Meridium APM Generation Management

3.6.1.1.0

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About This Document

This file is provided so that you can easily print this section of the Meridium APM Help system.

You should, however, use the Help system instead of a printed document. This is because the Help system provides hyperlinks that will assist you in easily locating the related instructions that you need. Such links are not available in a print document format.

The Meridium APM Help system can be accessed within Meridium APM itself or via the Meridium APM Documentation Website (https://www.me-ridium.com/documentation/WebHelp/WebHelpMaster.htm).

> **Note**: If you do not have access to the Meridium APM Documentation Website, contact [Meridium Global Support Services](#).

Table of Contents

Assumptions Made in This Documentation

Throughout this documentation, we assume that you are familiar with the terminology and concepts discussed in *Generating Availability Data System: Data Reporting Instructions* released by the North American Electric Reliability Corporation (NERC) and official terminology defined by the Energy Information Administration (EIA). The documentation for the NERC Data Reporting Instructions can be found at http://www.nerc.com, and the definitions of EIA terminology can be found at http://www.eia.doe.gov/.

In addition, we assume that you have not modified the baseline family- and field-level rules for the GM families and that you are using the workflows that are described in this documentation. If you modify the baseline rules or use workflows other than those described in this documentation, the field behavior and record functionality may differ from what we describe.

Overview of Generation Management

Many North American utility companies report generation and loss event data to the North American Electric Reliability Corporation (NERC) and the Energy Information Administration (EIA) using applications such as the Generation Availability Database System (GADS). Meridium APM's Generation Management (GM) module uses the Meridium APM's core functionality to help you record generation and loss data for each unit in your company. Using GM, you can easily enter incident and fuel consumption data into records. You can then generate reports that follow the GADS data-reporting requirements and send the reports to NERC and the EIA.

In addition, Meridium APM Generation Management allows you to view general information, such as the unit type and megawatt rating, for other utility companies that are reporting information to NERC and the EIA. Therefore, not only can you record and analyze detailed data about your company, but you can also compare your data to that of other utility companies.

Unlike other GADS-reporting products, Meridium APM Generation Management lets you go beyond simple data collection and reporting to analyze your power generation data further using other Meridium APM features. Using Metrics, for example, you can generate and analyze Metric Views that are specific to your company's units. Metric Views allow you to view information such as the availability factor per unit over time or the number of incidents per cause code and location. These types of Metric Views provide a fast and easy way to evaluate detailed data.

If you see that your data indicates a need for action, you might also use Meridium APM to create work orders for individual units. If you want to analyze the reliability of your units, you can use Meridium APM Reliability Analytics to create system models reflecting the components in your power system. Or, you can use Root Cause Analysis® for Meridium APM to conduct a Root Cause Analysis on a unit's failure to produce the desired output.

System Requirements for GM

The *Generation Management* license is required to take advantage of Generation Management (GM) functionality. In addition, your system must contain the basic Meridium APM system architecture.

> Œ Hint: Details on the system requirements for the basic Meridium APM system architecture and activating licenses can be found in the Installation, Upgrade, and System Administration section of the Meridium APM Help system.

After you have installed and configured the basic system architecture, you will need to perform some configuration tasks specifically for the GM module.

GM Data Model

Like all Meridium APM modules, the Meridium APM Generation Management module consists of entity families, relationship families, and business rules. When attempting to understand and make use of GM functionality, it can be helpful to visualize the GM data model.

Because you should already be familiar with the concept of records and viewing records in the Meridium APM Record Manager, as you attempt to get your bearings in GM, it may be useful to remember that GM simply allows you to create, view, and manage records.

The following diagram shows the GM entity families and the relationships that exist between them. Note that the following image does not include entity and relationship families used in GM's role-based security feature. To view the GM entity families and relationships used in role-based security, see the GM role-based security data model.
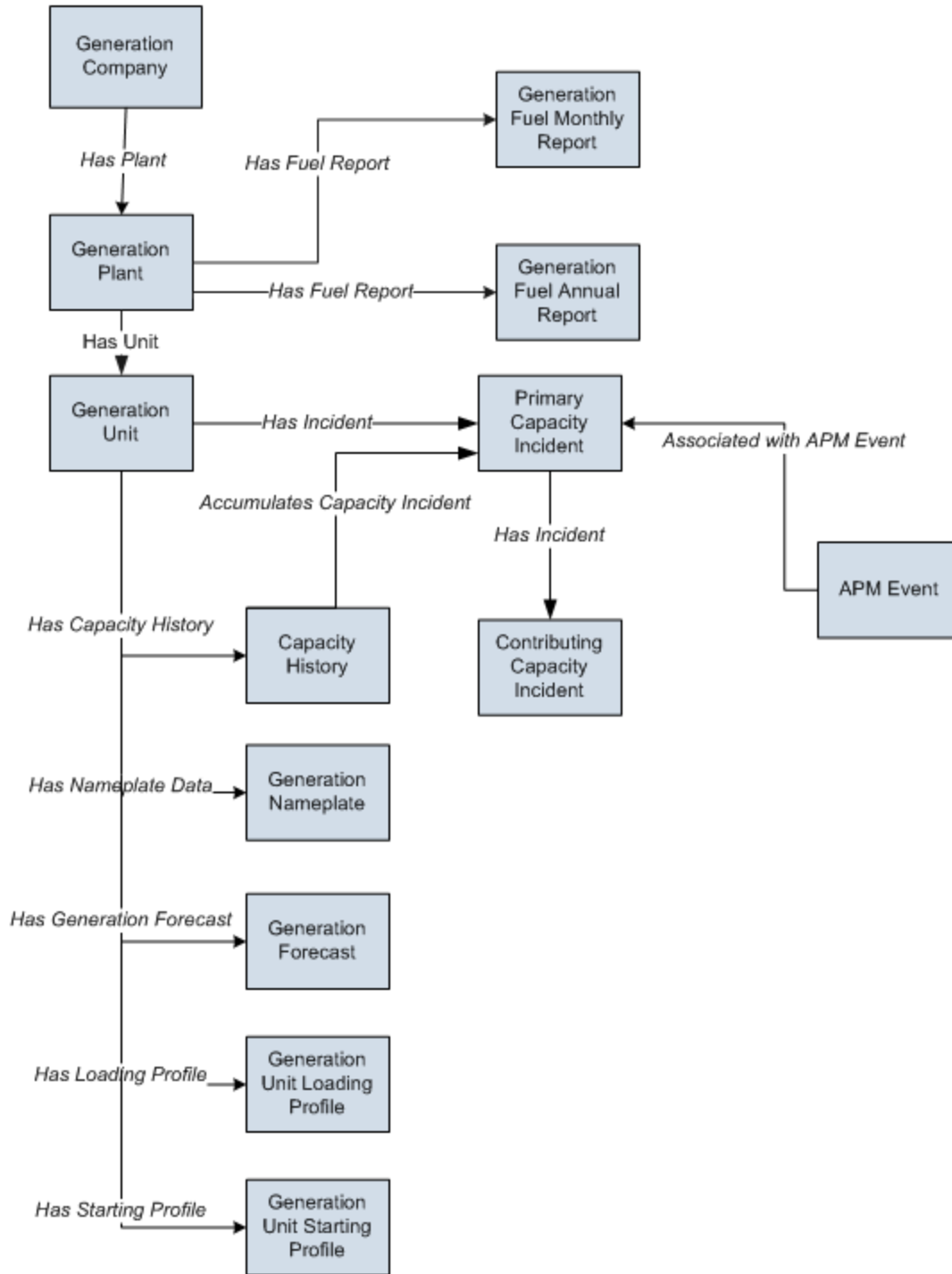
This figure shows only one box for the Generation Nameplate family. The Generation Nameplate family contains the following subfamilies, each of which is related to the Generation Unit family through the Has Nameplate Data relationship:

- Generation Nameplate Combined Cycle
- Generation Nameplate Diesel
- Generation Nameplate Fluidized Bed
- Generation Nameplate Fossil Steam
- Generation Nameplate Gas Turbine
- Generation Nameplate Hydro
- Generation Nameplate Miscellaneous
- Generation Nameplate Nuclear

GM Workflow

The following workflow describes the basic tasks that you will perform in GM:

1. Perform administrative tasks before users begin using GM. This includes:

   - Configuring [GM role-based security](#). In general, this is a one-time configuration task that you will need to perform before users can begin using Generation Management. If you have NOT configured role-based security for a given Security User, that user will not be able to use GM.

   - Creating [Generation Company, Generation Plant, and Generation Unit records](#) to represent the hierarchy that you want use in GM. Typically, you will need to complete these tasks when you initially set up your GM system. You will need to repeat these steps whenever you want to record data about any company, plant, or unit that has NOT yet been identified within your system.

2. Record event data as incidents occur. To do so, you will create [Primary Capacity Incident and Contributing Capacity Incident records](#) to represent events in which units suffer a loss of power generation capacity. You will need to repeat this step each time an incident occurs.

3. [Report data to the EIA, to NERC, or to both](#). You should run reports after the end of each reporting period. The reporting periods and the schedule on which you should report data are defined by the organization to which you are reporting the data.

First-Time Deployment Workflow

Deploying and configuring GM for the first time includes completing multiple steps, which are outlined in the table in this topic. The steps in this section of the documentation provide all the information that you need to deploy and configure GM on top of the basic Meridium APM system architecture.

Whether a step is required or optional is indicated in the **Required/Optional** cell. Steps are marked as *Required* if you must perform the step to take advantage of GM functionality.

The person responsible for completing each task may vary within your organization. We recommend, however, that the steps be performed in relatively the same order in which they are listed in the table.

Step	Task	Required/Optional	Notes
1	Assign Security Users to GM Security Groups in Configuration Manager.	Required	None
2	Configure role-based security in the APM Framework.	Required	None
3	Create Generation Company, Generation Plant, and Generation Unit records to represent the hierarchy that you want use in GM.	Required	Generation Company, Generation Plant, and Generation Unit records must exist before users can start recording incident data.

Upgrade or Update Generation Management to 3.6.1.1.0

The following tables list the steps that are required to update or upgrade GM to 3.6.1.1.0. These steps assume that you have completed the steps for upgrading the basic Meridium APM system architecture.

Update from version V3.6.1.0.0

This module will be updated to 3.6.1.1.0 automatically when you update the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.6.0.0.0 through V3.6.0.12.3

GM will be upgraded to 3.6.1.1.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.5.1.0.0 through V3.5.1.12.0

GM will be upgraded to 3.6.1.1.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.5.0 SP1 LP through V3.5.0.1.9.0

GM will be upgraded to 3.6.1.1.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.5.0 through V3.5.0.0.7.1

GM will be upgraded to 3.6.1.1.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.4.5 through V3.4.5.0.1.4

GM will be upgraded to 3.6.1.1.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

GM Security Groups

The following Security Groups are provided as part of the baseline Meridium APM database:

- MI Generation Management
- MI Generation Management Administrator
- MI Generation Management Analyst
- MI Generation Management Forecast
- MI Generation Management Nameplate
- MI Generation Management Security
- MI Generation Management Trading

> **Note:** Role-based security can be configured only for baseline GM Security Groups. You must use the baseline GM Security Groups if you plan to implement role-based security.

These Security Groups are intended to support the users who will access the GM system. The baseline privileges for these Security Groups are summarized in the following table.

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
APM Event	View	View Update Insert Delete	View Update, Insert	None	None	None
Capacity History	View	View Update[1,2] Insert Delete	View Update[1] Insert	None	None	None

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Capacity Incident	View	View Update [3,4] Insert Delete	View Update[3] Insert	None	None	None
Commodity Pricing	View	View Update Insert Delete	View	None	None	None
Generation Company	View	View Update Insert Delete	View	None	None	None
Generation Forecast	View	None	None	Update Insert Delete	None	None
Generation Fuel Report	View	View Update Insert Delete	View Update Insert	None	None	None
Generation Nameplate	View	None	None	None	View Update Insert Delete	None

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Generation NERC Report	None	View Update Insert Delete	View	None	None	None
EIA Federal Region	View	View Update Insert Delete	View	None	None	None
GADS Cause Codes	View	View Update Insert Delete	View	None	None	None
Generation Plant	View	View Update Insert Delete	View	None	None	None
Generation Role	View	None	None	None	None	Update Insert Delete
Generation Role Assignment	View	Update Insert Delete	None	None	None	Update Insert Delete

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Generation Role Field Configuration	View	None	None	None	None	Update Insert Delete
Generation Role Definition	View	None	None	None	None	Update Insert Delete
Plant Reference	View	View Update Insert Delete	None	None	None	None
Utilities Reference	View	View Update Insert Delete	None	None	None	None
Unit Reference	View	View Update Insert Delete	None	None	None	None
GM Macro	None	Update	Update	None	None	None
Generation Unit	View	View Update Insert Delete	View	None	None	None

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Generation Unit Loading Profile	View	None	None	None	View Update Insert Delete	None
Generation Unit Starting Profile	View	None	None	None	View Update Insert Delete	None
Daylight Saving Time Reference	View	Update Insert Delete	None	None	None	None
Generation Pool	View	View Update Insert Delete	View	None	None	None
Heating Value Ranges	View	Update Insert Delete	None	None	None	None
Accumulates Capacity Incident	View	View Update Insert Delete	Update Insert Delete	None	None	None

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Associated with APM Event	View	View Update Insert Delete	View Update Insert Delete	None	None	None
Assigned To Plants-Units	View	Update Insert Delete	None	None	None	Update Insert Delete
Has Capacity History	View	View Update Insert Delete	View Update Insert Delete	None	None	None
Has Fuel Report	View	View Update Insert Delete	View Update Insert	None	None	None
Has Generation Forecast	View	None	None	View Update Insert Delete	None	None
Has GM Role Assignment	View	Update Insert Delete	None	None	None	Update Insert Delete

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Has GM Roles	View	Update Insert Delete	None	None	None	Update Insert Delete
Has Incident	View	View Update Insert Delete	View Update Insert Delete	None	None	None
Has Loading Profile	View	None	None	None	View Update Insert Delete	None
Has Nameplate Data	View	None	None	None	Update Insert Delete	None
Has Plant	View	View Update Insert Delete	View	None	None	None
Has Reference Documents	None	None	None	None	None	None
Has Role Assignment	View	Update Insert Delete	None	None	None	Update Insert Delete

Family	MI Generation Management	MI Generation Management Administrator	MI Generation Management Analyst	MI Generation Management Forecast	MI Generation Management Nameplate	MI Generation Management Security
Has Starting Profile	View	None	None	None	Update Insert Delete	None
Has Unit	View	View Update Insert Delete	View	None	None	None
Has Utility Reference	None	View Update Insert Delete	None	None	None	None
Has Role Definition	View	None	None	None	None	Update Insert Delete

Only members of this Security Group can change the **Reporting Status** cell on the Capacity History datasheet to **Unit Level Approval**.

Only members of this Security Group can change the **Reporting Status** cell on the Capacity History datasheet to **Corporate Approval**.

Only members of this Security Group can change the **Incident Reporting Status** cell on the Primary Capacity Incident datasheet or the Contributing Capacity Incident datasheet to **Unit Level Approval**.

Only members of this Security Group can change the **Incident Reporting Status** cell on the Primary Capacity Incident datasheet or the Contributing Capacity Incident datasheet to **Corporate Approval**.

About Role-Based Security

A *role* represents a user's function within an organization. Role-based security is intended to control the privileges that represent a Meridium APM Security User's function, or role, within the Generation Management workflow.

Role-based security consists of the following types of privileges, which work together to determine what a Security User can and cannot do within GM:

1. [Family-Level Privileges](#): Controls a user's ability to interact with records in a given family.

2. [Field-Level Privileges](#): Controls a user's ability to interact with fields in records belonging to the families that they have permission to access.

3. [Plant-Level and Unit-Level Privileges](#): Controls a user's ability to interact with records that are linked to specific Generation Plant and Generation Unit records.

In other words, the combination of family-level, field-level, plant-level, and unit-level privileges that are associated with a Security User defines that user's Generation Management role.

The role-based security model works together with the standard family-level security model that you can configure in the Configuration Manager. Role-based security provides additional levels of security that are not available through the standard Meridium APM security model. With standard family-level privileges, you can control a Security User's ability to manage records in a certain family. Role-based security extends to the *field* level by allowing you to control a user's ability to manage *fields* in the families to which that Security User has already been granted family-level privileges. Plant- and unit-level privileges allow you to control a user's ability to access specific *records*.

Role-based security is not fully implemented for GM in the baseline product. The Meridium APM Framework provides some of the components that you must combine to create a certain role. As part of your administrative configuration of GM, you should configure role-based security. In order for GM users access to GM records, you will need to configure their family-level, field-level, and unit-level or plant-level privileges. If you do not configure role-based security, users will not be able to use GM.

After you have implemented role-based security, if desired, you can modify individual field-level privileges, plant-level privileges, and unit-level privileges to customize your implementation.

GM Role-Based Security Model

The following diagram shows the GM entity families that are involved in role-based security and the relationships that exist between them. To view a diagram of other families involved in the GM data model, see the GM Data Model.
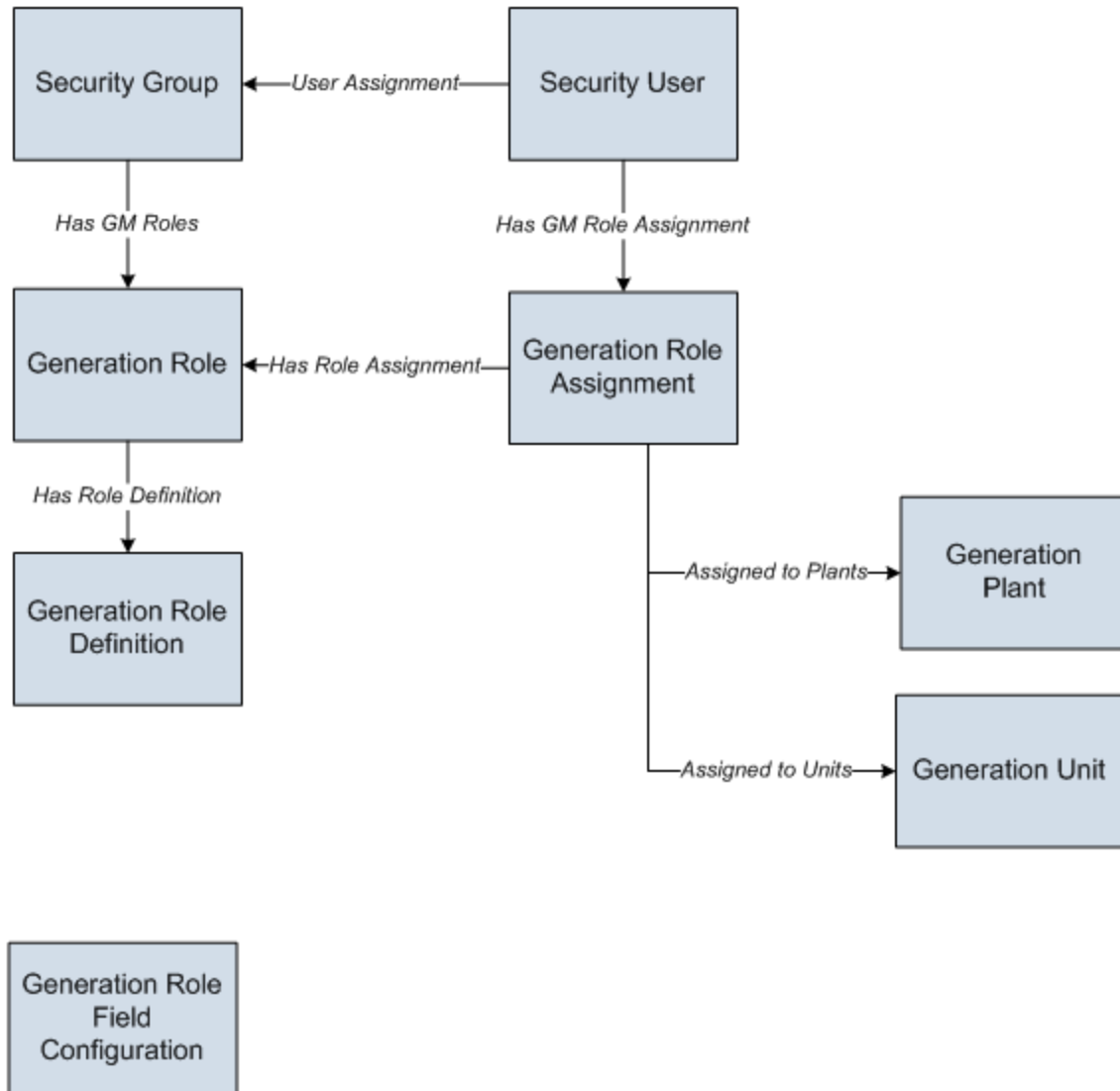
Note: The Generation Role Field Configuration family does not participate in any GM relationship definitions.

