Oracle Utilities
Service and Measurement Data
Foundation

User's Guide

Release 2.1.0 Service Pack 2

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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 on page 12

User Documentation on page 17

System Administration on page 64

Reference Topics on page 92

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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 the Oracle Utilities Service and Measurement Data Foundation that are documented in this guide.

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* on page 70
Network Locations of a Service Point Added sections and topics about Facilities and Network Locations. Added base package facilities and network locations Updated description of service point to include reference to "Distribution Network Facility"	*About Facilities* on page 26 *About Network Locations* on page 26 *Working with Facilities* *Working with Network Locations* *Base Package Network Locations* on page 117 *Base Package Facilities* on page 116 *Base Package Service Points* on page 112
Dependent Measuring Component Consumption Synchronization Expanded the "About Activities" and "About Activity Types" topics to include lists of activity type categories. The base package Device Configuration Type has been enhanced to include parameters used to define conditions under which consumption synchronization calculations for related measuring components are performed. The Auto-Read Register Type device type has been enhanced to include parameters used to define conditions under which consumption synchronization calculations are performed.	*About Activities* on page 42 *About Activity Types* on page 84 *About Device Configuration Types* on page 74 *Base Package Device Configuration Types* on page 128 *Base Package Measuring Component Types* on page 133
Support for Items	*About Devices* on page 17

Feature	For More Information
Expanded "About Devices" and "About Device Types" topics to include descriptions of items and item types.	*About Device Types* on page 74
	Creating Device Type Service Quantities on page 77
Added new topic about "Creating Device Type Service Quantities"	*About Device Configuration Types* on page 74
Expanded "About Device Configuration Types" topic to include description of item configuration types	*About Install Events* on page 25
Expanded "About Install Events" topic to include descriptions of item install events	*About Service Point Types* on page 79
	Base Package Devices on page 104
Updated description of service point types to include "Service Point Category."	*Base Package Device Types* on page 129
	Base Package Device Configuration Types on page 128
Added base package items, item types, item configuration types, and item install events to base package objects section.	*Base Package Install Events* on page 114
	Base Package Service Points on page 112
Updated base package service points and service point types to include item-related fields and sections	*Base Package Service Point Types* on page 141

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.	*Base Package Device Management Administration Objects* on page 128
The Auto-Read Register Type measuring component type includes parameters to define how estimation is performed.	*Base Package Device Installation Objects* on page 112 Additional information about scalar periodic estimation can be found in the Oracle Utilities Meter Data Management Configuration Guide.
The "Estimation Eligibility" field on the service point can be used to override period estimation for a specific service point.	

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* on page 46 *Working with Service Issue Monitors* on page 55
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* on page 35 *Working with Reader Remarks* on page 41
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 the sequence of service points within the measurement cycles and routes used in your implementation.	*About Route Management* on page 26 *Working with the Route Management Portal* on page 30

Feature	For More Information
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 four 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.

- **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

Menu (Admin or Main)	Functional Menu	Menu Option
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	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
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	Total and Trends	Processing Statistics

Menu (Admin or Main)	Functional Menu	Menu Option
Main	Service Task	

Chapter 4

User Documentation

This section describes the application functions that support day-to-day operations. These functions are available from the Oracle Utilities Service and Measurement Data Foundation application Main Menu.

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 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 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

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- 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)

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).

   See *Base Package Devices* on page 104 for detailed descriptions of the fields used to define devices.
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.

   See *Base Package Devices* on page 104 for detailed descriptions of the fields used to define devices.

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).

   See *Base Package Device Configurations* on page 112 for detailed descriptions of the fields used to define device configurations.

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.

See *Base Package Device Configurations* on page 112 for detailed descriptions of the fields used to define device configurations.

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).

   See *Base Package Measuring Components* on page 106 for detailed descriptions of the fields used to define measuring components.

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.

   See *Base Package Measuring Components* on page 106 for detailed descriptions of the fields used to define measuring components.

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 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 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 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 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 .

   See *Base Package Service Points* on page 112 for detailed descriptions of the fields used to define service points.

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:

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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.

   See *Base Package Service Points* on page 112 for detailed descriptions of the fields used to define service points.

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).

   See *Base Package Contacts* on page 113 for detailed descriptions of the fields used to define contacts.

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.

   See *Base Package Contacts* on page 113 for detailed descriptions of the fields used to define contacts.

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 .

   See *Base Package Install Events* on page 114 for detailed descriptions of the fields used to define install events.

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.

   See *Base Package Install Events* on page 114 for detailed descriptions of the fields used to define install events.

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* on page 53 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.

   See *Base Package Facilities* on page 116 for detailed descriptions of the fields used to define facilities.

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.

   See *Base Package Facilities* on page 116 for detailed descriptions of the fields used to define facilities.

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.

   See *Base Package Network Locations* on page 117 for detailed descriptions of the fields used to define network locations.

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.

   See *Base Package Network Locations* on page 117 for detailed descriptions of the fields used to define network locations.

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 (⑨) 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.

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. 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.
Extract Request	Retrieve usage and device events from a head-end system using Oracle Utilities Smart Grid Gateway

Activity Type Category	Activities of this type category are used to:
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
Payload Statistics	Calculate processing statistics for usage and device event import processing
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

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 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 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.

- 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 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.

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 .

   See *Base Package Device Events* on page 117 for detailed descriptions of the fields used to define device events.

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.

See *Base Package Device Events* on page 117 for detailed descriptions of the fields used to define device events.

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.

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. elect **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:

   - **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.

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:

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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.

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 5

System Administration

This section describes the functions available from the Oracle Utilities Service and Measurement Data Foundation Admin Menu. It provides conceptual information and instructions for performing various setup and administration tasks.

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 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.

   See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define exception types.

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.

   See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define factors.

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.

   See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define factor values.

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 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.

See *Base Package Service Providers* on page 123 for detailed descriptions of the fields used to define service providers.

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.

See *Base Package Processing Methods* on page 125 for detailed descriptions of the fields used to define processing methods.

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.

    See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define service quantity identifiers.

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.

   See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define service types.

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.

See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define time of use periods.

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.

   See *Base Package General Admin Data* on page 120 for detailed descriptions of the fields used to define units of measure.

10. Click **Save**.

You can now use this unit of measure when creating value identifiers for measuring component types.

Device Management Administration

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

Understanding Device Management Setup and Administration

This section describes entities used to support the management of devices.

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* on page 128 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 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 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.

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.

See *Base Package Device Configuration Types* on page 128 for detailed descriptions of the fields used to define device configuration types.

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.

See *Base Package Device Types* on page 129 for detailed descriptions of the fields used to define device types.

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.

See *Base Package Manufacturers* on page 132 for detailed descriptions of the fields used to define manufacturers.

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.

   See *Base Package Measuring Component Types* on page 133 for detailed descriptions of the fields used to define measuring component types.

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**.

Device Installation Administration

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

Understanding Device Installation Setup and Administration

This section describes entities used to support the management of device installations.

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 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 Contact Types

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

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.

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.

   See *Base Package Markets* on page 141 for detailed descriptions of the fields used to define markets.

5. Click **Save**.

Now you can use the market when creating service points.

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.

    See *Base Package Service Point Types* on page 141 for detailed descriptions of the fields used to define service point types.

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* on page 142 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.

    See *Base Package Measurement Cycles* on page 143 for detailed descriptions of the fields used to define measurement cycles.

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.

    See *Base Package Measurement Cycle Routes* on page 143 for detailed descriptions of the fields used to define measurement cycle routes.

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.

   See *Base Package Measurement Cycle Schedules* on page 144 for detailed descriptions of the fields used to define measurement cycle schedules.

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.

   See *Base Package Measurement Cycle Schedules* on page 144 for detailed descriptions of the fields used to define measurement cycle schedules.

4. Click **Save**.

Device Communication Administration

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

Understanding Device Communication Setup and Administration

This section describes entities used to support the management of device communication.

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.
Extract Request	Retrieve usage and device events from a head-end system using Oracle Utilities Smart Grid Gateway
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
Payload Statistics	Calculate processing statistics for usage and device event import processing
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 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 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 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 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.

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.

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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.

   See *Base Package Device Event Types* on page 144 for detailed descriptions of the fields used to define device event types.

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.

   See *Base Package Service Task Types* on page 146 for detailed descriptions of the fields used to define service task types.

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 6

Reference Topics

This section provides reference information to support tasks.

Glossary

This glossary provides definitions of commonly used terms.

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, SPI, 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 (SPI) 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 ⑦ 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.

Oracle Utilities Service and Measurement Data Foundation Base Package Objects

This section provides descriptions of the base package objects provided with the Oracle Utilities Service and Measurement Data Foundation.

Base Package Device Management Objects

This section provide descriptions of the base package objects used by device management functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Devices

This section provides descriptions of the attributes used to define devices provided with the base package.

Manual Meter

Manual meters are devices that provide no means of two-way communication and must be manually read.

Field	Description
Information	The information string for the device (comprises the device's badge number, device type, installation information, head-end system, and current status).
Device Type	The device type upon which the device is based
Identifier (Serial / Badge / Internal Meter / Pallet) Number	Values used to identify the device, Different vendors and systems use different types of identifier numbers.
External ID	An ID used by external systems to identify the device.
Manufacturer	The manufacturer who supplies the device.
Model	The model number of the device.
Specification	The specification associated with the device. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Configuration	The asset configuration for the device, based on the device's specification.
Status	The current status of the device.

Business Object: D1-ManualMeter

Smart Meter

Smart meters are devices that provide two-way communication with a head-end system and can send readings to head-end systems and/or other data collection systems.

Field	Description
Information	The information string for the device (comprises the device's badge number, device type, installation information, head-end system, and current status).
Device Type	The device type upon which the device is based
Identifier (Serial / Badge / Internal Meter / Pallet) Number	Values used to identify the device, Different vendors and systems use different types of identifier numbers.
External ID	An ID used by external systems to identify the device.
Manufacturer	The manufacturer who supplies the device.
Model	The model number of the device.
Incoming Data Shift	A flag that indicates whether incoming data for the device type has been shifted from Standard time. Valid values include: • **Always in Local Time**: indicates the device will always send the application initial measurement data in Local time.

Field	Description
	• **Always in Standard Time**: indicates that the devices will always send the application initial measurement data in Standard time.
	This flag is used if the Incoming Data Shift is not specified for the device.
Fallback Incoming Data Shift	The default (fallback) setting for the **Incoming Data Shift** flag, derived from the device's type.
Arming Required	A flag that indicates if the devices requires arming
Head-End System	The head-end system associated to the device.
Fallback Head-End System	The default (fallback) head-end system associated to the device, derived from the device's type.
Head-End Registration Status	A flag that indicates the registration status of the meter in the head-end system. This is used by smart meter commands and other processes to determine if the meter is currently registered in the head-end system. Valid values include: • **Not Registered**: The meter is not registered in the head-end system (this is the default value) • **Registered**: The meter is registered in the head-end system • **Deregistered**: The meter has been de-registered from the head-end system
Specification	The specification associated with the device. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Configuration	The asset configuration for the device, based on the device's specification.
Status	The current status of the device.

