

Oracle Utilities Meter Data Framework
User Guide
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Overview

This User Guide describes how to work with the Oracle Utilities Meter Data Framework. This includes:

[Getting Started](#) on page 3

[User Documentation](#) on page 6

[System Administration](#) on page 15

[Reference Topics](#) on page 33

[FAQs](#) on page 42

This guide contains the same content as the Oracle Utilities Meter Data Framework section of the online help.

Oracle Utilities Meter Data Framework

Getting Started

This section provides an overview of Oracle Utilities meter data framework.

About Oracle Utilities Meter Data Framework

Oracle Utilities meter data framework provides shared functionality used by Oracle Utilities Meter Data Management and other Oracle Utilities products.

Oracle Utilities meter data framework has three primary functional areas:

- **Device Management:** Used by analysts and administrators in managing and defining the devices used to record and capture meter data.
- **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 communication between devices, as well as defining the schedules for manual meter reading.
- **Validation, Editing, and Estimation (VEE):** Used by analysts and administrators to define validation, editing, and estimation (VEE) rules to be applied to measurement data.

Starting the Application

Use this procedure to start Oracle Utilities meter data framework.

1. Click the desktop icon or program menu option to start the Oracle Utilities meter data framework 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 meter data framework

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 meter data framework menus and general rules for navigating the system.

The Oracle Utilities meter data framework menu displays on the left-hand 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 Admin menu and the Main menu. 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.

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.

Functional and Alphabetical Menus

The system supports two different menu styles: alphabetical and functional.

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 meter data framework 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 meter data framework topics are listed in the help contents panel under the appropriate Oracle Utilities meter data framework 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 Meter Data Framework Menu Options:

This topic describes the Oracle Utilities meter data framework menu options.

The following table lists the base menu functions for the Oracle Utilities meter data framework application. Online documentation for all functions listed below is provided under the Oracle Utilities meter data framework option on the online help contents panel.

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	Common	Exception Type
Admin	Common	Factor
Admin	Common	Service Quantity Identifier
Admin	Common	Service Type
Admin	Common	Time of Use
Admin	Common	Unit of Measure
Admin	Communications	Activity Type
Admin	Communications	Market
Admin	Communications	Service Provider
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
Main	Customer Information	Contact
Main	Device Installation	Install Event
Main	Device Installation	Service Point
Main	Device	Device
Main	Device	Device Configuration
Main	Device	Measuring Component
Main	Communication	Activity

User Documentation

This section describes the application functions that support day-to-day operations. These functions are available from the Oracle Utilities meter data framework 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 hold one or more measuring components 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 are associated with the device's device configurations.

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
- 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).

Note: Remaining fields and sections are based on the device type you selected.

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](#) on page 8 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. Navigate to the Device portal in edit mode
2. Click the edit, delete, or retire button as appropriate.
3. To retire the device, click the **Retire** button.
4. To define device configurations for the device, click the **Add** link in the Device Configuration Overview zone title bar. See [Creating Device Configurations](#) on page 8 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).

Note: Remaining fields and sections are based on the device type for the device.

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](#) on page 9 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

To maintain a device configuration:

1. Navigate to the Device Configuration portal in edit mode
2. Click the edit or delete button as appropriate.
3. To define measuring components for the device configuration, click the **Add** link in the Measuring Components zone title bar. See [Creating Measuring Components](#) on page 9 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.

Note:

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).

Note: Remaining fields and sections are based on the measuring component type you selected.

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.

To maintain a measuring component:

1. Navigate to the Measuring Component portal in edit mode
2. Click the edit or delete button as appropriate.
3. 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](#) on page 10 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 into 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:

- **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
- **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
- **Initial Measurement Exception Detail:** Displays details of a broadcast exception listed in the Open Exception Summary zone.

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:

Action	Description
Trace	Turns Trace On or Off (Allowed Status: All)

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)

- To view the pre-VEE data, click the expand icon in the Pre-VEE Initial Measurement Data section.

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

- To view the post-VEE data, click the expand icon in the Post-VEE Initial Measurement Data section.

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

- To view an individual measurement, click the measurement in the Measurements of Initial Measurement zone. The selected measurement opens in the Measurement zone. See [Viewing Final Measurements for a Measuring Component](#) on page for more information about viewing final measurements.