Baseline Generation Management Roles

The following table lists the baseline Generation Role records, the Security Groups to which they are linked, and the families to which each Generation Role records has Insert and Update privileges. Additionally, the following table indicates whether unit-level or plant-level privileges are initially required. These are the baseline privileges that the Meridium APM Framework delivers that override any less restrictive family-level privileges that are assigned to a user via the Configuration Manager. You can either configure role-based security to use these baseline privileges or customize them to work specifically for your company.

Generation Role	Security Group	Insert?	Update?	Unit/Plant?
Generation Data Entry	MI Generation Management Analyst	- Primary Capacity Incident - Contributing Capacity Incident - Capacity History	- Primary Capacity Incident - Contributing Capacity Incident - Capacity History	Generation Unit
Unit Level Approver	MI Generation Management Analyst	- Primary Capacity Incident - Contributing Capacity Incident - Capacity History	- Primary Capacity Incident - Contributing Capacity Incident - Capacity History	Generation Unit

Generation Role	Security Group	Insert?	Update?	Unit/Plant?
Fuel Data Entry	MI Generation Management Analyst	• Generation Fuel Monthly Report • Generation Fuel Annual Report	• Generation Fuel Monthly Report • Generation Fuel Annual Report	Generation Plant
Fuel Administrator	MI Generation Management Analyst	• Generation Fuel Monthly Report • Generation Fuel Annual Report • Capacity History	• Generation Fuel Monthly Report • Generation Fuel Annual Report • Capacity History	Generation Unit/ Generation Plant

Generation Role	Security Group	Insert?	Update?	Unit/Plant?
Generation Management Administrator	MI Generation Management Administrator	• Generation Company • Generation Forecast[1] • Generation Plant • Generation Unit • Primary Capacity Incident • Contributing Capacity Incident • Capacity History • Generation Fuel Annual Report • Generation Fuel Monthly Report • NERC Report	• Generation Company • Generation Forecast[1] • Generation Plant • Generation Unit • Primary Capacity Incident • Contributing Capacity Incident • Capacity History • Generation Fuel Annual Report • Generation Fuel Monthly Report • NERC Report	Generation Unit/ Generation Plant
Nameplate Administrator	MI Generation Management Nameplate	• Generation Nameplate	• Generation Nameplate	Generation Unit

Generation Role	Security Group	Insert?	Update?	Unit/Plant?
Start-Load Profile Administrator	MI Generation Management Nameplate	• Generation Unit Loading Profile • Generation Unit Starting Profile	• Generation Unit Loading Profile • Generation Unit Starting Profile	Generation Unit
Forecast Capacity Administrator	MI Generation Management Forecast	• Generation Forecast	• Generation Forecast	Generation Unit
Forecast Fuel Administrator	MI Generation Management Forecast	• Generation Forecast	• Generation Forecast	Generation Unit

Configuring Family-Level Privileges

Family-level privileges can be configured via the Configuration Manager application and control each Security User's ability to create, modify, view, delete, and link records that belong to particular entity families. GM provides a set of baseline Security Groups that can be used to manage family-level privileges. Each Generation Management Security Group has a predefined set of baseline family-level privileges associated with it.

Based upon the Meridium APM Framework's standard security model, any Security User who is assigned to one of the baseline Generation Management Security Groups will inherit the family-level privileges associated with that Security Group. Those family-level privileges will then control that Security User's ability to access and modify records in those families.

To configure family-level privileges for role-based security, you will need to:

- Assign the desired Security Users to the appropriate GM Security Groups. Security Group assignments must be configured in the Configuration Manager application.

> IMPORTANT: Role-based security can be configured only for the baseline GM Security Groups. Any Security User who should be allowed to access GM records must be assigned to one of these groups. To ensure that role-based security works properly in GM, we recommend that you NOT modify the baseline family-level privileges that are associated with these Security Groups.

Configuring Field-Level Privileges

In addition to security that is established via family-level privileges in the Configuration Manager, Generation Management also uses role-based security to provide security at the *field* level. You can configure field-level privileges using the following records:

- Generation Role records
- Generation Role Assignment records
- Generation Role Field Configuration records

Field-level privileges that are configured for role-based security override any less restrictive family-level privileges that are assigned to a user. Regardless of the family-level privileges that are associated with the baseline GM Security Groups in the Configuration Manager, some actions may be restricted for certain GM users based on the field-level privileges assigned to that Security User.

For example, the baseline MI Generation Management Analyst Security Group has Insert privileges on the Primary Capacity Incident family. If a Security User is a member of this Security Group but is also assigned the Fuel Data Entry role, however, that user will NOT be able to create a Primary Capacity Incident record because the field-level privileges that are assigned to the Fuel Data Entry role associated with that role restrict access to the fields that are required to create Primary Capacity Incident records.

If you wanted the Security User who is assigned the Fuel Data Entry role to be able to create Primary Capacity Incident records, you could create Generation Role Field Configuration records associated with the Fuel Data Entry role to enable field-level privileges on the Primary Capacity Incident family.

To configure field-level privileges for role-based security, you will need to:

1. Create Generation Role records to associate Security Users with Security Groups. Various baseline Generation Role records are provided and are linked automatically to the baseline GM Security Groups.

   > **Note:** If you are using the baseline Generation Role records that Meridium APM provides, you can skip this step.

2. Create Generation Role Assignment records to associate Security Users with Generation Role records. Associating a Security User with a Generation Role record gives that Security User the specific field-level privileges that are associated with that Generation Role record via Generation Field Configuration records.

3. Create Generation Role Field Configuration records. A Generation Role Field Configuration record grants members of a specific Generation Role insert and/or update privileges on specific fields in specific families. Note that a set of baseline Generation Field Configuration records are provided for each Generation Role record.

Note: If you are using the baseline Generation Role Field Configuration records that Meridium APM provides, you can skip this step.

Configuring Plant-Level and Unit-Level Privileges

In addition to security that is established via family-level and field-level privileges, Generation Management also uses plant-based and unit-based security to provide security at the plant level and the unit level. Generation Management enforces plant-level and unit-level privileges via Generation Role Definition records.

By default, the family-level and field-level privileges that you configure for all the families that serve as successors in the baseline relationship definitions involving the Generation Unit and Generation Plant families will be enabled only *after* a link has been created between the appropriate Generation Role Assignment record and the Generation Unit or Generation Plant record for which the user will be granted privileges.

> **Note:** If desired, you can choose not to use the plant-level or unit-level security, which will grant users access to all appropriate successors of ALL Generation Plant and Generation Unit records.

For example, the baseline MI Generation Management Analyst Security Group has Insert privileges to the Primary Capacity Incident family. This means that a Security User who is assigned the Generation Data Entry role can create a new Primary Capacity Incident record. The creation will not be allowed, however, until the Generation Role Assignment record associated with that Security User has been linked to the Generation Unit record of the Primary Capacity Incident record that the user wants to create.

To configure plant-level and unit-level privileges, you will need to:

1. Create Generation Role Definition records to establish whether or not a link is required between a Generation Role Assignment record and a Generation Plant or Generation Unit record. The Meridium APM Framework delivers a set of Generation Role Definition records that are configured for use with the baseline Generation Role records.

   > Note: You need to create Generation Role Definition records only if you created a new Generation Role record. If you are using the baseline Generation Role records that Meridium APM provides, you can skip this step.

2. Link Generation Role Assignment records to the desired Generation Unit records.

3. Link Generation Role Assignment records to the desired Generation Plant records.

> **Note:** Plant- and unit-level privileges can be configured only after the necessary Generation Plant and Generation Unit records exist.

Overview of Configuring Role-Based Security

Generation Management contains a set of baseline Generation Role records, Generation Role Field Configuration records, and Generation Role Definition records. To implement role-based security for GM users, you need to:

- Follow the baseline workflow.

  1. Assign the desired Security Users to the appropriate GM Security Groups via the Configuration Manager to grant family-level privileges. For more details, see the Configuration Manager Help.
  2. Create Generation Role Assignment records.
  3. Link Generation Role Assignment records to the desired Generation Plant records.
  4. Link Generation Role Assignment records to the desired Generation Unit records.

  -OR-

- Customize the existing baseline role-based security to specify your own field-level privileges.

  1. Create Generation Role records.
  2. Create Generation Role Definition records.
  3. Create Generation Role Field Configuration records.
  4. Assign the desired Security Users to the appropriate GM Security Groups via the Configuration Manager to grant family-level privileges. For more details, see the Configuration Manager Help.
  5. Create Generation Role Assignment records.
  6. If desired, allow users access to their appropriate successors al ALL Generation Plant or Generation Unit families.
  7. Link Generation Role Assignment records to the desired Generation Plant records.
  8. Link Generation Role Assignment records to the desired Generation Unit records.
  9. If desired, omit certain GM roles or users from role-based security.

> **Note:** Only Security Users who are assigned to the MI Generation Management Security Administrator Security Group can configure role-based security.

Creating a Generation Role Record
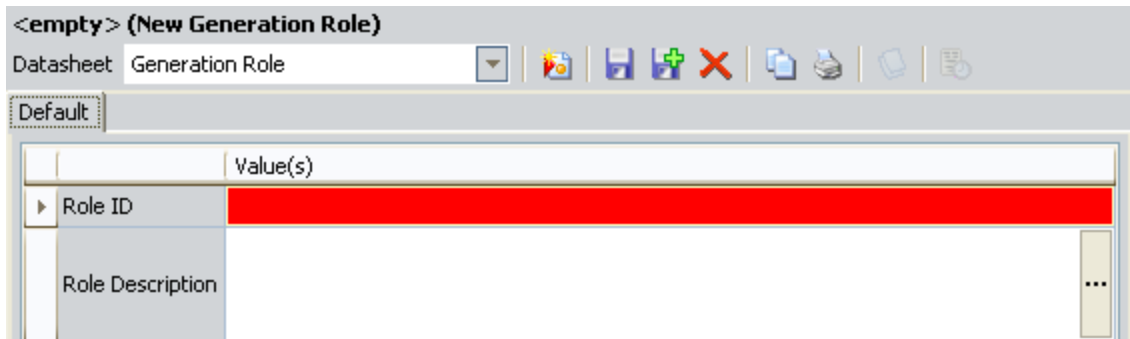
To create a Generation Role record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Role**.

3. Click **OK**.

   A new Generation Role record appears in the Record Manager.

4. In the **Role ID** cell, type a unique name for the new role. This field is required.

5. In the **Role Description** cell, type any additional information about the new role.

6. On the **Common Tasks** menu, click the **Save** link.

   The Generation Role record is created and saved. Note that the new Generation Role record is not linked to any other families by default.

Creating a Generation Role Field Configuration Record

Via Generation Role Field Configuration records, the following field-level privileges can be granted:

- Insert
- Update
- Insert and Update

If a Generation Role Field Configuration record does not exist for a field, Security Users assigned to the associated Generation Role will be able to *view* the field only, provided that they have the necessary family-level privileges. If users attempt to add a value to a field or modify an existing value, an error message will be displayed, indicating that role-based security privileges have not been configured for the field.

By default, Generation Role Field Configuration records are delivered with Generation Management, and they are enabled automatically for *both* insert and update privileges. The following instructions provide details on creating new field-level privileges on a *single* field for a single role. For every new role created, you will need to repeat this procedure for *every* field to which you want to create field-level privileges. Additionally, you can update the field-level privileges at any time.

To create a Generation Role Field Configuration record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Role Field Configuration**.

3. Click **OK**.

   A new Generation Role Field Configuration record appears in the Record Manager.
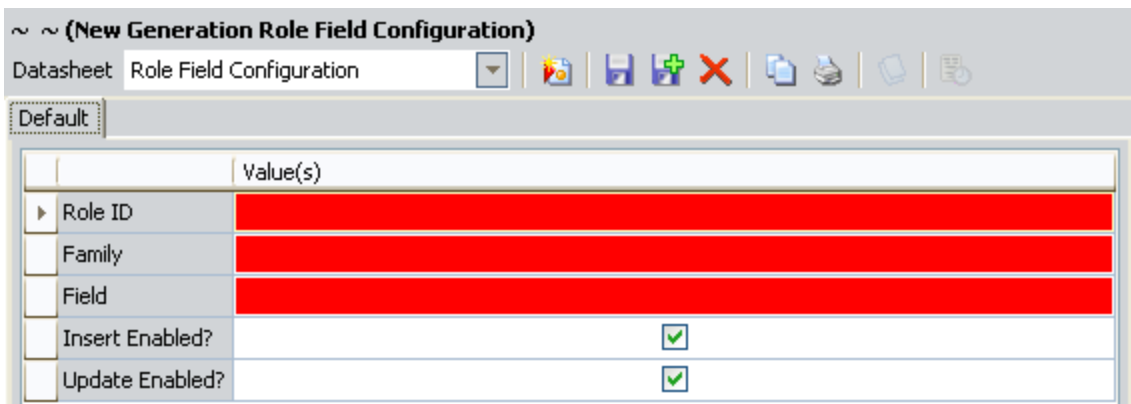
4. In the **Role ID** list, select the Generation Role record for which you are creating this Generation Role Field Configuration record. This field is required.

5. In the **Family** list, select the GM family for which you are creating this Generation Role Field Configuration record. This field is required.

6. In the **Field** list, select the field for which you are creating the Generation Role Field Configuration record. This list contains all the fields that exist in the family that you selected in the **Family** list. This field is required.

7. Clear the **Insert Enabled** check box if you do NOT want to allow insert privileges on the selected field for the selected role. Note that this check box is selected by default, meaning that by default, insert privileges are enable.

8. Clear the **Update Enabled** check box if you do NOT want to allow update privileges on the selected field for the selected role. Note that this check box is selected by default, meaning that by default, update privileges are enabled.

9. On the **Common Tasks** menu, click the **Save** link.

    The Generation Role Field Configuration record is created and saved to the database.

Creating a Generation Role Definition Record
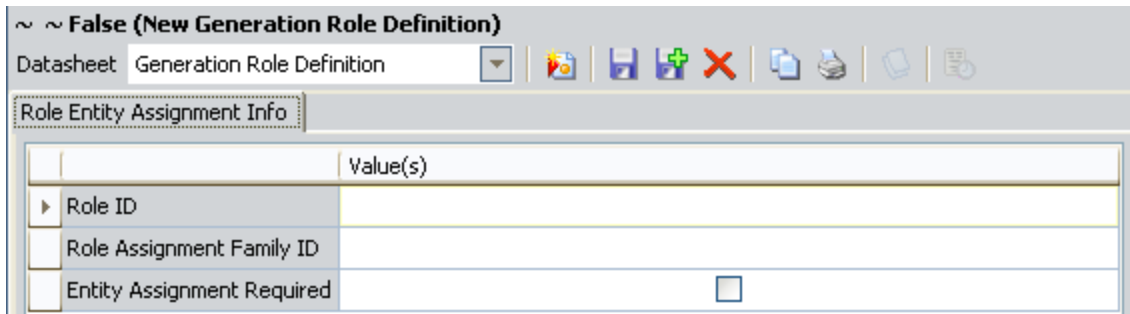
To create a Generation Role Definition record:

1. On the Meridium APM Framework toolbar, click the **New** button.

    The **Select Family** dialog box appears.

2. In the list, select **Generation Role Definition**.

3. Click **OK**.

    A new Generation Role Definition record appears in the Record Manager.

4. In the **Role ID** cell, type the name of the Role ID for the Generation Role record for which you are creating this Generation Role Definition record.

5. In the **Role Assignment Family ID** cell, type the family ID for a Generation Plant or a Generation Unit family for which you are creating this Generation Role Definition record. If you are creating the Generation Role Definition record to indicate access to successors of a Generation Plant family, type `MI_GM_PLANT`. If you are creating the Generation Role Definition record to indicate access to successors of a Generation Unit record, type `MI_GM_UNIT0`.

6. In the **Entity Assignment Required** check box, select the check box if you want to require a link between the Generation Role Assignment record and the family that is specified in the **Role Assignment Family ID** cell. Note that if you do not select the **Entity Assignment Required** check box, the link between a Generation Role Assignment record and a Generation Plant or Generation Unit record is not required. Users associated with the GM role in the **Role ID** cell will have their field-level privileges for the appropriate successors of ALL the Generation Plant or Generation Unit family (indicated in the **Role Assignment Family ID** cell), rather than only Generation Plant or Generation Unit records that are linked to the appropriate Generation Role Assignment record.

7. On the **Common Tasks** menu, click the **Save** link.

    The Generation Role Definition record is created and saved to the database.

Creating a Generation Role Assignment Record

You will need to create Generation Role Assignment records to associate users with specific Generation Role records. Any user who is associated with a given Generation Role record will be given the field-level privileges defined in the Generation Role Field Configuration records that exist for that Generation Role record.

> **Note:** Users can be assigned a given role only *once*. Therefore, you cannot create multiple Generation Role Assignment records with the same User ID and Role ID values as existing Generation Role Assignment records.
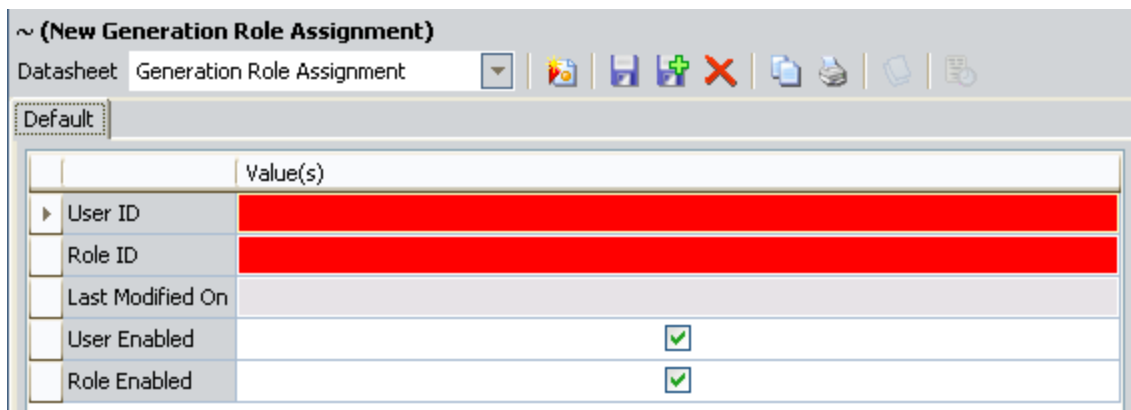
To create a Generation Role Assignment record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Role Assignment**.