Business Object: D1-SmartMeter

Communication Component Device

Communication components are 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).

Field	Description
Information	The information string for the device (comprises the device's badge number, device type, installation information, head-end system, and current status).
Device Type	The device type upon which the device is based
Identifier (Serial / Badge / Internal Meter / Pallet) Number	Values used to identify the device, Different vendors and systems use different types of identifier numbers.
External ID	An ID used by external systems to identify the device.
Asset ID	An ID used by an asset management system to identify the device.
Manufacturer	The manufacturer who supplies the device.
Model	The model number of the device.
Incoming Data Shift	A flag that indicates whether incoming data for the device type has been shifted from Standard time. Valid values include: • **Always in Local Time**: indicates the device will always send the application initial measurement data in Local time.

Field	Description
	• **Always in Standard Time**: indicates that the devices will always send the application initial measurement data in Standard time.
	This flag is used if the Incoming Data Shift is not specified for the device.
Fallback Incoming Data Shift	The default (fallback) setting for the **Incoming Data Shift** flag, derived from the device's type.
Head-End System	The head-end system associated to the device.
Fallback Head-End System	The default (fallback) head-end system associated to the device, derived from the device's type.
Specification	The specification associated with the device. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Configuration	The asset configuration for the device, based on the device's specification.
Status	The current status of the device.

Business Object: D1-CommComponentDevice

Item

Item are devices that consume quantities of a service commodity (electricity, 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.

Field	Description
Information	The information string for the item (comprises the item's identifier, item type, installation information, and current status).
Item Type	The item type upon which the item is based
Identifier (Serial / Badge / Internal Item) Number	Values used to identify the item, Different vendors and systems use different types of identifier numbers. Used only with "badged" items.
Asset ID	An ID used by an asset management system to identify the item.
External ID	An ID used by external systems to identify the item.
Specification	The specification associated with the item. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management
Configuration	The asset configuration for the item, based on the item's specification.
Manufacturer	The manufacturer who supplies the item.
Model	The model number of the item.
Status	The current status of the item.

Business Object: D1-Item

Base Package Measuring Components

This section provides descriptions of the attributes used to define measuring components provided with the base package.

Interval Channel

Interval channels are measuring components that are part of physical devices used to measure interval usage.

Field	Description
Information	The information string for the measuring component (comprises the parent device's identifier, measuring component identifier, and measuring component type).
Measuring Component Type	The measuring component type upon which the measuring component is based.
Device Configuration	The information string for the device configuration associated with the measuring component.
Consumption Reference Measuring Component	A related scalar measuring component. Used when adjusting interval measurement data to an existing scalar measurement.
How To Use	**How to Use**: indicates how the channel is used (additive, subtractive, peak, or check) when calculating usage. • **Additive** Indicates that the register's consumption should be added to other register's consumption (with the same UOM and TOU value). • **Subtractive**: Indicates that the register's consumption should be subtracted from other register's consumption (with the same UOM and TOU value). • **Peak**: Indiciates that this register's consumption should be compared against other register's consumption (with the same UOM and TOU value) and that the higher consumption value should be used. • **Check**: Indicates that the consumption associated with this register should be ignored.
Number of Digits Left	The number of digits to the left of the decimal point
Number of Digits Right	The number of digits to the right of the decimal point
Channel Multiplier	The meter multiplier for the channel. Raw values recorded by the channel are multiplied by this number to convert them into usable measurement values.
VEE Group for Initial Load	The VEE group to use when validating initial load measurements for this measuring component.
VEE Group for Estimation	The VEE group to use when validating estimated measurements for this measuring component.
VEE Group for Manual Override	The VEE group to use when validating manually created measurements for this measuring component.
Fallback VEE Group for Initial Load	The fallback VEE group to use when validating initial load measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Initial Load** is not specified.
Fallback VEE Group for Estimation	The fallback VEE group to use when validating estimated measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Estimation** is not specified.
Fallback VEE Group for Manual Override	The fallback VEE group to use when manually created measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Manual Override** is not specified.
Channel ID	The ID of the channel in the system.
External ID	Ad ID for the channel used by external systems (such as the head-end system associated with the measuring component's parent device).

Business Object: D1-IntervalChannel

Interval Scratchpad

Interval scratchpad measuring components provide users with a means to manipulate measurement data without affecting existing measurements.

Field	Description
Information	The information string for the scratchpad measuring component (comprises measuring component type and scratchpad description).
Measuring Component Type	The measuring component type upon which the measuring component is based.

Field	Description
Scratchpad Description	A description of the scratchpad measuring component. This is used in information strings when referencing the scratchpad measuring component.
Number of Digits Left	The number of digits to the left of the decimal point
Number of Digits Right	The number of digits to the right of the decimal point
Channel Multiplier	The meter multiplier for the channel. Measurement values for this scratchpad measuring component are based on raw measured values multiplied by this number.
User	The user to whom the scratchpad measuring component belongs. All scratchpad measuring components are associated with a specific user.
Time Zone	The time zone for measurements stored by the scratchpad measuring component.
Status	The current status of the scratchpad measuring component. Scratchpad measuring components are either Active or Inactive.
Source Measuring Component	The interval measuring component from which the measurements stored by the scratchpad measuring component were originally derived.
VEE Group for Initial Load	The VEE group to use when validating initial load measurements for this scratchpad measuring component.
VEE Group for Estimation	The VEE group to use when validating estimated measurements for this scratchpad measuring component.
VEE Group for Manual Override	The VEE group to use when validating manually created measurements for this scratchpad measuring component.
Fallback VEE Group for Initial Load	The fallback VEE group to use when validating initial load measurements for this scratchpad measuring component, derived from the measuring component's type. Used only if a **VEE Group for Initial Load** is not specified.
Fallback VEE Group for Estimation	The fallback VEE group to use when validating estimated measurements for this scratchpad measuring component, derived from the measuring component's type. Used only if a **VEE Group for Estimation** is not specified.
Fallback VEE Group for Manual Override	The fallback VEE group to use when manually created measurements for this scratchpad measuring component, derived from the measuring component's type. Used only if a **VEE Group for Manual Override** is not specified.

Business Object: D1-IntervalScratchpad

Register

Registers are used to record usage consumption based on start and stop readings. Meters with registers can be read automatically or manually.

Field	Description
Information	The information string for the measuring component (comprises the parent device's identifier, measuring component identifier, and measuring component type).
Measuring Component Type	The measuring component type upon which the measuring component is based.
Device Configuration	The information string for the device configuration associated with the measuring component.
Consumption Reference Measuring Component	A related measuring component used to validate usage by comparing consumption readings for the same time period .
How To Use	**How to Use**: indicates how the channel is used (additive, subtractive, peak, or check) when calculating usage. • **Additive** Indicates that the register's consumption should be added to other register's consumption (with the same UOM and TOU value). • **Subtractive**: Indicates that the register's consumption should be subtracted from other register's consumption (with the same UOM and TOU value).

Field	Description
	• **Peak**: Indiciates that this register's consumption should be compared against other register's consumption (with the same UOM and TOU value) and that the higher consumption value should be used.
	• **Check**: Indicates that the consumption associated with this register should be ignored.
Number of Digits Left	The number of digits to the left of the decimal point
Number of Digits Right	The number of digits to the right of the decimal point
Register Multiplier	The meter multiplier for the register. Raw values recorded by the register are multiplied by this number to convert them into usable measurement values.
Read Sequence	The sequence in which the register is read, used with hand-held devices
Read Out Type	The type of display on the register. Common read out types include dials or digital
Tolerance	The tolerance of the register. When downloading meter reads for manually read meters, this is used to warn the reader if the resulting consumption is close to or exceeds the tolerance of the register.
Full Scale	The maximum value that can be recorded on the register, based on the number of digits. When downloading meter reads for manually read meters, this is used to warn the reader if the resulting consumption is close to or exceeds the register's maximum capacity.
VEE Group for Initial Load	The VEE group to use when validating initial load measurements for this measuring component.
VEE Group for Estimation	The VEE group to use when validating estimated measurements for this measuring component.
VEE Group for Manual Override	The VEE group to use when validating manually created measurements for this measuring component.
Fallback VEE Group for Initial Load	The fallback VEE group to use when validating initial load measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Initial Load** is not specified.
Fallback VEE Group for Estimation	The fallback VEE group to use when validating estimated measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Estimation** is not specified.
Fallback VEE Group for Manual Override	The fallback VEE group to use when manually created measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Manual Override** is not specified.
Channel ID	The ID of the channel in the system.
External ID	Ad ID for the channel used by external systems (such as the head-end system associated with the measuring component's parent device).

Business Object: D1–Register

Register Auto-Read

Auto-read registers are measuring components that are automatically read on a regular basis but for which measurements are received one at a time, meaning one measurement per Initial Measurement. These types of measuring components are thus categorized as scalar rather than interval.

Field	Description
Information	The information string for the measuring component (comprises the parent device's identifier, measuring component identifier, and measuring component type).
Measuring Component Type	The measuring component type upon which the measuring component is based.
Device Configuration	The information string for the device configuration associated with the measuring component.
Consumption Reference Measuring Component	A related measuring component used to validate usage by comparing consumption readings for the same time period .
How To Use	**How to Use**: indicates how the channel is used (additive, subtractive, peak, or check) when calculating usage.

Field	Description
	• **Additive** Indicates that the register's consumption should be added to other register's consumption (with the same UOM and TOU value).
	• **Subtractive**: Indicates that the register's consumption should be subtracted from other register's consumption (with the same UOM and TOU value).
	• **Peak**: Indiciates that this register's consumption should be compared against other register's consumption (with the same UOM and TOU value) and that the higher consumption value should be used.
	• **Check**: Indicates that the consumption associated with this register should be ignored.
Number of Digits Left	The number of digits to the left of the decimal point
Number of Digits Right	The number of digits to the right of the decimal point
Register Multiplier	The meter multiplier for the register. Raw values recorded by the register are multiplied by this number to convert them into usable measurement values.
Read Sequence	The sequence in which the register is read, used with hand-held devices
Read Out Type	The type of display on the register. Common read out types include dials or digital
Tolerance	The tolerance of the register. When downloading meter reads for manually read meters, this is used to warn the reader if the resulting consumption is close to or exceeds the tolerance of the register.
Full Scale	The maximum value that can be recorded on the register, based on the number of digits. When downloading meter reads for manually read meters, this is used to warn the reader if the resulting consumption is close to or exceeds the register's maximum capacity.
VEE Group for Initial Load	The VEE group to use when validating initial load measurements for this measuring component.
VEE Group for Estimation	The VEE group to use when validating estimated measurements for this measuring component.
VEE Group for Manual Override	The VEE group to use when validating manually created measurements for this measuring component.
Fallback VEE Group for Initial Load	The fallback VEE group to use when validating initial load measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Initial Load** is not specified.
Fallback VEE Group for Estimation	The fallback VEE group to use when validating estimated measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Estimation** is not specified.
Fallback VEE Group for Manual Override	The fallback VEE group to use when manually created measurements for this measuring component, derived from the measuring component's type. Used only if a **VEE Group for Manual Override** is not specified.
Channel ID	The ID of the channel in the system.
External ID	Ad ID for the channel used by external systems (such as the head-end system associated with the measuring component's parent device).

