a filter which allow the user to define criteria for the activities displayed. Filter options include:
  - Show Inactive Activities (yes/no)
  - Show Other Activities at Same Premise (yes/no)
  - Show Activities for the Same Parent SP (yes/no)
  - Show Activity Update/Cancel History (yes/no)
- **Activity Summary**: Displays details for the selected activity (indicated in the **Service Point Activities** zone by a star). Details on this zone include contact details, field (address) information, and an appointment window (if applicable).
- **Appointment Booking Results**: Display available appointment slots as returned by field work application. Available appointment slots can be filtered by Start or End date/time. This zone allows the user to book an appointment for the field activity.

Requesting and Booking Appointments for Activities

Use this procedure to request and book appointments for activities.

Users request and book appointments for field activities using the **Appointment Booking** portal and **Appointment Booking Results** zone.

1. Search for and select the field activity for which you wish to request an appointment. See *Searching and Viewing Activities and Appointments* for more information.
2. Click the **Request Slot** button for the field activity for which you wish to request an appointment.

   The system sends a message to the field work system to request a list of available appointment slots for the field activity.

   The **Appointment Booking Results** zone displays a list of available appointment slots for the field activity.
3. To book an appointment for the field activity, click the **Book Appointment** button for the appropriate appointment slot.

The selected appointment is scheduled in the field work application. The **Service Point Activities** zone displays the selected appointment for the field activity.

Working with Service Order Dashboards

This section describes common tasks related to working with the Service Order dashboards.

Working with the Service Order Operational Dashboard

Use this procedure to use the Service Order Operational dashboard.

Users work with the**Service Order Operational Dashboard** to view the current status of active ("in-flight") activities.

1. Select **Main Menu** > **Service Order Operational Dashboard**.

   The Service Order Operational Dashboard contains the following zones:

   - **In-Flight Activities By Type**: Displays the distribution of in-flight activities (in progress or in error) by Activity Type.
   - **In-Flight Activities By Field Task Type**: Displays a bar chart that indicates the number of in-flight field activities, with different bar colors for those activities with issues and those without issues.
   - **In-Flight Activity Trend**: Displays the trend of the number of activities that are in-flight on a given day.
   - **In-Flight Activities with Issues**: Displays a bar chart that indicates the number of activities with issues.
   - **In-Flight Activities Status Distribution**: Displays a pie chart showing the distribution of statuses of in-flight activities. This zone can be filtered by Activity Type.
   - **Efficiency Trend for In-Flight Activities**: Displays a stacked bar chart showing the distribution of in-flight activity processing efficiency relative to a configurable tolerance. This zone can be filtered by Activity Type and Field Task Type.
   - **Service Order To Do Summary**: Displays horizontal bars to highlight the relative number of open To Dos for a set of To Do Types related to Service Order Management. This zone can be filtered by date, user, Activity Type, and Activity Category Restriction.

2. Filter the data on the dashboard zones as appropriate.
3. To update the data displayed in this dashboard, use the **Activity Statistics** zone (in the dashboard portal). See *Using the Activity Statistics Dashboard Zone* for more information about using this zone.

Working with the Service Order Trends Dashboard

Use this procedure to use the Service Order Trends Dashboard.

Users work with the **Service Order Trends Dashboard** to view operational data trends, such as issue distribution over time, activity success/creation/issues, and activity completion.

1. Select **Main Menu** > **Totals and Trends** > **Service Order Trends Dashboard**.

   The **Service Order Trends Dashboard** contains the following zones:

   - **Orchestration Issues Trend**: Displays a stacked bar chart showing the number of issues related to orchestration activities. This zone can be filtered by Activity Type and Issue Category (Error in Field, Error in Command, Error in Orchestrator).
   - **Issue Distribution Over Time**: Displays a pie chart showing the distribution of types of in-flight activities. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management

feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.

- **Field Issue Distribution Over Time**: Displays a bar chart that indicates the trend of field activities issues, with different bar colors for those activities with issues and those without issues. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.
- **Activity Success Trend**: Displays a line chart for trends related to Activity Success.
- **Activity Creation Trend**: Displays a stacked bar chart for trends related to Activity Creation. This zone can be filtered by Activity Type or Field Task Type.
- **Activity Issues Trend**: Displays a stacked bar chart for trends related to activity issues. This zone can be filtered by Activity Type or Field Task Type.
- **Activity Completion Efficiency Over Time**: Displays a bar chart that indicates the trend of completion efficiency over time, with different bar colors for different completion spans. This zone can be filtered by start and end date. Initially, these filters are populated with the current date and 30 days prior, unless the Override Statistics End Date feature configuration option is specified for the Service Order Management feature configuration. If this feature configuration value is present, the end date defaults to this value with a start date of 30 days prior.

2. Filter the data on the dashboard zones as appropriate.
3. To update the data displayed in this dashboard, use the **Activity Statistics** zone (in the dashboard portal). See *Using the Activity Statistics Dashboard Zone* for more information about using this zone.

Using the Activity Statistics Dashboard Zone

Use this procedure to use the **Activity Statistics** dashboard zone.

Prerequisites: You must be viewing either the **Service Order Operational Dashboard** or **Service Order Trends Dashboard** in order to use the **Activity Statistics** zone.

You use the **Activity Statistics** zone (located in the **Dashboard**) to reload and/or update the data displayed in the **Service Order Operational Dashboard** and **Service Order Trends Dashboard**.

1. Select **Main Menu** > **Service Order Operational Dashboard**.

   You can also access the **Activity Statistics** zone when working with the **Service Order Trends Dashboard**.
2. Select the category of activity you wish to reload and/or update in the **Activity Category** drop-down list.
3. Select the type of service to filter the data displayed on the dashboard in the **Service Type** drop-down list.

   To display data for all service types, select “Show All.”
4. Click **Reload**.

   The data displayed in the dashboard zones is filtered based on the selected Activity Category and Service Type.
5. **Optional**: Click **Update Statistics** to update the statistics displayed in the dashboard zones.
6. **Optional**: Click the **Last Refresh** link (which displays the latest refresh start time, status, and record processing outcome) to view details of the refresh process,

Service Order Management Administration

This section describes common tasks related to service order management administration.

Defining Service Order Management Activity Types

Use this procedure to define service order management activity types.

Prerequisites: You must create at least one activity type business object and related activity business object before you can create new activity types.

To maintain existing activity types, select **Admin Menu** > **Communications** > **Activity Type**, then use *standard actions* to edit or delete an activity type.

To define a new activity type, follow these steps:

1. Select **Admin Menu** > **Communication** > **Activity Type**.

   The Activity Type portal opens displaying the Activity Type List zone.

2. Click the **Add** icon in the row of the activity/activity type for which you wish to create an activity type.

   Service order management activity types include the following:

   - Enable Service
   - Disable Service
   - Cut for Non-Payment
   - Reconnect Service for Payment
   - Exchange Meter
   - Back to Back Service
   - Cancel Orchestration
   - Update Orchestration
   - Field Activity

3. Enter a name and a meaningful description for the activity type.
4. Specify the number of days before activities of this type expire in the **Activity Expiration Days** field.
5. Enter appropriate exception handing details in the **Exception Handling** section.
6. Complete any remaining fields and sections.

   NOTE: Remaining fields and sections are based on the activity type business object.

7. Click **Save**.

Activities can now be created based on this activity type.

Defining Field Task Types

Use this procedure to define field task types.

You must define a value for the Field Task Type extendable lookup for each type of field task supported in the application.