3. Click **OK**.

   A new Generation Role Assignment record appears in the Record Manager.

4. In the **User ID** list, select the user ID of the Security User that you want to assigned to a GM role. The list contains the user IDs of all active Security Users that are assigned to any baseline GM Security Group. This field is required.

5. In the **Role ID** list, select the ID of the Generation Role record that you want to associate with this user. The **Role ID** list displays only the IDs of the Generation Role record(s) that are linked to the baseline GM Security Group(s) of which the selected user is a member. The user will be given the field-level privileges that are defined in the Generation Role Field Configuration records that exist for the selected Generation Role record. This field is required.

6. Accept the default selections in the **User Enabled** and **Role Enabled** check boxes, which indicate that role-based security is enabled for this user and role. If desired,

you can clear the **User Enabled** and **Role Enabled** check boxes to disable role-based security.

7. On the **Common Tasks** menu, click the **Save** link.

   The Generation Role Assignment record is created and saved. A link is created between the new Generation Role Assignment record, the Security User record you selected in the User ID field, and the Generation Role record you selected in the Role ID field.

8. If you created the Generation Role Assignment record for a Generation Role that requires Generation Role Assignment records to be linked to Generation Unit or Generation Plant records, then link the Generation Role Assignment record to the Generation Unit record or link the Generation Role Assignment record to the Generation Plant record.

Linking Generation Role Assignment Records to Generation Plant Records

When you create a Generation Role Assignment record, the Meridium APM system creates a link between the selected Security User and the selected Generation Role record. If you created the Generation Role Assignment record for one of the following GM roles, you must manually link it to a Generation Plant record:

- Fuel Data Entry
- Fuel Administrator
- Generation Management Administrator

Linking the Generation Role Assignment record to a Generation Plant record will apply the field-level privileges associated with the selected role to the Generation Fuel Report records associated with the related Generation Plant record. Users will NOT be granted field-level privileges to Generation Fuel Report records associated with any other Generation Plant records.

Note that if a link does not exist between the Generation Role Assignment record and a Generation Plant record, an error will appear when the Generation Fuel Report record is saved, indicating the user is not related to the Generation Plant record.

To link Generation Role Assignments records to Generation Plant records:

1. On the Meridium APM Framework toolbar, click the **Search** button.

   The **Search** page appears.

2. In the **Search In** list, select **Generation Plant**, and then click **Find Now**.

3. From the search results, click the **Record ID** hyperlink of the desired record.

   The record appears in the Record Manager, displaying in the **Record Explorer** pane the families whose members can be linked to the root record. Find the Generation Role Assignment family and right-click the family name.

4. In the hierarchy, locate and right-click the **Generation Role Assignment** family.

   A submenu appears.

5. Click the **Find an existing Generation Role Assignment to link to <the root record>** link.

   The **Find an existing Generation Role Assignment to link to <the root record>** window appears, displaying *Generation Role Assignment* in the **Search In** field.

6. Click the **Find Now** button.

   Your search results appear in a list below the search form.

7. Highlight the desired record, and click the **Link to Selected Record** button.

The search closes, revealing the Record Manager. The Generation Role Assignment record you selected from the search results has been linked to the Generation Plant record.

Linking Generation Role Assignment Records to Generation Unit Records

When you create a Generation Role Assignment record, Meridium APM creates a link between the selected Security User and the selected Generation Role record. If you created the Generation Role Assignment record for one of the following GM roles, you must manually link it to a Generation Unit record:

- Generation Data Entry
- Unit Level Approver
- Fuel Administrator
- Generation Management Administrator
- Nameplate Administrator
- Start-Load Profile Administrator
- Forecast Capacity Administrator
- Forecast Fuel Administrator

Linking the Generation Role Assignment record to a Generation Unit record will apply the field-level privileges associated with the selected role to records associated with the related Generation Unit record. Users will NOT be granted field-level privileges to records associated with any other Generation Unit records.

Note that if a link does not exist between the Generation Role Assignment record and a Generation Unit record, an error will appear when the record is saved, indicating the user is not related to the associated Generation Unit record.

To link Generation Role Assignments records to Generation Unit records:

1. On the Meridium APM Framework toolbar, click the **Search** button.

   The **Search** page appears.

2. In the **Search In** list, select **Generation Unit**, and then click **Find Now**.

3. From the search results, click the **Record ID** hyperlink of the desired record.

   The record appears in the Record Manager, displaying in the **Record Explorer** pane the families whose members can be linked to the root record.

4. In the hierarchy, locate and right-click the **Generation Role Assignment**.

   A submenu appears.

5. Click the **Find an existing Generation Role Assignment to link to <the root record>** link.

   The **Find an existing Generation Role Assignment to link to <the root record>** window appears, displaying *Generation Role Assignment* in the Search In field.

6. Click the **Find Now** button.

   Your search results appear in a list below the search form.

7. Highlight the desired record, and click the **Link to Selected Record** button.

   The search closes, revealing the Record Manager. The Generation Role Assignment record you selected from the search results has been linked to the Generation Unit record.

Example of How to Configure Baseline Role-Based Security

Suppose Bob Smith was recently hired to your company. He will not have access to Generation Management until role-based security has been configured for his Security User, BSmith.

To configure baseline role-based security for BSmith, you will need to:

1. Assign BSmith to the MI Generation Management Forecast Security Group since Bob Smith will be recording fuel data. Through membership to this Security Group, BSmith will have View, Insert, Update, and Delete privileges on the Generation Forecast family.

2. Create a Generation Role Assignment record that associates BSmith with the Forecast Fuel Administrator role to grant him field-level privileges that are associated with the Forecast Fuel Administrator via the Generation Role Field Configuration records that the Meridium APM Framework provides.

3. Link this Generation Role Assignment record to the Generation Unit record(s) that are the predecessors of the Generation Forecast records that you want BSmith to manage.

After you have completed these steps, when BSmith logs in to Meridium APM, he will be able to create new Generation Forecast records and update existing Generation Forecast records.

Allowing Users Access to All Generation Plant and Generation Unit Records

When the Entity Assignment Required field is set to *True in* a Generation Role Definition record that is associated with a Generation Management role, a link is required between a Generation Role Assignment record and a Generation Plant or Generation Unit record. This link between a Generation Role Assignment record and a Generation Plant or Generation Unit record limits family-level and field-level privileges to the successor families of the linked Generation Plant or Generation Unit record.

For example, the baseline MI Generation Management Analyst Security Group has Insert privileges in the Primary Capacity Incident family. A Security User who is assigned the Generation Data Entry role can create a new Primary Capacity Incident record but not until the Generation Role Assignment record associated with that Security User has been linked to the Generation Unit record of the Primary Capacity Incident record that the user wants to create.

If desired, you can configure role-based security so that Security Users associated with the desired Generation Management roles are NOT limited to the successor families of Generation Plant or Generation Unit records that are linked to a Generation Role Assignment record. Users will then have their specific family-level and field-level privileges to all successor families for ALL Generation Plant or Generation Unit records.

To allow users access to all Generation Plant or Generation Unit records:

1. On the Meridium APM Framework toolbar, click the **Search** button. 🔎

    The **Search** page appears.

2. In the **Search In** list, select **Generation Role Definition**.

3. Click the **Find Now** button.

    A list of existing Generation Role Definition records will appear in the search results.

4. Click the **Record ID** hyperlink of the desired Generation Role Definition record for which you want to allow users associated with that Generation Management role to have access to all successor families of either a Generation Plant or Generation Unit record.

    The Generation Role Definition record appears.

5. On the **Generation Role Definition** datasheet, on the **Role Entity Assignment Info** tab, clear the **Entity Assignment Required** check box.

6. On the **Common Tasks** menu, click the **Save** link.

    The modified Generation Role Definition record is saved.

Omitting Role-Based Security

After you assign a user to a Generation Role via a Generation Role Assignment record, you might later decide that you want to omit the existing privileges. If so, on a [Generation Role Assignment record](#), you can:

- Clear the **Role Enable** check box to disable all field-level privileges associated with the Generation Role record identified by the value in the Role ID field. Field-level privileges will be omitted for ALL Security Users associated with that Generation Role record.

- Clear the **User Enable** check box to disable all field-level privileges associated with any Generation Role records to the Security User who is identified by the value in the User ID field.

About Generation Company, Plant, and Unit Records

Before you can begin creating Primary Capacity Incident records, Contributing Capacity Incident records, or Capacity History records, the following records must exist in your database:

- **Generation Company**: Represents the highest level of organization within your business: the company under which plants and units operate. In general, a Generation Company record represents a company that owns the plants and units for which generation data and fuel consumption data will be collected.

- **Generation Plant**: Represents a plant in which generation units reside. Generation Plant records can store information about the plant itself and the company that owns the plant. In addition, Generation Plant records determine:

  - Whether or not Primary Capacity Incident and Contributing Capacity Incident records associated with those Generation Plant records will account for Daylight Saving Time.

  - The date and time format that will be used in date fields in Primary Capacity Incident records that are associated with the Generation Plant record.

- **Generation Unit**: Represents a unit that generates power. A Generation Unit record can store information about a unit's power-generation capabilities and the fuel that the unit consumes. In addition, Generation Unit records determine how incident cost will be calculated in Primary Capacity Incident records that are linked to the Generation Unit record.

Workflow for Creating Company, Plant, and Unit Records

Together, Generation Company, Generation Plant, and Generation Unit records create a hierarchy that serves as the backbone for power-generation data collection in Meridium APM.

- Generation Company records exist at the root level of this hierarchy and should be created *first*.
- Generation Plant records can then be created and linked to existing Generation Company records.

  Note: A Generation Plant record can be linked to only ONE Generation Company record, but a Generation Company record can be linked to multiple Generation Plant records.

- Generation Unit records can then be created and linked to Generation Plant records.

  Note: A Generation Unit record can be linked to only ONE Generation Plant record, but a Generation Plant record can be linked to multiple Generation Unit records.

After Generation Unit records have been created, incident data can be recorded in Primary Capacity Incident records that you create and link to those Generation Unit records. Therefore, you must create this record hierarchy *before* you can begin recording incident data. We recommend that you create records in the order listed above.

In most cases, you will create these records when you first set up your GM system. You may also need to create additional records on a periodic basis over the life of your system (e.g., if you add a new unit).

About Generation Company Records

Generation Company records represent the highest level of organization within your business and represent the root level of the Generation Management business hierarchy. Before you can begin creating Generation Company and Generation Unit records, you must first create Generation Plant records. You can create Generation Company records in two ways:

- [Using the Record Manager](). This represents the primary, recommended workflow for creating Generation Company records. Throughout this documentation, we assume that you have created your Generation Company records using this method.

- [Using the Create Company Query](). This option exists as an alternative to creating Generation Company records in the Record Manager but is not recommended.

Creating Generation Company Records

These instructions provide details on creating a new Generation Company record using the baseline Company datasheet.

To create a Generation Company record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Company**.

   A new Generation Company record appears in theRecord Manager.

3. In the **Company ID** cell, type a short name or acronym that identifies the company.

4. In the **Company Name** cell, type the company's full name.

5. In the **State** list, select the state where the company is based.

6. [Complete the remaining fields as desired](#).

7. On the **Common Tasks** menu, click the **Save** link.

   The Generation Company record is created and saved to the database.

Using the Create Company Query

The Create Company query is provided in the baseline Meridium APM database and is stored in the Catalog folder \\Public\Meridium\Modules\Generation Management\Configuration. It queries the Utilities Reference family and is provided as a tool that can assist in the creation of Generation Company records by populating fields in new records automatically.

> **Note:** Utilities Reference records are delivered in the baseline Meridium APM database and contain information about companies. Because the data that is stored in the baseline Utilities Reference records may not be current, using the Create Company query is not presented in this documentation as the primary method for creating Generation Company records. Instead, the recommended workflow is to create Generation Company records from scratch.

When you run the Create Company query, the Meridium APM system will run a query and display a list of records in the Utilities Reference family. You can select a record from the list and use it to create a new Generation Company record. Many of the values in the selected Utilities Reference record will be used to populate the corresponding fields in the new Generation Company record automatically. You can enter information in the remaining fields and edit the information that is supplied by the Utilities Reference record as desired.

> **Note:** Fields in a Generation Company record are populated based on values in Utilities Reference records *only* when the record is first created. After the Generation Company record has been saved for the first time, it has no knowledge of the Utilities Reference record from which its fields were originally populated.

About Generation Plant Records

Generation Plant records represent a plant in which units reside. Generation Plant records are linked to Generation Company records and should be created after Generation Company records have been created but before you can create Generation Unit records. Additionally, before you create Generation Plant records, you must determine:

- Whether or not Incident records associated with those Generation Plant records will account for Daylight Saving Time. If you want Incident records to account for Daylight Saving Time, you will need to create Daylight Saving Time Reference records *before* you create Generation Plant records.

- The date and time format that will be used in date fields in Primary Capacity Incident records that are associated with the Generation Plant record. Before you create Generation Plant records, you must determine which date and time format you want to use.

You can create Generation Plant records in two ways:

- Using the Record Manager. This represents the primary, recommended workflow for creating Generation Plant records. Throughout this documentation, we assume that you have created your Generation Plant records using this method.

- Using the Create Plant Query. This option exists as an alternative to creating Generation Plant records in the Record Manager but is not recommended.

Creating Generation Plant Records

The following instructions provide details on creating a new Generation Plant record using the baseline Plant datasheet.

To create a Generation Plant record:

1. On the Meridium APM Framework toolbar, click the **Search** button.

    The **Search** page appears.

2. In the **Search In** list, select **Generation Company**.

3. Click the **Find Now** button.

    A list appears in the results section of the **Search** page, displaying all the Generation Company records that exist in the database.

4. Click the hyperlinked Record ID of the Generation Company record for which you want to create a Generation Plant record.

    Record Manager.

5. In the **Record Explorer** pane, right-click the **Generation Plant** node, and then click **Create a new Generation Plant record to link to <Generation Company record>**.

    The **new Generation Plant** window appears, displaying an empty datasheet for the Generation Plant family.

6. In the **Plant ID** text box, type a short name or acronym that identifies the plant.

7. In the **Plant Name** text box, type the full name of the plant.

8. If you plan to use Daylight Saving Time...

   a. Select the **Use Daylight Saving Time** check box.

      The **DST Region** list becomes required.

   b. In the **DST Region** list, select the DST region that you want to use when accounting for Daylight Saving Time.

9. In the **Date/Time Alternate Format** list, choose the date and time format to use for records that are associated with the Generation Plant record.

10. Complete the remaining fields as desired.

    > **Note:** Some fields that are not required to save a Generation Plant record ARE required in order to create accurate power generation and fuel consumption reports.

11. On the **Common Tasks** menu, click the **Save** link.

The Generation Plant record is created, saved to the database, and linked to the selected Generation Company record.

Using the Create Plant Query

The Create Plant query is provided in the baseline Meridium APM database and is stored in the Catalog folder \\Public\Meridium\Modules\Generation Man-agement\Configuration. It queries the Plant Reference family and is provided as a tool that can assist in the creation of Generation Plant records by populating fields in new records automatically.

> **Note:** Plant Reference records are delivered in the baseline Meridium APM database and contain information about plants. Because the data that is stored in the baseline Plant Reference records may not be current, using the Create Plant query is not presen-ted in this documentation as the primary method for creating Generation Plant records. Instead, the recommended workflow is to create Generation Plant records from scratch.

When you run the Create Plant query, the Meridium APM system will run a query and display a list of records in the Plant Reference family. You can select a record from the list and use it to create a new Generation Plant record. Many of the values in the selec-ted Plant Reference record will be used to populate the corresponding fields in the new Generation Plant record automatically. You can enter information in the remaining fields and edit the information that is supplied by the Plant Reference record as desired.

> **Note:** Fields in a Generation Plant record are populated based upon values in Plant Reference records *only* when the record is first created using the Create Plant query. After the Generation Plant record has been saved for the first time, it has no know-ledge of the Plant Reference record from which its fields were originally populated.

How Census-Related Fields Are Populated

[EIA Federal Region records](#) exist in the baseline Meridium APM database and contain information about US Census Regions. These records are provided as a way to ensure that the federal region values in Generation Plant records are correct by populating them automatically.

When the State field in any Generation Plant record is populated with a value, the Meridium APM system finds the EIA Federal Region record with the same value in its State field and:

- Populates the EIA Census Division field in the Generation Plant record with the value in the Census Division field in the EIA Federal Region record.
- Populates the EIA Federal Region field in the Generation Plant record with the value in the Federal Region field in the EIA Federal Region record.

For example, using the baseline EIA Federal Region records, in a Generation Plant record, if you populate the State field with the value *Virginia (VA)* the Meridium APM system will:

- Populate the EIA Census Division field in the Generation Plant record with the value *South Atlantic*.
- Populate the EIA Federal Region field in the Generation Plant record with the value *3*.

To make sure that Generation Plant records are always populated with accurate information, we recommend that you:

- NOT modify the baseline EIA Federal Region records.
- NOT create your own EIA Federal Region records.

About Accounting for Daylight Saving Time Adjustments

If an event occurs during a time period when Daylight Saving Time (DST) begins or ends, and your plant exists in a part of the country where DST is observed, you will probably want to adjust the values in these fields to account for the DST adjustment.

For example, in 2007, DST in the United States started at 2:00 A.M. on March 11. As a result, observers of DST lost one hour of daylight (e.g., a clock that read 4:00 A.M. on March 11 would have read 3:00 A.M. on March 10). Because DST started at 2:00 A.M., observers were required to set their clocks forward one hour at that time. So at 2:00 A.M., you had to set your clock to 3:00 A.M. even though an hour had not actually passed.

With that in mind, suppose an event occurred at 11:00 P.M. on March 10, 2007 and ended at 4:00 A.M. on March 11, 2007. By the clock, it would appear that the event lasted *five* hours. In reality, the event lasted only *four* hours because DST added an hour to the clock even though that hour did not actually occur.

If you allow the Meridium APM system to take DST into account, you will pay for power for the *four* hours that the event lasted according to real linear time. If you do NOT allow the Meridium APM system to take DST into account, you could end up paying for power for the *five* hours the event lasted according to the clock.

About Daylight Saving Time Reference Records

Daylight Saving Time Reference records represent a region in which Daylight Saving Time (DST) is observed and contain information about when DST begins and ends for that region for a given year. Multiple Daylight Saving Time Reference records may exist for a given DST region, one for each year in which Daylight Saving Time is observed.

The following fields in Primary Capacity Incident records are affected by the values in Daylight Saving Time Reference records:

- Potential Capacity Incident Cost
- Event Duration
- Work Duration

If you want to include Daylight Saving Time adjustments when calculating the values in these fields, you will need to:

- Create Daylight Saving Time Reference records to indicate the start and end time for Daylight Saving Time each year.
- Set the Use Daylight Saving Time field to *True* in Generation Plant records whose associated Primary Capacity Incidents you want to calculate using Daylight Saving Time adjustments.
- Populate the DST Region field in Generation Plant records whose associated Primary Capacity Incidents you want to calculate using Daylight Saving Time adjustments with the appropriate value.

