Oracle DataRaker Cloud Service

User Guide

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Oracle Utilities Oracle DataRaker Cloud Service User Guide

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Getting Started

Oracle DataRaker Cloud Service (ODR) is a client-facing web portal user interface with a back-end analytics engine. ODR is accessible from a customer network or through the Virtual Private Network (VPN). The ODR end user documentation focuses primarily on how users interact with the ODR user interface, but the responses and actions of the back-end system are described where relevant.

Requirements and Limitations

The following data requirements and limitations apply to all utilities.

Environmental Requirements and Limitations

To access ODR, you need a supported browser, network access, and user credentials.

Access Requirements and Limitations

Access to ODR is restricted to protect customer data. ODR will only respond to server requests coming from IP address ranges specified by customers during implementation or the utility administration. If a request comes from a valid IP address, ODR will load the login page otherwise the request will result in an access denied message. If you require access to the environment or access rights within the system, contact your administrator.

Logging In

When launched from a company network or Oracle VPN, the ODR URL will load the Oracle Access Manager Login page.

To log in to ODR:

Enter your user name in the **Username** field and your password in the **Password** field, and then click **Login**.

Forgotten Passwords

To retrieve a forgotten password:

Click the **Forgot Password** link, then enter the required information when prompted. A temporary password will be generated and emailed to you.

Note: User names are linked to specific ODR Groups, which define the environment and available features. Group definitions may vary by implementation. Groups are defined with the Administer Groups page, which only administrative users have access to. See "Administer Groups" on page 204.

Understanding Data

In the data model, any object that stores associated attribute data is called a point. A point's attribute data (called facts) depend on the object's categorization. For example, if an electric meter has an electric meter point type, the meter's facts might include service status, returned readings, and manufacturer. When a meter is in service, it has relations to other objects in the model, such as service point location, premise, the transformer that supplies the premise, the feeder that supplies the transformer, and the substation that supplies the feeder. All consumption data is based on information coming from the meter and is aggregated upward to the related parent points.

Parent-Child Relationships

ODR allows data points to have a hierarchical association known as a parent-child relationship. For example, a transformer can have a relationship with the meters that it supplies. Therefore, the transformer is the parent and its associated meters are considered children.

Sibling Relationships

Two points that share the same parent are considered siblings. For example, an electric meter and a gas meter at the same premise and transformers on the same feeder are siblings. Parent-child and sibling associations are configurable. See "Understanding Point Types" on page 2.

Understanding Point Types

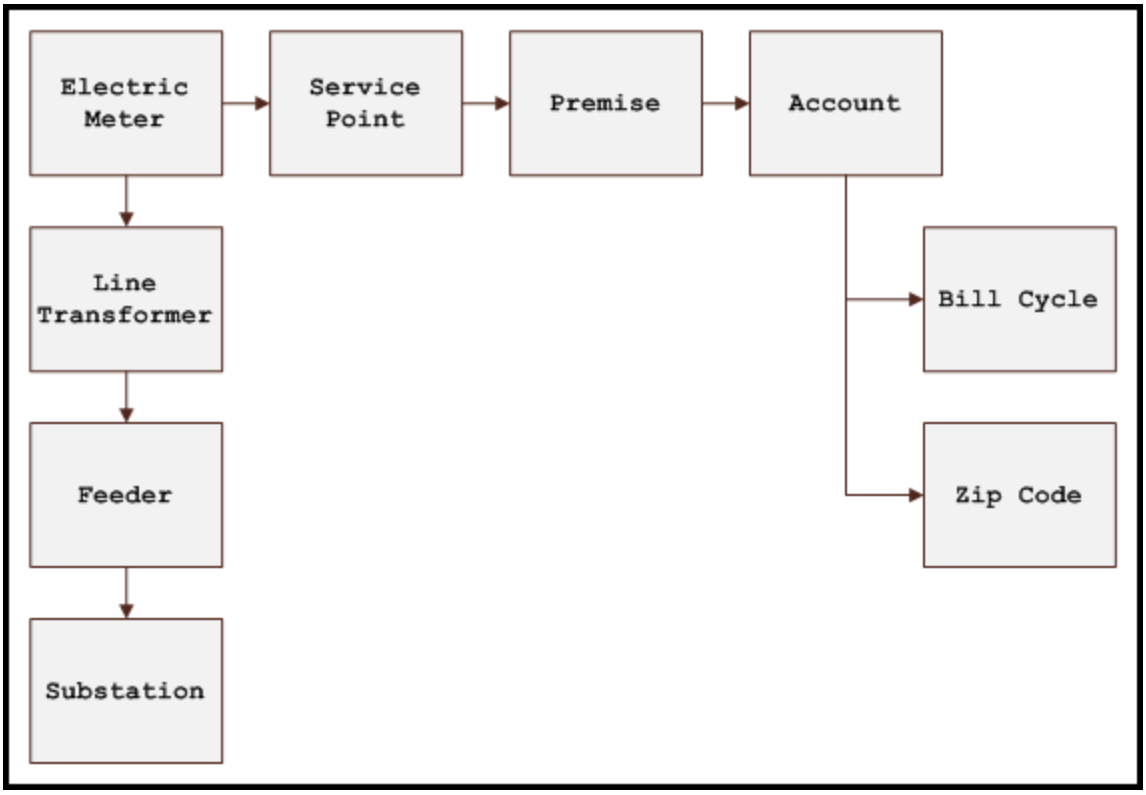
The following table describes the default point types.

Type	Description	Parent Points
Account	Accounts are utility customer accounts in the database.	Bill Cycle, Zip Code
Bill Cycle	Bill cycles are the billing cycles that correspond to the day of the month when the bill is prepared.	Not Applicable
Electric Meter	Electric meters are all of the electric meters in the database.	Account, Bill Cycle, Line Transformer, Premise, Service Point, Zip Code
Feeder	Contains the feeders that are associated with meters.	Substation
Gas Meter	Gas meters in the system.	Account, Bill Cycle, Premise, Service Point, Zip Code
Line Transformer	Contains the transformers that provide service connections for electric meters.	Feeder
Load Profile Class	Contains load profile classes that may be associated with a meter.	Not Applicable
Premise	The address associated with a meter.	Account
Rate	The billing rate charged for consumption of electricity, gas, etc. The rate may vary depending on customer type, time of use, etc.	Not Applicable
Rate Class	Rate class (or customer type) that applies to an account (*e.g.*, residential, commercial, etc.).	Not Applicable
Route	Contains meter reading routes.	Not Applicable
Service Order	Contains service order agreements for accounts.	Not

Type	Description	Parent Points
Agreement		Applicable
Service Point	Service connection points.	Premise
Utility or Supplier	Contains utilities or suppliers that provide service.	Not Applicable
Zip Code	Contains zip codes in the service area where meters are located.	Not Applicable

For example, data aggregates from an electric meter on two paths:

1. Meter to line transformer,line transformer to feeder, then then feeder to substation.
2. Meter to service point, service point to premise, premise to account, and then account to either bill cycle or zip code.



Understanding Facts

Any attribute stored for a point is stored as a fact. Facts are broken into three types:

- **Standing / Non Time Series**: Data that does not change often. Normally this data has a start date and an end date will be in the future when a change occurs (for example, tenant move out or meter exchange. Relation, Attribute, Numeric Attributes are examples of a standing/ non time series.
- **Time Series**: Consistent recurring time based data such as daily register read or an event. Metric, Event, List, Segment, Text, Count) are examples of a time series.
- **Interval (IV):** Time series where intervals are shorter than daily. For example, 15 minute interval reads.

Facts are auto-generated in the meta data layer as they are loaded and defined in the relational fact table.

Note: Data types should not be confused with Point Types, which are the categories for objects in the data model.

Fact Data Type	Grouping of Data Types	Fact Example
Metric	Time series	kWh
Event	Time series	Register Gap
List	Time series	No Gas Con
Segment	Time series	Read Collection
Text	Time series	kWh Peak Date
Relation	Standing non-time series	Status
Attribute	Standing non-time series	Address
Numeric Attribute	Standing non-time series	Amps Rating
Interval Metric	Interval	kWh
Interval Text	Interval	Voltage Quality
Count	Time series	Power Out Count

Consumption Data Type

Consumption data in is represented according to how it originated. Data origin can refer to both data source and calculations. All types of consumption data are displayed at the meter level; consumption data aggregated to other points (for example, transformers or rate classes) is represented as two consolidated data types: Metered and Estimated.

The table below lists the data types.

Note: The following sections on ODR data types are based on the default configuration. Your data types may be configured differently by your project manager based on your available data and requirements.

Metered Data Types

Name	Description
Loaded	Consumption data received in engineering units and not transformed by DataRaker; no multiplier or other derivation has been applied.
Calculated	Calculated data is derived as the difference between the current and previous day's midnight read.
Aggregated	Aggregated data is the summation of consumption data from a shorter time-basis to a longer time-basis. For example, a fifteen minute interval to hourly. **Note:** This aggregated data does not mean aggregating to a parent point. For example, this would not refer to aggregating from meters to transformers.
Interpolated	Interpolated data is a fixed amount of consumption allocated to a normalized time basis such as calculated from register reads that are not received at the anticipated time.

Estimated Data Types

Name	Description
Estimated	Estimated data is calculated based on a meter's historic Usage Factor and Load Profile.

Name	Description
Estimated (Agg)	Estimated (Agg) data is estimated data aggregated to another time-basis. For example,, hourly Estimated data is aggregated to daily Estimated (Agg).

Oracle DataRaker User Interface

ODR contains a number of usability features that help you configure, view, export, and search data. Key features of this user interface include:

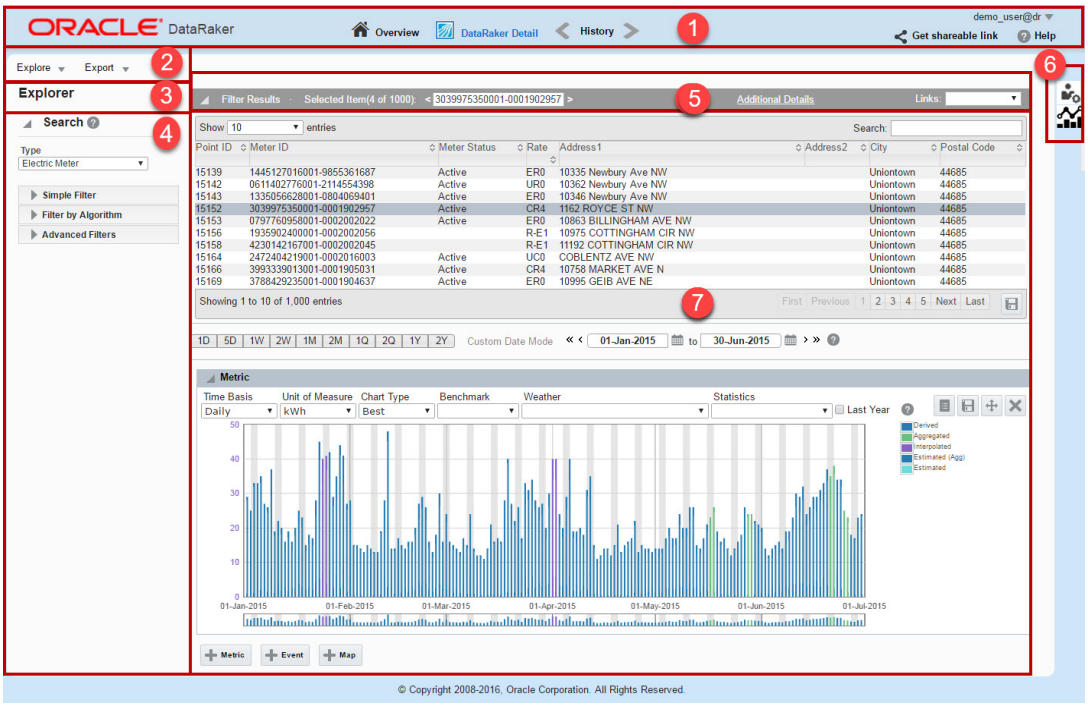
- Web browser user interface
- Configurable portals, zones, and user interface
- Context menus with drill-down capability
- Lists, graphs, and sortable searches
- Ad-hoc filters
- Online help with searchable index
- User display preferences (such as, color, drop-down, graphs, and detailed information)

The following sections describe the key features and functionality of the user interface.

Page Elements

Oracle DataRaker's structure includes modular panes that dynamically update based on the page being viewed. The following image shows the standard layout of the user interface.

Note: The following image displays the interface for a non-power user. A power user will have additional drop-down menus within section two of the user interface. See the See "Menu Bar" on page 21. for more information.



Element Descriptions

Image Number	Element	Description
1	Heading	The **Heading** section is always visible as you navigate through the ODR user interface. The left side of the section includes the following: ■ **Overview**: Redirects users to the **Summary Dashboard** where you can view aggregated and summarized information in graphical form. See "DataRaker Overview Dashboards" on page 62. ■ **DataRaker Detail**: Provides different options to search, filter, and export information though an attribute, such as a meter or transformer. ■ **History**: Provides a drop-down list of recently visited pages. Within the drop-down,the **Back** and **Forward** buttons provide additional navigation options to review these pages.

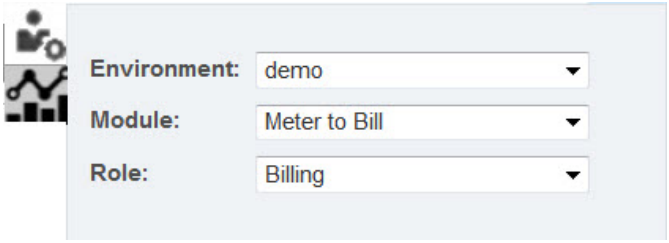
Image Number	Element	Description
		The right side of the this section includes the following: ■ **User menu**: Displays the logged-in user's user name and logout option. ■ **Get sharable**: Opens a dialog that allows you to copy the URL to the current page and context. ■ **About button**:Displays the Oracle DataRaker version number, followed by a list of all pervious version numbers. ■ **Help button**:Launches the online help system.
2	Menu Bar	The **Menu Bar** offers navigation options to different pages throughout the system. Users commonly have the option to navigate directly to a page through a **Menu** bar drop-down, or through a link commonly found in the page's data table. Navigating to a page through a link in the data table results populates the row's context and displays related information. Navigating to a page through the menu bar, however, will not. When navigating through the menu bar, you have to search or filter the information each time in order to display a specific record. The menu bar displays different options depending on the user permissions. Explore and Export options are visible to both non-power and power users. Only power users have access to the Manage, Administer, and Monitor options.
3	Page Name	The **page name** appears in the upper left and indicates the page being displayed..
4	Search Pane	The **Search** pane allows you to select the data parameters that determine what functions and data will be displayed. See "Search Pane" on page 13.
5	Selected Results	The **selected results field** displays the ID of the object selected in main data pane. ■ **Links drop-down menu**: Provides list items that allow the user to navigate to Oracle Utilities Meter Data

Image Number	Element	Description
		Management (MDM) abd Oracle Utilities Customer Carre and Billing (CCB), as appropriate. This drop-down only appears when the Filters Type is meter related. For example, electric, gas, or water meter. ■ **Additional details**: Provides more information about the selected data poin. See "Additional Details" on page 26.
6	Drawer	The **Drawer menu** tabs allow the user to set global parameters associated to the environment, module, and role, as well as relationship information associated with the data point.
7	Main Data Pane	The **main data** pane displays data returned by the system. Data is returned based on the selected filters or search parameters and displayed in graphs, tables, or maps, as appropriate. **Note:** The panes and options that are available in this section vary depending on the page that is displayed. See the individual page descriptions for details on how the data is presented.

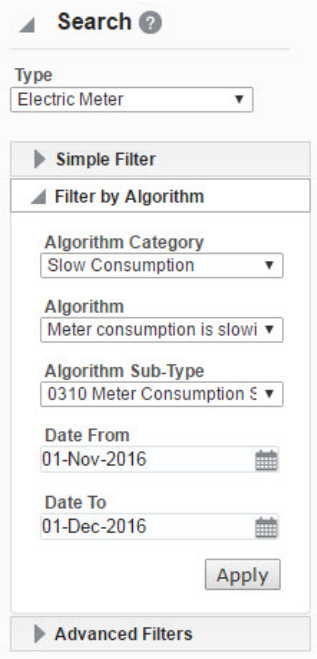
Using the Drawer and Search Pane

ODR provides two main sets of controls for determining what data and corresponding analytics

Drawer Menu: The Drawer menu sets global parameters associated to the environment, module, and role, and displays the relationship information of parent, sibling, and child points that are associated to the selected data points. See "Drawer Menu" on page 11.



Search Pane: The Search pane allows the user to use an object's type (for example, meter, account, or transformer) and characteristics to locate data. See "Search Pane" on page 13.



Drawer Menu

The Drawer Menu utilizes a combination of modules and roles to organize the data points and facts. Roles allow data and options to be configured based on job functions.

Drawer Menu Core Modules and Roles

The roles available to you depend on the module that has been implemented and your assigned groups, which control permissions including what functions are displayed. The following table lists the core modules with their associated roles.

Module	Role
Meter to Bill	AMI Deployment
	Billing
	Meter Operations
	Safety

Module	Role
Revenue Protection	Revenue Protection
Distribution Planning and Operations	Distribution Planning
Demand Response and Energy Efficiency	Demand Response
	Energy Efficiency

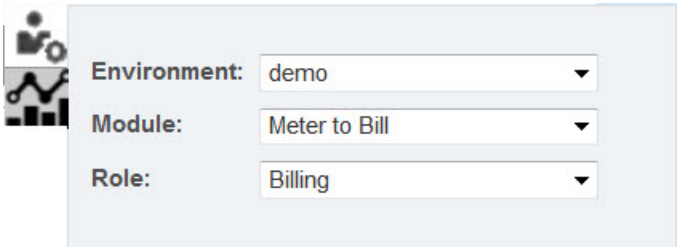
Environmental Filter and Related Points Tab

Drawer menu options are split between the Environmental Filters and Related Points tabs.

Environment Filters

There are three Environment filters:

- **Environment**: Defines high-level environment, module, and role parameters used to analyze the data. The drop-down list allows you to select from environments that are available to you.



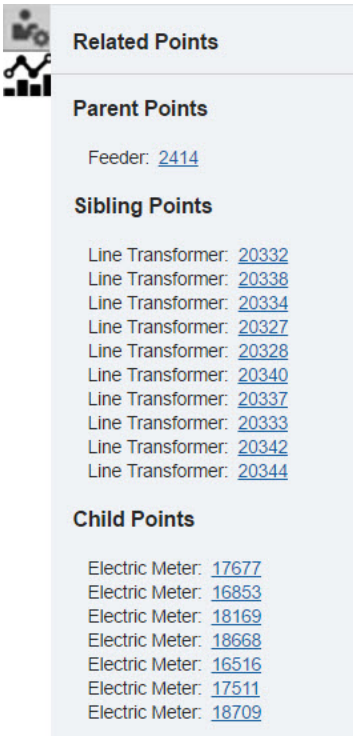
- **Module drop-down**: Provides access to core functions within the system. The base modules come pre-defined with default roles (see the above Modules And Roles table for more information). There are four core modules:
  - Meter to Bill
  - Revenue Protection
  - Distribution Planning and Operations
  - Demand Response and Energy Efficiency
- **Role drop-down**: This drop-down is vailable to users with multiple authorized roles. When a user is only assigned to one role, the Role drop-down list is desensitized. If a user is assigned to multiple roles, however, and they switch among their roles, the selected type in Filters menu's Type drop-down will not be affected.This drop-down menu will be desensitized for users with access to only one environment. Multiple

environments may be implemented as necessary. For example, seperate production and staging environments, or instances for holding companies with multiple subsidiary operating companies.

Note: Changing the Role will not affect the Type selection made in the Search pane. See "Search Pane" on page 13.

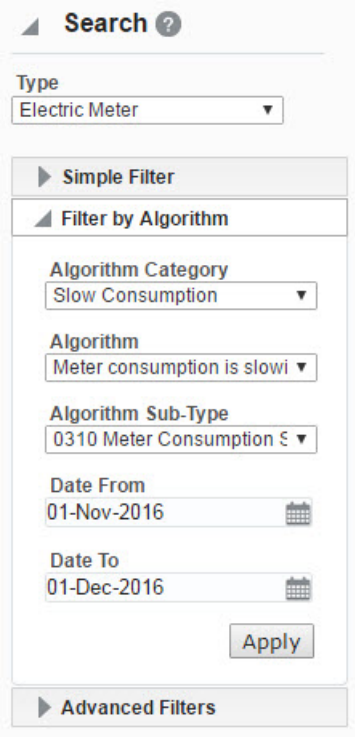
Related Points

The Related Points tab displays links to the parent, child, and sibling points, as available, that are associated to the highlighted data in the main data panel. It is informational only and can be used as a navigation tool. See "Understanding Data" on page 2.



Search Pane

The Search pane contains the Type drop-down list and data filters that allow you to find data based on object type and data criteria.



The Search pane options dynamically update based on a combination of the module and role selected in the Drawer pane, the point type selected, and the page you are on.

Type Selection

The **Type** drop-down allows you to select what data you want to analyze. Relevant data types are configured for each environment. For example, a combined electric-gas utility might have gas and electric meter types, while an electric utility will only have an electric meter type. See "Understanding Point Types" on page 2.

Using Filters

Three filter controls allow you to find data based on algorithms developed for the selected object type or by using simple or advanced filtering. Filters include the Simple Filter, Filter by Algorithm, and Advanced Filters. The order that these filters appear in the user interface is configurable.

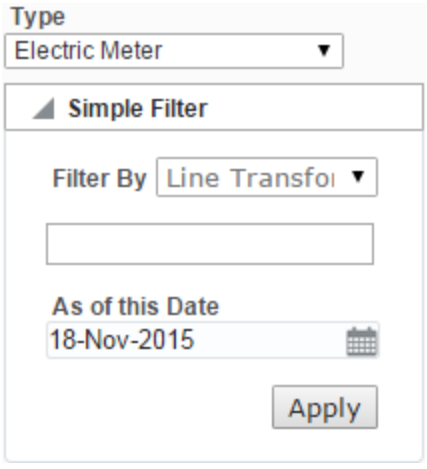
All filter fields with text entry allow you to perform wildcard searches to return values when partial search criteria is known.

- If you know the beginning of the value, enter it in the criteria field and either leave the rest of the field blank or append a wildcard symbol (* or %).
- If you know the end of the search criteria, enter a wildcard symbol (% or *) and the known text.
- If you know the beginning and end of the search criteria, but not what is in-between, enter the beginning text, a wildcard symbol (* or %), and the end text. For example, you know that the value begins with D1 and ends with 457E, enter D1*457E (or D1%457E) in the criteria field.
- If you know (consecutive) characters in the middle of the value, enter a wildcard symbol anywhere there is a gap.

Simple Filter

The **Simple Filter** section provides basic search functionality that allows you to search for a specific entity or group of entities. For non-relational selections, the Simple Filter provides the **Filter By** drop-down menu and an attribute field.

For relational filters, such as finding meters for a transformer, you need to enter a date in the **As of this Date** field. See "Understanding Facts" on page 5.



The search functionality is configurable and may be customized through your

implementation.

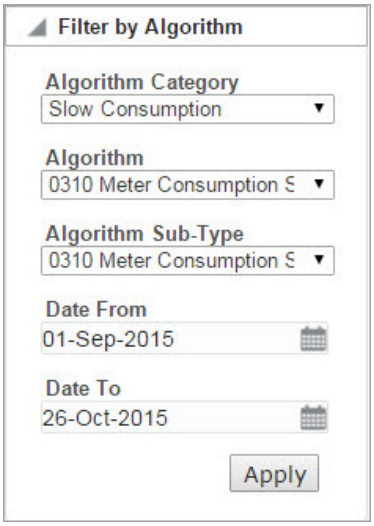
The following table displays the default **Filter By** menu options based on the **Type** drop-down menu selection:

Type Menu Selection	Menu Options
Account	■ Account Point ID ■ Account ID ■ Account Name
Bill Cycle	■ Bill Cycle Point ID ■ Bill Cycle
Electric Meter	■ Meter Point ID ■ Meter ID ■ Account ID [Relation] ■ Transformer [Relation] ■ Load Profile Class [Relation] ■ Rate [Relation] ■ Postal Code [Relation]
Feeder	■ Feeder Point ID ■ Feeder ID
Line Transformer	■ Transformer Point ID ■ Transformer ID ■ Feeder ID ■ Manufacturer
Premise	■ Premise Point ID ■ Premise ID
Service Point	■ Service Point ID ■ Service ID
Zip Code	■ Zip Code Point ID

Type Menu Selection	Menu Options
	■ Postal Code ■ Zip+4

Filter by Algorithm

The **Filter by Algorithm** section provides you with the flexibility to target your query using algorithms applied against a date range. The algorithm sets the "what" criteria (for example, slow meters, events, data quality parameters, and so on) and the date range sets the "when" criteria. For example, during the first quarter of last year (when) which meters reported usage spikes (what).



The filter date range and the date controls in the Main Data pane are not related. The date controls allow you to vide data for a selected point over time (regardless of the filter criteria). For example, if the algorithm returns meters reporting usage spikes in the first quarter of last year, you might look at those meters durin the first quarter of the current year.

The following table identifies the Algorithm Categories associated to each module and role combination:

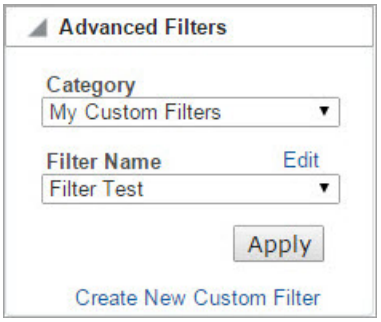
Module	Role	Algorithm Categories
Meter to Bill	AMI Deployment	■ AMI New Meter Health ■ Customer Refusal Tracking ■ Deployment Data Quality ■ Deployment Tracking

Module	Role	Algorithm Categories
		■ AMI Geospatial Reporting ■ Network Tracking
	Billing	■ Diagnostic Prioritization ■ High Bill Prioritization ■ Low Bill Prioritization ■ Slow Consumption ■ Stopped Meters
	Meter Operations	■ Data Quality Assurance ■ Defective Meter ■ Defective Socket ■ Geospatial Reporting ■ Geospatial Outlier ■ New Meter Health ■ Meter Inventory Tracking ■ Monitoring Net Metering
	Safety	■ Gas Leaks ■ Water Leaks
Revenue Protection	Revenue Protection	■ Diversion ■ Identifying Bypass ■ Identifying Meter Swaps ■ Identifying Meter Tampering ■ Post-deployment Theft
Distribution Planning and Operations	Distribution Planning	■ Conservation Voltage Reduction ■ Connectivity Verification ■ Non-technical Losses Localization ■ Transformer Load Management

Module	Role	Algorithm Categories
		■ Outage Management ■ Overload Prevention
Demand Response and Energy Efficiency	Demand Response	■ Program Customer Targeting ■ Program Efficiency
	Energy Efficiency	■ Customer Usage Reporting ■ Load Disaggregation

Advanced Filters

Advanced Filters allows you to create, apply, and export the results from custom made, personalized filters. In addition, you may apply customized and user-specific filters that the Data Scientists created.



- **Category and Filter Name**: Users can select filters based on Category and Filter Name. The category options vary based on implementation, but they may include categories defined when a user created a custom filter or categories defined by data scientists.
- **Edit link**: Allows you to modify the filter.
- **Create New Custom Filter link**: Allows you to define a new filter.

See "Creating and Editing Custom Filters" on page 20.

Creating and Editing Custom Filters

Creating Custom Filters

You can create and save custom filters through the **Create Filter** dialog box. Custom filters can be reused and their results can be exported.

To add personal filters:

1. From the Filters pane, expand the **Advanced Filters** section and click the **Create New Custom Filter** link.
2. Enter a descriptive filter name in the **Create Filter** field.
3. Select the fact type for the filter parameter that you want to create from the drop-down list:

Fact Type	Description
Metric	Allows you to specify a value or range of values of consumption-related data.
Event	Allows you to search for specific types of events in the selected time window. Events may be actual or derived from core calculations.
List	Allows you to search for objects belonging or not belonging to a list (algorithm result).
Attribute	Allows you to search for numeric or text attributes associated with the object.
Relation	A standard relation, such as electric meter to premise, or a segment derived with an algorithm.

4. Depending on the fact type, select the appropriate choices in the next two drop-down menus. These options dynamically change based on the fact type selected.
5. Do one of the following:
   - **To search for a value range**, select the value range using the **Value Range** fields.

- **To search for a specific value**, enter the same value into both **Value Range** fields.
- **To search for the system's default minimum and mazimum value for the fact**, enter MIN and/or MAX in the respective range boundaries.

6. Select the search date range for the data from the **Date Range** fields.
7. If you need additional criteria, click the button at the end of the row and add the criteria, then use the logic drop-down list to select filter conditions:
   - **If you have filter criteria where both have to be true**, use the **AND** operator.
   - **If you have filter criteria where either can be true**, use the **OR** operator.
   - **If you have filter criteria where one has to be true**, but the other cannot be true, use the **NOT** operator.
8. Click **Save**.

Editing Custom Filters

The **Edit** link in the **Advanced Filters** control allows you to modify currently defined filter criteria and add new parameters. The methods for modifying and adding criteria are the same as those used when creating the filter; however, the **Filter Name** is not editable.

Menu Bar

The menu bar allows you to navigate by function. Function availability varies by user group permissions.

- **Explore**: Provides access to the Explorer page. This page allows you to visualize time series, event, and geo-spatial data for a selected object. For example, an electric meter. See "Explore" on page 24.
- **Manage**: Allows you to create and edit filters and datasets and run algorithms. See "Manage" on page 84.
- **Administer**: Allows you to administer users, roles, and the system. See "Administer" on page 189.
- **Monitor**: Allows you to monitor system activity. The function appears only to power-users. See "Monitor" on page 210.
- **Export**: Allows you to view and export data. See "Export" on page 57.

Expand and Collapse Buttons

Panes through out the system may be collapsed or expanded by clicking the triangular controls on the boundary lines.

Date Controls

Date controls allow you to select date-time boundaries for the data that is displayed. These controls are made up of the quick date selection buttons, Date/Calendar controls, and navigation arrows.

The date controls set the date boundaries for displaying data in the main data pane; this is distinct from filter date ranges, which contribute to the criteria for determining the points returned by the filter. See "Using Filters" on page 14.

Using Quick Date Selection Buttons

Quick date selection buttons allow you to quickly access data within a preset time range. Preset range option buttons include: daily (1D, 2D), weekly (1W, 2W), monthly (1 M, 2M), quarterly (1Q, 2Q), and yearly (1Y, 2Y).

The default range is two months (2M). When a quick date selection is chosen, the Date/Calendar control will update to show the applicable date range. The end date of the range will always be one day prior to the current day to allow for daily calculations on the AMI data that has been received throughout a day (usually every 8 hours).

A week starts on Sunday and ends on Saturday. For the weekly selections, 1W or 2W, the date range will encompass the days in the current week that began on Sunday or the days in the current week plus the previous week, respectively.

- A day starts at 00:00:01 and ends at 24:00:00
- A week starts on a Sunday and ends on a Saturday
- A month starts on the first day of the month
- A quarter starts on January 1, April 1, July 1, and October 1
- A year starts on January 1st

For example, if today is September 9th, 2015, the preset date range options are the following:

Control	Beginning	End
1D	September 8, 2015	September 8, 2015
5D	September 4, 2015	September 8, 2015
1W	September 7, 2015	September 8, 2015
2W	August 31, 2015	September 8, 2015
1M	September 1, 2015	September 8, 2015
2M	August 1, 2015	September 8, 2015
1Q	July 1, 2015	September 8, 2015
2Q	April 1, 2015	September 8, 2015
1Y	January 1, 2015	September 8, 2015
2Y	January 1, 2013	September 8, 2015

Navigating Through Dates

The date navigation arrows allow you to move the Calendar control date boundaries by a month. The boundaries may be changed individually or separately.

Date navigation arrow options include the following::

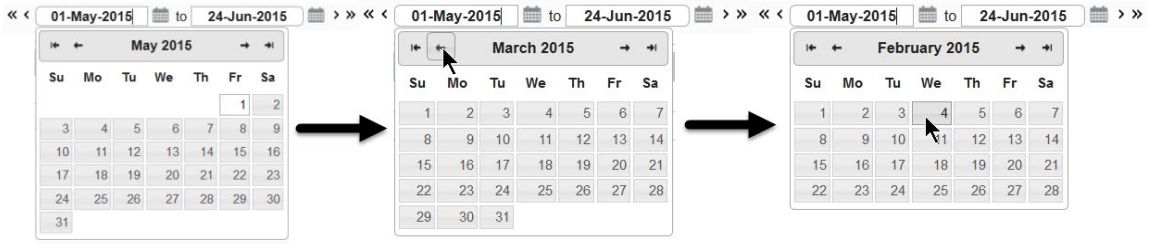
- **To to move the start date back by one month**, click the s**ingle left arrow** (‹).
- **To move the end date forward by one month**, click the **single right arrow** (›).
- **To move the start and end dates back one month**, click the **double left arrow** («).
- **To move the start and end dates forward by one month**, click the **double right arrow** (»).

Choosing Custom Date Ranges

To set a custom date:

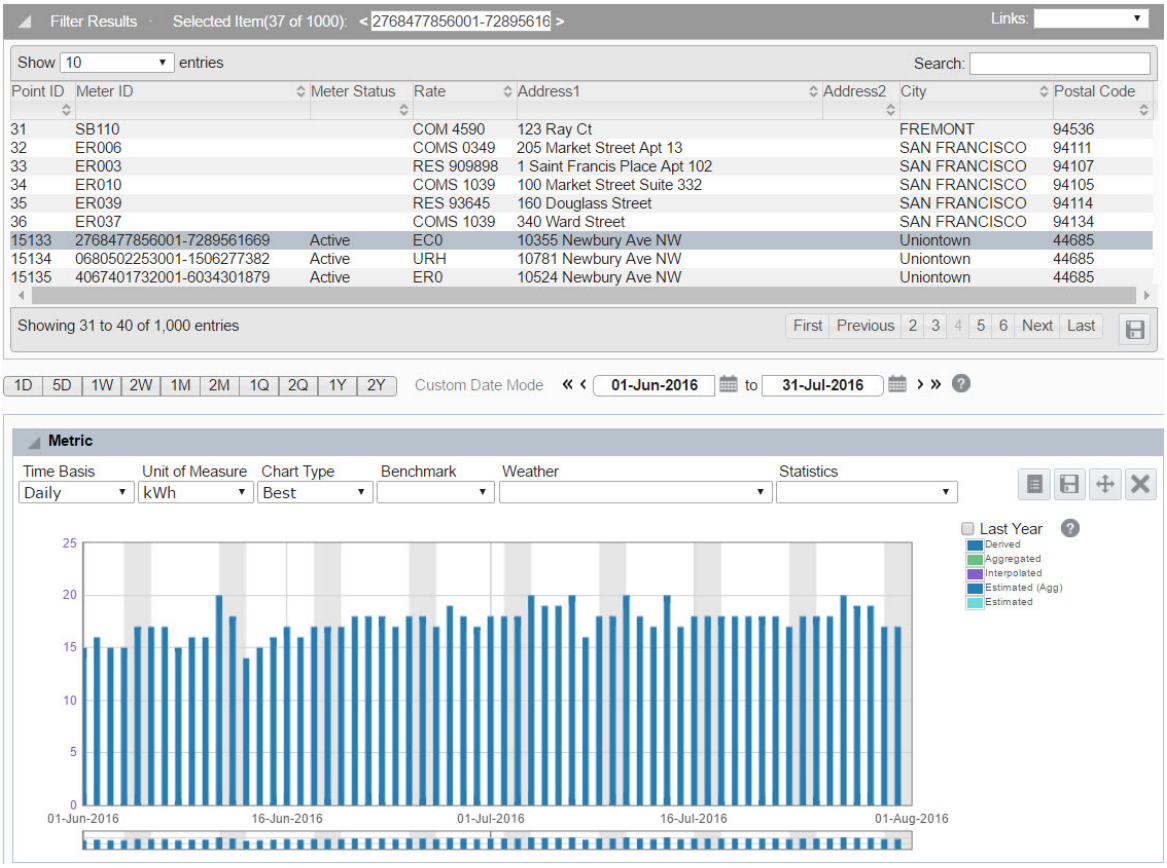
1. Click in a **Date/Calendar date** field.
2. Click the **previous** or **next** arrow buttons to select the month, then click desired date in the calendar to select the date.
3. You may select a custom start date, end date, or both.

> **Note:** If a custom date range is selected, the quick selection buttons will be desensitized and the date bar will show that it is in **Custom Date Mod**e.



Explore

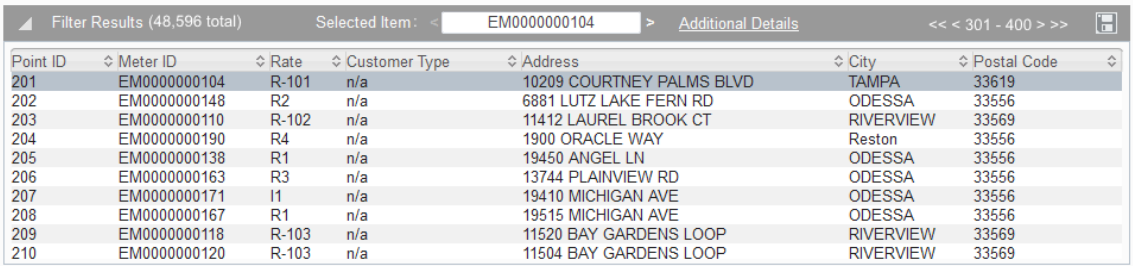
The Explorer page allows you to visualize data for a selected object. The page data is comprised of the Filter Results data table and data panels determined by the object type. The columns that appear in the Filter Results panel are configurable. The screen capture below displays the default configuration.



The Explorer page dynamically updates with different panels and options. Panels may be configured to open automatically when an object has been selected. For example, selecting **Electric Meter** from the **Type** drop-down list causes the page to add buttons for three panels: Metric, Event, and Map. When the corresponding data loads, the first point is highlighted and the Metric, Event, and Map panels open to display the meter's data.

Filter Results Data Pane

The Filter Results pane displays the data defined in the Drawer and Filter elements. See "Type Selection" on page 14. See "Drawer Menu" on page 11. The Filter Results data table is configured to show data relevant to the selected role and type. For example, depending on the drawer and filter elements setting, filter results for an electric meter could display data for the point ID, meter ID, meter status, rate, and address where the data point resides or was collected.



Point ID	Meter ID	Rate	Customer Type	Address	City	Postal Code
201	EM0000000104	R-101	n/a	10209 COURTNEY PALMS BLVD	TAMPA	33619
202	EM0000000148	R2	n/a	6881 LUTZ LAKE FERN RD	ODESSA	33556
203	EM0000000110	R-102	n/a	11412 LAUREL BROOK CT	RIVERVIEW	33569
204	EM0000000190	R4	n/a	1900 ORACLE WAY	Reston	33556
205	EM0000000138	R1	n/a	19450 ANGEL LN	ODESSA	33556
206	EM0000000163	R3	n/a	13744 PLAINVIEW RD	ODESSA	33556
207	EM0000000171	I1	n/a	19410 MICHIGAN AVE	ODESSA	33556
208	EM0000000167	R1	n/a	19515 MICHIGAN AVE	ODESSA	33556
209	EM0000000118	R-103	n/a	11520 BAY GARDENS LOOP	RIVERVIEW	33569
210	EM0000000120	R-103	n/a	11504 BAY GARDENS LOOP	RIVERVIEW	33569

The Filter Results panel contains the following fields and buttons:

Fields

- **Asset ID**: The Asset ID of the highlighted item in the data table. Individual points in the results table can be scrolled through by clicking the greater than or less than symbols located on either side of Selected Item field.
- **Additional Details:** Displays a pop-up window showing more information, as available, about the selected asset. This information includes the following: summary, events Algorithms, relations, non attributes, links and Segments. See "Additional Details" on page 26.
- **Search:** Allows users to enter search criteria to locate an individual or group of points. The search field is not limited by the Show Entries drop-down menu or the results displayed in the current Filter Results page. Criteria entered in this field will be applied to the full results set.

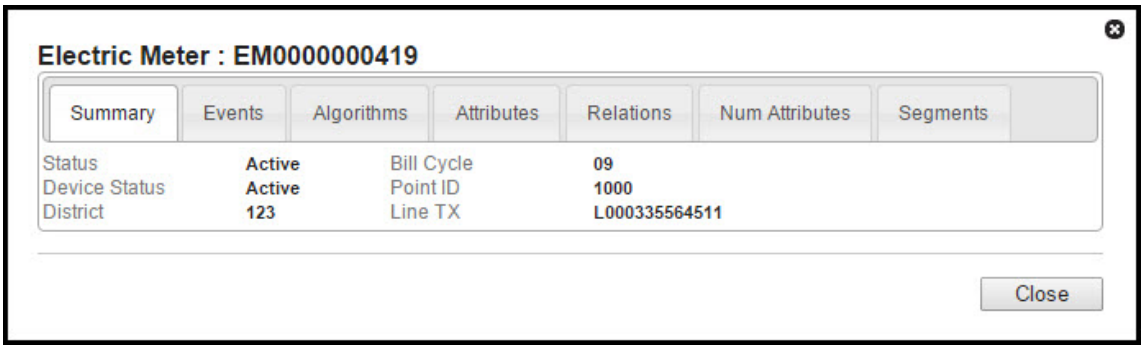
Buttons

> **Note**: Button function availability varies based on the number of points returned, the number of entries being displayed at a single time, and the current results page displayed.

- **Pagination controls**: Allow the user to navigate through and display results in the table By default, only 100 record scan be displayed in the table at a time.
- **Export**: Export the displayed data as a CSV file.

Additional Details

The **Additional Details** dialog box is accessed through the link in the header of the Filter Results pane. This dialog box contains multiple tabs that display further details about the selected point.



Each of the tabs within the dialog box display further details associated to the data point. The tabs include:

- **Summary tab:** Displays the same information that is displayed on the Explorer page's Selected Asset pan. If the filter type is meter related, a dynamic list of links which allows the user to navigate to additional applications is displayed.
  Note:Links will only appear when the filter type is meter related, and vary by client configuration. See "Page Elements" on page 7.
- **Events tab:** Lists each event that used the associated data point within it's processing.
- **Algorithms tab:** Lists each time an algorithms returned the associated asset within it's results.
- **Attributes tab:** Lists additional information associated to this asset.
- **Relations:** Displays associations between points; such as a line transformer and its associated meters.
- **Num Attributes tab:** Lists numeric but not calculated data.
- **Segments tab:** Groups relational facts; such as, customer type (commercial, residential, and industrial).

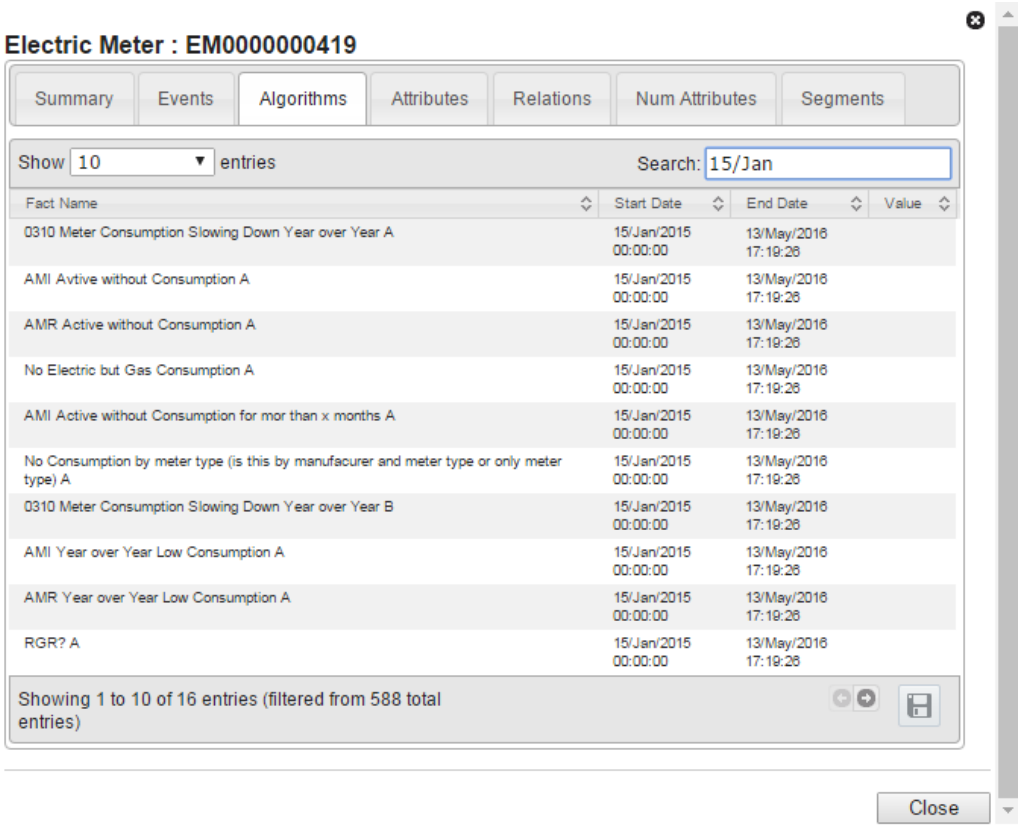
With the exception of the Summary tab, tabs in this dialog box share similar features and data table columns.

Additional Details Controls and Buttons

The heading contains the following controls and buttons:

- **Show number of entries:** This drop-down menu allows the user to select the number of entries displayed: 10, 50, 100, 500, 1000, and All. The default entry display is 10 entries. Once another number of entries is selected, the data table is automatically updated.
- **Search:** Allows the user to enter a search criteria to filter all of the results, regardless of the number that is currently displayed.

Note: Once the criteria is entered, the user must press **Enter** in order to apply the search.



The footer contains the following controls and buttons:

- **Previous** and **Next** (set)**:** These buttons ppear if more results have been selected than can be viewed at one time. These buttons are disabled when there are no more sets to display.
- **Export:** Export the displayed data into a CSV file format.
- **Close:** Closes the dialog box.

Data Table

The data table contains the following columns:

- **Fact Name:** The name of the fact that used this data point to build its value.
- **Start Date:** The date and time that the fact's algorithm started its process.
- **End Date:** The date and time that the fact's algorithm ended its process.
- **Value:** The fact's value.

Data Panels

The Explorer data panels present information for a selected object based on its object type. See "Type Selection" on page 14. Similar to other panels within the system, data panels can be expanded and collapsed using the triangle toggle button located to the left of the panel title bar. You can reorganize the panels by clicking and dragging the tile bar of a collapsed panel into the desired location.

The following panels may be displayed depending on the Module, Role, and Type selections:

- See "Metric Panel" on page 33.
- See "Event Panel" on page 40.
- See "Transformer Load Management Panel" on page 46.
- See "Overload Map Panel" on page 50.
- See "Heat Map Panel" on page 52.
- See "Map Panel" on page 53.

Common Features and Controls

The Explorer page data panels share controls and behaviors depending on the type of data being displayed.

Buttons

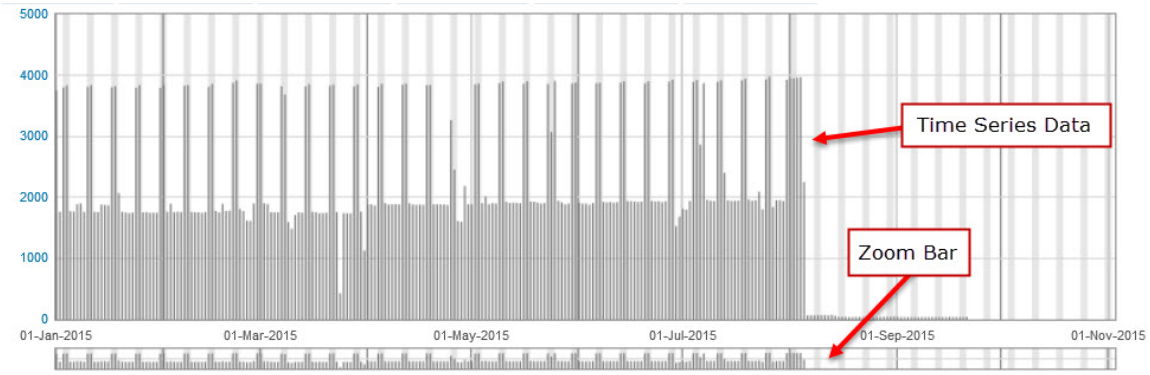
Buttons and control availability is determined by user view and data filter settings. Not all buttons will be available to every user. Data panel buttons include the following:

Button	Description
Help	Opens online help for the panel.
Remove	Remove the panel from the page. **Note:** The panel can be added back to the page by clicking the appropriate add panel button:
Chart View	View the data in a chart. Use to toggle from the grid view to the chart view.
Grid View	View the selected chart data in a segmented data table. Use to toggle from the chart view to the grid view.

Button	Description
Export Data	Export the displayed data. If in chart view, the chart will be exported as a PNG file; if in grid view, the data will be exported as a CSV file.
Zoom	Resets the panel to show the entire date range. See "Zooming In and Navigating a Date Range" on page 30.

Zooming In and Navigating a Date Range

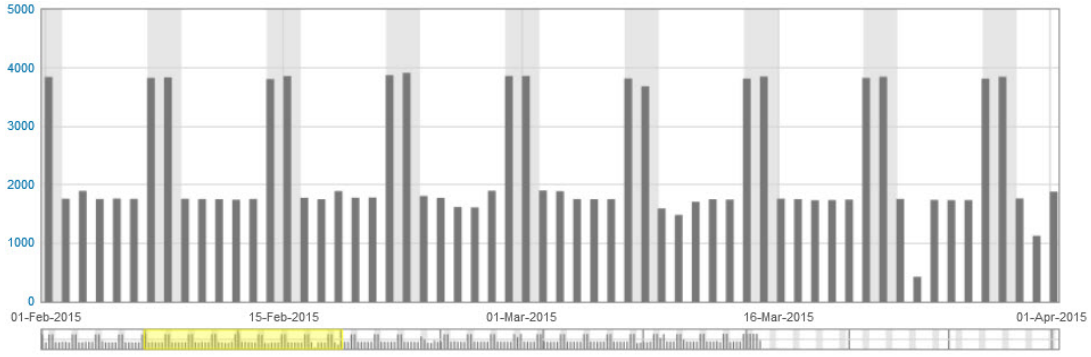
Time series data is initially displayed for the date range selected in the calendar controls. See "Date Controls" on page 22.The zoom bar, which is at the bottom of the panel, allows you to focus on a shorter date range.



To zoom in on a date range in a chart:

Do one of the following:

- Click the **starting date boundary** on the zoom bar, then drag to select the zoom date boundaries.
- Select a **date range** in the consumption chart. **Note**:You cannot zoom in by selecting a range in the register chart.