NOTE: Several field task types are provided with the base package.

1. Select **Admin Menu** > **E** > **Extendable Lookup**.

   The **Extendable Lookup Query** portal opens displaying the **Extendable Lookup Search** zone.
2. Enter “Field Task” in the **Description** field and click **Refresh**.
3. Click the **Field Task Type** link.

   The **Extendable Lookup** portal opens displaying the **Extendable Lookup Value List** zone. This zone displays a list of field task types currently defined in the system.
4. To add a new field task type, click the **Add** link in the **Extendable Lookup Value List** zone title bar.
5. Enter a name and meaningful description for the field task type.
6. Specify if field tasks of this type can only be performed at a service point using the **Routing** drop-down list.
7. Specify if an appointment (via a mobile workforce application) is required or applicable to field tasks of this type using the **Appointment Option** drop-down list.
8. Specify one or more completion events that are executed upon successful completion of field tasks of this type in the **Completion Events When Successful** section.
9. Specify one or more completion events that are executed upon cancellation of field tasks of this type in the **Completion Event When Canceled** section.
10. Define processing rules for handling potential duplicate field tasks in the **Duplicate Task Type Information** section.
11. Define processing rules for handling potentially conflicting field tasks in the **Conflict Task Type Information** section.
12. Specify one or more processing scripts to extract supplemental information needed by the mobile workforce application to schedule field tasks of this type in the **Processing Scripts** section.
13. Click **Save**.
14. **Optional**: To view, edit, delete, or duplicate an existing value, do one of the following:
    - To view an extendable lookup value, click the **Broadcast** icon.
    - To edit an extendable lookup value, click the **Edit** icon, edit the details as appropriate, and click **Save**.
    - To delete an extendable lookup value, click the **Delete** icon.
    - To duplicate an extendable lookup value, click the **Duplicate** icon.

Once a field task type has been defined, field activities for tasks of that type can be created.

Defining Service Order Management Master Configuration Options

Use this procedure to define options for the Service Order Management Master Configuration.

The Service Order Master Configuration defines application—level options for the service order management functionality.

1. Select **Admin Menu** > **M** > **Master Configuration**.

The **Master Configuration** portal opens displaying the **Master Configuration** zone.

2. To work with the master configuration, do one of the following as appropriate for the **Service Order Management Master Configuration**:
   - To view the current master configuration options, click the **Broadcast** icon.
   - To create a new master configuration, click the **Add** icon.
   - To edit the current master configuration options, click the **Edit** icon.
3. Define options for the master configuration as appropriate, including:
   - Field Work System
   - CIS External Requester
   - Asset External Requester
   - Appointment Handling
   - Completion Event Exception Handling
   - Cut for Non-Payment Service Restrictions
   - FA Cancelability Criteria
   - Management Dashboard Configuration
   - Chart Options
4. If you make any changes to the master configuration options, click **Save**.

Chapter 11

General Data Administration

This section describes concepts and common tasks related to general data administration.

Understanding General Data Setup and Administration

This section describes general data entities used in device management, device installation, and VEE rule management.

About Exception Types

Exception types define the properties common to many exceptions.

When creating validation, editing, and estimation (VEE) rules, you might create an exception type for each VEE rule. You might also create more general exception types, such as "Insufficient Data" to be used to signify that a measurement didn't have sufficient data for the VEE rule to execute.

In addition to defining types of exception that can result from VEE processing, exceptions types can be configured to create Service Issue Monitors, which are used to generate “Service Investigative Order” activities.

Attributes used to define exception types include:

- **Exception Business Object**: The business object to use when creating exceptions of this type.
- **Reporting Category**: The category to which exceptions of this type belong for reporting purposes.
- **Service Issue Monitor Type**: The type of service issue monitor to create when exceptions of this type are created. If specifying this option, the Exception Business Object must be "VEE Exception - Monitor Service Point" (available only with Oracle Utilities Meter Data Management) in order for Service Issue Monitors to be created.

About Factors

Factor are a centrally stored set of values for use in validation rules, bill determinants calculations, and other processes.

A factor can have different values depending upon some definable attribute of a system object, such as customer size associated with a service point. Examples of factors can include minimum/maximum thresholds, loss factors, etc. Classes of factors are defined that can have numeric values (as in the above examples), or values pointing to profile measuring components, or VEE groups.

A factor's values are effective-dated values - either a number, a profile measuring component, a VEE group, or some custom-defined value - assigned to a factor and associated to the value of some attribute of a system object. For example, consider a service point can be classified as residential, commercial, or industrial. The tolerance percentage by which a customer's consumption can exceed last month's consumption can be based on the service point category. For this example, factor values for a single factor called "tolerance percentage" could be: Residential - 20% Commercial - 10% Industrial - 5%.

Factor values are retrieved based on the following options:

- **Factor Characteristic Type**: The characteristic type for the factor. Refer to the Oracle Utilities Application Framework online help for more information about characteristic types.
- **Characteristic Source Algorithm**: The algorithm that returns the characteristic value for the characteristic type defined in the Factor.

About Markets

Markets define the jurisdictions or regulatory environments in which a service point participates.

Markets also define market relationships for valid service providers and their roles within a market (distributor, etc.). While each service point specifies only one market, a utility may serve more than one market, and different service points throughout the utility's service territory can be linked to different markets.

For each service provider defined for a market, you can also specify a fallback service provider.

About Service Providers

Service providers are external entities that serve various roles relative to the application.

Service providers can include head-end systems, billing systems to which the application sends bill determinant data, market participants in a deregulated environment, outage management systems that receive meter event data from the application, or other parties that require or provide information to the system.

Service providers can have one or more associated processing methods that define the format or means by which a service provider receives and/or sends data from and/or to the application, such as bill determinants, interval data, or meter events. Processing methods are also used to define how to create information internal to the application such as initial measurement data, device events, and usage transactions. Processing methods can also be used to define the information an external system wishes to subscribe to receive from our application. A business object or batch extract code are the typical processing methods defined for the transmission of data to and/or from a service provider.

> **NOTE:** Batch controls and business objects are mutually exclusive and one or the other must be defined for each processing method (when applicable). A batch control should only be supplied for processing methods that can be handled by a batch process (typically sending outbound information to a service provider via a batch process).

The Oracle Utilities Service and Measurement Data Foundation contains the following base package processing roles/ methods:

Processing Role / Processing Method	Description
Activity Notification / How to Send Activity Related Information	Used to define how activity-related information is sent to the service provider. Can be based on activity type or device type.
Device Commission / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for device commission commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Device Decommission / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for device decommission commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Device Event Mapping / How to Process Device Related Information	Used to define the device event business object to use for device events for the head-end system service provider. Can be based on a default or on device type.
Device Status Check / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for device status check commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Event Processing Default Configuration / How to Process (Send) Device Event Related Info	Used to send device events to a service provider. Can be based on device event category or device event type.
Initial Measurement Creation / How to Create MC Related Information	Used to define how measuring component-related information is created for the service provider, including initial measurement data. Can be based on a default or on measuring component type.
Obtain AMI Device Identifier / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for retrieving the AMI device identifier. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
On-Demand Read (Interval) / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for on-demand read (interval) commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
On-Demand Read (Scalar) / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for on-demand read (scalar) commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Outbound Message Creation / Send Outbound Communication Related Info	Used to define the outbound message type sent to a head-end system service provider. The processing method defines the specific type of outbound message type to send for the service provider. Can be based on a default or on communication type.
Remote Connect / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for remote connect commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Remote Diconnect / How to Create OB Communication/Send OB Message	Used to send outbound communications to a head-end system service provider for remote disconnect commands. The processing method defines the specific type of communication and outbound message type to send for the service provider. Can be based on a default or on device type.
Response - Fail / How to Send Activity Related Information (or Response)	Used to define the outbound message type sent to a service provider for "failure" responses to an activity. Can be based on a default or on activity type.
Response - Received / How to Send Activity Related Information (or Response)	Used to define the outbound message type sent to a service provider for received responses to an activity. Can be based on a default or on activity type.
Response - Success / How to Send Activity Related Information (or Response)	Used to define the outbound message type sent to a service provider for "successful" responses to an activity. Can be based on a default or on activity type.