Business Object: D1-RegisterAutoRead

Payload Statistics Aggregator — Event

Event payload statistics aggregator measuring components are used to store summarized payload statistics related to upload of device event data.

Field	Description
Information	The information string for the measuring component (comprises device identifier, measuring component identifier, measuring component date, and measuring component type).
Measuring Component Type	The measuring component type upon which the aggregator measuring component is based.
Status	The current status of the aggregator measuring component. Scratchpad measuring components are either Active or Inactive.

Field	Description
Statistics Aggregated Through Date/Time	The date and time through which device event processing statistics have been aggregated by this aggregator measuring component. This represents the latest date and time for which aggregated statistics have been calculated.
How To Use	**How to Use**: indicates how the data aggregated is used (additive, subtractive, peak, or check) when aggregating statistics. • **Additive** Indicates that the aggregator's statistics should be added to other aggregator's statistics . • **Subtractive**: Indicates that the aggregator's statistics should be subtracted from other aggregator's statistics. • **Peak**: Indicates that this aggregator's statistics should be compared against other aggregator's statistics and that the higher value should be used. • **Check**: Indicates that the statistics associated with this aggregator should be ignored.
Time Zone	The time zone for statistics aggregated by the aggregator measuring component.
Head-End System	The head-end system for which device event processing statistics are aggregated by this aggregator measuring component.
Next Aggregation Horizon	The start and end date and time for the next aggregation period.

Business Object: D1-PayloadStatsAggEvent

Payload Statistics Aggregator — IMD

IMD payload statistics aggregator measuring components are used to store summarized payload statistics related to upload of initial measurement data.

Field	Description
Information	The information string for the measuring component (comprises device identifier, measuring component identifier, measuring component date, and measuring component type).
Measuring Component Type	The measuring component type upon which the aggregator measuring component is based.
Status	The current status of the aggregator measuring component. Scratchpad measuring components are either Active or Inactive.
Statistics Aggregated Through Date/Time	The date and time through which initial measurement processing statistics have been aggregated by this aggregator measuring component. This represents the latest date and time for which aggregated statistics have been calculated.
How To Use	**How to Use**: indicates how the data aggregated is used (additive, subtractive, peak, or check) when aggregating statistics. • **Additive** Indicates that the aggregator's statistics should be added to other aggregator's statistics . • **Subtractive**: Indicates that the aggregator's statistics should be subtracted from other aggregator's statistics. • **Peak**: Indicates that this aggregator's statistics should be compared against other aggregator's statistics and that the higher value should be used. • **Check**: Indicates that the statistics associated with this aggregator should be ignored.
Time Zone	The time zone for statistics aggregated by the aggregator measuring component.
Head-End System	The head-end system for which initial measurement processing statistics are aggregated by this aggregator measuring component.
Next Aggregation Horizon	The start and end date and time for the next aggregation period.

Business Object: D1-PayloadStatsAggIMD

Base Package Device Configurations

This section provides descriptions of the attributes used to define device configurations provided with the base package.

Device Configuration

Manual meters are devices that provide no means of two-way communication and must be manually read.

Field	Description
Information	The information string for the device configuration (comprises the device type, effective date/time, device configuration type, number of measuring components, and current status).
Device Configuration Type	The device configuration type upon which the device configuration is based
Device	The information string for the device associated with the device configuration.
Effective Date/Time	The date and time at which the device configuration is considered in effect.
Time Zone	The time zone in which the device configuration is in effect.
Status	The current status of the device configuration.

Business Object: D1-DeviceConfiguration

Base Package Device Installation Objects

This section provide descriptions of the base package objects used by device installation functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Service Points

This section provides descriptions of the attributes used to define service points provided with the base package.

Service Point

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.

Field	Description
Information	The information string for the service point (comprises the service point's address information, service point type, measurement cycle information, and current status).
Service Point Type	The service point type upon which the service point is based.
Status	The current status of the service point. Valid statuses include "Active" and "Inactive".
Time Zone	The time zone in which the service point is located.
Market	The market in which the service point is serviced.
Parent Service Point ID	The ID of the service point's parent, if applicable.
Source Status	The status of the source of the service (electric, gas, water, etc.), provided to the service point. Options include "Connected" and "Disconnected".
Disconnect Location	Specifies if the service is disconnected at the device or at a source, such as a service pole.

Field	Description
External ID	An ID for the service point in external systems, such as a customer information system.
External Premise ID	An ID for the service point's premise used in external systems, such as a customer information system.
Main Contact	The main contact (business of person) for the service point.
Asset Location ID	An ID for the service point used in asset management systems, such as Oracle Utilities Operational Device Management.
Primary Usage Subscription	The service point's primary usage subscription. This is used to specify how usage and consumption are calculated for the service point.
Estimation Eligibility	If the service point's devices are configured for periodic estimation this field can be set to **Not Eligible** turn off estimation. The default behavior is for estimation to be **Eligible**. Note: this field only has impact on the Periodic Estimation process. It has no influence on Estimation initial measurements or Estimation VEE Rules.
Distribution Network Facility	The facility associated with the service point. Facilities are used to model network nodes above the meter level such as transformers.
Address	Address information for the service point.
Life Support / Sensitive Load Information	Information that indicates if the current service point supplies service to life support equipment (or if the load supplied to the service point is considered sensitive).
Field Information	Information related to field work performed at the current service point, including any applicable warnings or instructions.
Measurement Cycle	Details related to the measurement cycle associated with the current service point, including measurement cycle, route, and sequence.
Multi-Item Information	Defines a set of one or more groups of item types installed at the service point. This applies only to "multi-item" service points. Each group of item types is defined by the following: • **Start Date/Time**: The date/time on which the group of item types is considered installed at the service point. • **End Date/Time**: The date/time on which the group of item types is considered no longer installed at the service point. • **Installation Override Quantity (Daily)**: A value used to override the Device Type Service Quantity in effect for the item types in this group. This value is an average daily consumption value. • **UOM**: The unit of measure for the value defined as the Installation Override Quanity. • **SQI**: The service quantity identifier for the value defined as the Installation Override Quantity. • **Multi-Item Count**: A list of one or more item types and the number of each type.

Business Object: D1-ServicePoint

Base Package Contacts

This section provides descriptions of the attributes used to define contacts provided with the base package.

Business

Businesses are business entities with which a company has contact.

Field	Description
Information	The information string for the contact (comprises the contact's name and phone number).
Company Name	The name of the business.

Field	Description
Business Phone	The primary phone number for the business.
Email	The primary email address for the business.
External ID	An ID for the business used in external systems, such as a customer information system.
Asset System Contact ID	An ID for the contact used in asset management systems, such as Oracle Utilities Operational Device Management.
Contact Type	The contact type upon which the contact is based.

Business Object: D1-Business

Person

Persons are individuals with which a company has contact.

Field	Description
Information	The information string for the contact (comprises the contact's name and phone number).
Name	The name of the person.
Home Phone	The primary phone number for the person.
Mobile Phone	The mobile phone number for the person.
Email	The primary email address for the person.
External ID	An ID for the person used in external systems, such as a customer information system.
Asset System Contact ID	An ID for the contact used in asset management systems, such as Oracle Utilities Operational Device Management.
Contact Type	The contact type upon which the contact is based.

Business Object: D1-Person

Base Package Install Events

This section provides descriptions of the attributes used to define install events provided with the base package.

Manual Meter Installation Event

Manual meter installation events are a record of a manual meter'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.

Field	Description
Information	The information string for the install event (comprises the install date/time, removal date/time (if removed), and status).
Device Configuration	The device configuration for the installed device.
Service Point	The service point at which the device is installed.
Status	The current status of the install event.
Installation Date/Time	The date/time when the device configuration was installed.

Field	Description
Installation Constant	a value (other than 1) used to indicate that when calculating consumption, the installation requires that measurement data be multiplied by this value to get accurate results.
External ID	An ID for the install event used in external systems, such as a customer information system.
Device Of/Off Status	The current status of the device (on or off).
On/Off History	A list of the dates and time when the device was turned on or off.

Business Object: D1-ManualMeterInstallEvent

Smart Meter Installation Event

Smart meter installation events are a record of a smart meter's installation information at a service point.

Field	Description
Information	The information string for the install event (comprises the install date/time, removal date/time (if removed), and status).
Device Configuration	The device configuration for the installed device.
Service Point	The service point at which the device is installed.
Status	The current status of the install event.
Installation Date/Time	The date/time when the device configuration was installed.
Installation Constant	a value (other than 1) used to indicate that when calculating consumption, the installation requires that measurement data be multiplied by this value to get accurate results.
Arming Status	A flag that indicates if the device has been armed or not. Options include "Arrmed" and "Not Armed". Devices that require arming (those with an **Arming Required** flag set to Arming Required) must be armed before they can be connected.
External ID	An ID for the install event used in external systems, such as a customer information system.
Device Of/Off Status	The current status of the device (on or off).
On/Off History	A list of the dates and time when the device was turned on or off.

Business Object: D1-SmartMeterInstallEvent

Communication Component Install Event

Communication component meter installation events are a record of a communication component's installation information at a service point.

Field	Description
Information	The information string for the install event (comprises the install date/time, removal date/time (if removed), and status).
Device Configuration	The device configuration for the installed device.
Service Point	The service point at which the device is installed.
Status	The current status of the install event.
Installation Date/Time	The date/time when the device configuration was installed.
Installation Constant	a value (other than 1) used to indicate that when calculating consumption, the installation requires that measurement data be multiplied by this value to get accurate results.
External ID	An ID for the install event used in external systems, such as a customer information system.

Field	Description
Device Of/Off Status	The current status of the device (on or off).
Secondary Device ID	The device ID of the device to which the communication component is attached. For example, if the communication component is a gas meter faceplate attached to a gas meter, the "Secondary Device ID" would be the ID of the gas meter.
On/Off History	A list of the dates and time when the device was turned on or off.

Business Object: D1-CommComponentInstallEvent

Item Installation Event

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.

Field	Description
Information	The information string for the install event (comprises the install date/time, removal date/time (if removed), and status).
Device Configuration	The device configuration for the installed item.
Service Point	The service point at which the item is installed.
Status	The current status of the install event.
Installation Date/Time	The date/time when the device configuration was installed.
External ID	An ID for the install event used in external systems, such as a customer information system.
Device Of/Off Status	The current status of the item (on or off).
On/Off History	A list of the dates and time when the item was turned on or off.

Business Object: D1-ItemInstallEvent

Base Package Facilities

This section provides descriptions of the attributes used to define facilities provided with the base package.