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:** address, time zone, market, parent service point (if applicable), status, and main contact
- **Life Support/Sensitive Load Information:** 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:** 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.

About Activities:

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

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 .

Note: Remaining fields and sections are based on the service point type you selected.

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

To maintain a service point:

1. Navigate to the Service Point portal in edit mode
2. Click the edit, delete, button as appropriate.
3. To activate the service point, click the **Activate** button.
4. 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).

Note: Remaining fields and sections are based on the contact type you selected.

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. Navigate to the Contact portal in edit mode
2. Click the edit or delete button as appropriate.

Working with Install Events:

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

Creating Install Events:

Use this procedure to create a new install event.

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

Install Event Search:

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

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

Base package search options include address details, service point information, and device information.

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

Maintaining Install Events:

Use this procedure to maintain an existing install event.

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

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

To maintain a install event:

1. Navigate to the Install Event portal in edit mode
2. Click the edit or delete button as appropriate.
3. 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.
4. To remove the device, click the **Remove** button, enter the event date and time, and click **OK** in the **Enter Event Date/Time** dialog.
5. 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 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, and can be created using the device's context menu. 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 **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. Enter the Start and End date and time for the activity.
5. Complete any remaining fields and sections .

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

6. 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 foreign key, related activity search ID, and identifier.

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

To maintain an activity:

1. Navigate to the Activity portal in edit mode
2. Click the edit or delete button as appropriate.

Note: Other actions available for the activity are based on the business object used to define the activity.

System Administration

This section describes the functions available from the Oracle Utilities meter data framework 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 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 request, meter ping, or on-demand meter reading.

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.

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 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 presenting a quantity for this UOM in Usage service quantities
- **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. For example, the base unit of measure for megawatt hours (MWH) with a magnitude of 1,000 would be kilowatt hours (KWH).

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](#) on page 41 to edit or delete an activity type.

To define a new activity type, follow these steps:

1. Select **Admin Menu --> Communication --> Exception 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 exception type.
4. Select the related transaction business object for the activity type. This is the business object that defines activities based on this activity type.
5. Select the status for the activity type.
7. Select the category for the activity type.
8. Click **Save**.

Activities can now be created based on this activity type.

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](#) on page 41 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. 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](#) on page 41 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. 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](#) on page 41 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. 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 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](#) on page 41 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. 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](#) on page 41 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. 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](#) on page 41 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. 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](#) on page 41 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. 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.

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 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 measure 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.
- **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](#) on page 41 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. 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](#) on page 41 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. Click **Save**.

Now you can create devices based on the device 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](#) on page 41 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. 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](#) on page 41 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.

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

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 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 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 business object or batch extract code are the typical processing methods defined for the transmission of data to a service provider.

The Oracle Utilities meter data framework contains the following base package process methods:

- **Activity Notification:** Used to define how activity-related information is sent to the service provider. Activity notification processing methods are defined by the following:
 - **Activity Type:** the activity type for which information is to be sent
 - **Batch Control:** used when a batch process is the default processing method used to send the information to the service provider for the given activity type.

This field and the next (Business Object) are mutually exclusive and one or the other must be defined for each activity type

Note: 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).

- **Business Object:** used when the creation of a business object is the default processing method used to send the information to the service provider for the given activity type. This field and the previous (Batch Control) are mutually exclusive and one or the other must be defined for each activity type.
- **Device Types:** used when a specific batch control or business object is used as the processing method for a specific device type. For each device type, either a batch control or a business object should be defined as the processing method.
- **Initial Measurement Creation:** Used to define how measuring component-related information is created for the service provider. Initial measurement creation processing methods are defined by the following:
 - **Default Processing Method:** The business object that is created for the service provider for the given processing role
 - **Processing Method:** One or more measuring component/business object pairings used when a specific business object is used as the processing method for a specific measuring component type. This list will be empty if the default business object suffices for all measuring component types

Other Oracle Utilities products may provide additional processing methods.

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.

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](#) on page 41 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. Click **Save**.

Now you can use the market when creating service points.

Defining Service Providers:

Use this procedure to define service providers.