Creating Daylight Saving Time Reference Records
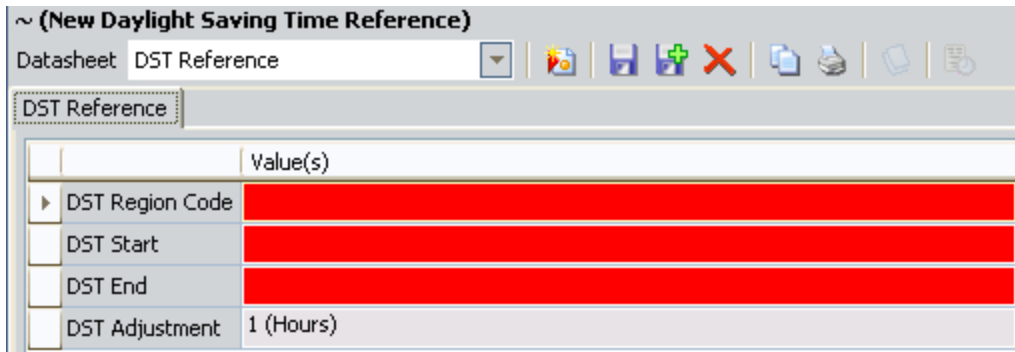
To create a Daylight Saving Time Reference record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Daylight Saving Time Reference**.

3. Click **OK**.

   A new Daylight Saving Time Reference record appears in the Record Manager.

4. In the **DST Region Code** text box, type a value representing a region. You can type any value. For example, you might type **US** to indicate that this record corresponds to the United States. The value that you type will appear in the **DST Region** list in all Generation Plant records. If you want to use this Daylight Saving Time Reference record to calculate values in Primary Capacity Incidents records linked to a specific Generation Plant record, you will need to select this value in the **DST Region** list in those Generation Plant records.

5. In the **DST Start** cell, specify the date and time that Daylight Saving Time starts.

6. In the **DST End** cell, specify the date and time that Daylight Saving Time ends.

   Note: The value in the **DST Adjustment** cell is set to one hour and disabled by default.

7. On the **Common Tasks** menu, click the **Save** link.

   The Daylight Saving Time Reference record is created and saved to the database.

About Choosing How Dates Will Be Entered and Displayed

In Generation Management, Primary Capacity Incident records contain fields that store date and time information. For example, the Event Start Date field identifies the date and time that an incident began. The Meridium APM Framework provides TWO types of date fields that provide you with two options for displaying and entering date and time data in Primary Capacity Incident records:

- Standard date fields, which use the Calendar and support the use of a 12-hour clock.
- Alternate date fields, which are character fields that do NOT use the Calendar and support the use of a 24-hour clock.

Both types of date fields appear by default on the baseline Primary Capacity Incident datasheet. Before you begin recording incident data, you will need to determine which time format to use. You can do so by selecting a value in the Date/Time Alternate Format field in Generation Plant records. You will then want to modify the Primary Capacity Incident datasheet to remove the fields that you do not want to use (i.e., the standard date fields or the alternate date fields).

> **IMPORTANT:** The value that you select in the Date/Time alternate Format field of a Generation Plant record will apply to ALL Primary Capacity Incident records that are linked to any Generation Unit record that is linked to that Generation Plant record.

Click one of the following links for instructions on configuring GM to use the desired time format:

- [12-hour time format](#).
- [24-hour time format](#).

> **Note:** Regardless of which date fields you choose to use for *entering* data, the Meridium APM system will use the values in the *standard* date fields for *performing calculations*. If you choose to use the alternate date fields, the standard date fields will be populated automatically with the same date and time information, even if they are not displayed on the datasheet.

Using the 12-Hour Time Format

If you want to use the 12-hour time format, you should simply use the standard date fields. To do so:

- In Generation Plant records, select NO value in the Date/Time Alternate Format field.

  > **Note:** This field is populated with a value by default. So if you want to use the 12-hour time format, you will need to delete the default value.

- Using the Configuration Manager application, remove the following fields from the Primary Capacity Incident datasheet.

  - Event End Date (Alternate Format)
  - Event Start Date (Alternate Format)
  - Work Ended (Alternate Format)
  - Work Started (Alternate Format)

  > **Note:** By default, both the standard and alternate date fields are included on the Primary Capacity Incident datasheet. If you want to use the 12-hour time format, however, there is no need to include the alternate date fields on the datasheet.

Using a 24-Hour Time Format

If you want to use a 24-hour time format, you will need to use the alternate date fields. To do so:

- In Generation Plant records, select one of the following values in the Date/Time Alternate Format field.

  - YYYY-MM-DD HH:MM

  - MM/DD/YYYY HH:MM

  - MM/DD/YYYY HH:MM:SS

  The option you select should correspond to the format in which you want users to *type* date and time information. Keep in mind that the alternate date fields do NOT provide the Calendar. Users will need to type date and time information into these fields using the format specified in the associated Generation Plant record.

- Using the Configuration Manager application, remove the following date fields from the Primary Capacity Incident datasheet:

  - Event End Date

  - Event Start Date

  - Work Ended

  - Work Started

> **Note:** By default, both the standard and alternate date fields are included on the Primary Capacity Incident datasheet. If you want to use the 24-hour time format, however, there is no need to include the standard date fields on the datasheet since they do not fully support the use of a 24-hour time format.

About Generation Unit Records

A Generation Unit record represents a unit that generates power. You will collect incident and fuel consumption data for Generation Unit records. Before you can create Generation Unit records, you must create the Generation Plant records to which they will be linked. You can create Generation Unit records in two ways:

- Using the Record Manager. This represents the primary, recommended workflow for creating Generation Unit records. Throughout this documentation, we assume that you have created your Generation Unit records using this method.

- Using the Create Unit Query. This option exists as an alternative to creating Generation Unit records in the Record Manager but is not recommended.

Creating Generation Unit Records

To create a Generation Unit record:

1. On the Meridium APM Framework toolbar, click the **Search** button. 🔎

   The **Search** page appears.

2. In the **Search In** list, select **Generation Plant**.

3. Click the **Find Now** button.

   The search results are displayed in the results section of the **Search** page.

4. Click the hyperlinked Record ID of the Generation Plant record for which you want to create a Generation Unit record.

   The selected Generation Plant record appears in the Record Manager.

5. In the **Record Explorer** pane, right-click the **Generation Unit** node, and then click **Create a new Generation Unit record to link to <Generation Plant record>**.

   The **new Generation Unit** window appears, displaying an empty datasheet for the Generation Unit family.

This image displays the baseline Unit datasheet. These instructions provide details on creating a new Generation Unit record using this datasheet.

6. On the **Unit** tab, in the **Unit ID** text box, type a short name or acronym that identifies the unit.

7. In the **Unit Name** text box, type the unit's name.

8. In the **Gross Maximum Capacity** text box, type the unit's gross maximum capacity.

   -OR-

   In the **Net Maximum Capacity** text box, type the unit's net maximum capacity.

9. Click the **References** tab.

10. In the **GADS Unit Type** list, select the appropriate GADS unit type of the unit.

11. In the **GADS Region** list, select the GADS region for which the unit generates power.

12. Click the **Calculation Settings** tab.

13. In the **Generation Cost Model** list, select the value that corresponds to the method that you want to use for calculating capacity incidents costs.

14. Click the **Defaults** tab.

15. In the **Default Unit Loading** list, select the value that indicates the time during which the unit generates power.

    > **Note:** If the Default Unit Loading field is set to *Other (6)*, the Verbal Description field will be required.

16. In the **Primary Fuel Code** list, select the value that identifies the primary fuel used by the unit.

17. Complete the remaining fields as desired. Note that some fields that are NOT required to save a Generation Unit record ARE required in order to create accurate power generation and fuel consumption reports.

18. On the **Common Tasks** menu, click the **Save** link.

    The Generation Unit record is created, linked to the selected Generation Plant record, and saved to the database.

Using the Create Unit Query

The Create Unit query is provided in the baseline Meridium APM database and is stored in the Catalog folder \\Public\Meridium\Modules\Generation Man-agement\Configuration. It queries the Unit Reference family and is provided as a tool to assist in the creation of Generation Unit records by populating fields in new records automatically.

> **Note:** Unit Reference records are delivered in the baseline Meridium APM database and contain information about units. Because Meridium APM cannot guarantee the accuracy of the data that is stored in the baseline Unit Reference records, using the Create Unit query is not presented in this documentation as the primary method for creating Generation Unit records. Instead, the recommended workflow is to create Generation Unit records from scratch.

When you run the Create Unit query, the Meridium APM system will run a query and dis-play a list of records in the Unit Reference family. You can select a record from the list and use it to create a new Generation Unit record. Many of the values in the selected Unit Reference record will be used to populate the corresponding fields in the new Gen-eration Unit record automatically. You can enter information in the remaining fields and edit the information that is supplied by the Unit Reference record as desired.

> **Note:** Fields in a Generation Unit record are populated based on values in Unit Refer-ence records *only* when the record is first created via the Create Unit query. After the Generation Unit record has been saved for the first time, it has no knowledge of the Unit Reference record from which its fields were originally populated.

Capacity Fields

Generation Unit records contain four fields that define the capacity of the unit:

- Gross Dependable Capacity
- Gross Maximum Capacity
- Net Dependable Capacity
- Net Maximum Capacity

When you create a new Generation Unit record, you must specify a value in *either* the Gross Maximum Capacity field OR the Net Maximum Capacity field, which will cause the Meridium APM system to populate the remaining fields using the following equations:

- **Gross Dependable Capacity:** Equal to the value in the Gross Maximum Capacity field and greater than the net capacity values by a factor determined by the value in the GADS Unit Type field.
- **Gross Maximum Capacity:** Equal to the value in the Gross Dependable Capacity field and greater than the net capacity values by a factor determined by the value in the GADS Unit Type field.
- **Net Dependable Capacity:** Equal to the value in the Net Maximum Capacity field and less than the gross capacity values by a factor determined by the value in the GADS Unit Type field.
- **Net Maximum Capacity:** Equal to the value in the Net Dependable Capacity field and less than the gross capacity values by a factor determined by the value in the GADS Unit Type field.

It is important that when you create a new Generation Unit record, you specify an accurate value in *either* the Gross Maximum Capacity OR the Net Maximum Capacity field. If you supply a value in both the Gross Maximum Capacity field and the Net Maximum Capacity field:

- The Meridium APM system will NOT perform the proper calculation using the value specified for the GADS Unit Type.
- After the Generation Unit record exists, if you modify one of the values, the calculations will NOT be performed again.

GADS Unit Type Field

The value in the GADS Unit Type field in Generation Unit records is used in conjunction with the value in the Gross Maximum Capacity or Net Maximum Capacity field to calculate missing capacity values. The value in the GADS Unit Type field can be set to:

- **Fossil, Nuclear, or Fluidized Bed Units:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 5% greater than the Net Maximum Capacity and Net Dependable Capacity values.

- **Gas Turbine/Jet Engine:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 2% greater than the Net Maximum Capacity and Net Dependable Capacity values.

- **Diesel Units:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 0% greater than the Net Maximum Capacity and Net Dependable Capacity values. In other words, all capacity values will be the same.

- **Hydro/Pumped Storage Units:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 2% greater than the Net Maximum Capacity and Net Dependable Capacity values.

- **Miscellaneous Units:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 4% greater than the Net Maximum Capacity and Net Dependable Capacity values.

- **Multi-Boiler/Multi-Turbine:** The Gross Maximum Capacity and Gross Dependable Capacity values will be 0% greater than the Net Maximum Capacity and Net Dependable Capacity values. In other words, all capacity values will be the same.

For example, suppose you created a Generation Unit record that contains the value *Gas Turbine/Jet Engine (300)* in the GADS Unit Type field and the value *100* in the Gross Maximum Capacity field. When you save that Generation Unit record, the remaining capacity fields will be populated automatically as follows:

- **Gross Dependable Capacity:** 1000
- **Net Maximum Capacity:** 980
- **Net Dependable Capacity:** 980

About Fuel Codes

In Generation Unit records, the fuel code fields store values that identify the types of fuel used by a given unit. For each unit, the Meridium APM system supports defining up to four levels of fuel that will be used, depending upon availability:

- **Primary Fuel:** The unit's first choice of fuel types. As long as this type of fuel is available, it will be used.
- **Secondary Fuel:** The type of fuel that will be used if the primary fuel is not available.
- **Tertiary Fuel:** The type of fuel that will be used if the primary and secondary fuels are not available.
- **Quaternary Fuel:** The type of fuel that will be used if the primary, secondary, and tertiary fuels are not available.

In Generation Unit records, fuel types are identified through codes. The Meridium APM system supports the use of four different types of fuel code schemes, each of which uses a slightly different code for classifying the same types of fuel:

- NERC fuel codes
- EIA energy source codes
- AER fuel codes
- Common fuel codes

Given the four *levels* of fuel types and the four fuel code *schemes*, a Generation Unit record can have as many as 16 fuel codes defined for it, one for each level and scheme combination. For example, the following image displays the **Defaults** tab of the Unit datasheet for a Generation Unit record.

The *columns* represent the different fuel code *schemes*:

- NERC Values
- EIA Energy Source Values
- AER Fuel Code Values
- Common Fuel Code Value

The *rows* represent the fuel type *levels*:

- Primary Fuel Code
- Secondary Fuel Code
- Tertiary Fuel Code
- Quaternary Fuel Code

If you populated each cell, the Generation Unit record would contain 16 fuel codes.

> **Note:** Fuel code values are defined in Heating Value Ranges records. To see a list of these records, you can run the query *Heating Range Values*, which is stored in the following Catalog folder: \\Public\Meridium\Modules\Generation Management\Queries.

Mapping Family Fields to Cells on the Datasheet

In Generation Unit records, fuel codes are stored within 16 distinct fields. While these fields appear as 16 separate cells on the **Defaults** tab of the Unit datasheet, the names of the cells do not correspond exactly to the names of the field *captions* (i.e., NOT the datasheet labels). Throughout this documentation, we use the field captions when referring to these fields. Therefore, the following table maps the datasheet cell to the field caption.

Field Caption	Column	Row
AER Fuel Type Code 1	AER Fuel Code Values	Primary Fuel Code
AER Fuel Type Code 2	AER Fuel Code Values	Secondary Fuel Code
AER Fuel Type Code 3	AER Fuel Code Values	Tertiary Fuel Code
AER Fuel Type Code 4	AER Fuel Code Values	Quaternary Fuel Code
Common Fuel Code 1	Common Fuel Code Values	Primary Fuel Code
Common Fuel Code 2	Common Fuel Code Values	Secondary Fuel Code
Common Fuel Code 3	Common Fuel Code Values	Tertiary Fuel Code
Common Fuel Code 4	Common Fuel Code Values	Quaternary Fuel Code
EIA Energy Source 1	EIA Energy Source Values	Primary Fuel Code
EIA Energy Source 2	EIA Energy Source Values	Secondary Fuel Code
EIA Energy Source 3	EIA Energy Source Values	Tertiary Fuel Code
EIA Energy Source 4	EIA Energy Source Values	Quaternary Fuel Code
Primary Fuel Code	NERC Values	Primary Fuel Code
Quaternary Fuel Code	NERC Values	Quaternary Fuel Code
Secondary Fuel Code	NERC Values	Secondary Fuel Code
Tertiary Fuel Code	NERC Values	Tertiary Fuel Code

How Fuel Code Fields are Populated

Fuel code fields in Generation Unit records are populated using values in Heating Value Ranges records, which store information about the various fuels that can be used by units. Each Heating Value Ranges record represents a unique fuel type.

For example, in Generation Unit records, the AER Fuel Type Code 1 field will contain a list of values from the AER Fuel Code Description fields in Heating Value Ranges records. The following table shows how the lists in the fuel code fields in Generation Unit records are populated using values in Heating Value Ranges records.

This Field in Generation Unit Records:	...Is Populated Using These Fields and Format:
AER Fuel Type Code <1-4>	AER Fuel Description (AER Fuel Code)
Common Fuel Code <1-4>	Common Fuel Description (Common Fuel Code)
EIA Energy Source <1-4>	Fuel Type Description (Fuel Type)
Primary Fuel Code	NERC Fuel Description (NERC Fuel Code)
Quaternary Fuel Code	NERC Fuel Description (NERC Fuel Code)
Secondary Fuel Code	NERC Fuel Description (NERC Fuel Code)
Tertiary Fuel Code	NERC Fuel Description (NERC Fuel Code)

In a Generation Unit record, when a NERC fuel code field is populated with a value, the corresponding EIA energy source code, AER fuel code, and common fuel code fields are restricted to contain *only* values in fields in Heating Value Ranges records with a value in the NERC Fuel Code field that matches the NERC Fuel Code value in that NERC fuel code field.

For example, using the baseline Heating Value Ranges records, if a Generation Unit record contains the value *Water (WA)* in the Primary Fuel Code field, the other primary fuel code fields will be restricted to show the values from Heating Value Ranges records that contained the value *Water* in the NERC Fuel Description field and the value *WA* in the NERC Fuel Code field. Specifically:

- The AER Fuel Type Code 1 field will contain these values:
    - Hydroelectric Pumped Storage (HPS)
    - Hydroelectric Conventional (HYC)
- The Common Fuel Code 1 field will contain these values:
    - Water Hydro (HY WAT)
    - Water Pump Storage (PS WAT)
- The EIA Energy Source 1 field will contain these values:

- Water (HY WAT)
- Water (PS WAT)

If you populate any additional fuel code field after populating the value in the NERC fuel code field, the remaining fuel code fields will be restricted based upon that value as well. So in this example, if you select *Hydroelectric Pumped Storage (HPS)* in the AER Fuel Type Code 1 field:

- The list in the Common Fuel Code 1 field would contain only the value *Water Pump Storage (PS WAT)*.
- The EIA Energy Source 1 field would contain only *Water (PS WAT)*.

> **Note:** When the value in any NERC fuel code field is changed, if any of the fields for the same fuel *level* contain a value, that value will be cleared, and the field will contain NO value.

The baseline Meridium APM database contains Heating Value Ranges records that are already populated with values that identify fuels as they are defined by NERC and the EIA. We recommend that you:

- NOT modify the baseline Heating Value Ranges records so that they match what is defined by NERC and the EIA.
- NOT create your own Heating Value Ranges records.

Defining How Data Should Be Reported

The value in the Report Capacity Data field is used to specify how data in Incident records that are linked to a Generation Unit record should be reported and can contain one of the following options:

- **NERC:** Incident data linked to the Generation Unit record should be included in NERC reports.
- **Internal:** Incident data linked to the Generation Unit record should be excluded from NERC reports but included in any internal reports. For example, you may want to create a monthly report of incident data linked to certain Generation Unit records to report data to upper management, but NOT to NERC. In this case, you would select*Internal*.
- **NERC and Internal:** Incident data linked to the Generation Unit record should be included both in the NERC reports and in any internal reports. For example, you may want to create a monthly report of incident data linked to certain Generation Unit records to report data to upper management and also to NERC. In this case, you would select*NERC and Internal*.
- **Do Not Report:** All incident data linked to the Generation Unit record should be excluded from both NERC reports and any internal reports.

To make use of the values specified in the Report Capacity Data field, you will need to customize the baseline NERC reports to filter incident data into these categories. If you do NOT customize the existing queries, then the incident data will NOT be accurate in NERC or internal reports.

Choosing How To Calculate Incident Cost

In a Primary Capacity Incident record, the Capacity Incident Cost field can be used to store the cost of the event represented by that record. How the cost of the event is calculated is determined by the value in the Generation Cost Model field in the Generation Unit record to which the Primary Capacity Incident record is linked. *Before* you begin creating Primary Capacity Incident records, you need to determine how you will calculate the cost of incidents by setting the Generation Cost Model field to one of the following values:

- **No Cost Calculation:** The value in the Capacity Incident Cost field will NOT be populated (i.e., no cost calculation will be performed).

- **Price Curve:** The value in the Capacity Incident Cost field will be calculated based upon values in Power Price Curve records.

- **Reference Value:** The value in the Capacity Incident Cost field will be calculated based on the value specified in the Generation Cost Reference Value field in the Generation Unit record. If you set the Generation Cost model field to *Reference Value*, the Generation Cost Reference Value field becomes required.