Transformer

Facilities represent the network node level closest to the service point. In terms of electric service, facilities represent transformers. A transformer can be connected to zero or more service points (though a single service point can only be linked to a single transformer), and over time a transformer can have many network locations.

Field	Description
Information	The information string for the transformer (comprises the transformer's description, service type, and current status).
Facility Type	The type of facility (determined by the facility's business object).
Service Type	The type of service (electric, gas, water, etc.) provided the facility.
Status	The current status of the transformer. Valid statuses include "Active" and "Inactive".
External ID	An ID for the transformer in external systems, such as a customer information system.

Business Object: D1-Transformer

Base Package Network Locations

This section provides descriptions of the attributes used to define network locations provided with the base package.

Electricity Network Location

Electricity network locations define the location of a facility within a larger network. In the case of electric networks, network locations define the feeder and substation associated with a transformer (facility).

Field	Description
Information	The information string for the network location (comprises the facility's description, start date/time — end date time, feeder, and substation).
Facility ID	The ID of the facility for the network location.
Start Date/Time	The date/time on which the network location is considered to be in effect for the facility.
End Date/Time	The date/time after which the network location is no longer considered to be in effect for the facility.
Feeder	An ID for the feeder associated with the facility.
Substation	An ID for the substation associated with the facility and seeder.
External ID	An ID used to identify the network location in external systems.

Business Object: D1-ElectricityNetworkLocation

Base Package Device Communication Objects

This section provide descriptions of base package objects used by device communication functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Device Events

This section provides descriptions of the attributes used to define devices events provided with the base package.

Standard Device Event

Standard device events are events of some sort that have taken place relative to a device that do not have a duration. Examples can include power outages (flickers), tampering alerts and other events.

Field	Description
Information	The information string for the device event (comprises the device event type, event date/time, and current status).
Device Event Type	The device event type upon which the device event is based
Status	The current status of the device event type. Options include "Active" and "Inactive".
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.

Field	Description
Device	The device related to the event.
Sender	Defines attributes of the head-end system that sent the event. • **Sender**: the head-end system (defined as a service provider) 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 the system. • **External Source Identifier**: an identifier for the source of the event. • **External Time Zone**: The time zone in which the external system is located (if different)
Event Information	Defines details of the event itself, provided by the head-end system.
Raw Event Information	Displays raw event information in XML format.

Business Object: D1-StandardDeviceEvent

Device Event — Paired (First/Last)

Paired device events are events with a duration, such as a power outage, with the first of the pair representing the start of the event, and the last of the pair representing the end of the event.

> **Note:** The "Device Event — Paired (First)" and "Device Event — Paired (Last)" device event types are separate objects.

Field	Description
Information	The information string for the device event (comprises the device event type, event date/time, and current status).
Device Event Type	The device event type upon which the device event is based
Status	The current status of the device event type. Options include "Active" and "Inactive".
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.
Device	The device related to the event.
Sender	Defines attributes of the head-end system that sent the event. • **Sender**: the head-end system (defined as a service provider) 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 the system. • **External Source Identifier**: an identifier for the source of the event. • **External Time Zone**: The time zone in which the external system is located (if different)
Event Information	Defines details of the event itself, provided by the head-end system.
Raw Event Information	Displays raw event information in XML format.

Business Object: D1-PairedEventFirstDeviceEvent

Business Object: D1-PairedEventLastDeviceEvent

Device Event Communication Response

Communication response device events are events created in response to a command or other communication sent to the device.

Field	Description
Information	The information string for the device event (comprises the device event type, event date/time, and current status).
Device Event Type	The device event type upon which the device event is based
Status	The current status of the device event type. Options include "Active" and "Inactive".
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.
Device	The device related to the event.
Sender	Defines attributes of the head-end system that sent the event. • **Sender**: the head-end system (defined as a service provider) 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 the system. • **External Source Identifier**: an identifier for the source of the event. • **External Time Zone**: The time zone in which the external system is located (if different)
Event Information	Defines details of the event itself, provided by the head-end system.
Raw Event Information	Displays raw event information in XML format.

Business Object: D1–DeviceEvtComResp

Reader Remark

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.

Field	Description
Information	The information string for the reader remark (comprises the device event type, reader remark date/time, and current status).
Device Event Type	The device event type upon which the device event is based
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 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.
Sender	Defines attributes of the head-end system that sent the reader remark. • **Sender**: the head-end system (defined as a service provider) from which the reader remark was sent.

Business Object: D1–ReaderRemark

Base Package Service Tasks

This section provides descriptions of the attributes used to define service tasks provided with the base package.

Service Issue Monitor

Service issue monitors are service tasks that analyze service points to determine if service is needed.

Field	Description
Information	The information string for the service issue monitor (comprises the service issue monitor type, creation date/time, status, status reason).
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	Displays details of the events that triggered the creation of the Service Investigative Order created by the Service Issue Monitrr. • **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.

Business Object: D1-ServiceIssueMonitor

Base Package General Admin Data

This section provides descriptions of the base package general administration data objects used by the Oracle Utilities Services and Measurement Data Foundation. This includes subsections that provide descriptions of base package service providers and processing methods.

Exception Type

Exception types define the properties common to exceptions of a given type.

Field	Description
Exception Type	The code/name for the exception type.
Description	A description of the exception type. This is used in information strings when referencing the exception type.
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.

Field	Description
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).

Business Object: D1-ExceptionType

Factor

Factors are a centrally stored set of values for use in validation rules, bill determinant 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.

Field	Description
Factor	The code/name for the factor.
Description	A description of the factor. This is used in information strings when referencing the factor.
Factor Class	The class of the factor. Options include "Number", "Profile", and "VEE Group".
Value in Usage Subscription	A flag that indicates whether or not a usage subscription should be checked for override factor values before retrieving the factor values for the factor. Options include "Valie in Usage Subscription" and Value not in Usage Subscription". Applicable for number-class factors only.
Characteristic Source Algorithm	The algorithm that returns the characteristic value for the characteristic type defined in the Factor
Factor Characteristic Type	The characteristic type for the factor.

Business Object: D1-FactorNumber

Business Object: D1-FactorProfile

Business Object: D1-FactorVEEGroup

Factor Value

Factor value 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.

Field	Description
Factor	The factor on which the factor value is based.
Factor Characteristic Type	The characteristic type for the factor.
Factor Characteristic Value	The characteristic value used by the factor's characteristic source algorithm to retrieve the factor value.
Effective Date/Time	The date and time at which the factor value is considered to be in effect. Effective dating allows factor values to change over time as values change.
Value	The value for the factor value. Can be a number, a profile measuring component, or a VEE group.

Business Object: D1-FactorValueNumber

Business Object: D1-FactorValueProfile

Business Object: D1-FactorValueVEEGroup

Service Quantity Identifier

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).

Field	Description
Service Quantity Identifier	The code/name for the service quantity identifier.
Description	A description of the service quantity identifier. This is used in information strings when referencing the service quantity identifier.
Decimal Positions	The number of decimal places used when presenting a quantity for this service quantity identifier in usage service quantities.

Business Object: D1-ServiceQuantityIdentifier

Service Type

Service types define specific types of service for which usage can be recorded and captured, such as electric, gas, steam, etc.

Field	Description
Service Type	The code/name for the service type.
Description	A description of the service type. This is used in information strings when referencing the service type.

Business Object: D1-ServiceType

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.

Field	Description
Time of Use	The code/name for the time of use period.
Description	A description of the time of use period. This is used in information strings when referencing the time of use period.
Color	The HTML Color code for the color to be used to on graphs when displaying data for the TOU. If not specified, a default color is used.
Priority	The priority used to sort TOU periods on graphs when displaying data for the TOU. If not specified, TOU usage is displayed as retrieved or calculated.

Business Object: D1-TimeOfUse

Unit of Measure

Units of measure identify quantities measured and stored in the system, such as KWH, KW, cubic feet, degrees Celsius, etc.

Field	Description
Unit of Measure	The code/name of the unit of measure.
Description	A description of the unit of measure. This is used in information strings when referencing the unit of measure.

Field	Description
Shorthand Description	A shorthand description of the unit of measure. This is used on some screens and pages in place of the unit of measure's full description.
Service Type	The type of service (electric, gas, etc.) measured by the unit of measure.
Decimal Positions	The number of decimal places used when presenting a quantity for this unit of measure in usage service quantities.
Allowed on Measuring Component	A flag that indicates if the unit of measure is allowed on measuring components. Not all units of measure are suitable for measuring components. For example, a unit of measure representing Power Factor would not be allowed on measuring components (power factor is not measured — it must be calculated).
Measures Peak Quantity	A flag that indicates if the unit of measure is used to measure peak quantities or not. An example of a unit of measure that measures peak quantities is kilowatts (KW).
Magnitude	A number that indicates the relative size of the unit of measure as compared to a single unit of the unit of measure 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 unit of measure upon which the current unit of measure is based. Used in conjunction with magnitude when converting measurements of related unit of measure and when graphing measurement data in the 360 Degree View. If a unit of measure does not specify a Base Unit of Measure, its Base Unit of Measure is assumed to be the same as the unit of measure.

Business Object: D1-UnitOfMeasure

Base Package Service Providers

This section provides descriptions of the attributes used to define service providers provided with the base package.

External Application

External applications are applications with which the system will communicate, such as billing systems to which the application sends bill determinant data, or outage management systems that receive meter event data from the application.

Field	Description
Service Provider	The code/name of the external application.
Description	A description of the external application. This is used in information strings when referencing the external application.
External Reference ID	An ID used by external systems to reference the external application.
External System	The External System for the external application.
Our Name/ID in Their System	The name/ID for the Oracle Utilities application in the external application.
Device to Service Provider Matching	Indicates how the search for a device should be handled for Initial Measurement Data: • **Restrict Loading to Devices Associated with Service Provider**: This is the default option when no option has been selected. Indicates that searches for devices will be done with: Device Identifier, Device Identifier Type, and Service Provider. • **Allow Loading to Any Device**: Indicates that searches for devices will be done with only: Device Identifier and Device Identifier Type.
Utility Device ID Type	The type of ID used to identify devices used by the external application. Options include "Aseet ID", "Badge Number", "External ID", "Internal Meter Number", "Serial Number", etc.

Field	Description
Utility Measuring Component ID Type	The type of ID used to identify measuring components used by the external application. Options include "Channel ID" and "External ID".
Utility Service Point ID Type	The type of ID used to identify service points used by the external application. Options include "External ID", "External Premise ID", "ODM Node ID" (used by Oracle Utilities Operational Device Management), etc.
Default Suppression Type	Defines the default suppression activity type to use when a request for suppression is made for a Service Provider where no specific Suppression Type was provided. (Used with the Oracle Utilities Smart Grid Gateway — Oracle Utilities Network Management System integration.)

Business Object: D1-ExternalApplication

Head-End System

Head-end systems are 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.