To maintain existing service providers, select **Admin Menu --> Communications --> Service Provider** , then use [standard actions](#) on page 41 to edit, duplicate, or delete a service provider.

To define a new service provider, follow these steps:

1. Select **Admin Menu --> Communications --> Service Provider+ .**

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

2. Enter a name and a meaningful description for the service provider.
3. Complete the fields in the Main section.
4. Click **Save**.

Once the service provider has been saved, you can define processing methods for the service provider in the Processing Methods zone.

Defining Processing Methods:

Use this procedure to define processing methods for service providers.

Prerequisites: You must define service providers before you can create processing methods.

You can add, edit, and delete processing methods using the Processing Methods List zone. Use [standard actions](#) on page 41 to edit or delete a processing method.

To define a new processing method, follow these steps:

1. Click **Add** in the Processing Methods zone title bar.
2. Select the processing role and business object for the processing method and click **OK**.
3. Enter a meaningful description and select the status in the Main section.
4. Specify the details for the processing method in the Processing Method section.

Note: The available options in this section are based on the processing role and business object you selected.

5. Click **Save**.

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](#) on page 41 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. 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.
7. 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](#) on page 41 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. 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](#) on page 41 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 service point

type, click the + or – sign in the Measurement Cycle Route Business Object section and select the business object.

5. 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](#) on page 41 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. 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. 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. Navigate to the Measurement Cycle Schedule portal in edit mode
2. Click the edit, duplicate, or delete button as appropriate.
3. Click **Save**.

VEE Rule Administration

This section describes concepts and common tasks related to Validation , Editing, and Estimation (VEE) rule administration.

Understanding VEE Rule Setup and Administration:

This section describes entities used to support the management of VEE rules.

About VEE Groups:

VEE groups are collections of VEE rules that are applied to initial measurement data.

VEE groups can be associated to a specific measuring component, or to a measuring component type (or both). VEE groups associated with a measuring component type are applied to all measuring components of that type, while those associated to a specific measuring component are applied only to that measuring component.

VEE groups can also be referenced by individual Referred VEE Group VEE rules. See [About VEE Rules](#) on page 29 for more information.

About VEE Rules:

VEE rules are standard and custom Validation, Estimation and Editing (VEE) rules that perform checking and/or manipulation of initial measurement data.

VEE rules are created for a specific VEE group. For example, if you were configuring two VEE groups and both included a specific VEE rule, you would need to create two instances of the VEE rule, one for each group.

Attributes used to define VEE rules typically include the following:

- **Basic Information:** Basic information about the VEE rule, including its name and description, the VEE group to which the rule belongs, the sequence of the rule within the group, the category, and start and end dates. This information is standard for most VEE rules.
- **Parameters:** The parameters used by the rule. Parameters are specific to each rule.
- **Exception Types and Severity:** Details about how to handle exceptions, including the Exception Type and Exception Severity for exceptions created by the rule. There are three levels of Exception Severity:
 - **Information:** Used to highlight minor issues, but not sufficient to cause the initial measurement data to be put into the exception state. Exceptions of this category can be used to report on the frequency of interesting, but not fatal issues
 - **Issues:** Used to report a problem that will prevent the initial measurement data from being finalized. Multiple "issue exceptions" can be created during VEE processing. If at least one issue exists after all rules have been applied, the initial measurement data is transitioned to the exception state
 - **Terminate:** Used to report a severe issue that will cause the VEE process to stop and the initial measurement data to be transitioned immediately to the exception state. Only one terminate exception can be issued (as the first one causes VEE processing to stop on an initial measurement data).

The Oracle Utilities meter data framework includes the following "generic utility" base

package VEE rule types that can be used when configuring VEE groups and rules with Oracle Utilities Meter Data Management:

- **VEE Exception Handler:** used to define options and logic to terminate the VEE process when a set of user configured criteria are met. VEE rules of this type can be included in a group to specify how exceptions are handled for that group, and allow for creation of a single "parent" exception for the group. Exception Handler rules use the following options:
 - **Exception Handler:** defines the exception type for "parent" exceptions created when one or more VEE rules within the VEE group fail, along with the To Do Type and To Do Role for To Do entries for this exception.
 - **Comparison Results:** defines the conditions under which the "parent" exception is generated. A "parent" exception is created when a user-specified combination of exceptions (of user-specified quantities and exception types) are generated by the rules within the VEE group. For example, a "parent" exception might be generated when 3 exceptions of one type **and** 2 exceptions of another type are triggered, or if 2 exceptions of one type **or** 2 exceptions of a different type are triggered.
- **VEE Rule Group Factor:** used to define business logic to allow reference to a factor (of type VEE group) where the values of the factor are a list of VEE groups. This allows creating a VEE rule that can select from a list of VEE groups (referred to as a matrix) whose rules to execute next. One example of this might 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 matrix specifies:

Service Point Location	VEE Group to Execute
Service Point in the North	VEE Group N
Service Point in the East	VEE Group E
Service Point in the South	VEE Group S

Group Factor rules use the following options:

- **VEE Group Factor:** defines the VEE Group factor referenced by the rule, and what to do if the group cannot be found.
- **Insufficient Input Data Exception:** defines the Exception Type and Severity for exceptions created when there is insufficient data to execute the VEE rule.
- **VEE Rule Referred VEE Group:** used to define business logic to allow reference to a VEE group. This allows rules that are used frequently to be bunched under a single VEE group, which can be referenced/called by other rules as needed. For example, if a set of standard rules should be applied to all initial measurement data for a certain type of measuring component, this set of rules can be configured as part of a VEE group, which is referenced by a single VEE rule of this type. Referred VEE Group rules use the following options:
 - **Referred VEE Group:** defines the VEE Group referenced by the rule.
 - **Insufficient Input Data Exception:** defines the Exception Type and Exception Severity for exceptions created when there is insufficient data to execute the VEE rule.

Other Oracle Utilities products, such as Oracle Utilities Meter Data Management, provide standard "out-of-the-box" VEE rule types that can be used when creating VEE rules.

About VEE Rule Eligibility Criteria:

VEE rule eligibility criteria are user-definable conditions that could cause a given VEE rule to be applied or skipped. This can involve the evaluation of some attribute of the device or measuring component, or something else entirely.

A VEE rule can have multiple eligibility criteria for determining if the rule should be

applied or skipped, based on a user-defined sequence. Each eligibility criteria uses the following settings:

- **Criteria Comparison:** defines the specific comparison for the criteria, based on the following:
 - **Criteria Field:** the algorithm used to retrieve the value of the criteria field
 - **Comparison Operator:** the operator used in the comparison
 - **Value:** a user-specified value to which the retrieved value is compared (using the comparison operator)
- **Comparison Results:** defines how the rule should behave, based on the results of the comparison defined under Criteria Comparison:
 - **If True:** the action to take if the comparison is true
 - **If False:** the action to take if the comparison is false
 - **If Insufficient Data:** the action to take if there is insufficient data to perform the comparison

Working with VEE Groups:

This section describes common tasks related to working with VEE groups.

Creating VEE Groups:

Use this procedure to create a new VEE group.

1. Select **Admin Menu --> VEE Rules --> VEE Group+** .

Note: If your system supports more than one VEE group business object, you will be prompted to select a business object for the VEE group .
2. Enter the name, description, and detailed description for the VEE group.
3. Click **Save**.
4. To add a VEE rule to the VEE group, click the **Add Rule** link in the VEE Rules List zone title bar. See [Creating VEE Rules](#) on page 32 for more information about creating VEE rules.

Now you can create VEE rules for this group.

VEE Group Search:

Use this procedure to search for a VEE Group on the VEE Group Query portal.

1. Select **Admin Menu --> VEE Rules --> VEE Group** .
2. Enter your search criteria.

You can search by VEE Group or description, or VEE Group Factor.
3. Click **Refresh**.
4. In the search results list, click the link for the VEE group you want to view or edit.

Maintaining VEE Groups:

Use this procedure to maintain an existing VEE group.