Send Device Event / How to Process Device Event Related Info	Used to send device events to a service provider. Can be based on device event category or device event type.
UOM Mapping / How to Process Device Related Information	Used to define how UOM codes are mapped for devices of the head-end system service provider. Can be based on a default or on device type.

Other Oracle Utilities products may provide additional processing methods.

About Service Quantity Identifiers

Service Quantity Identifiers (SQI) are used to further distinguish between measured quantities that have identical UOM/TOU combinations, including situations in which the distinguishing identifier of a UOM is not accurately described as a TOU.

SQIs can also be used as a stand-alone representation of a service quantity that is not measured (one that is not properly described as a UOM) within a usage service quantity collection (such as a billing determinant).

About Service Types

Service Types define specific types of service for which usage can be recorded and captured, such as electric, gas, steam, etc.

About Time of Use

Time of Use (TOU) periods are modifiers for a given unit of measure that indicate a period of time during which a quantity has been used, such as On-Peak (meaning during a time when the greatest quantity of some consumable is being used), Off-Peak (meaning during a time when the least amount of some consumable is being used), etc.

About Units of Measure

Units of Measure (UOM) identify quantities measured and recorded, such as KWH, KW, cubic feet, degrees Celsius, etc. UOMs are based on a specific service type.

Units of Measure can be defined by the following:

- Service Type: the type of service (electric, gas, etc.) measured by the UOM
- Decimal Positions: the number of decimal places used when sending usage transaction service quantities for this UOM to Oracle Utilities Customer Care and Billing by way of the base package Usage Transaction Outbound Message
- Allowed on Measuring Component: a flag that indicates if the UOM is allowed on Measuring Components
- Measures Peak Quantity: a flag that indicates if the UOM is used to measure peak quantities or not. An example of a UOM that measures peak quantities is kilowatts (KW).
- Magnitude: a number that indicates the relative size of the UOM as compared to a single unit of the UOM specified under "Base Unit of Measure." For example, megawatt hours (MWH) have a magnitude of 1,000 as compared to a single kilowatt hour (KWH).
- Base Unit of Measure: the UOM upon which the current UOM is based. Used in conjunction with magnitude when converting measurements of related UOMs and when graphing measurement data in the 360 Degree View. For example, the base unit of measure for megawatt hours (MWH) with a magnitude of 1,000 would be kilowatt hours (KWH). If a UOM does not specify a Base Unit of Measure, its Base Unit of Measure is assumed to be the same as the UOM.

Defining Exception Types

Use this procedure to define exception types, such as exception types used with specific VEE rules or other processing.

To maintain existing exception types, select **Admin Menu** > **Common** > **Exception Type**, then use *standard actions* to edit or delete an exception type.

To define a new exception type, follow these steps:

1. Select **Admin Menu** > **Common** > **Exception Type+**.

   NOTE: If your system supports more than one exception type business object, you will be prompted to select a business object for this exception type.

2. Enter a name and a meaningful description for the exception type.
3. Select the business object to use when creating exceptions of this type
4. Select the Reporting Category for the exception type.
5. Select the Service Issue Monitor Type for the exception type.

   NOTE: Service Issue Monitors are only created if the Exception Business Object selected is “VEE Exception - Monitor Service Point" (available only with Oracle Utilities Meter Data Management).

6. Complete any additional fields as applicable.
7. Click **Save**.

You can now use this exception type when creating VEE rules.

Defining Factors

Use this procedure to define factors, such as exception types used with specific VEE rules or other processing.

Prerequisites: You must define factor characteristic source algorithms, factor characteristic types, and factor characteristic values before you can create a factor. Refer to the Oracle Utilities Application Framework online help for more information about algorithms, characteristic types, and characteristic values.

To maintain existing factors, select **Admin Menu** > **Common** > **Factors**, then use *standard actions* to edit, duplicate, or delete a factor.

To define a new factor, follow these steps:

1. Select **Admin Menu** > **Common** > **Factor+**.
2. Select the Business Object that defines the type of factor you wish to create (number, profile, VEE group, or a custom type) and click **OK**.
3. Enter a name and a meaningful description for the factor.
4. Specify whether or not a Usage Subscription should be checked for override factor values before retrieving the factor values for the factor.

   This field applies only to number-type factors.

5. Select the Characteristic Source Algorithm. This is the algorithm that returns the characteristic value.

6. Select the Factor Characteristic Type.
7. Specify one or more factor characteristic values for the factor. Select the value from the drop-down list. To add another value, click the plus sign and select the value.
8. Complete any additional fields as applicable.
9. Click **Save**.

Once the factor has been saved, you must define values for the factor in the Factor Char Value and Factor Value List zone.

Defining Factor Values

Use this procedure to define factor values.

Prerequisites: If creating profile or VEE group factor values, you must define the measuring component to be used as the profile or the VEE group prior to defining the factor value.

You can add, edit, and delete factor values using the Factor Char Value and Factor Value List zone. Use *standard actions* to edit or delete a factor value.

To define a new factor value, follow these steps:

1. Click the plus sign next to the factor characteristic value.
2. Enter the effective date and time for the factor value.
3. Specify the value as of the effective date and time for the factor.
   - For number factors, enter the numeric value.
   - For profile factors, search for and select the measuring component that will be used as the profile.
   - For VEE Group factors, search for and select the VEE group.
4. Complete any additional fields as applicable.
5. Click **Save**.

You can now use this factor in VEE rules. Factors are also used in usage rules when using Oracle Utilities Meter Data Management.

Defining Markets

Use this procedure to define markets.

Prerequisites: You must define service providers before you can create market relationships for a market.

To maintain existing markets, select **Admin Menu** > **Communications** > **Market**, then use *standard actions* to edit, duplicate, or delete a market.

To define a new market, follow these steps:

1. Select **Admin Menu** > **Communications** > **Market+**.

   NOTE: If your system supports more than one market business object, you will be prompted to select a business object for this market.

2. Enter a name and a meaningful description for the market.

3. To add or remove market relationships for this market, click the + or – sign in the Market Relationships section, select the market relationship type and the service provider. You can also specify a fallback service provider along with start and stop dates.
4. Complete any additional fields as applicable.
5. Click **Save**.

Now you can use the market when creating service points.

Defining Service Providers

Use this procedure to define service providers.

To maintain existing service providers, select **Admin Menu** > **Communications** > **Service Provider**, then use *standard actions* to edit, duplicate, or delete a service provider.

To define a new service provider, follow these steps:

1. Select **Admin Menu** > **Communications** > **Service Provider+**.

   NOTE: If your system supports more than one service provider business object, you will be prompted to select a business object for this service provider.

2. Enter a name and a meaningful description for the service provider.
3. Complete the fields in the **Main** section.
4. Click **Save**.