> **IMPORTANT:** The capacity incident cost will be calculated based upon the value in the Generation Cost Model field *when the Primary Capacity Incident record is created*. If you select a value, save the Generation Unit record, create Primary Capacity Incident records associated with the unit, and then modify this value, the new value will NOT be used in existing Capacity Incident Cost calculations.

Determining When APM Event Records Are Created

In Generation Unit records, the APM Event Creation field stores a value that determines whether an APM Event record will be created when a new Primary Capacity Incident record is created and linked to a given Generation Unit record. The APM Event Creation field can be set to:

- **All Primary Capacity Events:** An APM Event record will be created each time a Primary Capacity Incident record is created and linked to the Generation Unit record. The APM Event record will be linked automatically to the Primary Capacity Incident record.

- **MWH Loss Exceeds Reference:** An APM Event record will be created when a Primary Capacity Incident record is created and linked to the Generation Unit record IF the value in the Total Equivalent Derate MWh w/out Shadowing field of the Primary Capacity Incident record exceeds the value in the APM Event Creation Reference Value field in the Generation Unit record. The APM Event record will be linked automatically to the Primary Capacity Incident record.

- **Production Loss Exceeds Reference:** An APM Event record will be created when a Primary Capacity Incident record is created and linked to the Generation Unit record IF the value in the Total Equivalent Derate Hours w/out Shadowing field in the Primary Capacity Incident record exceeds the value in the APM Event Creation Reference Value field of the Generation Unit record. The APM Event record will be linked automatically to the Primary Capacity Incident record.

About Generation Pool Records

Generation Pool records provide you with a way to group multiple Generation Unit records together into a *generation pool*, which is a grouping of units that are consistently reported as a group and is represented in Meridium APM by a single Generation Pool record. You will create one Generation Pool record for each generation pool and unit combination. You can associate a Generation Unit record with multiple generation pools by creating multiple Generation Pool records, one for each pool to which a unit belongs.

Creating a Generation Pool Record
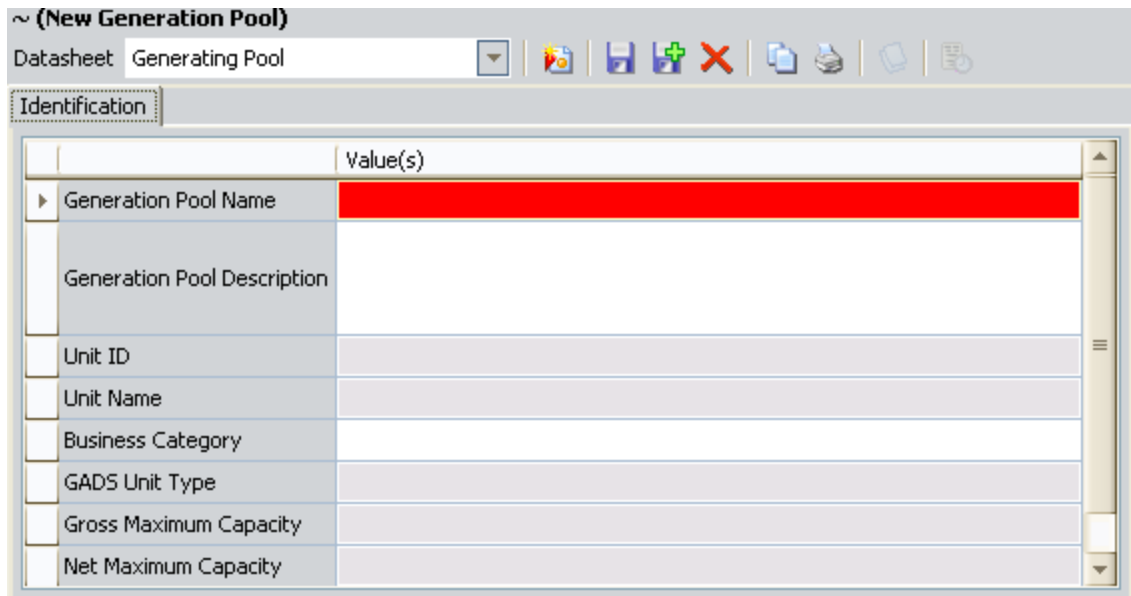
To create a Generation Pool record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Pool**.

3. Click **OK**.

   A new Generation Pool record appears in the Record Manager.

4. In the **Generation Pool Name** text box, type a name or select one from the list.

   The **Unit ID** cell will become required after the **Generation Pool Name** cell has been populated.

5. In the **Unit ID** list, select the Generation Unit record to which you want to link this Generation Pool record. The list will show *only* the Generation Unit records that are not linked to the record specified in the Generation Pool Name field.

6. [Complete the remaining fields as desired](#).

7. On the **Common Tasks** menu, click the **Save** link.

   The Generation Pool record created and saved to the database.

About Creating Loading Profile and Starting Profile Records

After you have created all desired Generation Company, Generation Plant, and Generation Unit records, you can create additional records to store data and refer to it as needed.

For instance, you might want to create:

- [Generation Unit Loading Profile records](#).
- [Generation Unit Starting Profile records](#).

Creating a Generation Unit Loading Profile Record

To create a Generation Unit Loading Profile record:

1. In the Meridium APM Framework application, open a Generation Unit record in the Record Manager.

2. In the **Record Explorer** pane, right-click the **Generation Unit Loading Profile** family node, and click **Create a new Generation Unit Loading Profile record to link to [root record]**.

   A new Generation Unit Loading Profile record appears.

3. In the **Unit ID** list, select the Generation Unit record to which you want to link the Generation Unit Loading Profile record. This field is required.

4. Complete the remaining fields as desired. Note that the Loading Profile and Load Point Number fields are required.

5. Click **OK**.

   The Generation Unit Loading Profile record is saved and linked to the selected Generation Unit record.

Creating a Generation Unit Starting Profile Record

To create a Generation Unit Starting Profile record:

1. In the Meridium APM Framework application, open a Generation Unit record in the Record Manager.

2. In the **Record Explorer** pane, right-click the **Generation Unit Starting Profile** family node, and click **Create a new Generation Unit Starting Profile record to link to [root record]**.

   A new Generation Unit Starting Profile record appears.

3. In the **Unit ID** list, select the Generation Unit record to which you want to link the Generation Unit Starting Profile record. This field is required.

4. Complete the remaining fields as desired. Note that the Startup Type field is required.

5. Click **OK**.

   The Generation Unit Starting Profile record is saved and linked to the selected Generation Unit record.

About Creating Nameplate Records

The Generation Nameplate family includes the following subfamilies:

- Generation Nameplate Combined Cycle
- Generation Nameplate Diesel
- Generation Nameplate Fluidized Bed
- Generation Nameplate Fossil Steam
- Generation Nameplate Gas Turbine
- Generation Nameplate Hydro
- Generation Nameplate Miscellaneous
- Generation Nameplate Nuclear

By default, no datasheet is defined for the Generation Nameplate family. Datasheets exist only for the subfamilies. Therefore, by default, you can create Generation Nameplate records only within the subfamilies.

Creating a Generation Nameplate Record

You can create a record in any Generation Nameplate subfamily. The following instructions provide an example for creating a Generation Nameplate Combined Cycle record.
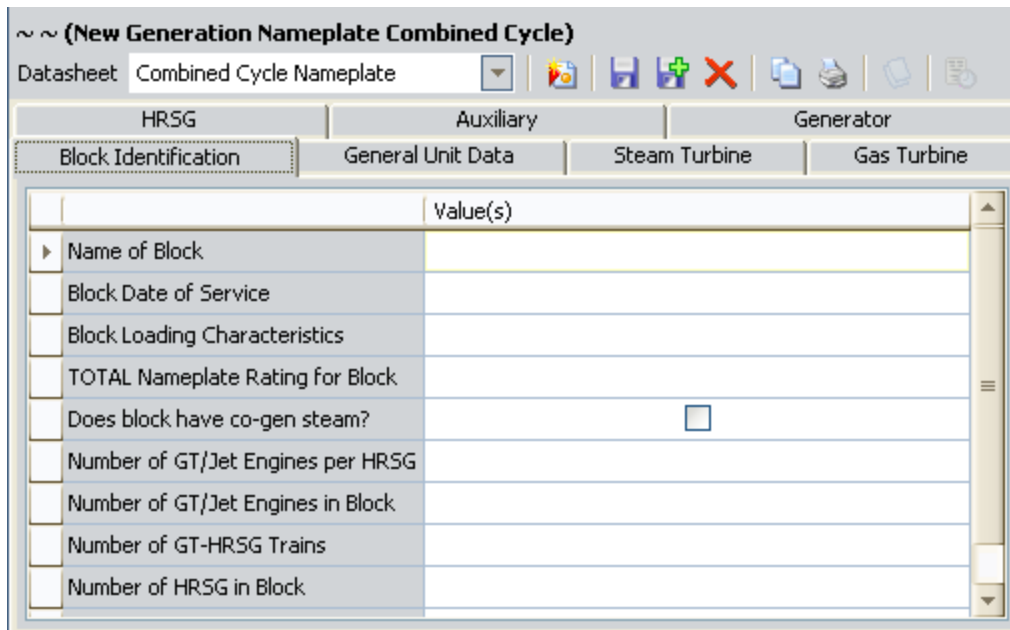
To create a Generation Nameplate Combined Cycle Record:

1. On the Meridium APM Framework toolbar, click the **New** button.

    The **Select Family** dialog box appears.

2. In the list, select **Generation Nameplate Combined Cycle**.

3. Click **OK**.

    A new Generation Nameplate Combined Cycle record appears in the Record Manager.

4. On the **General Unit Data** tab, in the **Unit ID** list, select the Generation Unit record to which you want to link the Generation Nameplate Combined Cycle record. Various fields in the Generation Nameplate Combined Cycle record will be populated automatically with values from that Generation Unit record. This field is required.

5. On the **Common Tasks** menu, click the **Save** link.

    The Generation Nameplate Combined Cycle record is saved and linked to the Generation Unit record identified by the value that you selected in the **Unit ID** list.

About Generation Forecast Records

Generation Forecast records store information that is used to predict the future capacity of units and plants. This information will not be used when generating reports but can be used to more accurately estimate the cost of incidents. You should create Generation Forecast records *before* the time period for which they exist.

Creating Generation Forecast Records
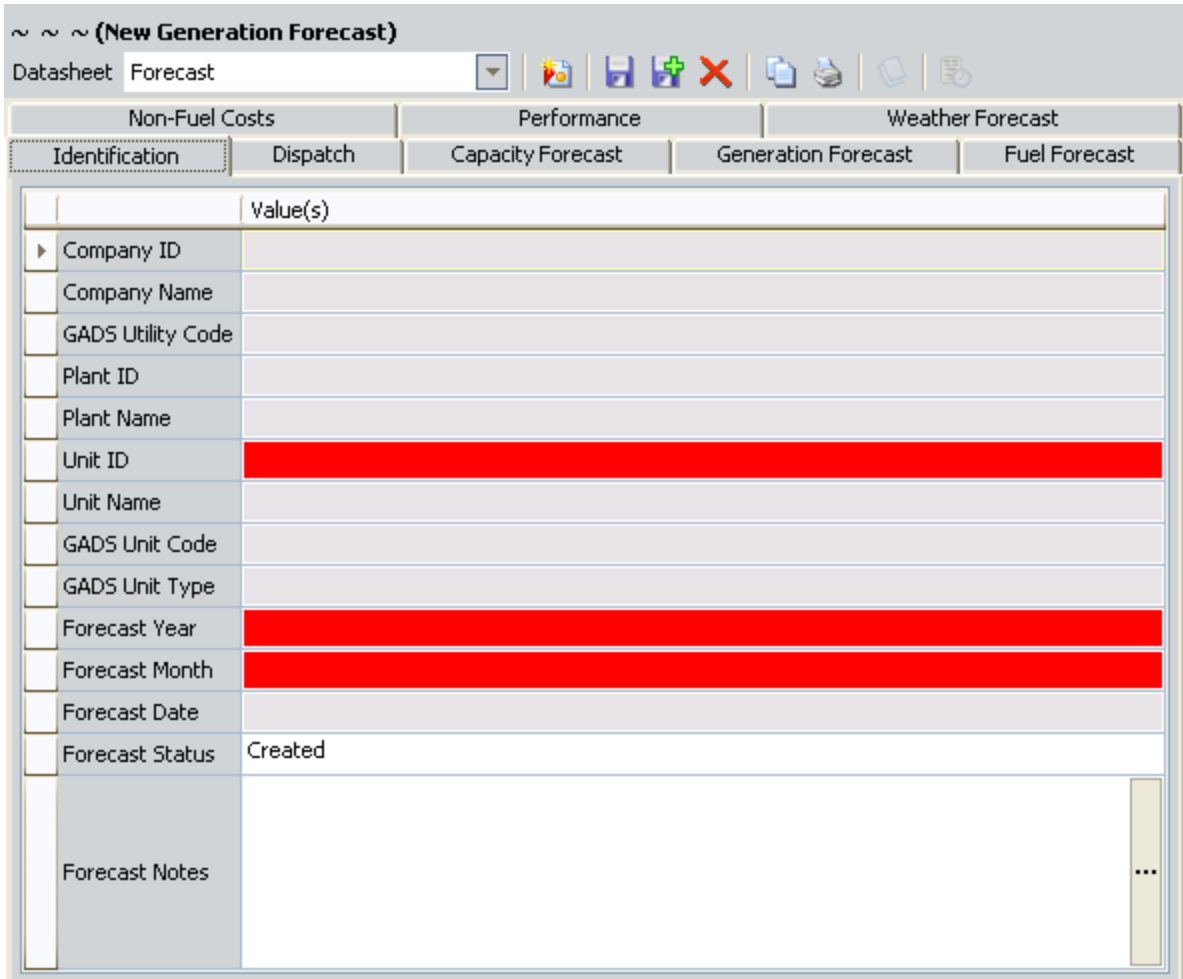
To create a Generation Forecast record:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Generation Forecast**.

3. Click **OK**.

   A new Generation Forecast record appears in the Record Manager.

4. In the **Unit ID** list, select the Generation Unit record to which you want to link this Generation Forecast record. Some fields in the Generation Forecast record will be populated automatically with values from the selected Generation Unit record. This field is required.

5. In the **Forecast Year** list, select the year for which you want to predict future

capacity.

6. In the **Forecast Month** list, select the month for which you want to predict future capacity.

7. Complete the remaining fields as desired.

8. On the **Common Tasks** menu, click the **Save** link.

> **Note:** You cannot create multiple Generation Forecast records for the same month and year.

The Generation Forecast record is saved and linked to the Generation Unit record identified by the value that you selected in the **Unit ID** list.

About Incident Records

In Generation Management, *Incident records* store information about events in which a unit suffers a loss of power generation capacity. GM uses two types of Incident records:

- **Primary Capacity Incident**: Stores information about the *primary* cause of an event. When something goes wrong in a unit, you will record information about the event in a Primary Capacity Incident record. Primary Capacity Incident records are linked to the Generation Unit record that represents the unit at which the event occurred.

- **Contributing Capacity Incident**: Stores additional information about the event, such as a secondary cause. All Contributing Capacity Incident records are linked to a Primary Capacity Incident record. Therefore, to create a Contributing Capacity Incident record, you must have already created the Primary Capacity Incident record to which it will be linked. When you create a Contributing Capacity Incident record, all required fields will be populated automatically with values in the Primary Capacity Incident record to which it is linked.

Each event that occurs will be represented by *at least* a Primary Capacity Incident record. Depending upon the event, one or more Contributing Capacity Incident records may need to be created and linked to the Primary Capacity Incident record. *Together*, the Primary Capacity Incident record AND all the Contributing Capacity Incident records that are linked to it represent a *single* event.

Because Primary Capacity Incident records and Contributing Capacity Incident records are similar in that they share many of the same fields and behave the same way, throughout this documentation we refer to them collectively as *Incident records*. Where necessary, we make a distinction between the functionality of Primary Capacity Incident records and Contributing Capacity Incident records. Wherever that distinction is NOT made, you can assume that all Incident records function the same way.

The Incident Record Workflow

Before you can create Incident records, you must have already created the Generation Company, Generation Plant, and Generation Unit records with which the Incident records will be associated. The following workflow represents the steps that you might take to record information about events in which a unit suffers a loss of power generation capacity.

1. Create a Primary Capacity Incident record to represent the event. Because each Primary Capacity Incident record represents a different event, each time a unit suffers a loss of power generation capacity, you will need to create a new Primary Capacity Incident record.

   Note: If you create Primary Capacity Incident records in an order that is *different* from the order in which the incidents occurred, you will need to put the Primary Capacity Incident records in order after they have been created.

2. If needed, create one or more Contributing Capacity Incident records to represent incidents related to the event, and link them to the Primary Capacity Incident record.

Creating Primary Capacity Incident Records

The following instructions provide details on creating a Primary Capacity Incident record using the baseline Primary Capacity Incident datasheet. Before you can complete these instructions, you must have already created the Generation Unit record to which the Primary Capacity Incident record will be linked.

To create a Primary Capacity Incident record:

1. If you plan to use Power Price Curve records to calculate the cost of the event, create those records before creating the Primary Capacity Incident record.

2. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears. In the list, select **Primary Capacity Incident**.

   A new Primary Capacity Incident record appears in the Record Manager.

4. In the **Unit ID** list, select the Generation Unit record to which you want to link the Primary Capacity Incident record. Certain values from the Generation Unit record will be used to populate various fields in the Primary Capacity Incident record automatically.

5. In the **Capacity Event Type** list, select the value that represents the incident type.

6. Specify the start date and time of the event. To do so:

   - In the **Event Start** cell, change the value to the date and time the incident occurred. This field is populated automatically with the current date and time.

     -or-

   - In the **Event Start Date (Alternate Format)** text box, type a value that identifies the date and time the incident began using the format specified in the Date/Time Alternate Format field in the Generation Plant record associated with the Primary Capacity Incident record. This field is populated automatically with the current date and time.

   > **Note:** While both of these fields appear on the baseline Primary Capacity Incident datasheet, if you have followed our recommendation for choosing which date and time format to use, you will see only one of them.

   The **Reporting Year** and **Reporting Month** cells are disabled and populated automatically based on the Event Start date.

7. Specify an end date and time for the event. To do so:

   - In the **Event End** cell, specify the date and time the incident ended.

     -or-

   - In the **Event End Date (Alternate Format)** text box, type a value the identifies the date and time the incident ended using the format specified in the

Date/Time Alternate Format field in the Generation Plant record associated with the Primary Capacity Incident record.

> **Note:** While both of these fields appear on the baseline Primary Capacity Incident datasheet, if you have followed our recommendation for choosing which date and time format to use, you will see only one of them.

-or-

- Leave both the **Event End** and **Event End Date (Alternate Format)** cells empty. In this case, when you save the record, these fields will be populated automatically with the last day of the same month of the event start date at 11:59 P.M., and the **End Date is Estimated?** check box will be selected automatically.

8. Complete the remaining fields as desired.

9. On the **Common Tasks** menu, click the **Save** link.

The Primary Capacity Incident record is created, saved to the database, and linked to the Generation Unit record identified by the value that you selected in the **Unit ID** list. In addition:

- If one does not already exist, a **Capacity History record** will be created automatically and linked to the Primary Capacity Incident record and to the Generation Unit record to which the Primary Capacity Incident record is linked.

- An APM Event record may also be created and linked to the Primary Capacity Incident record, depending on the value in the APM Event Creation field in the linked Generation Unit record.

Creating Contributing Capacity Incident Records

The following instructions provide details on creating a Contributing Capacity Incident record. Before you can create a Contributing Capacity Incident record, you must have already created the Primary Capacity Incident record to which the Contributing Capacity Incident record will be linked.