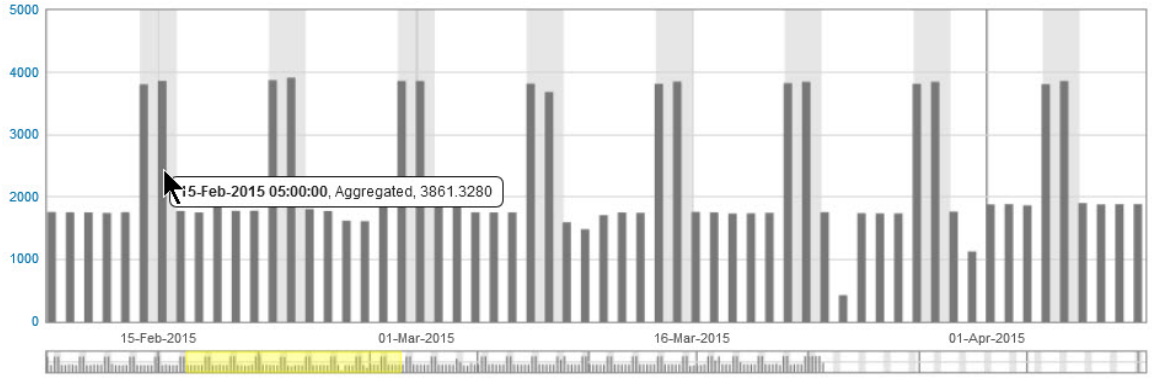


The panel will update to only show data for the selected date range.

Viewing Summary Information

To view summary date range information:

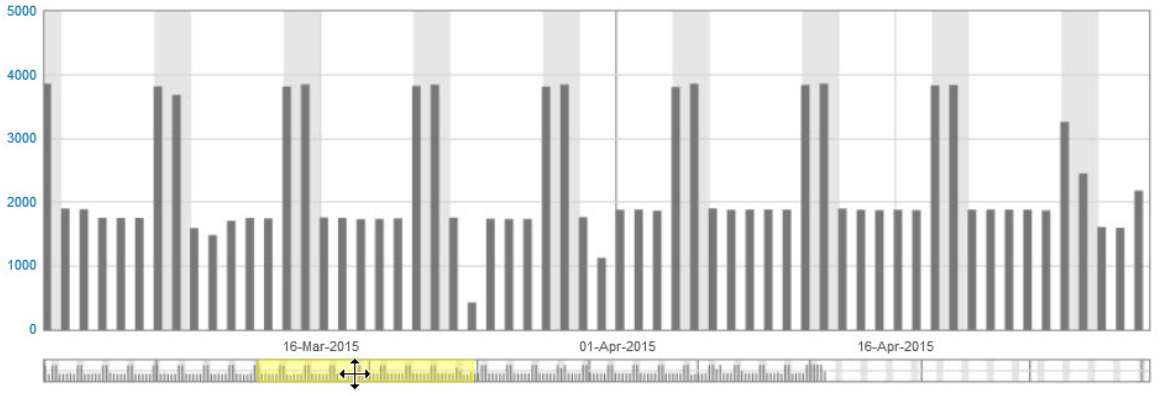
Hover your mouse over a date. For example, 15 February 2015.



Scrolling Through Dates

To view other data using this range:

Drag the **selection bar** forwards or backwards horizontally. The visible date ranges will shift. .

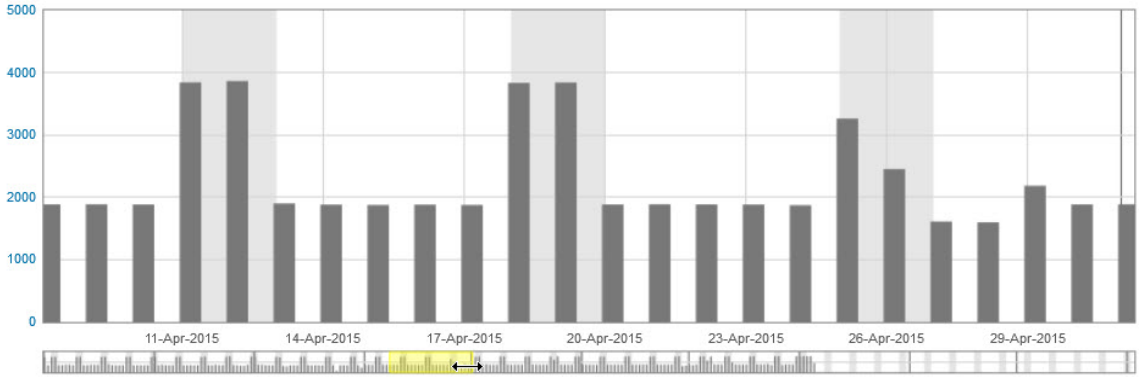


Resize the Zoom Range

The zoom range may be expanded or contracted using the mouse.

To expand or contract the zoom range:

1. Hover the mouse over the starting or ending date boundaries.
2. When the pointer changes to the resize icon, click and drag to resize the range.



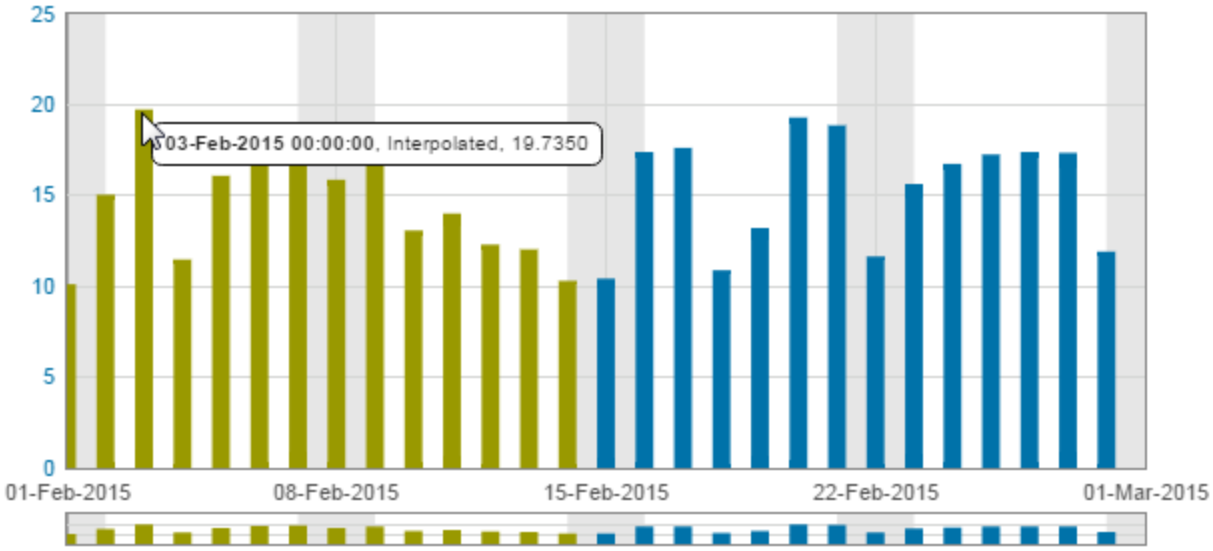
Reseting the Zoom Default

To reset the chart to the default date range:

Click the **Zoom** button..

Chart Data Hover Text

The data values represented on the charts may be seen by hovering over the data point to display hover text. For example, hovering your mouse over an individual bar in a bar chart will display the date and time recorded, the type of data, and the value:



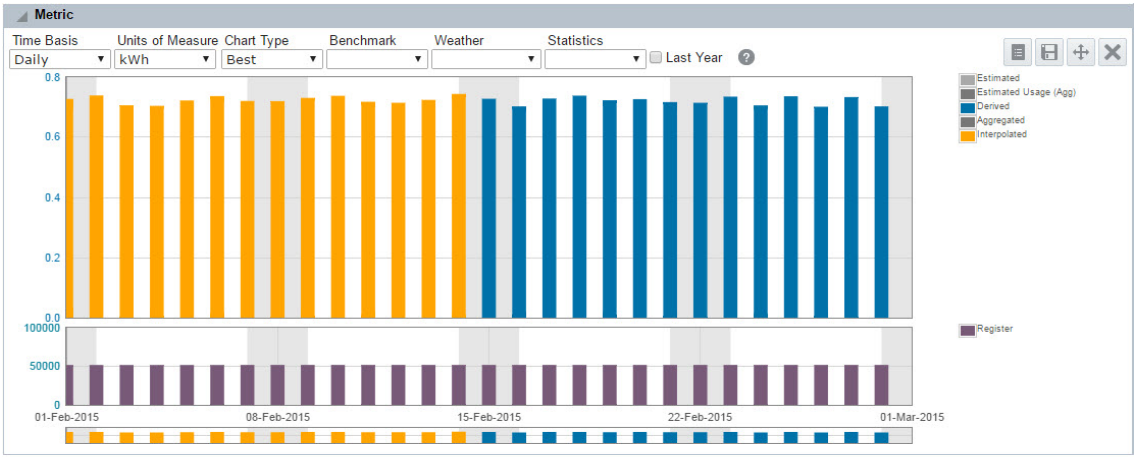
Hovering your mouse over the beginning or end of a static line, such as a statistic, benchmark, or boundary, displays the date and time, the type of data, and the value. The following See "Metric Panel" on page 33. Benchmark is an example of a static line. See "Metric Panel" on page 33.

Metric Panel

This section provides information about the default configuration and features of the Metric Panel. Panel options. The Metric panel provides consumption and register data for the selected type. See "Type Selection" on page 14. The Metric panel is configurable.

Chart View

The chart view displays the daily consumption chart, and the daily register value data.

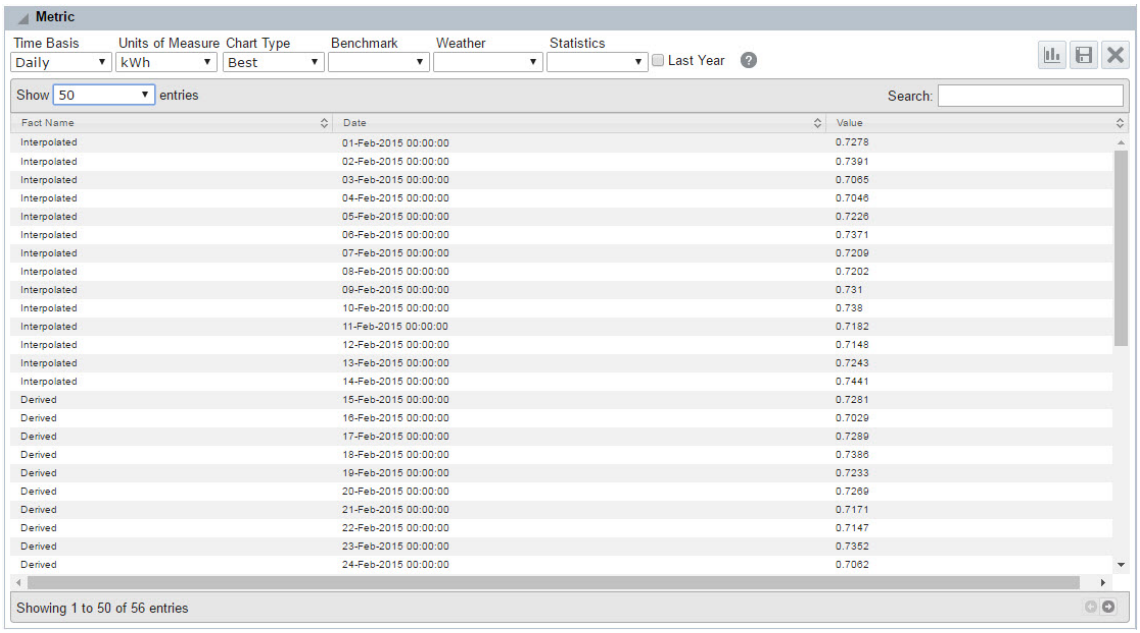


To see the data in the grid view, click the **grid view** icon.

Grid View

The grid view displays data in a table format:

- **Fact name**: The fact name; for example, **Aggregated** daily kWh from interval data.
- **Date**: The fact date.
- **Value**: Provides the Value for the fact listed in a row.
- **Weather Data**: If selected from the Weather drop-down list. See "Weather" on page 39.



To view the data in chart view, click the **chart view** icon.

Metric Panel Data by Type

Metric panel data is dependent on the selected type.

Type Selected	Data Available
Electric Meter or Gas Meter	Consumption data for the selected meter. Each vertical bar represents consumption; the bar color corresponds to the data type. See "Consumption Data Type" on page 6.
Premise	Not applicable.
Feeder or Line Transformer	Feeder and Line Transformer display aggregated daily consumption in kWh. **Note:** Data is only available when meter to line transformer and line transformer to feeder relationships are available in the connectivity model.
Bill Cycle, Zip-Code, or Rate Commodity	Meter data is aggregated to the selected type. See "Type Selection" on page 14.

Metric Panel Options

The Metric panel allows you to modify the conditions under which the chart is rendered. The default product configuration provides the following options depending on available data.

- **Time Basis**: View consumption over different data read interval.See "Time Basis" on page 35.
- **Units of Measure**: Select the type of consumption data to view. See "Units of Measure" on page 36.
- **Benchmark**: Compare a meter against meters sharing an attribute or relation. See "Benchmark" on page 38.
- **Weather**: View weather data over timeSee "Weather" on page 39.
- **Statistics**:View statistics for the displayed data. See "Statistics" on page 39.
- **Last Year**: Compare consumption in a selected time period to consumption in the previous year. See "Last Year" on page 40.

Time Basis

The time basis drop-down list allows you to view consumption over different data read intervals. Possible selections include: Monthly, Weekly, Daily (default), Hourly, and Actual.

If a selected interval is shorter than the minimum time between reads, the chart will not display data. For longer intervals, aggregated data will display.

For example, chart behavior for a time basis selection given a meter returning daily data.

Selection	Consumption Chart Behavior
Hourly	No data will be displayed since hourly data does not exist.
Daily	Chart will display data for each day, which will be the difference between that day's register read value and the register read value from the previous day.
Weekly	Chart will display data for each week, which will be aggregated from the daily data during that week.
Monthly	Chart will display data for each month, which will be aggregated from the daily data during that month.
Actual	Chart will show the register read value for each day.

Units of Measure

The units of measure drop-down list allows you to select the type of consumption data to view. The units of measure options are dependent on the data source (for example, electric, gas, or water meter) and the object type. See "Type Selection" on page 14.

- Water: Cubic feet (CF)
- Gas: One hundred cubic feet (CFF)
- Electricity

Time Basis Selection	Units of Measure Options
Hourly	■ kWh: the hourly consumption in kilowatt hours (kWh). ■ kWh Composite: the hourly consumption in metered or estimated kilowatt hours. ■ kWh Raw: consumption in kWh without a multiplier applied. ■ kWh Validation: kWh value based on metered data validation. ■ Amp: current data in amperes. ■ Amp Validation: value based on current data validation. ■ Volt: voltage used for voltage data calculations. ■ Volt Validation: value based on voltage data validation. ■ Usage Factor (UF): the ratio of the customer's consumption to the average consumption of all customers in their rate class.
Actual	■ kWh Register: the daily register read value. ■ kWh Validation: kWh value based on meter data validation. ■ Amp: current data in amperes. ■ Amp Validation: value based on current data validation. ■ Volt: voltage used for voltage data calculations. ■ Volt Validation: value based on voltage data validation.
Daily	■ kWh: the daily consumption in kilowatt hours. ■ kWh Composite: the daily consumption calculated from meter and/or estimated data. ■ kWh Validation: kWh value based on metered data validation. ■ kWh Daily Count: the count of daily kWh consumption.

Time Basis Selection	Units of Measure Options
	■ Amp: measured daily amperes. ■ Volt: the voltage used for voltage data calculations ■ Avg Daily kWh: the average of daily kWh consumption. ■ DR Core: any facts populated from the daily core processes and without any other specific category assigned yet. ■ Usage Factor (UF): the ratio of the customer's consumption to the average consumption of all customers in their rate class.
Weekly	■ kWh: the weekly consumption in kilowatt hours. ■ kWh Daily Count: the count of daily consumption values for the week. ■ kWh Daily Avg: the average of daily consumption for the week. ■ kWh Weekday: the consumption for the weekdays in the week. ■ kWh Weekday Daily Count: the count of daily kWh consumption during the week days. ■ kWh Weekday Avg: the average of daily kWh consumption during the week days. ■ kWh Weekend: consumption during the weekend. ■ kWh Weekend Daily Count: the count of daily kWh consumption during the weekend. ■ kWh Weekend Avg: the average of daily kWh consumption during the weekend.
Monthly	■ kWh: the monthly consumption in kilowatt hours. ■ kWh Daily Count: the count of daily consumption for the month. ■ kWh Daily Avg: the average of daily consumption for the month. ■ kWh Weekday: consumption on week days during the month. ■ kWh Weekday Daily Count: the count of week day consumption values for the month. ■ kWh Weekend Daily Count: the count of weekend day consumption values for the month. ■ kWh Weekend Avg: the average of daily kWh consumption during the weekends in the month.

Note: Usage factor (UF), the ratio of the customer's consumption to the average consumption of all customers in their rate class, is calculated daily and, therefore, varies on a daily basis. For example, a meter with a usage factor of 1 is consuming exactly the same amount as the class average while a meter with a usage factor of 0.6 is consuming forty percent less than the class average. Usage factor is useful in separating the behavior of a particular meter from the overall behavior of its rate class. Depending on implementation, additional units of measure may be available.

Chart Type

The metric panel chart type drop-down option allows you to change how data in the consumption chart is plotted. Chart options include:

- **Best**: The Best chart is a bar chart of the highest priority data available. See "Consumption Data Type" on page 6.
- **Single**: The Single chart is a bar chart with a selected data type (Data Type 1) rather than the best available data.
- **Double**: The Double chart is a bar chart with two selected data types (Data Type 1 and Data Type 2).
  Note: The Data Type 1 default is kWh Register Read. The Data Type 2 default is Power Out Count.
- **Stacked**: The Stacked chart is a bar chart that displays all of the related values stacked on top of each other. For example, a meter's load as part of a transformers total load for each day.
- **All**: The All chart displays all chart options layers upon each other.

Benchmark

The Benchmark drop-down list allows you to compare a meter against meters sharing an attribute or relation. For example, it might compare a meter against all meters in the same load profile class or connected to the same transformer.

- **Load Profile Class**: Avg Daily kWh, Avg Hourly kWh
- **Transformer**: Avg Daily kWh, Avg Hourly kWh

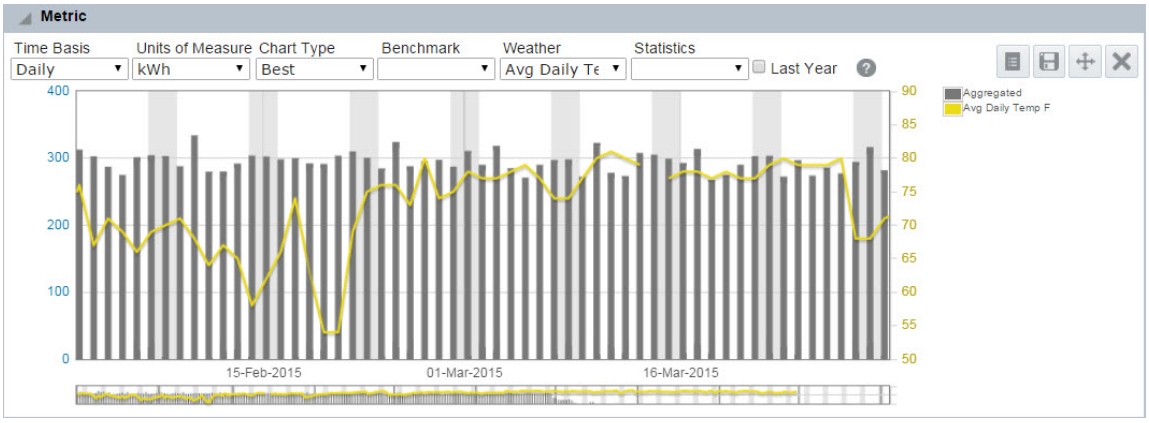
The benchmark is displayed as the 10% and 90% value range.

Weather

The Weather drop-down list allows you to view weather data over time. Available weather options are dependent on database weather data, but may include:

- Average Daily Temperature (Fahrenheit)
- Max Daily Temperature (Fahrenheit)
- Minimum Daily Temperature (Fahrenheit)
- Precipitation Rate

The selected weather parameter is plotted against the second y-axis. For example, if temperature, humidity, or dew point were available, they would be plotted against degrees, percentage, or degrees, respectively.



Statistics

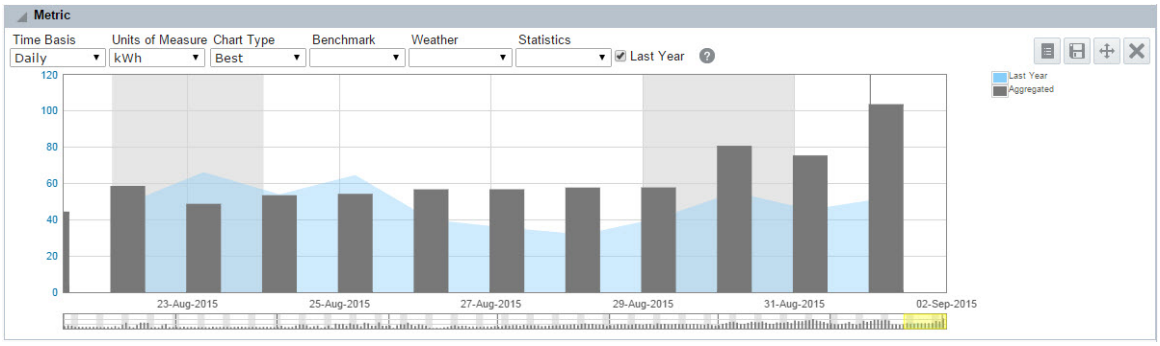
The Statistics drop-down list allows you to view statistics for the displayed data. The statistic values are rendered as lines that span over the time window (as selected with the date controls. See "Date Controls" on page 22.) Statistic selections include:

- **Minimum**: The minimum time-basis consumption value during the time window.
- **Maximum**: The maximum time-basis consumption value during the time window.
- **Median**: The middle value of the data in the selected time window. All numbers are sorted and the value in the middle is the medium.
  For example, if you have seven numbers {10, 11, 13, 15, 16, 23, 26}, the medium is 15. If the median has to be found from an even number of values, the median is the average of the middle 2 values

- **Average**: Average is the arithmetic mean, which is the sum of all values divided by the number of values.
- **10th Percentile**: The bottom 10 percent of values in a population.
- **90th Percentile**: The top 90 percent of values in a population.
- **One Std Deviation**: **+/-** one standard deviation from the average, which contains 68% of all values in the population.
- **Two Std Deviations**: **+/-** two standard deviations from the average, which contains 95% of all values in the population.

Last Year

The Last Year selection allows you to compare consumption in a selected time period to consumption in the previous year. The last year data is shown as an area highlighted behind the bar chart.
Note: The Last Year function is only available to clients with previous year data.



Event Panel

The Event panel displays event flags for the selected object. Events fall into the following categories:

- Meter events received from data collection.
- Account events, such as move-in or move-out, customer calls to the call center, and so on, that are provided by a customer information system (CIS).
- Derived events that are identified by ODR core processes.
- Lists that are the result of an analytic calculation or test.

Derived Event Definitions

Flag Name	Flag Description	Association
Derived Usage Spike	An event to indicate that the usage calculated by using register reads exceeds a threshold value set as spike.	EM, GM, WM
Estimated Usage	An event to indicate that usage was calculated by estimation. An estimated usage is calculated when today's read is missing and no future read exists.	EM, GM, WM
Estimated Usage Spike	An event to indicate that the estimated usage exceeds a threshold value set as a spike.	EM, GM, WM
Interpolated Usage Spike	Flag created when interpolated usage exceeds 10% of the max dial count.	EM, GM, WM
Meter Lock Status	Shows whether the meter is locked or unlocked.	EM, GM, WM
Negative Aggregated Usage	An event to indicate that the usage calculated by aggregating hourly interval is less than 0 (negative).	EM, GM, WM
Negative Derived Usage	An event to indicate that the usage calculated by using register reads is less than 0 (negative).	EM, GM, WM
Negative Estimated Usage	An event to indicate that the usage calculated by estimation is less than 0 (negative).	EM, GM, WM
Negative Interpolated Usage	An event to indicate that the usage calculated by interpolation is less than 0 (negative).	EM, GM, WM
Negative Register	An event to indicate that the register read obtained is less than 0 (negative).	EM, GM, WM

Flag Name	Flag Description	Association
NIC Power Down	An event to indicate that a NIC (network interface card) is powered down and the meter is not communicating with the network.	EM
Register Gap	An event to indicate that the register missed a read during the day.	EM, GM, WM
Register Roll-over	An event to indicate that the register has rolled over beyond the max read that it can register (based on dial count).	EM, GM, WM
Register Roll-over Spike	An event to indicate that the register has rolled over beyond the max read that it can register (based on dial count) also the roll over value is significantly higher that it exceeds a threshold value set as spike.	EM, GM, WM
Reverse Register	An event to indicate that the register read obtained is less than previous register thus indicating a reverse in register.	EM, GM, WM
Spike Register	An event to indicate that the register read obtained exceeds a threshold value set as spike.	EM, GM, WM
Static Register	An event to indicate that the register is not reporting any read and it static (compared to previous register values).	EM, GM, WM
Status Active	Show the status of the meter (active, inactive)	EM, GM, WM
Usage Aggregation Spike	An event to indicate that the usage derived by aggregating hourly interval exceeds a threshold value set as spike.	EM, GM, WM
Zero Register	An event to indicate that the register	EM, GM, WM

Flag Name	Flag Description	Association
	value obtained is 0.	
Zero Consumption	An event to indicate that there was no consumption.	EM, GM, WM

Derived Event Definitions for Transformers

The following derived events are available in the ***Distribution Planning and Operations*** module. They can be viewed in when the ***Line Transformer*** is selected in the Type Filter.

Flag Name	Flag Description	Association
Overload Flags ■ Overload High % ■ Temp Adjusted Overload High % ■ Overload Low % ■ Temp Adjusted Overload Low %	Determines whether a transformer is overloaded based on the value being held in *Interval Overload Amount*. There are two thresholds because associated to this flag to identify *low* and *high* overloading. ■ **Low**: Typically, configured as over 100% of the transformer's load rating *(this threshold can be changed base on business needs)*. ■ **High**: Typically, configured as 165% of the transformer's load rating *(this threshold can be changed base on business needs)*.	TX
Line Transformer Power Out	When power was disrupted at the transformer level.	TX

Event Panel Views

The event panel data can be displayed in the chart view (default) and grid view.

Chart View

The chart view displays all available flags over time.

Note: Flags are indicated by diamonds

The panel may also display event-like data elements such as a state or lock status. A state flag could indicate, for example, whether a selected object is active or inactive. A locked status could indicate if the object was locked (at the meter or pole).

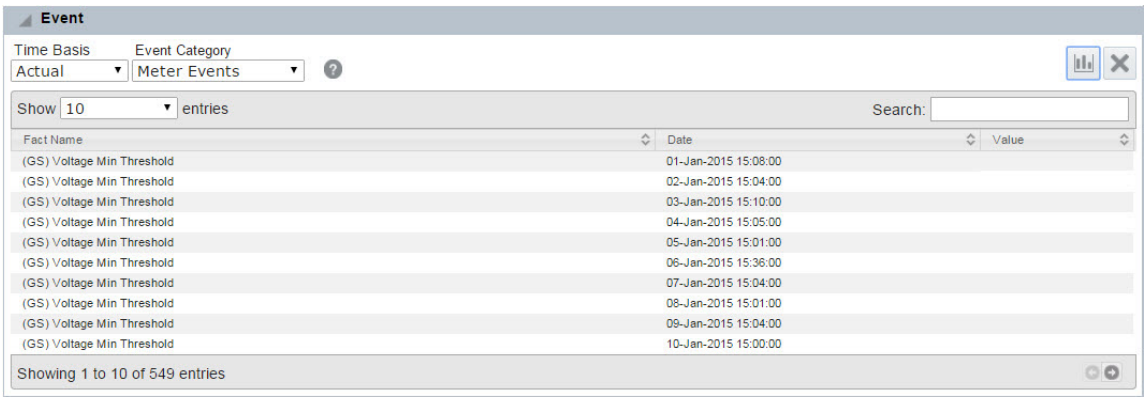
> **Note:** Locked statuses include cut (C), locked (L), locked at pole (P), unknown (N/A), and unlocked (U). Lock information can be useful in identifying theft. Status relates to the selected type. See "Type Selection" on page 14. For example, if Meter is selected, the flag will display whether the meter is active or inactive; if Account is selected, the flag will display whether the account is active or inactive. Status is always available for meters, but may not be available for other types.

Grid View

The grid viewdisplays the chart data in a table form. To open the grid view, click the **Grid view** icon located in the top tight corner of the Event panel.

Grid view columns include:

- **Fact Name**: The fact name. For example, Installation Date.
- **Date**:The date and time that the event occurred.
- **Value**: The Value for the fact listed in a row.



Each column can also be sorted in ascending or descending order.

To return to the **Chart view**, click the **chart view** icon located in the top tight corner of the **Event** panel.

Event Panel Options

The Events panel contains three drop-down lists that allow you to choose the time window and types of events to display:

> **Note:** This section describes all event panel options. Panel availability varies by user environment configuration.

- **Time-Basis**: Select the data increments to display. The options are Daily, Hourly, and Actual.
- **Units of Measure**: View the different units of measure based on the associated time-basis options; these include:
  - **Daily**: DR Core (default), Amp Validation, Volt Validation
  - **Hourly**: kWh Validation (default), Amp Validation, Volt Validation
  - **Actual**: kWh Validation (default), kWh Register Validation, Amp Validation, Volt Validation

Event Category

The Event Category drop-down list allows you to choose which type of event to visualize:

- **DataRaker Events**: Events found by DataRaker processes. For example, the daily register gap flag).

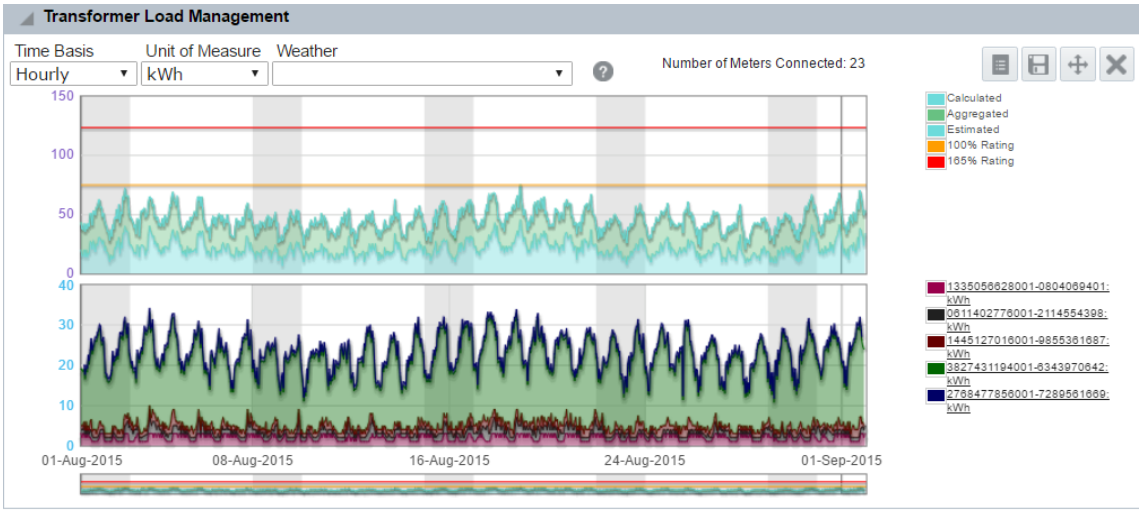
- **Meter Events**: Events reported by or associated with a meter. For example, Endpoint Power Restore.
- **Account Events**: CIS events associated with an account . For example, account opening, account closing, temporary disconnect, and so on.
- **List Events**: Events found by algorithms.

Transformer Load Management Panel

The Transformer Load Management panel displays the calculated aggregated load based on connected meter data. There are two views of the data:

Chart view

Displays two data charts and a zoom chart at the bottom. The upper chart displays the transformer data and the middle chart displays the data for the child meters based on the selected Unit of Measure. The transformer data includes the transformer's rating in kVA using a default power factor of 1; by default, the rating lines are set at 100% and 165%, but these values are configurable.



- To view individual meter data, click a child meter legend located to the right of the transformer load management chart.
- To open the grid view, click the **grid view** icon.

Grid view

The grid view provides a view of the data behind the chart in a table format. Each table column can be sorted in ascending or descending order. Values for the individual phases may be seen by hovering over a point in the chart. The hover information provides the date, the phase, the value, and the number of contributing meters.

Grid view data unit categories include the following

Unit of Measure Category: Voltage

Column Heading	Description
Average Voltage	Transformer voltage value at the row's date and time.
Date	The date and time that the data point was collected.
Contributing Meters	The number of meters that supplied information to the aggregated data. **Note:** the **Contributing Meters** value may be different than the **Connected Meters**, which represents the number of meters that are associated to the transformer and could, potentially, contribute information.
Remaining Columns	The voltage data for each of the transformer's child meters.

Unit of Measure Category: kWh Aggregated Data

Column Heading	Description
kWh Aggregated	The *aggregated* data collected from the transformer’s child meters.
100% Rating	The kVA value for the transformer rating.
165% Rating	The kVA value when the transformer would hit 165% of its load capacity.

Column Heading	Description
Date	The date and time that the data point was collected.
Contributing Meters	The number of meters that supplied information to the aggregated data.
Remaining Columns	The consumption collected from the transformer's child meters. Each meter is displayed with its consumption.

Fact Category: kWh Aggregated by Phase

Note: Phase information is only available in the Distribution Planning and Operations module.

Column Heading	Description
Aggregated Phase A	The *aggregated* A phase data collected from the transformer's child meters, if applicable.
Aggregated Phase B	The *aggregated* B phase data collected from the transformer's child meters, if applicable.
Aggregated Phase C	The *aggregated* C phase data collected from the transformer's child meters, if applicable.
100% Rating	The kVA value for the transformer rating.
165% Rating	The kVA value when the transformer would hit 165% of its load capacity.
Date	The date and time that the data point was collected.
Contributing Meters	The number of meters that supplied information to the aggregated data.
Remaining Columns	The consumption collected from the transformer's child meters. Each meter is displayed with its consumption.

- To switch back to the chart view, click the **chart view** icon.

Options

The Transformer Load Management panel allows you to modify the conditions that help to render the chart. You may change the following parameters (from left to right):

Parameter	Possible Values	Default Value
See "Time Basis" on page 35. See "Time Basis" on page 35.	Hourly	Hourly
Units of Measure See "Units of Measure" on page 36.	Volt; kWh	Volt
Weather See "Weather" on page 39.	Fahrenheit Historical NHD Fahrenheit Observation NOD Weather data is obtained from the National Oceanic and Atmospheric Administration (NOAA). ■ NHD: National Historical Data ■ NOD: National Observation Data ■ NFD: National Forecast Data	Not Applicable

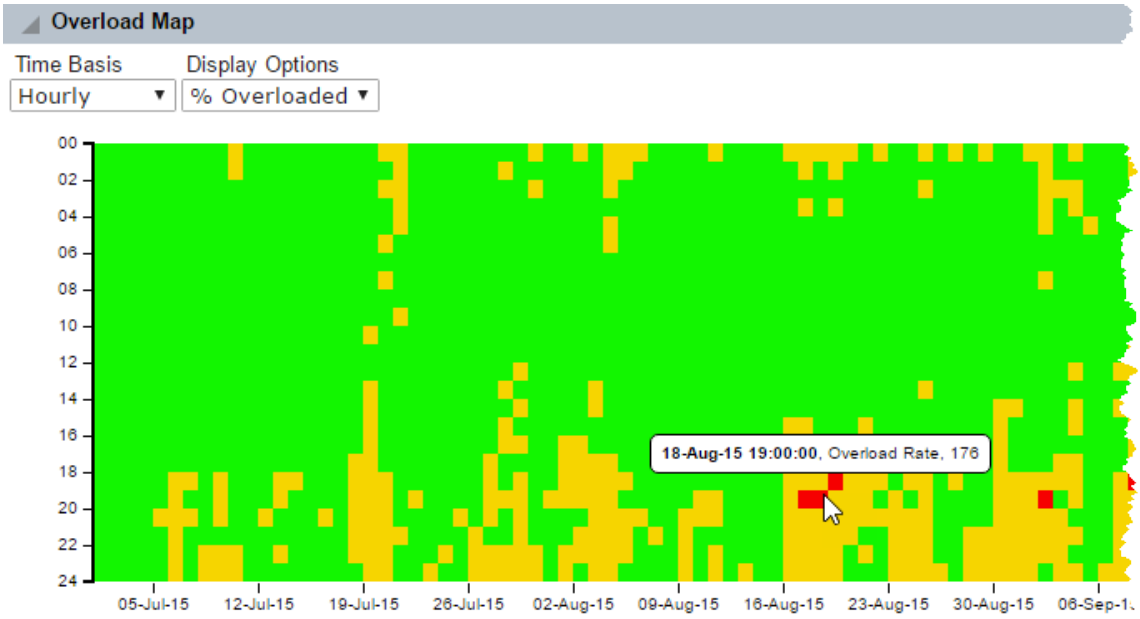
Overload Map Panel

The Overload Map panel displays a selected transformer's overload percentage over time. The transformer rating is the highest value that is non-overloaded. The data can be viewed in chart (default) and grid formats.

> **Note**: The Overload Map Panel is available through the Distribution Planning and Operations module when displaying transformer data.

Chart view

The chart view if the default view of the Overload Map panel data. The vertical axis (y-axis) represents the hours during a day, and the horizontal axis (x-axis) represents calendar days. **Note:** Boundary conditions can be configured.



The transformer's calculated percentage overloaded values are charted throughout this graph using the following color sequence:

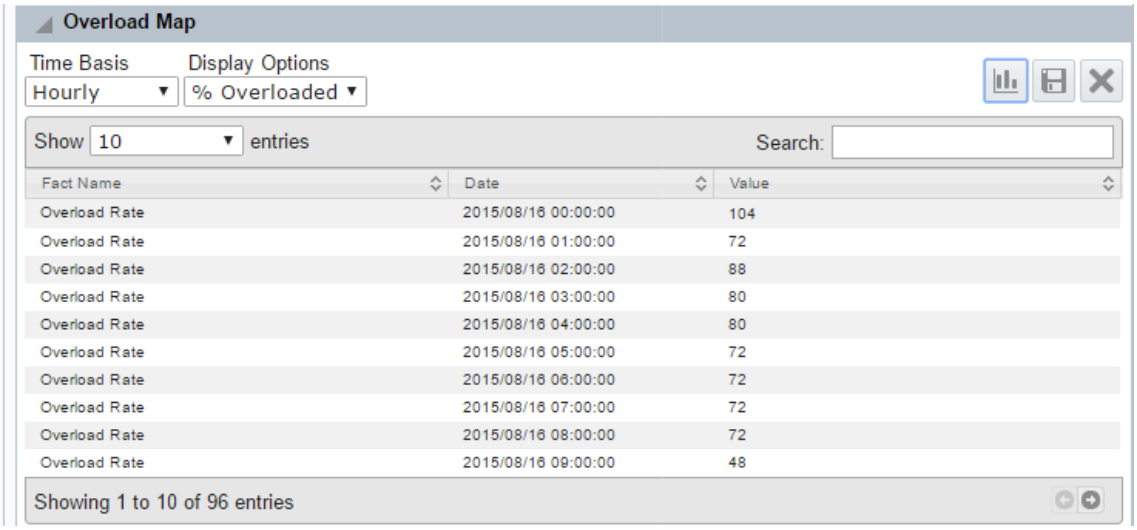
- **Green**:Not overloaded, or 0–100% of capacity.
- **Yellow (Warning)**: Overloaded (101–165% of transformer rating).
- **Red (Critical)**: Greatly overloaded (greater than 165% of transformer rating).
- **White**: Indicates missing data.

The value of the percentage overloaded along with the date and time appears when you hover the mouse over a cell.

> **Note:** To view the chart data in a grid format from the chart view, click the **grid view** icon.

Grid View

The grid view displays Overload Map panel data in a table format.



Columns include the following and can be sorted in ascending or descending order:

- **Fact Name**: The name of the data category, which is "Overlaod Rate."
- **Date**: The timestamp for the calculated overlaod value.
- **Value**: The calculated overlaod percentage value, which correcponds to one hour block on the chart.

To switch back to the chart view from the grid view, click the **chart view** icon.

Options

The Transformer Overload Map panel provides the standard drop-down lists with default values.

- **Time-Basis**: Hourly. See "Time Basis" on page 35.
- **Display Options**: %Overloaded.

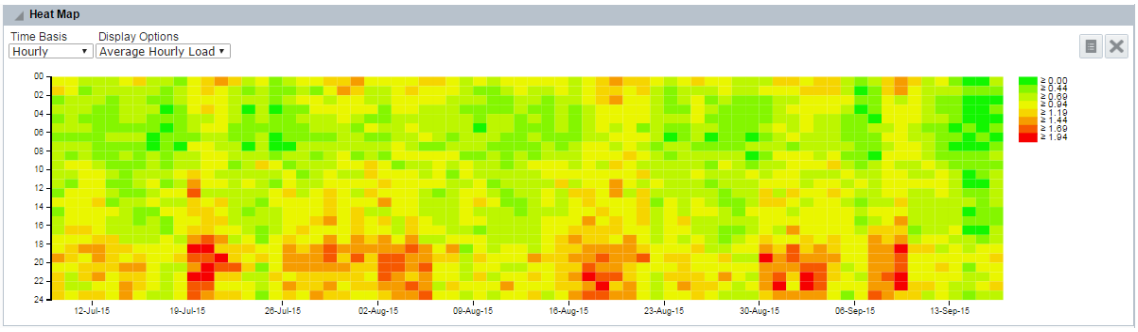
Heat Map Panel

The Heat Map Panel is available through the Distribution Planning and Operations module when displaying transformer data. The Heat Map panel displays a transformer's load over time. The data can be viewed in chart (default) and gird formats.

Chart View

The y-axis displays hours in a day and the x-axis displays days. Each hour is colored according to the transformer load. The chart dynamically scales the load and compares the hourly value to the average load and color codes the values based on where a value is in the distribution of all values. Colors range from green (low values) to red (high values) with color blending for values in between.

> **Note:** The Heat Map Panel's boundary conditions can be configured.



> **Note**: To view the chart data in a grid format, click the **grid view** icon.

Grid View

The grid view displays Heat Map panel data in a table format.

Columns include the following and can be sorted in ascending or descending order:

- **Fact Name**: The name of the data category.
- **Date**: The data and hour of the value.
- **Value**: The calculated load value, which corresponds to one hour blocks in the chart.

Each column can also be sorted in ascending or descending order.

To view the gird data in chart format, click the **chart view** icon.

Options

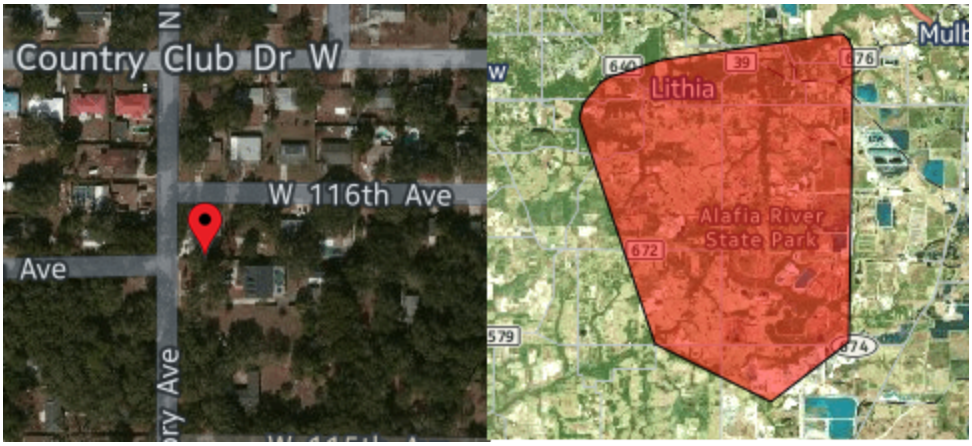
The Heat Map panel provides the standard drop-down lists with default values.

- **Time-basis**: Hourly. See "Time Basis" on page 35.
- **Display Options**: Average Hourly Load.

Map Panel

The Map panel provides a geospatial view of an object's location. When an object is selected, opening the map panel will center the object in the map.

Map panels display objects having a discrete location, such as a meter, as a single point on the map, which is indicated by a pin; for types that have an area or territory, the map displays the location as a shaded polygon.



Location-Associated Types

Only object types with location attributes have Map panels. Objects with location attributes include: Bill Cycle, Feeder, Meters and Service Points, Rates, Routes, Transformers, and Zip Codes.

Map Panel Navigation

The following functionality is available in map view:

- **Neighboring Electric Meter check box:** Displays nearby meters highlighted with blue flags.
- **Help button**: Launches online help in a separate window.

- **Switch to Street/Switch to Satellite button:** Toggles between satelite image and street map views of the location.
- **Grid View button**: Displays attribute information about the selected asset in a table format.

  In the base product environment, the Map Panel grid view includes the following columns:
  Note: The grid view data table columns are configurable.

  - **Fact Name**: Fact Name of the row data fact. For example, County is the fact name of an Address fact category.
  - **Date:** The Date value may be a default date for facts in the system (i.e., year 2001) or may be a date related to the fact. For example, if a meter is installed after the default date, the installation date fact will be updated.
  - **Value:** Provides the Value for the fact listed in a row.

  To switch back to the map view from the grid view, click the **chart view** icon.

Maps Information Pop-Up

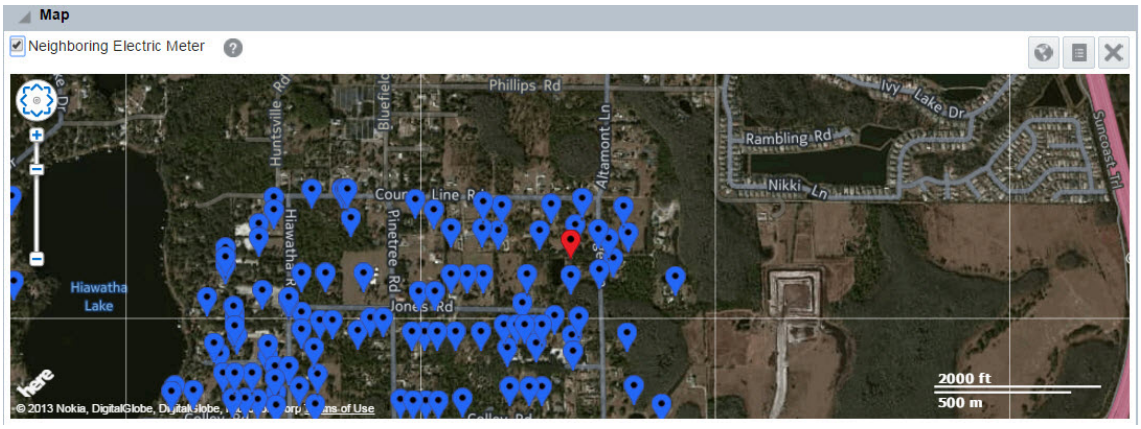
When you click or hover over a selected point, a pop-up will appear with information about the point. The information that appears on the pop-up depends on configuration for each type. There is no formal limit to the number of facts that can appear within the pop-up. The only constraint, however, is the height of the Maps panel where excessive facts could drop off the panel due to the available space.

Map Panel Options by Type

Map panels behave similarly for object types, but there are differences due to the nature of the data. The following illustrates the differences.

Meter

Map panels for meters open with the meter centered in the map. The following screen captures uses an electric meter map panel to illustrate the functionality:

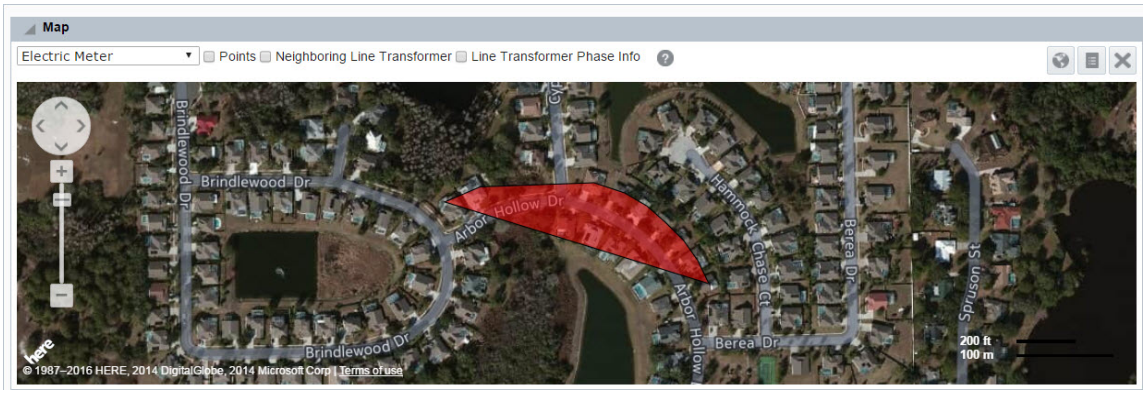


To see neighboring meters:

Click the **Neighboring Electric Meter** check box.

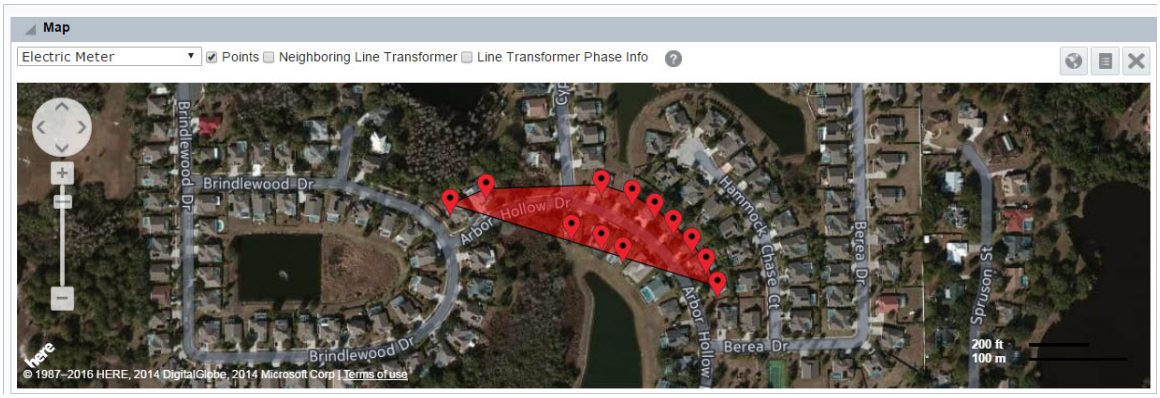
Line Transformer

Line Transformers display the area that they supply in a polygon.

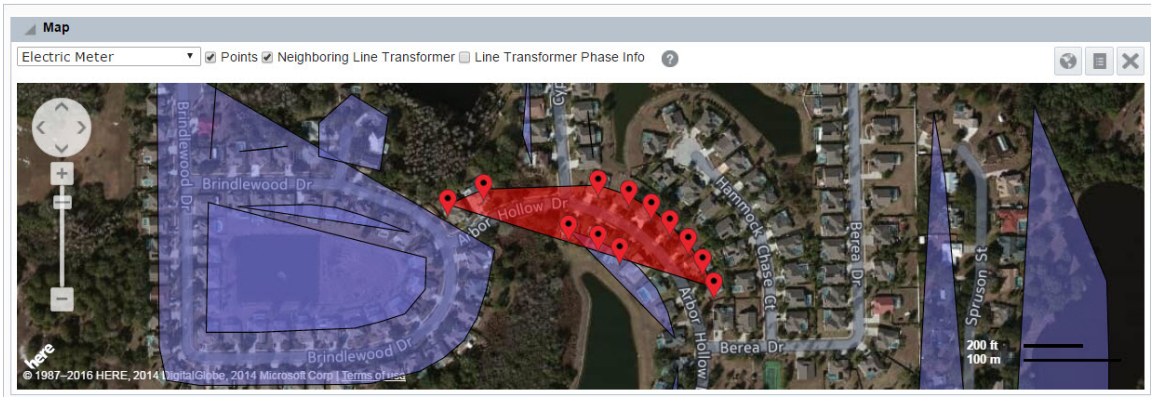


Do one or more of the following to manipulate the display:

- To view the child meters connected to the transformer, click the **Neighboring Electric Meter** check box.