Field	Description
Service Provider	The code/name of the head-end system.
Description	A description of the head-end system. This is used in information strings when referencing the head-end system.
External Reference ID	An ID used by external systems to reference the head-end system.
External System	The External System for the head-end system.
Our Name/ID in Their System	The name/ID for the Oracle Utilities application in the head-end system.
AMI Device ID Type	The type of ID used to identify devices used by the head-end system. Options include "Aseet ID", "Badge Number", "External ID", "Internal Meter Number", "Serial Number", etc.
AMI Measuring Component ID Type	The type of ID used to identify measuring components used by the head-end system. Options include "Channel ID" and "External ID".
Device to Service Provider Matching	Indicates how the search for a device should be handled for Initial Measurement Data: • **Restrict Loading to Devices Associated with Service Provider**: This is the default option when no option has been selected. Indicates that searches for devices will be done with: Device Identifier, Device Identifier Type, and Service Provider. • **Allow Loading to Any Device**: Indicates that searches for devices will be done with only: Device Identifier and Device Identifier Type.

Business Object: D1-HeadEndSystem

Market Participant

Market participants are companies with a role within a given market such as a retailer or a distribution company.

Field	Description
Service Provider	The code/name of the market participant.
Description	A description of the market participant. This is used in information strings when referencing the market participant.
External Reference ID	An ID used by external systems to reference the market participant.
External System	The External System for the market participant.

Field	Description
Our Name/ID in Their System	The name/ID for the Oracle Utilities application in the market participant.
Device to Service Provider Matching	Indicates how the search for a device should be handled for Initial Measurement Data: • **Restrict Loading to Devices Associated with Service Provider**: This is the default option when no option has been selected. Indicates that searches for devices will be done with: Device Identifier, Device Identifier Type, and Service Provider. • **Allow Loading to Any Device**: Indicates that searches for devices will be done with only: Device Identifier and Device Identifier Type.

Business Object: D1-MarketParticipant

Base Package Processing Methods

This section provides descriptions of the attributes used to define processing methods provided with the base package.

Processing methods 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.

How to Create OB Communication/Send OB Message

Used to send outbound communications to a head-end system service provider related to an activity. 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.

Field	Description
Service Provider	The service provider for which the processing method has been defined.
Processing Role	The processing role for the processing method. The processing role specifies the type of process the processing method will support. Options are defined in the PROD_ROLE_FLG lookup and include "Initial Measurement Creation" , "Device Event Mapping", command-specific roles (Device Commission, Remote Connect, etc,), response types (Received, Negative Acknowledgement, Success, etc,), and others.
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".
Processing Method	Defines the means by which communications will be sent by the processing method. • **Default Business Object**: The default business object to create when sending outbound communications for the processing role. • **Default Outbound Message Type**: The default type of outbound message to create when sending outbound communications for the processing role. • **Default Message Category**: The default message category for messages created when sending outbound communications for the processing role. • **Default Message Number**: The default message number for messages created when sending outbound communications for the processing role. • **Device Type List**: Allows override business object and message details for specific device types.

Business Object: D1-HowToCreateActivityOBComm

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.

Field	Description
Service Provider	The service provider for which the processing method has been defined.
Processing Role	The processing role for the processing method. The processing role specifies the type of process the processing method will support. Options are defined in the PROD_ROLE_FLG lookup and include "Initial Measurement Creation" , "Device Event Mapping", command-specific roles (Device Commission, Remote Connect, etc,), response types (Received, Negative Acknowledgement, Success, etc,), and others.
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".
Default Processing Method	Defines the business object to create when creating measuring component-related information. When creating receiving measurement data from a head-end system, this specifies the default initial measurement business object to use when creating initial measurements.
Override Processing Method	Defines the override business object to use for specific measuring component types. If none of the specified measuring component types are applicable, the Default Processing Method is used.

Business Object: D1-HowToCreateMCInformation

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.

Field	Description
Service Provider	The service provider for which the processing method has been defined.
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".

Processing Method	Defines the means by which device events will be sent by the processing method, based on device event categories or device event types.
	
	• **Device Event Category**: The device event category to which the configuration applies.
	
	• **Default Business Object**: The default business object to create when sending device events of the specified category.
	
	• **Default Outbound Message Type**: The default type of outbound message to create when device events of the specified category.
	
	• **Default Batch Control**: The default batch control to use when sending device events of the specified category.
	
	    Note: Batch controls and business objects are mutually exclusive and one or the other must be defined for each processing method (when applicable).
	
	• **Device Event Type List**: Allows override business object and message details for specific device event types.
	
	    Note: The **Processing Flag** drop-down list can be set to "Do Not Process" to specify that device events of a particular type not be sent. For example.

Business Object: D1-HowToProcDvcEvtsInformation

How to Process Device Related Information

Used to define how codes (such as device event names, as well as UOM, TOU, or SQI codes) are translated for devices of a head-end system service provider. Can be based on a default or on device type.

Field	Description
Service Provider	The service provider for which the processing method has been defined.
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".
Processing Method	Defines the "mapping" or "translation" extendable lookup to use when translating codes from the head-end system to standard codes.
Override Processing Method	Defines the override business object to use for specific device types. If none of the specified device types are applicable, the Default Processing Method is used.

Business Object: D1-HowToProcessDeviceInfo

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.

Field	Description
Service Provider	The service provider for which the processing method has been defined.
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".
Processing Method	Defines the means by which activity-related information will be sent by the processing method, based on activity type or device types.
	• **Activity Type**: The activity type to which the configuration applies.
	• **Batch Control**: The default batch control to use when sending activity-related information for the specified activity type.
	Note: Batch controls and business objects are mutually exclusive and one or the other must be defined for each processing method (when applicable).
	• **Business Object**: The default business object to create when sending activity-related information for the specified activity type.
	• **Device Type List**: Allows override business object and message details for specific device types.

Business Object: D1-HowToSendActInformation

How to Send Activity Related Outbound Messages

Used to define the outbound message type sent to a service provider for activity-related outbound messages. Can be based on a default or on activity type.

Field	Description
Service Provider	The service provider for which the processing method has been defined.

Field	Description
Description	A description of the processing method. This is used in information strings when referencing the processing method.
Status	The current status of the processing method for the service provider. Options include "Active" and "Inactive".
Processing Method	Defines the means by which communications will be sent by the processing method. • **Default Outbound Message Type**: The default type of outbound message to create when sending outbound communications for the processing role. • **Default Message Category**: The default message category for messages created when sending outbound communications for the processing role. • **Default Message Number**: The default message number for messages created when sending outbound communications for the processing role. • **Activity Type List**: Allows override business object and message details for specific activity types.

Business Object: D1-HowToSendActivityResponse

Base Package Device Management Administration Objects

This section provide descriptions of the base package objects used by device management administration functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Device Configuration Types

This section provides descriptions of the attributes used to define device configuration types provided with the base package.

Device Configuration Type

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.

Field	Description
Device Configuration Type	The code/name of the device configuration type.
Description	A description of the device configuration type. This is used in information strings when referencing the device configuration type.
Device Configuration Business Object	The business object used to create device configurations of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by devices of this configuration type.
Keep Consumption Reference MC in Sync	Defines if consumption reference measuring components should be kept in sync with their primary measuring component. Valid options include: • **No**: This indicates that the related measuring components should not be kept in sync (leaving this field blank will yield the same result)

Field	Description
	• **Secondary Only**: This indicates that the related measuring components consumption synchronization will only be triggered for the secondary measuring component when new measurement data is received for the Primary measuring component.
	• **Primary and Secondary**: This indicates that the related measuring component consumption synchronization can be triggered by new measurement data from either the primary measuring component or the secondary measuring component. When this value is selected, the **Minimum Condition to Sync Primary MC** field is required.
Minimum Condition to Sync Primary MC	This controls the consumption synchronization of the primary measuring component based when measurements are received for the secondary measuring component. For example, if the interval measuring component was primary and the secondary scalar measuring component received a measurement for a period where there were existing interval measurements that were eligible for consumption synchronization and this field were set to 'Regular' (501000) then the scalar measurement would need a condition that was equal to or greater than 'Regular' (501000) to trigger a consumption synchronization of the interval measurements. This field is only required when the **Keep Consumption Reference MC in Sync** field is set to 'Primary and Secondary'.
Sum Check VEE Exception Type	Defines a VEE exception type that the system will check for to prior evaluating if consumption synchronization is necessary. If no VEE exceptions of this type are found, that indicates the primary and secondary measuring components' consumption are within tolerance of each other and therefore there is no need for consumption synchronization.
Valid Measuring Component Types	One or measuring component types considered to be valid for device configurations of this type and whether each is optional or required. This list restricts the measuring component types available when creating device configurations of this type.

Business Object: D1-DeviceConfigurationType

Item Configuration Type

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

Field	Description
Device Configuration Type	The code/name of the item configuration type.
Description	A description of the item configuration type. This is used in information strings when referencing the item configuration type.
Device Configuration Business Object	The business object used to create item configurations of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by items that use configurations of this type.

Business Object: D1-ItemConfigurationType

Base Package Device Types

This section provides descriptions of the attributes used to define device types provided with the base package.

Manual Meter Type

Manual meter types are used to define attributes common to manual meters of a given type. Manual meters are devices that provide no means of two-way communication and must be manually read.

Field	Description
Device Type	The code/name of the device type.
Description	A description of the device type. This is used in information strings when referencing the device type.
Device Business Object	The business object used to create devices of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by devices of this type.
Track Location	A flag that indicates if the locations for devices of this type should be tracked. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Area Color	The HTML Color code for the color to be used on graphs when displaying usage/measurement data for devices of this type. Some sample HTML color codes include: • Red: #FF0000 • Orange: #FFA500 • Yellow: #FFFF00 • Green: #008000 • Blue: #0000FF • Indigo: #4B0082 • Black: #000000
Valid Device Configuration Types	One or device configuration types considered to be valid for devices of this type. This list restricts the device configuration types available when creating device configurations for devices of this type.

Business Object: D1-ManualMeterType

Smart Meter Type

Smart meter types are used to define attributes common to smart meters of a given type. Smart meters are devices that provide two-way communication with a head-end system and can send readings to head-end systems and/or other data collection systems.

Field	Description
Device Type	The code/name of the device type.
Description	A description of the device type. This is used in information strings when referencing the device type.
Device Business Object	The business object used to create devices of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by devices of this type.
Incoming Data Shift (Fallback)	A flag that indicates whether incoming data from devices of this type has been shifted from Standard time. Valid values include: • **Always in Local Time**: indicates that devices of this type will always send the application initial measurement data in Local time. • **Always in Standard Time**: indicates that devices of this type will always send the application initial measurement data in Standard time. This flag is used if the Incoming Data Shift is not specified for a device of this type.
Arming Required	A flag that indicates if devices of this type require arming
Head-End System (Fallback)	The head-end system associated to devices of this type. Used if a head-end system is not specified for a device of this type.