Once the service provider has been saved, you can define processing methods for the service provider in the Processing Methods zone.

Defining Processing Methods

Use this procedure to define processing methods for service providers.

Prerequisites: You must define service providers before you can create processing methods.

You can add, edit, and delete processing methods using the Processing Methods List zone. Use *standard actions* to edit or delete a processing method.

To define a new processing method, follow these steps:

1. Click **Add** in the Processing Methods zone title bar.
2. Select the processing role and business object for the processing method and click **OK**.
3. Enter a meaningful description and select the status in the Main section.
4. Specify the details for the processing method in the **Processing Method** section.

   NOTE: The available options in this section are based on the processing role and business object you selected.

5. Click **Save**.

Viewing SGG Adapter Configuration Information

This section describes how to use a service provider's SGG Adapter Configuration portal.

You can use the SGG Adapter Configuration portal to view configuration information and access configuration components for an SGG adapter service provider.

NOTE: This portal displays configuration information for head-end system service providers that reference an SGG Adapter Configuration Sheet extendable lookup. Refer to the Oracle Utilities Smart Grid Gateway Configuration Guide for more information about this extendable lookup.

To use the configuration information portal for an SGG adapter service provider:

1. Select **Admin Menu** > **Communications** > **Service Provider**.
2. In the Service Provider List zone, click the **Broadcast** icon for the head-end system service provider you wish to view.
3. Click the **SGG Adapter Configuration** tab to view the configuration information.

The **SGG Adapter Configuration** portal contains the following zones:

SGG Adapter Configuration Tracker: This zone displays the configuration details of the adapter, as defined by the SGG Adapter Configuration Sheet extendable lookup referenced on the service provider. The configuration details include:

- The components required for usage and event processing and command processing. To view more details about the components, you can click the component name to go to the business object for the component. For example, you can click the business object “SSN – Connect or Disconnect” to go to the business object portal for the SSN – Connect or Disconnect business object.
- Status messages describing the configuration status of components. The following table lists the status messages that may be displayed and the possible actions you can take:

If the status message is….	You can…
Set up this processing method	Click the processing role to set up the processing method.
This processing method has been configured	Click the processing role to view the configured processing method.
Update your processing method with a communication BO	Click the status message to set up the processing method.
Update your external system / outbound message type with an XAI sender	Click the status message to go to the external system.
Update your processing method with an outbound message type	Click the status message to set up the processing method.
Add a value to get started	Click the status message to go to the extendable lookup.
Values Existing: (number)	Click the status message to go to the extendable lookup.
Add a communication type	Click the status message to go to the communication type portal.
Add a device event type	Click the status message to go to the device event type business object for the communication type. This message appears only for Echelon type adapters.
Master Configuration has been added	Click the status message to view the Master Configuration portal.
Add Master Configuration for this adapter	Click the status message to view the Master Configuration portal.

Upload Statistics Aggregators: This zone lists the IMD Upload Statistics Aggregator measuring components associated with the head-end system.

Defining Service Quantity Identifiers

Use this procedure to define service quantity identifiers (SQIs).

To maintain existing service quantity identifiers, select **Admin Menu** > **Common** > **Service Quantity Identifier**, then use *standard actions* to edit, duplicate, or delete a service quantity identifier.

To define a new service quantity identifier, follow these steps:

1. Select **Admin Menu** > **Common** > **Service Quantity Identifier+**.

   NOTE: If your system supports more than one service quantity identifier business object, you will be prompted to select a business object for this service quantity identifier.

2. Enter a name and a meaningful description for the service quantity identifier.
3. Specify the number of decimal places for values based on the service quantity identifier in the **Decimal Positions** field.
4. Complete any additional fields as applicable.
5. Click **Save**.

You can now use this service quantity identifier when creating value identifiers for measuring component types.

Defining Service Types

Use this procedure to define service types, such as electric service, gas service, water service, etc.

To maintain existing service types, select **Admin Menu** > **Common** > **Service Type**, then use *standard actions* to edit, duplicate, or delete a service type.

To define a new service type, follow these steps:

1. Select **Admin Menu** > **Common** > **Service Type+**.

   NOTE: If your system supports more than one service type business object, you will be prompted to select a business object for this service type.

2. Enter a name and a meaningful description for the service type.
3. Complete any additional fields as applicable.
4. Click **Save**.

You can now use this service type when creating units of measure, device types, device configuration types, and measuring component types.

Defining Time of Use

Use this procedure to define time of use periods (TOUs), such as On-Peak, Off-Peak, etc..

To maintain existing TOUs, select **Admin Menu** > **Common** > **Time of Use**, then use *standard actions* to edit, duplicate, or delete a TOU.

To define a new TOU, follow these steps:

1. Select **Admin Menu** > **Common** > **Time of Use+**.

   NOTE: If your system supports more than one TOU business object, you will be prompted to select a business object for this TOU.

2. Enter a name and a meaningful description for the TOU.
3. Specify the HTML Color code for the color to be used on graphs when displaying data for the TOU in the **Color** field.

   Some sample HTML color codes include:

   - Red: #FF0000
   - Orange: #FFA500
   - Yellow: #FFFF00
   - Green: #008000
   - Blue: #0000FF
   - Indigo: #4B0082
   - Black: #000000
4. Specify the priority for the TOU in the **Priority** field.
5. Complete any additional fields as applicable.
6. Click **Save**.

You can now use this TOU when creating value identifiers for measuring component types, and when creating TOU maps and TOU map templates in Oracle Utilities Meter Data Management

Defining Units of Measure

Use this procedure to define units of measure (UOMs), such kilowatt hours (kWh), CCF, or therms.

Prerequisites: You must define service types before you can associate them with a unit of measure.

To maintain existing UOMs, select **Admin Menu** > **Common** > **Unit of Measure**, then use *standard actions* to edit, duplicate, or delete a UOM.

To define a new UOM, follow these steps:

1. Select **Admin Menu** > **Common** > **Unit of Measure+**.

   NOTE: If your system supports more than one UOM business object, you will be prompted to select a business object for this TOU.

2. Enter a name, meaningful description, and shorthand description for the UOM.
3. Select the service type for the UOM.
4. Specify the number of decimal places for values based on the UOM in the **Decimal Positions** field.
5. Specify whether or not the UOM is allowed for use with measuring components.
6. Specify whether or not the UOM measures peak quantity.
7. Enter the magnitude of the UOM.
8. If the UOM is based on a another UOM, select the **Base Unit of Measure**.

9. Complete any additional fields as applicable.

10. Click **Save**.

You can now use this unit of measure when creating value identifiers for measuring component types.

Chapter 12

Reference Topics

This section provides reference information to support tasks.

Glossary

This glossary provides definitions of commonly used terms.

A-C *D-G* *H-K* *L-O* *P-R* *S-U* *V-Z*

Activity	A record of a communication related to a device, measuring component, etc. Every activity must reference an activity type.
Activity Type	Defines properties common to a specific type of activity.
Aggregator	A class of measuring component that stores measurements that represent an summarization of other measurements from a potentially diverse set of devices. For example, an aggregator may derive the sum of the natural gas consumption of all residential customers in a particular postal code within the utility's service territory.
Advanced Metering Infrastructure (AMI)	Refers to systems that measure, collect and analyse energy usage, and interact with advanced devices such as electricity meters, gas meters, heat meters, and water meters, through various communication media either on request (on-demand) or on pre-defined schedules.
Automatic Meter Reading (AMR)	The technology of automatically collecting consumption, diagnostic, and status data from water meter or energy metering devices (water, gas, electric) and transferring that data to a central database for billing, troubleshooting, and analyzing.
Business Service - Add Scalar Value To Intervals	Business service that uses the Apply Formula measurement service to add a scalar value to the value of a specified set of interval data.