The instructions in this topic represent the *only* way to create a Contributing Capacity Incident record successfully using the baseline GM product. This method will cause fields in the new Contributing Capacity Incident record to be populated with information from the Primary Capacity Incident record. If you attempt to create a Contributing Capacity Incident record using a different method (e.g., clicking the **New** button on the Meridium APM Framework toolbar), some required fields will NOT be populated but will be disabled so that you will not able to enter the required information, causing an error message to appear when you attempt to save the record.

To create a Contributing Capacity Incident record:

1. Open in the Record Manager the Primary Capacity Incident record to which the Contributing Capacity Incident record will be linked.

2. On the **Associated Pages** menu, click the **Create** link, and then click **Create Contributing Incident.**

   A new Contributing Capacity Incident record appears in a new window.

This image displays the baseline Contributing Capacity Incident datasheet. These instructions provide details on creating a new Contributing Capacity Incident record using this datasheet.

3. Complete any optional fields as desired.

> **Note:** All required fields are populated based upon values in the Primary Capacity Incident record.

4. Click **OK**.

The Contributing Capacity Incident record is created, saved to the database, and linked to the Primary Capacity Incident record.

Why Do I Need to Put Primary Capacity Incidents in Order?

When you create a Primary Capacity Incident record for a unit, an event number is created and stored in the Event Number field, which is included in the Record ID. The value in the Event Number field corresponds to the order in which the record was created for that particular unit for that year, which is determined based on the value in the Event Start Date field. So, for example, if the record is the third record that you have created for a unit for 2008, the event number will be *3* (three).

In the following image, the formatted values from the Event Number field in both Primary Capacity Incident records are circled.
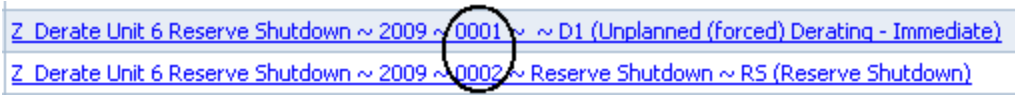
Z_Derate Unit 6 Reserve Shutdown ~ 2009 ~ 0001 ~ ~ D1 (Unplanned (forced) Derating - Immediate)
Z_Derate Unit 6 Reserve Shutdown ~ 2009 ~ 0002 ~ Reserve Shutdown ~ RS (Reserve Shutdown)

> **Note:** If the value in the Event Number field is fewer that four digits, zeros will be added in front of the value so that the formatted event number will be four digits.

Throughout the year, however, Primary Capacity Incident records may be created in an order that does NOT reflect the order in which the incidents occurred. For example, an incident might occur on January 12, 2008, but you might not create the record to capture the incident data until January 15, 2008. When incidents are not recorded immediately after they occur, the values in the Event Number field in the Primary Capacity Incident records may get out of order.

Consider the following table.

Incident Occurs	Record is Created	Event Number Assigned
January 1, 2008	January 1, 2008	1
January 2, 2008	January 2, 2008	2
January 3, 2008	January 6, 2008	4
January 4, 2008	January 4, 2008	3

In this example, one incident occurred each day, beginning January 1 and ending January 4. On January 1 and January 2, a record was created immediately after the incident occurred. On January 3, however, a record was not created immediately after the incident occurred. Another incident occurred on January 4, and the data was immediately entered into a record. It was not until January 6 that a record was created to record the incident from January 3.

In other words, the order in which the records were created does not reflect the order in which the events occurred. To avoid confusion when reviewing the records, you need a

way to populate the Event Number fields with values that represent the order in which the incidents *actually occurred*.

The Meridium APM Framework provides a query that evaluates the event start date of all Primary Capacity Incident records for a specific unit for a specific year. The query updates the values in the Event Number fields so that they reflect the event order based upon start date rather than creation date. The Record ID will also be updated in any record where the Event Number field is updated.

Sorting Primary Capacity Incident Records

To put Primary Capacity Incident record event numbers in the correct order:

1. On the Meridium APM Framework toolbar, click the **Catalog** button.

2. Navigate to the folder **\\Public\Meridium\Modules\Generation Management\Configuration**, and double-click the query **Resequence Incidents**.

   The **Enter parameter values** dialog box appears.

3. In the **Unit ID** list, select the value for the Generation Unit record whose Primary Capacity Incident records you want to renumber.

4. In the **Year** list, select the year in which the Primary Capacity Incidents occurred.

5. Click **OK**.

   A message appears, indicating that one record will be updated.

6. Click the **Yes** button.

   The **Query Builder** page appear, displaying a blank page.

   The Primary Capacity Incident records for the selected unit and year are now numbered according to date of occurrence instead of date of record creation.

About the Record ID in Incident Records

The Record ID field in all Incident records is generated automatically, but the fields that are used to generate the values are different for Primary Capacity Incident records and Contributing Capacity Incident records.

- The value in the Record ID field for each Primary Capacity Incident record is unique to all Primary Capacity Incident records that are linked to a given Generation Unit record. The Record ID in Primary Capacity Incident records is generated automatically using the following format:

  <Event ID> ~ <Cause Code> ~ <Capacity Event Type>

  ...where:

  - **<Event ID>** is the value in the Event ID field.
  - **<Cause Code>** is the value in the Cause Code field.
  - **<Capacity Event Type>** is the value in the Capacity Event Type field.

    The value in the Event ID field in Primary Capacity Incident records is generated using the following format:

    <Unit ID> ~ <Reporting Year> ~ <Event Number>

    ...where:

    - **<Unit ID>** is the value in the Unit ID field.
    - **<Reporting Year>** is the value in the Reporting Year field.
    - **<Event Number>** is the Value in the Event Number Field. If the value in the Event Number field is fewer than four digits, zeros will be added in front of the value so that the event number in the Event ID field will be four digits.

- The Value in the Record ID field in Contributing Capacity Incidents identifies the Primary Capacity Incident record to which the Contributing Capacity Incident record is linked. The values in the Record ID field in ALL Contributing Capacity Incident records that are linked to a given Primary Capacity Incident record will match one another. The Record ID in Contributing Capacity Incident records is generated using the following format:

  <Primary Incident ID> ~ <Capacity Event Type>

  ...where:

  - **<Primary Incident ID>** is the value in the Primary Incident ID field.
  - **<Capacity Event Type>** is the value in the Capacity Event Type field.

  The Primary Incident ID field is populated automatically with the value in the Event ID field in the Primary Capacity Incident record for which the Contributing Capacity Incident record exists. The value in the Primary Incident ID field for all Contributing Capacity Incident records will match the value in the Event ID field in the Primary Capacity Incident record to which they are linked.

For example, consider the following diagram.
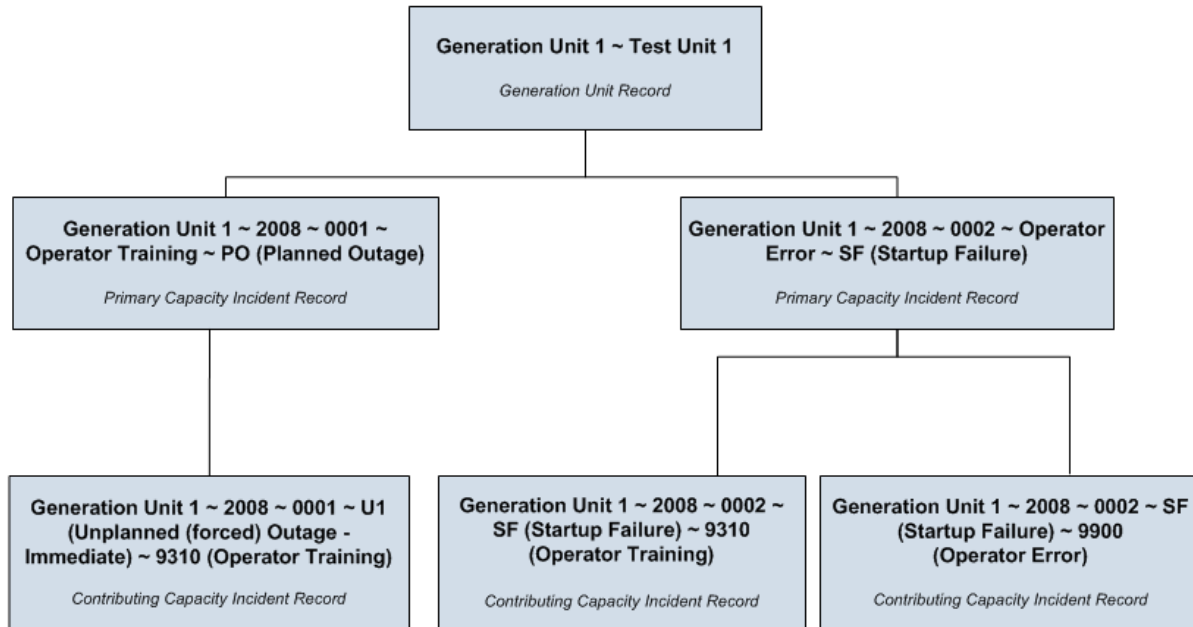
The Record ID of the first Primary Capacity Incident record begins with *Generation Unit ~ 2008 ~ 0001*. You can identify the Contributing Capacity Incident record that is linked to this Primary Capacity Incident record because its Record ID also begins with *Generation Unit ~ 2008 ~ 0001*.

The Record ID of the second Primary Capacity Incident record begins with *Generation Unit ~ 2008 ~ 0002*. This record is linked to TWO Contributing Capacity Incident records, both of which begin with *Generation Unit 1 ~ 2008 ~ 0002*, which allows you to determine that both Contributing Capacity Incident records are linked to the second Primary Capacity Incident record.

About Capacity Event Types

Each Primary Capacity Incident or Contributing Capacity Incident record must be classified using a value in the Capacity Event Type field. There are two types of capacity events:

- [OutageEvents](): The unit could generate NO power during the event.
- [DerateEvents](): The unit *could* produce power during the event, but at a reduced capacity.

Outage Events

If a Primary Capacity Incident or Contributing Capacity Incident record contains one of the following values in the Capacity Event Type field, it is considered an *outage* event:

- U1
- U2
- U3
- MO
- PO
- ME
- PE
- SF
- RS
- MB
- IR
- RU

Derate Events

If a Primary Capacity Incident or Contributing Capacity Incident record contains one of the following values in the Capacity Event Type field, it is considered a *derate* event:

- D1
- D2
- D3
- D4
- DM
- PD
- DP
- NC

About GADS Cause Codes

In Incident records, the cause code fields store values that are used to identify the cause of the incident. The values in the cause code fields are populated using values in GADS Cause Codes records. Each GADS Cause Codes record represents a GADS cause code and can be used to populate the cause code fields in Incident records.

The baseline Meridium APM database contains GADS Cause Codes records that are already populated with values that identify cause codes as they are defined by NERC. We recommend that you:

- NOT modify the baseline GADS Cause Codes records so that they match what is defined by NERC.

- NOT create your own GADS Cause Codes records.

> **Note:** For GADS cause codes that can be used to identify the cause of an incident for more than one GADS unit type, multiple GADS Cause Codes records exist in the baseline Meridium APM database, one for each cause code and unit type combination.

The GADS cause codes themselves are defined by NERC in the GADS DRI. NERC divides cause codes into systems and components to group the codes into categories. As a result, the Meridium APM system uses three fields to define cause codes.

- Cause Code System

- Cause code Component

- Cause Code

How GADS Cause Code Fields are Populated

Cause code fields are populated using values in GADS Cause Codes records. In Incident records, the Cause Code System field will contain a list of each unique value in the System field in all GADS Cause Codes records with the value in the Unit Type field that matches the value in the GADS Unit Type field in the Generation Unit record with which the Incident record is associated.

For example, using the baseline GADS Cause Codes records, consider a Primary Capacity Incident record that is linked to a Generation Unit record with the value *Miscellaneous (800)* in the GADS Unit Type field. In this case, the Cause Code System field will contain a list of each unique value in the System field in all GADS Cause Codes records with the value *Miscellaneous (800)* in the Unit Type field.

In an Incident record, when the Cause Code System field is populated with a value, the Cause Code Component field will contain *only* values in the Component field in GADS Cause Codes records with a value in the System field that matches the value in the Cause Code System field in the Incident record. Note that the Cause Code Component field will NOT contain a list of values until the Cause Code System field contains a value. So in this example, if you select *External* in the Cause Code System field, the Cause Code Component field would contain a list of the following values:

- Catastrophe
- Economic
- Fuel Quality
- Miscellaneous (External)

If you populate the Cause Code Category field, the Cause Code field will contain *only* values in the Cause Code and Cause Code Description fields in GADS Cause Codes records with values in the System and Component fields that match the values in the Cause Code System and Cause Code Component fields in the Incident record. The list in the Cause Code field in Incident records is displayed using the format *Cause Code (Cause Code Description)*. Note that the Cause Code field will NOT contain a list of values until the Cause Code Component field contains a value. So in this example, if you select *Miscellaneous (External)* in the Cause Code Component field, the Cause Code field would contain a list of the following values:

- 9300 (Transmission System Problems Other Than Catastrophe)
- 9305 (Ash Disposal Problem)
- 9310 (Operator Training)
- 9320 (Other Miscellaneous External Problems)

Incidents with Only One Cause

Some types of incidents have only one possible cause. In Incident records where the value in Capacity Incident Type field identifies a single-cause incident, the Cause Code System, Cause Code Component, and Cause Code fields will be disabled and populated automatically with the appropriate cause code. The following table lists these Capacity Incident Type values and their corresponding cause codes.

Capacity Incident Type	Cause Code System	Cause Code Component	Cause Code
RS	External	Economic	0000 (Reserve Shutdown)
IR	Inactive State	Inactive State	0002 (Inactive Reserve)
MB	Inactive State	Inactive State	9991 (Mothballed Unit)
RU	Inactive State	Inactive State	9990 (Retired Unit)

About Calculating Incident Cost

The Meridium APM system can calculate the potential cost of an incident automatically. You can specify whether or not the potential incident cost should be calculated and, if so, the method that will be used for the calculation by selecting a value in the Generation Cost Model field in the Generation Unit record to which a Primary Capacity Incident record is linked. You have three options for calculating incident cost:

- Do not calculate the cost of incidents. You should choose this option if you plan to calculate the cost of incidents using a system other than GM.
- Calculate cost using a reference value.
- Calculate cost using Power Price Curve records.

> **Note:** If the value in the Capacity Event Type field in a Primary Capacity Incident record is *RS* or *NC*, the Capacity Incident Cost field will be disabled and populated automatically with the value *$0.00*.

Using a Reference Value to Calculate Incident Cost

If you want to determine the value in the Capacity Incident Cost field based upon a reference value, in the Generation Unit record to which the Incident records will be linked, you need to:

- Set the value in the Generation Cost Model field to *Reference Value*.
- Specify a value in the Generation Cost Reference Value field.

The value that you specify in the Generation Cost Reference Value field will be considered the cost in dollars *per hour* for the entire duration of the incident. The Meridium APM system will use this value to calculate the Capacity Incident Cost using the following equation:

Capacity Incident Cost = Generation Cost Reference Value x (Event End Date - Event Start Date) x (Net Dependable Capacity - Net Available Capacity)

For example, consider a Primary Capacity Incident record that contains the following values:

- **Event Start Date:** January 1, 2008 12:00 A.M.
- **Event End Date:** January 1, 2008 4:00 A.M.
- **Net Dependable Capacity:** 200
- **Net Available Capacity:** 100

If the value in the Generation Cost Reference Value field in the Generation Unit record is set to *1* (one), the Meridium APM system will assume a power cost of $1.00 per hour for the entire event duration. Therefore, the cost of power for the event duration will be calculated as follows:

Capacity Incident Cost = ($1.00 x 4 hours) x (100)

Capacity Incident Cost = $400.00

Using Power Price Curve Records to Calculate Incident Cost

If you want to calculate incident cost using Power Price Curve records, you need to:

- In the Generation Unit record for whose incidents you want to calculate cost using Power Price Curve records, set the Generation Cost Model field to *Price Curve*.

- In the same Generation Unit record, populate the Zone field with the value that matches the value in the Zone field in the Power Price Curve records that you want to use to calculate the incident cost.

- Before you create a Primary Capacity Incident record for the Generation Unit record, create Power Price Curve records for the duration of the incident.

  -or-

  If you create power Price Curve records *after* you have created the Primary Capacity Incident record, you should recalculate the capacity incident cost.

About Power Price Curve Records

When an incident occurs that causes a power company to generate less power than what is required to fulfill the power needs of all its customers, that company must purchase power from an outside source. The price of power at that time directly affects the cost of the incident. To predict the potential cost of an incident accurately, you can record power price data in Power Price Curve records. Each Power Price Curve record stores the price of power *ending* at a specific time on a specific date in a specific zone. The information in these records is used to determine the value in the *Potential Capacity Incident Cost* field in a Primary Capacity Incident record based on the event duration.

For example, if an incident began on January 1, 2006, at 12:00 P.M. and ended on January 1, 2006, at 4:00 P.M., the Potential Capacity Incident Cost would be calculated based upon Power Price Curve records whose Power Price Date contains a date and time between January 1, 2006, 12:00 P.M. and January 1, 2006, 4:00 P.M.

> **Note:** For Power Price Curve records to be used to calculate the incident cost, the value in the Zone field in the Power Price Curve record must match the value in the Zone field in the Generation Unit record to which it is linked.

You can create Power Price Curve records whenever it makes sense within your business processes. We recommend that you create these records *before* you create a Primary Capacity Incident record IF you want that Primary Capacity Incident record to contain a value for the Potential Capacity Incident Cost immediately after it is first saved. If, however, you create Power Price Curve records for a specific time period *after* you create a Primary Capacity Incident record for the same time period, you can recalculate the capacity incident cost.

If you specify in a Generation Unit record that you want to use Power Price Curve records to calculate cost, the Meridium APM system expects *at least one* Power Price Curve record to exist for each reporting month. If one does not exist and you create a Primary Capacity Incident record linked to that Generation Unit record for that reporting month, the incident cost cannot be calculated.

Creating Power Price Curve Records
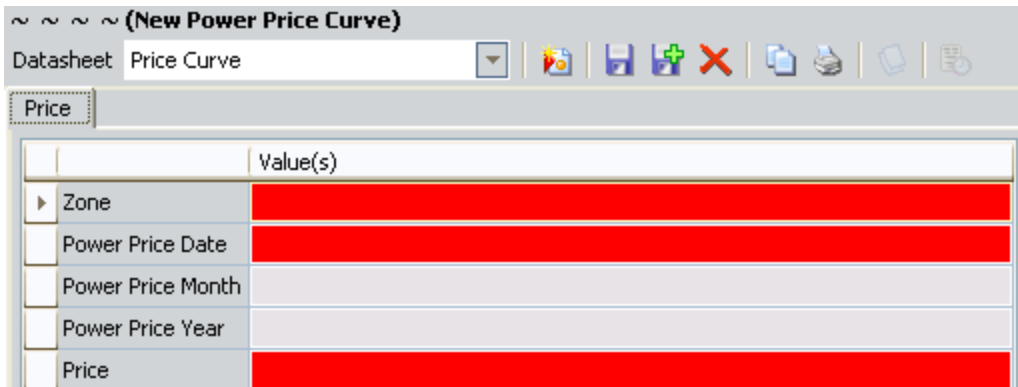
To create Power Price Curve records:

1. On the Meridium APM Framework toolbar, click the **New** button.

   The **Select Family** dialog box appears.

2. In the list, select **Power Price Curve**.

3. Click **OK**.

   A new Power Price Curve record appears in the Record Manager.