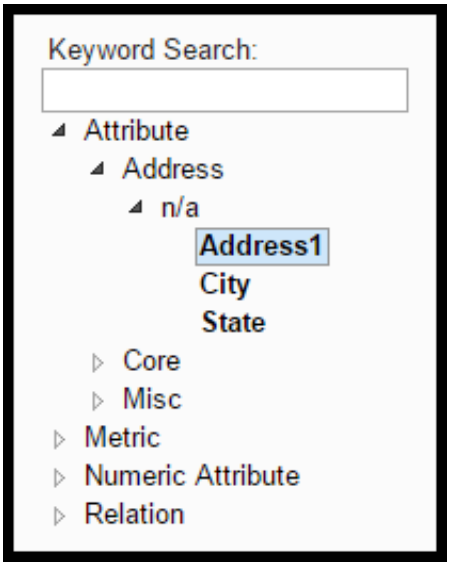
- To view the adjacent transformer polygon, click the **Neighboring Line Transformer** checkbox.



- To view adjacent transformer polygons color-coded by phase, click the line **Transformer Phase Info** check box.
  Note: Phase coloring is only available in the Distribution Planning and Operations module.

Export

The Fact Data Export page allows you to search for, view, and export objects that share the same fact. The fact of interest is selected in a tree pane, which is located in the see "Search Pane". and the data to be returned can be refined using option fields in the main data panel.



Search Pane Option Summary

The See "Search Pane" on page 13.includes the following components:

- **Type selection:** Filter data for a specific object type.
- **Keyword Search Field**: Filter the facts categories that are displayed in the Fact Category Tree.
- **Fact Category Tree**: Select the target fact. The top level of the tree lists fact categories that expand to display their associated fact types. See "Understanding Facts" on page 5.

> **Note:** Due to the data structure, certain nodes in the tree (non-time series facts) display an "n/a" label. Click **n/a** to expand the node and display fact types

Fields and Buttons

- **Limit**: Set the number of records that will be returned by the query. See "Limit" on page 58.

- **Format**: Select whether to see the data in a data table or export the data as an XML, JSON, or CSV file. See "Format" on page 59.
- **Offset**: Set the first point to return. For example, if your query is limited to 100 and you set the offset to 3, you will get a data table that starts at what would have been the fourth row. See "Offset" on page 58.
- **Verbose**: Returns additional data columns. See "Export by Fact Options" on page 58.
- **Date Selection**: Select a day when the fact is applicable. To select a day, click the "start "day calendar control and select a day.
- **Get Data**: Queries the database based on the selections made in the fields and the fact selection pane criteria. See "Exporting a Data Table" on page 60.

Export by Fact Options

The data criteria fields allow you to define how the data is returned.

Limit

The Limit option allows you to set the upper limit for the number of entries you want returned. The default limit is 1,000. Selecting an option larger than 1000 will cause the format to change to an export format that will download the data to file and remove the data table from the page. See "Format" on page 59.

Note: High limits can negatively impact performance.

Offset

With an offset, the data set returned from a query will have the number of rows based on the limit and will start at the first point ID that meets the criteria. The data set that is returned may be shifted by entering a positive number in the Offset field to create a data set that starts with the row corresponding to the value of the offset plus one.

Offset Example

If you have a limit of 7, the returned data set without an offset, will contain the first through seventh rows:

Index	Point ID
1	12203850
2	12203860

Index	Point ID
3	12203870
4	12203880
5	12203890
6	**12203900**
7	12203910

If you add an offset of 5, the returned data set will start with the sixth row (offset plus one) and end with the twelfth row:

Index	Point ID
1	**12203900**
2	12203910
3	12203920
4	12203930
5	12203940
6	12203950
7	12203960

Format

The default Format is Data Table, which provides the data in a table on the page.

To export the data to a file:

Select **XML**, **JSON**, or **CSV** and then click **Get Data**. The data will be downloaded as an XML, JSON, or CSV file, respectively.

> **Note**: JavaScript Object Notation (JSON) file extension is an open standard used to store data that is human readable and easy for a script to parse. The export file will contain the information as shown in the data table. If Verbose is selected, the export will contain the verbose columns.

Verbose

When the Verbose option is selected, additional columns of information are displayed in the data table.

Selecting a Fact

The fact selection tree allows you to select data attributes (facts) stored against data types. Different data types may have different facts and the availability of facts is dependent on what data is available in the database.

> **Note**: In order to export data, you must select a fact from the fact tree. See "Exporting a Data Table" on page 60.

Facts can be located in the following ways:

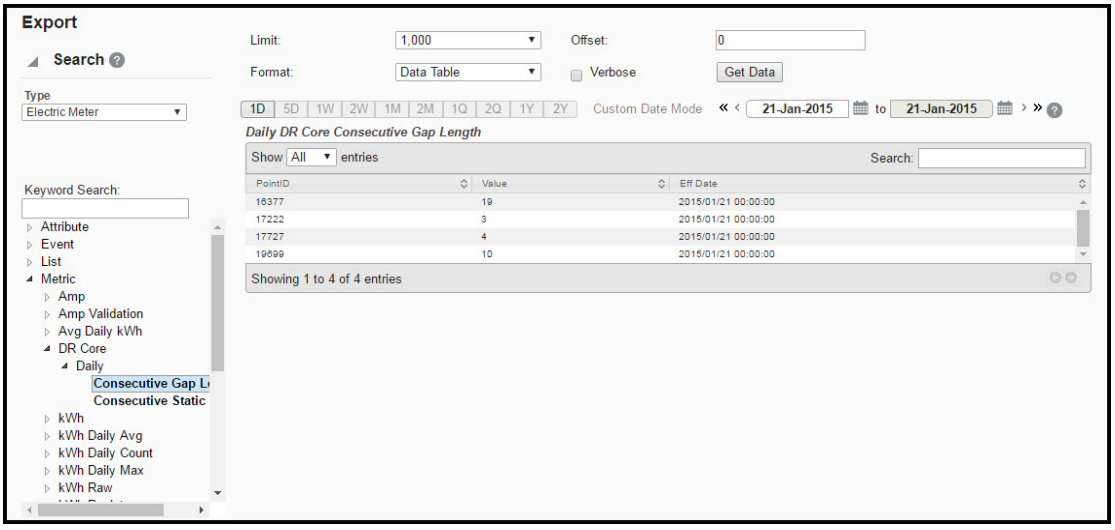
- **Expand the Fact Tree:** The fact selection tree is populated with the facts available for the selected module, role, and type.
- **Keyword Search:** The Keyword Search field allows you to filter the fact selection tree to only display nodes containing the keyword. The tree will dynamically update and expand the matching nodes as you enter the keyword search criteria.

Exporting a Data Table

Data files can be exported in XML and CVS formats.

To export a data table:

1. Select a fact from the fact tree. See "Selecting a Fact" on page 60.
2. Select the fact date from the **Date Selection** fields.
   Note: If you select the date prior to selecting a fact, the system will display an error asking you to select a fact.



3. Click the **Format** drop-down, then do one of the following:
   - Select **Data Table** format to generate a data table..
     Note: Data Table is the default format. When viewed as a Data Table, the selected fact is displayed in the table title.
   - Select **CVS**, **JSON** or **XML** to export the data as a file.
4. Click the **Get Data** button.
5. Repeat these steps as necessary to generate different file types.

Export by Fact Data Table

The Export by Fact data contains the following standard and verbose exclusive columns:

Column Name	Description	Verbose Only?
Point ID	A unique point identifier.	No
Point Type	Codes for types. The Point Type Codes will vary by implementation.	Yes

Point Lookup	Constructed from the Point Name by replacing spaces with a hyphen and lower case letters with capital letters. For example, if
	`Point Name: Meter Electric 457`
	then
	`Point Lookup: METER-ELECTRIC-457`
		Yes

Point Name	A unique identifier. It is either the asset number (provided by the utility) or it is created by concatenating information about the point. The Point Name will vary by implementation.	Yes
Point Tag	Asset number assigned by the utility. The Point Tag allows additional information to be stored for a point. Unlike Point Lookup or Point Name, Point Tag does not have to be unique so a search by Point Tag can result in multiple matches.	Yes

Column Name	Description	Verbose Only?
Value	The Value for the fact listed in a row.	No
Date	The date the value was recorded.example the date for which the estimation was calculated.	No

Each column can also be sorted in ascending or descending order.

Overview Dashboards

The dashboards are available through the Overview link. Dashboards provide aggregated and summarized information from algorithms implemented for a selected module. See "Drawer Menu" on page 11.

Dashboards are currently available for the Distribution Planning and Operations, Meter to Bill, and Revenue Protection modules.

Understanding the Dashboard User Interface

The dashboards user interface provides a common structure in which to view the user interface. The dashboad includes the following elements:

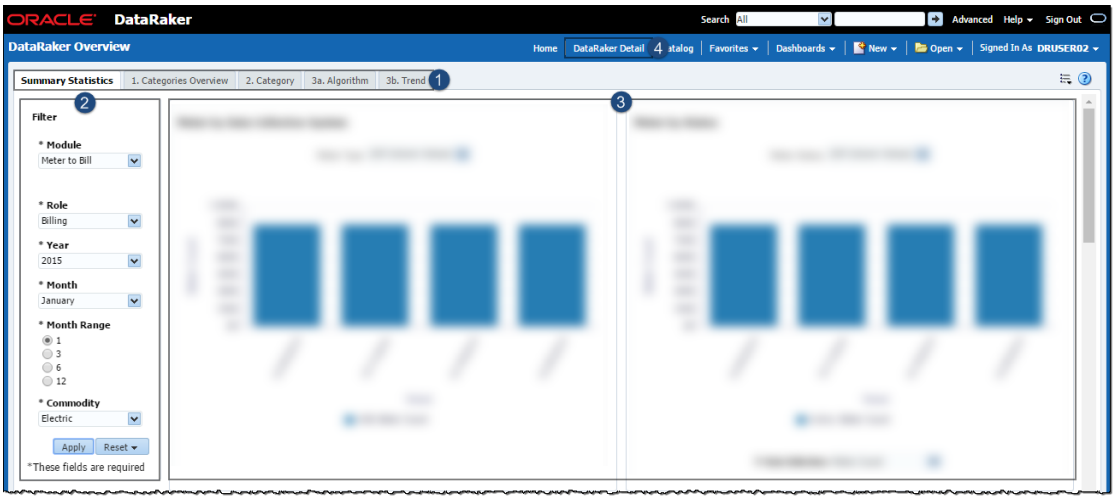


Image Number	Element Name	Description
1	Page View Tabs	View information by tab category.
2	Filter Pane	Set information filters.
3	Data Presentation	View the selected data.. The data displayed varies by the selected module and role. See "Drawer Menu" on page 11. Module and role selection are environmental filters. See "Environment Filters" on page 12.
4	DataRaker Explore Link	Open the DataRaker Explore page.

Filters

The filter pane for each dashboard page allows you to select a role, based on licensed modules, that will determine the type of data that will be displayed. Other filter criteria vary depending on which tabbed view is selected. When you access the dashboard, the role will be populated with the role selected in .See "Drawer Menu Core Modules and Roles" on page 11.

Note: The Summary Statistics page contains the same data regardless of role selection. See "Summary Statistics" on page 64.

Pages

The dashboard pages allow you to drill down to increasingly granular data.

See "Summary Statistics" on page 64.Provides an overview of meter data based on module selection. See "Summary Statistics" on page 64.

Categories Overview: Provides data based on the selected role. Summary data is presented with all algorithm categories associated with a role. See "Categories Overview" on page 70.

- **Category**: Provides data on a selected category. See "Category" on page 71.
- **Algorithm**: Provides data for an algorithm within a selected category.See "Algorithm" on page 73.

- **Trends**: Provides trends associated with an algorithm over time. See "Trends" on page 75.

> **Note:** The Distribution Planning and Operations module only provides data for the Summary Statistics page.

Dashboards By Module

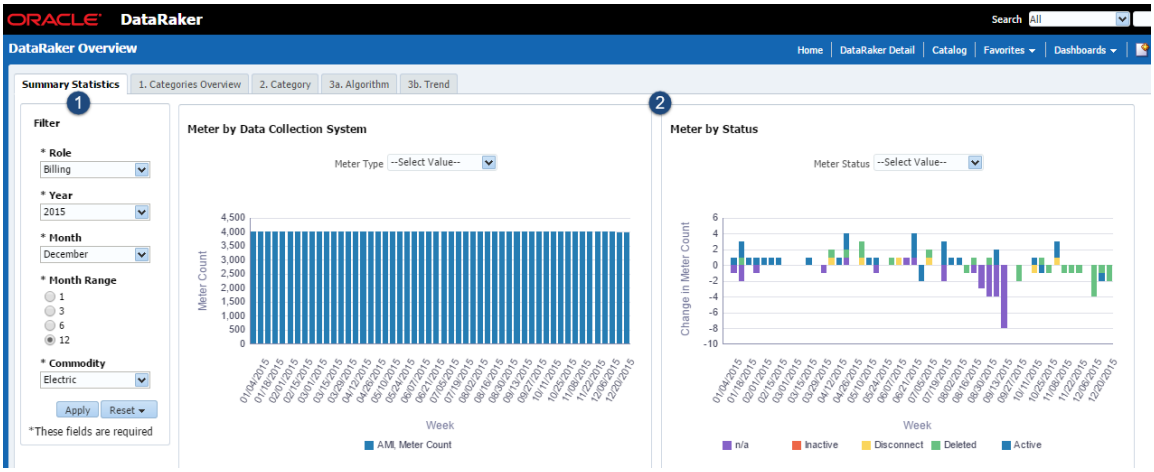
The following sections describe the dashboards that are available for the Meter to Bill, Revenue Protection, and Distribution Planning and Operations modules.

Meter to Bill and Revenue Protection Dashboards

The Meter to Bill and Revenue Protection modules share a common set of dashboard pages and charts for displaying meter data. The data that is displayed varies by the algorithms assigned to the module and role.

Summary Statistics

The **Meter to Bill** and **Revenue Protection** module's Summary Statistics tab provides meter information based on the data returned from the module algorithms.



Filters

The Filter section [1] allows you to select the criteria for the data display. Criteria include:

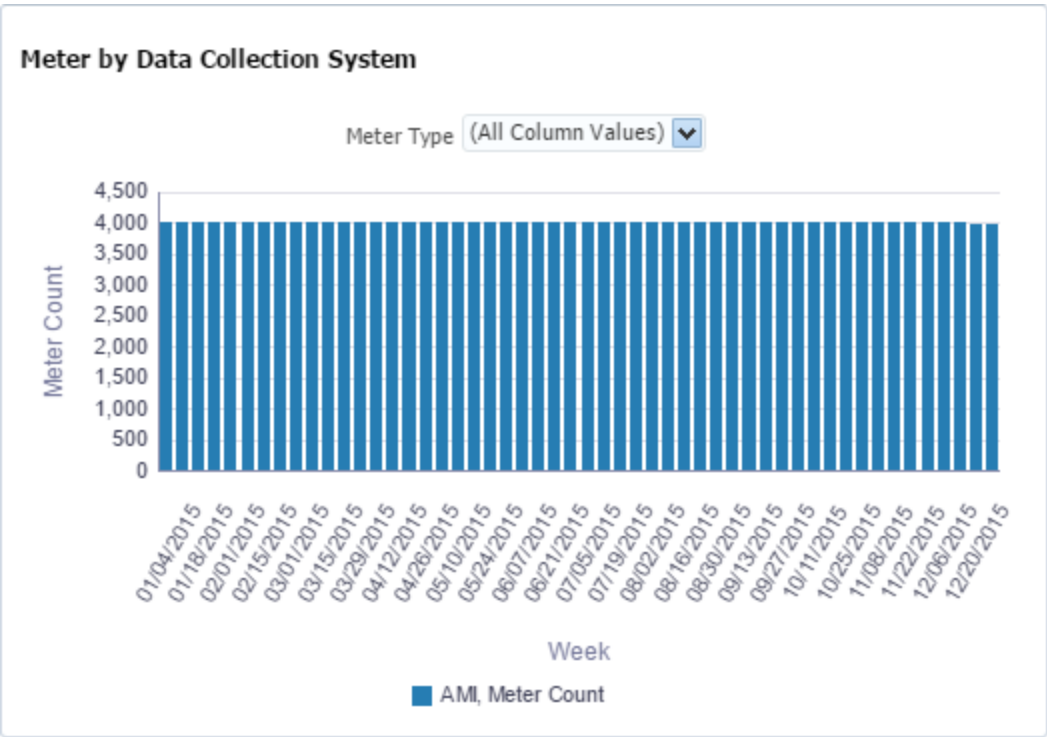
- **Role**: Required component of the data filter criteria. The role may be changed any that you have access to.
- **Year**: Required component of the data filter criteria. Select the applicable year from the drop-down list.
- **Month**: Required component of the data filter criteria. Select the applicable month from the drop-down list.
- **Month Range**: Required component of the data filter criteria. Select the range from the options: 1, 3, 6, 12.
- **Commodity**: Required component of the data filter criteria. Select from the commodities available in the drop-down list: Electric, Gas, or Water.
  Note: The commodities available may vary.
- **Apply button**:Click to apply any changes made to the filter values.
- **Reset button**: Reset the filter values to the last applied values.

Charts

The Charts section [2] displays charts applicable to the selected module and role.

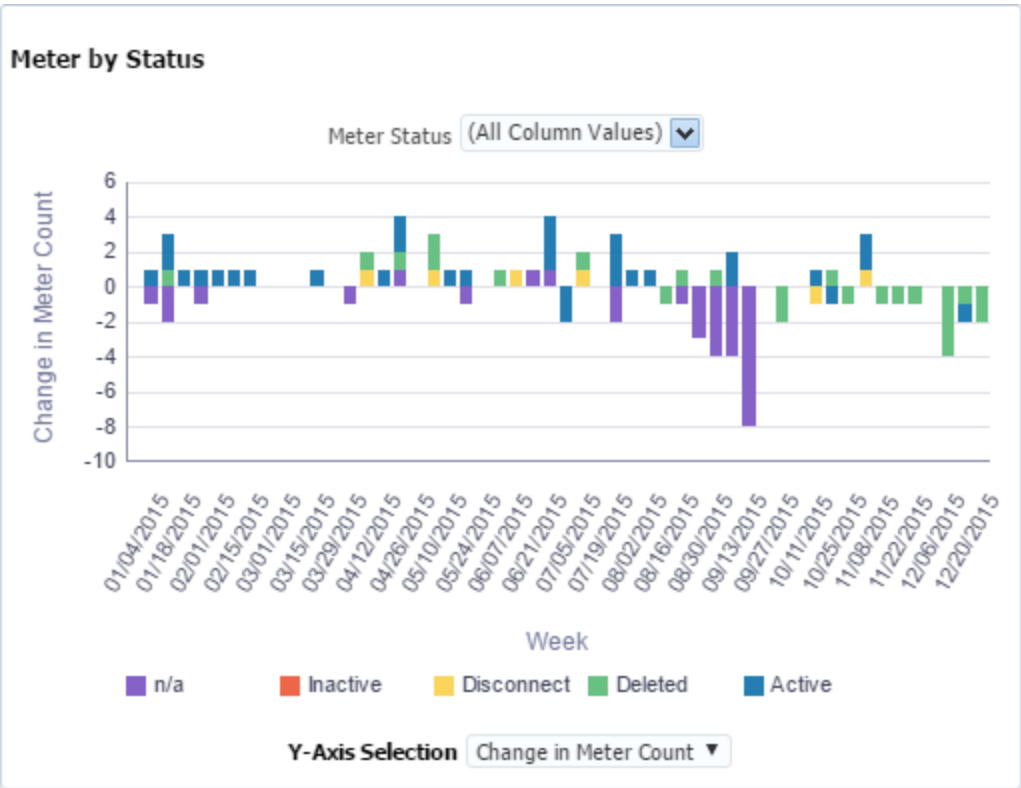
Meter by Data Collection System

The Meter by Data Collection System chart provides information based on the data collection method. The Meter Type drop-down list allows you to select individual systems that are applicable to your meter collection systems (for example., AMI, AMR, manual). The graph displays how many meters have been read (Meter Count y-axis) over time by meter data collection method (Meter Type x-axis).



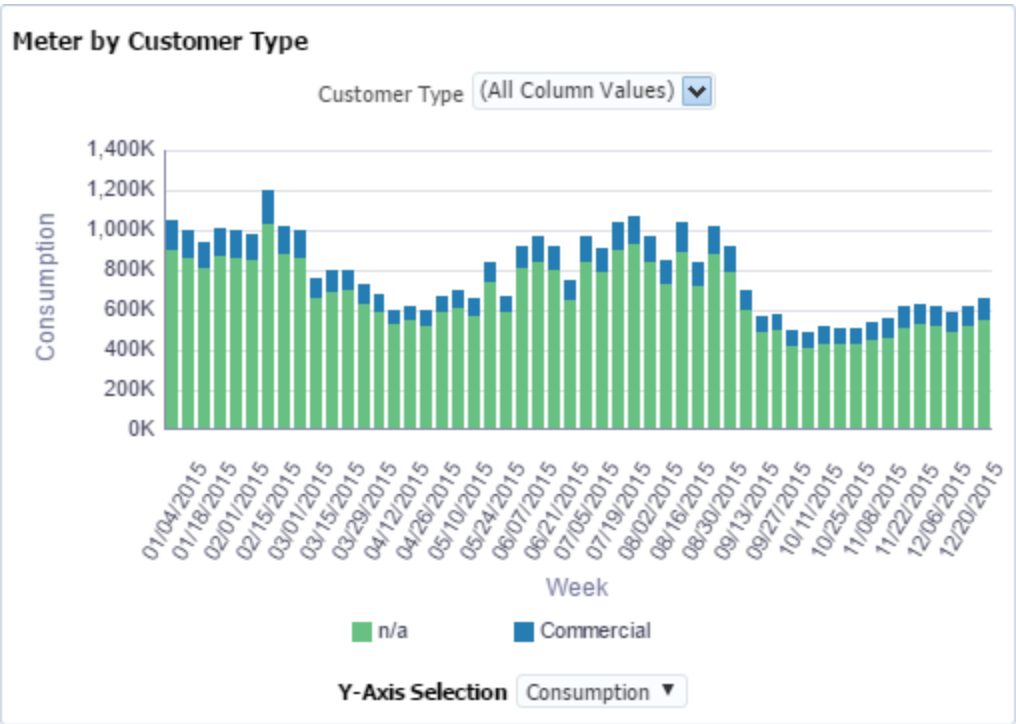
Meter by Status

The Meter by Status chart provides information about meter consumption based on the meter's status. Active meters are expected to have consumption while inactive or disconnected meters should not. The Meter Status drop-down list allows you to view all meters (All Column Values, the default option) or select a meter status (for example., Active, Inactive, Deleted, Removed, or Disconnected). The Y-Axis Selection drop-down list allows you to view the number of meters in the status (Meter Count, the default option), change in the meter count over time (Change in Meter Count), or by the percentage of the total installed meter population (% Change)



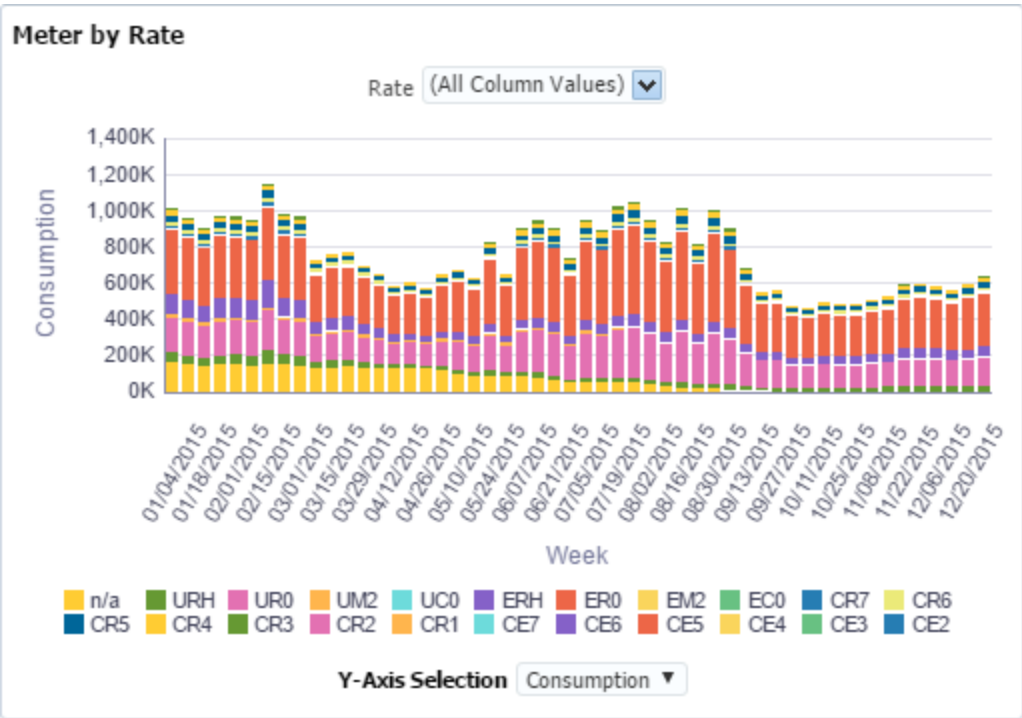
Meter by Customer Type

The Meter by Customer Type chart provides information by customer type (*e.g.*, Commercial, Residential, Industrial, or Agricultural); by default, all customer types are shown (All Column Values). The Y-Axis Selection drop-down list allows you to select the data to display (Meter Count or Consumption).



Meter by Rate

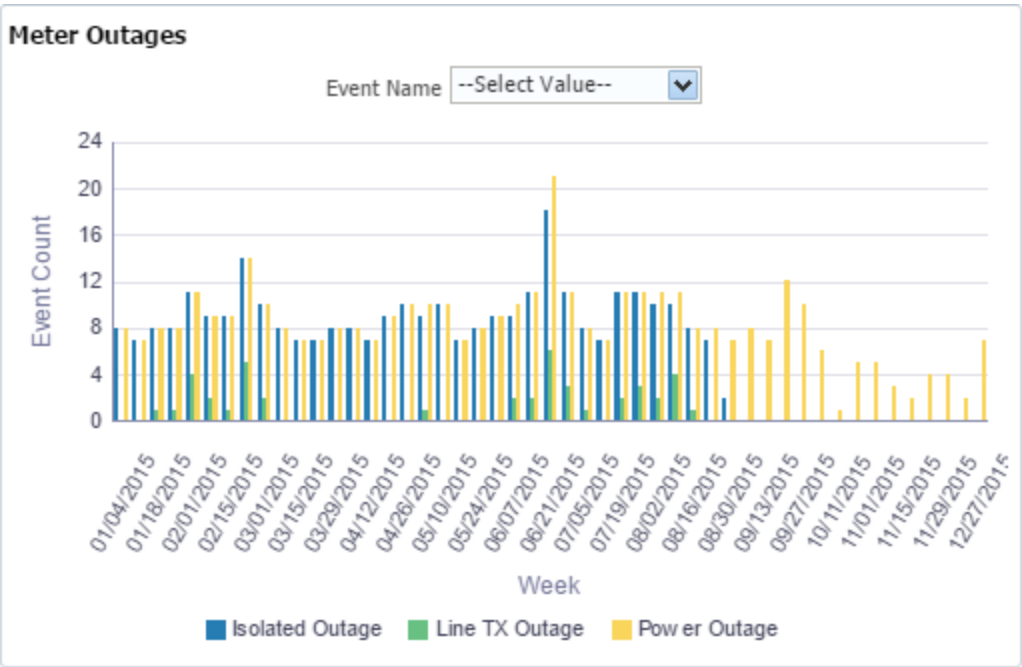
The Meter by Rate chart displays meter data based on their assigned rate class. The Rate drop-down list allows you to select a rate class; by default, all rate classes are displayed (All Column Values). The Y-Axis Selection drop-down list allows you to select the data to display (Meter Count, Consumption).



Meter Outages

> **Note:** This section applies to electric utilities only.

The Meter Outages chart provides information regarding Power Outages, Isolated Outages, and Transformer Outages that might occur on a daily basis.



The Event Name drop-down list allows you to select one or more event types to display.

You can select one or more boxes to filter the event types. The chart will redraw to show your selection. By default, the drop-down list displays **Select Value** with none of the event types selected. If none of the options are selected, all event types will be displayed.

For example, if Line TX Outage is selected, only transformer outage counts will be displayed.

- **Line TX Outage**: All meters downstream of the transformer are out.
  Substation outages will also appear as transformer outages. If more detailed information regarding outages and distribution network is required, the Distribution Planning and Operations module will provide further details.
- **Isolated Outage**: Outages detected on individual meters, but not on other meters connected to the same transformer.
- **Power Outage**: All outages experienced at the meter level regardless of outage source.

Categories Overview

The Categories Overview tab provides summary information about the data found for the categories associated with a specific role and module. Categories overview elements include the following:

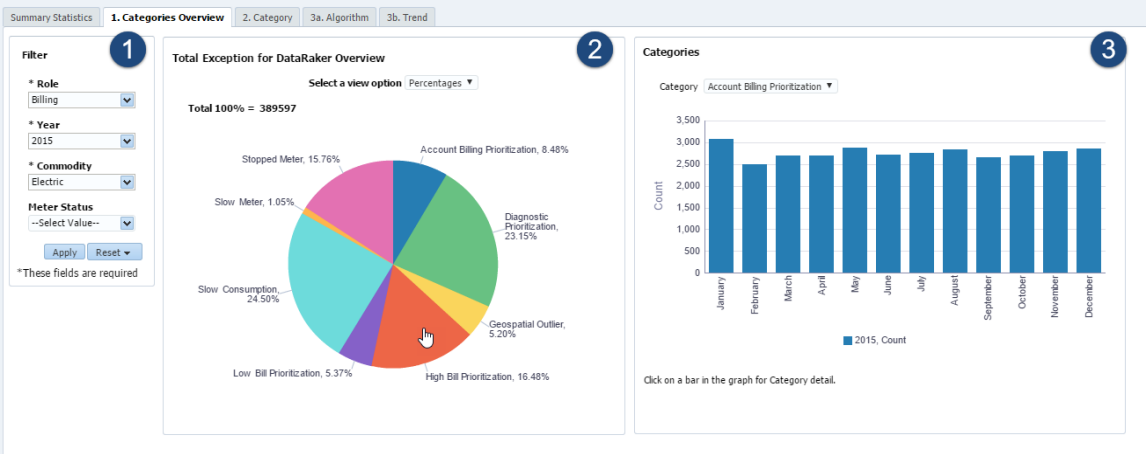
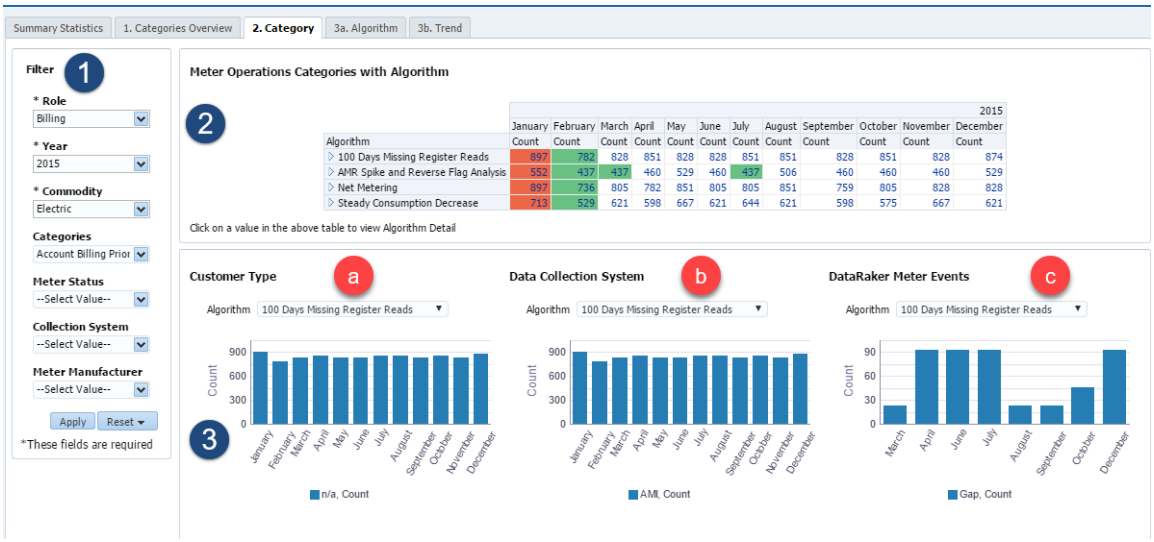


Image Number	Element Name	Description
1	Filter section	Select criteria for the data display. Available options may vary.
2	Total Exception for DataRaker Overview	Provides the number of exceptions found presented in a pie chart broken down by category. **Note**: To update the selection in the Categories chart, click a slice of the pie chart
3	Categories	Displays the count for the category over time. **Note:** To navigate to the Category page with the selected category in focus (for example, High Prioritization), click on a chart bar.

Category

The Category tab provides information about meters found by algorithms. Category tab elements include the following:



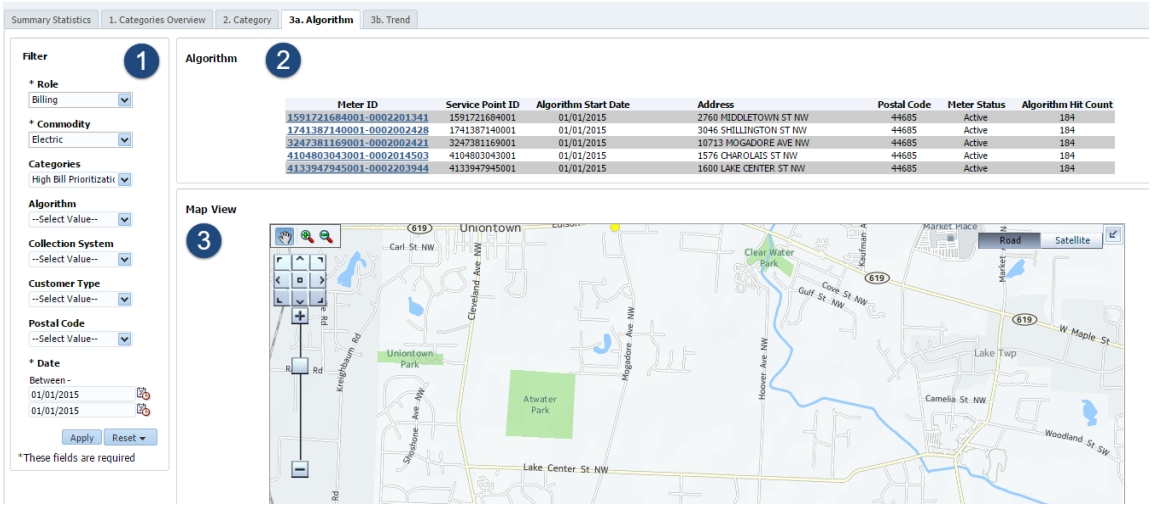
The page has the following components:

Image Number	Element Name	Description
1	Filter	The filter section [1] allows you to select criteria for data display. The ifilter has the following options: **To view algorithm sub-types**, cllick the triangle control at the beginning of the row. **To display data for the algorithm in the charts section**, click the algorithm name.
2	Table	The table section lists the algorithms and each row provides counts for meters found by the algorithm by month over the year selected in the filter's Year drop-down list. The month that had the highest meter count for the algorithm is highlighted in red; months with the least exceptions over the year are highlighted in green. You can manipulate the table with the following controls: **Button** — **Description** Resets the table view to show the first row. If the table is showing the first row, the button will be desensitized. Shows the next set of table rows. If the table is showing the last set of rows, the button will be desensitized.

<table>
<tr><th>Image Number</th><th>Element Name</th><th>Description</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Button</th><th>Description</th></tr>
<tr><td>  </td><td>Shows the previous set of table rows. If the table is showing the first set of rows, the button will be desensitized.</td></tr>
<tr><td>  </td><td>Shows all table rows. If the table is showing all rows, the button will be desensitized.</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>Charts</td><td>The Charts section shows data based on either the algorithm selected in the table or through the individual drop-down lists.
Customer Type Chart: (3a) Showsthe counts returned by the algorithm based on the customer type (Commercial, Industrial, Residential).
Data Collection System Chart: (3b) Shows the counts returned by the algorithm based on the data collection system (AMR, AMI).
Meter Events Chart: (3c) Shows the counts for events (Derived Usage Spike, Register Gap, Rollover Register, Spike Register, Static Register). See "Event Panel" on page 40.</td></tr>
</table>

Algorithm

The Algorithm tab provides the results found by an algorithm for a time range selected in the Filter Date selection. Algorithm tab elements include the following:



The page has the following components:

Image Number	Element Name	Description
1	Filter	The Filter section allows you to select criteria for data display.
2	Table	The Table section] lists the meters found by the selected algorithms. Table columns include the following: **Meter ID:** Provides the Meter ID with a hyperlink that navigates to the Detail for the meter. See "Explore" on page 24. **Service Point ID:** The ID assigned to the service point **Algorithm Start Date:** The beginning boundary used in the algorithm that returned the meter. The table may be sorted by any of the columns by hovering over the column heading to display the Sort Ascending and Sort Descending controls. ■ **Address:** The address where the meter is located. ■ **Postal Code:** The postal code for the meter location. ■ **Meter Status:** The meter's status (Active, Inactive, Disconnected). ■ **Algorithm Hit Count**: The number of times the meter met the algorithm criteria during the selected time range
3	Map	The Map section displays a map pinpointing the locations of algorithm hits. When you hover over an algorithm hit indicator,

Image Number	Element Name	Description
		the algorithm hit count, latitude and longitude, and meter ID are displayed in a call-out box.

Trends

The Trends tab displays the results of an algorithm over time. The information is displayed as a heat map that shows counts by color; higher counts have darker, more intense colors. The Trends tab has the following components:

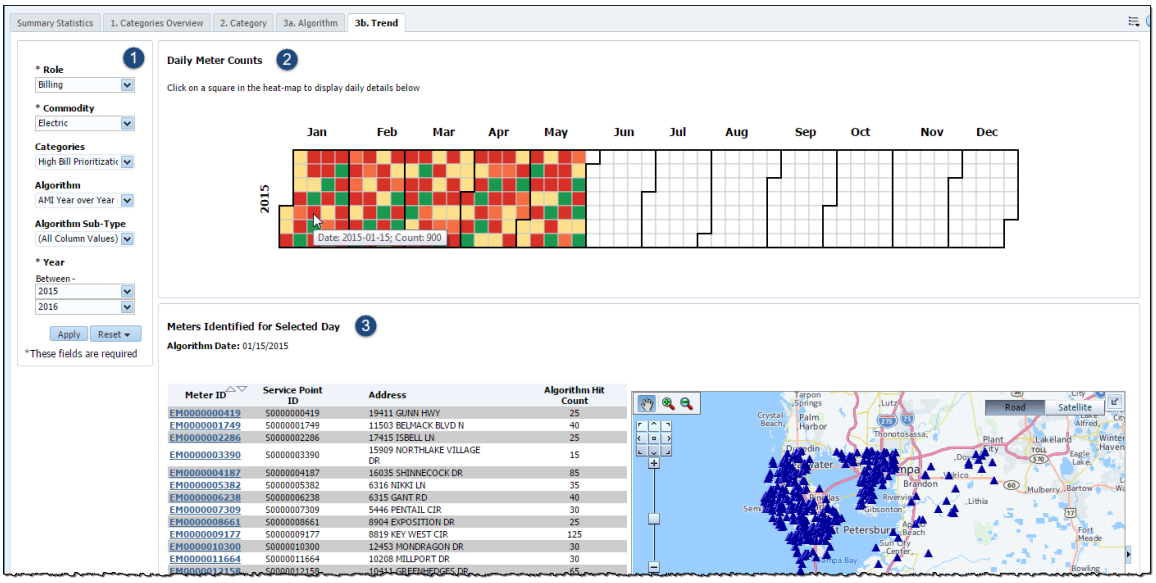


Image Number	Element Name	Description
1	Filter	The Filter section] allows you to select criteria for data display.
2	Daily Meter	The Daily Meter Counts section [2] shows a heat map displaying frequency of algorithm hits. Each square in the map represents a single day. **Note**: To display the data for the day in the **Meters Identified for Selected Day** pane, click a square.

Image Number	Element Name	Description
3	Meters Identified for the Selected Day	The Meters Identified for Selected Day section [3] lists the meters that the algorithm found on the day selected in the Daily Meter Counts heat map and a map with hit count frequency. **Note:** Click the day's heat map square to update the **Meters Identified for Selected Day** data. Meter columns include: ■ **Meter ID**: Provides the Meter ID with a hyperlink that navigates to the Detail for the meter. See "Explore" on page 24. ■ **Service Point ID**: The ID assigned to the service point. ■ **Address**: The address where the meter is located. ■ **Algorithn Hit Count**: The number of times the meter met the algorithm criteria during the selected time range.

Distribution Planning and Operations Dashboard

The Distribution Planning and Operations dashboard provides panels on the Summary Statistics page that display information related to distribution network transformer and feeder performance and health.

Distribution Planning and Operations Summary Statistics Tab

The Distribution Planning and Operations Summary Statistics tab provides overview data and key performance indicators (KPIs) for distribution network transformers and feeders. The Distribution Planning and Operations Summary Statistics page has the following components:

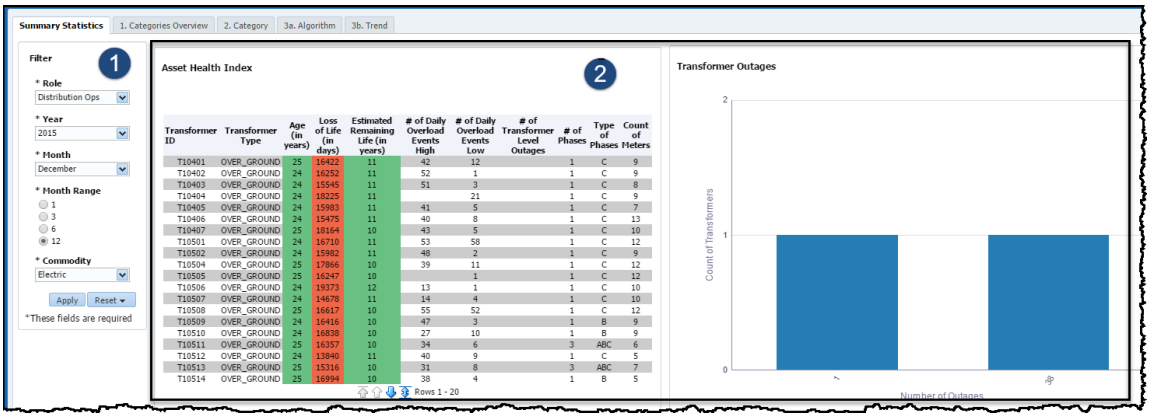


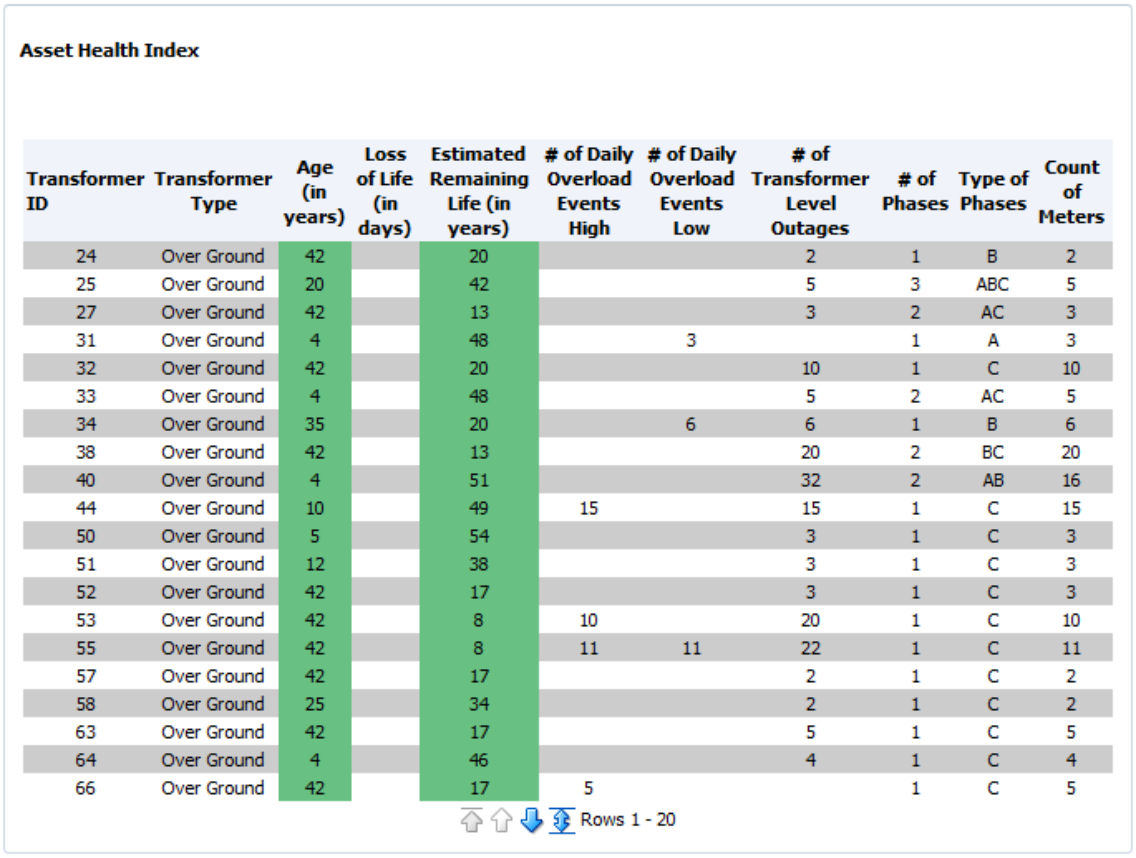
Image Number	Element Name	Description
1	Filter	The Filter section allows you to select criteria for the data display. Filter criteria include the following: ■ **Role**: (Required) The role will be populated by the role selected in , but may be changed to another role that you have access to. ■ **Year**: (Required) Select the applicable year from the drop-down list. ■ **Month**: (Required) Select the applicable month from the drop-down list. ■ **Month Range**: (Required) Select the range from the options: 1, 3, 6, 12. ■ **Commodity**: the only option is Electric
2	Charts	The charts section provides you with various data about the selected KPI topic.

Chart Types

The following charts are available charts in the Distribution Planning and Opertations Statistics tab

Asset Health Index

The Asset Health Index report provides information about transformers characteristics (*e.g.*, the transformer age) and calculated performance indicators.



Asset Health Index

Transformer ID	Transformer Type	Age (in years)	Loss of Life (in days)	Estimated Remaining Life (in years)	# of Daily Overload Events High	# of Daily Overload Events Low	# of Transformer Level Outages	# of Phases	Type of Phases	Count of Meters
24	Over Ground	42		20			2	1	B	2
25	Over Ground	20		42			5	3	ABC	5
27	Over Ground	42		13			3	2	AC	3
31	Over Ground	4		48		3		1	A	3
32	Over Ground	42		20			10	1	C	10
33	Over Ground	4		48			5	2	AC	5
34	Over Ground	35		20		6	6	1	B	6
38	Over Ground	42		13			20	2	BC	20
40	Over Ground	4		51			32	2	AB	16
44	Over Ground	10		49	15		15	1	C	15
50	Over Ground	5		54			3	1	C	3
51	Over Ground	12		38			3	1	C	3
52	Over Ground	42		17			3	1	C	3
53	Over Ground	42		8	10		20	1	C	10
55	Over Ground	42		8	11	11	22	1	C	11
57	Over Ground	42		17			2	1	C	2
58	Over Ground	25		34			2	1	C	2
63	Over Ground	42		17			5	1	C	5
64	Over Ground	4		46			4	1	C	4
66	Over Ground	42		17	5			1	C	5

Rows 1 - 20

The Asset Health Index data is presented in a table that may be sorted by column.

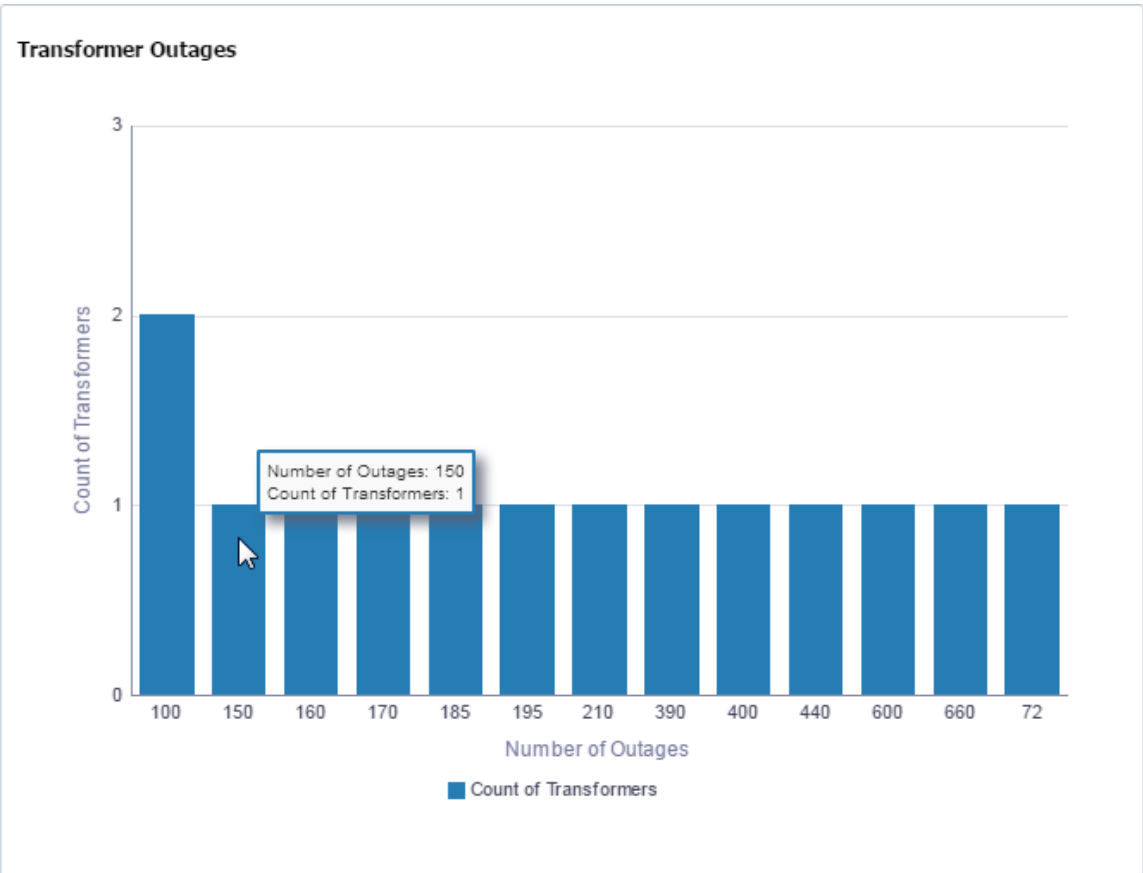
- **Transformer ID**: The transformer identifier.
- **Transformer Type**: Type of transformer (underground, pad mounted, and so on.).
- **Age**: Age of transformer in years. The age cell is color coded according to configurable boundary conditions based on the expected lifespan of the transformer:
  - **Green**: Age is less than the life expectancy.
  - **Orange**: Age is equal to or up to a configurable number of years greater than the life expectancy.
  - **Red**: Age is greater than the configured high limit for life expectancy.
- **Loss of Life**: Calculated value for loss of life.
- **Estimated Remaining Life**: Transformer life expectancy minus age (in years).
- **# of Daily Overload Events High**: The number of daily overload events with a "high" threshold boundary value that is determined by the customer implementation requirements.
- **# of Daily Overload Events Low**: The number of daily overload events with a "low" threshold boundary value that is determined by the customer implementation requirements.