Field	Description
Track Location	A flag that indicates if the locations for devices of this type should be tracked. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Area Color	The HTML Color code for the color to be used on graphs when displaying usage/measurement data for devices of this type. Some sample HTML color codes include: • Red: #FF0000 • Orange: #FFA500 • Yellow: #FFFF00 • Green: #008000 • Blue: #0000FF • Indigo: #4B0082 • Black: #000000
Valid Device Configuration Types	One or device configuration types considered to be valid for devices of this type. This list restricts the device configuration types available when creating device configurations for devices of this type.
Valid Head-End Sytems	One or more head-end systems (service providers) considered to be valid for devices of this type. This list restricts the head-end system service providers available when creating devices of this type.

Business Object: D1-SmartMeterType

Communication Component Meter Type

Communication component meter types are used to define attributes common to communication components of a given type. Communication components are 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.

Field	Description
Device Type	The code/name of the device type.
Description	A description of the device type. This is used in information strings when referencing the device type.
Device Business Object	The business object used to create devices of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by devices of this type.
Incoming Data Shift (Fallback)	A flag that indicates whether incoming data from devices of this type has been shifted from Standard time. Valid values include: • **Always in Local Time**: indicates that devices of this type will always send the application initial measurement data in Local time. • **Always in Standard Time**: indicates that devices of this type will always send the application initial measurement data in Standard time. This flag is used if the Incoming Data Shift is not specified for a device of this type.
Head-End System (Fallback)	The head-end system associated to devices of this type. Used if a head-end system is not specified for a device of this type.
Track Location	A flag that indicates if the locations for devices of this type should be tracked. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management.
Valid Device Configuration Types	One or device configuration types considered to be valid for devices of this type. This list restricts the device configuration types available when creating device configurations for devices of this type.

Field	Description
Valid Head-End Sytems	One or more head-end systems (service providers) considered to be valid for devices of this type. This list restricts the head-end system service providers available when creating devices of this type.

Business Object: D1-ComunicationCompMeterType

Item Type

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.

Field	Description
Item Type	The code/name of the item type.
Description	A description of the item type. This is used in information strings when referencing the item type.
Item Business Object	The business object used to create items of this type.
Service Type	The Service Type (electric, gas, water, etc.) provided by item of this type.
Consumption Source	The source for consumption information for items of this type.
UOM	The unit of measure for the consumption for items of this type.
Device Type Service Quantity BO	The business object used to create service quantities for items of this type.
Summarized Badged Items	A flag that indicates if consumption for badged items of this type should be summarized when calculating service quantities for items of this type.
Track Location	A flag that indicates if the locations for devices of this type should be tracked. This is used primarily when Oracle Utilities Meter Data Management is integrated with an asset management system such as Oracle Utilities Operational Device Management
Valid Device Configuration Types	One or item configuration types considered to be valid for items of this type. This list restricts the item configuration types available when creating device configurations for items of this type.

Business Object: D1-ItemType

Base Package Manufacturers

This section provides descriptions of the attributes used to define manufacturers provided with the base package.

Manufacturer

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.

Field	Description
Manufacturer	The code/name of the manufacturer.
Description	A description of the manufacturer. This is used in information strings when referencing the manufacturer.
Models	One or more specific models of device provided by the manufacturer. Models are defined by the follow: • **Model**: The model number for the model. • **Description**: A description of the model. This is used in information strings when referencing the model.

Field	Description
	• **Service Type**: The type of service (electric, gas, water, etc.) provided by the model.

Business Object: D1-Manufacturer

Base Package Measuring Component Types

This section provides descriptions of the attributes used to define measuring component types provided with the base package.

Interval Channel Type — Physical

Interval channel (physical) types are used to define attributes common to physical interval channel measuring components of a given type. Physical interval channels are measuring components that are part of physical devices used to measure interval usage.

Field	Description
Measuring Component Type	The code/name of the measuring component type.
Description	A description of the measuring component type. This is used in information strings when referencing the measuring component type.
Measuring Component Business Object	The business object used to create measuring components of this type.
Measurement Business Object	The business object used to create measurements for measuring components of this type.
Service Type	The Service Type (electric, gas, water, etc.) measured by measuring components of this type.
Allow Negative Consumption	A flag that indicates if measuring components of this type can record negative consumption, such as in the case of two-way meters.
Consumptive/Subtractive	A flag that indicates if measuring components of this type are consumptive or subtractive. • **Consumptive** describes 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). • **Subtractive** describes measuring components for which consecutive readings must be subtracted to derive a consumption value.
Interval Size	Indicates the size of the intervals measured by the measuring component, represented as hours:minutes:seconds (HH:MM:SS)
Hours Before Estimation	The number of hours after the End Date and Time of the most recent measurement that must pass before the measuring component is considered due for estimation. For example, if set to 72 hours, estimation will only take place 72 hours after the End Date and Time of the latest measurement.
Number of Hours to Estimate	The number of hours of measurement data that are estimated when estimation is performed for the measuring component.
Hours to Wait Before Automatic Read Retry	The number of hours after the End Date and Time of the most recent measurement that must pass before measuring components of this type areconsidered due for an automatic read retry.
Hour to Request for Automatic Read Retry	The number of hours of measurement data that are requested when an automatic read retry is attempted for measuring components of this type.
Value Identifiers	One or more value identifiers related to the current measuring component type. Value identifiers are used to provide short descriptions for the various types of values measured by measuring component of this type (KWH, KW, etc.).

Field	Description
Valid VEE Groups	One or more VEE groups considered valid for measuring components of this type. This list restricts the VEE groups available when creating measuring components of this type.
Fallback VEE Groups	One or more default (or fallback) VEE roles/groups used with measuring components of this type. Used if VEE groups are not defined for a measuring component of this type.
Eligible Profile Factors	One or more profile factors considered eligible for use when converting scalar measurements for measuring components of this type to interval measurements, or when creating new interval measurements.
Valid Scratchpad Measuring Component Types	One or more scratchpad measuring component types that are considered valid for the current measuring component type. This list restricts the scratchpad measuring component types available when creating scratchpad measuring components for measuring components of this type.
Consumption Compatible Scalar MC Types	One or more 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 Configuration	Define details related to how initial measurements are displayed. • **Hours of Data to Display**: the default number of hours to display for measuring components of this type on the 360 Degree View. • **Default TOU Map For Display**: the default TOU map used for measuring components of this type in the TOU-related zones in the 360 Degree View. • **TOU By Day Profile Factor**: the default profile factor used for measuring components of this type in the TOU By Day zone in the 360 Degree View. • **Default Measurement Condition**: the default measurement condition for new initial measurements created for measuring component of this type.
Event Bar Profiles	Defines the event bar profiles used when displaying measurement data for a measuring component of this type in the 360 Degree View. Available event bar profiles are defined as values for the **360 View Event Bar Profile** extendable lookup.
Final Values Overlay Profiles	Defines the final values overlay profiles used when displaying measurement data for measuring components of this type in the 360 Degree View. Available final values overlay profiles are defined as values for the **Final Values Overlay Profile** extendable lookup.

Business Object: D1-IntervalChannelTypePhysical

Interval Channel Type — Scratchpad

Interval channel (scratchpad) types are used to define attributes common to scratchpad interval channel measuring components of a given type. Scratchpad interval channel measuring components provide users with a means to manipulate measurement data without affecting existing measurements.

Field	Description
Measuring Component Type	The code/name of the measuring component type.
Description	A description of the measuring component type. This is used in information strings when referencing the measuring component type.
Measuring Component Business Object	The business object used to create measuring components of this type.
Measurement Business Object	The business object used to create measurements for measuring components of this type.

Field	Description
Service Type	The Service Type (electric, gas, water, etc.) measured by measuring components of this type.
Allow Negative Consumption	A flag that indicates if measuring components of this type can record negative consumption, such as in the case of two-way meters.
Consumptive/Subtractive	A flag that indicates if measuring components of this type are consumptive or subtractive. • **Consumptive** describes 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). • **Subtractive** describes measuring components for which consecutive readings must be subtracted to derive a consumption value.
Interval Size	Indicates the size of the intervals measured by the measuring component, represented as hours:minutes:seconds (HH:MM:SS)
Time Zone	The time zone in which scratchpad measuring components of this type are used.
Value Identifiers	One or more value identifiers related to the current measuring component type. Value identifiers are used to provide short descriptions for the various types of values measured by measuring component of this type (KWH, KW, etc.).
Valid VEE Groups	One or more VEE groups considered valid for measuring components of this type. This list restricts the VEE groups available when creating measuring components of this type.
Fallback VEE Groups	One or more default (or fallback) VEE roles/groups used with measuring components of this type. Used if VEE groups are not defined for a measuring component of this type.
Eligible Profile Factors	One or more profile factors considered eligible for use when converting scalar measurements for measuring components of this type to interval measurements, or when creating new interval measurements.
Valid Scratchpad Measuring Component Types	One or more scratchpad measuring component types that are considered valid for the current measuring component type. This list restricts the scratchpad measuring component types available when creating scratchpad measuring components for measuring components of this type.
Display Configuration	Define details related to how initial measurements are displayed. • **Hours of Data to Display**: the default number of hours to display for measuring components of this type on the 360 Degree View. • **Default TOU Map For Display**: the default TOU map used for measuring components of this type in the TOU-related zones in the 360 Degree View. • **TOU By Day Profile Factor**: the default profile factor used for measuring components of this type in the TOU By Day zone in the 360 Degree View. • **Default Measurement Condition**: the default measurement condition for new initial measurements created for measuring component of this type.
Final Values Overlay Profiles	Defines the final values overlay profiles used when displaying measurement data for measuring components of this type in the 360 Degree View. Available final values overlay profiles are defined as values for the **Final Values Overlay Profile** extendable lookup.

Business Object: D1-IntervalChannelTypeScratchp

Register Type

Register types are used to define attributes common to register measuring components of a given type. Register measuring components are scalar registers found on standard or smart meters. Registers are used to record usage consumption based on start and stop readings. Meters with registers can be read automatically or manually.