   This image displays the baseline Price Curve datasheet. These instructions provide details on creating a new Power Price Curve record using this datasheet.

4. In the **Zone** list, select the zone for which you want to record power price data.

5. In the **Power Price Date** cell, select the date for which you are recording the price of power. Note that if time is important to your pricing increments, be sure to select the appropriate time. The default time is *12:00:00 AM*. Note that the value you select in this field determines the values that will appear in the **Power Price Month** and **Power Price Year** cells.

6. In the **Price** text box, type the price value that represents the cost of power *per hour* for the specified date and month. Note that if you do not type a decimal point yourself, Meridium APM Framework will insert a decimal point after the last digit you type. So, if you type *100*, it will assume that you mean *$100.00*.

7. On the **Common Tasks** menu, click the **Save** link.

   The Power Price Curve record is created and saved to the database.

Managing Power Price Curve Records

Regardless of when you create Power Price Curve records, you will want to make sure that they represent consistent time intervals. The Power Price Date value determines these intervals. For example, consider four Power Price Curve records with the following values in the Power Price Date field:

- 1-1-2001 12:00 AM
- 1-1-2001 12:15 AM
- 1-1-2001 12:30 AM
- 1-1-2001 12:45 AM

These four records represent 15-minute intervals of time. If your database contained these records, you would want to create all other Power Price Curve records representing 15-minute intervals of time. If Power Price Curve records do NOT represent consistent time intervals, the Meridium APM system may not be able to calculate the cost of incidents that occurred during the time for which the Power Price Curve records represent.

Keep in mind that the price you type in a Power Price Curve record indicates the price *ending on* the date and time that you select in that record. Meridium APM assumes that this price is valid each minute before that date and time until the end of the interval that is represented by the *preceding* Power Price Curve record.

- If you create only one record to store pricing data for the month, the Meridium APM system assumes an interval of one month, which means that the price is assumed valid beginning on the date in the record until the end of the month.

- If you create multiple Power Price Curve records for a given month, Meridium APM:

  1. Calculates the interval (e.g., 15 minutes) between the records.
  2. Assumes that the price in each record is valid *ending on* the date and time in the record.
  3. Determines the start time of each record by subtracting the calculated interval from the time in each record.

  For example, if an event spans from 2:00 P.M. to 3:50 P.M. and you have three Power Price Curve records (2:00 P.M., 3:00 P.M., and 4:00 P.M.), Meridium APM assumes an interval of 60 minutes. This means that the cost in each record is valid ending on the time in the record and starting 60 minutes before that time.

How is Cost Calculated Based on Power Price Curve Records?

The value in the Potential Capacity Incident Cost field is calculated using:

- **The duration of the event:** Determined from the Event Duration value.
- **The amount of power you lost:** Determined by subtracting the value in the Net Available Capacity field in the Primary Capacity Incident record from the value in the Net Dependable Capacity field in the Generation Unit record.
- **The cost of power at that time:** Determined based upon the number of Power Price Curve records that exist for the time period in which the event took place and the cost in those records.

One of two formulas is used to calculate the value in the Capacity Incident Cost field, depending on whether you have one or multiple Power Price Curve records for the event month.

- If you have only ONE Power Price Curve record for the month in which the event occurred, the formula is:

  Capacity Incident Cost = Event Duration x Amount of Power Lost x Cost of Power

  The cost of power is specified in the Power Price Curve record.

- If you have *multiple* Power Price Curve records for the month in which the event occurred, the formula is:

  Capacity Incident Cost = Cost of Power for Event Duration x Amount of Power Lost

  The cost of power for the event duration is calculated using the following formula:

  Cost of Power for Duration = (Number of Minutes the Event Lasted in Interval/Total Number of Minutes in Interval) x Cost during Interval

  The Meridium APM system calculates the cost of power for each interval in the event duration and adds the values together to arrive at the Cost of Power for Event Duration, which is used in the Capacity Incident Cost calculation.

The Potential Capacity Incident Cost calculation for multiple Power Price Records is best understood through an example.

Example of Cost Calculation: Multiple Power Price Curve Records

Suppose an event begins at 4:09 A.M. and ends at 8:57 A.M. The Event Duration, therefore, is 4.80 hours. The Net Dependable Capacity is 300, and the Net Available Capacity is 200, so the amount of power lost is 100 (300-200). Based upon this information, we know one part of the Potential Capacity Incident Cost formula:

Amount of Power Lost = 100

To calculate the value in the Capacity Incident Cost field, we also need to know the cost of power for the event duration. Suppose your database contains the following Power Price Curve data. Each row in the table represents an individual Power Price Curve record.

Time	Cost of Power/Hr	# Minutes in This Interval	# Minutes Event Lasted in This Interval	Cost During Time Interval ((# minutes event lasted in interval/total number of minutes in interval) x cost during interval))
4:00 A.M.	$1.00/Hr	60 minutes	0 minutes Note that this record indicates that the cost of $1.00/Hr *ends at* 4:00 A.M. The event did not occur until 4:09 A.M., so this cost is not used in the calculation. It is used, however, to determine the start time for the cost that ends at 5:00 A.M.	$0.00 ((60 minutes/60 minutes) x $0.00))
5:00 A.M.	$2.00/Hr	60 minutes	51 minutes (i.e., the event starts at 4:09 A.M.)	$1.70 ((51 minutes/60 minutes) x $2.00))

Time	Cost of Power/Hr	# Minutes in This Interval	# Minutes Event Lasted in This Interval	Cost During Time Interval ((# minutes event lasted in interval/total number of minutes in interval) x cost during interval))
6:00 A.M.	$3.00/Hr	60 minutes	60 minutes	$3.00 ((60 minutes/60 minutes) x $3.00))
7:00 A.M.	$4.00/Hr	60 minutes	60 minutes	$4.00 ((60 minutes/60 minutes) x $4.00))
8:00 A.M.	$5.00/Hr	60 minutes	60 minutes	$5.00 ((60 minutes/60 minutes) x $5.00))
9:00 A.M.	$3.00/Hr	60 minutes	57 minutes (i.e., the event ended at 8:57 A.M.)	$2.85 ((57 minutes/60 minutes) x $3.00))

To arrive at the total cost of power for the entire event duration, we must add the values that represent the cost of power during each interval. In this example, we need to add $1.70, $3.00, $4.00, $5.00, and $2.85. So, the total cost of power for the Event Duration is *$16.55*.

All factors in the Potential Capacity Incident Cost formula are now available:

- Cost of power for event duration = $16.55
- Amount of Power Lost = 100 megawatts

Again, because there are multiple Power Price Curve records for the month in which the event occurred, the formula is:

Potential Capacity Incident Cost = Cost of Power for Event Duration x Amount of Power Lost

Using the values in the example, the equation is:

Potential Capacity Incident Cost = $16.55 x 100

Potential Capacity Incident Cost = $1,655.00.

Viewing a Graph of Power Prices

To view a graph of power prices:

1. On the Meridium APM Framework toolbar, click the **Catalog** button.

2. Navigate to the folder **\\Public\Meridium\Modules\Generation Management\Graphs**, and double-click the **Power Price Curve** query.

   > **Note:** You could also access the graph via the **Pricing** link on the **Associated Pages** menu that appears when you are viewing a Capacity History record.

   The **Enter Query Parameters** dialog box appears.

3. In the **Enter the Price Zone** list, select the zone for which you want to view pricing data.

4. In the **Select the Year** list, select the year for which you want to view pricing data.

5. In the **Select the Month** list, select the month for which you want to view pricing data.

6. Click **OK**.

   The graph appears on the **Graph Viewer** page.

   > **Note:** If you are using a SQL Server database, an error message will be displayed when you try to open this graph.

Recalculating Potential Capacity Incident Cost

After you create a Primary Capacity Incident record, you might need to recalculate the cost of the incident. For example, you would need to do so if:

- The potential capacity incident cost is based on Power Price Curve records whose values change because of changes in pricing information.
- The potential capacity incident cost is based on Power Price Curve records, but when the Primary Capacity Incident was created, a Power Price Curve record that corresponds to the date and time of the event did not exist yet but has since been created.

To recalculate the potential capacity incident cost:

1. Open in the Record Manager the Primary Capacity Incident record whose cost you want to recalculate.

2. On the **Event** tab of the default Primary Capacity Incident datasheet, select the **Refresh Incident Cost** check box.

3. On the **Common Tasks** menu, click the **Save** link.

   The cost is recalculated and stored in the Capacity Incident Cost field, and the record is saved using the new value, along with any other changes that you made to the Primary Capacity Incident record.

What Are Sequential Incidents?

Sometimes, one capacity incident will directly follow another capacity incident, where each incident is represented by a separate Primary Capacity Incident record. There is no limit to the chain of subsequent incidents that may occur, each of which will be represented by its own Primary Capacity Incident record. In this documentation, we refer to *two* Primary Capacity Incident records that represent two sequential incidents as *sequential Primary Capacity Incident records*. A chain of sequential incidents can be represented by *multiple* sequential Primary Capacity Incident record *pairs*.

The Meridium APM system determines that two Primary Capacity Incident records represent sequential incidents when the value in the Event Start Date field in a new Primary Capacity Incident record matches the value in the Event End Date field of an existing Primary Capacity Incident record that is linked to the same Generation Unit record. In this case, the value in the Capacity Event Type field in the record representing the *subsequent* incident can contain only certain values, depending upon the value in the Capacity Event Type field in the record representing the *preceding* incident.

> **Note:** Because certain Capacity Event Type values are allowed only for *subsequent* Primary Capacity Incident records, if you select one of these values in a new Primary Capacity Incident record and the record for the preceding incident does not already exist, a warning message appears.

When creating a subsequent Primary Capacity Incident record, if you select a Capacity Event Type value that is not listed as an allowable event type in the subsequent Incident record AND you specify a value in the Cause Code field, a warning message appears, explaining that you have selected an invalid scenario that follows an existing Primary Capacity Incident record.

> **Note:** In a chain of incidents, only the value in the Capacity Event Type field of the record representing the *immediately* preceding incident determines the allowable Capacity Event Type in the record representing the subsequent incident.

Allowable Event Types in Sequential Incidents

Use the following table to determine which event types are allowed in subsequent Primary Capacity Incident records in sequential Primary Capacity Incident record pairs.

Capacity Event Type in Preceding Incident Record	Allowable Event Types in Subsequent Incident Record	Notes
U1	U1, SF, MO, PO, RS, D1, D2, D3, D4, PD, NC	None
U2	U1, SF, MO, PO, RS, D1, D2, D3, D4, PD, NC	None
U3	U1, SF, MO, PO, RS, D1, D2, D3, D4, PD, NC	None
SF1	U1, SF, MO, PO, RS, D1, D2, D3, D4, PD, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.
MO	U1, SF, MO, PO, SE, ME, RS, D1, D2, D3, D4, PD, NC	None
PO	U1, SF, PO, SE, PE, RS, D1, D2, D3, D4, PD, NC	None
SE1	U1, SF, SE, RS, D1, D2, D3, D4, PD, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.

Capacity Event Type in Preceding Incident Record	Allowable Event Types in Subsequent Incident Record	Notes
RS	U1, SF, MO, PO, RS, D1, D2, D3, D4, PD, NC	None
DE	U1, U2, U3, MO, PO, RS, DE, NC	None
D1	U1, U2, U3, MO, PO, RS, D1, NC	None
D2	U1, U2, U3, MO, PO, RS, D1, D2, NC	None
D3	U1, U2, U3, MO, PO, RS, D1, D2, D3, NC	None
D4	DE, D4, U1, U2, U3, MO, PO, RS, DM, NC	None
PD1	DE, PD, U1, U2, U3, SF, MO, PO, RS, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.
PE1	U1, SF, RS, D1, D2, D3, D4, PD, PE, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.

Capacity Event Type in Preceding Incident Record	Allowable Event Types in Subsequent Incident Record	Notes
ME1	U1, SF, RS, D1, D2, D3, D4, PD, ME, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.
DP1	U1, U2, U3, SF, MO, PO, RS, DP, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.
DM1	U1, U2, U3, SF, MO, PO, RS, DM, NC	This Capacity Event Type cannot be the first event in a sequence and must follow an existing Primary Capacity Incident record. If it does *not* follow a Primary Capacity Incident record with an appropriate Capacity Event Type, a warning message appears when you navigate out of the field.
NC	U1, U2, U3, SF, MO, ME, DM, PO, PE, SE, RS, DE, D1, D2, D3, D4, PD, DP, NC, MB, IR, RU	None

Creating Sequential Incident Records: An Example

Consider an example of Generation Unit A, represented by the Generation Unit record *Generation Unit A*. On January 3, 2009, Generation Unit A suffered an unplanned outage due to an external influence and had to be repaired before it could be used again. Repairs began at 9:00 A.M. on January 5 and continued until 5:00 P.M., when it was determined that a new part had to be ordered to complete the repairs. The new part arrived on January 8, and the repairs were finished by 5:00 P.M. on January 8.

In this scenario, you would have needed to create three Primary Capacity Incident records:

- One to capture the initial outage
- One to capture the maintenance
- One to capture the extended maintenance due to other circumstances.

Consider the following table, where each column represents a record that you would have created in this scenario.

	Primary Capacity Incident 1	Primary Capacity Incident 2	Primary Capacity Incident 3
Capacity Event Type	U1 (Unplanned (forced) Outage - Immediate)	MO (Maintenance Outage)	ME (Maintenance Outage Extension)
Event Start Date	January 3, 2009, 9:00 A.M.	January 5, 2009, 9:00 A.M.	January 5, 2009, 5:00 P.M.
Event End Date	January 5, 2009, 9:00 A.M.	January 5, 2009, 5:00 P.M.	January 8, 2009, 5:00 P.M.

In this example, you would have created two sequential Primary Capacity Incident record pairs:

- **Pair 1:** Primary Capacity Incident 1 + Primary Capacity Incident 2
- **Pair 2:** Primary Capacity Incident 2 + Primary Capacity Incident 3

None of these Primary Capacity Incident records can stand alone because none of them tells the full story of what happened to Generation Unit A.

- **Primary Capacity Incident 1** indicates that the unit was out during the time between when it stopped producing power and repairs began. By itself, it would not indicate that any repairs were attempted on the unit.
- **Primary Capacity Incident 2** indicates that repairs on the unit began at 9:00 A.M. on January 5, 2009 and ended at 5:00 P.M. the same day. By itself, it neither indicates that the unit had stopped producing power before the repairs began nor that maintenance was extended to account for the time it takes to order and receive a new part. Notice that the Capacity Event Type value for Primary Capacity Incident 2

is *MO*, which is a valid event type for subsequent incidents of type U1, as defined in Primary Capacity Incident 1.

- **Primary Capacity Incident 3** indicates that maintenance was extended but does not indicate when repairs began on the unit or that it had stopped producing power before the repairs began. Notice that the Capacity Event Type value for Primary Capacity Incident 3 is *ME*, which is a valid event type for subsequent incidents of type *MO*, as defined in Primary Capacity Incident 2.

> **Note:** The event type *ME* is NOT valid when the event type of the preceding incident is U1. But because valid event type for subsequent incidents are determined *only* by the *immediately* preceding incident, the event type of the first incident is NOT considered when determining allowable event types for the third incident.

Event Contribution Code

The value in the Event Contribution Code field identifies the way in which an incident contributed to a capacity event.

- In Primary Capacity Incident records, the Event Contribution Code field is disabled and populated automatically with the value *Primary Cause of Event*. This value indicates that the Incident record represents the primary cause of the event. When you create a Primary Capacity Incident record, the Event Contribution Code field is disabled and populated automatically with this value.

- In Contributing Capacity Incident records, the Event Contribution Code field is enabled, must always contain a value, and contains a list of the following values:

- **2-Contributed to Primary Cause:** Indicates that the incident represents a secondary cause that contributed to the primary cause of the event.

- **3-Work done during the event:** Indicates that the incident represents work that was done during the event.

- **5-After startup, delayed unit from reaching load point:** Indicates that the incident delayed the unit from reaching its dependable capacity after startup and prevented the unit from filling its load requirement.

What Happens When an Event Spans Multiple Years?

Sometimes an event will start in one year and end in the next year. A single Incident record, however, cannot span multiple years because the year in the Event Start field must match the year in the Event End field. This means that if a given event starts in one year and ends in the next year, you must create *two* Incident records to represent that event.

For example, if an event started December 15, 2007 and ended January 15, 2008, you would create two Primary Capacity Incident records with the following event dates to represent that event.

	Primary Capacity Incident 1	Primary Capacity Incident 2
Event Start	December 15, 2007, 5:00 A.M.	January 1, 2008 12:00 A.M.
Event End	December 30, 2007 11:59 P.M.	January 15, 2008 1:00 P.M.

To identify these two records as representing the *same* event, you must also:

- In Primary Capacity Incident 1, set the End Date Is Estimated? field to *True*.
- In Primary Capacity Incident 2, set the Start Date is Estimated? field to *True*.

If either of these fields is NOT set to *True*, the Meridium APM system will assume that the Primary Capacity Incident record represents an event that does NOT span both years and that the Event Start and Event End dates and time are correct. In this example, if the End Date Is Estimated? field in Primary Capacity Incident 1 were set to *False*, the Meridium APM system would assume that Primary Capacity Incident 1 had a valid value in the Event End field and would NOT associate it with Primary Capacity Incident 2. Then, when you created Primary Capacity Incident 2, a warning message would display indicating that there is no Primary Capacity Incident record in the database that would represent the start of the event. You would not be able to set the value in the Incident Reporting Status field in Primary Capacity Incident 2 to *Unit Level Approval* until the End Date Is Estimated? field in Primary Capacity Incident 1 was set to *True*.

Fields that Can Be Populated from One of Three Related Records

When you create a Primary Capacity Incident record, you will specify in the Unit ID field the Unit ID of the Generation Unit record to which the Incident record will be linked. When you save the Primary Capacity Incident record, the Meridium APM system will attempt to populate various fields in the Incident record with values based upon the Unit ID value. These values will NOT necessarily come directly from the Generation Unit record itself.

1. First, the Meridium APM system will attempt to populate each field with the corresponding value in the *Capacity History* record that is linked to the specified Generation Unit record for the month in which the incident occurred.

2. If the associated Capacity History record does not exist or does not contain a value in a given field, the Meridium APM system will attempt to populate the field with the corresponding value in the *Generation Forecast* record that is linked to the specified Generation Unit record for the month in which the incident occurred.

3. If a Generation Forecast record does not exist or does not contain a value in a given field, the Meridium APM system will attempt to populate the field with the corresponding value in the *Generation Unit* record.

4. If the Generation Unit record does not contain a value in a given field, that field will NOT be populated automatically.

Note that:

- These fields are populated automatically only when a Primary Capacity Incident record is first created. After the record exists, the Unit ID field is disabled. Since this value cannot be modified, these fields will never be updated automatically.

- Fields in new Contributing Capacity Incident records are populated using these same rules. In other words, fields in Contributing Capacity Incident records will NOT necessarily be populated with the same values that exist in the Primary Capacity Incident record. Instead, they will be populated with the values that exist in the Capacity History, Generation Forecast, and Generation Unit record at the time the Contributing Capacity Incident record is created.

The following tables provides a list of fields in Incident records that are populated in this way and specifies the corresponding fields in Capacity History, Generation Forecast, and Generation Unit records that will be used to populate them.