Business Service - Adjust Intervals to Supplied Value	Business service that uses the Apply Formula measurement service to adjust the total value of a specified set of interval data to a scalar value.
Business Service - Divide Intervals By Scalar Value	Business service that uses the Apply Formula measurement service to divide the values of a specified set of interval data by a scalar value.
Business Service - Multiply Intervals By Scalar Value	Business service that uses the Apply Formula measurement service to multiply the values of a specified set of interval data by a scalar value.
Business Service - Subtract Scalar Value From Intervals	Business service that uses the Apply Formula measurement service to subtract a scalar value from the value of a specified set of interval data.
Communication Component Device	Devices that are attached to other devices and provide two-way communication with a head-end system and can send readings to head-end systems and/or other data collection systems. Communication components are used in situations in which the underlying meter is not capable or not enabled to handle this data. Devices of this sort are sometimes referred to as ERT (Electronic Receiver/Transmitter) meters, or communication modules (for example, the term "gas module" may refer to a communication module attached to a gas meter).
Consumption	A measurement by a given device of the amount of energy, water, gas, etc. consumed over a given time period. Synonymous with the term "measurement".
Consumptive	Describes a measuring component for which readings are equivalent to the consumption. For example, if we receive a reading of 400 on January 15 and a reading of 600 on February 15, a consumptive measuring component's consumption between January 15 and February 15 would be 600 (not 200).
Contact	An individual or a business entity with which a company has contact. Each contact must reference a contact type.
Contact Type	Defines the properties of a class of entities (businesses, persons).
Contact - Email	Email addresses related to a contact
Contact - Identifier	Identifiers related to a contact, such as social security number, driver's license number, or the contact's ID in a prior system.
Contact - Name	Names related to a contact
Contact - Phone	Phone numbers related to a contact
Demand	The rate at which a commodity is delivered at a given instant or averaged over a designated time. For electricity, demand is often expressed in kilowatts (kW) or kilovolt-amperes (kVa).
Device	A physical or virtual object that holds one or more measuring components that can produce data to be handled by the system. Devices can include meters, substations, transformers, demand response devices, weather stations, etc.
Device Configuration	A specific configuration of a device. Over time, a device can have many configurations. Use of effective-dated device configuration allows the device to retain its identifier(s) even while the quantities it is measuring are changing.
Device Configuration Type	Defines the properties of device configurations of this type, including the valid types of measuring components that can be configured for the device.

Device Type	Information about a class of devices, including properties that apply to all devices of a type, but can be overridden for an individual device.
Distribution Company (DISCO)	A utility company that constructs and maintains the distribution network that delivers a commodity to customers. Depending upon the regulations within the territory, a distribution company may or may not be responsible for billing the customer.
Electronic Receiver/Transmitter (ERT)	Devices that are attached to other devices and provide two-way communication with a head-end system and can send readings to head-end systems and/or other data collection systems.
Exception Type	Defines properties common to many exceptions, including the category of the exception.
Factor	A centrally stored set of values for use in validation rules, bill determinants calculations, and other processes. A factor can have different values depending upon some definable attribute of a system object, such as customer size associated with a service point. The values are effective-dated so that changes over time are retained. Examples of factors can include minimum/maximum thresholds, loss factors, etc. Classes of factors are defined that can have numeric values (as in the above examples), or values pointing to profile measuring components or VEE groups.
Factor Value	An effective-dated value - either a number, a profile measuring component, a VEE group, or some custom-defined value - assigned to a factor and associated to the value of some attribute of a system object. For example, let's assume that a service point can be classified as residential, commercial, or industrial. The tolerance percentage by which a customer's consumption can exceed last month's consumption can be tighter as the customer's SP increases in size. An example configuration of factor values for a single factor called "tolerance percentage" could be: Residential - 20% Commercial - 10% Industrial - 5%.
Final Measurement	Measurement data that has been validated, and if necessary, edited & estimated, and is ready for use in down-stream processing such as bill determinants calculations. Only one final measurement can exist for a given date/time for a given measuring component; one final measurement exists per interval, and likewise one final measurement exists for each scalar reading. In both cases, the final measurement value stored represents the amount consumed between its date/time and the prior final measurement's date/time.
Head-End System	A system that collects measurement data and meter events for eventual submission to the application. Many devices can communicate to the application through a single head-end system. A utility may have numerous head-end systems through which they communicate with devices.
Identifiers	Names, numbers, or other values used to identify an entity within the system, including devices, measuring components, service points, etc.
Inbound Communication	Communication sent to SMDF (Service and Measurement Data Foundation) from a head-end system or other external system. Each inbound communication has an associated communication type that defines common properties of the communication.

Independent System Operator (ISO)	The entity charged with reliable operation of the grid and provision of open transmission access to all market participants on a non-discriminatory basis.
Initial Measurement Data (IMD)	A set of one or more readings or measurements that have been loaded into the application, usually in a format that is standard for the Service and Measurement Data Foundation. Over its lifecycle (as pertains to MDM - Meter Data Management), any readings within the IMD are converted into consumption, which is then typically subject to VEE processing and then finalized - meaning stored as final measurements. Only initial measurements can be edited directly by end users of MDM. An IMD for a scalar measuring component will have a single measurement (along with a reading from which the measurement value is derived), while an IMD for an interval measuring component will usually contain multiple interval measurements.
Installation Constant	An installation constant is set to a value other than 1 as an indication that when calculating consumption, the installation requires that measurement data be multiplied by this value to get accurate results.
Installation Event	A device's installation information at a service point. The install event represents both the installation and removal of a device. It also records turning a device on or off while it is installed at a service point.
Installation On and Off History	A single installation event records each time the device is turned on and turned off while it is installed at a service point.
Interval Channel (Measuring Component)	A business object (BO) that represents channels associated to a device.
Interval Channel Type – Physical (Measuring Component Type)	A business object (BO) that maps properties of interval measuring component types for those Measuring Components that are part of physical devices.
Interval Channel Type – Scratchpad (Measuring Component Type)	A business object (BO) that maps properties relevant to stand-alone measuring components functioning as scratchpads for interval data manipulation.
Interval Data	Time-series data in which measurements are captured in pre-defined intervals (5 minutes, 15 minutes, 1 hour, etc.). A set of interval measurements for an interval measuring component composes an individual initial measurement data record.
Interval Data Services	Services used to access and manipulate interval measurements.
Interval Scratchpad (Measuring Component)	A stand-alone measuring component that provides the user with a means to manipulate measurement data without affecting existing measurements.
Manual Meter	A business object (BO) used to model a meter that does not accommodate two-way communications and must be read manually.
Manual Meter Installation Event	A business object (BO) that defines the lifecycle of the installation of a manual meter at a service point.
Manual Meter Type	A business object (BO) used to model properties for meters that are manually read.
Manufacturer	The company that makes devices, defined as an attribute of the device itself.
Market	The jurisdiction or regulatory environment in which a service point participates, defining the valid service providers and their roles. While