Field	Description
Measuring Component Type	The code/name of the measuring component type.
Description	A description of the measuring component type. This is used in information strings when referencing the measuring component type.
Measuring Component Business Object	The business object used to create measuring components of this type.
Measurement Business Object	The business object used to create measurements for measuring components of this type.
Service Type	The Service Type (electric, gas, water, etc.) measured by measuring components of this type.
Allow Negative Consumption	A flag that indicates if measuring components of this type can record negative consumption, such as in the case of two-way meters.
Consumptive/Subtractive	A flag that indicates if measuring components of this type are consumptive or subtractive. • **Consumptive** describes 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). • **Subtractive** describes measuring components for which consecutive readings must be subtracted to derive a consumption value.
Rollover Threshold	Indicates the percentage of the measuring component's dial capacity at which measurements for measuring components of this type are considered to have rolled over. Dial capacity is the largest value that can be recorded for the measuring component, based on the measuring component's number of dials. For example, a measuring component with 5 dials has a dial capacity of 99999. This value is used when calculating consumption prior to VEE processing, and is used only with subtractive, scalar registers. If the consumption for an initial measurement for a measuring component of this type exceeds this percentage of the dial capacity, the initial measurement is transitioned to the Error state.
Display Parcel Size	Defines the length of time to use when parceling scalar consumption for display, represented as hours:minutes:seconds (HH:MM:SS). For example, if a measurement has a value of 600 kWh for a period of 30 days, and this field were set to a value equivalent to 24 hours (24:00:00), the consumption would be divided into 30 parcels of 20 kWh for display purposes.
Read Method	A flag that indicates the method by which measuring components of this type are read. Options include Automatic Read and Manual Read.
Value Identifiers	One or more value identifiers related to the current measuring component type. Value identifiers are used to provide short descriptions for the various types of values measured by measuring component of this type (KWH, KW, etc.).
Valid VEE Groups	One or more VEE groups considered valid for measuring components of this type. This list restricts the VEE groups available when creating measuring components of this type.
Fallback VEE Groups	One or more default (or fallback) VEE roles/groups used with measuring components of this type. Used if VEE groups are not defined for a measuring component of this type.
Valid Scalar-to-Interval Conversion Profile Selectors	One or more profile factors considered valid for converting scalar measurements to interval measurements for measuring components of this type.
Valid Scratchpad Measuring Component Types	One or more scratchpad measuring component types that are considered valid for the current measuring component type. This list restricts the scratchpad measuring component types available when creating scratchpad measuring components for measuring components of this type.
Display Configuration	Define details related to how initial measurements are displayed. • **Hours of Data to Display**: the default number of hours to display for measuring components of this type on the 360 Degree View.

Field	Description
Event Bar Profiles	Defines the event bar profiles used when displaying measurement data for a measuring component of this type in the 360 Degree View. Available event bar profiles are defined as values for the **360 View Event Bar Profile** extendable lookup.
Final Values Overlay Profiles	Defines the final values overlay profiles used when displaying measurement data for measuring components of this type in the 360 Degree View. Available final values overlay profiles are defined as values for the **Final Values Overlay Profile** extendable lookup.

Business Object: D1–RegisterTypePhysical

Auto-Read Register Type

Auto-read register types are used to define attributes common to auto-read register measuring components of a given type. Auto-read registers are measuring components that are automatically read on a regular basis but for which measurements are received one at a time, meaning one measurement per Initial Measurement. These types of measuring components are thus categorized as scalar rather than interval.

Field	Description
Measuring Component Type	The code/name of the measuring component type.
Description	A description of the measuring component type. This is used in information strings when referencing the measuring component type.
Measuring Component Business Object	The business object used to create measuring components of this type.
Measurement Business Object	The business object used to create measurements for measuring components of this type.
Service Type	The Service Type (electric, gas, water, etc.) measured by measuring components of this type.
Allow Negative Consumption	A flag that indicates if measuring components of this type can record negative consumption, such as in the case of two-way meters.
Consumptive/Subtractive	A flag that indicates if measuring components of this type are consumptive or subtractive. • **Consumptive** describes 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). • **Subtractive** describes measuring components for which consecutive readings must be subtracted to derive a consumption value.
Rollover Threshold	Indicates the percentage of the measuring component's dial capacity at which measurements for measuring components of this type are considered to have rolled over. Dial capacity is the largest value that can be recorded for the measuring component, based on the measuring component's number of dials. For example, a measuring component with 5 dials has a dial capacity of 99999. This value is used when calculating consumption prior to VEE processing, and is used only with subtractive, scalar registers. If the consumption for an initial measurement for a measuring component of this type exceeds this percentage of the dial capacity, the initial measurement is transitioned to the Error state.
Display Parcel Size	Defines the length of time to use when parceling scalar consumption for display, represented as hours:minutes:seconds (HH:MM:SS). For example, if a measurement has a value of 600 kWh for a period of 30 days, and this field were set to a value equivalent to 24 hours (24:00:00), the consumption would be divided into 30 parcels of 20 kWh for display purposes.
Read Method	A flag that indicates the method by which measuring components of this type are read. Options include Automatic Read and Manual Read.

Field	Description
Ignore Estimates as IMD Start Reading	Specifies if any existing measurements should be retained when a non-estimated measurement is received. Options include: • **No**: Estimates will be used as a start reading so long as there are no roll-over threshold errors. Note: this is the default behavior if no value is selected. • **Yes**: If a non-estimated initial measurement is received, any estimated measurements prior to the initial measurement being processed will be flagged as "Do Not Use." The start reading for the non-estimated initial measurement will be the first non-estimated reading found.
Flag Future Estimates as Do Not Use	Controls the handling of estimates that exist chronologically after the non-estimated initial measurement being processed. Options include: • **No**: No estimates will be flagged as "Do Not Use." Note: this is the default behavior if no value is selected • **Yes**: Any estimates after the current initial measurement until the first non-estimate will be flagged as "Do Not Use." • **Yes (Only if there is a Next Actual)**: Any estimates after the current initial measurement until the first non-estimate is found will be flagged as "Do Not Use." If no non-estimates are found, no future estimates will be flagged as "Do Not Use."
Actuals or Corrections Initiate Re-Estimation	Controls whether or not any estimations that are flagged as "Do Not Use" during the initial measurement finalization process should be re-estimated. Options include: • **No**: None of the estimates flagged as "Do Not Use" will be re-estimated. Note: this is the default behavior if no value is provided. • **Yes**: Any gaps created by estimates that were flagged as "Do Not Use" will be re-estimated by the periodic scalar estimation process. This is done by resetting the **Latest Read Date/Time** and **Adjusted Latest Read Date/Time** on the measuring component.
Expected Hours Between Measurements	This represents the number of hours that will separate each measurement. • **6**: When 6 is selected there would be 4 expected measurements each day: 12:00:00AM, 06:00:00AM, 12:00:00PM, and 06:00:00PM. • **8**: When 8 is selected there would be 3 expected measurements each day: 12:00:00AM, 08:00:00AM, and 04:00:00PM. • **12**: When 12 is selected there would be 2 expected measurements each day: 12:00:00AM, and 12:00:00PM. • **24**: When 24 is selected there would be 1 expected measurement each day: 12:00:00AM. Note: the above expected measurement times all assume a **First Daily Measurement Time** of 12:00:00AM.
First Daily Measurement Time	This represents the time that the first measurement of the day is expected to arrive, each subsequent expected measurement is then adjusted to maintain a consistent number of hours between each measurement. For example, if the **Expected Hours Between Measurements** was set to 8 and the **First Daily Measurement Time** was set to 02:00:00AM the expected reads each day would be: 02:00:00AM, 10:00:00AM, and 06:00:00PM. This must be set to a value that is less than the **Expected Hours Between Measurements**. For example, if the **Expected Hours Between Measurements** was 8 the latest this field could be set to is 07:59:59.
Early Measurement Threshold	This threshold is used to determine whether a measurement that was received early satisfies the next expected measurement date/time. For example, if the threshold was set to 02:00:00 and a measurement was received at 07:45:00AM it would satisfy an expected measurement of 08:00:00AM. If no measurement should be considered early the threshold should be set to 00:00:00.
Late Measurement Threshold	This threshold is used to determine whether a measurement that was received late is too late to satisfy any of the expected measurement date/times. For example, if the threshold was set to 02:00:00 and a measurement was received at 05:45:00AM it would not satisfy the expected measurement of 12:00:00AM or 08:00:00AM. If no measurement should be considered late the threshold should be set to one second less than the **Expected Hours**

Field	Description
	Between Measurements. For example, if the **Expected Hours Per Measurement** was 8, the late threshold should be set to 07:59:59 if no measurements should be considered late.
Hours Before Estimation	This is the number of hours after the End Date and Time of the most recent measurement that must pass before the measuring component is considered due for estimation. For example, if it were set to 72 hours and the process date time of the Periodic Estimation process was 01/05/2013 12:00:00AM only those measuring components with a Latest Measurement Date Time of 01/01/2013 11:59:59AM or older would be evaluated for estimation. If this is left blank or set to zero Periodic Estimation will not be executed for any measuring components of this type.
Number of Hours to Estimate	This represents the minimum number of hours of measurement data that should be estimated when Periodic Estimation is executed for measuring component of this type. If this is left blank or set to zero Periodic Estimation will not be executed for any measuring components of this type.
Value Identifiers	One or more value identifiers related to the current measuring component type. Value identifiers are used to provide short descriptions for the various types of values measured by measuring component of this type (KWH, KW, etc.).
Valid VEE Groups	One or more VEE groups considered valid for measuring components of this type. This list restricts the VEE groups available when creating measuring components of this type.
Fallback VEE Groups	One or more default (or fallback) VEE roles/groups used with measuring components of this type. Used if VEE groups are not defined for a measuring component of this type.
Valid Scalar-to-Interval Conversion Profile Selectors	One or more profile factors considered valid for converting scalar measurements to interval measurements for measuring components of this type.
Valid Scratchpad Measuring Component Types	One or more scratchpad measuring component types that are considered valid for the current measuring component type. This list restricts the scratchpad measuring component types available when creating scratchpad measuring components for measuring components of this type.
Display Configuration	Define details related to how initial measurements are displayed. • **Hours of Data to Display**: the default number of hours to display for measuring components of this type on the 360 Degree View.
Event Bar Profiles	Defines the event bar profiles used when displaying measurement data for a measuring component of this type in the 360 Degree View. Available event bar profiles are defined as values for the **360 View Event Bar Profile** extendable lookup.
Final Values Overlay Profiles	Defines the final values overlay profiles used when displaying measurement data for measuring components of this type in the 360 Degree View. Available final values overlay profiles are defined as values for the **Final Values Overlay Profile** extendable lookup.

Business Object: D1-AutoReadRegisterType

Activity Statistics Aggregator Type

Activity statistics aggregator types are used to define attributes common to activity statistics aggregator measuring components of a given type. Activity statistics aggregator measuring components are used to store summarized statistics, such as statistics related to upload of measurement and device event data.

Field	Description
Measuring Component Type	The code/name of the measuring component type.
Description	A description of the measuring component type. This is used in information strings when referencing the measuring component type.
Measuring Component Business Object	The business object used to create measuring components of this type.
Measurement Business Object	The business object used to create measurements for measuring components of this type.