You use the VEE Group portal to maintain VEE groups. This portal includes the following zones:

- **VEE Group:** Defines basic information about VEE group
- **VEE Rules List:** lists the VEE rules belonging to the group
- **Referencing VEE Rules List:** lists the VEE rules that reference the group
- **Referencing VEE Group Factors List:** lists the VEE group factors that reference the group
- **Referencing Measuring Component Type List:** lists the measuring component types that reference the group
- **Referencing Measuring Component List:** lists the measuring components that reference the group

To maintain a VEE group:

1. Navigate to the VEE Group portal in edit mode
2. Click the edit, duplicate, or delete button as appropriate.
3. To add a VEE rule to the VEE group, click the **Add Rule** link in the VEE Rules List zone title bar. See [Creating VEE Rules](#) on page 32 for more information about creating VEE rules.
4. To change the sequence of VEE rules for the group, click the **Resequence Rules** link in the VEE Rules List zone title bar, edit the Execution Sequence in the Resequence Rules dialog, and click **Save**.

Working with VEE Rules:

This section describes common tasks related to working with VEE rules.

Creating VEE Rules:

Use this procedure to create a new VEE rule.

Prerequisites: You must define at least one VEE group before you can create VEE rules.

1. Select **Admin Menu --> VEE Rules --> VEE Rule+** .
2. Search for and select the VEE group to which the new VEE rule will belong.
3. Select the business object that will define the VEE rule.
4. Click **OK**.
5. Enter a name, sequence number, description, and detailed description for the rule.
6. Select the category for the rule.
7. Enter the Start Date and (optional) Stop Date for the rule.
8. Complete the remaining fields and sections.

Note: The remaining fields and sections are based on the VEE rule business object you selected.

9. Click **Save**.
10. To define eligibility criteria for the rule, click the **Add** link in the Eligibility Criteria List zone title bar. See [Defining Eligibility Criteria for a VEE Rule](#) on page 33 for more information.

VEE Rule Search:

Use this procedure to search for a VEE Rule on the VEE Rule Query portal.

1. Select **Admin Menu --> VEE Rules --> VEE Rule** .
2. Enter your search criteria.

You can search by VEE Rule or description.

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

Maintaining VEE Rules:

Use this procedure to maintain an existing VEE rule.

You use the VEE Rule portal to maintain VEE rules. This portal includes the following zones:

- **VEE Rule:** Defines the VEE rule, including parameters used when executing the rule
- **Eligibility Criteria List:** lists the eligibility criteria defined for the rule

To maintain a VEE rule:

1. Navigate to the VEE Rule portal in edit mode
2. Click the edit, duplicate, or delete button as appropriate.
3. To define eligibility criteria for the rule, click the **Add** link in the Eligibility Criteria List zone title bar. See [Defining Eligibility Criteria for a VEE Rule](#) on page 33 for more

information.

Defining Eligibility Criteria for a VEE Rule:

Use this procedure to define eligibility criteria for a VEE rule.

Prerequisites: You must create a VEE rule before you can define eligibility criteria.

1. Click the **Add** link in the Eligibility Criteria List zone title bar.

Note: If your system supports more than one eligibility criteria business object, you will be prompted to select a business object for the eligibility criteria.

2. Enter a sequence number, description, and detailed description for the criteria.
3. Complete the Criteria Comparison section as follows:
 - Criteria Field: the algorithm used to retrieve the value of the criteria field
 - Comparison Operator: the operator used in the comparison
 - Value: a user-specified value to which the retrieved value is compared (using the comparison operator)
5. Complete the Comparison Results section as follows:
 - If True: the action to take if the comparison is true
 - If False: the action to take if the comparison is false
 - If Insufficient Data: the action to take if there is insufficient data to perform the comparison
6. Click **Save**.

Reference Topics

This section provides reference information to support tasks.

Glossary

This glossary provides definitions of commonly used terms.

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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.

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.

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 MDF (Meter Data Framework) 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 MDF (Meter Data Framework). 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 service 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 Component 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 should 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 MDF (Meter Data Framework) 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)"

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.

Scalar Usage

A measurement of the amount of energy, water, gas, etc. consumed for a given measuring component 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 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 Identifier 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 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 the Broadcast icon. Click Activate or Deactivate in the Actions zone. 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.
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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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. <p>A confirmation dialog opens asking you to confirm the deletion of the record. Click OK to delete the object.</p>
Duplicate	From the Main Menu: <ol style="list-style-type: none"> 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. 3. Click the Duplicate button in the Record Actions section. A new record is created and the Add/Edit screen is displayed. Key fields will be cleared in the new record. 4. Complete all required fields. Click  to display field descriptions. 5. Click Save.
View Record Information	Click the Record Information plus sign (+) to display details related to the current object, including ID, Business Object, and Create Date/Time (as applicable).
View or add log entries	From the Main Menu: <ol style="list-style-type: none"> 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.