	each service point specifies only one market, different service points throughout the utility's service territory can be linked to different markets.
Market Participant	A variety of serice provider; a company with a role within a given market such as a retailer or a distribution company.
Market - Fallback Service Provider	For a given market relationship type, a fallback service provider may be defined at the market level, rather than storing the information redundantly on each service point. For example, an entire market might have only one ISO, and if the utility wants to store this information, they can identify the ISO as a fallback service provider for the market and the market relationship type of ISO.
Market - Relationship Type	The valid roles within a market (ISO, Distribution Company, Retailer, etc.) that have some business significance in the application.
Market - Valid Service Provider	The valid service providers for each market relationship type relevant for a given market. The service providers referenced on a service point must be valid for the combination of the service point's market and the market relationship type.
Measurement	A measurement in MDM is synonymous with consumption, which implies that constants or multipliers may have been applied to its value. This term can be used in the context of an IMD or in reference to Final Measurements.
Measurement Condition	Codes that indicate the circumstances (estimated, missing, etc.) of individual measurements. Conditions are assigned to both scalar and interval measurement data both for initial measurement data and final measurements.
Measuring Component	A single point for which data will be received and stored in the system. A measuring component can be associated to a physical device, which can have one or more measuring components, or it can be stand-alone, meaning that it is not associated to a physical device (for example, an aggregator or interval scratchpad).
Measuring Compoment Summary	A zone shown on the VEE Group portal that displays a list of measuring components that reference a given VEE group.
Measuring Component Type	The definition of the most important properties of a measuring component, including what it measures, how regularly it measures it, whether it should be connected to a physical device or if it's used as a scratchpad or an aggregator, how its final measurements should be stored and how its user-defined values shuld be calculated, what rules govern VEE for Measuring Components of the type, as well as numerous display properties that are relevant within MDM. The measuring component type also defines sets of valid attribute values for groups of measuring components belonging to the type.
Measuring Component Types Referencing Group	A zone shown on the VEE Group portal that displays a list of Measuring Component types that reference the VEE group being viewed.
Measurement Cycle	The measurement cycle can serve two purposes: it can define the schedule for manual meter reading of devices at service points in that cycle, and it can also be configured to define when to create usage transactions for usage subscriptions associated to service points in the cycle.

Measurement Cycle Route	The route used to collect measurements for a given measurement cycle.
Measurement Cycle Route Sequence	The sequence in which measurements are collected along a measurement route.
Measurement Cycle Schedule	Defines the dates on which devices are scheduled to be read.
Measurement Service	Java services that can be invoked to manipulate interval and scalar measurements. Measurement services are invoked by measurement functions (available through certain zones within MDM), and are also used within processing of usage and VEE rules.
Measurement Service - Apply Formula	Service used to apply a formula to a specified set of interval data, either by applying a summary function against all intervals of the set, or by manipulating each individual interval in series via a formula using declared constants, or within the context of other sets of input interval data.
Measurement Service - Apply TOU Map To Interval Measuring Component	Service used to apply a TOU map to a set of intervals for a specified date/time range, thereby isolating and summarizing those intervals that occurred during a specific time of use.
Measurement Service - Axis Conversion	Service used to convert interval data between units of measure (UOMs) and interval sizes (SPIs), including the conversion between peak and consumption-oriented UOMs.
Measurement Service - Convert Scalar Consumption To Interval	Service used to convert a scalar consumption value to a set of interval measurements.
Measurement Service - Create Intervals	Service used to create interval data based on supplied parameters (UOM, interval size, number of intervals, value, etc.)
Measurement Service - Extract Subset of Intervals	Service used to extract a subset of interval data from a specified set of intervals.
Measurement Service - Identify Spikes	Service used to identify spikes in a specified set of interval data based on a spike percentage tolerance.
Measurement Service - Insert Intervals	Service used to insert one or more intervals into a set of interval measurements.
Measurement Service - Merge Intervals	Service used to merge a subset of interval data with a specified set of intervals (where overlaps occur, the subset intervals replace the original intervals).
Measurement Service - Remove Intervals	Service used to remove one or more intervals from a set of interval measurements.
Measurement Service - Retrieve Interval Consumption	Service used to retrieve one or more interval measurements.
Measurement Service - Retrieve Scalar Consumption	Service used to retrieve one or more scalar measurements.
Measurement Service - Set Condition	Service used to set the condition (status) code of a specified set of interval data.
Measurement Service - Shift Intervals	Service used to shift one or more intervals forward or backward in time.
Meter	A device used to measure a quantity of a service (electricity, gas, etc.) delivered to a service point.
Meter Read Download Activity Type	The structure and business rules applicable to downloading meter read information onto a handheld device.
Model	A specific model of a device produced by a manufacturer. Models for a single manufacturer can have diverse service types.

Multiplier	A value that may be applied to adjust the consumption values calculated for a device. Examples include meter/device multiplier, installation constant, loss factor, etc.
Normalized storage	Storing measurement data in a manner that allows for aggregation and reporting of data through database logic (SQL). Applies to both scalar and interval measurements.
Off-Peak Period	A time period during which the least amount of some consumable is being used. OR A period of relatively low system demand as specified by the supplier.
On-Peak Period	A time period during which the greatest quantity of some consumable is being used OR A period of relatively high system demand as specified by the supplier.
Outbound Communication	Communication sent from product Service and Measurement Data Foundation to a head-end system or other external system.
Peak	The maximum value for some measurable quantity recorded over a specified time period. A measuring component that measures peak quantities will record the highest value for the quantity over a period of time.
Peak Demand	The maximum rate of commodity consumption over a specific period of time.
Processing Method	Methods used to define the format or means by which a service provider receives data from the application, such as bill determinants, interval data, or meter events. Processing methods are also used to define how to create information internal to the application such as initial measurement data and usage transactions. Processing methods can also be used to define the information an external system wishes to subscribe to receive from our application. A BO or batch extract code are the typical processing methods defined for the transmission of data to a service provider.
Processing Role	Each processing method has a processing role, which defines the purpose of the processing method. Some examples of processing roles include: * Initial Measurement Creation (D1) * Device Activity Notification (D1) * Usage Transaction Notification (D2) * Usage Transaction Creation (D2)
Reader Remark	A type of device event used to capture and/or record specific events or circumstances encountered when a meter reader is manually reading scalar meters. Reader remarks are submitted with scalar initial measurements when received from a head-end system or meter read collection system. Reader remarks are NOT uploaded along ith other device events. Reader remarks are ALWAYS associated with a scalar initial measurement.
Reading	The value recorded by a measuring component at a given point in time. A reading often needs to be interpreted in the context of an earlier reading in order to derive a consumption value that would be stored as a measurement. For example, a reading of 1000 for a subtractive measuring component taken on February 1 in the context of a prior reading of 600 taken on January 15 would result in a consumption (measurement) of 400. Readings can either be consumptive or subtractive.