Field	Description
Service Type	The Service Type (electric, gas, water, etc.) measured by measuring components of this type.
Time Zone	The time zone in which activity statistics aggregator measuring components of this type are used.
Statistic Type	A flag that indicates the type of statistics aggregated by measuring components of this type. Options include Events or Initial Measurements.
Display Parcel Size	Defines the length of time to use when parceling scalar consumption for display, represented as hours:minutes:seconds (HH:MM:SS). For example, if a measurement has a value of 600 kWh for a period of 30 days, and this field were set to a value equivalent to 24 hours (24:00:00), the consumption would be divided into 30 parcels of 20 kWh for display purposes.
Aggregation	Defines the time periods during which activities are aggregated, based on two parameters: • **Aggregation Horizon**: The number of days during which there's a potential change indata for one or more of the measuring components associated an aggregator measuring component. • **Aggregation Lag**: The number of days between the date on which aggregation calculations are performed and the end date of the aggregation period. Aggregation calculations typically lag behind the current date by a few days to give the system time to process statistics activities.
Valid Activity Types to Aggregate	One or more activity types considered valid for aggregation by measuring components of this type. This list restricts the activity types available when creating measuring components of this type.
Valid Scalar-to-Interval Conversion Profile Selectors	One or more profile factors considered valid for converting scalar measurements to interval measurements for measuring components of this type.
Value Identifiers	One or more value identifiers related to the current measuring component type. Value identifiers are used to provide short descriptions for the various types of values measured by measuring component of this type (KWH, KW, etc.).
Display Configuration	Define details related to how initial measurements are displayed. • **Hours of Data to Display**: the default number of hours to display for measuring components of this type on the 360 Degree View.
Event Bar Profiles	Defines the event bar profiles used when displaying measurement data for a measuring component of this type in the 360 Degree View. Available event bar profiles are defined as values for the **360 View Event Bar Profile** extendable lookup.
Final Values Overlay Profiles	Defines the final values overlay profiles used when displaying measurement data for measuring components of this type in the 360 Degree View. Available final values overlay profiles are defined as values for the **Final Values Overlay Profile** extendable lookup.

Business Object: D1-ActivityStatsAggType

Base Package Device Installation Administration Objects

This section provide descriptions of the base package objects used by device installation administration functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Markets

This section provides descriptions of the attributes used to define markets provided with the base package.

Market

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.

Field	Description
Market	The code/name of the market.
Description	A description of the market. This is used in information strings when referencing the market.
Market Relationships	One or more market relationships for the current market, including relationship type and one or more valid and fallback service providers for each. For fallback service providers, an effective date range can be specified to allow for changing of fallback service providers overtime.

Business Object: D1-Market2

Base Package Service Point Types

This section provides descriptions of the attributes used to define service point types provided with the base package.

Service Point Type

Service point types are used to define attributes common to service points of a given type. Service points are locations at which a company supplies service.

More 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.

Field	Description
Service Point Type	The code/name of the service point type.
Description	A description of the service point type. This is used in information strings when referencing the service point type.
Service Type	The Service Type (electric, gas, water, etc.) provided by service points of this type.
Parent Service Point	A flag that indicates if service points of this type are usable as parent service points.
Service Point Business Object	The business object used to create service points of this type.
Service Point Category	A flag that indicates the type of device 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.
Valid Device Types	One or device types considered to be valid for service points of this type. This list restricts the device types available when creating service points of this type.

Field	Description
Usage Snapshot Configuration	Defines the configuration(s) to be used to take the weekly or monthly usage snapshot(s).
	The **Usage Snapshot Type** drop-down list defines the type of usage snapshot. Its extendable lookup definition contains the TOU map (used to map the consumption), and the target unit of measure (used if it's necessary to convert the source UOM to a target UOM prior to TOU mapping).
	The **UOM**, **TOU** and **SQI** drop-down lists are used to define the source measuring component's value identifier that will be TOU mapped.
	A given service point type can have many usage snapshot types if there are different ways to look at the monthly consumption. This is not limited to just different TOU maps, but could also be used to create snapshots of different measured values. For example, if a measurement contains two values: actual and normally used, this can be used to create a snapshot of normal usage so it could be compared to a separate snapshot of actual usage.
	If the service point type does not have at least one configuration type, service points of this type do not have their usage snapshot taken.
Unreported Usage Snapshot Configuration	Defines the configuration(s) to be used to take the weekly or monthly unreported usage snapshot(s).
	The **Unreported Usage Analysis Snapshot Type** drop-down list defines the type of unreported usage snapshot.
	The **UOM**, **TOU** and **SQI** drop-down lists are used to define the source measuring component's value identifier that will be used to calculate the amount of unreported usage in various age buckets.
	The **Subscription Type** drop–down list is the type of subscription that the analysis will be performed on for this type of snapshot. If the service point is not linked to such a subscription, the fact will be linked to a "none" usage subscription so analysis of consumption with no usage subscription can be performed.
	The **Days Since UT Bucket** fields and their corresponding **Descriptions** are used to categorize into different age buckets the amount of consumption that has not been billed. For example, if Bucket 1 is defined as 30; Bucket 2 is 45; and Bucket 3 is 60, any unbilled consumption that is less than or equal to 30 days old will fall into bucket 1. Any unbilled consumption that is older than 30 days but is less than or equal to 45 days old will fall into bucket 2. Any unbilled consumption that is older than 45 days but is less than or equal to 60 days old will fall into bucket 3. Any unbilled consumption that is older than 60 days will fall into bucket 4.
	A separate snapshot can be taken for different subscription types so that a given service point can have multiple snapshots for a given month/week. If the service point type does not have at least one unreported usage configuration type, service points of this type do not have their unreported usage snapshot calculated.

Business Object: D1-ServicePointType

Base Package Contact Types

This section provides descriptions of the attributes used to define contact types provided with the base package.

Contact Type

Contact types are used to define attributes common to contacts of a given type. Contacts are individuals or business entities with which a company has contact.

Field	Description
Contact Type	The code/name of the contact type.
Description	A description of the contact type. This is used in information strings when referencing the contact type.
Contact Business Object	The business object used to create contacts of this type.

Business Object: D1-ContactType

Base Package Measurement Cycles

This section provides descriptions of the attributes used to define measurement cycles provided with the base package.

Measurement Cycle

Measurement cycles can serve two purposes: they can define the schedule for manual meter reading of devices at service points in that cycle, and they can also define when to create usage transactions for usage subscriptions associated to service points in the cycle.

Field	Description
Measurement Cycle	The code/name of the measurement cycle.
Description	A description of the measurement cycle. This is used in information strings when referencing the measurement cycle.
Measurement Cycle Business Object	The business object used to create measurement cycle schedules for the measurement cycle.
Measurement Cycle Route Business Objects	One or more measurement cycle route business objects related to the current measurement cycle. These are the measurement cycle route business objects that can be used to create measurement cycle routes for the measurement cycle.

Business Object: D1-MeasurementCycle

Base Package Measurement Cycle Routes

This section provides descriptions of the attributes used to define measurement cycle routes provided with the base package.

Measurement Cycle Route

Measurement cycle routes are the routes associated with measurement cycles used to collect measurements.

Field	Description
Measurement Cycle	The code/name of the route's measurement cycle.
Route	The code/name of the route.
Description	A description of the measurement cycle route. This is used in information strings when referencing the measurement cycle route.
Service Provider	The head-end system service provider associated with the measurement cycle route.
Schedule Type	The type schedule associated with the measurement cycle route. Options include AMR (Automated Meter Read), Customer Read, Estimate, and Meter Read Download.

Business Object: D1-MeasurementCycleRoute

Base Package Measurement Cycle Schedules

This section provides descriptions of the attributes used to define measurement cycle schedules provided with the base package.

Measurement Cycle Schedule

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.

Field	Description
Measurement Cycle	The code/name of the route's measurement cycle.
Scheduled Selection Date	The date on which work governed by the measurement cycle schedule is scheduled to be performed.
Expected Work Date	The date on which the work governed by the measurement cycle schedule is expected to be performed.
Measurement Cycle Schedule Routes	One or more measurement cycle routes associated with the measurement cycle schedule.

Business Object: D1-MeasurementCycleSchedule

Base Package Device Communication Administration Objects

This section provide descriptions of base package objects used by device communication administration functionality of the Oracle Utilities Services and Measurement Data Foundation.

Base Package Device Event Types

This section provides descriptions of the attributes used to define device event types provided with the base package.

Standard Device Event Type

Standard device event types are used to define attributes common to "standard" types of devices events. Standard device events are events of some sort that have taken place relative to a device that do not have a duration. Examples can include power outages (flickers), tampering alerts and other events.

Field	Description
Device Event Type	The code/name of the device event type.
Description	A description of the device event type. This is used in information strings when referencing the device event type.
Status	The current status of the device event type. Options include "Active" and "Inactive".
Device Event BO	The business object used to create device events of this type.
Standard Event Name	The "standard" name of the event type. Device vendors may have their own specific names for device events, which can be mapped to standard names.
Device Event Category	The category (defined as an Extendable Lookup) used to group device event types.
Reporting Category	The category used to group device event types for reporting purposes.

Field	Description
Service Issue Monitor Type	The type of Service Issue Monitor to create when a device event of this type is created.

Business Object: D1-StandardDeviceEventType

Device Event Type — Paired (First/Last)

Paired device event types are used to define attributes common to paired types of devices events. Paired device events are events with a duration, such as a power outage, with the first of the pair representing the start of the event, and the last of the pair representing the end of the event.

> **Note:** The "Device Event Type — Paired (First)" and "Device Event Type — Paired (Last)" device event types are separate objects.

Field	Description
Device Event Type	The code/name of the device event type.
Description	A description of the device event type. This is used in information strings when referencing the device event type.
Status	The current status of the device event type. Options include "Active" and "Inactive".
Device Event BO	The business object used to create device events of this type.
Standard Event Name	The "standard" name of the event type. Device vendors may have their own specific names for device events, which can be mapped to standard names.
Device Event Category	The category (defined as an Extendable Lookup) used to group device event types.
Reporting Category	The category used to group device event types for reporting purposes.
Activity Type	The activity type for activities created for device events of this type. Specified for "first" device event types only.

Business Object: D1-PairedEventFirstDvcEvtType

Business Object: D1-PairedEventLastDvcEvtType

Device Event Communication Response Type

Device event communication response types are used to define attributes common to response types of devices events. Communication response device events are events created in response to a command or other communication sent to the device.

Field	Description
Device Event Type	The code/name of the device event type.
Description	A description of the device event type. This is used in information strings when referencing the device event type.
Status	The current status of the device event type. Options include "Active" and "Inactive".
Device Event BO	The business object used to create device events of this type.
Standard Event Name	The "standard" name of the event type. Device vendors may have their own specific names for device events, which can be mapped to standard names.
Device Event Category	The category (defined as an Extendable Lookup) used to group device event types.
Reporting Category	The category used to group device event types for reporting purposes.
Communication Type To Create	The type of communication to create when a device event of this type is created.

Business Object: D1–DeviceEventComRespType

Reader Remark Type

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

Field	Description
Reader Remark Type	The code/name of the reader remark type.
Description	A description of the reader remark type. This is used in information strings when referencing the reader remark type.
Reader Remark BO	The business object used to create reader remarks of this type.
Reader Remark Type Status	The current status of the reader remark . Options 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 Type	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 Role	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".

Business Object: D1–ReaderRemarkType

Base Package Service Task Types

This section provides descriptions of the attributes used to define service task types provided with the base package.

Service Issue Monitor Type

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 are service tasks that analyze service points to determine if service is needed.

Field	Description
Service Task Type	The code/name of the service task type.
Description	A description of the service task type. This is used in information strings when referencing the service task type.
Approval Required	A flag that indicates 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.
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	Description
	• **Field Task Type**: Specifies the type of field activity. Used only if/when the Service Investigative Order Type is a field activity.
Service Issue Monitor 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.

Business Object: D1-ServiceIssueMonitorType

Chapter 7

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.