- **# of Transformer Level Outages**: Number of outages due to a transformer failure.
- **# of Phases**: The number of phases supplied by the transformer.
- **Types of Phases**: The number of phases supplied by the transformer.
- **Count of Meters**: The count of connected meters.

Transformer Outages

The Transformer Outages is a bar chart that displays the count of transformers versus the number of outages experienced. When you hover over a bar, a hover text box is displayed showing the number of outages and count of transformers.

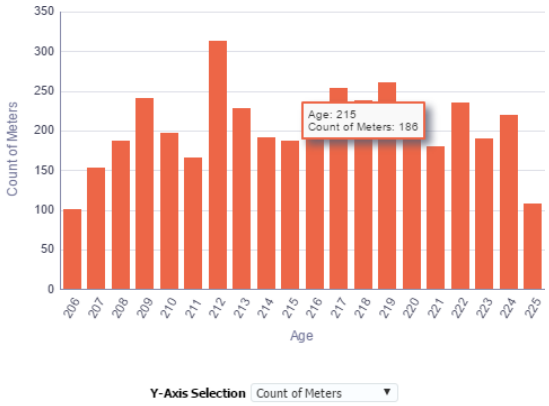
Note: ODR transformer outages are determined when all of the connected meters are included in an outage.



Age of Transformer Population

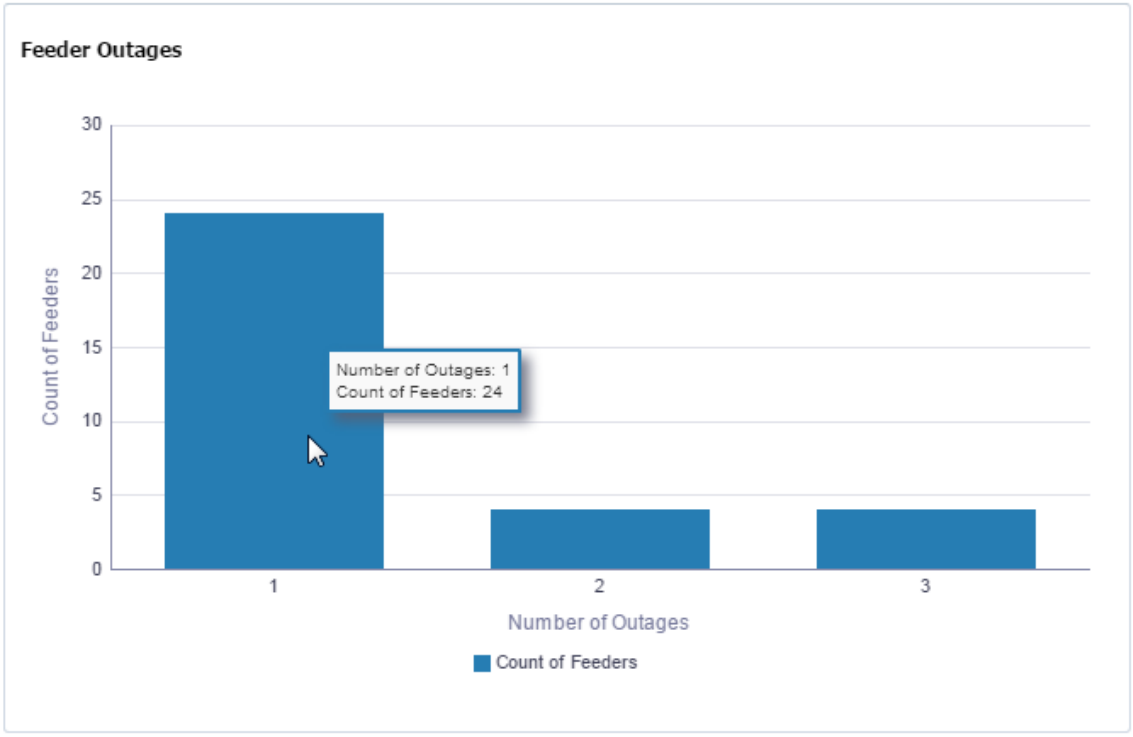
The Age of Transformer Population chart provides the distribution of transformers or connected meters by the age of the transformer. The y-axis shows the count of transformers by default.

Select Count of Meters from the Y-Axis Selection drop-down list to show the meter count. For example, the charts below show that for age equal to 215, there are 22 transformers with 186 connected meters.



Feeder Outages

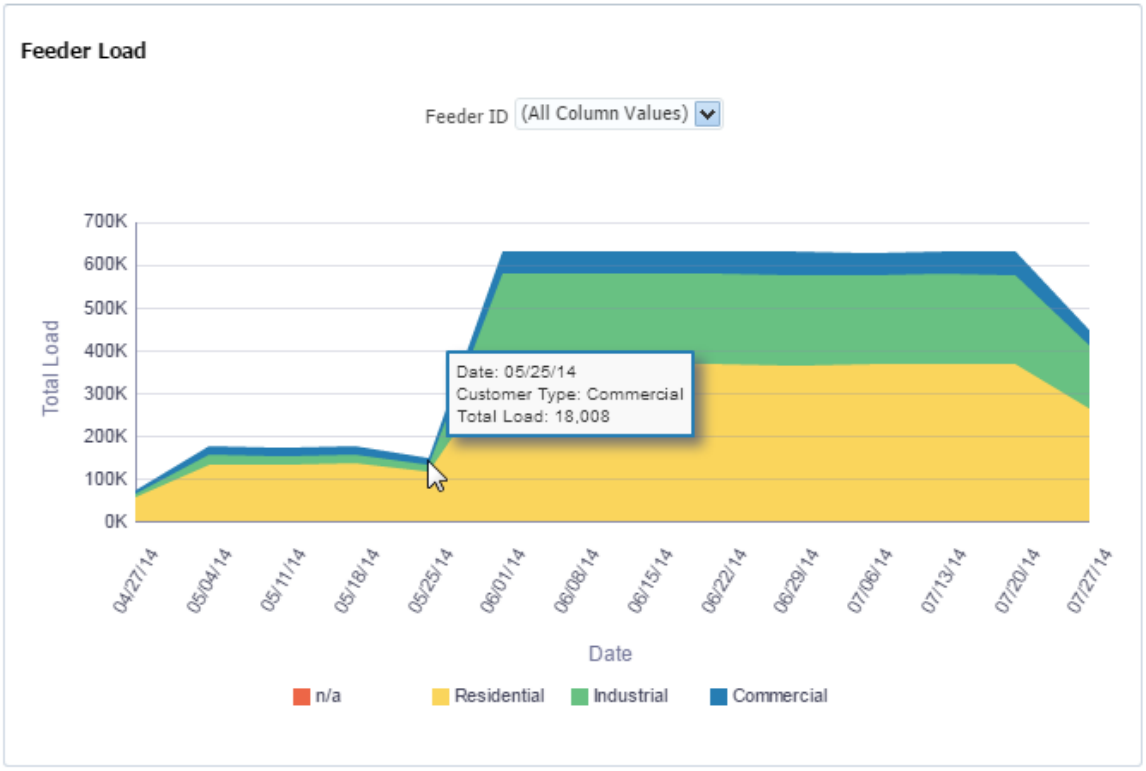
The Feeder Outages is a bar chart that displays the count of feeders versus the number of outages. When you hover over a bar, a hover text box is displayed showing the number of outages and count of transformers.



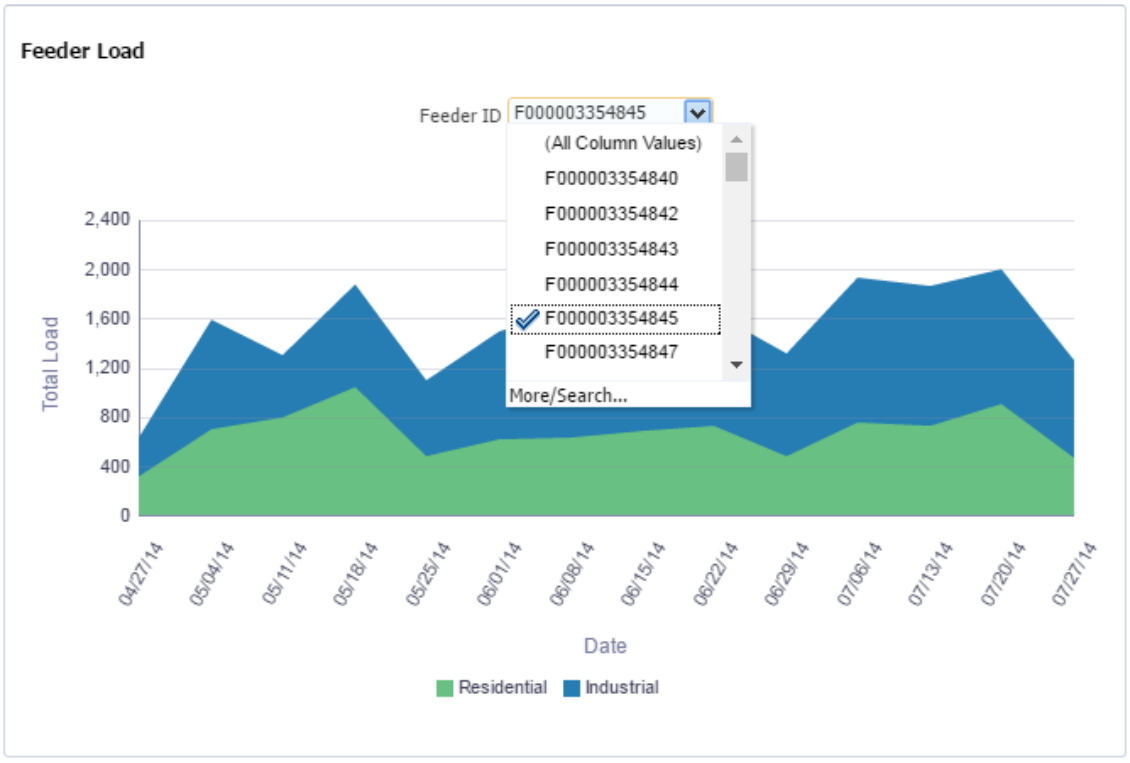
Note: ODR feeder outages are determined when all of the connected meters are included in an outage.

Feeder Load

The Feeder Load chart provides feeder load versus time segmented by customer type (for example, commercial, industrial, or residential).

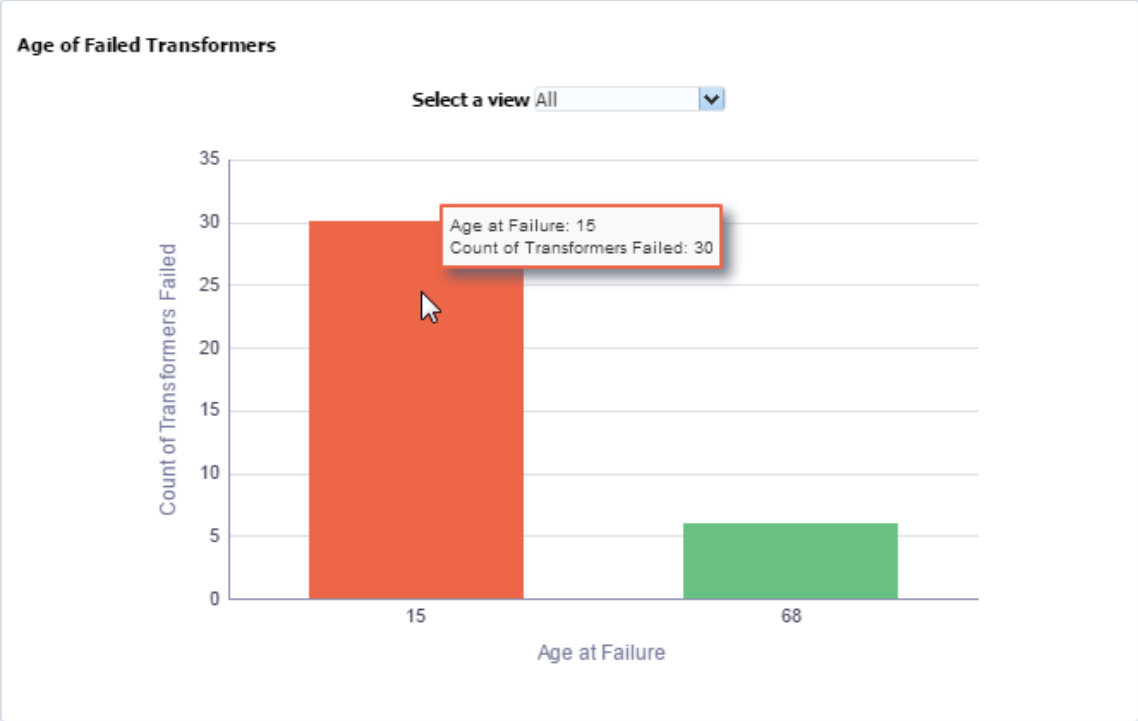


All feeder load is displayed by default, but you can see the load for a specific feeder by choosing the feeder id from the drop-down list.

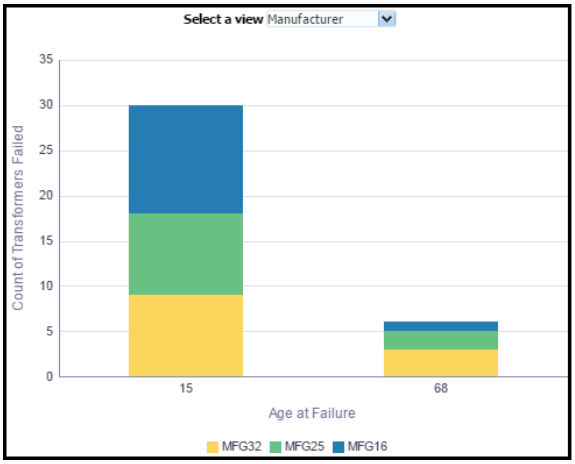


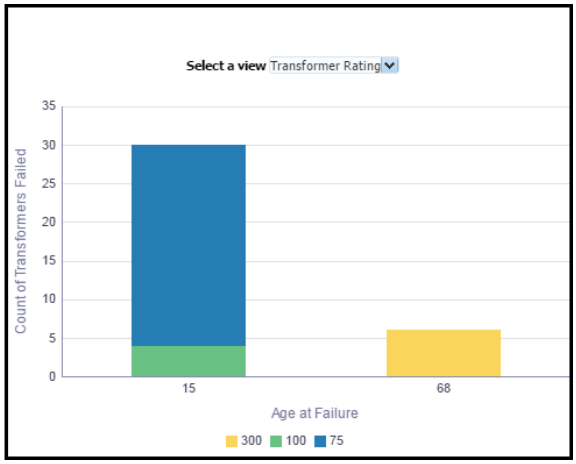
Age of Failed Transformers

The Age of Failed Transformers is a bar chart that displays the count of transformers that failed versus age in months. When you hover over a bar, a hover text box is displayed showing the age when a transformer failed and the number of transformers that failed at that age.



The Select a view drop-down list allows you to see the transformer population by manufacturer or rating (kVA):





Manage

The Manage menu provides access to Operations and Analytics features.

- Manage Operations provides options to initiate and track functions (such as Run, Task, and Transactions) and their corresponding logs. See "Manage Operations" on page 84.
- Manage Analytics provides features that allow you to find and analyze data. See "Manage Analytics" on page 121.

Manage Operations

The Manage Operations menu offers functionality to initiate and track system procedures. Within this functional area, some of the key features, which correspond to sub-menu items, are:

- **Task:** Procedures that perform analytics or system administration.
- **Run:** A container that can bundle and organize tasks to be executed in a specific order. Tasks can be defined to be executed sequentially or in parallel.
- **Transaction:** The system creates transactions to track events. Examples include noting a user's session and processing a scenario. Each task that executes within a run results in a transaction.

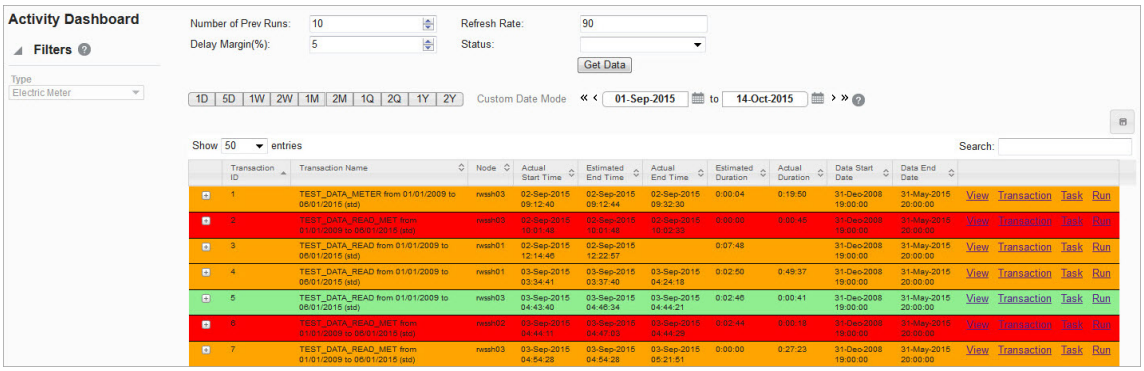
Within the Manage Operations menu group, an administrator can create tasks and bundle them into runs. Tasks can be initiated manually and runs can be automated into scheduled executions. Once the run, or task, is executed, the system creates a log entry that highlights key information from the resulting transaction.

Similar to other functional areas, you can navigate to each of the Manage Operations features from the sub-menus. The best practice, however, is to perform an initial search through the Activity Dashboard or Manage Runs page, and then use the links in the search results to find related information. Navigating through these links brings context so you do not need to search for and find the desired event again.

Activity Dashboard

The Activity Dashboard provides information about processes (known as tasks) that have been executed by the system. When a task is executed, it creates a transaction, which is added to the Activity Dashboard data table. From the Activity Dashboard, you may view the task that created the transaction, the run that executed the task, the status of the transaction, and transaction status.

The Activity Dashboard is commonly used as an initial query to see overview information and the status of processes that have run or are running. From this page, you can see the current status and navigate to further pages to see more information about the associated transaction, task, and run.



- ### Fields and Buttons

  The top section of the Activity Dashboard page allows you to search for tasks matching criteria in the fields:

  - **Number of Previous Runs**: Sets the number of historical runs to display as well as include when calculating an average time for the run.
  - **Delay Margin (%):** Sets a tolerance to designate an on-time run (labeled in green). The average time is calculated against the historical runs that the Number of Previous Runs specifies. The delay margin percentage is then added to the average in order to create the margin.
  - **Refresh Rate**: The frequency (in seconds) to automatically update the results.
  - **Status**: Search for transactions that are a specific status.
  - **Get Data button**: Initiate a search for data matching criteria set in the fields.

Search Results

Highlighted and color-coded rows in the search results show the status, or timeliness, of the execution.

- **Green:** On-Time, within the average time plus delay margin.
- **Yellow:** Slow, later than the average time plus delay margin.
- **Red:** Failed; this is commonly due to an error in the run.

Note: Row colors do not indicate completion. Completion is indicated by an entry within the Actual End Time column. Once complete, the Actual End Time column displays the date and

time that the activity completed; therefore, no entry in the Actual End Time column indicates that the activity is currently running.

Data Table

Data table column names and functions are as follows:

- **Transaction ID**: The transactio system-assigned, unique identifier.
- **Transaction Name**: The system-assigned name that combines the task lookup name with key information from the task. The transaction name is formed by concatenating the task lookup with the task start date, task end date, and the task run mode. For example, CORE_FACT_AUDIT from 08/19/2015 to 08/19/2015 (STD).
- **Node:** Indicates the server node that executed the transaction.
- **Actual Start Time:** The date and time when the transaction was executed.
- **Estimated End Time:** The date and time when the transaction was expected to end.
- **Actual End Time:** The date and time when the transaction actually ended.
- **Estimated Duration:** The amount of time that the transaction was expected to take
- **Actual Duration:** The amount of time that the transaction actually took.
- **Data Start Date:** The earliest date and time of the data that was selected for the transaction.
- **Data End Date:** The latest date and time of the data that was selected for the transaction.
- **Links:**
  - **View:** Opens the View Activity Dashboard dialog box, which displays the same data as provided in the data table row.
  - **Transaction:** Navigates to the See "Manage Transactions" on page 113. page and displays the current context to provide further information.
  - **Task:** Navigates to the See "Manage Tasks" on page 98. page and displays the current context to provide further information.
  - **Run:** Navigates to the See "Manage Runs" on page 86. page and displays the current context to provide further information.
    Note: If the task was executed manually outside of a run, no run data will exist.

Manage Runs

A run is a way to combine and organize a group of tasks into a process flow in order to perform a function. Runs contain tasks for the system to perform and can be run manually or automatically. See "Manage Tasks" on page 98.

Manual runs are launched through the dialog boxes in the Manage Runs data table
Automated runs are scheduled as a background process on the application server. See "Run/Task Operations" on page 119.

Run Fields

The top section of the Manage Runs page allows you to find existing runs matching criteria in the fields.See "Adding Runs" on page 88.

- **Run ID:** Run system-assigned, unique identifier.
- **Run Type Code:** Search by the run type. Valid values are STD (standard) and DYNAMIC, but the system currently disregards this setting and all runs are processed as STD.
- **Run Name:** The run "friendly" name.
- **Run Lookup:** A variation on the run name, which does not include spaces and is uppercase. (This field is case sensitive.)
- **Status:** Search by the run status (Active, Inactive).

Data Table

The data table contains the following fields:

- **ID:** The run system-generated, unique identifier.
- **Run Type Code:** The type code that was assigned to the run when it was added. See "Adding Runs" on page 88.
- **Run Name:** The run name as designated when the run was added.
- **Run Lookup:** A variation on the run name, which does not include spaces and is uppercase.
- **Run Graph:** Provides a link to open a graphical view of the run, which is a flowchart that shows the tasks that make up the run in the order they are executed. See "Editing Runs with the Run XML Editor" on page 90.
- **Status:** Run status (Active/Inactive).
- **Create Time:** Date and time when the run was created.
- **Update Time:** Date and time when the run was updated.
- **View link:** Opens the View Runs dialog box, which displays the same data as provided in the data table row. In addition, it includes whether the run is locked or not. This dialog box also provides links that allow you to edit or execute the run. See "Viewing Run Information" on page 88.

- **Edit link:** Opens the Manage Runs dialog box, which provides the same fields as the View Runs dialog box. In addition, it allows you to edit the Locked Flag and Status. See "Managing Run Information" on page 89.
- **XML link:** Displays the Run Definition dialog box, which shows the configuration XML for the run. See "Viewing and Editing the Run Definition XML" on page 90.
- **Run Log link:** Navigates to the Manage Run Logs page and displays the current context to provide further information. See "Manage Run Logs" on page 96.
- **XML Editor link:** Displays the Run XML Editor. See "Editing Runs with the Run XML Editor" on page 90.

Adding Runs

Runs are added from the Manage Runs page.

To add a run:

1. Click **Add Run** on the Manage Runs page. The **Create Runs** dialog box opens.
2. In the **Create Runs** dialog box, do the following:
   a. From the **Run Type Code** drop-down list, select **STD**.
   b. In the **Name** field, enter a descriptive name.
   c. In the **Run Lookup** field, enter a value for run lookup, which can be any unique, alphanumeric value without spaces. A common practice is to use the run name with all capital letters and without spaces.
   d. (Optional) In the **Run Description** field, enter a short description of the run's function.
   e. Click the **Status** drop-down list and select **Active** or **Inactive**.
3. **Click Save**. The **Create Runs** dialog box will close and the new run will be added to the **Manage Runs** data table.

Viewing Run Information

The View link in the Manage Runs data table row launches the View Runs dialog box. This dialog box displays run information and allows you to view the run definition XML, edit the run information, and execute the run.

Fields

Run information fields include the following:

- **Run ID**: Run system-generated, unique identifier.
- **Run Type Code:**Type code that was assigned to the run when it was added. See "Adding Runs" on page 88.
- **Run Name:** Secondary run name, or nickname, that was given to the run when it was added.
- **Run Lookup:** Variation of the run name, which does not include spaces and is uppercase.
- **Run Desc:** Short explanation of the run's purpose or function.
- **Locked Flag:** Indicates whether changes to the run are allowed to be made (Unlocked) or not (Locked).
- **Status:** Defines whether the run can be executed (Active) or not (Inactive).
- **Create Time:** Date and time that the run was added.
- **Update Time:** Date and time of the most recent change.

Buttons and Links

- **XML link**: Opens the Run Definition dialog box.See "Viewing and Editing the Run Definition XML" on page 90.
- **Execute Now link:** Opens the Execute Runs Details dialog box. See "Executing Runs" on page 95.
- **Edit button**: Opens the Manage Runs dialog box. See "Managing Run Information" on page 89.
- **Cancel button**: Closes the dialog box.

Managing Run Information

The Manage Runs dialog box opens when you click the Edit link on the run data table row or the Edit button on the View Runs dialog box.

Fields

- **Run ID:** Run system-generated, unique identifier.
- **Run Type Code:** Type code that was assigned to the run when it was added. See "Adding Runs" on page 88.
- **Run Name:** Run name as designated when the run was added.
- **Run Lookup:** Secondary run name given to the run when it was added.

- **Run Desc:** A short explanation of the run's purpose or function.
- **Locked Flag:** Define whether changes to the run are allowed (Unlocked) or not allowed (Locked).
- **Status:** Define whether the run can be executed (Active) or not (Inactive). Inactivating a run is a way to prevent it from executing without removing the run from the system.
- **Create Time:** Date and time that the run was added.
- **Update Time:** Date and time of the most recent change.

Buttons and Links

- **XML link**: Opens the Run Definition dialog box. See "Viewing and Editing the Run Definition XML" on page 90.
- **Execute Now link**: Executes the run. See "Executing Runs" on page 95.
- **Save button**: Save any changes that have been made; the button is disabled until a field has been modified.
- **Cancel button**: Closes the dialog box.

Editing Run XML

The XML that defines a run may be edited as text or by using the Run XML Editor. Both options allow you to create, view, and edit a run. The text option gives you the additional feature to copy an existing run definition into a new run. The following sections describe how to work with the Run Definition XML as text or with the Run XML Editor.

Viewing and Editing the Run Definition XML

XML is typically created and edited with the Run XML Editor, but the Run Definition dialog box allows you to quickly modify XML parameters or define a run using XML from a similar run. From the Run Definition dialog box, you can view or edit the raw XML code that specifies the run parameters. See "Duplicating the Run Definition XML" on page 95.

Editing Runs with the Run XML Editor

The Runs XML Editor provides a user interface to define and organize procedures to be run. The procedures, called nodes, are connected with edges that define the flow for the run. See "Creating Nodes" on page 92.

Buttons

The Runs XML Editor has the following buttons:

- **Save:** Save the run in its current state. If the run is structurally invalid, it will show a warning indicating that the run was saved, but it will fail execution. The Runs XML Editor will close when you click Save.
- **Validate:** Validate the run to make sure it is syntactically valid and shows validation errors, if any exist.
- **Preview:** View an image of the run graph based on the nodes and connectivity defined in the edges.
- **Close:** Close the Runs XML Editor without saving changes.

Graph Components

The Runs XML Editor uses graph terminology to describe the structure of the run. The run configuration is defined by Graph Type, which contains the Graph Header, Time Windows, Nodes, and Edges. Complete the tasks outlined in the following sections to define the run.

Creating the Graph Header

To create the graph header:

1. Select **Graph Header** in the Runs XML Editor tree-view.
2. Complete the following fields:
   - **Expected Duration Mins**:The anticipated time, in minutes, that the run should take.
   - **Graph Name**: The graph name is a user friendly name for the Run Graph.
   - **Graph Desc (Optional)**: The graph description allows you to add information describing the run.
   - **Graph Processing Basis**: graph processing basis comes into play when a task is run repeatedly for an extended period of time. For example, if a run with a processing basis of daily is executed over a week or a month, it will be run once for every day of the week or month, respectively.

Creating Time Windows

Time windows are created using the Runs XML Editor. Time windows can be either static or offset. Static time windows have defines start and end date. Offset time windows are offset from the start and end dates, and are input when the filter is executed.

The Offset Time Windows allow you to create a time window that is offset from the start and/or end dates, which are input when the run is executed. An Offset Time Window settings include the Start Offset, End Offset, and Time Basis. Offset time can be set with either a Start Offset or End Offset.

- **Start Offset:** The start date may be offset using one of two methods: simple offset or directional snapping. *Simple offset* offsets the start date by a selected time basis (Unit; e.g., day or month) and how many (Valueof) of those units. *Snapping* sets whether the start offset will expand backward in time or forward (*snap direction)*.
- **End Offse***t*: The End Offset is similar to the Start Offset with the exception that the resulting date must be later than the Start Offset date.
  Time Basis: The Time Basis field allows you to interpret your data over a different time frame (for example, daily data over a month).

To create time windows:

1. Select **Time Windows** in the Runs XML Editor tree-view, then click **Create New Time Windows**.
2. Select the newly created time window in the tree view.
   Note: You may edit the name to something meaningful.
3. Click the **Type** drop-down and do one of the following:
   a. Select the **Static Time** window and edit the parameters:
      - **Name**: Populates with the name from the tree view.
      - **Description**: (Optional) Enter a description for the time window.
      - **Start Date**: Start date for the filter criteria.
      - **End Date**: End date for the filter criteria.

   b. Select the **Offset Time** window.

Creating Nodes

Nodes perform a task. The tasks may be an analytic operation, such as aggregating data, or it may be checking a condition to see if it is true or not true. There are several types of nodes:

- **Start Node**: A "dummy" node that denotes the starting point of a run.
- **Decision Node:** Allows the run operation to be branched by evaluating a condition. The condition is created in the Expression field by adding custom code that will dictate branching of the run logic. A decision node should always return a Boolean value (True/False). Based on the output of the decision node, children node will either be skipped or processed.
- **Union Node**: Allows the run execution to continue even if there is a failure condition in a previous node. Because the union joins the result set of two nodes, the failing node would not contribute to the outcome.

To create a node:

1. **Select Nodes** in the Runs XML Editor tree-view.
2. Click **Create New Nodes**.
3. Select the new node in the tree view.
4. Select one of the **node type** from the drop-down list:
   - **Name:** the name given to the node.
   - **Desc**: Description of the node.

   Note: The Union node appears as an orange oval in the run graph.

   - **Start Node**. The start node contains the following fields:
     - **Name**: The name given to the node.
     - **Desc (optional)**: Description of the node.

     Note: The Start Node appears as a blue oval in the run graph.

   - **Decision Node**. The Decision node fields include:
     - **Name**:Name given to the node.
     - **Desc**: Description of the node.
     - **Expression**: Contains free form code that determines whether the decision criteria have been met.

     Note: The decision node appears as a red rhombus in the run graph.

Creating Edges

Edges, like the arrows in a flowchart, connect two nodes together to create a sequence for node execution.

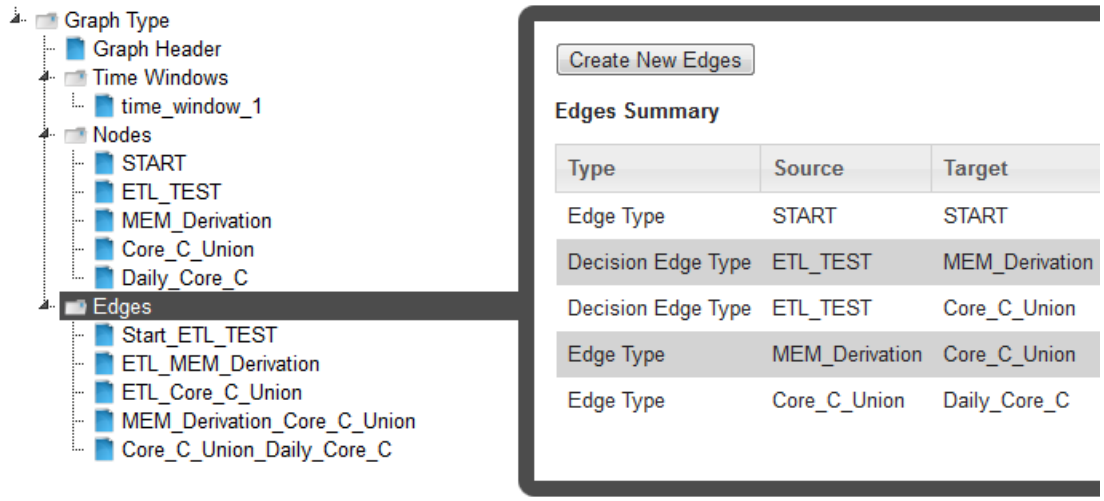
To create edges:

1. **Select Edges** in the Runs XML Editor tree-view.
2. Click **Create New Edges** and select the new edge in the tree view.
3. Click the **Type** drop-down and select the edge type:
   - **Edge:** Connects two non-decision nodes.
   - **Decision Edge:** Connects a decision node to another node. If **Yes** is selected, the edge will be traversed when the decision is true; if Yes is not selected, the edge will be traversed when the decision is false.

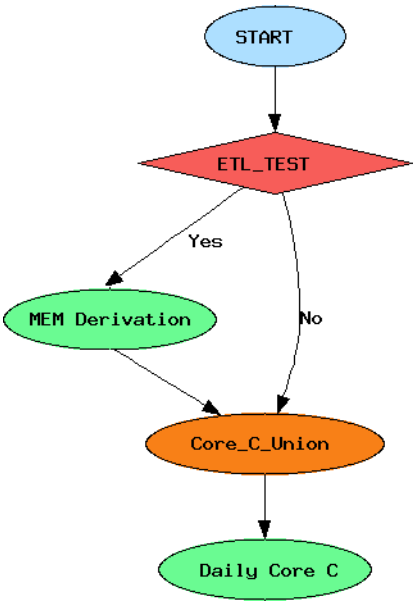
4. Select the **starting node and the ending node** from the Source Name and Target Name fields, respectively.

Creating Edge Examples

In the following example, an edge connects the START node to the ETL_TEST node; the ETL_TEST node is connected to the MEM Derivation task node via a Yes Decision Edge and to the Core_C_Union node with a non-Yes Decision Edge; the MEM Derivation task node is connected to the Core_C_Union node, which allows the run to continue even if the MEM Derivation task fails; finally, the Core_C_Union node is connected to the Daily Core C task node.



The Run Graph would then look like the following:



Duplicating the Run Definition XML

You can duplicate an existing run and customize it to your needs.

To copy a run:

1. Search for and select the run that you wish to use as the starting point in the Manage Runs page.
2. Click the **XML** link to open the **Run Definition** dialog box, then copy the Definition XML and close the dialog box.
3. On the **Manage Runs** page, **click Add Run**.
4. Do the following in to complete the **Create Runs** dialog box:
   a. Click the **Run Type Code** drop-down list and select **STD**.
   b. Enter a descriptive name in the **Name** field.
   c. Enter a value for run lookup in the **Run Lookup** field.
   Note: This value can be any unique, alphanumeric value without spaces. A common practice is to use the run name with all capital letters and without spaces
   d. (Optional) Enter a short description of the run's function In the **Run Description** field.
   e. Click the **Status** drop-down and select either **Active or Inactive**.
   f. Paste the definition XML from the copied run in the **Run Definition** pane.
5. **Click Save**. The **Create Runs** dialog box will close and the new run will be added to the **Manage Runs** data table.

Executing Runs

Runs can be executed manually or on schedule. The Execute Runs Details dialog box can be accessed from the Execute Now link found in the Manage Runs' View Runs or Edit Runs dialog boxes.

To execute a run:

1. From the **Manage Runs** page, click either the **View** or **Edit** link to display the corresponding dialog box, then click the **Execute Now** link.

2. In the **Execute Runs Details** dialog box, do the following:
   a. Verify the **Name** field (display only). This is the name assigned to the run when it was added.See "Adding Runs" on page 88.
   b. Enter the starting date for run execution in the **Start Date** field
   c. Enter the date when the run should end in the **End Date** field. This will be the same as the start date for single instances of a manual run.
   d. Click the **Priority** drop-down and select the run's priority on the node. Base values include: Highest, Default, Lowest.
3. (Optional) In the **Failure Email** field, enter an email address to send a message to if the run ends unexpectedly.
4. Verify the lookup field (display only). This is the run's lookup name as designated when the run was added.
5. Select the **MANUAL** execution method in the **Type** drop-down.
6. Select the **Standard** mode form the **Run Mode** drop-down
7. (Optional) Enter an email address to send a message to if the task completes successfully in the **Success Email** field,.
8. (Optional) Enter an email address to send a message to if the task completes successfully in the **Success Email** field.
9. Click **OK**.

Manage Run Logs

The Manage Run Logs page provides an automatically generated log that describes the run process and corresponding tasks.

Fields and Buttons

The top section of the Manage Run Logs page allows you to search for run logs matching criteria in the fields:

- **Run ID field:** System-assigned, unique identifier.
- **Run Log ID field:** System-assigned, unique identifier.
- **Refresh Rate field:**Frequency, in seconds, that the results should be automatically update.
- **Get Logs button:** Initiates a search for logs matching criteria set in the fields.

Data Table

The data table contains the following columns and links:

Table Columns

- **Run Log ID:** Run log's system-generated, unique identifier.
- **Server Process:** Server node that executed the run.
- **Run Start Time:** Date and time that the run started.
- **Run End Time:** Date and time that the run ended.

Table Links

- **View:** Opens the View Run Logs dialog box, which displays the Run's processing information such as start and end time, status code, and run progress.
- **Run Summary:** Opens the Run Summary dialog box, which displays processing information about each task that was executed within the run.See "Viewing Run Summary Information" on page 98.
- **Task Log:** Navigates to the See "Manage Task Logs" on page 110. page and displays the current context to provide further information. See "Manage Task Logs" on page 110.

Viewing Run Logs Information

The View Run Logs dialog box is accessed from the View link, which is found in the Manage Run Logs page's data table. This feature offers additional information to what is displayed in the Manage Run Log's data table.

Fields and Buttons

The Run Logs contain the following fields and buttons:

- **Run Log ID:** Run log system-generated, unique identifier.
- **Run ID:** Run system-generated, unique identifier.
- **Execution Type:** Identifies the method that the run was initiated.
- **Success Email:** Address to send a notice when the run completes.
- **Failure Email:** Address to send a notice in case the run fails.
- **Server Process:** Server node that executed the run.

- **Run Mode:** Run processing category.
- **Data Start Time:** Earliest date and time of the data that was included in the run.
- **Data End Time:** Latest date and time of the data that was included in the run.
- **Run Start Time:** Date and time that the run started.
- **Run End Time:** Date and time that the run ended.
- **Status Code:** Indicates if the run is In Progress, ran Successfully, or had a Fatal error.
- **Run Progress:** Indicates the run's current status.
- **Run Priority:** Indicates the run's priority on the node.
- **Create Time:** Date and time that the run was created.
- **Create Transaction ID:**Transaction ID when the run was created.
- **Update Time:** Date and time that the run was most recently updated.
- **Cancel button**: Closes the dialog box.

Viewing Run Summary Information

The Run Summary link in the Manage Run Logs data table launches the view Run Summary dialog box and supplies additional information.

Columns and Buttons

- **Task Lookup:** Secondary description given to the task when it was added.
- **Data Start Date:** Earliest date and time of the data that was included in the task
- **Data End Date:** Latest date and time of the data that was included in the task.
- **Elapsed Time:** Total amount of time that it took for the task to execute.
- **Task Start Time:** Date and time when the task initiated.
- **Task End Time:** Date and time when the task completed (either succeeded or failed).
- **Transaction Name:**System-assigned name of the transaction associated to this task.
- **Ok button:** Closes the dialog box.

Manage Tasks

Tasks are procedures that perform analytics or system administration. For example, analytic tasks might include aggregating data and system administrative tasks might include importing and exporting data. Tasks can be executed manually (ad hoc) or included within a run's flow.See "Executing Tasks" on page 110.

The Manage Tasks page gives you the ability to view information associated to current and historic tasks. In addition, you can create and execute new tasks. As an example, this page could be used as a starting point when you know the tasks names, while you are building a run, and if you want to see all the tasks of a specific type that are currently active. It is also common that you may reference this page through the Activity Dashboard and the Manage Runs page.

Fields and Buttons

The top section of the Manage Tasks page allows you to search for tasks that match criteria in the fields.

- **Task ID:**Task system-assigned, unique identifier
- **Task Type Code:** Search for tasks that are a specific task type code.
- **Task Name:** Name that was given to the task when it was added.
- **Task Lookup:** Secondary task description assigned when the task was added.
- **Status:** Search for tasks that are a specific status.
- **Get Tasks button:** Search for tasks matching the criteria set in the top section's fields.
- **Add Task button:** Opens the Create Tasks dialog box where you may build a new task. See "Adding Tasks" on page 100.

Data Table

The Data Table columns include:

- **ID:** Task system-assigned, unique identifier.
- **Task Type Code:**Task type assigned to the run when it was created.
- **Task Name:**Task name as designated when the task was added.
- **Task Lookup:** Secondary task description that was assigned when the task was added.
- **Status:** Task status (Active or Inactive).
- **Create Time:** Date and time when the task was created.
- **Update Time:** Date and time when the task was updated.
- **File Log link:** Navigates to the Manage File Logs page and displays the current context to provide further information.
  Note: this link only appears when a log exists.
- **XML Editor link:** Displays the Tasks XML Editor. This link only appears for ETL tasks since they have XML embedded in the YAML. See "Editing ETL Task XML with the Tasks XML Editor" on page 109.

- **View link:** Opens the View Task dialog box, which displays the same data as provided in the data table row as well as task description and locked flag information.
- **Edit link:** Opens the Manage Tasks dialog box, which provides the same fields as the View Tasks dialog box, and allows you to edit the Locked Flag and Status.
- **YAML link:** Opens the Task Definition dialog box, which allows you to view and edit the associated YAML. See "Editing Task YAML" on page 102.
- **Task Log link:**Navigates to the Task Log page and displays the current context to provide further information.

Adding Tasks

To add a task:

1. Click **Add Task** on the **Manage Tasks page.**
2. Enter the appropriate type in the **Task Type Code** field of the Create Tasks dialog box:
   - Dataset Export (DSEXP)
   - ETL on core schema (ETL)
   - Fact audit (FACT_AUDIT)
   - Geocode data (GEO)
   - Point Aggregation (PAGG)
   - Relation aggregation or derivation (RAGG)
   - RAN maintenance (RANMAINT)
   - Scenario to run calc (SCENARIO)
   - Time Aggregation (TAGG)
3. Enter a descriptive name in the **Task Name** field.
4. Enter a value for task lookup in the **Task Lookup** field. The task lookup value can be any unique alphanumeric value without spaces. A common practice is to use the task name without spaces in uppercase.
5. Enter a short description of the task function in the **Task Desc** field.
6. Select whether the task is **Active** or **Inactive** from the **Status** drop-down list**.** Only active tasks may be executed.
7. Enter the template YAML for the task type in the **Task Definition** field. See "Editing Task YAML" on page 102.

Viewing Task Information

The View Tasks dialog box is accessed from the View link, which is found in the Manage Tasks page's data table. This feature offers additional information to what is displayed in the Manage Tasks data table.

Fields

- **ID:** Task system assigned, unique identifier.
- **Task Type Code:** Type code type that was assigned to the task when it was added. See "Adding Tasks" on page 100.
- **Task Name:** Name that was assigned to the task when it was added.
- **Task Lookup:** Secondary description that was assigned when the task was added.
- **Task Desc:** Additional information that describes the task's function.
- **Locked Flag:** Task lock flag value (Locked or Unlocked).
- **Status:** Task status (Active or Inactive).
- **Create Time:** Date and time when the task was created.
- **Update Time:** Date and time when the task was updated.

Links and Buttons

- **Task Definition link**: Contains the YAML link, which opens the Task Definition dialog box. See "Viewing Task Definition YAML" on page 102.
- **Edit button**: Opens the Manage Tasks dialog box. See "Managing Task Information" on page 101.
- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Opens the Execute Tasks Details dialog box. See "Executing Tasks" on page 110.

Managing Task Information

The Manage Tasks dialog box opens when you click the Edit link on the task data table row or the Edit button on the View Tasks dialog box.

Fields and Links

- **ID:** Task system assigned, unique identifier.
- **Task Type Code:** Type code type that was assigned to the task when it was added. See "Adding Tasks" on page 100.
- **Task Name:** Name that was assigned to the task when it was added.
- **Task Lookup:** Secondary task description assigned when the task was added.

- **Task Desc:** Additional information that describes the task's function.
- **Locked Flag:** Set the task's lock flag (Locked or Unlocked).
- **Status:** Set the task's status (Active or Inactive).
- **Create Time:** Date and time when the task was created.
- **Update Time:** Date and time when the task was updated.
- **Task Definition link:** Contains the YAML link, which opens the Task Definition dialog box. See "Viewing Task Definition YAML" on page 102.

Buttons and Links

- **Execute Now link**: Opens the Execute Tasks Details dialog box. See "Executing Tasks" on page 110.
- **Save button**: Save any changes that have been made.
  Note: The button is disabled until a field has been modified.
- **Cancel button**: Closes the dialog box.

Viewing Task Definition YAML

The Task Definition dialog box displays the YAML code that defines the task. From this dialog box, you may view the parameters defined in the YAML or edit the content by clicking Edit. See "Editing Task YAML" on page 102.

Editing Task YAML

The YAML that defines a task is edited from the Task Definition dialog box.

To make task definition YAML editable:

1. Click the YAML link in either the Task Data Table or the View Tasks dialog box.
2. Click **Edit** in the **Task Definition** dialog box .

Note: Each task type has unique requirements that are specified in its YAML. You define your task by updating generic YAML with task parameters. All tasks begin with:

```
---
task:
    # <name or descriptor> task definition

    # ------------------------------------------------------
    name: task_<task name>
    module_name: dr.task.<task-code> #.py is always assumed by python
    task_method_name: startTask
    post_task_method_name: postTask
```

YAML Task Templates

With the exception of the ETL task, all tasks require that you add and modify template YAML to the Task Definition. The templates provide comments (beginning with #) that provide usage information.

For example, if the requirement is to add a file format, the usage instructions would be:

```
# CSV, JSON, XML
```

DSEXP: Dataset Export

Exports dataset values in the format specified.

```
---
    task:
    # Dataset export task definition
    # -----------------------------------------------------
    name: task_dsexp
    module_name: dr.task.dsExp #.py is always assumed by python
    task_method_name: startTask
    post_task_method_name: postTask

    debug_flag: False
    header_flag: False
    delimiter: "|"
    quoting:  none
    footer_flag: False
    export_format: CSV # Formats: CSV, JSON, XML
    point_format: name # Formats: ID, lookup, name, verbose
    target_name: XXX
    target_date_format: ".%Y%m%d."
    target_extension: txt
    target_directory: /XXX/XXX
    target: XXX
    #blacklistedFields: ['point', 'startDate']
```

ETL

The ETL task contains YAML with embedded XML. Some XML data may only be added in the Task Description, while others may be added and modified with the Tasks XML Editor.

```
---
    task:
    # etl task definition
    # -----------------------------------------------------
    name: etl
    module_name: dr.task.etl #.py is always assumed by python
    task_method_name: startTask
    post_task_method_name: postTask

    XML:
    <etl xmlns="http://dataraker.net/etl.xsd"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://dataraker.net/etl.xsd">
    <source desc="XXX" name="mr" xsi:type="source_type_file"
```

```
file_archive_flag="true" file_compress_flag="false">
<source_name></source_name>
<conn_name></conn_name>
<file_path>/XXX/XXX/</file_path>
<archive_path>/XXX/XXX/archive</archive_path>
<file_mask>XXX.XXX.[%Y.%m.%d].*.XXX</file_mask>
</source>
<formats>
<format xsi:type="format_type_fixed_width"
name="XXXX_fixed_width" desc="XXX" line_terminator="\n"
min_row_length="154" max_row_length="1000">
<format_name></format_name>
<format_options></format_options>
<fields xsi:type="field_type" length="XXX" start_pos="1"
name="PTC" data_type="string" date_format=""></fields>
<fields xsi:type="field_type" length="XXX" start_pos="1"
name="PARENT_PTC" data_type="string" date_format=""></fields>
<fields xsi:type="field_type" length="XXX" start_pos="1"
name="VAL" data_type="string" date_format=""></fields>
</format>
</formats>
<etl_options>
<option name="read_batch_size" value="10000"/>
<option name="point_batch_size" value="1000"/>
<option name="target_batch_size" value="10000"/>
<option name="log_all_errors" value="true"/>
<option name="debug_table" value="false"/>
<option name="debug_file" value="false"/>
<option name="auto_trim" value="true"/>
<option name="max_error_count" value="0"/>
</etl_options>
<global_variables></global_variables>
<variables>
<variable is_active="true" name="point_lookup">
<value>XXXX</value>
</variable>
</variables>
<points>
<point duplicates="last" is_active="true" name="PTC"
xsi:type="point_lookup_type_ins">
<point_type_code></point_type_code>
<point_lookup></point_lookup>
<point_name></point_name>
<point_tag></point_tag>
<point_utc_offset></point_utc_offset>
<point_desc></point_desc>
</point>
<point duplicates="last" is_active="true" name="PARENT_PTC"
xsi:type="point_lookup_type_ins">
<point_type_code></point_type_code>
<point_lookup></point_lookup>
<point_name></point_name>
<point_tag></point_tag>
<point_utc_offset></point_utc_offset>
<point_desc></point_desc>
</point>
```

```
</points>
<variables_pt>
</variables_pt>
<targets>
<target xsi:type="target_type_metric" name="XXX"
duplicates="max" is_active="true">
<fact_attr>
<attr name="fact_lookup" value="XXX"/>
<attr name="fact_name" value="XXX"/>
<attr name="fact_category" value="XXX"/>
<attr name="fact_sequence" value="0"/>
<attr name="time_basis" value="XXX"/>
<attr name="agg_method" value="n/a"/>
<attr name="infer_delete_flag" value="false"/>
</fact_attr>
<point>P_PTC</point>
<start_time>XXX</start_time>
<filters>
<filter>P_PTC</filter>
</filters>
<value>F_VAL</value>
</target>
<target xsi:type="target_type_relation" name="XXX"
duplicates="last" is_active="true">
<fact_attr>
<attr name="fact_lookup" value="XXX"/>
<attr name="fact_name" value="XXX"/>
<attr name="fact_category" value="XXX"/>
<attr name="fact_sequence" value="0"/>
<attr name="time_basis" value="n/a"/>
<attr name="agg_method" value="n/a"/>
<attr name="infer_delete_flag" value="false"/>
</fact_attr>
<point>P_PTC</point>
<start_time>XXX</start_time>
<filters>
<filter>P_PTC</filter>
</filters>
<parent_point>P_PARENT_PTC</parent_point>
</target>
</targets>
</etl>
```

Once the data has been entered in the XML elements, you may use the Tasks XML Editor to modify your settings. See "Editing ETL Task XML with the Tasks XML Editor" on page 109.