Register (Measuring Component)	A business object (BO) that represents a scalar register found on a standard or smart meter. It does not have a lifecycle, and should be associated with a device configuration.
Register Type – Physical (Measuring Component Type)	Measuring component type business object (BO) that enumerates the properties used by scalar registers.
Retail Company	A company that is authorized to buy and re-sell a commodity (such as electricity or gas) directly to customers based on territorial regulations.
Route Management	A portal used to maintain the sequence of service points within a Measurement Cycle Route.
Scalar Usage	A measurement of the amount of energy, water, gas, etc. consumed for a given measuring componet for a given time period.
Seconds Per Interval	Seconds Per Interval, a way of expressing the length of time between which measurements are taken.
Service Investigative Order	Activities created by a service issue monitor when a specified set of events have occurred at a service point. The type of activity created by the service issue monitor is defined on the service issue monitor's type.
Service Issue Monitor	Service tasks that analyze service points to determine if service is needed. If service is determined to be needed, the Service Issue Monitor creates a Service Investigative Order.
Service Order Requests	Requests that orchestrate the field activities (FAs) and smart meter messages (commands) necessary to change the service point and its installation, to enable or disable service, cut service for non-payment, etc.
Service Point	A location at which a company supplies service. Used to store information describing the type of service and how it is measured.
Service Point Identifier	A collection of identifiers for a given service point.
Service Point Identifer Type	Specific types of service point identifiers.
Service Point Parent	The parent of one or more service points.
Service Point Type	A specific type of service point. Defines how the application manages many aspects of the service point's behavior.
Service Provider	External entities that serve various roles relative to the application. These can be a head-end system, a billing system to which the application sends bill determinant data, a market participant in a deregulated environment, an outage management system that receives meter event data from the application, or other parties that require or provide information to the system.
Service Quantity Identifier	Service Quantity Identifier - further distinguishes between measured quantities that have identical UOM/TOU combinations, including situations in which the distinguishing identifier of a UOM is not accurately described as a TOU. SQIs can also be used as a stand-alone representation of a service quantity that is not measured (i.e. one that is not properly described as a UOM) within a Usage SQ collection (e.g. a billing determinant).
Service Task	"Records used to capture task-related activities, incuding tasks performed by users of other Oracle Utilities applications, such as Oracle Utilities Customer Self Service."
Service Type	Specific types of service, such as electric, gas, steam, etc.

Smart Meter	A business object (BO) used to model smart meters of different service types.
Smart Meter Installation Event	A business object (BO) that defines the lifecycle and rules for installing a smart meter at a service point.
Smart Meter Type	A business object (BO) for device type that references a head-end system as well as a collection of head-ends that are valid for devices of the type, and indicates whether incoming data incorporates the daylight savings time shift. Additionally, the smart meter type includes a list of valid device configurations for its devices.
Subtractive	Describes a measuring component for which consecutive readings must be subtracted to derive a consumption value.
Time of Use	Time of Use - modifiers for a given unit of measure that indicate a period of time during which a quantity has been used, such as On-Peak (meaning during a time when the greatest quantity of some consumable is being used), Off-Peak (meaning during a time when the least amount of some consumable is being used), etc.
TOU Group	A group of TOUs used to limit the set of TOUs usable in a TOU schedule. TOU Groups are used when defining a TOU schedule via a TOU map template.
TOU Map	A collection of TOU map data derived via a given TOU map template at a specific interval size (TOU). A TOU map is typically specified when configuring a usage calculation rule for TOU mapping. This TOU map's data will then be used when summarizing the interval data for each TOU period.
TOU Map Data	An interval date/time and its associated TOU as defined by a TOU map template. For example, if the schedule defined for a TOU map template specifies that the period on weekdays from 9 AM to 5 PM falls into On-Peak, and the data is hourly, rows would be stored in the TOU map data table with the date/time 5/3/2010 at 10 AM, 5/3/2010 at 11 AM, 5/3/2010 at 12 PM, etc., each with a value of On-Peak.
TOU Map Template	The schedule used for TOU map data generation, for example defining year, month, and day ranges and which TOUs should be used during each.
TOU Map Type	Defines certain important properties of TOU maps of the type, including the interval size and the valid TOU map templates.
Unit of Measure	Unit of Measure - identifies quantities measured, such as KWH, KW, cubic feet, degrees Celsius, etc.
User-Defined Measurement Values	Additional values optionally stored with a given measurement that can be used in various calculations. For example, a customer's gas consumption might be measured in cubic feet, but needs to be sent to a billing system in therms. A user-defined value to convert consumption in cubic feet into therms can be configured, and the therm value will then be stored with the measurement in cubic feet.
Validation, Estimation, and Editing (VEE)	The process by which initial measurement data is validated, estimated (if necessary) and edited (if necessary) based on a set of user-defined rules.
VEE Eligibility Criteria	User-definable conditions that could cause a given VEE rule to be applied or skipped. This could involve the evaluation of some attribute of the device or measuring component, or something else entirely.

VEE Exception	An exception generated during Validation, Estimation and Editing (VEE) processing of initial measurement data. Exceptions are assigned a severity that is used in determining whether or not the initial measurement data should be transitioned into an exception state.
VEE Group	A collection of VEE Rules.
VEE Group Matrix (Factor)	A VEE rule within a VEE group can be configured to pick from a list of VEE groups (referred to as a matrix) whose rules to execute next. This list of VEE groups is configured as the values of a factor. One example of its use could be to call geographically-specific VEE groups from within a larger-purpose group. A residential VEE group might contain a rule that will pick the VEE group to execute based on service point location, where the VEE Group Matrix specifies: SP in the North - VEE Group N SP in the East - VEE Group E SP in the South - VEE Group S
VEE Group Matrix (Factor) Referencing Group	A zone that displays a list of VEE group matrices (factors) that reference the VEE group being viewed in the VEE group portal.
VEE Rule	Standard and custom Validation, Estimation and Editing (VEE) Rules that perform checking and/or manipulation of initial measurement data.
VEE Rules Referencing Group	A zone that displays a list of VEE rules that reference the VEE group being viewed in the VEE group portal.

Standard Actions for Admin-Level Data Maintenance

A standard set of maintenance portals are used to define objects that are maintained from the Admin menu. These portals use a common interface and support a set of standard actions for creating and maintaining objects.

The following quick reference table provides the basic steps for performing any of the standard actions.

Action	Steps
Add	Click the Add link in the list or search zone title bar. Provide all necessary information and click **Save**.
Edit	Select the object you want to edit from the list zone, then click the **Edit** icon. Enter your changes and click **Save**.
Delete	Select the object you want to delete from the list zone, then click the **Delete** icon. Confirm the deletion.
Duplicate	Select the object you want to duplicate from the list zone, then click the **Duplicate** icon. Key fields will be cleared in the new record. Complete all required fields and click **Save**.
Broadcast	Select the object you want to broadcast from the list zone, then click the **Broadcast** icon. The details and available actions for the selected object are displayed in the appropriate zones.
Activate or Deactivate	Select the object you want to activate or deactivate from the list zone, then click **Activate** or **Deactivate** as appropriate. **NOTE:** These actions only apply to objects that support an Active and Inactive status, such as activity types. When such an object is deactivated, no new objects of this type can be created.

Action	Steps
Sort	Click a column header in the list zone to resort by the values in that column. Click again to reverse the order (from ascending to descending or descending to ascending).
Filter	If a list zone supports filtering, a Filter icon is displayed in the list zone title bar (on the far right). Click the **Filter** icon, then select the field by which you want to filter and click **Refresh**.
View Record Information	Click the Record Information plus sign (+) to display details related to the current object, including ID, Business Object, and Create Date/ Time (as applicable).
View or add log entries	Click the **Log** tab to view log entries. To add an entry, click the **Add** link in the list zone title bar and provide the requested information.

Standard Actions for Data Maintenance

This topic provides the basic steps for performing standard actions on data maintained from the Main Menu.

NOTE: The system displays buttons for all valid actions, based on the object's current status, your user privileges, and your system's configuration. The following table provide instructions for performing all standard actions.