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 re-use VEE rules? Can you provide an example of configuring VEE groups and rules that illustrates how groups and rules can be re-used?

A. The following is a simple example that shows how this might be done. Assume that you need to apply the following VEE rules:

- Three VEE rules to be applied to all measuring components (designated as A1, A2, and A3)
- Three VEE rules to be applied to interval measuring components only (designated as I1, I2, and I3)
- Two VEE rules to be applied to scalar measuring components only (designated as S1 and S2)

One approach would be as follows:

1. Create a VEE group for each set of VEE rules, named as follows:
 - ALL_RULES
 - INTERVAL_RULES
 - SCALAR_RULES
2. Create the VEE rules to be applied to all measuring components (A1, A2, and A3) in the ALL_RULES group.
3. Create the VEE rules to be applied to interval measuring components (I1, I2, and I3) in the INTERVAL_RULES group.
4. Create the VEE rules to be applied to scalar measuring components (S1 and S2) in the SCALAR_RULES group.
5. Create a Referred VEE Group VEE rule for each of the three groups as follows:
 - ALL_GRP (references the ALL_RULES group)
 - INTERVAL_GRP (references the INTERVAL_RULES group)
 - SCALAR_GRP (references the SCALAR_RULES group)
6. Create a VEE group to be used with interval measuring components called INTERVAL_MCS that contains the following rules:
 - ALL_GRP
 - INTERVAL_GRP
7. Create a VEE group to be used with scalar measuring components called SCALAR_MCS that contains the following rules:

- ALL_GRP
- SCALAR_GRP

Q. How do I configure VEE rules that are only applied under certain circumstances?

A. You can define eligibility criteria for VEE rules that specify that the rule should only be executed when specific circumstances apply.

Q. How do I apply a set of VEE rules to a group of measuring components?

A. You can define VEE groups for a measuring component type, in which case, all measuring components of that type will use the VEE groups defined for the measuring component type.

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 meter data framework and Oracle Utilities Meter Data Management?

A. **Oracle Utilities meter data framework** 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 meter data framework 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 VEE rule and a VEE group?

A. A **VEE rule** is a standard or custom Validation, Estimation and Editing (VEE) rules that performs checking and/or manipulation of initial measurement data.

A **VEE group** is a collection of VEE rules .

Q. What's the difference between a VEE Group Factor VEE rule and a Referred VEE Group VEE rule?

A. A **VEE Group Factor** VEE rule is a VEE rule used to define business logic to allow reference to a factor (of type VEE group) where the values of the factor are a list of VEE groups. This allows creating a VEE rule that can select from a list of VEE groups (referred to as a matrix) whose rules to execute next.

A **Referred VEE Group** VEE rule is a VEE rule used to define business logic to allow reference to a VEE group. This allows rules that are used frequently to be bunched under a single VEE group, which can be referenced/called by other rules as needed. For example, if a set of standard rules should be applied to all initial measurement data for a certain type of measuring component, this set of rules can be configured as part of a VEE group, which is referenced by a single VEE rule of this type.

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 apply a set of VEE rules to a group of measuring components?

A. Yes. If the group of measuring components are all based on the same measuring component type, you can create a VEE group that contains the set of VEE rules you wish to apply, and assign the group to the measuring component type.

Q. Can I configure VEE rules that are only applied under certain circumstances?

A. Yes. By defining eligibility criteria for VEE rules, you can define the circumstances under which the rules are applied or skipped.

Q. Can I configure VEE rules so that different sets of rules are executed based on a specific property of a device or measuring component?

A. Yes. You can create a VEE Group Factor rule that references a factor whose values are a list of VEE groups. This rule can select from the list of VEE groups (referred to as a matrix) whose rules to execute next.

Q. Can I create VEE groups that can be reused by more than one measuring component or measuring component type?

A. Yes. You can create a Referred VEE Group rule that reference a VEE group. When this rule is executed, the rules within the referred VEE group are executed.