FACT_AUDIT: Fact Audit

The fact audit task allows you to perform a fact audit of generated or loaded data (METRIC, INT_METRIC, and/or RELATION fact types). The fact audit looks for trends in data.

```
---
   task:
   # fact audit task definition
   # ------------------------------------------------------
```

```
   name: task_factaudit
   module_name: dr.task.factAudit #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask

   targets: [
   # [ 'METRIC', '*'],
   # [ 'INT_METRIC', '*'],
   # [ 'RELATION', '*'],

   ]

   # subscriber_list: [] # Default behavior. Will execute all subscribers as set in FactAudit
                         # worker code
   subscriber_list: ['FASDBAudit'] # Optionally override the subscribers you want to run for.
                                   # If defined subscriber is invalid its execution is skipped

   # The targets criteria may be limited by substituting a point type code for the '*' wildcard,
   # which will audit facts for all points types. For example, if you want metric facts
   # for an electric meter, the target would be:
   targets: [
   [ 'METRIC', 'EM'],
   ]
```

FOPS: File Operations

File operations rename files.

```
---
   task:
   # ETL trigger for CSS Demand Reads
   # -----------------------------------------------------
   name: task_file_ops
   module_name: dr.task.fileOps #.py is always assumed by python
   task_method_name: startTask
   file_ops:
   - fops_rename:
   is_active: True
   conn_type: SFTP
   conn_name: ssh_sftp_int
   content_keyword_inspect:
   file_path: /XXX/XXX
   source_file_pattern: XXX.XXX.[%Y.%m.%d].*.txt
   filename_keyword_exclude: xxx
   target_file_pattern: XXX.XXX.[%Y.%m.%d].*.txt
   target_task_env: XXX
   target_task_lookup: YYYY
   target_task_type_code: ETL
```

GEO: Geospatial

```
---
  task:
```

```
# GeoSpatial task definition
# ------------------------------------------------------
name: task_geospatial
module_name: dr.task.geoSpatial #.py is always assumed by python
task_method_name: startTask
post_task_method_name: postTask

debug_flag: False
filter_limit: 1000
proxy: http://geocoding.dataraker.net/geocoder
#relations: [['PTC','PARENT_PTC']]
```

PAGG: Point Aggregation

The point aggregation task aggregates data from child to parent types such as from a meter to a line transformer. Inputs include:

- **PTC:** Point type code for child.
- **Mode:** Fact type (INT, INT_METRIC, RELATION). See Fact Types.
- **factLookupList:** Facts within the mode that you wish to aggregate.
- **targetPTCList:** Point type that you wish to aggregate to.
- **targetMetricList:** Metrics that you want returned.

```
---
   task:
   # pagg task definition
   # ------------------------------------------------------
   name: task_pagg
   module_name: dr.task.pagg #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask
   min_batch_count: 30

   # List of definitions in the following format:
   # [[ PointTypeCode, Mode, [factLookupList], [targetPTCList], [targetMetricList] ], ...]
   # Example:
   #    targets: [
   #       ['EM', 'INT_METRIC', ['HOURLY_KWH'], ['PRMS'], ['SUM']],
   #       ['EM', 'COUNT', ['DAILY_POWER_OUTAGE_FLAG'], ['PRMS'], []],
   #       ['EM', 'METRIC', ['DAILY_KWH_CSM'], [], ['AVG','SUM','P10','P90']]
   #    ]
   targets: [
   #['PTC', 'METRIC', ['FACT_LOOKUP'] ,['PARENT_PTC'], ['CNT','SUM']]
   ]
```

If the target metric list is empty, all metrics will be returned.

RAGG: Relation Aggregation

The relation aggregation connects all parent point types to their child point types. There is no configuration needed.

```
---
   task:
   # ragg task definition
   # -----------------------------------------------------
   name: task_ragg
   module_name: dr.task.ragg #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask

   output_to_file_flag: False # sample output only for testing purpose
   source_ptc_list: ['*'] # this results in standard behavior
```

RANMAINT: Relation and Numeric Attribute Maintenance

The relation and numeric attribute maintenance task caches attribute data to enhance system performance. This task is performed after daily core processing. The cache is valid for 24 hours.

```
---
   task:
   # RAN Maint task definition
   # -----------------------------------------------------
   name: task_ranmaint
   module_name: dr.task.cacheheatup #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask
   source_ptc_list: ['*']
```

SCENARIO: Scenario

The scenario task executes a scenario. see See "Scenarios" on page 184. for information.

```
---
   task:
   # Scenario task definition
   # -----------------------------------------------------
   name: task_scenario
   module_name: dr.task.scenario #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask
   debug_flag: False
   variables:
   DUMMY: true
```

TAGG: Time Aggregation

The time aggregation task allows you to aggregate data over time.

Inputs

- **Point Type Code:** Point type to use in the time aggregation.
- **Mode:** Data fact type from:
  - METRIC (daily)
  - INT_METRIC (sub-daily)
  - EVENT (head-end system events)
- **Time Aggregation Basis:** What time frame to aggregate to.
- **Day Types:** Type of days to use in the aggregation:
  - WEEKDAY: Only weekdays (Monday through Friday)
  - WEEKEND: Only weekend days (Saturday through Sunday)
  - ALL_DAYS: All days (Sunday through Saturday)
- **Fact Types:** Which facts to include in the aggregation.
- **Target Metrics:** What metrics (e.g., average, count, etc.) to return.

```
---
   task:
   # tagg task definition
   # ------------------------------------------------------
   name: task_tagg
   module_name: dr.task.tagg #.py is always assumed by python
   task_method_name: startTask
   post_task_method_name: postTask
   # List of definitions in the following format:
   # [[ (PointTypeCode, Mode, TAggBasis, [DayTypes], [factLookupList], [targetMetricList])] ..]
   # If DayTypes is not specified it defaults to all the day types supported:
   # [ 'WEEKDAY' , 'WEEKEND', 'ALL_DAYS' ]
   # If targetMetricList is not specified it defaults to all the target
   # metrics supported: [ 'CNT','SUM','AVG','SSQ','MAX','MXD']
   # Example:
   #    targets: [
   #       [ ACCNT, METRIC, MONTHLY, [], [SUM_DAILY_KWH_CSM], [] ],
   #       [ EM, INT_METRIC, DAILY, [], [HOURLY_KWH], [] ],
   #       [ EM, EVENT, MONTHLY, [], [DAILY_MAGNETIC_FLAG], [] ]
   #    ]
   #targets: [ [ ACCNT, METRIC, MONTHLY, [], [SUM_DAILY_KWH_CSM], [] ] ]

   targets: [
   #[ PTC, INT_METRIC, DAILY, ['ALL_DAYS'], ['FACT_LOOKUP'], ['SUM','CNT']]
   ]
```

Editing ETL Task XML with the Tasks XML Editor

ETL XML may be edited with the Tasks XML Editor. All elements shown in the template YAML's XML element correspond with information found in the XML Editor; however, it is

best to fill in as much detail as possible with the Task Definition because some fields may be edited, but not added with the XML Editor.

Executing Tasks

Tasks can be executed manually or scheduled to run periodically by creating a run. See "Managing Run Information" on page 89. The Execute Tasks Details dialog box can be accessed from the Execute Now link found in the Manage Tasks' View Tasks or Edit Tasks dialog boxes.

To execute tasks:

1. Click either the **View** or **Edit** link on the **Manage Tasks.**
2. Click the **Execute Now** link in the dialogue box.
3. In the **Execute Tasks Details** dialog box, do the following:
   a. Verify the **name** field (display only). This is the name assigned to the task when it was added. See "Adding Tasks" on page 100.
   b. Enter the date that the task should be executed in the **Start Date** field,
   c. Enter the date that the task should be stopped if it is still running in the **End Date** field.
   d. Select the task's priority on the node from the **Priority** drop-down. Base values include: Highest, Default, and Lowest.
   e. (Optional) Enter an email address to send a message to if the task ends unexpectedly in the **Failure Email** field.
   f. Verify the **lookup** field (display only). This is the task's lookup name as designated when the task was added.
   g. Select the **MANUAL** execution method in the **Type** drop-down,.
   h. Select the type of task from the **Run Mode** drop-down (**STD** or **Dynamic**).
   Note: STD is standard. Dynamic is not in use.
   i. (Optional) Enter an email address to send a message to if the task completes successfully in the **Success Emai**l field.
4. Click **OK**.

Manage Task Logs

The Manage Task Logs provide data that describe a task's processing information. The logs are automatically generated while the task runs.

Fields and Buttons

The top section of the Manage Task Logs page allows you to search for task logs matching criteria in the fields. Fields and buttons include:

- **Task ID:** Task's system-assigned, unique identifier.
- **Task Log ID:** Task log's system-assigned, unique identifier.
- **Refresh Rate:** Frequency, in seconds, that the results should be automatically updated.
- **Run Log ID:** Run log's system-assigned, unique identifier. By entering this criteria, you will search for task logs that were executed within a specific run.
- **Get Logs:** Initiates a search for logs matching criteria set in the fields.

Data Table

The data table contains the following elements:

- **Task Log ID:** Task log's system-assigned, unique identifier.
- **Server Process:** Server node that executed the task.
- **Task Start Time:** Date and time that the task started.
- **Task End Time:** Date and time that the task ended.
- **Transaction:** Associated transaction's system-assigned, unique identifier.
- **Explore link:** Opens the Explore Calc dialog box.
- **View link:** Opens the View Task Logs dialog box, which displays processing information such as the execution type, addresses to email if the task was successful or failed, and the task's status code. See "View Task Logs" on page 111.
- **Transaction:** Navigates to the Manage Transactions page and displays the current context to provide further information.

View Task Logs

The View link in the Manage Task Logs' data table launches the View Task Logs dialog box . This dialog box displays some of the same run log information as well as some additional information:

Fields and Buttons

- **Task Log ID:**Task log's system-assigned, unique identifier.
- **Run Log ID:** Run log's system-assigned, unique identifier.
- **Task ID:** Task's system-assigned, unique identifier.
- **Execution Type:** Method that the task was initiated.

- **Success Email:** Address to send a notice when the run completes.
- **Failure Email:** Address to send a notice in case the run fails.
- **Server Process:** Server node that executed the task.
- **Run Mode:** Run's processing category.
- **Data Start Time:** Earliest date and time of the data that was included in the run.
- **Data End Time:** Latest date and time of the data that was included in the run.
- **Task Start Time:** Date and time that the task started.
- **Task End Time:** Date and time that the task ended.
- **Status Code:** Indicates if the run status (In Progress, Successful, or Fatal error).
- **Task Progress:** Task's current status (percentage of completion).
- **Task Priority:** Indicates the task's priority on the node.
- **Scenario ID:** Associated scenario's ID.
- **Filter ID:** Associated filter's ID.
- **Filter Seq ID:** Filter's system-generated, unique identifier as listed on the filter sequence table.
- **Cancel button**: Closes the dialog box.

File Log

Whenever a file is uploaded into the system, an associated log is generated. This page allows you to search for and view related information.

Fields and Buttons

The top section of the Manage File Logs page allows you to search for file logs matching criteria using the following elements:

- **Task ID:** File's system-assigned, unique identifier.
- **Get Logs:** Initiates a search for logs matching criteria set in the field.

Data Table

The data table contains the following elements:

- **File Log ID:** System-generated, unique file identifier.
- **Task ID:** System-generated, unique identifier for the associated task.
- **File Name:** Name that was given to the file prior to loading.

- **File Timestamp:** File creation date.
- **File Date:**Date and time that was included inside the file. (Note: time is optional because since not all files arrive with that information.)
- **View link:** Opens the File Logs dialog box, which displays the same data as provided in the data table row. See "View File Logs" on page 113.

View File Logs

Fields and Buttons

The View link in the Manage File Logs' data table launches the View File Logs dialog box. This dialog box displays some of the same file log information as well as some additional information and elements:

- **File Log ID:**File log's system-generated, unique identifier.
- **Task ID:** Associated task's system-generated, unique identifier.
- **File Name:** Name that was given to the file prior to loading.
- **File Size:** File's size in bytes.
- **File Line Count:** Number of lines that the file contains (based on the number of line breaks within the file).
- **File Timestamp:** Date and time that the file was last modified.
- **File Date:** Date and time that was included inside the file. (Note: time is optional because since not all files arrive with that information.)
- **Target File Name:** Name that the system assigns the file once it's moved to the internal file system.
- **Create Time:**Date and time that the file log entry was created (this should coincide with the time that the file was loaded into the system).
- **Create Transaction ID:** Transaction's ID that was responsible for creating the file log entry when the file was loaded
- **Cancel button**: closes the dialog box.

Manage Transactions

Transactions are created to document system events; for example, a transaction is created when you log in, or whenever a task is executed. Transactions are typically used to troubleshoot failed processes, see how many entities were included within a task, and review system performance.

This page allows you to search for and view information related to transactions. This page is commonly accessed through links from other pages (such as, the Activity Dashboard, Manage Runs, and Manage Tasks) because it is necessary to know the system-generated transaction identifier or name in order to find a specific transaction.

Fields and Buttons

The top section of the Manage Transactions page allows you to search for transactions matching criteria in the fields:

- **Transaction ID:** Transaction's system-generated, unique identifier.
- **Task Log ID:** Task log's system-generated, unique identifier.
- **Transaction Type Code:** Search by the transaction type.
- **Transaction Name:** System-assigned name to the transaction.
- **Refresh Rate:** Frequency, in seconds, that the results should be automatically updated.
- **Get Transactions:** allows you to search for transactions matching the criteria set in the top section's fields.

Data Table

The data table includes the following elements:

- **Transaction ID:** Transaction's system-generated, unique identifier.
- **Task Log ID:** Task log's system-generated, unique identifier.
- **Transaction Type Code:** Transaction's system-assigned type.
- **Transaction Name:** System-assigned transaction name.
- **Server Process:** Server node that executed the task.
- **Transaction Value Count:** Displays the number of values that were used to complete the transaction.
- **View link:** Opens the View Transactions dialog box, which displays the same data as provided in the data table row. In addition, it includes transaction description, status code, transaction progress, transaction start time, transaction end time, and create time.
- **Transaction Log link:** Navigates to the Transaction Log page so that you can see further information. See "Transaction Log" on page 114.
- **Batch Log link**: Navigates to the Batch Log page so that you can see further information. See "Batch Log" on page 115.

Transaction Log

Whenever transactions are created, they generate an associated log within the system. This page allows you to search for and view related information.

Fields and Buttons

The following elements allow you to search for logs matching criteria:

- **Transaction ID:** the transaction's system-generated, unique identifier.
- **Get Logs:** initiates a search for logs matching criteria set in the field.

Data Table

The data table contains the following elements:

- **Transaction ID:**Transaction's system-generated, unique identifier.
- **Message Type:** Log's system assigned type.
- **Log Description:** Additional information that describes why the log entry was created.
- **Create Time:** Date and time that the log was generated.

Batch Log

Whenever background processes execute, they generate an associated log within the system. This page allows you to search for and view related information.

Fields and Buttons

The top section of the Manage Batch Logs page allows you to search for logs using the following fields and buttons:

- **Batch ID:** Batch's system-assigned, unique identifier.
- **Transaction ID:**Transaction's system-assigned, unique identifier.
- **Refresh Rate:** Frequency, in seconds, that the results should be automatically updated.
- **Get Logs:** Allows you to search for batch logs matching the criteria set in the top section's fields.

Data Table

The data table contains the following elements:

- **Batch ID:** Batch's system-assigned, unique identifier.
- **Transaction ID:** Transaction's system-assigned, unique identifier.
- **Batch Type Code:** Associated batch code that was assigned when the batch job was added.
- **Status Code:** Batch process' current status.
- **Server Process:** Server node that executed the batch job.
- **Batch Value Count:** Number of values loaded by the batch job.

- **Create Time:** Date and time that the batch log was generated.
- **View link:** opens the View Batch Logs dialog box, which contains the same information as the data table. In addition, it includes batch description, start time, end time, parent batch ID, and update time. See "View Batch Logs" on page 116.

View Batch Logs

The View Batch Logs dialog box is accessed from the View link, which is found in the Manage Batch Log page's data table. This feature offers additional information to what is displayed in the Manage Batch Log's data table.

Fields and Buttons

The View Batch Logs dialog box contains the following fields and buttons:

- **Batch ID:** System-generated, unique identifier for the batch log.
- **Transaction ID:** System-generated, unique identifier for the associated transaction.
- **Batch Type Code:** Batch type assigned to the batch when it was added.
- **Batch Description:** Short description that explains the batch job's function.
- **Start Time:** Date and time that the batch job was executed.
- **End Time:** Date and time that the batch job stopped.
- **Status Code**: Indicates whether the batch job is In Progress, ran Successfully, or had a Fatal error.
- **Server Process:** Indicates the batch's current status.
- **Batch Value Count:** Number of entities that were processed.
- **Parent Batch ID:** Parent batch's system-generated, unique identifier, if applicable.
- **Create Time:** Date and time that the batch was added.
- **Update Time:** Date and time that the batch was most recently updated.
- **Cancel button**: Closes the dialog box.

Fact Audit

Facts can be imported into the system or generated through an analytics process. A fact is a single characteristic or event that can be used to look for occurrences of that characteristic; for example, a fact can be defined as a non-reporting meter event. You can then use the fact in a filter to search for all the instances of non-reporting meters. See "Selecting a Fact" on page 60.

Facts are typically updated daily through core processes. The Manage Fact Audits page assists in troubleshooting fact or finding more information about the results from the core

processes. You can see the number of data points (Point Count) that are available as well as the number of instances that are associated to the fact (Value Count).

This page allows you to view fact audit data that was selected in the Search Pane. See "Search Pane" on page 13. The Manage Fact Audits page is accessible from the Manage Operations menu and from the Administer Facts page. See "Administer Facts" on page 192.

Fields and Buttons

The top section of the Manage Fact Audits page allows you to search for fact audits matching criteria using the following fields and buttons:

- **Fact ID:** Fact's system-generated, unique identifier.
- **Fact Type Code:**Search for facts that are a specific fact type.See "Understanding Facts" on page 5.
- **Time Basis:** Search for facts that are based on a specific period of time. See "Time Basis" on page 35.
- **Fact Category:** Search for facts that are a specific fact category.
- **Fact Name:** Name given to the fact when it was added.
- **Fact Lookup:** Secondary description given to the fact when it was added.
  Note: This field is case sensitive.
- **Fact Source:** Data or calculation that produced the fact.
- **Role Type Code:** Search for facts associated to a specific role type. See "Drawer Menu" on page 11.
- **Aggregation Method:** Mathematical function used to calculate the fact.
- **Parent PTC:** Point type code associated to a parent object.
- **Get Fact Audits button:** allows you to search for facts matching the criteria set in the top sections fields.

Data Table

The data table contains the following elements:

- **Fact ID:** Fact's system-assigned, unique identifier.
- **Point Type Code:** Point type code that was used within the fact.
- **Fact Type Code:** Fact type, if any, that was assigned to the fact when it was added.
- **Role Type Code:** Associated role type, if any, that was assigned to the fact when it was added.
- **Fact Name:** Name that was give to the fact when it was added.

- **Fact Lookup:** Secondary description, or nickname, that was given to the fact when it was added.
  Note: This field is case sensitive.
- **Audit Date:**Date and time that the audit was run.
- **Point Count:** Number of potential data points identified to derive this fact.
- **Value Count:** Number of actual data points used to derive this fact.
- **Parent Point Count:** Number of parent data points that were used when deriving this fact.
- **View link:** Opens the View Facts Audit dialog box, which contains the same information as the data table. In addition, it displays point type code and create transaction ID. See "Fact Audit" on page 116.

View Fact Audits Information

The View Fact Audits dialog box opens when you click the View link on the Manage Fact Audits data table row.

Fields and Buttons

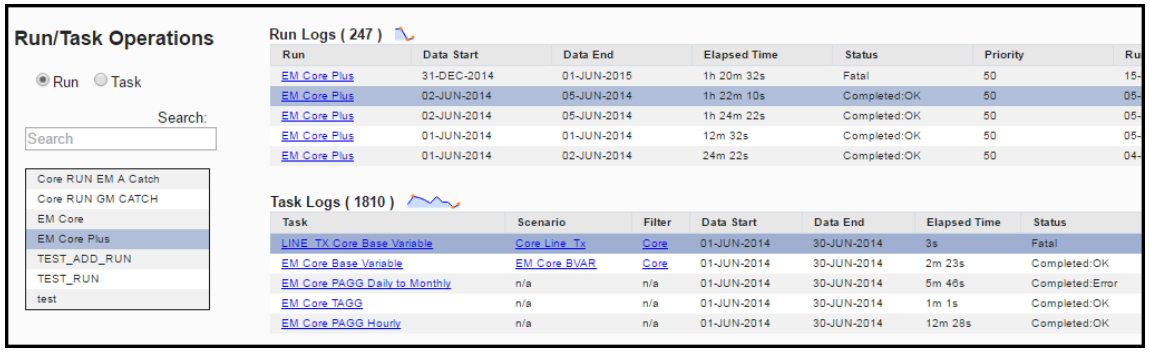
The following fields and buttons allow you to view the Fun Facts Audits data:

- **Fact ID:** Fact's system-assigned, unique identifier.
- **Point Type Code:** Point type code that was used within the fact.
- **Fact Type Code:** Fact type, if any, that was assigned to the fact when it was added. See "Understanding Facts" on page 5.
- **Fact Category:** Grouping of like facts such as consumption facts.
- **Time Basis:** Period that consumption is viewed across data read intervals. See "Time Basis" on page 35.
- **Role Type Code:**Associated role type, if any, that was assigned to the fact when it was added. See "Drawer Menu" on page 11.
- **Fact Name:** Name give to the fact when it was added.
- **Fact Lookup:**Secondary description, or nickname, that was given to the fact when it was added.
- **Audit Date:** Date and time that the audit was run
- **Point Count:** Number of potential data points identified to derive this fact.
- **Value Count:** Number of actual data points used to derive this fact.

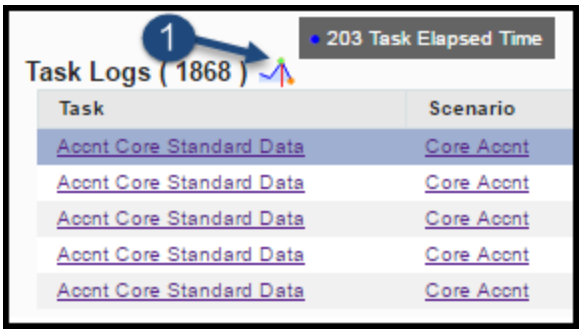
- **Parent Point Count:** Number of parent data points that were used when deriving this fact.
- **Create Time:** Date and time that the batch was added.
- **Create Transaction ID:** Associated transaction's system-defined, unique identifier when the fact was created.
- **Cancel button**: Closes the dialog box.

Run/Task Operations

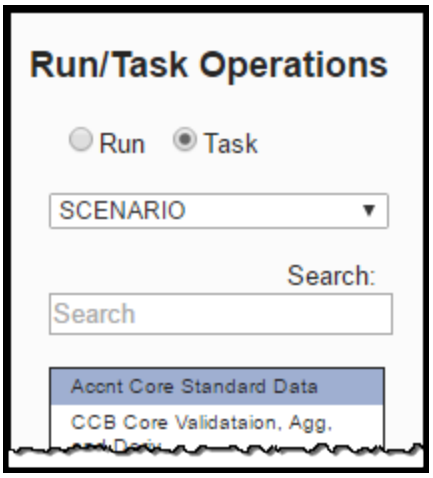
The Run/Task Operations page provides an overview of the system performance data for runs and tasks. The page table rows link back to data from the Manage Runs and Manage Task pages.



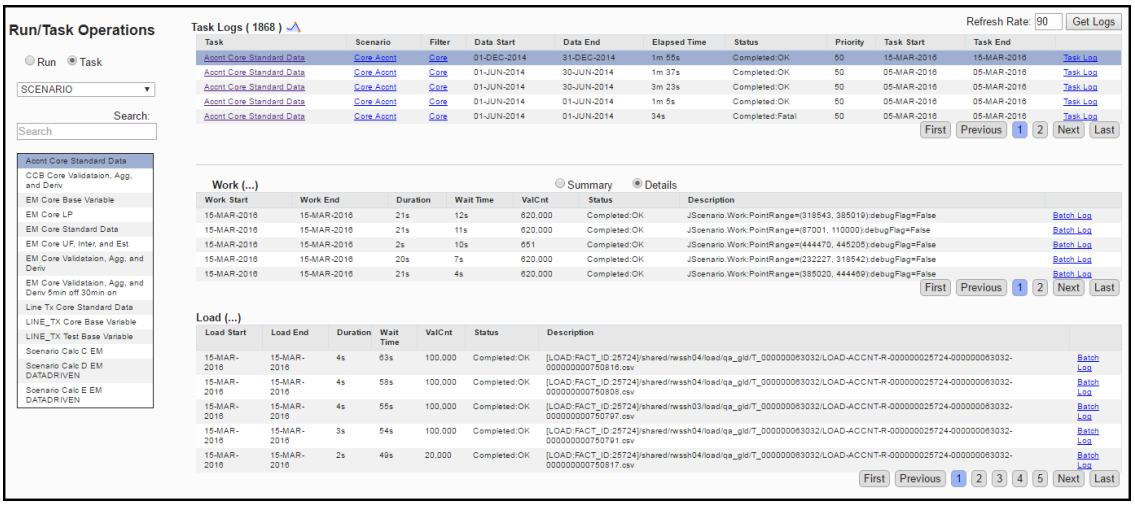
Each of the data tables provides performance charts with hover text for the various points along the transaction curve.



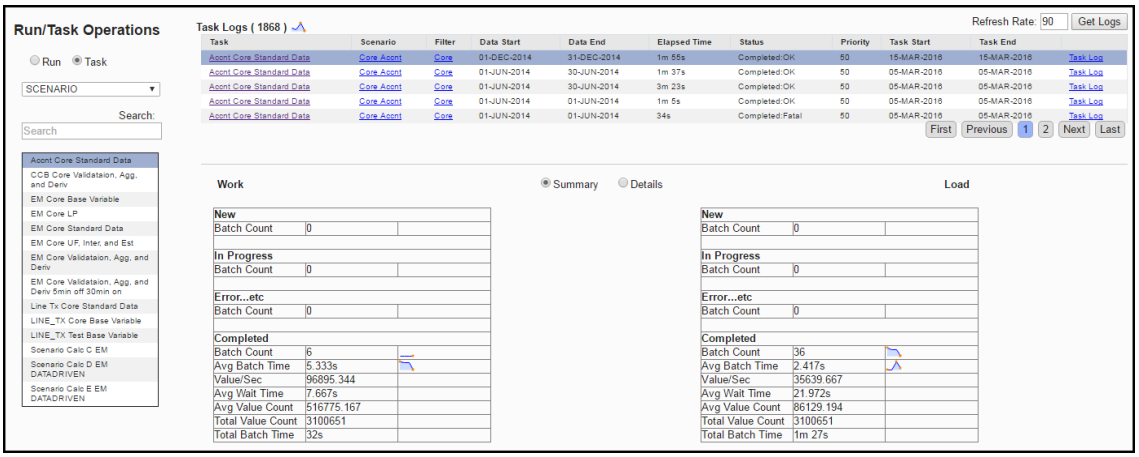
Select the **Task** button, the page will update with a Task type drop-down. See "Manage Tasks" on page 98.



Select a row in the **Task Logs** table to drill down on the data:



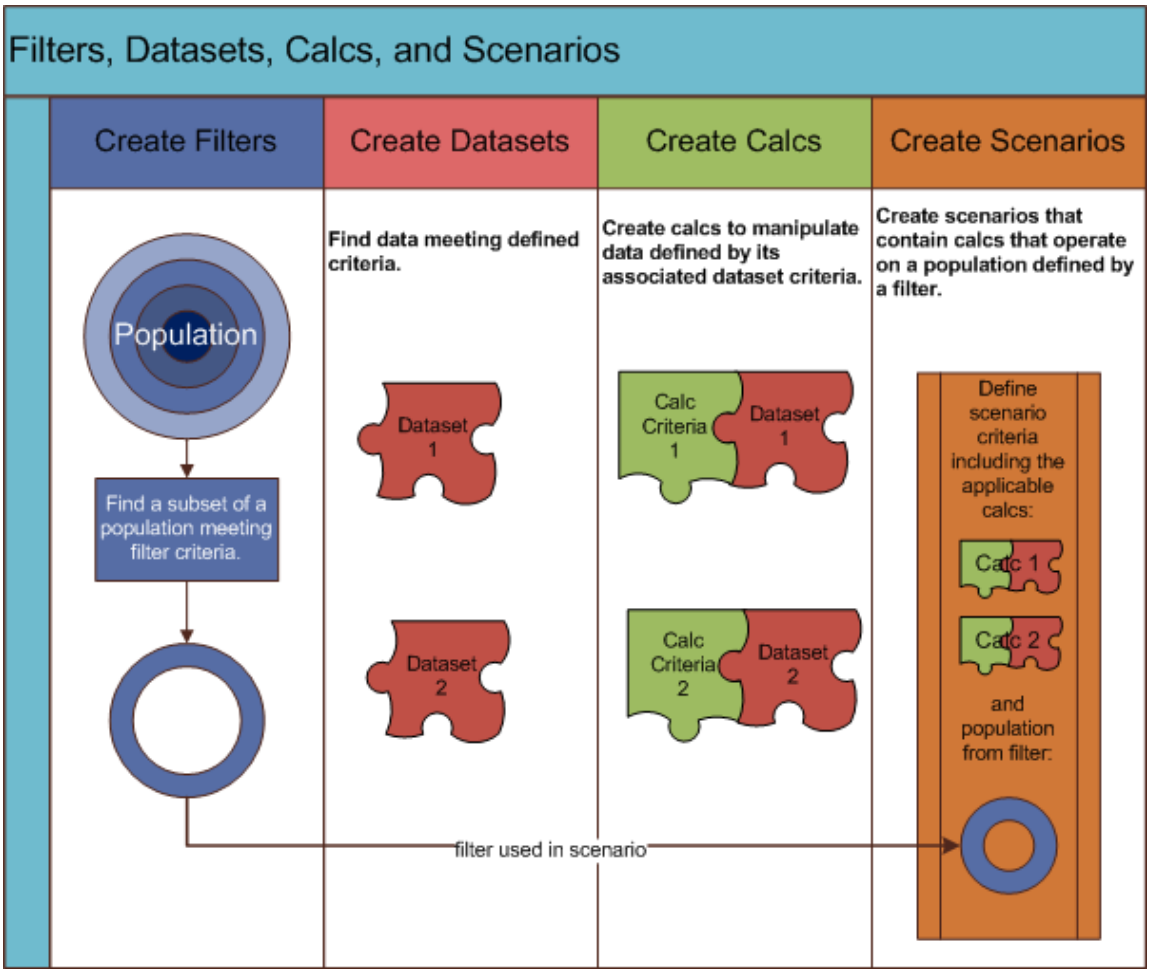
Select **Summary** to replace the Details tables with Summary tables.



Manage Analytics

The analytics functions provide the means to find and manipulate data. Each function corresponds to a Manage Analytics sub-menu:

- **Filters**: Filters reduce the scope of points to be evaluated when searching for and analyzing data.
- **Datasets**: Datasets provide the criteria for the data to be used in an algorithm (such as, a Calc).
- **Calcs**: Calcs are algorithms that define logical and mathematical operations to be performed on data (as defined by a dataset).
- **Scenarios**: Scenarios act as a wrapper for a collection of calcs to be executed sequentially on a population found using a filter.



For example, to find meters with low consumption, which may indicate that a meter is malfunctioning, you could analyze data over a short time frame (*for example,* daily) or a

longer time frame (*for example,* monthly) to look for patterns. To do so, you would need the following components:

- **Filters:** The daily or monthly versions share one filter that retrieves all meters that are active, fit a particular configuration, and do not have a seasonal usage restriction.
- **Dataset:** Two datasets are required. Each dataset pulls consumption related information; however, one will be on a daily processing basis and the other will be on a monthly processing basis.
- **Calc:** Two calcs are required for the two different time basis (daily versus monthly). Each calc evaluates data from its corresponding dataset (daily or monthly) and determines if the consumption profile fits that of a “breaking/slowing” meter.
- **Scenario:** One scenario may be created that will evaluate both calcs against the data found using the filter.

Understanding Cloning and Copying

Cloning and copying are source control functions available for filter, dataset, and calc XML *definitions*. Cloning creates a new version of a definition; while copying creates a new definition (*for example.*, a fork).

Cloning

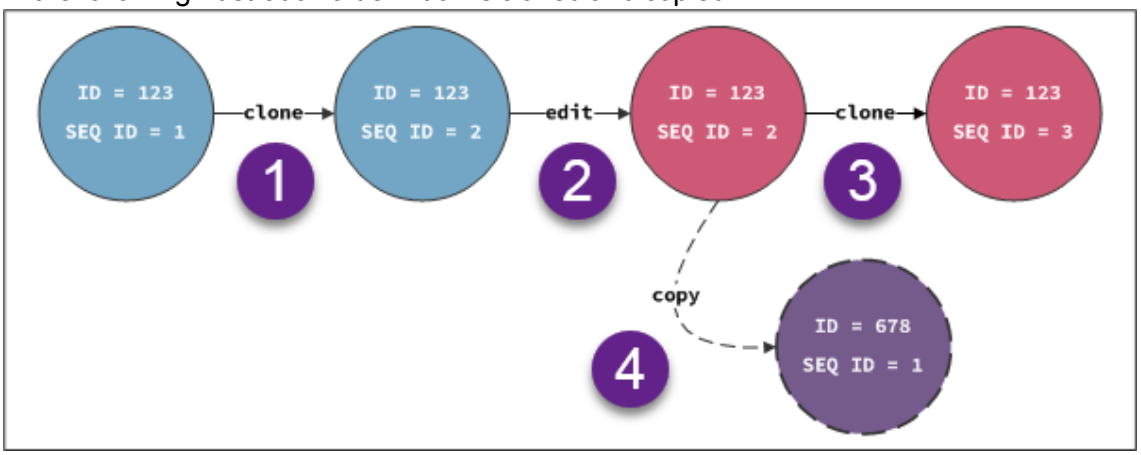
The cloning function is useful when you need to make significant changes to a definition that will replace the functionality available in the original. The original version can remain in use while the clone is edited and tested. Once the clone is ready for production, it is set to be the current version and the previous version is superseded in any procedure or task that references it. See "Understanding the Current Version Flag" on page 124.
Note: Definitions may be edited without cloning, but, once saved, you would not be able to rollback the change. Instead, you would have to manually remove the changes from the definition and save it. This is fine for minor changes, but does introduce risk.

Copying

Copying allows you to use an existing (base) definition as a starting point for a new definition. Copying is useful when a base definition has some features you need, but you want to develop other features or characteristics independently.

Process Example

In the following illustration a definition is cloned and copied.



1. A definition (ID = 123; SEQ ID 1) is cloned to get a new (second) version (ID = 123; SEQ ID 2). At this stage, the XML definition parameters are exactly the same.
2. The clone (ID = 123; SEQ ID 2) is edited.
3. The edited clone is cloned to create a third version (ID = 123; SEQ ID 3).
4. The edited clone (ID = 123; SEQ ID 2) is copied to create a new definition's first version (ID = 678; SEQ ID 1).

Scenarios

1. You believe a dataset could be more efficient if it used different methods to gather data, but the changes are complicated and you want to continuing using the dataset while you work on a more efficient solution. In this case, you need a clone because you are editing something that exists rather than creating something new.
   - You create a clone of the production (current) version and edit it to use new methods
   - You test and modify the new version until you are satisfied that it works more efficiently than the original.
   - Once complete, you put it in production (by setting its Current Version flag to 'Yes') and the initial version will no longer used in calcs that reference it.
2. You need a filter to find a meter model that is experiencing register gaps. You have a filter for meters with register gaps. You copy the existing filter definition and add the new model criteria. You can continue using the original filter for all meters with register gaps, but now you have a definition that also filters based on the meter model.

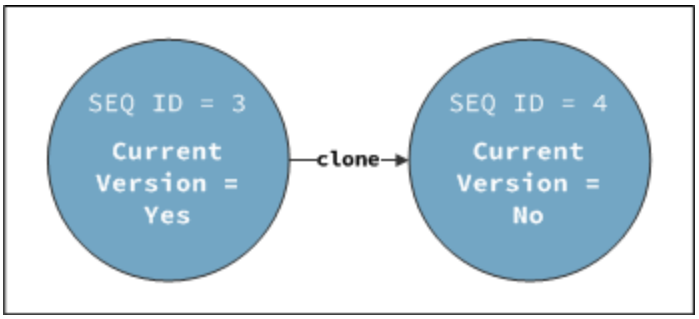
Understanding the Current Version Flag

The Current Version flag indicates whether a filter, dataset, or calc XML *definition* is ready to be used in production (For example, Current Version=Yes) or not (For example, Current Version=No). When a definition is initially added to the system, its life cycle starts with Current Version equals No.

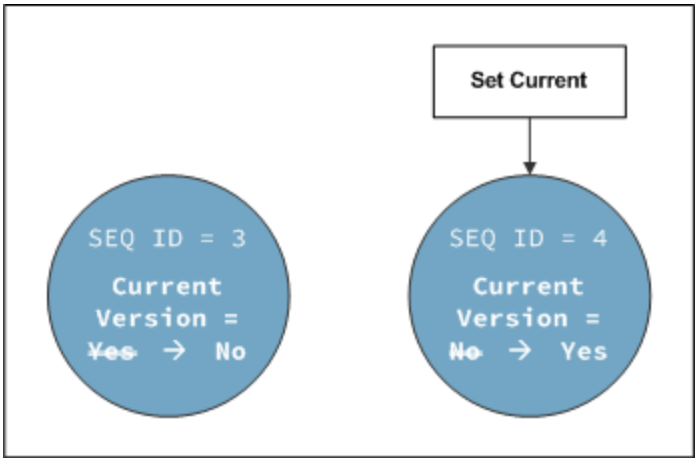
See "Filters" on page 127 for more information.

Once the definition has been edited, tested, and deemed ready for use, its Current Version flag is manually set to **Yes** by clicking the **Set Current** button on the definition's **View** or **Manage** dialog boxes.

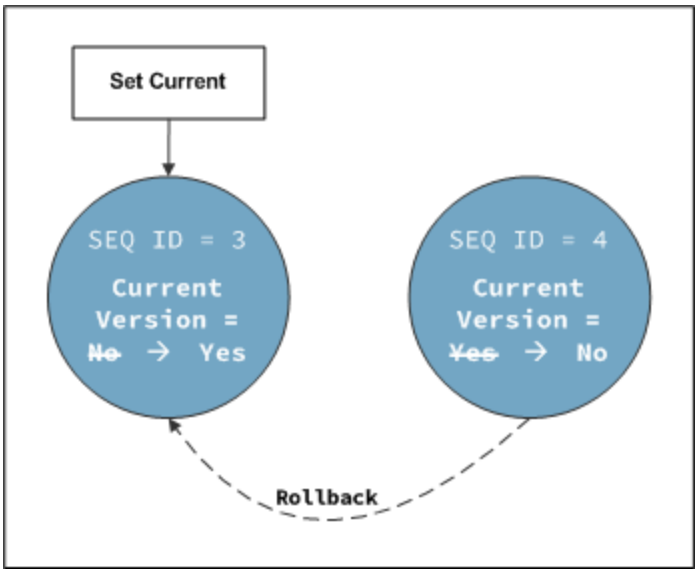
When you create of the current version of a definition, the clone starts its life cycle with its Current Version flag set to No. See "Understanding Cloning and Copying" on page 122.



Once the clone is edited and ready for production, it is manually set to be the current version and the current version flag on the "parent" definition is automatically changed from Yes to No.



If there is a problem with a clone that has been set to current, the definition may be rolled back by setting the older version to current.



Understanding the Active Status

The Active status flag is primarily used to declutter the tables that list the filters, datasets, calcs, and scenarios. A definition must be manually set to be active or inactive; once it is set, you have the option to filter the tables on each page to only show active or inactive items. Customer production environments may be preconfigured to only show Active items. See "Filters" on page 127.

If a procedure calls a specific version of a definition (using both ID and Sequence ID), an inactive status will be ignored.

Understanding XML Editors

Filters, Datasets, and Calcs are defined as XML that is stored in the metadata database. XML Editors provide a user interface for creating these definitions.

The XML Editors have the same basic structure.

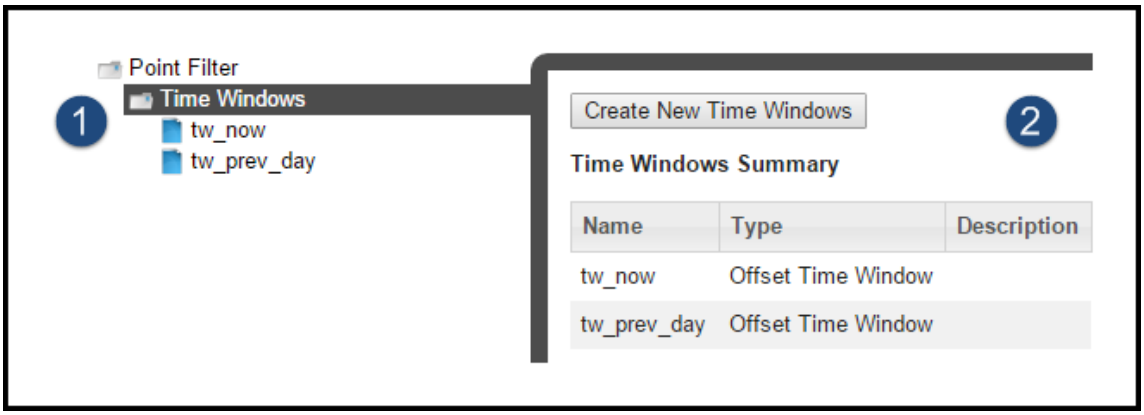


Image Number	Element Name	Description
1	Tree View	Tree-view [1] provides a hierarchical view of the XML element. ■ Click a **tree-view folder** icon, to view summary information for the elements within the folder. ■ The individual elements in the tree-view provide fields for defining the node. For example, selecting the START node in the tree-view allows you to define its settings. N**ote**: Required fields are marked with a red astrisk.
2	Summary Pane	The Summary Pane display the content of the selected element, which may be overview data or fields for defining the selection. The Summary pane also provides a **Create New** button (for example, Create New Time Windows) to create a new element of the selected type.

Understanding Time Basis in Analytics

In ODR, time basis relates to how often data is received and how much time does the data represent. For example, electric meter register reads and consumption data each provide metric data in kWh. However, they have different time bases because register reads are received at various times of the day and have variable timestamps (ACTUAL time basis) and daily consumption represents a calculation of a day's worth of data and will have a timestamp of "midnight-to-midnight" (DAILY time basis). Commonly used time basis are Yearly, Monthly, Weekly, Daily, and Actual, which is often aggregated from shorter intervals.

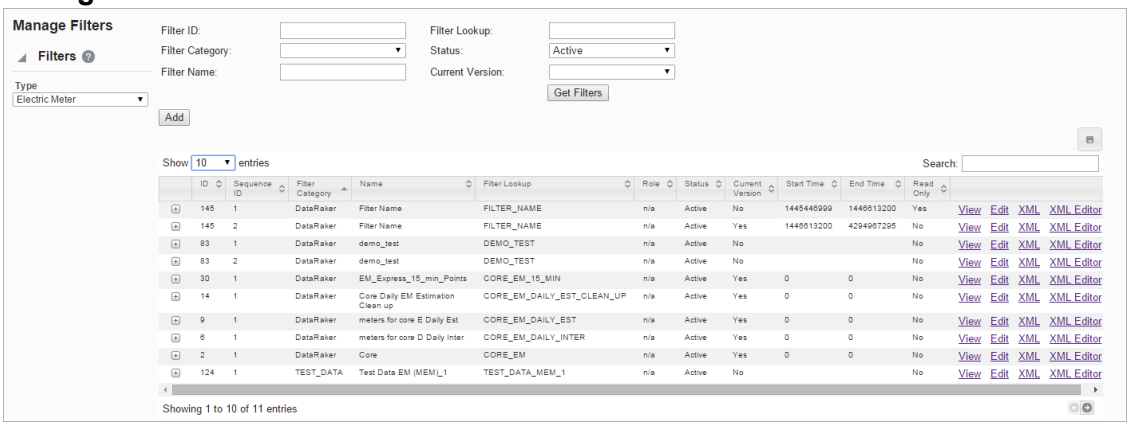
Filters

Filters reduce the scope of points to be evaluated when searching for and analyzing data. Once a filter has been defined, it may be selected from the Search Pane and applied to scenarios. See "Scenarios" on page 184.

Manage Filters Page

The Manage Filters page provides fields and controls for filtering existing filters and a data table that lists existing filters. The Manage Filters data table displays filters based on the point type selected in the **Type** drop-down list and that either match the selected Role or have no associated role. See "Drawer Menu Core Modules and Roles" on page 11.

Navigate to the Manage Filters page by selecting **Filters** from the **Analytics** section of the **Manage** menu.



Filter Fields and Buttons

The following filters and buttons are available:

- **Filter ID**: System generated numeric identifier.
- **Filter Category**: Grouping of like filters..
- **Filter Name**: Filter's "friendly" name, which may contain spaces.
- **Filter Lookup**: Alternate name for the filter without spaces in uppercase text.
- **Status**: Indicates whether the filter's status is set to Active or Inactive. See "Understanding the Active Status" on page 125.
- **Current Version**: Indicates whether the filter is the current version in use.See "Understanding the Current Version Flag" on page 124.

- **Get Filters button**: Initiates a search for filters matching criteria set in the fields. **Note: You can also press Enter** when you finish adding content to the fields and click **Submit** when prompted to **Reset or Submit**.
- **Add button**: Opens the Create Filters dialog box that allows you to define a new filter. See "Adding Filters" on page 129.

Data Table

The data table contains information about the filters:

- **ID**: System generated numeric identifier.
- **Sequence ID**: System generated number that is assigned based on whether the filter is original (Sequence ID = 1) or a cloned version (Sequence ID = 2 or higher). See "Cloning a Filter" on page 141.
- **Filter Category**: Grouping of like filters..
- **Name**: Filter's "friendly" name, which may contain spaces.
- **Filter Lookup**: Alternate name for the filter without spaces in uppercase text.
- **Role**: Role, if any, associated with the filter. Filters without an assigned role will have an n/a value.
- **Status**: Indicates whether the filter's status is set to Active or Inactive.
- **Current Version**: Indicates whether the filter is the current version in use.
- **Start Time**: Date when the filter was set to current. See "Understanding the Current Version Flag" on page 124.
- **End Time**: End date for the filter. For current version filters, the end time is set to an arbitrary end date used in the system; when a new version of the filter becomes current, the end time is updated to equal the start time of the new version. See "Cloning a Filter" on page 141.
- **Read Only**: Indicates whether the filter is read-only or may be edited.
- **View button**: Opens the View Filters dialog box, which displays the same filter data as provided in the data table row as well as buttons and links that allow you to edit or configure the filter. See ManageAnalyticsFiltersInfoView.htm for more information.
- **Edit button:** Opens the **Manage Filters** dialog box, which displays an editable view of the filter information shown in the **View Filters** dialog. **See "Managing Filter Information" on page 1**.
    - **Edit button**: Opens the **Manage Filters** dialog box, which displays an editable view of the filter information shown in the **View Filters** dialog. **See "Managing**

Filter Information" on page 1.

Note: It is possible to directly access and edit the filter criteria (XML) from the Manage Filters dialog; however, the primary intent of the Edit features is to enter or updated information about the filter.

- **XML button**: Displays the Filter Definition dialog box, which shows the configuration XML for the filter. See See "Viewing the Filter Definition XML" on page 142. for more information.
- **XML Editor button**: Opens the filter definition XML in the Filters XML Editor. See See "Buttons" on page 133. for information.

- **Search field**: allows you to search for a value in the table.

- **Search field**: allows you to search for a value in the table.
- **Expand button**: Reveals a list view of the row values and information on the associated point type code.
- **Minimize button**: Hides the extra information. The information contains the data found in the table plus:
  - **Point Type Code**: Point type for the filter.
  - **Filter Description**: Description of the filter purpose.
  - **Lock Status**: Indicates whether the filter is locked to editing.
- **Export data icon**: Opens export data table options.

See "Fields and Buttons" on page 131.

Adding Filters

When creating a filter, you must know three of the following four data attributes:

- **Point ID**: Object you are looking for.
- **Fact**: Fact you are looking for.
- **Time**: Time frame for your analysis.
- **Value**: Data value, which typically is associated with a fact.

Example

If you are looking for the consumption value for an electric meter on a given day, you will need to provide the meter identifier, the consumption fact category, and the time, which (in this case) is the date.

```
Seeking daily kWh derived on 2/2/2014 for EM point_name = EM-123
```

- **Time**: `02-Feb-2014`
- **Fact**: `fact_lookup = DAILY_KWH_USAGE_DERIVED`
- **Point**: `point_name = EM-123`

Adding a Filter

To add a filter:

1. Click **Add Filter** on the **Manage Filters** page.
2. Enter the following in the Create Filters dialog box:
   a. Click the **Filter Category** drop-down list and select an appropriate category.
   b. Enter a descriptive name in the **Name** field. For example, EM Zero Consumption.
   c. Enter a value for filter lookup in the **Filter Lookup** field, . The filter lookup value can be any unique alphanumeric value with uppercase text and without spaces. A common practice is to use the filter name without spaces. For example, EM_ZERO_CONSUMPTION.
   d. Do one of the following to set the Filter Role drop-down list:
   Note: This drop-down allows you to specify if the filter is applicable to all roles or to the role selected in the Drawer Menu. See "Drawer Menu" on page 11.
      - **To make the filter role applicable to all roles**, leave the selection blank.
      - **To make the filter role applicable to a specific role**, select the role (lookup value) from the drop-down list.
   e. Enter a short description of the filter function in the **Filter Description** field. For example, "This filter finds electric meters with zero consumption."
   f. Click the Status drop-down list and select a filter status of **Active** or **Inactive**.
   Note: Filters cannot be deleted through the user interface, but may be set to inactive.
3. Do one of the following:
   - Click **Save** to save your filter changes. The **Create Filters** dialog box will close.
   - Click **Cancel** to close the dialog box without saving the filter. A dialog will open asking you to confirm that you want to close the **Create Filters** dialog.

> **Note**: Leave the **Filter Definition** balnk. The Filter Definition XML is typically defined with the Filter XML Editor. However if you wish to start with the Filter Definition XML from another filter, you may copy it and paste it in the Filter Definition field. See "Viewing the Filter Definition XML" on page 142.

Viewing Filter Information

The View link, in the filter data table row, launches the View Filters dialog box, which displays filter properties and allows you to view the filter definition XML, edit the filter properties, create a new version of the filter, create a copy of the filter, or execute the filter.