Action	Steps
Edit	From the Main Menu: **1.** Select the option for the object you want to maintain. A query portal is displayed. **2.** Enter search criteria to locate the object. The maintenance portal is displayed. **3.** Click the **Edit** button in the Record Actions section. **4.** Enter your changes. Click to display field descriptions. **5.** Click **Save**.
Delete	From the Main Menu: **1.** Select the option for the object you want to delete. A query portal is displayed. **2.** Enter search criteria to locate the object. The maintenance portal is displayed. **3.** Click the **Delete** button in the Record Actions section. A confirmation dialog opens asking you to confirm the deletion of the record. Click **OK** to delete the object.
Duplicate	From the Main Menu: **1.** Select the option for the object you want to duplicate. A query portal is displayed. **2.** Enter search criteria to locate the object. The maintenance portal is displayed.

Action	Steps
	3. Click the **Duplicate** button in the Record Actions section. A new record is created and the Add/Edit screen is displayed. Key fields will be cleared in the new record. 4. Complete all required fields. Click to display field descriptions. 5. Click **Save**.
View Record Information	Click the Record Information plus sign (+) to display details related to the current object, including ID, Business Object, and Create Date/ Time (as applicable).
View or add log entries	From the Main Menu: 1. Select the option for the object you want to manage log entries for. A query portal is displayed. 2. Enter search criteria to locate the object. The maintenance portal is displayed. 3. Click the **Log** tab. 4. To add a log entry, click the Add link in the Log zone title bar. 5. Type the log detail and click **Save**.

Viewing and Adding Log Entries

Use the Log tab to view or add log entries for the current object.

The log displays a list of user and system actions associated with an object, such as when it was created, last updated, or transitioned to different status. For each log entry, the system displays the date and time the action occurred, the user/system that initiated the action, the type of action, and related object, if any.

To create a new log entry, click the **Add Log Entry** link in the zone title, then enter log entry details and click **Save**. Your user ID is saved with the log entry.

Chapter 13

FAQs

This section provides answers to commonly asked questions.

How Do I...?

This topic answers questions about how to perform day-to-day functions.

Q. How do I configure a change in a device's configuration?

A. When a device's configuration changes (for example, if a meter multiplier changes on a measuring component), you would do the following:

1. Edit the measuring components impacted by the change as appropriate (changing the multiplier in this example).
2. Create a new device configuration for the device, with an effective date that reflects the date of the change in the device's configuration.
3. Add the updated measuring components to the new device configuration.
4. Remove the active install event for the old device configuration.
5. Create a new install event for the new device configuration, using the service point from the previous install event.

Q. How do I configure a meter change out (a situation where a new physical meter recording the same values is installed at a service point)?

A. When a physical meter is changed or replaced, do the following:

1. Retire the device that represents the physical meter being replaced.
2. Create a new device that represents the new physical meter.
3. Create a new device configuration for the new device, with an effective date that reflects the date on which the new meter will be active.
4. Add the measuring components from the previous device (the device being replaced) to the new device configuration.
5. Remove the active install event for the previous device's device configuration.

6. Create a new install event for the new device configuration, using the service point from the previous install event.

Q. How do I create administration and master data to represent devices with attached communication components? For example, how do I configure a gas meter with a faceplate component.

A. To set up devices with attached components, do the following:

1. Create a device type for the gas meter, using the “Manual Meter Type” device type business object (D1-ManulMeterType).

   NOTE: Specify “Manual Meter” (D1–ManualMeter) as the **Device Business Object** for this device type.

2. Create a device typs for the faceplate component, using the “Communication Component Meter Type” device type business object (D1-ComunicationCompMeterType).

   NOTE: Specify “Communication Component Device ” (D1–CommComponentDevice) as the **Device Business Object** for this device type.

3. Create a measuring component type for the register on the communication component. (using the “Register” (D1–RegisterType) business object.

   NOTE: Specify “Register ” (D1–Register) as the **Device Business Object** for this measuring component type.

4. Create a device for the gas meter using the device type created in step 1.
5. Create a device for the faceplate component, using device type created in step 1.
6. Create a measuring component for the faceplate register, using measuring component type created in step 3.
7. Create a device configuration that defines the configuration for the communication component device and measuring component.
8. Create an install event for the device configuration, using the “Communication Component Install Event” business object (D1-CommComponentInstallEvent) .

   NOTE: Specify the faceplate component as the **Secondary Device ID** on this install event.

Q. How do I reference VEE groups on measuring components and measuring component types if I have not licensed Oracle Utilities Meter Data Management?

A. The VEE functionality is available only with Oracle Utilities Meter Data Management. When using Oracle Utilities Smart Grid Gateway without Oracle Utilities Meter Data Management, you will have to create empty VEE groups (VEE groups with no VEE rules) and reference them on your measuring component types and measuring components.

What's the Difference Between ...?

This topic describes the difference between terms and concepts that are closely related.

Q. What's the difference between Oracle Utilities Service and Measurement Data Foundation and Oracle Utilities Meter Data Management?

A. **Oracle Utilities Service and Measurement Data Foundation** provides shared functionality, including device management, device installation management, and Validation, Editing, and Estimation used by Oracle Utilities Meter Data Management, Oracle Utilities Smart Grid Gateway, and other Oracle Utilities products

Oracle Utilities Meter Data Management is an application based on Oracle Utilities Service and Measurement Data Foundation that provides additional device management, device installation management, and VEE functionality, in addition to usage management and analytic tools.

Q. What's the difference between a device and a measuring component?

A. A **device** is a physical or virtual object that holds one or more measuring components that produce data to be handled in the system.

A **measuring component** is a single point for which data will be received and stored in the system.

Q. What's the difference between a device type and device configuration?

A. A **device type** defines information about a class of devices, including properties that apply to all devices of a type.

A **device configuration** defines a specific configuration of a device as of a certain time.

Q. What's the difference between a measuring component and a scratchpad measuring component?

A. A **measuring component** is a single point for which data will be received and stored in the system.

A **scratchpad measuring component** is a measuring component that provides users with a means to manipulate "scratchpad" (or non-production) measurement data without affecting existing measurements.

Q. What's the difference between a service point and a service provider?

A. A **service point** is a location at which a company supplies service. Service points are used to store information describing the type of service and how it is measured.

A **service provider** is an external entity that serves a role relative to the application. These can be a head-end system, a billing system to which the application sends bill determinant data, a market participant in a deregulated environment, an outage management system that receives meter event data from the application, or other parties that require or provide information to the system.

Q. What's the difference between a measurement cycle and a measurement cycle route?

A. A **measurement cycle** defines the schedule for manual meter reading of devices at service points in that cycle.

A **measurement cycle route** is the route used to collect measurements for a given measurement cycle.

Q. What's the difference between a unit of measure and a service quantity identifier?

A. A **unit of measure** (UOM) identifies quantity that is measured by a measuring component, such as KWH, KW, cubic feet, degrees Celsius, etc.

A **service quantity identifier** further distinguishes between measured quantities that have identical UOM/time of use (TOU) combinations, including situations in which the distinguishing identifier of a UOM is not accurately described as a TOU. SQIs can also be used as a stand-alone representation of a service quantity that is not measured (i.e. one that is not properly described as a UOM) within a usage service quantity collection (such as a billing determinant).

Can I ...?

This topic answers questions about whether certain actions or configurations are permitted.

Q. Can I reference an empty VEE group to a measuring component or measuring component type?

A. Yes. A VEE group does not need to contain VEE rules. You can create an empty VEE group that contains no VEE rules, and assign the group to a measuring component type or measuring component.