Fields and Buttons

- **ID**: System generated numeric identifier..
- **Sequence ID**: System generated number that is assigned based on whether the filter is original (Sequence ID = 1) or a cloned version (Sequence ID = 2 or higher).
- **Point Type Code**: Code for the object type.
- **Filter Category**: Grouping of like filters..
- **Name**: Filter's "friendly" name, which may contain spaces.
- **Filter Lookup**: Alternate name for the filter without spaces in uppercase text.
- **Filter Description**: Optional description of the filter.
- **Status**: Indicates whether the filter's status is set to Active or Inactive.
- **Lock Status**: Indicates whether the filter is locked to editing; only locked filters may be executed.
- **Start Time**: Date when the filter was set to current.
- **End Time**: End date for the filter. For current version filters, the end time is set to an arbitrary end date used in the system; when a new version of the filter becomes current, the end time is updated to equal the start time of the new version.
- **Read Only**:Indicates whether the filter is read-only (not editable).
- **Filter Definition**: contains the XML link, which opens the Filter Definition dialog box. See "Viewing the Filter Definition XML" on page 142.
- **Edit button**: Opens the Manage Filters dialog box. See "Fields and Buttons" on page 131.
- **Clone button**: Creates a new version of the filter. The clone's Sequence ID is the original filter's Sequence ID plus one; all other filter information is the same. Cloning allows you to keep the initial filter active while working on modifications to the filter parameters.
- **Copy button**: creates a copy of the filter having a unique ID.
- **Set Current button**: Sets the Current Version flag to **Yes**. See "Understanding the Current Version Flag" on page 124.

- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Executes the filter.

Managing Filter Information

The Manage Filters dialog box opens when you click the Edit link on the filter data table row or the Edit button on the View Filters dialog box.
Note: The Manage Filters dialog is an editable version of the View Filters dialog.

From this dialog box, you may edit the filter information. See "Filters" on page 127.

Fields and Buttons

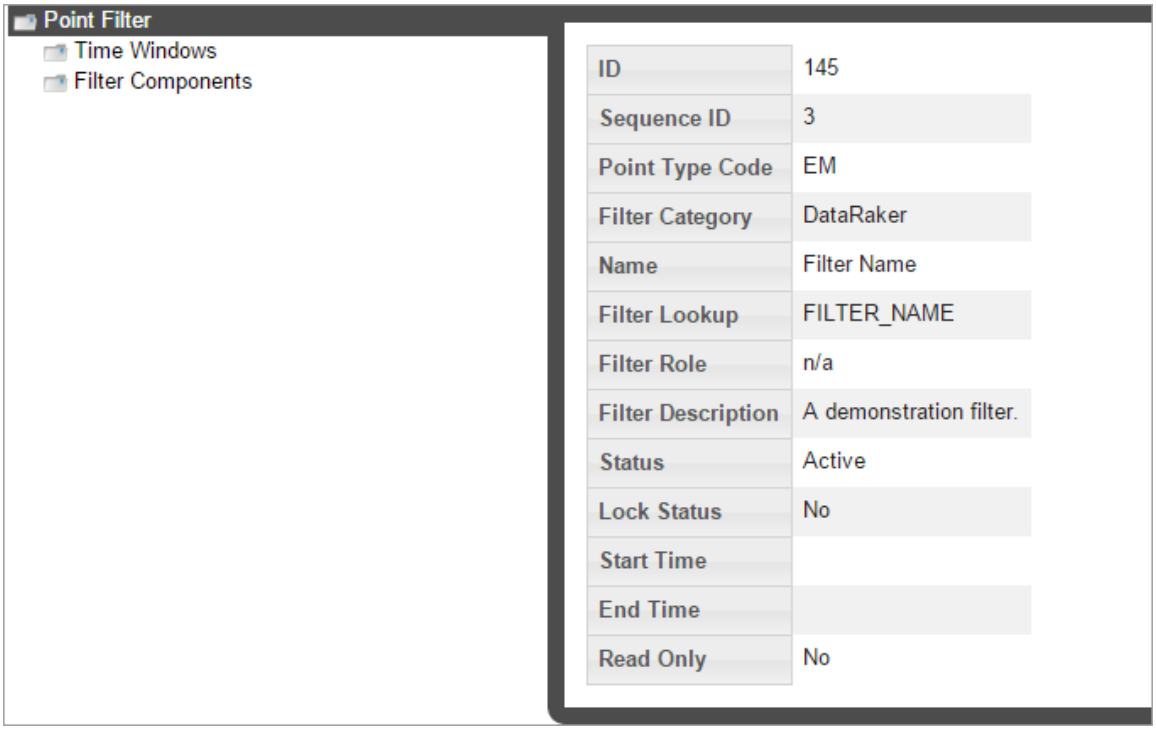
- **ID**: System generated numeric identifier.
- **Sequence ID**: Filter's version number.
- **Point Type Code**: Object type code.
- **Filter Category**: Select a filter category, which is a grouping of like filters.
- **Name**: Edit the filter's name
- **Filter Lookup**: Edit the filter's lookup value.
- **Filter Description**: Edit the optional description of the filter.
- **Status**: Set whether the filter is active or inactive. If it is active, it will be available to use in advanced searches and to assign to scenarios.
- **Lock Status**: Indicates whether the filter is locked to editing.
- **Start Time**: Date when the filter was set to current.
- **End Time**: End date for the filter. For current version filters, the end time is set to an arbitrary end date used in the system; when a new version of the filter becomes current, the end time is updated to equal the start time of the new version.
- **Read Only**: Indicates whether the filter is read-only.
- **Filter Definition**: Opens the Filter Definition dialog box. See "Viewing the Filter Definition XML" on page 142.
- **Save button**: saves any changes to the filter information; the button is only active when a change has been made in one or more of the editable fields.
- **Clone button**: Creates a new version of the filter. The clone's Sequence ID is the original filter's Sequence ID plus one; all other filter information is the same. Cloning allows you to keep the initial filter active while working on modifications to the filter parameters.

- **Copy button**: creates a copy of the filter having a unique ID.
- **Set Current button**: Sets the Current Version flag to **Yes**.
- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Executes the filter.

Defining and Editing XML with the Filter XML Editor

The Filter XML Editor provides a user interface for creating and editing the filter definition XML. To create or edit a filter definition, click the XML Editor link in the filter's data table row. The Filters XML Editor dialog box will open allowing you to define the filter parameters.

The filter tree-view options are Time Windows and Filter Components.



Buttons

The following buttons are available in the Filter XML Editor:

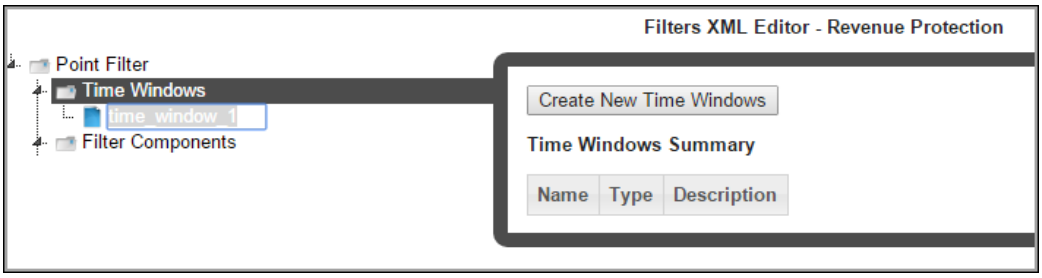
- **Save & Close**: Save the filter in its current state and closes the editor.
- **Validate & Save**: Validate and save the filter syntax. Any errors will be displayed.
- **Close**: Close the Filters XML Editor without saving changes.

Time Windows

When you select **Time Windows** in the tree-view, the editor will update with the **Create New Time Window** button, which allows you to define time windows for the filter.

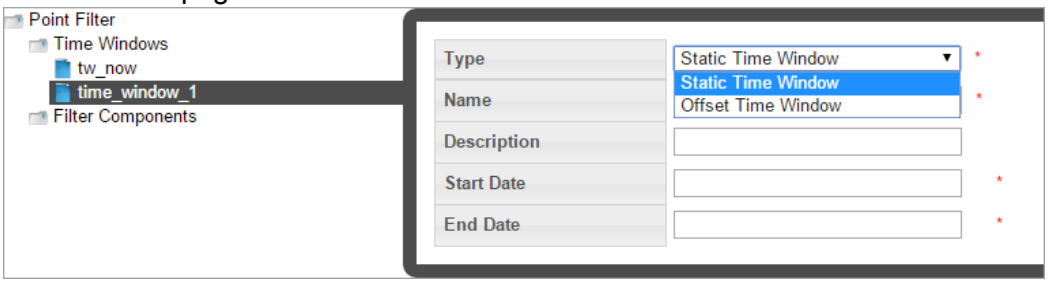
To create a new time window:

1. Click the **Create New Time Windows** button, the tree-view will add a branch for the time window; the name will be in an editable state so you may enter a name directly in the branch or leave the system defined name.
   Note: The system defined time window name is time_window_n, where n is a sequential number indicating the time window's order of creation.
2. Once the time window is created, select the time window name in the tree-view.



3. Select a time window **Type** from the drop-down list and set the parameters.:

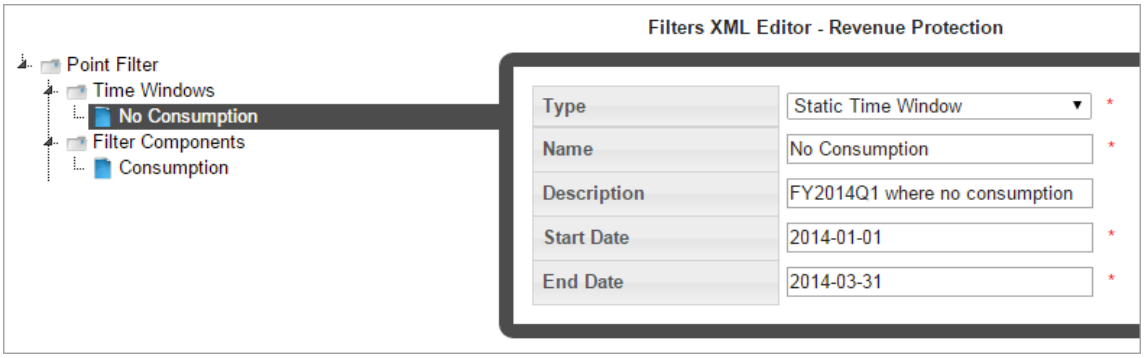
- **Static Time Window**: Time window with a defined start and end date. See "Static Time Windows" on page 134.
- **Offset Time Window**:Time window containing a time offset. See "Offset Time Windows " on page 135.



Static Time Windows

Static time windows have fixed start and end dates that are defined in the filter. When you select Static Time Window from the Type drop-down list, you may edit the parameters:

- **Name**: Automatically populates with the name from the tree-vie. You may change the name in the tree-view or in the static time window Name field.
- **Description**: (Optional) Enter a description for the time window.
- **Start Date**:Start date for the filter criteria.
- **End Date**:End date for the filter criteria.



Offset Time Windows

The offset time window allows you to create a time window that is offset from the start and/or end dates, which are input when the filter is executed. An Offset Time Window has three unique sections:

> **Note:** When you execute the filter, you select the start and end dates. For reference purposes, these will be known as Data Start Date and Data End Date.

Start Offset

The **Start Offset** settings allows you to move the analysis date by a selected time basis unit (for example, day or month). You may also "snap" the offset backward or forward in time.

- **Offset Of**: Set whether the offset will be performed on the data start date or data end date.
- **Unit**:Set how the units by which the dates will be offset when Valueof is set.
- **Time Basis**:Post-snapping time basis.
- **Snap Direction**: Snap direction sets whether the start offset will expand backward in time or forward.
- **Valueof**: Number of units to be offset by.

End Offset

The **End Offset** is similar to the Start Offset with the exception that the resulting date must be later than the Start Offset date.

- **Offset Of**: Set whether the offset will be performed on the data start date or data end date.
- **Unit**: Set how the units by which the dates will be offset.
- **Time Basis**: the post-snapping time basis.
- **Snap Direction**: Snap direction sets whether the end offset will expand backward in time or forward.
- **Valueof**:Number of units to be offset by when Valueof is set.

Time Basis

The Time Basis field sets the data boundary snapping prior to offset snapping.

For example,to look at complete weeks (that is, the start date should be a Monday and the end date should be a Sunday) for the current month.

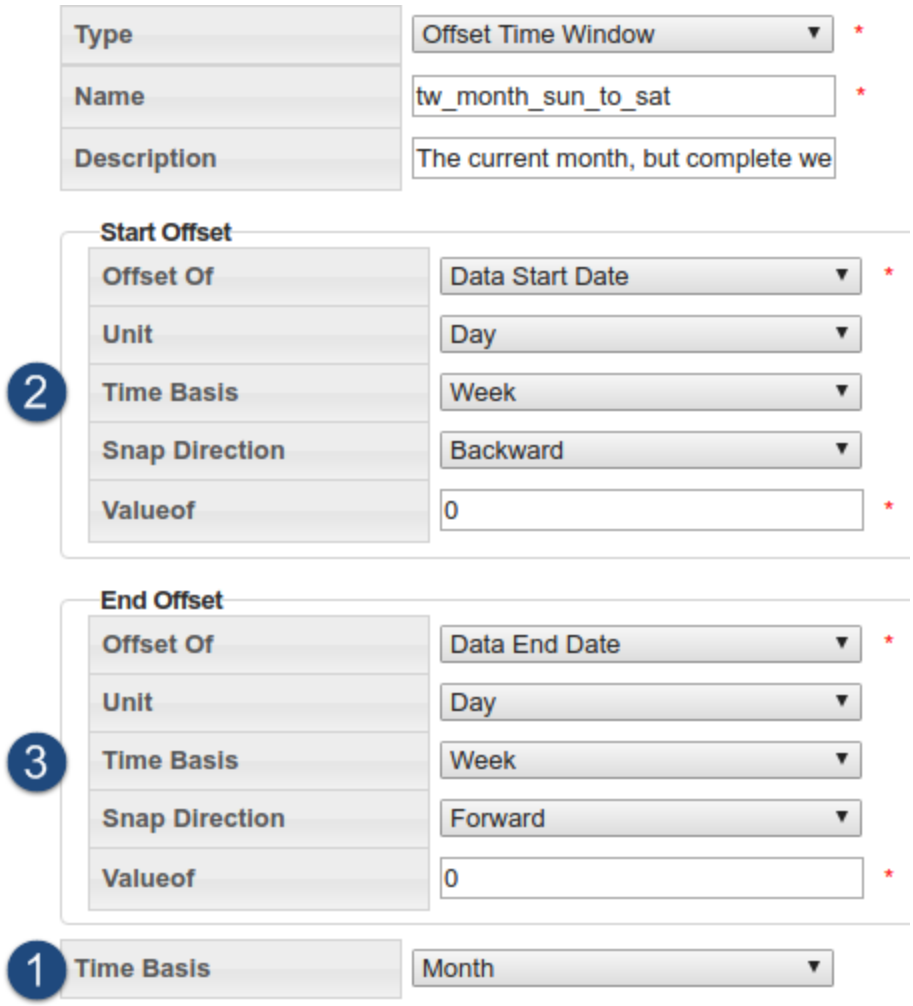


Image Number	Element Name	Description
1	Pre-snapping Time Basis	The pre-snapping time basis snaps the input time range to be a range of months.
2	Start Offset Post Snapping	■ The start offset's post-snappingsnaps the start date backward to the beginning of the week (Sunday).
3	Eng Offset Post Snapping	■ The end offset's post-snapping snaps the end date forward to the end of the week (Saturday)

For example, if you were to use the e preceding Offset Time Window criteriato input a date range of February 3rd, 2016 (Wednesday) - February 4th, 2016 (Thursday), the resulting date range for analysis would be:

- The Time Basis has a pre-snap of Month, which gives us the month of February.
- The Start OffsetTime Basis is Week and it snaps backward to give us Sunday, January 31st.
- The End OffsetTime Basis is Week and it snaps forward to the end of the week containing February 29th, which is Saturday, March 5th.

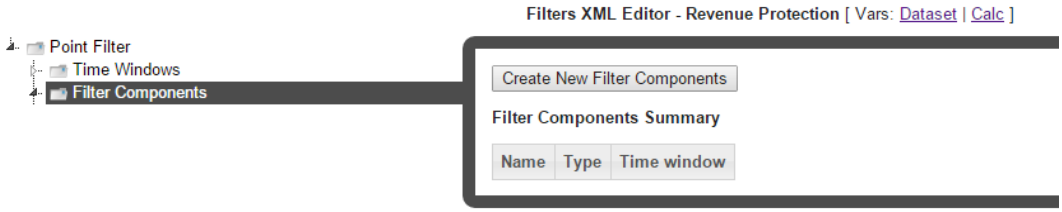
The final date range is then Sunday, January 31st, 2016 - March 5th, 2016.

Filter Components

Filter components describe the criteria (facts) on which data is filtered.

To add filter components:

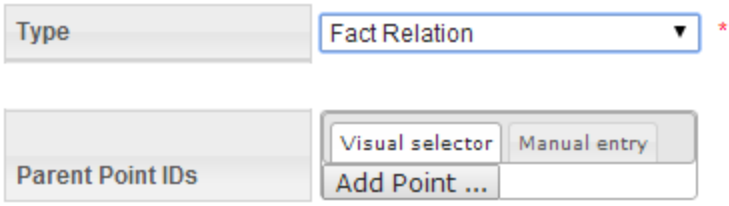
1. Click the **Filter Components** label in the tree-view. The Filters XML Editor will display the filter components view that provides a button to create new filter components and a table that lists existing components.

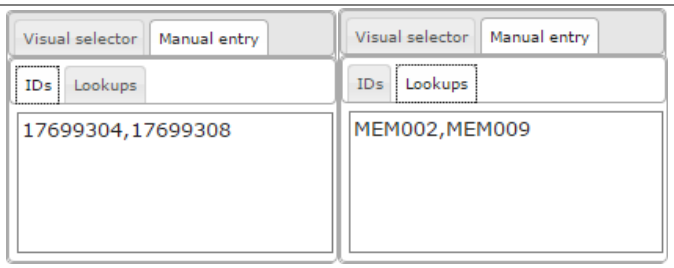
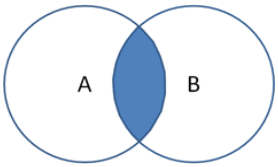
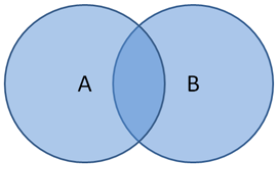


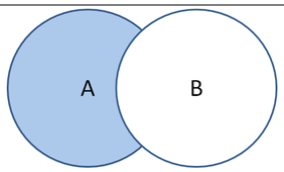
2. Click **Create New Filter Components**. The tree-view will add a branch for the component and the Filters XML Editor will update with component options. You may create a custom component label or leave the system defined component name (filter_component_n, where n is a sequential number indicating the component's order of creation).

Filter Component Fields

The available component fields are dependent on the fact type selection. The following table describes the possible options.

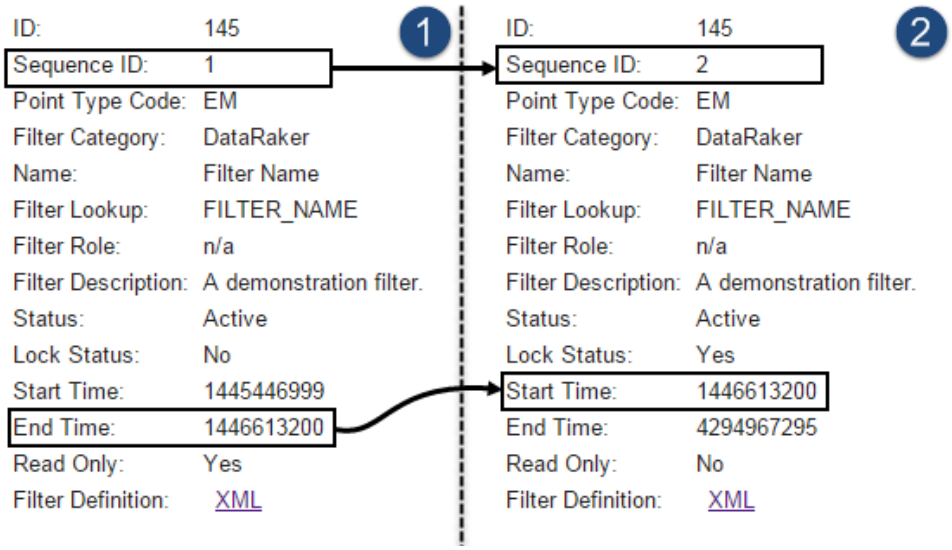
Field Name	Description
Type	Lists all available fact types. See "Selecting a Fact" on page 60.
Time Window Name	Populated with the names of the defined time windows.
Time Basis	Describes the time basis for the chosen fact. This is distinct from the time basis for the time window and describes the granularity of the data which is used to filter results.
Fact Category	Automatically populated with the fact categories belonging to the selected fact type.
Fact Name	Lists possible fact names within the selected fact category.
Parent Point ID	In a Fact Relation type component, you choose specific parent points based on the fact category and fact name.  The Visual selector tab allows you to search for potential points. to open a search dialog:  1. Click **Add Point ...** 2. Click the **by** drop-down and select the seach type (Name, ID, Lookup, or Tag), then enter the appropriate criteria and click **Find**. The results will be displayed in a table. 3. Select the row containing the point of interest and click **Add**. 4. If you know the point information, you may manually enter it. Click the **Manual** entry tab. A form for adding Point IDs or Lookup values will be displayed.

Field Name	Description
	 5. Enter the values seperated by commas.
Value A/B	Metric or attribute data require beginning and ending values.  ■ In the case of qualitative data (attribute), Value A and Value B will represent the leading and ending characters. ■ In the case of quantitative data (metric), Value A and Value B will represent the bounding numerals: greater than or equal to Value A, but less than Value B. **Note:** Values A and B may be bounded by the minimum and maximum values available by entering the terms min and max in the Value A and Value B fields, respectively. ■ Dates are entered as DD-MMM-YYYY for example, 01-JAN-2015).
Point ID	For a Point type component, like the Parent Point ID, you may choose the point to be used in the filter visually by searching (Visual selector) or manually by entering the ID in the field (Manual entry).
Set Operation	Select operators to filter data. Operators include: ■ **Intersection** (A and B)  ■ **Union** (A or B)  ■ **Difference** (A not B)

Field Name	Description
	

Cloning a Filter

The clone function, which is found in the View Filters and Manage Filters dialogs, creates a new version of the filter (that is, the Sequence ID will be incremented by 1). The clone is unlocked when created, which allows it to be edited while the original is locked and ready to be executed (See "Executing Filters" on page 143.). Once the new version is ready to be put in production, the previous version's End Time is set to the new version's Start Time.



To complete cloning function:

1. Click **Clone** in the **View Filters** or **Manage Filters** dialog.
2. Edit the clone. See "Buttons" on page 133.
3. When the clone is ready to be deployed, open the **Manage Filters** dialog and click **Set Current**. This will set the original filter's Locked Status to Unlocked and the clone's Locked Status to Locked. See "Fields and Buttons" on page 132.

Copying a Filter

The copy function, which is found in the View Filters and Manage Filters dialogs, creates a new filter with a unique ID. Copying allows you to start a new filter from an existing one. The copy has a Sequence ID of 1 since it is the first version of a new filter.

Viewing the Filter Definition XML

From the **Filter Definition** dialog box, you can view or edit the filter definition XML. This allows you to quickly modify a parameter rather than opening the Filters XML Editor. See "Buttons" on page 133.

Filter Definition XML

The default filter definition can be copied and used as a starting point for a new filter. The default filter definition is as follows:

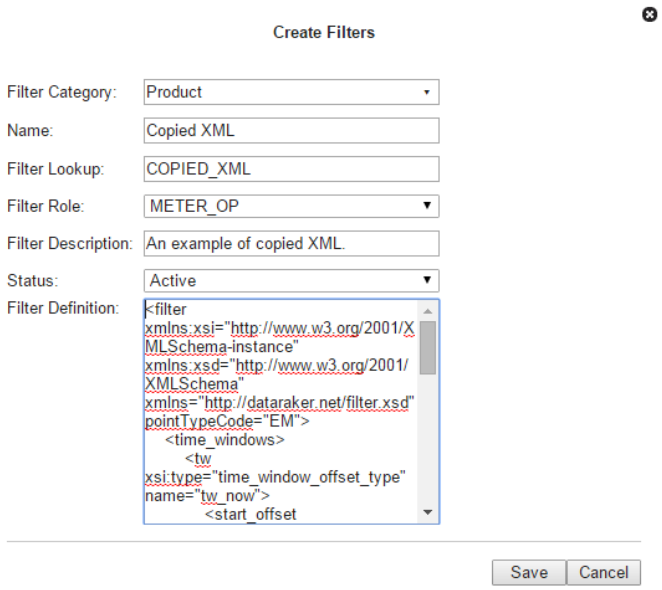
```
<filter xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns="http://dataraker.net/filter.xsd" pointTypeCode="SSN_EM">
    <time_windows>
        <tw xsi:type="time_window_static_type" name="No Consumption">
            <start_date>2014-01-01</start_date>
            <end_date>2014-03-31</end_date>
        </tw>
    </time_windows>
    <filter_components>
        <fact_metric name="Consumption" tw_name="No Consumption"
         xsi:type="findPointInt_source_type" factLookup="DAILY_KWH_USAGE_DERIVED"
         operator="between" valueA="-10" valueB="1"></fact_metric>
    </filter_components>
    <set_operations>
        <filter_component name="Consumption"></filter_component>
    </set_operations>
</filter>
```

Creating a New Filter

The Filter XML can be copied and used as a starting point for a new filter.

To copy the Filter XML to create a new filter:

1. Create a new filter.
2. Copy and paste the filter XML into the new **Filter Definition** field.
3. Click **Save**.

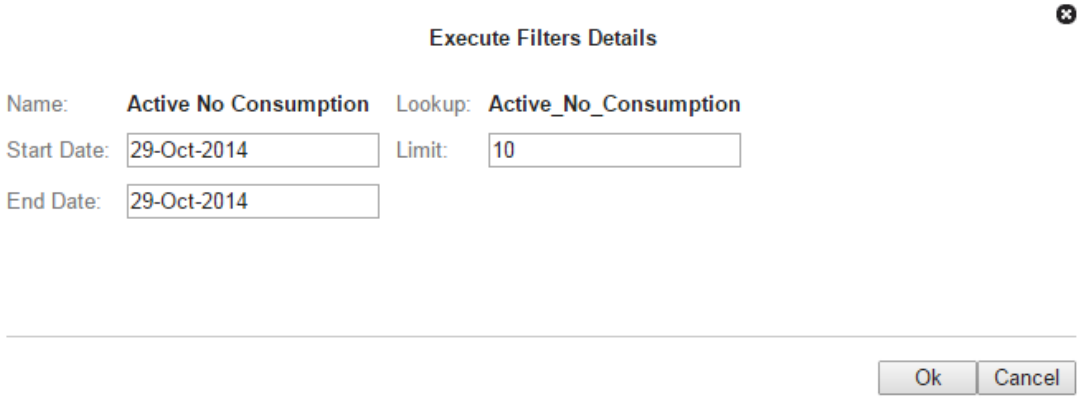


Note: The filter can then be edited manually or in the Filters XML Editor. See "Buttons" on page 133.

Executing Filters

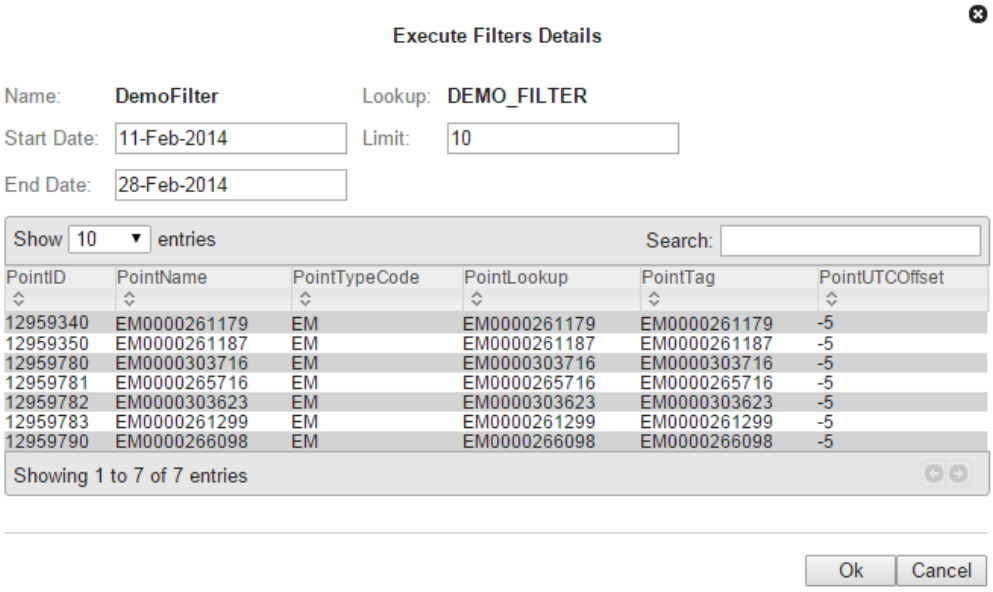
To run a filter:

1. Click **View** or **Edit** in the filter row to open the **View Filters** dialog box or the **Manage Filters** dialog box, respectively.
2. Click **Execute Now**. The **Execute Filters Details** dialog box will open.



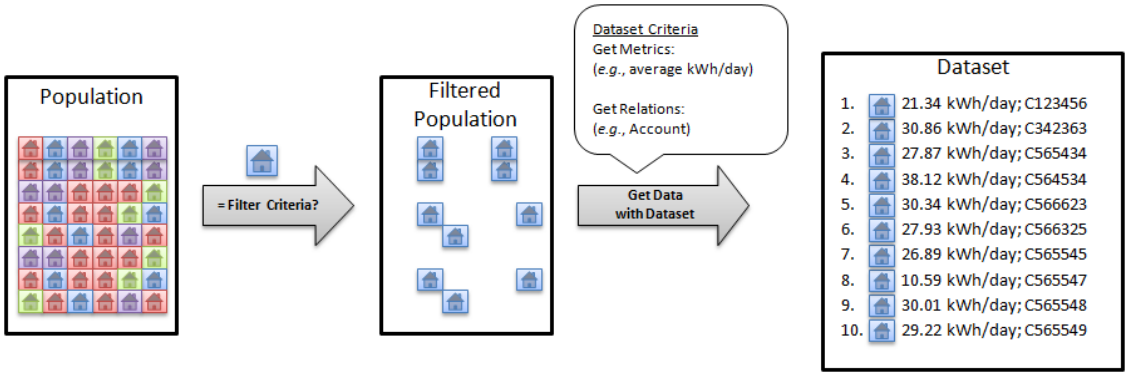
3. Enter the data start and end dates and a limit for the number of results to be returned, then do one of the following:
   - Click **OK** to execute the filter.
   - Click **Cancel** to close the dialog box without executing the filter.

When you execute the filter, the results will be returned in a data table.



Datasets

Datasets provide the criteria for the data to be used in an algorithm (such as, a Calc). When an algorithm is executed, either manually or in a scenario, it pulls the data defined by a dataset from the population defined by a filter.



Note: Datasets use procedures called "get methods" to pull data from the population. See "Get Methods" on page 156.

Dataset Fields

A dataset consists of one or more dataset field objects. Each dataset field object can be configured independently to access data from different time periods. Where time series data is queried, datasets allow dynamic aggregations to be done at runtime. The type of aggregation is decided by the method chosen and attached to the dataset field. Each dataset field generates metrics based on the type of method chosen.

Dataset Fields columns within a dataset record have the following basic characteristics:

- **Enabled Flag**: Allows fields to be disabled and their execution skipped. (Default: Enabled)
- **Name**: A user defined named for the field. Every reference to the dataset in a calc that it is bound to is done using the field name.
- **Time Window Name**: A reference to the time window configured in the time windows section that gets attached to a field. Each field has its own time window. See See "Adding Time Windows" on page 154. for information.
- **Level**: Each field is associated with a level, which is a point type code. Levels allow a dataset to go up the relationship hierarchy and pull data from parent points and make that available in the same dataset. Datasets require a level named `core`, which must be set to the dataset's point type code. Additional levels may be added to get data from parent points. There is no limit on the number of levels, but performance may suffer if too many levels are added. See also See "Adding Levels" on page 155..
- **Get Method**: A get method operates on the data for the time window attached to the field and aggregates it into several metrics. See "Get Methods" on page 156.

Processing Basis

Processing Basis controls the level of aggregation as well as how the data set should evaluate the time period for which it will be executed. For example, if the processing basis is set to daily and the dataset is run for three days, it will apply the daily basis and run the dataset once per day. Additionally, all data will be aggregated up to the daily level so if the dataset is used to return interval level consumption, the dataset output will be aggregated up to the daily level.

Note: Processing mode is set in the Options section of the Dataset XML Editor, which corresponds to the options element in the dataset XML definition:

```
<options>
    <option name="processing_basis" value="DAILY" ></option>
</options>
```

See "Adding Options" on page 153.

Valid processing basis are:

- INT_1: one second
- INT_60: one minute
- INT_300: five minutes
- INT_900: fifteen minutes
- INT_1800: thirty minutes
- INT_3600: one hour
- DAILY:
- WEEKLY:
- MONTHLY:
- YEARLY:
- CUSTOM:
- QUARTERLY:

Processing Basis Example

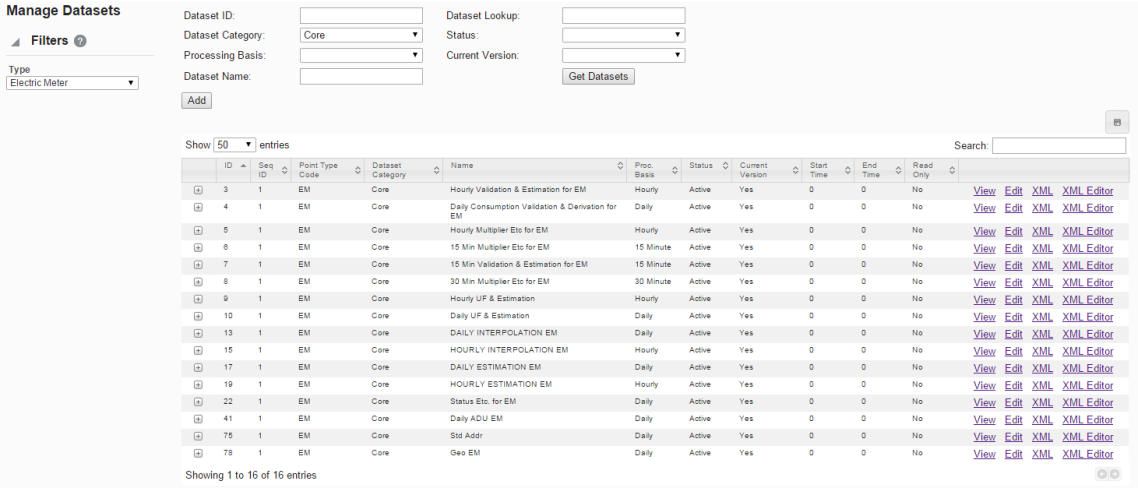
If you were to create a daily processing basis that started on January 1, and ended on January 31,the dataset would execute 31 times in a loop with each slice being the day that the dataset is executed.

Resultant time slices: (1/1,1/1), (1/2,1/2), …, (1/31,1/31).

Manage Datasets Page

The Manage Datasets page provides fields and controls for filtering existing datasets and a data table that lists existing datasets. The Manage Datasets data table displays datasets based on the Type selected in the Search Pane. See "Search Pane" on page 13.

Navigate to the Manage Datasets page by selecting Datasets from the Analytics section of the Manage menu. The datasets data table will load with the datasets that match the selected Type and Role, or have no associated Role.



Datasets Fields and Buttons

The top section of the Manage Datasets page allows you to search for datasets matching criteria added to the fields:

- **Dataset ID**:System generated dataset ID.
- **Dataset Category**: Category that a dataset is assigned to.
- **Processing Basis**: Dataset processing basis is the type of data that the dataset is acting on (for example, Daily, Monthly, or Weekly data).
- **Dataset Name**: A dataset's "friendly" name.
- **Dataset Lookup**: Database lookup value. This is usually the dataset name without spaces in all caps.
- **Status**: Whether the dataset's status is set to Active or Inactive. See "Understanding the Active Status" on page 125.
- **Current Version**: Whether the dataset is the current version in use. See "Understanding the Current Version Flag" on page 124.

- **Get Datasets button**:Initiate the search for datasets matching the criteria set in the fields.
  Note: Alternatively, you may press **Enter** when you finish adding content to a field and then click the Submit link when the system displays a message that the search criteria has changed.
- **Add button**: Opens the Create Datasets dialog box from which you may create a new dataset. See See "Adding Datasets" on page 149. for details.

Data Table

The data table contains information about the datasets. The table contains the following columns:

- **ID**: System generated dataset ID.
- **Sequence ID**: Dataset's sequence ID, which is its version number.
- **Point Type Code**:Code representing the object type (*e.g.*, EM for electric meter).
- **Dataset Category**:Category that a dataset is assigned to.
- **Name**: Dataset name.
- **Processing Basis**: Dataset processing basis is the type of data that the dataset is acting on (for example, Daily, Monthly, or Weekly data).
- **Status**: Whether the dataset's status is set to Active or Inactive.
- **Current Version**: Whether the dataset is the current version in use.
- **Start Time**:Date/time when the dataset was set to current; see See "Understanding the Current Version Flag" on page 124. for details.
- **End Time**: End date for the dataset. For active datasets, the end time is set to an arbitrary end date used in the system; when a new version of the dataset becomes current, the end time is updated to equal the start time of the new version. See See "Cloning a Dataset" on page 164. for information.
- **Read Only**:Whether the dataset is read-only or may be edited.
- **View link**: opens the View Datasets dialog box, which displays the same data as provided in the data table row as well as buttons and links that allow you to edit or configure the dataset. See for more information.
- **Edit link**: opens the Manage Datasets dialog box, which displays an editable view of the dataset information. See See "Managing Dataset Information" on page 151. for more information.
- **XML link**: Displays the Dataset Definition dialog box, which shows the configuration XML for the dataset. See "Viewing the Dataset Definition XML" on page 164.
- **XML Editor link**: Opens the Datasets XML Editor.See "Buttons" on page 133.
- **Expand button**: Reveals the data in the data table for each table row as well as the following:
  - **Dataset Role**: Setting for a role that is applicable to the dataset
  - **Dataset Description**: Optional setting that describes the dataset purpose.
  - **Lock Status**: the dataset is locked to editing.
- **Minimize button**: Hide extra information for each data row.

Note: The data table may be exported by clicking the export data icon located above the table's **Search** field.

Adding Datasets

To add a dataset:

1. Click **Add Dataset** on the **Manage Datasets** page. The **Create Datasets** dialog box will open.
2. Do the following:
   a. If the dataset should be applicable only to the selected Role, select the **Dataset Role**. See "Drawer Menu" on page 11.
   b. In the **Name** field, enter a descriptive name. For example, Hourly Validation.
   c. In the **Dataset Lookup** field, enter a value for dataset lookup. The dataset lookup value can be any unique alphanumeric value with uppercase text and without spaces. A common practice is to use the dataset name without spaces. For example, HOURLY_VALIDATION.
   d. In the **Processing Basis** field, enter the data processing basis (for example, Daily, Monthly, Weekly).
   e. In the **Dataset Description** field, enter a short description of the dataset function. For example, This dataset performs validation on hourly data.
   f. From the **Status** drop-down list, select whether the filter is **Active** or **Inactive**.
   Note: Datasets cannot be deleted through the user interface, but may be set to inactive.

   Note: Leave the **Dataset Definition** blank. The Dataset Definition XML is typically defined with the Dataset XML Editor. However, if you wish to start with the Dataset Definition XML from another dataset, you may copy it and paste it in the Dataset Definition field. See "Viewing the Dataset Definition XML" on page 164.

3. Click **Save**. The **Create Datasets** dialog box will close.
   Note: Click **Cancel** to close the dialog box without saving the dataset; a dialog will open asking you to confirm that you want to close the **Create Datasets** dialog.

Viewing Dataset Information

The View link in a dataset data table row launches the View Dataset dialog box, which displays the dataset information and allows you to view the dataset definition, edit the dataset information, create a new version of the dataset (clone), copy the dataset, or execute the dataset.

Fields

- **ID**: System generated dataset ID.
- **Sequence ID**: Dataset's sequence ID, which is its version number.
- **Dataset Role**: Optional setting for a role that is applicable to the dataset.
- **Point Type Code**: Code representing the object type (*e.g.*, EM for electric meter).
- **Category**: Category that a dataset is assigned to.
- **Name**: Dataset name.
- **Dataset Lookup**: Database lookup value; usually the dataset name without spaces in all caps.
- **Processing Basis**: Dataset processing basis is the type of data that the dataset is acting on (*e.g.*, Daily, Monthly, or Weekly data).
- **Dataset Description**: Optional setting that describes the dataset purpose.
- **Status**:Dataset status (Active or Inactive).
- **Lock Status**: Whether the dataset is locked to editing.
- **Start Time**:Date and time when the dataset became active.
- **End Time**: End date for the dataset. For active datasets, the end time is set to an arbitrary end date used in the system; when a new version of the dataset becomes active, the end time is updated to equal the start time of the new version. See "Cloning a Dataset" on page 164.
- **Read Only**: Whether the dataset is read-only or may be edited.
- **Dataset Definition**: Contains the XML link, which opens the Dataset Definition dialog box. See "Viewing the Dataset Definition XML" on page 164.

Buttons and Links

- **Edit button**: Opens the Manage Datasets dialog box. See "Managing Dataset Information" on page 151.
- **Clone button**: Creates a new version of the dataset. The clone's Sequence ID is the original dataset's Sequence ID plus one; all other dataset information is the same. Cloning allows you to keep the initial dataset active while working on modifications to the dataset parameters.See "Cloning a Dataset" on page 164.
- **Copy button**: Creates a copy of the dataset having a unique ID.See "Copying a Dataset" on page 164.
- **Set Current button**: Sets the Current Version flag to **Yes**.

- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Executes the dataset. See "Executing Datasets" on page 165.

Managing Dataset Information

The Manage Datasets dialog allows you to edit the variable information fields. To access the dialog, click the Edit link on the dataset data table row or the Edit button on the View Datasets dialog box.

Fields

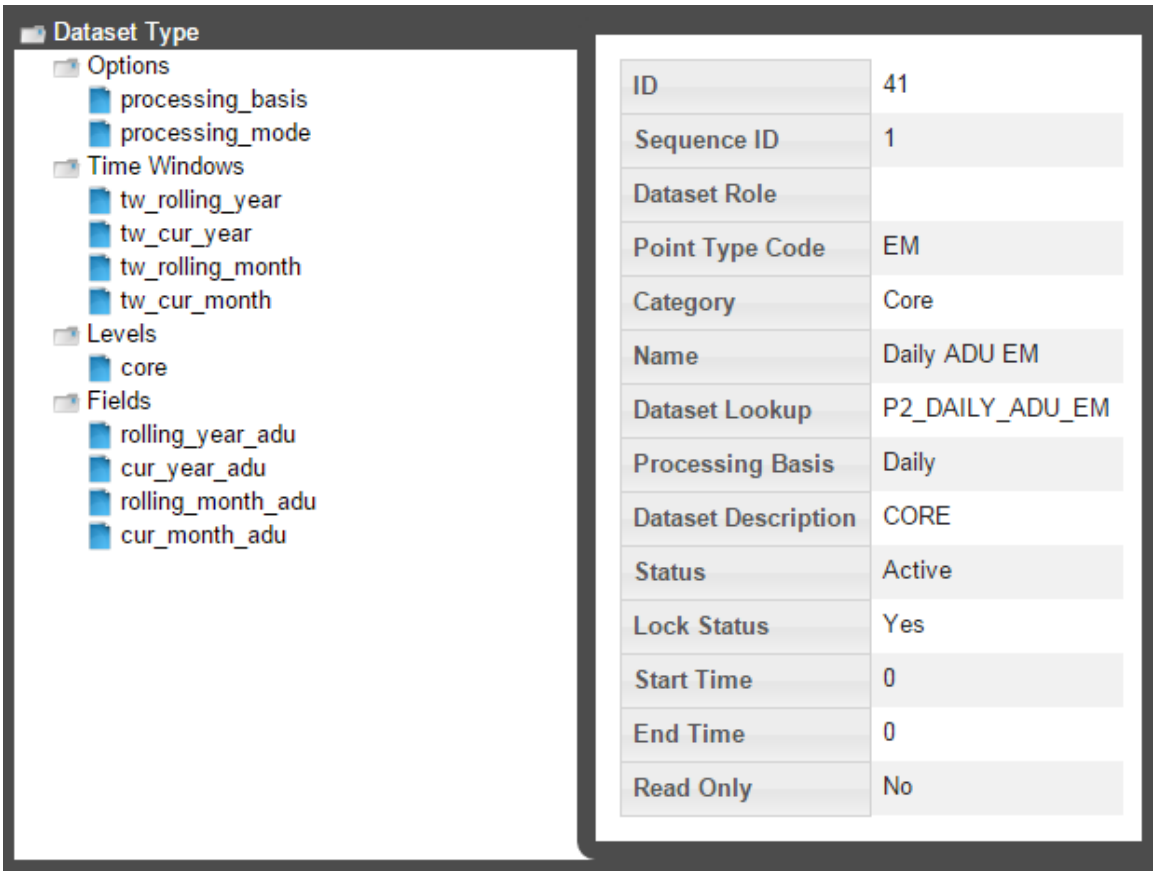
- **ID**: System generated dataset ID.
- **Sequence ID**:Dataset's sequence ID, which is its version number.
- **Dataset Role**: Optional setting for a role that is applicable to the dataset.
- **Point Type Code**: Code representing the object type (*e.g.*, EM for electric meter).
- **Category**:Category that a dataset is assigned to.
- **Name**:Dataset name.
- **Dataset Lookup**: Database lookup value; usually the dataset name without spaces in all caps.
- **Processing Basis**: Dataset's processing basis (*e.g.*, Daily, Monthly, Weekly).
- **Dataset Description**: Optional setting that describes the dataset purpose.
- **Status**: Dataset status (Active or Inactive).
- **Lock Status**: Whether the dataset is locked to editing.
- **Start Time**: Date and time when the dataset became active.
- **End Time**: End date for the dataset. For active datasets, the end time is set to an arbitrary end date used in the system; when a new version of the dataset becomes active, the end time is updated to equal the start time of the new version. See "Cloning a Dataset" on page 164.
- **Read Only**: Whether the dataset is read-only or may be edited.
- **Dataset Definition**: Contains the XML link, which opens the Dataset Definition dialog box. See "Viewing the Dataset Definition XML" on page 164.

Buttons and Links

- **Save button**: Saves any changes to the dataset information; the button is only active when a change has been made in one or more of the editable fields.
- **Clone button**: Creates a new version of the dataset. The clone's Sequence ID is the original dataset's Sequence ID plus one; all other dataset information is the same. Cloning allows you to keep the initial dataset active while working on modifications to the dataset parameters. See "Cloning a Dataset" on page 164.
- **Copy button**: Creates a copy of the dataset having a unique ID. See "Copying a Dataset" on page 164.
- **Set Current button**: Sets the Current Version flag to **Yes**.
- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Executes the dataset. See "Executing Datasets" on page 165.

Defining and Editing XML with the Datasets XML Editor

To configure a dataset, click the XML Editor link in the dataset's data table row. The Datasets XML Editor dialog box will open allowing you to define the dataset parameters. The Datasets XML Editor tree view allows you to define the dataset by Options, Time Windows, Levels, and Fields.

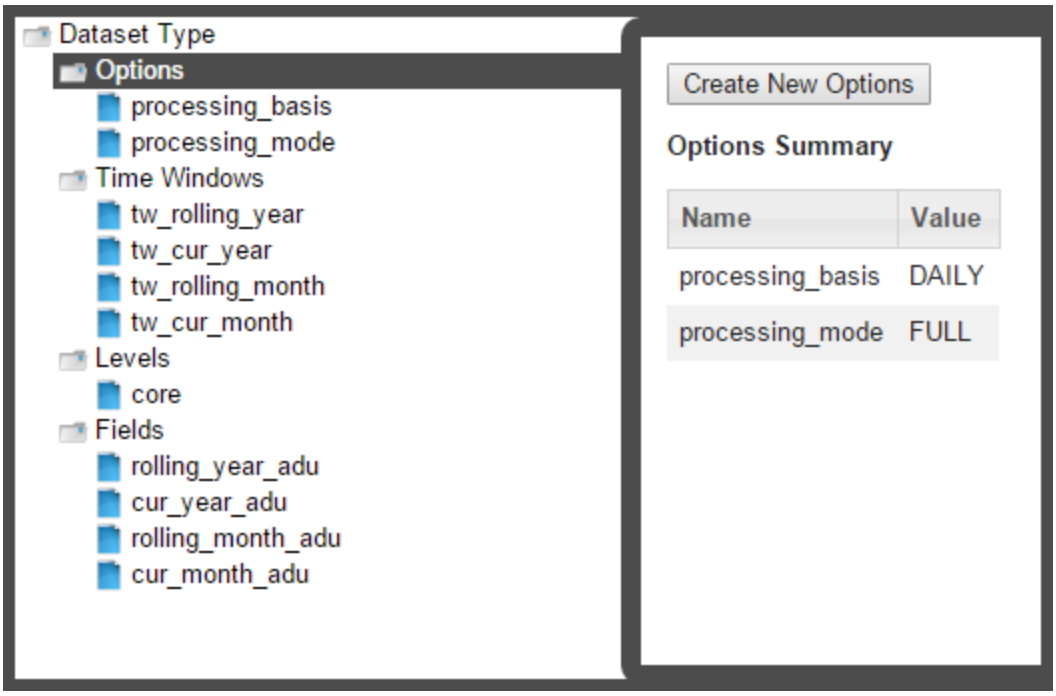


Buttons

- **Save & Close**: Saves the dataset in its current state and closes the Datasets XML Editor.
- **Validate & Save**: Validates the dataset syntax and displays any errors.
- **Close**: Closes the Datasets XML Editor without saving changes.

Adding Options

When you select the **Options** heading in the tree-view, the editor will update with the **Options Summary** table, which lists existing options, and the **Create New Options** button.



Processing Basis

The processing_basis is automatically populated with the selections chosen when creating the dataset. See "Adding Datasets" on page 149.

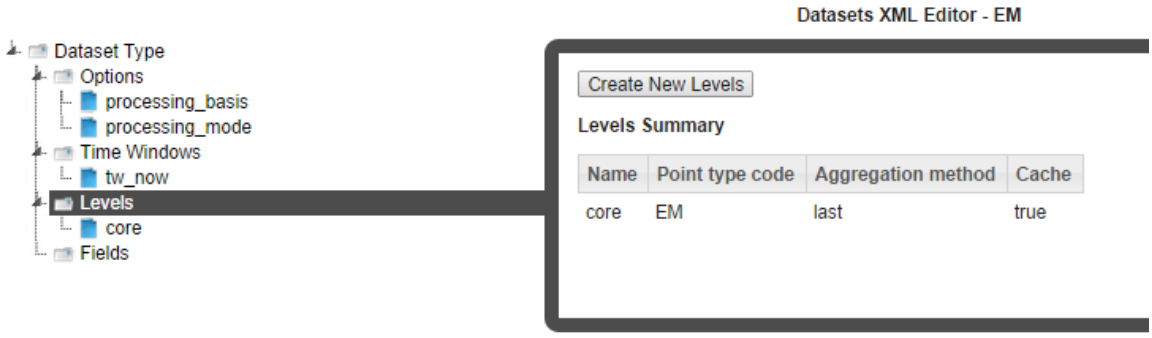
Processing Mode

Processing mode is pre-defined as FULL, which is the only option currently available in the XML Editor. It allows dataset execution to be time based such that given a time period, the dataset execution will take place for all time slices of the time period being run.
Note: A processing mode of DATADRIVEN may be used via backend methods, but that is beyond the scope of this documentation.

Adding Time Windows

Time Windows function much the same in datasets as in filters. However, in datasets, you have to note the dataset processing basis, which tells the dataset how to interpret the days you execute the data for. In the example above, the time basis is DAILY, so it will slice/interpret the execution dates on a daily basis. However, if you were to use WEEKLY, it will interpret the execution dates as the entire week and the data *start date* and *end date* will not be on the days that you selected to execute, but rather the week starting on Sunday and ending on Saturday.

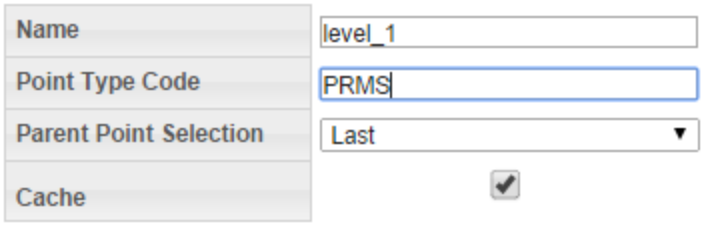
Adding Levels



Note: Core is data on the most fundamental level to be analyzed and saved. If core is a meter, everything above it are considered levels. If you start an analysis for premise, then premise becomes the core and everything above it are levels.

To create a new level:

1. Click **Create New Levels** and then complete the information fields.
   Note: The Point Type Code field is the system code for a point type. System codes may be found using the Administer Facts page. See "Administer Facts" on page 192.



2. Select **Cache** for improved performance.
   Note: Data stored in a cache is data that is computed earlier and can be used later in a calculation, which otherwise would require it to be recalculated. The performance is only improved in cases where the points in a batch associated with a distinct parent points are > 10.

Adding Fields

Fields allow you to select the type of fact to pull and how to pull it.

To add a field:

1. Select **Fields** in the tree-view and click **Create New Fields**.

2. If necessary, modify the name of the new field, then select the field to enable field criteria editing.
3. Edit the field criteria:
   - **Enabled Flag**: Allows fields to be disabled and their execution skipped. (Default: Enabled)
   - **Name**: The field name.
   - **Time Window Name**: Drop-down list that allows you to reference one of the time window configured in the See "Adding Time Windows" on page 154.. Each field has its own time window. See "Adding Time Windows" on page 154.
   - **Level**: Drop-down list that allows you to reference a level configured in the Addling Levels section. See "Adding Levels" on page 155.
   - **Get Method:** Drop-down list allows you to select a get method to operate on the data. See "Get Methods" on page 156.

Get Methods

Each Get Method accepts a list of inputs and generates a list of output or metrics.

Every data point in can be uniquely identified by a 4 member tuple:

```
(point,fact,time,value)
```

In the context of a dataset, the `point` is provided by the filter attached to the dataset, the `fact` comes from the list of inputs to the Get Method, `time` is provided by the time window attached to the field and passed on to the Get Method, and `value` is the raw fact value(s) that would be aggregated into a metric. Metrics then are the outputs of a Get Method.

Your choice of Get Method depends on what type of fact you want to pull and will define how the fact will be aggregated in your dataset output.

There are two major groupings of Get Methods: Basic Gets and Multi Gets.

- Basic Gets allow you to pull data for one selected fact.
- Multi Gets pull data based from a fact category. The Multi Gets will return the “best” fact from the category. Facts are grouped together by fact_categories and, within a fact category, each fact has a fact_sequence, which sets the priority of the fact; the best fact

will always be the one with the lowest fact_sequence value (*i.e.*, 1 is the highest fact sequence). For example, with regard to an electric meter, Premise has a Fact Sequence of 5 and Account has a Fact Sequence of 6.

Note: You may find the fact sequence priority for facts using the See "Administer Facts" on page 192.

Non-Time Series Get Methods

Get Method	Applicable fact_ type (Input)	Primary Output
dsGetRelation	Relation	Parent point object with all point table columns available as metrics.
dsGetMultiRelation		
dsGetNumAttr	Numeric Attribute	Numeric attribute value (float)
dsGetMultiNumAttr		
dsGetAttribute	Attribute	Text attribute value (string)
dsGetMultiAttribute		

Time Series Get Methods

Get Method	Applicable fact_type (Input)	Primary Output	Pre-Aggregation	Midnight Handling
dsGetBasic	Metric, Event, List, Interval, Count (MELIC)	Count, Sum, Average, Standard Deviation, Min, Max, Nth Max, Nth Max Date, Nth First Value, Nth Last Value, Nth First Date, Nth Last Date, Nth Cumulative Value	No. If multiple values are available for the same day (as in multiple registers for ACTUAL time basis) all values get included.	Yes, hours forward and hours backward allow looking within a configurable threshold of buffer around midnight;

Get Method	Applicable fact_type (Input)	Primary Output	Pre-Aggregation	Midnight Handling
				actual register timestamp can be retrieved using **ACTUAL** mode.
dsGetMultiBasic	Metric, Event, List, Interval, Count (MELIC)	Same as dsGetBasic.	Pre-aggregation support to choose a single value when multiple values exist.	Same as dsGetBasic.
dsGetMedian	Metric, Event	Value		
dsGetMultiMedian	Metric, Event	Value		
dsGetSegment	Segment	Segment		
dsGetQuantile	Metric, Event			
dsGetValue	Metric, Event, List, Interval, Count (MELIC)	Value; first value without aggregation.	N/A	Same as dsGetBasic.
dsGetMultiValue	Metric, Event, List, Interval, Count (MELIC)	Value, Date Found, Fact Lookup	Pre-aggregation or pre-selection allows a single value	Same as dsGetBasic.

Get Method	Applicable fact_type (Input)	Primary Output	Pre-Aggregation	Midnight Handling
			to be chosen when multiple exist.	

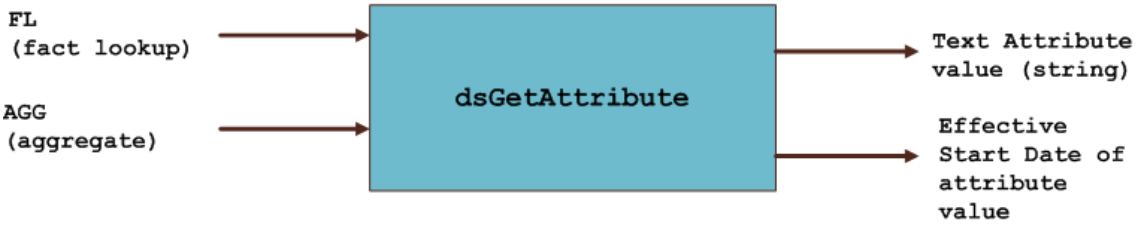
Using Get Methods

Within the category daily kWh, for example, consumption may be derived, aggregated, interpolated, and so on. In order to account for all possible consumption types, you must use a dsGetBasic for each of the facts or use a dsGetMultiBasic on the entire **fact_category** and it will evaluate which of the facts has the highest fact_sequence priority.

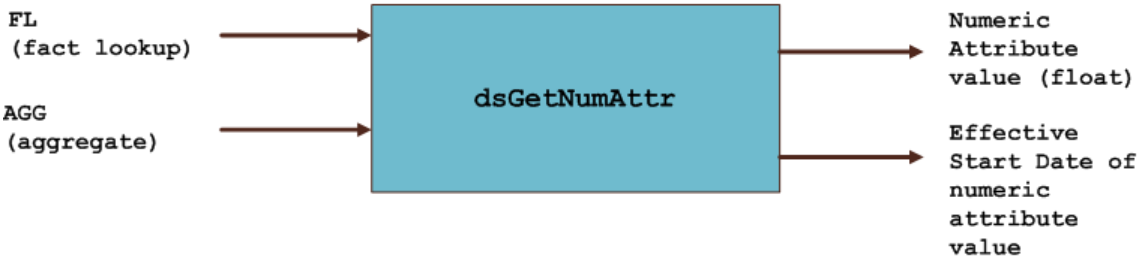
Note: You may find the fact sequence priority for facts using the See "Administer Facts" on page 192.

Despite evaluating several facts in a dsGetMulti_, it will always return just one value (the best fact). If you want to return all of the facts, you will need to use dsGetValue and input a fact_ category. Each dsGet_is equipped with its basic required fields; however, they all have additional panels that you can configure by clicking Add Inputs.

dsGetAttribute: Get attribute facts. Use the drop-down list to select the desired Fact Lookup. Aggregation mode is an additional field that allows you to select whether you want the first relation or the last relation found for that fact (if there happens to be more than one value within your selected time window).



dsGetNumAttr: Get numeric attribute facts. Similar to dsGetAttribute; choose the fact lookup and aggregation mode, if applicable.



dsGetRelation: Get the relation facts. Similar to dsGetAttribute; choose the fact lookup and aggregation mode, if applicable.

dsGetBasic: dsGetBasic is able to pull many different fact types. It is used for all fact types that do not fall in the relation, attribute, and numeric attribute categories (*i.e.*, time series and interval facts; see See "Understanding Facts" on page 5.).

Note: You must specify the fact_type_code before choosing a fact_lookup.

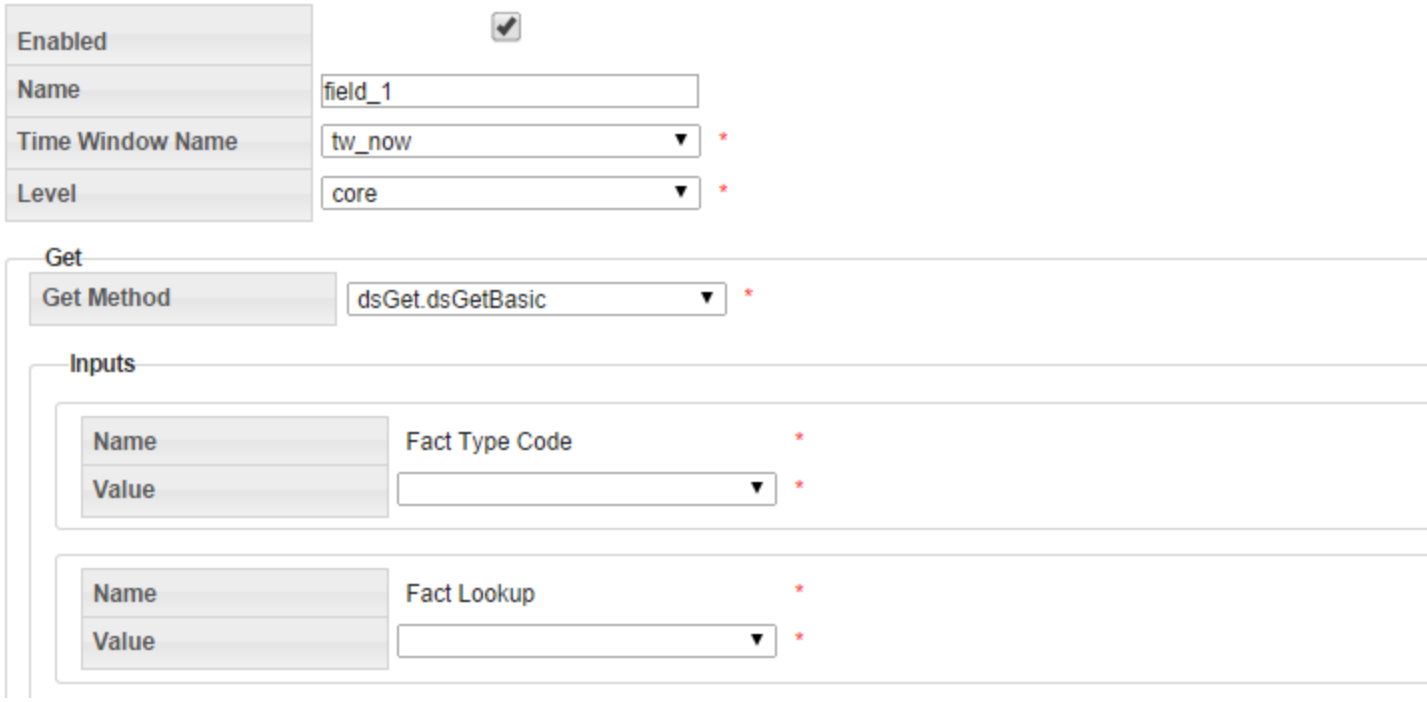
For time series gets, there are inputs that help identify which fact's time series data would be utilized. In dsGetBasic, fact type code (FTC) and Fact Lookup (FL) help uniquely identify a single fact. The third arrow labeled as behavioral input controls different behaviors as described below.

Note: Behavior changing inputs are optional.

- **Fact Filter**: Fact filters allow you to exclude certain time periods from being included (or excluded) in the aggregation. Fact filter allows multiple facts to be specified using the following notation:

```
FactTypeCode:FactLookup,FactTypeCode,FactLookup.
```

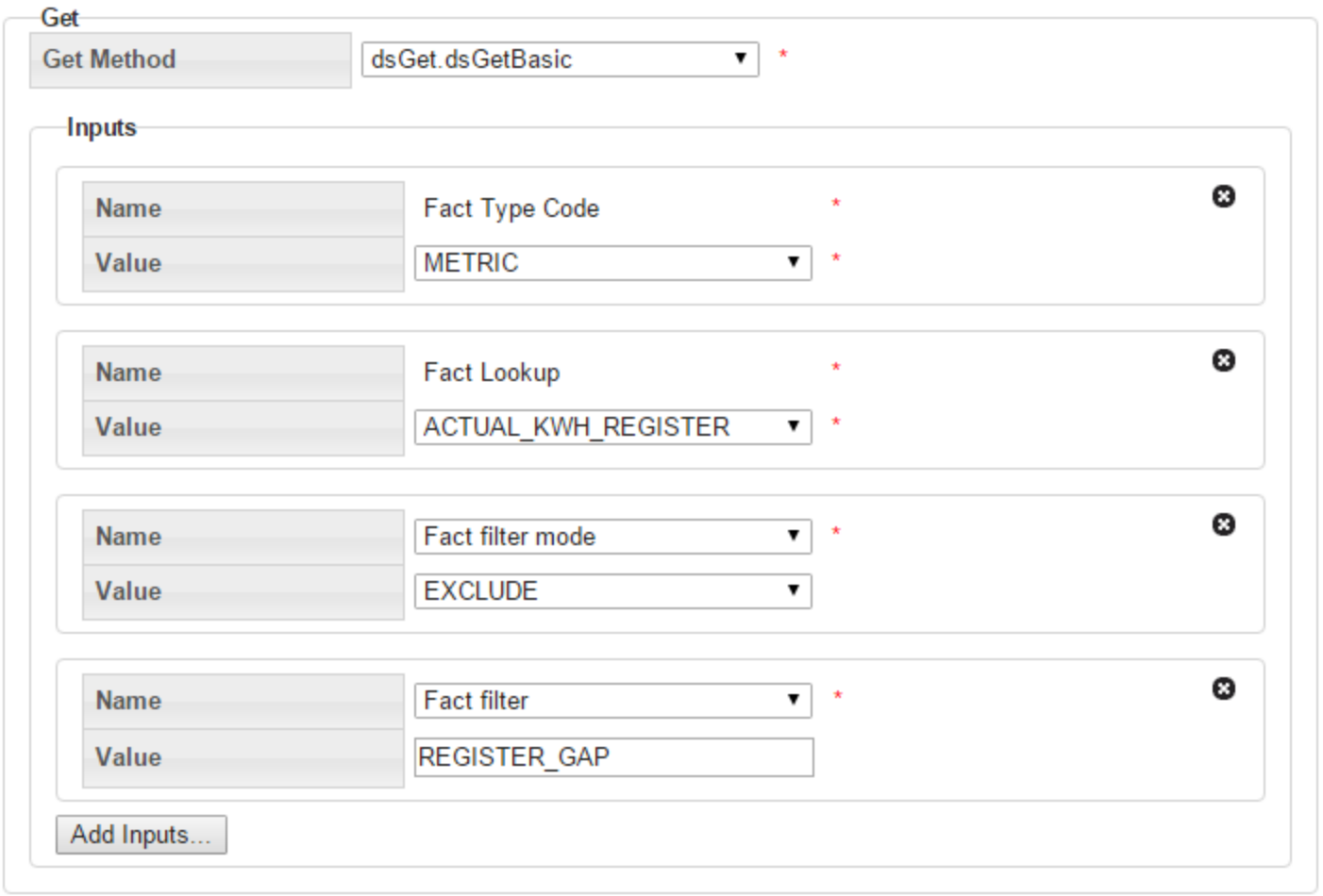
When multiple fact type codes are specified the implicit exclusion or inclusion operation is `OR`.



dsGetBasic also has many different additional inputs.

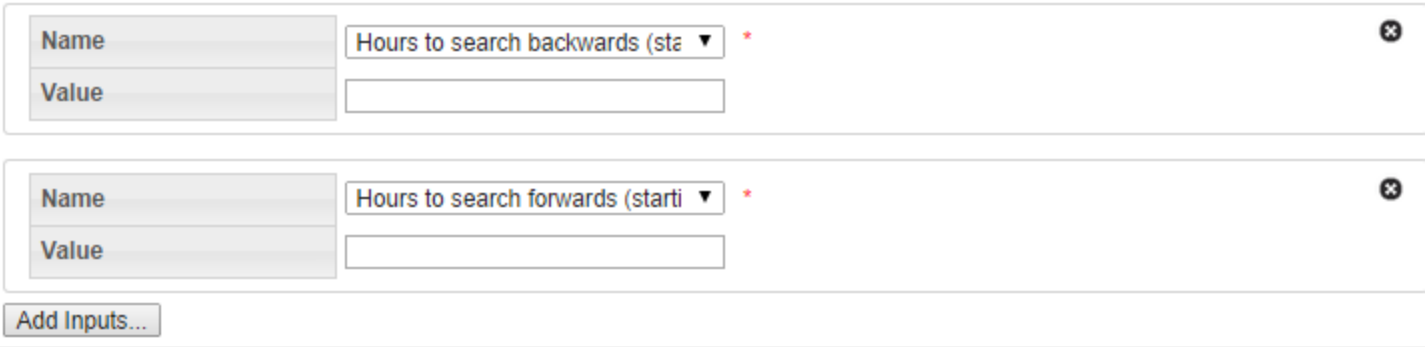
Fact Filter and Fact Filter Mode

The Fact filter and Fact filter mode input options are used in combination to selectively remove points from being evaluated. dsGetBasic has its mandatory primary fact input that you specified first; however fact filtering gives you the ability to exclude certain values of the mandatory fact.
For example, if your primary fact is kWh consumption, and you choose fact filter mode to exclude and the fact filter to be register validation gaps, then you will be excluding all kWh consumption values for days on which there was a gap.



Hours to search backwards/forwards:

For the most part, the system implies a midnight time-stamp for most data and the dataset will search for midnight timestamps only. However, for facts such as register reads, their reads may not necessarily come in at exactly midnight, so with these functions you can expand the search to “hours before/after midnight”.



Midnight timestamp mode:

Midnight timestamp mode allows reads that are within a specified threshold (typically +/- 1

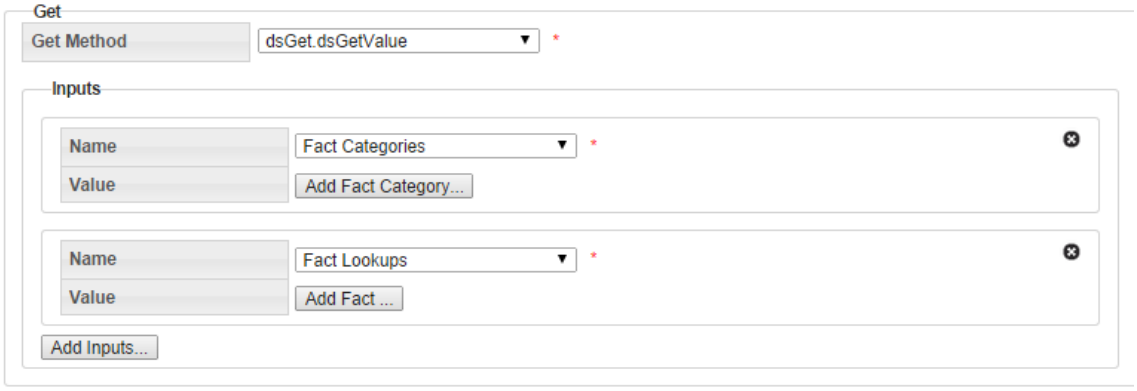
hour of midnight) and treat it as midnight. For example, a read that comes in at 11:53 PM is considered to be a midnight read as is a read that came in at 12:53 AM. In both cases, no interpolation is done and the register value is accepted without any adjustment. However, if a read comes in at 10:55 PM or at 1:05 AM, it will not be considered a midnight read since it would be outside of the +/- 1 hour threshold; reads outside of the threshold will result in data interpolation to derive daily consumption.

Note: The threshold +/- n hour value is configurable.

Maximum 'nth metric to compute':

This feature is to accommodate for facts that may not necessarily occur every day or on a regular basis. So in these situations, you can create a time window that is a wide enough net to grab a large number of occurrences/events of these facts. However, if your goal is to say, only aggregate the first 5 occurrences and ignore the rest, then you can specify that in this section.

dsGetValue: dsGetValue is used to get a value with no aggregation. You can use dsGetValue to specify a fact_category or a specific fact_lookup. However, regardless of the time window, this will only return the first value of each fact (no aggregations).



Cloning a Dataset

The clone function, which is found in the View Datasets and Manage Datasets dialogs, creates a new version of the dataset; the Sequence ID will be incremented by one. The clone is unlocked, which allows it to be edited while the original is locked and ready to be executed. See "Executing Datasets" on page 165.. Once the new version is ready to be put in production, the previous version's End Time is set to the new version's Start Time.

To clone a dataset:

1. In the **View Datasets** or **Manage Datasets** dialog, click **Clone**.
2. Edit the clone. See "Executing Datasets" on page 165..
3. When the clone is ready to be deployed, open the **Manage Datasets** dialog and click Set Current.

> **Note:** This will setthe original dataset's Locked Status to Unlocked. See "Managing Dataset Information" on page 1.) and the clone's Locked Status to Locked.

Copying a Dataset

The copy function, which is found in the View Datasets and Manage Datasets dialogs, creates a new dataset with a unique ID. Copying allows you to start a new dataset from an existing one. The copy has a Sequence ID of 1 since it is the first version of a new dataset.

Viewing the Dataset Definition XML

From the Dataset Definition dialog box, you can view or edit the XML that is produced by the Database XML Editor. See "Defining and Editing XML with the Datasets XML Editor" on page 152.This allows you to quickly modify a parameter without needing to drill down in the editor.

Dataset XML

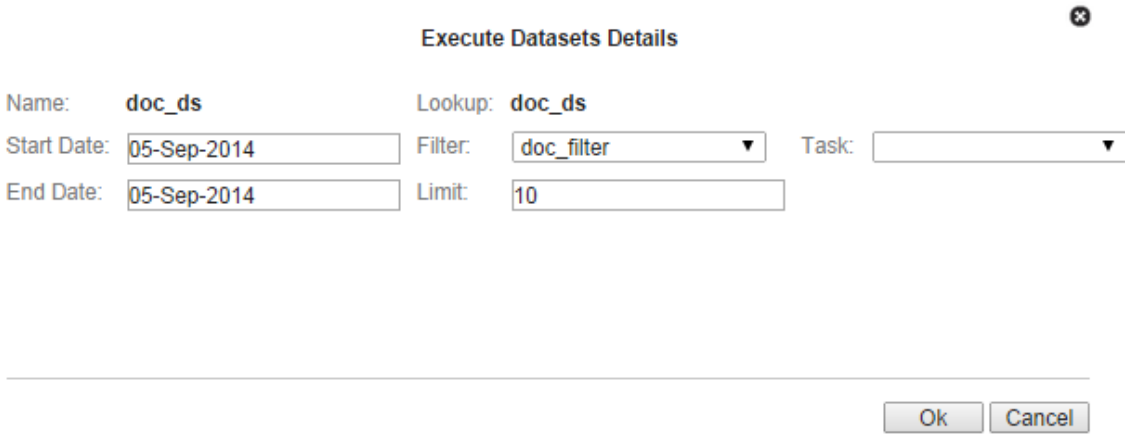
```
<?xml version="1.0" encoding="utf-8"?>
<dataset xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:type="dataset_type" xsi:noNamespaceSchemaLocation="dataset.xsd">
       <options>
```

```
        <option name="processing_basis" value="DAILY" />
        <option name="processing_mode" value="FULL" />
    </options>
    <time_windows>
        <tw xsi:type="time_window_offset_type" name="tw_now" desc="tw_offset">
            <start_offset offset_of="data_start_date" unit="day">0</start_offset>
            <end_offset offset_of="data_end_date" unit="day">0</end_offset>
        </tw>
    </time_windows>
    <levels>
        <level ptc="ACCNT" name="core" agg_method="first" />
    </levels>
    <fields>
        <field xsi:type="field_type">
            <name>rate</name>
            <tw_name>tw_now</tw_name>
            <level>core</level>
            <get get_method="dsGet.dsGetRelation">
                <inputs name="fl" value="RATE" desc="" />
            </get>
        </field>
    </fields>
</dataset>
```

Executing Datasets

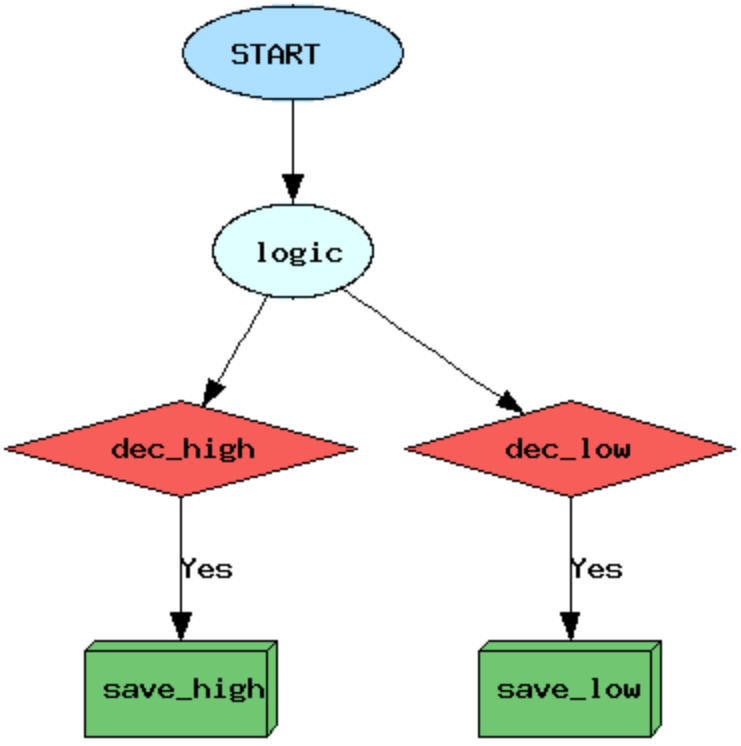
To execute the datasets:

1. When done with the dataset, click **View** or **Edit** and then click **Execute Now**. The **Execute Datasets Details** dialog box will open:
2. Select the execute **Start Date** and the execute **End Date**, which are used as *Data Start Date* and *Data End Date* in the time windows.
   Note: You must select a filter to execute your dataset upon; the filter will decide what points to grab data for.
3. Do one of the following:
   - Click **OK** to execute the dataset .
   - Click **Cancel** to close the dialog box without executing the dataset.



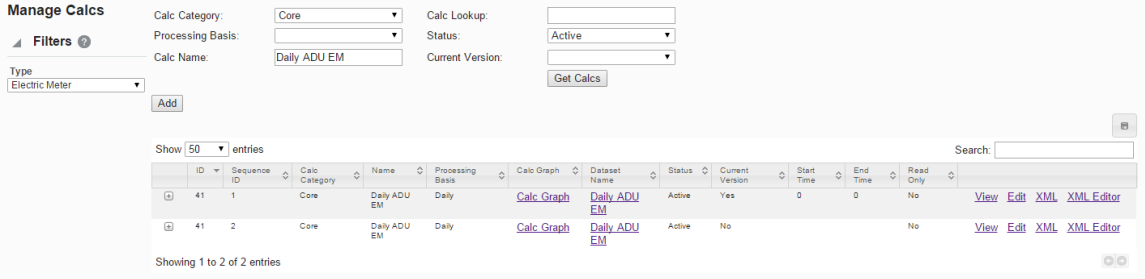
Calcs

Calcs are algorithms that define logical and mathematical operations to be performed on data (as defined by a dataset). Calcs take the form of a directed acyclic graph (DAG) that consist of nodes, which provide instructions for individual processes within the calc, and edges, which provides the order of execution for the nodes.



Manage Calcs Page

Navigate to the Manage Calcs page by selecting Calcs from the Analytics section of the Manage menu. The Manage Calcs page allows you to add a new calc, view existing calcs, and edit calcs with the Calc XML Editor.



Calcs Fields and Buttons

The top section of the Manage Calcs page allows you to search for calcs matching criteria in the fields.

- **Calc Category**: Find calcs that belong to the selected Calc Category.
- **Processing Basis**:Find calcs when you know the calc's processing basis (for example, WEEKLY).
- **Calc Name**: Find a calc based on its name.
- **Calc Lookup**: Find a calc based on its lookup value.
- **Status**: Whether the calc's status is set to Active or Inactive. See "Understanding the Active Status" on page 125.
- **Current Version**: Whether the calc is the current version in use. See "Understanding the Current Version Flag" on page 124.

- **Get Calcs button**:Initiates the search for calcs matching the criteria set in the fields. **Note:** Alternately, you may press **Enter** when you finish adding content to a field and then click the **Submit** link when the system displays a message that the search parameters have changed.
- **Add button**: Opens the **Create Calcs** dialog box from which you may build a new calc. See "Adding Calcs" on page 169.

Data Table

The data table contains information about the calcs.

- **ID**: System generated calc ID
- **Sequence ID**: Calc's sequence ID.
- **Calc Category**: Category that a calc is assigned to.
- **Name**: Calc name.
- **Processing Basis**: Calc's processing basis.
- **Calc Graph**: Provides a link to open a graphical view of the calc. .
- **Dataset Name**: Name of the dataset used in the calc.
- **Status**: Whether the dataset's status is set to Active or Inactive.
- **Current Version**: Whether the dataset is the current version in use.
- **Start Time**: the date/time when the calc was set to current. See "Understanding the Current Version Flag" on page 124.
- **End Time**: End date for the calc. For current version calcs, the end time is set to an arbitrary end date used in the system; when a new version of the calc becomes current, the end time is updated to equal the start time of the new version. See "Cloning a Calc" on page 181.
- **Read Only**: Whether the calc is read-only or may be edited.
- **Links**:
  - **View link**: Opens the View Calcs dialog box, which displays the same data as provided in the data table row as well as buttons and links that allow you to work with the calc. See "Viewing Calc Information" on page 171..
  - **Edit link**: opens the Manage Calcs dialog box, which provides the same fields as the View Calcs dialog box, but allows you to edit Category, Name, Time Basis, Calc Description, Dataset Name, Status, and Lock Status. See "Managing Calc Information" on page 172.
  - **XML link**: Displays the Calcs Definition dialog box, which shows the configuration XML for the calc. See "Viewing the Calc Definition XML" on page 182.
  - **XML Editor link**: displays the Calcs XML Editor. SeeSee "Defining and Editing XML with the Calcs XML Editor" on page 173. for more information.
  - **Expand button**:Reveals the data in the data table row plus the following additional data:
    - **Calc Role**: an optional setting for a role that is applicable to the calc.
      - **Calc Description**: an optional setting that describes the calc purpose.
      - **Lock Status**: whether the calc is locked to editing.
      - **Calc Lookup**: the alphanumeric lookup value, which is typically the name in all caps without spaces.

Note: The data table may be exported by clicking the export data icon above the table's **Search** field.

Adding Calcs

The **Create Calcs dialog** box opens from the Manage Calcs page.

Fields and Buttons

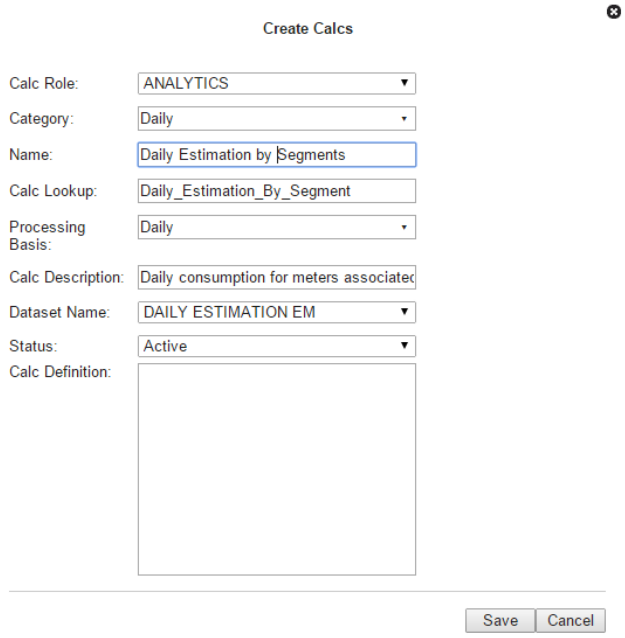
A calc is primarily configured with the following attributes:

- **Calc Role**: A calc can be created with the role selected in the Drawer Menu or with an n/a (empty role). See "Drawer Menu" on page 11.
- **Category**: A category allows calcs to be grouped together for quick viewing from the UI. There is no special significance of the category field from a processing standpoint.
- **Name**: A user friendly name describing the calc.
- **Calc Lookup**: A standardized formatted name that is used by calc engines.
- **Processing Basis**: When running a calc for an extended time period this property controls how the bigger time frame gets sliced into smaller time slices. The calc processing basis should match with the dataset processing basis that it is bound to. Valid time basis examples are: Hourly, Daily, Weekly, Monthly.
- **Calc Description**: Description of the calc with comments.
- **Dataset Name**: The drop-down list shows all datasets whose processing basis matches that of the calc. (Note that every calc is bound to a dataset and that a dataset provides all input data to a calc.)
- **Status**: Enable or disable a calc from showing up in the calc list. In addition, an inactive calc (Status = Inactive) cannot be launched from the system's backend.
- **Calc Definition**: The XML that is generated by building a calc. An existing calc definition may be copied and pasted to this field as a starting point for a new calc.
- **Save button**: Saves the calc.
- **Cancel button**: Closes the dialog box without saving the calc.

Creating a Calc

To create a calc:

1. On the **Manage Calcs** page, click **Add Calc**.



2. In the Create Calcs dialog box, do the following:
   a. Select an appropriate role from the **Calc Role** drop-down.
   b. Select an appropriate category from the **Category** drop-down.
   c. Enter a descriptive name in the **Name** field.
   d. Enter a value for calc lookup in the **Calc Lookup** field.
      Note: The calc lookup value can be any unique alphanumeric value without spaces. A common practice is to use the calc name without spaces.
   e. Select a processing basis for the calc from the **Processing Basis** drop-down list. For example, Weekly.
   f. Enter a short description of the calc function in the **Calc Description** field.
   g. Select whether the calc is **Active** or **Inactive** from the **Status** drop-down list.
3. Click **Save**. The Create Calcs dialog box will close.

Note: When you click **Save** , a row is added in drm.,calc table. The calc definition, however, is stored in a different table (calc_seq); the sequence table allows multiple versions of the calc to be stored, with one version being the locked calc that will get executed when a calc is launched.

Viewing Calc Information

The **View** link in a calc data table row launches the **View Calc** dialog box, which displays the calc information and allows you to view the calc definition, edit the calc information, create a new version of the calc (clone), copy the calc, or execute the calc.

Fields

- **ID**: System generated calc ID.
- **Sequence ID**: Calc's sequence ID, which is its version number.
- **Calc Role**: Optional setting for a role that is applicable to the calc.
- **Point Type Code**: Code representing the object type (for example, EM for electric meter).
- **Category**: Category that a calc is assigned to. [Editable]
- **Name**: Calc name. [Editable]
- **Calc Lookup**: Database lookup value; usually the calc name without spaces in all caps. [Editable]
- **Processing Basis**: Specifies the time interval data to be analyzed (*for example,* Daily, Monthly, Weekly). [Editable]
- **Calc Description**: Optional setting that describes the calc purpose. [Editable]
- **Status**: Whether the calc's status is set to Active or Inactive. [Editable]
- **Lock Status**: Whether the calc is locked to editing.
- **Start Time**: Date and time when the calc became active.
- **End Time**: End date for the calc. For active calcs, the end time is set to an arbitrary end date used in the system; when a new version of the calc becomes active, the end time is updated to equal the start time of the new version.
- **Read Only**: Whether the calc is read-only or may be edited.
- **Calc Definition**: Contains the XML link, which opens the **Dataset Definition** dialog box.

Buttons and Links

- **Edit button**: Opens the **Manage Calcs** dialog box.
- **Clone button**: Creates a new version of the calc. The clone's Sequence ID is the original calc's Sequence ID plus one; all other calc information is the same. Cloning allows you to keep the initial calc active while working on modifications to the calc parameters. See "Cloning a Calc" on page 181.

- **Copy button**: creates a copy of the calc having a unique ID. See "Copying a Calc" on page 182.
- **Set Current button**: Sets the Current Version flag to **Yes**.
- **Cancel button**: Closes the dialog box.
- **Execute Now link**: Executes the calc.

Managing Calc Information

The Manage Calcs dialog box opens when you click the Edit link on the calc data table row or the Edit button on the View Calcs dialog box.

Fields

- **ID**: System generated calc ID.
- **Sequence ID**: Calc's sequence ID, which is its version number.
- **Calc Role**: Optional setting for a role that is applicable to the calc.
- **Point Type Code**: Code representing the object type (for example, EM for electric meter).
- **Category**: Category that a calc is assigned to. [Editable]
- **Name**: Calc name. [Editable]
- **Calc Lookup**: Database lookup value; usually the calc name without spaces in all caps. [Editable]
- **Processing Basis**: Specifies the time interval data to be analyzed (*for example,* Daily, Monthly, Weekly). [Editable]
- **Calc Description**: Optional setting that describes the calc purpose. [Editable]
- **Status**: Whether the calc's status is set to Active or Inactive. [Editable]
- **Lock Status**: Whether the calc is locked to editing.
- **Start Time**: Date and time when the calc became active.
- **End Time**: End date for the calc. For active calcs, the end time is set to an arbitrary end date used in the system; when a new version of the calc becomes active, the end time is updated to equal the start time of the new version.
- **Read Only**: Whether the calc is read-only or may be edited.
- **Calc Definition**: Contains the XML link, which opens the **Dataset Definition** dialog box.

Buttons and Links

- **Clone button**: Creates a new version of the calc. The clone's Sequence ID is the original calc's Sequence ID plus one; all other calc information is the same. Cloning allows you to keep the initial calc active while working on modifications to the calc parameters. See "Cloning a Calc" on page 181..
- **Copy button**: creates a copy of the calc having a unique ID. See "Copying a Calc" on page 182.
- **Set Current button**: Sets the Current Version flag to **Yes**.
- **Cancel button**: closes the dialog box.
- **Execute Now link**: Executes the calc.

Defining and Editing XML with the Calcs XML Editor

Once the calc has been added, a row appears in the data table on the Manage Calcs page. There are additional action link buttons that allow a user to view the Calc XML, edit the raw XML, or view the calc.
Note: A calc that is added from the Create Calcs dialog box does not have a calc definition.

The Calcs XML Editor allows you to add nodes and connect them with edges. There are two types of edges: an ordinary edge and a decision edge, which connects a decision node to another node (for example, a save node). A decision edge has a special property (isYesEdge) that allows you to control downstream execution based on the output of the connected decision nodes.

Note: The calc configuration gets saved in drm.calc_seq table as XML.

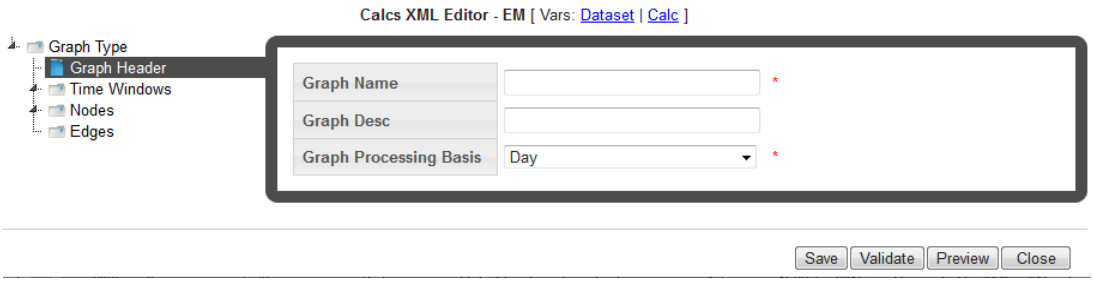
Buttons

- **Save&Close**: Save the calc in its current state and closes the editor. If the calc is structurally invalid, it will show a warning indicating that the Calc was saved, but it will fail execution.
- **Validate&Save**: Validate the calc to make sure it is syntactically valid and shows validation errors, if any exist.
- **Preview&Save**: View and save a calc image based on the nodes and its connectivity.
- **Close**: Close the Calcs XML Editor without saving changes.

Graph Components

The Calcs XML Editor uses graph terminology to describe the structure of the calc. The configuration is defined in the Graph Type, which contains Graph Header, Time Windows, Nodes, and Edges.

Graph Header

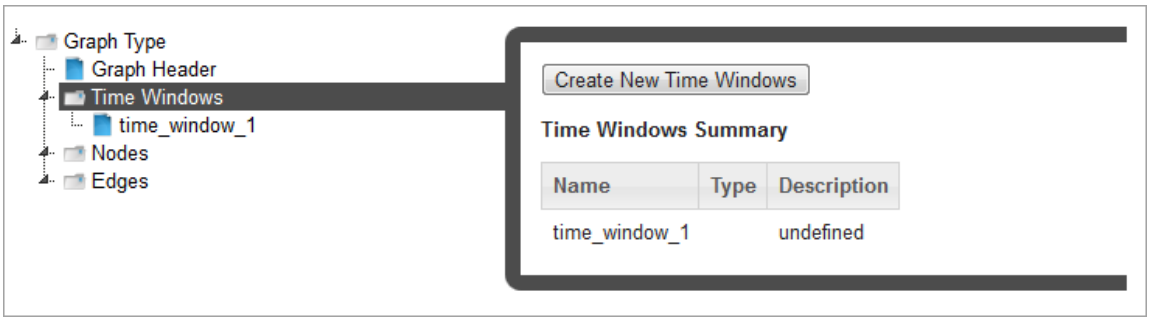


The Graph Header of the includes the following components:

- **Header**:The header of the Calc Graph where name, description, and processing basis are defined.
- **Graph Name**: A user friendly name for the Calc Graph
- **Graph Desc**: The graph description allows users to add valuable documentation information regarding the calc. It can be used as a placeholder to annotate information related to the calc logic, etc.
- **Graph Processing Basis**:The graph processing basis is the same as the time basis/processing basis field that was earlier defined in the calc table. This information is redundant. This property comes into play when a task is run for an extended period of time. For example, a calc defined with a processing basis of daily is run for a week or a month, it will actually be run once for every day of the week or month. Also, the processing basis of a calc must match with the processing basis of the dataset that it is bound to. This check is ensured when the calc is defined and the dataset name selected from the drop-down.

Time Windows

The Time Windows section allows time windows to be added that are referenced by nodes in the calc. The need for a time window in a calc is limited. A time window is required only for **Save Nodes**.



Note: While the schema (XSD) dictates that all nodes of a calc reference a time window, the Calcs XML Editor hides this requirement by making the time window available only when configuring a save node. Behind the scenes, default time windows get added to other nodes. While saving data as the process date is the most common use case, there are situations where data needs to be saved as a different date that is offset from the process date. A time window helps achieve that. Using a time window attached to a save node data can be saved to any date.

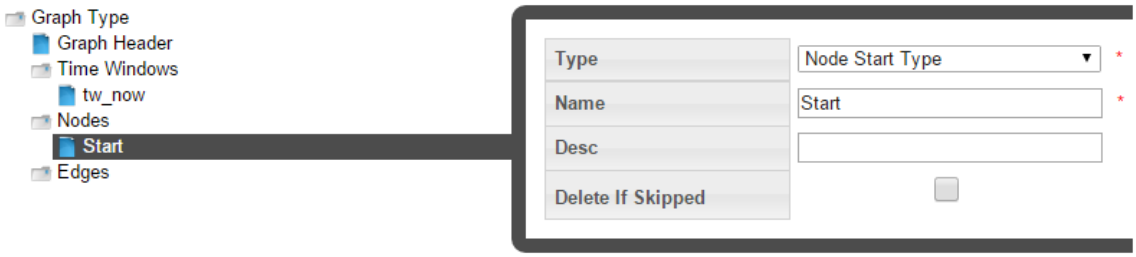
For example, a daily process that would run and derive Average Daily Usage (ADU) over the month and save it as the ADU for the month (Month start Date). In this case you would have an offset based time window with start date = offset of start, unit = month.

Nodes

Nodes define what a calc can do. The Nodes section allows nodes to be added. There are several nodes that can be used in a calc:

Start Node:Where the calc starts execution. Any preceding nodes or any nodes that are not connected to a tree containing the start node will not be executed. The start node represents the head of the graph. It serves no purpose other than being the start point of the calc.

The start node only requires the Name to be entered; the description (Desc) is optional.



Decision Node: Contains custom code. If expression evaluates to TRUE, “yes” edges will be traversed. If not, “no” edges will be traversed..

In the decision node, custom code can be written that will dictate branching of the calc logic. A decision node should always return a Boolean value (True/False). Based on the output of the decision node children node will be skipped or processed.

A decision node has two required fields Name and an Expression. The expression consists of free form code where variables from the dataset or other upstream nodes can be accessed.

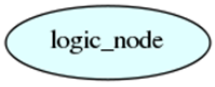
Union Node: Children nodes will execute if at least ONE parent node executes.

A union node requires no configuration. When the calc engine encounters a union node, it will check its parent and execute children if at least one of the parent were executed (*i.e.*, not skipped).

Logic Node: Contains custom code. What the expression evaluates to has no effect over what nodes are traversed (in contrast to decision node). A logic node in calc is to setup initial variables or temporary variables that get accessed later by downstream children nodes. There is no restriction on the number of logic nodes but as a good practice, add a logic node right after the start node and initialize all temporary data upfront so that it is accessible by all other downstream nodes.

The configuration of a logic node is similar to that of the decision node. However, unlike decision node, logic node has no direct output, but rather creates data that can be accessed elsewhere in the program.

A logic node requires an expression field to be populated. Within the expression field, you may access dataset variables and other calc variables.



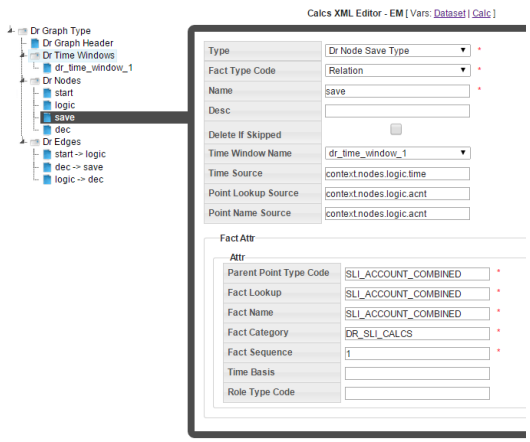
Save Node: A save node allows data to be saved for any fact type.

When saving data we are concerned about several things:

- **Point ID**: This is the calc point id for which execution takes place. Remember that every calc requires a dataset. The dataset returns iterators of points and the calc loops over this iterators. The point ID is thus the current point that the iterators returns.
    - **Fact ID**: In order to save data for the correct Fact ID, the Fact Attr attribute group needs to be configured. The save node is fact type code sensitive and provides options that match the fact type code being saved. For example, when saving a relation Parent Point Type Code needs to be specified while it is not a requirement for other fact types.
        - In the save node, we do not specify the fact ID directly rather provide fact metadata via fact attributes that are then parsed by the calc engine and get resolved to a Fact ID
        - The following is the list of Fact attributes required for non relation facts:
        - Fact Lookup: A standardized lookup to uniquely identify a fact.
        - Fact Name: A unique user friendly name to identify a fact.
        - Fact Category: A logical group of facts.
        - Fact Sequence: Priority of facts within a category.
        - Time Basis: This in most cases should match the processing basis of the calc.
        - Role Type Code: Role that was used to define the calc. The role should be inherited from the role used when adding a calc.
- **Value:** When saving a relation fact Parent Point Name and Lookup are needed, while others require a value source. Value source could point to any dataset variable or a temporary variable that was set within the calc. There is no requirement that the value be set in the parent node of the save node.
- **Time Int:** Time can be specified using a time window or by setting the Time source property of the save node. Refer to the earlier section about Time Windows

Note: Time can be specified using time window source or time window. When a time source is provided it will always be chosen over the time returned by the time window.

Note: The **Delete If Skipped** check-box provides a mechanism to avoid conflicts from "old" data by deleting previously saved data.



Delete Node: A delete node allows data to be deleted. Just like the save node a delete node requires configuring the fact attr attribute group, specifying a time int (using time source or time window). Value source is ignored.

Note: The Delete node is available for use, but it should only be used in rare circumstances; for example, if extraneous data was created due to a problem with a calc, you could use a delete node to remove the data.

Move Node: A move node allows data from a source fact to be moved to a different fact.

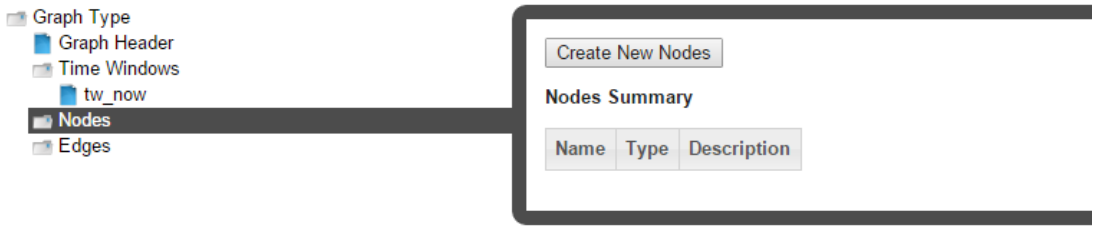
The main purpose of a move node is to remove data from a fact without deleting it. If there is "bad" data that needs to be cleaned up, the data can be moved to a "bad" fact. Other than in rare circumstances where the Delete node could be used, the Move node provides a method to set aside bad data, but keep it available for audit reasons.

Since moving involves two facts, a source fact and a target fact the configuration of move node requires specifying fact attrs separately for the source and target fact attrs.

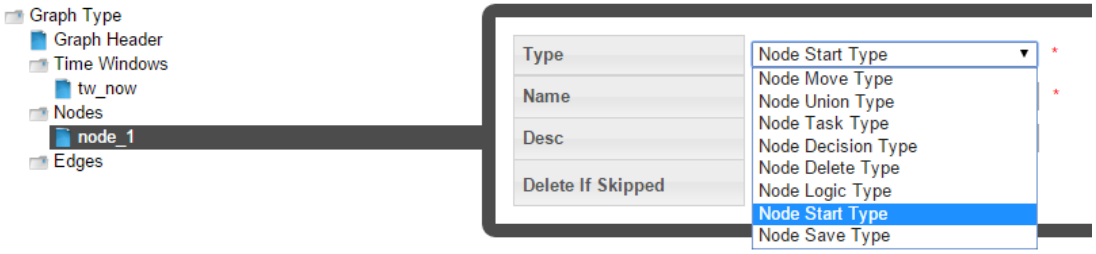
Creating a Node

To create a node:

1. Click **Create New Dr Nodes**, then slect the branch with the new node in the tree view.



2. Select the node type from the Type drop-down list.



Edges

Edges connect two nodes together to create a sequence for node execution.

Edge types include:

- **Edge**: An edge that connects two nodes.
- **Decision Edge**: An edge that connects a decision node to another node. If **Yes** is selected, the edge will be traversed when the decision is true.

Variable References

Free form Java code may be written within a decision or logic node; this code can access dataset variables as well as calc variables. In order to assist with calc development and provide a ready reference of all dataset variables and calc variables, two links are available at the top of the Calcs XML Editor: Dataset and Calc.

- **Dataset link**: Opens a dialog box with fully qualified dataset variables and their description along with datatype information.

- **Calc link**: Opens a dialog box with fully qualified calc variables with a usage summary for the variables within different calc nodes.

Accessing Variables

Dataset Variables: The notation followed in accessing a dataset variable is:

```
context.ds.<field_name>.<metric_name>
```

For example, if the dataset bound to the calc has a field called *Account* with a metric called *Name*, this variable would be accessed in the python expression as:

```
context.ds.Account.Name
```

Calc Variables

Getting Calc Variable: The notation followed in accessing a calc variable is:

```
context.nodes.<node_name>.<variable_name>
```

For example, if a calc has a node called vars with a temporary variable called average, this variable would be accessed as:

```
context.nodes.vars.average
```

Setting Calc Variables: When setting a calc variable the notation to be followed is:

```
 context.self.<variable_name> = xyz
```

Where `self` represents that node that you are within.

Cloning a Calc

The clone function, which is found in the View Calcs and Manage Calcs dialogs, creates a new version of the calc; the Sequence ID will be incremented by 1. The clone is unlocked, which allows it to be edited while the original is locked and ready to be executed (See "Copying a Calc" on page 182.). Once the new version is ready to be put in production, the previous version's End Time is set to the new version's Start Time.

To clone a calc:

1. In the **View Calcs** or **Manage Calcs** dialog, click **Clone**.
2. Edit the clone.See "Defining and Editing XML with the Calcs XML Editor" on page 173.

3. When the clone is ready to be deployed, the Manage Calcs dialog will open. Click **Set Current** to set the original calc's **Locked Status** to **Unlocked** (See "Managing Calc Information" on page 172.) and the clone's **Locked Status** to **Locked**.

Copying a Calc

The copy function, which is found in the View Calcs and Manage Calcs dialogs, creates a new calc with a unique ID. Copying allows you to start a new calc from an existing one. The copy has a Sequence ID of 1 since it is the first version of a new calc.

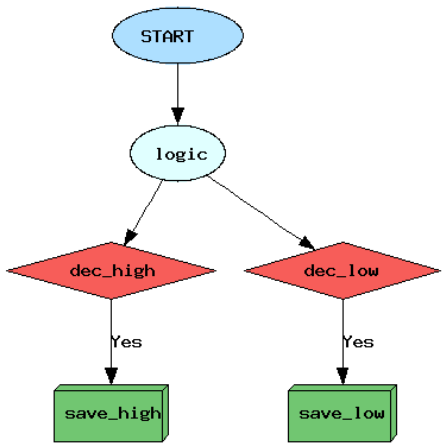
Viewing the Calc Definition XML

From the Calc Definition dialog box, you can view or edit the XML that specifies the calc parameters. The XML is typically defined with the Calc XML Editor, but the Calc Definition allows you to quickly modify XML parameters or define a calc using XML from a similar calc.

Viewing a Calc Graph

Calc graphs provide a flowchart-like view of the calc. Each edge (node connection) is displayed as the node symbols connected by an arrow representing a path in the calc.

For example, you could create a calc that creates two lists based on whether consumption is below a value or not.



Logic Node: The logic node first creates a logic bucket named 'High' and then tests if the value of consumption data (based on the dataset looking for daily kWh) is below 7 (kWh).

```
context.self.bucket = 'HIGH'
```

```
if context.ds.basic.firstValue < 7: context.self.bucket = 'LOW'
```

- If the data value is below 7, the bucket will be set to 'LOW'.
- If not, the bucket will remain 'HIGH'.

Decision Nodes: The logic-dec_high edge checks to see if the dec_high node criteria is met.

```
if context.nodes.logic.bucket == 'HIGH': return True
```

The logic-dec_low edge checks to see if the dec_low node criteria is met.

```
if context.nodes.logic.bucket == 'LOW': return True
```

Save Nodes: The save nodes collect values meeting the criteria for the decision nodes. In this case, lists are created with values meeting the criteria:

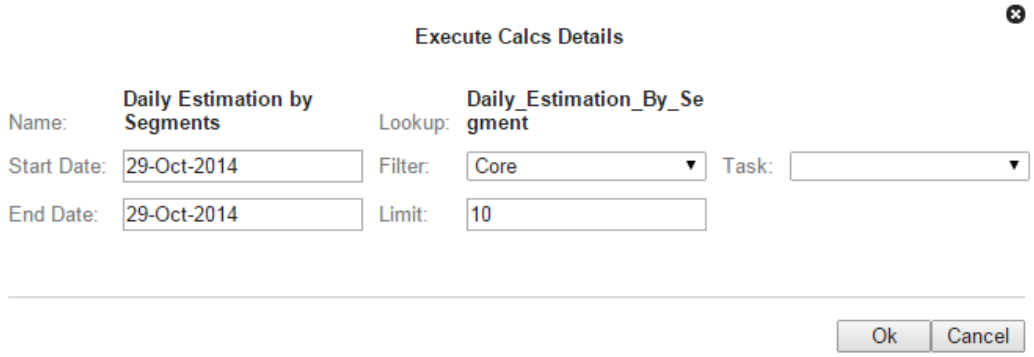
- The dec_high-save_high decision edge saves all values in the HIGH bucket.
- The dec_low-save_low decision edge saves all values in the LOW bucket.

Executing Calcs

A calc can be executed from the View Calcs and Manage Calcs dialog boxes.

To execute a calc:

1. Click **Execute Now** to open the **Execute Calcs Details** dialog box.



2. Enter the filter that the calc should operate on and the dates, then.do one of the following:
   - Click **OK** to execute the calc.
   - Click **Cancel** to close the dialog box without executing.

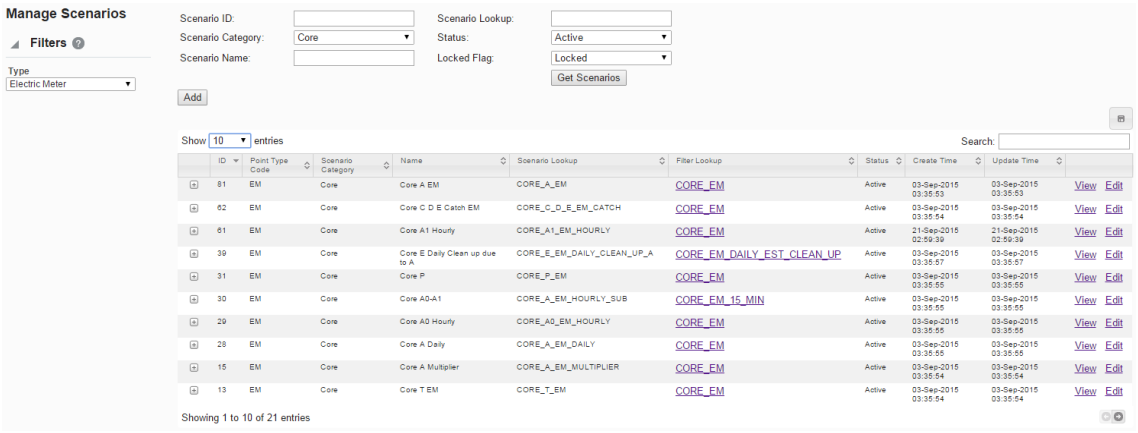
Scenarios

Scenarios act as a wrapper for a collection of calcs to be executed sequentially on a population found using a filter.

Note: Scenarios are run using a scenario task. See "Manage Tasks" on page 98.

Manage Scenarios Page

The Manage Scenarios page allows you to create, view, and edit scenarios. To Navigate to the Manage Scenarios page, select Scenarios from the Analytics section of the Manage menu. The scenarios data table will load with the scenarios that match the selected Type.



Scenario Fields and Buttons

The top section of the Manage Scenarios page allows you to search for scenarios matching criteria added to the following fields:

- **Scenario ID**: System-generated scenario ID.
- **Scenario Category**: Category that a scenario is assigned to.
- **Scenario Name**: Scenario name.
- **Scenario Lookup**: Alphanumeric lookup code for the scenario.
- **Status**: Scenario status (Active/Inactive).
- **Locked Flag**: Whether the scenario is locked or unlocked.
- **Get Scenarios button**:Initiate the search for scenarios matching the criteria set in the fields.
  Note: Alternatively, you may press **Enter** when you finish adding content to a field and

then click the Submit link when the system displays a message that the search criteria has changed.

- **Add button**: Opens the **Create Scenarios** dialog box from which you may create a new scenario. See "Adding Scenarios" on page 186.

Data Table

The data table contains information about the scenarios. The table contains the following columns:

- **ID**: System generated scenario ID.
- **Point Type Code**:Code representing the object type (for example, EM for electric meter).
- **Scenario Category**:Category that a scenario is assigned to.
- **Name**:Scenario name.
- **Scenario Lookup**: Alphanumeric lookup code for the scenario.
- **Filter Lookup**: Alphanumeric lookup code for the filter used in the scenario.
- **Status**: Scenario status (Active or Inactive).
- **Create Time**: Date and time when the scenario was created.
- **Update Time**: Date and time when the scenario was updated.
- **View link**: opens the View Scenarios dialog box, which displays the same data as provided in the data table row as well as buttons and links that allow you to edit the scenario. See "Viewing Scenario Information" on page 187.
- **Edit link**: opens the Manage Scenario dialog box, which displays an editable view of the scenario information. See "Managing Scenario Information" on page 188.
- **Expand button**: Reveals the data for each data table row plus the following additional data:
  - **Scenario Role**: an optional setting for a role that is applicable to the scenario.
  - **Calc List**: lists the calcs associated with the scenario.
  - **Scenario Description**: an optional setting that describes the scenario purpose.
  - **Lock Flag**: whether the scenario is locked to editing.
- **Minimize button**:Hide the extra information for each table row.

Note: The data table may be exported by clicking the export data icon located above the table's Search field.

Adding Scenarios

Scenarios can be added using the **Create Scenarios** dialog box from the **Manage Scenarios** page. You can modify the scenario using the fields and buttons of the **Create Scenarios** dialog box.

Fields and Buttons

- **Scenario Role**: A scenario role may be created with the role selected in the See "Drawer Menu" on page 11. or an empty role (such as, n/a). See "Drawer Menu" on page 11.
- **Category**: Groups scenarios together for quick viewing from the UI. There is no special significance of the category field from a processing standpoint.
- **Name**: A user friendly name describing the scenario.
- **Scenario Lookup**: Standardized database lookup name without spaces or lowercase letters.
- **Scenario Description**: Description of the scenario with comments.
- **Filter Lookup**: Shows all filters created for the role and point type.
- **Status**: Enable or disable a scenario. Enabled scenarios will appear in the data table; disabled scenarios will be hidden.
- **Locked Flag**: Scenario lock status. Unlocked scenarios cannot be run.
- **Save button**: Save the scenario.
- **Cancel button**: Closes the dialog box without saving the scenario.

Creating a Scenario

To create a scenatio:

1. On the **Manage Scenarios** page, click **Add Scenario**. The **Create Scenarios** dialog box will open.
2. Do the following:
   - (Optional) Select a **Role** from the **Scenario Role** drop-down list.
     Note: The field can be left blank.
   - Select an appropriate category from the **Category** drop-down list.
   - Enter a descriptive name in the **Name** field.

- Enter a value for the scenario lookup in the **Scenario Lookup** field.
  Note: The scenario lookup value can be any unique alphanumeric value without spaces in all caps.
- Enter a short description of the scenario features In the **Scenario Description** field.
- Select a filter to run the scenario against from the **Filter Lookup** drop-down list.
- Select whether the scenario is **Active** or **Inactive** from the **Status** drop-down list,
- Select whether the scenario is **Locked** or **Unlocked** from the **Locked Flag** drop-down list.

3. Click **Save**. The **Create Scenarios** dialog box will close.

Viewing Scenario Information

The **View** link in a dataset data table row launches the **View Dataset** dialog box, which displays the dataset information and allows you to view the dataset definition, edit the dataset information, clone the dataset, or execute the dataset.

Fields and buttons

- **ID**: System-generated scenario ID.
- **Point Type Code**: Code representing the object type (for example, EM for electric meter).
- **Category**: Category that a scenario is assigned to.
- **Name**: Scenario name. This may be modified in the **Manage Scenarios** dialog.
- **Scenario Lookup**: Alphanumeric lookup code for the scenario.
- **Calc List**: Lists the calcs associated with the scenario. This may be modified in the **Manage Scenarios** dialog.
- **Scenario Description**: Optional setting that describes the scenario purpose. This may be modified in the **Manage Scenarios** dialog.
- **Filter Lookup**: Alphanumeric lookup code for the filter used in the scenario.
- **Status**: Scenario status (Active or Inactive). This may be modified in the **Manage Scenarios** dialog.
- **Lock Flag**: Whether the scenario is locked to editing. This may be modified in the **Manage Scenarios** dialog.
- **Create Time**: Date/time when the scenario was created.
- **Update Time**: Date/time when the scenario was updated.
- **Edit button**: Opens the Manage Scenarios dialog box.

- **Cancel button**: Closes the dialog box.

Managing Scenario Information

The Manage Scenarios dialog box opens when you click the **Edit** link on the scenario data table row or the **Edit** button on the **View Scenarios** dialog box. In addition to editing the editable fields (such as, Name, Scenario Description, Status, and Locked Flag), it provides the **Add Calc** field, which allows you to add the calcs that will be run in the scenario.

Fields and Buttons

- **ID**: System-generated scenario ID.
- **Point Type Code**: Code representing the object type (for example, EM for electric meter).
- **Category**: Category that a scenario is assigned to.
- **Name**: Scenario name. This may be modified in the **Manage Scenarios** dialog.
- **Scenario Lookup**: Alphanumeric lookup code for the scenario.
- **Calc List**: Lists the calcs associated with the scenario. This may be modified in the **Manage Scenarios** dialog.
- **Scenario Description**: Optional setting that describes the scenario purpose. This may be modified in the **Manage Scenarios** dialog.
- **Filter Lookup**: Alphanumeric lookup code for the filter used in the scenario.
- **Status**: Scenario status (Active or Inactive). This may be modified in the **Manage Scenarios** dialog.
- **Lock Flag**: Whether the scenario is locked to editing. This may be modified in the **Manage Scenarios** dialog.
- **Create Time**: Date/time when the scenario was created.
- **Update Time**: Date/time when the scenario was updated.
- **Assign Additional Calc button** : Activates the **Add Calc** drop-down list. See "Adding Calcs to a Scenario" on page 188.
- **Save button**: Saves changes.
- **Cancel button**: Closes the dialog box without saving changes.

Adding Calcs to a Scenario

To add a calc to a scenario:

1. Click the **Assign Additional Calc** link located in the **Manage Scenarios** dialog box.
2. Select a calc from the **Add Calc** field drop-down.
   Note: When you click the **Assign Additional Calc** link, the **Add Calc** field becomes an active drop-down containing cals options appropriate to the scenario role and point type.
3. Click the **Save**. The calc will be listed in the **Calc List** field.

Note: If you need to remove the calc from the scenario, click the**Remove** link.

Administer

The Administer menu provides access to the Metadata, Security, and System features.

Administering Metadata

The Administer Metadata category provides access to administer points and facts.

Administer Points

The Administer Points page allows you to view and, in some cases, edit the point metadata for an environment. The page contains the following components:

Panes, Fields and Buttons

- **Filters Pane**: Allows you to select the point type code that you are interested in. For example, to see electric meters, select Electric Meters from the drop-down list.
- **Fields**: The top section of the Administer Points page provides filters that allow you to narrow the points that are returned by selecting the point type in the Filters pane. With the exception of Point ID, the text fields allow you to search for a string. If the whole string is unknown, a part of it can be entered with a percentage (%) symbol with as prefix, suffix, or both.
  - **Point ID:** the point's system-assigned, unique identifier.
  - **Point Name:** the name that was given to the point when it was added.
  - **Point Lookup:** the point's secondary description, or nickname, that was assigned when the point was added.
  - **Point Tag:** allows you to search by the tag category that was associated to the point when it was added.
  - **Status:** allows you to search for points that are a specific status.

- **Get Points button:** allows you to search for points matching the criteria set in the top section's fields.

Data Table

The data table displays the filtered points in a tabular format with one row representing one point. Click the + button to expand a row to view the point data as text.

The selected points can also be copied to clipboard or saved as csv or pdf using the buttons on the up-per right corner. A search bar can be used to search for any text in the displayed point table.

- **ID:** The point's system-assigned, unique identifier.
- **Name:** Name given to the point when it was added.
- **Point Lookup:** Secondary point description assigned when the point was added.
- **Point Lookup:** Secondary point description assigned when the point was added.
- **Point Tag:** Tag category that was associated to the point when it was added.
- **Create Time:** Date and time when the point was created.
- **Update Time:** Date and time when the point was updated.
- **View link:** Opens the View Points dialog box, which displays the same information as provided in the data table row, including the point's description. This dialog box also provides links that allow you to edit the point. See "Viewing Point Information" on page 190.
- **Edit link:** Opens the **Mange Points** dialog box, which displays the same information as provided in the data table row, and allows you to edit the status. See "Managing Point Information" on page 191.

Viewing Point Information

The **View Points** dialog box is accessed from the **View** link, which is found in the **Administer Points** data table.

Fields, Links, and Buttons

- **Point ID:** System-assigned, unique point identifier.
- **Point Name:**Name that was given to the point when it was added.
- **Point Lookup:** Secondary point description assigned when the point was added.

- **Point Tag:** Tag category that was associated to the point when it was added.
- **Status:** Point's status (Active or Inactive).
- **Create Time:** Date and time when the point was created.
- **Update Time:** Date and time when the point was last updated.
- **Edit button**: Opens the Manage Points dialog box. See "Managing Point Information" on page 191.
- **Cancel button**: Closes the dialog box.

Managing Point Information

The **Manage Points** dialog box opens when you click the **Edit** link on the point data table row or the **Edit** button on the **View Points** dialog box.

Fields, Links, and Buttons

- **Point ID:** System-assigned, unique point identifier.
- **Point Name:** Name given to the point when it was added.
- **Point Lookup:** Secondary point description assigned when the point was added.
- **Point Tag:** Tag category associated with the point when it was added.
- **Point Description:** Short description given to the point when it was added.
- **Status:** Set the point's status (Active or Inactive).
- **Create Time:** Date and time when the point was created.
- **Update Time:** Date and time when the point was updated.
- **Savebutton**: Save any changes that have been made; the button is disabled until a field has been modified.
- **Cancelbutton**: Close the dialog box.

Administer Facts

The **Administer Facts** page allows you to view and, in some cases, edit the fact metadata for an environment. There are a number of filters available on the left and central panels to help get to the facts of interest.

Panes, Fields, and Buttons

- **Filters Pane**: The filters pane allows you to select the point type code that you are interested in. For example, to see electric meters, select Electric Meters from the drop-down list.
- **Fields**: The top section of the Administer Facts page provides filters that can be used to search facts and a button to apply the filters and display the facts. While the drop downs display the possible values to select from, the text boxes have the capability to search based on a given string. If the whole string is unknown, a part of it can be entered with a percentage (%) symbol with as prefix, suffix or both.
  - **Fact ID:** System-assigned, unique fact identifier.
  - **Fact Type Code:** Search for facts that are a specific fact type code.
  - **Time Basis:**for facts that are based on a specific period of time.See "Time Basis" on page 35.
  - **Fact Category:** Search for facts that are a specific fact category.
  - **Fact Name:** The Name given to the fact when it was added.
  - **Fact Lookup:** Secondary description given to the fact when it was added.
    Note: This field is case sensitive.
  - **Fact Source:** Data or calculation that produced the fact.
  - **Role Type Code:** Search for facts associated to a specific role type.
  - **Aggregation Method:** Mathematical function used to calculate the fact.
  - **Parent PTC:** Point type code associated to a parent object.
  - **Status:** Search for facts that are a specific status.
  - **Get Facts button:** Search for facts matching the criteria set in the top sections fields.

Data Table

The data table displays the filtered facts in a tabular format with one row representing one fact. A drop-down on the upper left corner can be used to change the number of facts displayed per page.
Note: the default is 50 entries.

Every row has buttons to view, edit, or navigate to the fact audit screen for the fact in that row. The details can also be viewed by clicking the “+” in front of every row. The selected facts can also be copied to clipboard or saved as csv or pdf using the buttons on the upper right corner. A search bar can be used to search for any text in the displayed fact table.

Table elements include:

- **ID:** System-assigned, unique fact identifier.
- **Fact Type Code:** Search for facts that are a specific fact type code.
- **Time Basis:** Search for facts that are based on a specific period of time.See "Time Basis" on page 35.
- **Fact Category:** Search for facts that are a specific fact category.
- **Fact Name:** Name given to the fact when it was added.
- **Fact Lookup:** Secondary description given to the fact when it was added.
  Note: This field is case sensitive.)
- **Fact Source:** Data or calculation that produced the fact.
- **Role Type Code:** Search for facts associated to a specific role type.
- **Agg Method (Aggregation Method)**: Mathematical function used to calculate the fact.
- **View link:** Opens the Viewing Fact Information dialog box, which contains the same information as the data table. In addition, it displays the associated Role and Fact Sequence. See "Viewing Fact Information" on page 193.
- **Edit link:** Opens the Manage Fact dialog box, which contains the same information as the data table. In addition, it provides opportunities to update the fact name, aggregation method, and fact status. See "Managing Fact Information" on page 194.
- **Fact Audit link:** Navigates to the Fact Audit page and displays the current context to provide further information. See "Fact Audit" on page 116.

Viewing Fact Information

The **Administer Facts** dialog box is accessed from the **View** link, which is found in the **Administer Facts** data table.

Fields, Links, and Buttons

- **Fact ID:** System-assigned, unique fact identifier.
- **Fact Type Code:** Fact type code associated to the fact when it was added.

- **Time Basis:** The period of time that is used to aggregate data in order to calculate the fact. See "Time Basis" on page 35.
- **Fact Category:** Category associated to the fact when it was added.
- **Fact Name:** Name that was given to the fact when it was added.
- **Fact Lookup:** Secondary description given to the fact when it was added.
  Note: This field is case sensitive.
- **Fact Source:** the data or calculation that produced the fact.
- **Role:** Role type associated with the fact when it was added.
- **Agg Method (Aggregation Method):** Mathematical function used to calculate the fact.
- **Parent Point Type Code:**Point type code associated to a parent object.
- **Create Time:** Date and time when the fact was created.
- **Update Time:** Date and time when the fact was last updated.
- **Status:** Status that was assigned to the fact.
- **Edit button**: Opens the Manage Facts dialog box. See "Managing Fact Information" on page 194.
- **Cancel button**: Closes the dialog box.

Managing Fact Information

The **Administer Facts** dialog box is accessed from the **Edit** link in the **Administer Facts** data table, or through the **Edit** button in the **View Fact Information** dialog box.

Fields and Links

- **Fact ID:** System-assigned, unique fact identifier.
- **Fact Type Code:** Fact type code associated to the fact when it was added.
- **Time Basis:** The period of time that is used to aggregate data in order to calculate the fact. See "Time Basis" on page 35.
- **Fact Category:**Category associated to the fact when it was added.
- **Fact Name:** Review or update the name that was given to the fact when it was added.
- **Fact Lookup:** Secondary descriptiongiven to the fact when it was added.
  Note: This field is case sensitive.
- **Fact Source:** Data or calculation that produced the fact.
- **Role:**Role type associated to the fact when it was added.

- **Agg Method (Aggregation Method):** Review or update the mathematical function used to calculate the fact.
- **Parent Point Type Code:** the point type code associated to a parent object.
- **Create Time:** Date and time when the fact was created.
- **Update Time:** Date and time when the fact was last updated.
- **Status:** Review or update the status that was assigned to the fact.
- **Save button**: Save any changes that have been made; the button is disabled until a field has been modified
- **Cancel button**: Close the dialog box.

Administer Security

The Administer Security category provides access to administer access, roles, and groups.

Administering User Access

The Administer Users page displays all users who have been created in Oracle Identity Manager and configured with the ODR User Provisioning resource.

> **Note:** To access the Administer Users page, log in to ODR as an administrative or power user and select the **Administer** menu, then select **Security**, and then select **Users**.

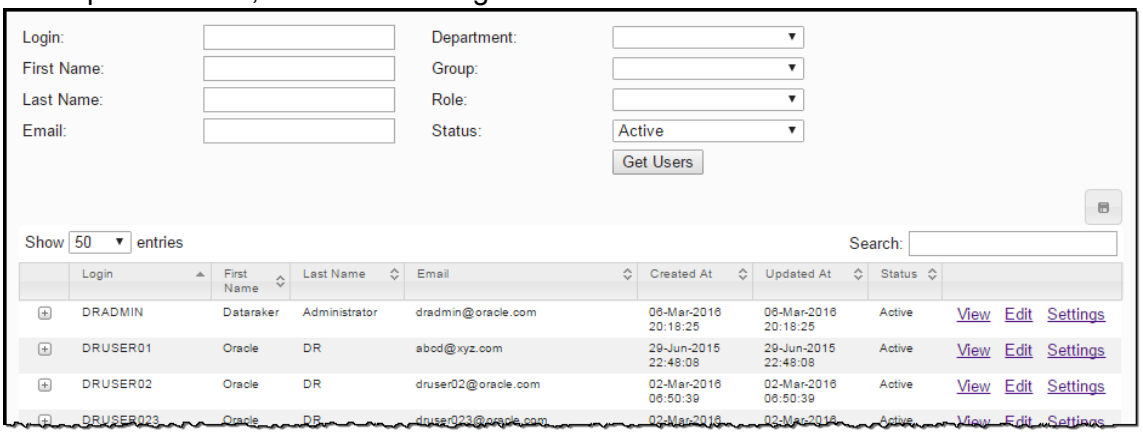
The Administer Users page allows administrators to assign users to groups and roles, which determine the features that are available to them:

- **Group assignment:** Determines general user interface characteristics (such as the menus that are displayed) and, consequently, which pages are accessible to the user.
- **Role assignment:** Determines the features that are available on the pages made available by the user's group privileges.
  Note: Roles are unique to modules so assigning a role automatically associates the user to a module.

For example, generally end users (non-power users) have access to environments with menus only for Explore and Export functionality based on their group assignment; what they see on the Explore and Export pages is determined by their role. A user with a Billing role in the Meter to Bill module, for example, will have different algorithms and panels on the

Explore page than a user assigned to the Distribution Planning role in the Distribution Planning and Operations module.

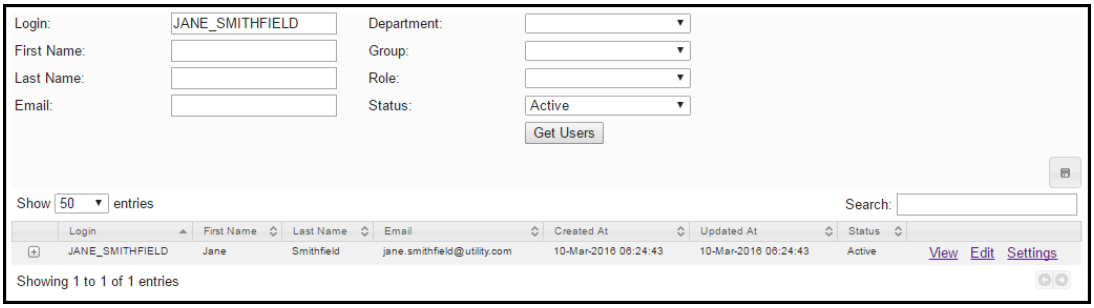
Note: The user interface features defined for groups and roles are determined by licensing and implementation, and are not configurable.



Filters and Buttons

The top section of the page allows you to filter and search the list of users.

- **Login**: Filter by a user's login name.
- **First Name**: Filter by a user's first name.
- **Last Name**: Filter by a user's surname, or family name.
- **Email**: Filter by a user's email address.
- **Department**: Filter by department name.
- **Group**: Filter by group name.
- **Role**: Filter by the role assigned to users.
- **Status**: Filter by user status (Active or Inactive).
- **Get Users button:** Search for users matching criteria set in the fields.
  For example, the following image displays the data table filtered by first and last name of the user created in OIM.



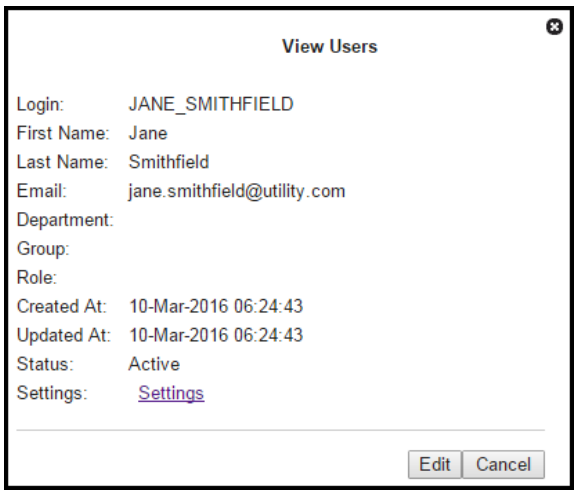
Data Table

The data table lists users with columns containing the following information and links:

- **Login**: User login name.
- **First Name**: User's first name.
- **Last Name**: User's surname or family name.
- **Email**: User's email address.
- **Created At**: Date and time when the user was created.
- **Updated At**: Date and time when the user's information was last updated.
- **Status**: User status (Active or Inactive).
- **View link**: Displays user information in the **View Users** dialog box.
- **Edit link**: Displays user information in the **Mange Users** dialog box where you can edit group and role associations, change status, and provides a link to change their password in Oracle Identity Manager.
- **Settings button**: Opens the **Settings** dialog box.
  Note: While the Settings dialog box is available, its functionality is currently inactive.
- **Expand button**: Displays user information in the table columns, inclucing their department, group, and role.

Viewing User Information

The View Users dialog box contains user information and provides links to edit the user's start page and group and role assignments.



Information and Links

The dialog box contains the following information and links:

- **Login**: Read-only field with the user's login.
- **First Name**: Read-only field with the user's first name.
- **Last Name**: Read-only field with the user's last name.
- **Email**: Read-only field with the user's email address.
- **Department**: Read-only field with the user's department.
- **Group**: Read-only field with the user's group assignment(s).
- **Role**: Read-only field with the user's role assignment(s).
- **Created At**: Read-only field showing the date and time when the user was created.
- **Settings button**: Opens the **Settings** dialog box.
- **Status**: Allows you to set the user's status (Active or Inactive).
  Note: While the **Status** dialog box is available, its functionality is currently inactive.

Editing User Group and Role Assignments or Status

To edit the user's group and role assignments or status:

Click the **Edit** button.See "Managing User Environment Access" on page 198 for more information.

Managing User Environment Access

The Manage Users dialog box displays the following fields and links:

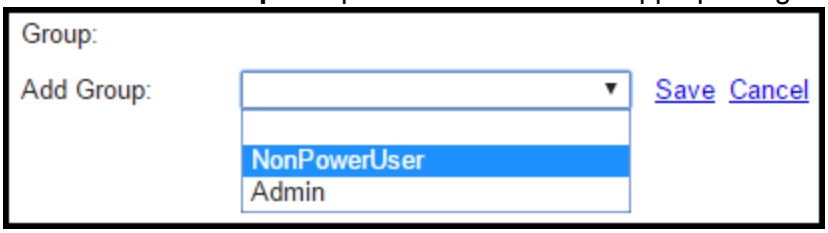
- **Login**: User login.
- **First Name**: User's first name.
- **Last Name**: User's last name.

- **Email**: User's email address.
- **Department**: User's department.
- **Group**: Dynamically updated text that lists groups chosen with the **Assign Additional Group** link.
- **Add Group**: Provides the **Assign Additional Group** link.
- **Role**: Dynamically updated text that lists roles chosen with the **Assign Additional Role** link.
- **Add Role**: Provides the **Assign Additional Role** link.
- **Created At**: Date and time when the user was created.
- **Updated At**: Date and time when the user's information was last updated.
- **Status**: Set the user's status (Active or Inactive).
- **Settings button**: Opens the **Settings** dialog box.
  Note: The dialog box is available, but the functionality is inactive.

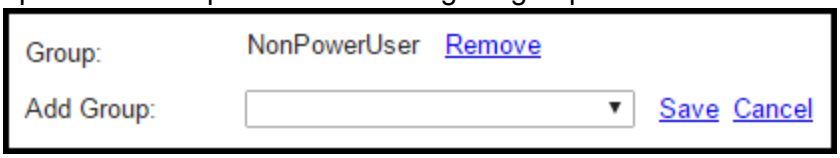
Assigning a User to a Group

To assign a user to a group:

1. Click **Assign Additional Group**. The dialog will update with a drop-down list of the available groups.
   Note: The Group options in this section are provided as examples only. Group types or group names vary by environment.
2. Click **the Add Groups** drop-down and select the appropriate group from the list.



3. Click **Save** to assign the user to the selected group. The Manage Users dialog box will update the Group field with the assigned group.



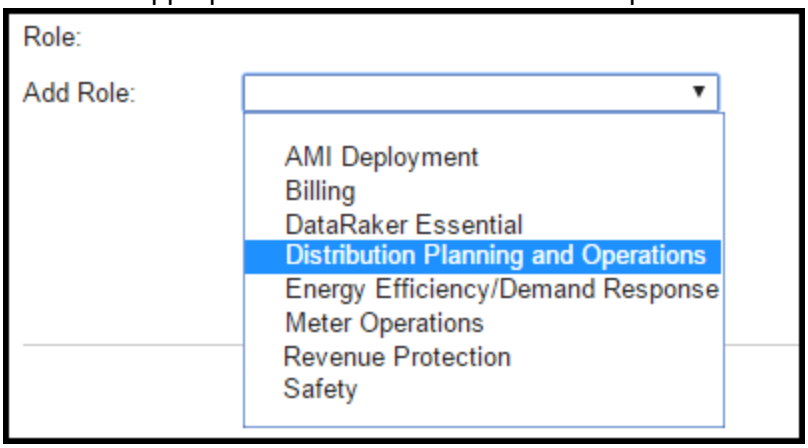
4. Repeat the previous steps to assign the user to all additional groups.
5. Click the **Cancel** link next to the group selection to close the drop-down list.

6. Close the dialog box by either clicking the Cancel button or selecting an area in the browser window outside the dialog box.
   Note: Click the Remove link next to the group name to remove a group assignment.

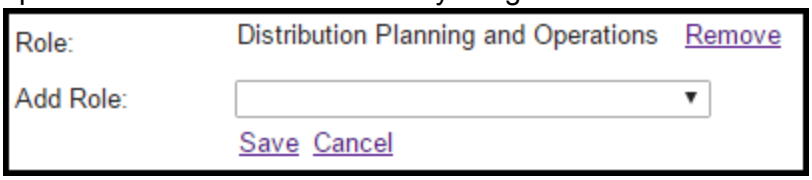
Assigning a User to a Role

To assign a user to a role:

1. Click **Assign Additional Role**. The dialog will update with a drop-down list of the available roles.
   Note: Available roles are determined by the licensed modules.
2. Select the appropriate role from the **Add Role** drop-down.



3. Click **Save** to assign the user to the selected role. The Manage Users dialog box will update the **Role** field with the newly assigned role.



4. If applicable, repeat the previous steps to assign the user to additional roles.
5. Click the Cancel link under the role selection to close the drop-down list, then click the Cancel button in the dialog box or select an area in the browser window outside of the dialog box to close the dialog box.
   Note: Click the **Remove** link next to the role name to remove an assigned role.

Setting the User Status

To set the user status:

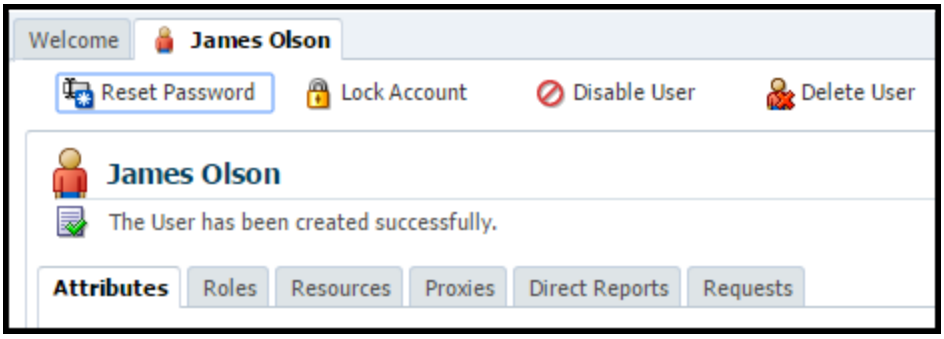
1. Click the **Status** field drop-down list.
2. Do one of the following:
   - If the user is active, select **Active**.
   - If the user is no longer active, select **Inactive** to remove ODR access.

Resetting Passwords

User password resets are managed through Oracle Identity Manager.

To reset user passwords:

1. Click the **Change Password** link in the **Manage Users** dialog box to open the **Oracle Identity Manager Administration** page.
2. Select the user, then click **Reset Password** and follow the prompts to reset the user's password. The new password will be emailed to the user.



Administer Roles

Roles provide means to control the configuration of the system to refine data views for the tasks associated with the role. See "Using Filters" on page 14.

Fields and Buttons

The top section of the **Administer Roles** page allows you to search for roles that match criteria in the fields.

- **Role Type**: allows you to search for roles that are associated to a specific type.
- **Status**: Search by active or inactive status.
- **Role Name**: Name that was given to the role when it was added.
- **Get Rolls button**: Search for roles matching the criteria set in the top section fields.

Data Table

- **Role Type Code**: Role type assigned to the role when it was added.
- **Role Name**: Name given to the role when it was added.
- **Module Name**: Module assigned to the role when it was added.
- **Create Time**: Time and date that the role was added.
- **Last Updated**: Time and date that a change was made to the role and saved to the system.
- **Status**: Indicates whether the role is active or inactive.
- **View link**: Opens the Viewing Roles dialog box which, in addition to displaying the same information as provided in the data table row, provides the role ID, and environment name. See "Viewing Role Information" on page 202.
- **Edit link**: Opens the Managing Roles dialog box from which you can maintain the role type code, role name, module name, and status.
  Note: This Managing Roles dialog also displays the same information displayed in the view data table rowSee "Managing Role Information" on page 203.

Viewing Role Information

The View Roles dialog box offers additional information to what was displayed in the data table. The dialog can be accessed by clicking the **View** link located in the **Administer Roles** page data table.

Fields and Buttons

- **ID**:System-assigned, unique role number.
- **Environment Name**: Name of the associated environment as assigned when the role was added.
- **Role Type Code**: Role type assigned to the role when it was added.
- **Role Name**: Name given to the role when it was added.
- **Module Name**: Module that the role was assigned to when it was added.
- **Create Time**: Time and date that the role was added.
- **Last Updated**: Time and date that a change was made to the role and saved to the system.
- **Status**: Indicates whether the role is active or inactive.
- **Edit button:** Opens the Mange Roles dialog box. See "Managing Role Information" on page 203.

- **Cancel button:** Closes the dialog box.

Managing Role Information

The Manage Roles dialog box allows you to maintain role information. The Manage Roles dialog can be opened by clicking the **Edit** button on the **Administer Roles** page data table or the Edit button on the **View Roles** dialog box.

Fields and Buttons

- **ID**: System-assigned, unique role number.
- **Environment Name**: Associated environment's name as assigned when the role was added.
- **Role Type Code**: Review or update the role type that was assigned to the role when it was added.
- **Role Name**: Review or update the name that was given to the role when it was added.
- **Module Name**: Review or update the module that the role was assigned when it was added.
- **Create Time**: Time and date that the role was added.
- **Last Updated**: Time and date that a change was made to the role and saved to the system.
- **Status**: Indicate whether the role is active or inactive.
- **Save**: Save any changes.
  Note: This field is disables until modifications are made to the dialog.
- **Cancel button**: Close the dialog.

Adding Roles

To add a role:

1. Click **Add Role**.
2. Complete the following **Create Roles** dialog box fields:
   - Role Type Code
   - Role Name
   - Status
3. Click **Save**.

Administer Groups

The Administer Groups page allows you to add and modify the groups to define user permissions.

Fields and Buttons

The top section of the **Administer Groups** page allows you to find existing groups that match criteria added to the fields:

- **Group Name:** allows you to filter by the group name.
- **Permission:** allows you to filter groups having a specific permission setting.
- **Status:** allows you to filter by group status (Active/Inactive).
- **Get Groups button**: Initiate search for filters matching the criteria set in the fields.

Data Table

- **Permissions:** Rights or permissions assigned to the group.
- **Group Name:** Group name that was assigned when the group was added.
- **Create Time:** Date and time that the group was added.
- **Last Updated:** Date and time that a change was saved to the group.
- **Status:** Current group status (Active or Inactive).
- **View link:** Displays the group's ID and view information similar to that displayed in the data table row in the Managing Role Information dialog box.See "Managing Role Information" on page 203.
- **Edit link:** Update the group name, permissions, and group status in the Managing Group information dialog box. See "Managing Group Information" on page 205.
  Note: Contains similar information as displayed in the data table row.

Viewing Group Information

The View Groups dialog box supplements information displayed in the Administer Groups data table. You can access the View Groups dialog by clicking the **View** link located in the Administer Groups page data table.

Fields and Buttons

- **Group Name:** Group name assigned when the group was added.

- **ID:** System-assigned identifier.
- **Permissions:** Assigned Group rights or permissions.
- **Last Updated:** Date and time that a group change was saved.
- **Create Time:** Date and time that the group was added.
- **Status:** Current group status (Active or Inactive).
- **Edit:**Opens the Managing Group Information dialog box where you can update the group name, permissions, and group status. See "Managing Group Information" on page 205. **Note:** The dialog contains similar information as displayed in the data table row.
- **Clone:** Duplicates and renames the group. Once complete, the dialog box closes and you are returned to the Administer Groups data table to review and edit the new group. See "Cloning Groups" on page 206.
- **Cancel:** Close the dialog box.

Managing Group Information

The Manage Groups dialog box can be opened by clicking the **Edit** links in the **Administer Groups** data table and **View Group** dialog box.

Fields and Buttons

- **ID:** System-assigned identifier.
- **Group Name:** Review or edit the group name assigned to the group when added.
- **Add Permission:** Assign additional group permissions.
- **Permissions:**Review or remove the assigned group rights or permissions.
- **Last Updated:** Date and time that a change was saved to the group.
- **Create Time:** Date and time that the group was added.
- **Status:** Review or change the group's current status (Active or Inactive).
- **Cancel:** Closes the dialog box.
- **Clone:** Duplicates and renames the group. Once complete, the dialog box closes and you are returned to the Administer Groups data table to review and edit the new group. See "Cloning Groups" on page 206.
- **Save:** Save any changes that have been made.
  Note: This button is disabled until a field has been modified.

Adding Groups

Groups can be added individually by following the procedure below, or by duplicating, cloning, an existing group. See "Cloning Groups" on page 206.

To add a new group:

1. Click the **Add** button.
2. Navigate to **Administer > Security > Groups**.
3. Enter a unique **Group Name** in the **Create Groups** dialog box,
4. If the group should not be active at this time, select **Inactive** from the **Status** drop-down.
5. Click **Save**.
6. Locate the group name in the **Administer Groups** data table and click **Edit**.
7. Do the following in the Manage Groups dialog box:
   a. If the group name needs to be modified, update the Group Name field.
   b. Verify that the assigned group permissions are correct. If they are not correct, do the following:
      - If there is an assigned permissions that should not be associated with the group, click **Remove** to remove permission from the group.
      - If there are permissions that should be associated with the group missing from the list, click the **Assign Additional Permission** link and add the permissions.
8. Review the **Status** and make any necessary updates.
9. Click **Save**.

Cloning Groups

In addition to creating groups by adding them, groups can also be duplicated or cloned. See "Adding Groups" on page 206.

To clone a new group:

1. Locate the template group and click either the **View** or **Edit** link.
2. Navigate to **Administer > Security > Groups**.
3. When the associated dialog box appears, click the **Clone** button.
4. When the associated dialog box appears, click the **Clone** button. The system will create a duplicate of the group, rename it, and return you to the Administer Groups page.
5. Locate your group in the **Administer Groups** data table and click **Edit**.
6. Do the following in the **Manage Groups** dialog box:

- If you need to modify the group name, update the **Group Name**field.
- Review the permissions:
  - Click **Remove** to remove any permissions that should not be associated with this group.
  - Click the **Assign Additional Permissions** link to add any missing permissions.

7. If necessary, update the **Status** as necessary.
8. Click **Save**.

User Audit

Fields and Buttons

The top section of the **Administer User Audit** page provides filters that allow you to narrow the user accounts that are returned.

- **Type:** Choose between a summary and detail report.
  Note: These are distinct reports. Different columns appear for each audit. See "Data Table" below for more information.
- See "Data Table" below for more information.
- **Point Type:** Search for user information that is associated with a specific point type.
- **User Name:** Search by a user's name.
- **Get Logs button**: Allows you to search for user logs matching the criteria set in the top section's fields.

Data Table

The columns of the data table are different depending on whether a Summary (default) or Detail report is defined in the top section.

Columns associated to a summary audit:

- **User Name:** System name assigned to the user when they were added.
- **Date:** Date of the event.
- **Hit Count:** Number of references associated with the event.
- **Distinct Fact Count:** Number of facts associated to the event.

- **Distinct Point Count:** Number of points associated withthe event.

Columns associated to a **detail audit**:

- **User Name:**Assigned system name given to the user when added.
- **View:**User information.
- **Point Type Code:** Point type associated with the event.
- **Point Name:** Name given to the associated point when it was added
- **Fact Type Code:** Fact type associated with the event.
- **Fact Type Category:** Category of fact associated with the event.
- **Fact Name:** Name given to the associated fact when it was added.
- **Datetime:** Date and time associated with the event.
- **View link**:Opens the **View User** dialog box, which contains the same information as the detailed audit's data table row, as well as the fact time basis, start date, end date, and extra parameters associated with the row.

Administer System

The Administer System category provides access to administer system settings and caching.

Administer Settings

Fields and Buttons

The top section of the Administer Settings page allows you to search for tasks matching criteria in the fields:

- **Setting ID:** System-assigned, unique identifier for the system.
- **Setting Type:** Search by the setting type.
- **Setting Name:** Name assigned to the setting when it was added.
- **Setting Description:** Explanation of the settings purpose or function.
- **Status:** Search by settings that can be applied (Active) or not (Inactive).

- **Get Settings:** Executes the search based on the criteria entered in the fields in the top section.

Data Table

- **ID:** Displays the system-generated, unique identifier for the system.
- **Setting Type:** Type assigned when the setting was added.
- **Setting Name:** Name assigned to the setting when it was added.
- **Setting Description:** Short explanation assigned to the setting when it was added.
- **Status:** Indicates whether the setting can be applied (Active) or not (Inactive).
- **Create Transaction ID:** System-generated, unique identifier that was assigned to the transaction that was created when the setting was added.
- **Update Transaction ID:** System-generated, unique identifier that was assigned to the transaction that was created when the setting was updated, if applicable.

Caching

Buttons

- **Clear Cache:** Clears the server cache and displays a message related to the action.

- **Get Server Stats:** Displays summary information about the server's current

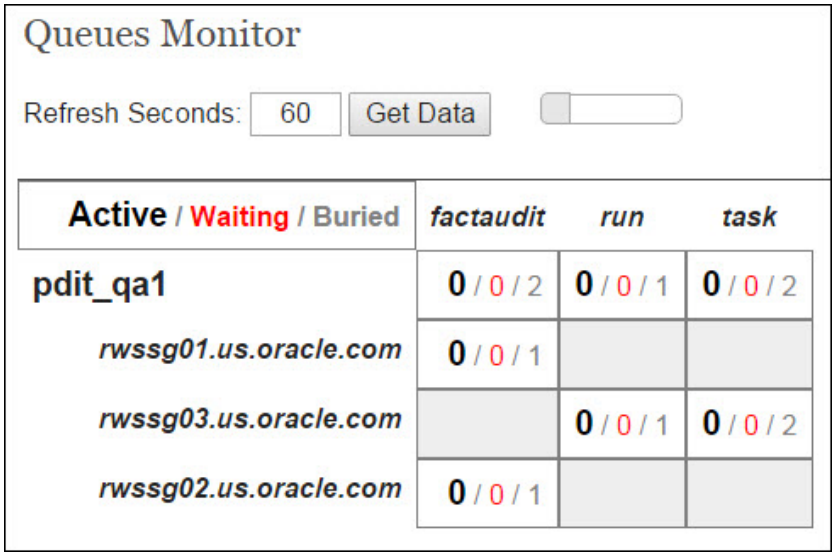
processing.

```
expiretime=> 3600
namespace=> dataraker.models.fact.getPTC
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.transactions.readTransactionLog
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.fact.getWeatherFactList
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.fact.getTimeBasis
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.fact.getFactName
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.fact.getFactTypeCode
starttime=> null
expiretime=> 3600
namespace=> dataraker.models.fact.getUISourceFacts
starttime=> null
```

Monitor

The Monitor menu provides access to the Queues, Database, Cluster, Distributed FS, and Nodes features.

Queues



Header

The top section of the Queues Monitor contains the following elements:

- **Refresh Seconds:** Enter the number of seconds before the system information updates.
- **Get Data button:** Retrieves system information.
- **Countdown timer:** Displays a graphical representation of how soon the displayed information will refresh. The grey bar decreases in size showing each second that has elapsed.

Note: When the data in the table refreshes, there is a brief yellow flash to indicate the change.

Display Area

The display area shows a matrix of information about the server's queues.

- Each field in the table displays the number of processes that are **Active**, **Waiting**, or **Buried**:
  - **Active:** The number of processes that are currently running.
  - **Waiting:** The number of processes that are on hold or pending their dependencies to complete.
- Each column in the table displays the type of process. For example the image above is divided displays Fact Audits, Runs, and Tasks.
- Each row in the table displays the server node that is processing the information; for example, the image above shows three nodes (rwssg01.us.oracle.com, rwssg03.us.oracle.com, and rwssg02.us.oracle.com).