Incident Record	Capacity History Record	Generation Forecast Record	Generation Unit Record
GADS Unit Code	GADS Unit Code	GADS Unit Code	GADS Unit Code
GADS Unit Type	Unit Type	GADS Unit Type	GADS Unit Type

Incident Record	Capacity History Record	Generation Forecast Record	Generation Unit Record
GADS Utility Code	GADS Utility Code	GADS Utility Code	GADS Utility Code
Gross Dependable Capacity	Gross Dependable Capacity (G)	Forecast Depend Capacity (G)	Gross Dependable Capacity
Gross Maximum Capacity	Gross Max Capacity (G)	Forecast Maximum Capacity (G)	Gross Maximum Capacity
Net Dependable Capacity	Net Dependable Capacity (N)	Forecast Depend Capacity (N)	Net Dependable Capacity
Net Maximum Capacity	Net Maximum Capacity (N)	Forecast Maximum Capacity (N)	Net Maximum Capacity
Unit Name	Unit Name	Unit Name	Unit Name

Starting a Root Cause Analysis for an Incident

The Meridium APM Framework offers the Root Cause Analysis module, which allows you to conduct a root cause analysis (RCA) to evaluate and determine the root cause of equipment failures. By creating an RCA Analysis in Root Cause Analysis, you can determine the root cause of an incident and implement actions to prevent future incidents from occurring.

To start building a PROACT Analysis for an incident:

1. Search forand open in the Record Manager the Primary Capacity Incident record that contains data about the incident for which you want to create an RCA Analysis.

2. On the **Associated Pages** menu, click the **RCA** link, and then click **RCA Analysis Builder**.

   The New Analysis Builder appears.

   You can use the **New Analysis Builder** to create a PROACT analysis based on your incident data.

About Capacity History Records

Capacity History records store statistical data about capacity incidents and fuel consumption for a particular unit within a given month of a specific year. Each Capacity History record should be linked to the Generation Unit record that represents the unit for which the Capacity History record stores data. For a given Generation Unit record, one Capacity History record should exist for each month and year combination for which data exists.

The values in Capacity History records are used for reporting incident data to NERC and fuel consumption data to the EIA. All capacity incident and generation statistics are calculated using the calculations defined by NERC in the GADS DRI. For fields that are neither calculated nor populated automatically by Meridium APM but are required for reporting, you will need to collect the data and enter values into the fields manually if you want that information to be reported.

Capacity History records can be created in two ways. You can:

- Allow the Meridium APM system to create Capacity History records automatically.
- Create Capacity History records manually.

After Capacity History records exist, they will need to be updated manually on a regular basis to ensure that all values within the records are up-to-date before that information is reported.

How Capacity History Records Are Created Automatically

For a given Generation Unit record, if a Capacity History record does not already exist for a given month and year combination, when you create a Primary Capacity Incident record for that month and year and link it to that Generation Unit record, a Capacity History record will be created *automatically*. The Primary Capacity Incident record will be linked to the Capacity History record that stores statistics for the month and year in which the incident occurred.

Note: The Meridium APM system checks for an existing Capacity History record using the values in the Reporting Month and Reporting Year fields in Capacity History and Primary Capacity Incident records.

This automatic creation occurs *only* when you create the *first* Primary Capacity Incident record for a Generation Unit record for a given reporting month and year and a Capacity History record does NOT already exist. If a Capacity History record already exists for a given month and year, when you create a Primary Capacity Incident record for the same Generation Unit record for that reporting month and year, another record will NOT be created. Instead, the Meridium APM system will link the new Primary Capacity Incident record to the *existing* Capacity History record. In this way, the Meridium APM system will use the Capacity History record for that unit, month, and year combination to calculate values based upon the ALL Primary Capacity Incident records that exist for the same Generation Unit record for the same reporting month and year.

Note: Calculations in Capacity History records will NOT be updated automatically as new Primary Capacity Incident records are created. Instead, at the end of the reporting period, Capacity History records must be updated manually to account for all the incidents that occurred during that period.

About Creating Capacity History Records Manually

In addition to being created automatically, Capacity History records can be created manually. You might create these records manually for a couple reasons, such as:

- You allowed Capacity History records to be created automatically as Primary Capacity Incident records were created. At the end of the reporting period, however, *before* you can start reporting data, you may need to create Capacity History records for months in which incidents did NOT occur.

- At the beginning of a reporting period, you want to create ALL the Capacity History records for each month in that reporting period. This way, at the end of the reporting period, you will know that you have all the Capacity History records that you need for reporting data. You simply need to update them before you report the data.

While you are not required to have a Capacity History record for every month in a reporting period before you can report data, data will be reported *only* for the months for which Capacity History record exist. So if you need to report data for a given month, you will need to make sure that the Capacity History record has been created and is up-to-date.

Creating Capacity History Records that Exclude OMC Events

Some incidents, such as a power outage that occurred as the result of a thunderstorm, are not preventable. These types of incidents are considered to be *outside management control*(i.e., OMC events). Other preventable incidents, such a loss in generation capacity that resulted from an equipment failure or operator error are considered to be *within management control*.

All incident data, regardless of its cause, [must be reported to NERC](). For internal tracking purposes, however, you may not be concerned with statistics associated with incidents that could not be avoided. Instead, you may want to review data associated with incidents that could have been avoided since these are the incidents from which strategies could be developed to prevent future, similar incidents. In other words, only the incidents that are within management control represent potential cost savings.

The Meridium APM Framework provides you with the option of collecting a separate set of statistics for the events that are within management. To do so, you must complete two steps:

1. In Generation Unit records, set the Create Outside Management Control Statistics? field to *True*.

2. In any Incident record that represents an incident outside management control, set the OMC Event? field to *True*.

Whenever the Create Outside Management Control Statistics? field in a Generation Unit record is set to *True*, *two* Capacity History records will exist for each reporting month and year.

- One record will include values from ALL Incident records, regardless of the value in the OMC Event field in the Primary Capacity Incident record that is linked to the Capacity History record. The Capacity History Statistics Type field in this Capacity History record will contain the value *All Incidents.*

- The other record will *exclude* values from Incident records in which the OMC Event field is set to *True*. The Capacity History Statistics Type field in this Capacity History record will contain the value *Excludes OMC Incidents.*

> **Note:** If the Create Outside Management Control Statistics? field in a Generation Unit record is set to *False*, only ONE Capacity History record will be created for each month and will include calculations for ALL incidents, regardless of the value in the OMC Event field.

Note that:

- Capacity History records that exclude data for OMC events will be created when [Capacity History records are created automatically]() IF the Create Outside Management Control Statistics? field in the Generation Unit record is set to *True* at the time the Capacity History record is created. They will also be created automatically

with [Capacity History records are updated](), if the Create Outside Management Control Statistics? field in the Generation Unit record is set to *True* and the Capacity History records that exclude data for OMC events do not already exist.

- The Meridium APM system will always use the Capacity History record that contains the value *All Incidents* in the Capacity History Statistics Type field for [reporting data to NERC]().

Fuel Code Fields

The fuel code fields in Capacity History records correspond to the [fuel code fields in Generation Unit records](#) and are populated automatically with the corresponding values in the Generation Unit records to which they are linked.

In Capacity History records, fuel codes are stored within 16 distinct fields. While these fields appear as 16 separate cells on the Capacity History datasheet, the names of the cells do not correspond exactly to the names of the field captions. Throughout this documentation, we use the field captions when referring to these fields. Therefore, the following table maps the datasheet cell to the field caption.

Field Caption	Datasheet Tab	Datasheet Row
AER Fuel Type Code 1	Primary Fuel	AER Fuel Type Code
AER Fuel Type Code 2	Secondary Fuel	AER Fuel Type Code
AER Fuel Type Code 3	Tertiary Fuel	AER Fuel Type Code
AER Fuel Type Code 4	Quaternary Fuel	AER Fuel Type Code
Common Fuel Code 1	Primary Fuel	Common Fuel Code
Common Fuel Code 2	Secondary Fuel	Common Fuel Code
Common Fuel Code 3	Tertiary Fuel	Common Fuel Code
Common Fuel Code 4	Quaternary Fuel	Common Fuel Code
EIA Energy Source 1	Primary Fuel	EIA Energy Source Code
EIA Energy Source 2	Secondary Fuel	EIA Energy Source Code
EIA Energy Source 3	Tertiary Fuel	EIA Energy Source Code
EIA Energy Source 4	Quaternary Fuel	EIA Energy Source Code
Primary Fuel Code	Primary Fuel	Primary Fuel Code
Quaternary Fuel Code	Quaternary Fuel	Quaternary Fuel Code
Secondary Fuel Code	Secondary Fuel	Secondary Fuel Code
Tertiary Fuel Code	Tertiary Fuel	Tertiary Fuel Code

Fuel Information Fields

In addition to the fuel code fields, which define the fuel itself, Capacity History records use several fuel information fields to store information about how a fuel is *used*. Like fuel code fields, there is a separate set of fuel information fields for each *fuel level*.

For example, the Primary Quantity Burned field is used to identify how much of the primary fuel was used. Similarly:
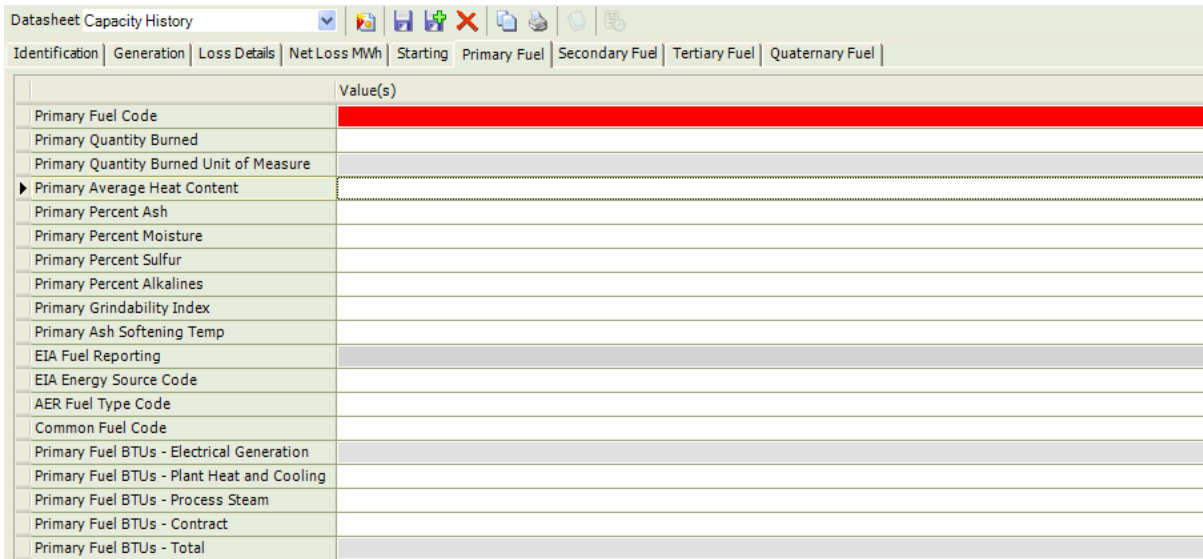
- The Secondary Quantity Burned field identifies how much of the secondary fuel was used.
- The Tertiary Quantity Burned field identifies how much of the tertiary fuel was used.
- The Quaternary Quantity Burned field identifies how much of the quaternary fuel was used.

The following fields in Capacity History records have four versions, one for each fuel level, where <Fuel Level> is Primary, Secondary, Tertiary, Quaternary, depending on the fuel level for which the field exists:

- <Fuel Level> Ash Softening Temp
- <Fuel Level> Average Heat Content
- <Fuel Level> Fuel BTUs - Contract
- <Fuel Level> Fuel BTUs - Electrical Generation
- <Fuel Level> Fuel BTUs - Plant Heat and Cooling
- <Fuel Level> Fuel BTUs - Process Steam
- <Fuel Level> Fuel BTUs Total
- <Fuel Level> Grindability Index/Percent Vanadium
- <Fuel Level> Percent Alkalines
- <Fuel Level> Percent Ash
- <Fuel Level> Percent Moisture
- <Fuel Level> Percent Sulfur
- <Fuel Level> Quantity Burned
- <Fuel Level> Quantity Burned Unit of Measure

For example, consider the following image of the **Primary Fuel** tab of the baseline Capacity History datasheet.

When you specify a value in the **Primary Fuel Code** *cell*, that value will be stored in the Primary Fuel Code *field*. When this field is populated with a value, the fuel information Primary Quantity Burned Unit of Measure will be populated automatically. The EIA Energy Source Code, AER Fuel Type Code, and Common Fuel Code fields will store the fuel code for the other fuel *schemes* for the primary fuel.

The corresponding fuel information fields are also displayed on this tab and contain information about the primary fuel, which is defined by the value in the Primary Fuel Code field. Note that these fields are not calculated automatically like most of the other fields in Capacity History records. You will need to collect this information outside of Meridium APM and enter the correct values into these fields manually.

Inactive Hours Field

The Meridium APM system calculates the time between the values in the Event Start Date and the Event End Date fields in each Primary Capacity Incident record and stores it in the Event Duration field of the Primary Capacity Incident record. The value in the Event Duration field will be used to populate the Inactive Hours field in the Capacity History record that is linked to the Primary Capacity Incident record IF the Capacity Event Type field in the Primary Capacity Incident record contains one of the following values:

- IR – Inactive Reserve
- MB – Mothball
- RU – Retired

If multiple Primary Capacity Incident records are linked to a Capacity History record, then the sum of the values in the Event Duration field in ALL Primary Capacity Incident records will be used as the total event duration. This calculated value is then used to populate the Inactive Hours field.

Consider the following example.

	Primary Capacity Incident - Inactive Reserve (IR)	Primary Capacity Incident - Mothball (MB)	Primary Capacity Incident - Retired (RU)
Event Start	01/01/2009 12:00 AM	01/02/2009 12:00 AM	01/03/2009 12:00 AM
Event End	01/02/2009 12:00 AM	01/03/2009 12:00 AM	01/04/2009 12:00 AM

In this example, the event duration for *each* Primary Capacity Incident record is 24 hours. In the Capacity History record for January 2009 for the Generation Unit record to which these three Primary Capacity Incident records are linked, the Inactive Hours field would contain the sum of the duration of these three incidents, or *72 hours*.

What Happens When an Outage Event and a Derate Event Overlap?

In Capacity History records, the Total Eqv Derate Hrs (N) and Total Eqv Derate MWh (N) fields store the sum of the values in the Total Equivalent Derate Hours w/out Shadowing and Total Equivalent Derate MWh w/out Shadowing fields in all Primary Capacity Incident records for a given reporting month and year. If an outage event overlaps a derate event, the values in the Total Eqv Derate Hrs (N) and Total Eqv Derate MWh (N) will NOT include derate data for the time during which the outage event was also occurring.

Consider an example of two Primary Capacity Incident records, *Primary Capacity Incident - Outage* and *Primary Capacity Incident - Derate*, whose fields are populated as shown in the following table. Assume that both Primary Capacity Incidents records are linked to the Generation Unit record *Generation Unit 1*, which has a Gross Dependable Capacity of *600 MW* and a Net Dependable Capacity of *500 MW*.

	Primary Capacity Incident - Outage	Primary Capacity Incident - Derate
Capacity Event Type	U1	D1
Event Start	11/1/2008 12:00 PM	11/2/2008 12:00 PM
Event End	11/4/2008 12:00 AM	11/5/2008 12:00 PM
Gross Available Capacity	0	500
Net Available Capacity	0	400
Event Duration	60	72
Total Equivalent Derate Hours w/out Shadowing	0	14.4
Total Equivalent Derate MWh w/out Shadowing	0	7200

The date range established by the values in the Event Start Date and Event End Date fields of the two Primary Capacity Incident records overlap between 11/02/2008 12:00 P.M. and 11/04/2008 12:00 A.M., or 36 hours. So although the derate event lasted 72 hours total, for 36 of those hours, an outage event was also occurring.

In this example, if the entire derate event were included in the Capacity History calculations, in the Capacity History record for November 2008 that is linked to *Generation Unit 1*, the following values would be calculated and stored in the Capacity History record:

- **Total Eqv Derate Hrs (N):** 14.4
- **Total Eqv Derate MWh (N):** 7200

Because an outage event was occurring during 36 hours of the derate event, however, *half* of the derate event is NOT counted, and the values in the Capacity History record become:

- **Total Eqv Derate Hrs (N):** 7.2
- **Total Eqv Derate MWh (N):** 3600

How Capacity Event Types Affect Capacity History Records

In Capacity History records, the following fields are populated using the sum of the values in the Event Duration field in Primary Capacity Incident records that are linked to the Capacity History record:

- **Planned and Ext Outage Hrs:** Populated using the sum of the values in the Event Duration field in Primary Capacity Incident records in which the value in the Capacity Event Type field is either *PE* or *PO.*

- **Ext Sched Outages Hrs:** Populated using the sum of the values in the Event Duration field in Primary Capacity Incident records in which the value in the Capacity Event Type field is any of the following Capacity Event Types: *ME, DM, PE, SE, DE,* or *DP.*

- **Eqv Upl Frcd Derate Hrs RS (G) and Eqv Upl Frcd Derate Hrs RS (N):** Populated with calculated values when the Primary Capacity Incident records to which it is linked have a Capacity Event Type of D1, D2, D3, D4, PD, or RS with values entered for both the Gross Derate Amount and the Net Derate Amount in the following cases:

  - If a Reserved Shutdown event occurred *during* a Derate event.

  - If a Derate event occurred *during* a Reserved Shutdown event.

  - A Derate event started and ended *during* a Reserved Shutdown event.

  - A Derate event started *during* a Reserved Shutdown event but *ended* after the Event End date of the Reserved Shutdown.

  - A Derate event and a Reserved Shutdown event had the same Event Start and Event End dates.

> **Note:** If none of the following cases have occurred during the month for which the Capacity History record stores generation data, the Eqv Upl Frcd Derate Hrs RS (G) and Eqv Upl Frcd Derate Hrs RS (N) fields will be populated with the value *0* (zero).

Workflow for Reporting Data

One of the main purposes of the Generation Management module is to *report* the data that you have collected about capacity incidents and fuel consumption to the necessary organizations. Meridium APM provides options for letting you report data to the Energy Information Administration (EIA) and to the North American Electric Reliability Corporation (NERC). Your company policies and the requirements of each organization will determine whether you need to report data to the EIA, to NERC, or to both. The workflow described in this topic supports reporting to one or both of these organizations.

To report data to the EIA and/or NERC, we recommend that you complete the following steps:

1. Approve Incident records.

2. Update Capacity History records.

3. Approve Capacity History records.

4. Report data to the desired organization:

- The Energy Information Administration.
- The North American Electric Reliability Corporation.

This workflow represents the steps that should be followed for a given *reporting period*, which is the period of time for which you are reporting data to a given organization. The reporting period will be determined by your company policies and the requirements of the organization to which you are reporting. If you need to report data to *both* organizations using *different* reporting periods, simply follow these steps at the end of the reporting period defined for each organization.

About Approving Incident Data

In most cases, after incident data has been recorded in Incident records and incident statistics have been gathered in Capacity History records, you will need to report that data to NERC. Before you report the data, we recommend that you *approve* it. The approval process allows you to review the information in these records before you report the data.

The baseline Meridium APM Framework provides two approval levels for Incident records:

- **Unit Level Approval:** Intended to be used at the unit level for approving all incidents associated with that unit.

- **Corporate Approval:** Intended to be used at the corporate level for approving all incidents for ALL units.

The recommended workflow for approving Incident records assumes that you will use both of these approval levels. It also assumes that because Contributing Capacity Incident records are linked to Primary Capacity Incident records, you will approve a Primary Capacity Incident record *after* you have approved all the Contributing Capacity Incident records that are linked to it.

When approving Incident records, note that certain actions can only be completed by members of certain Security Groups. Only members of the MI Generation Management Administrator or MI Generation Management Analyst Security Group can set a record's approval level to or lower it from *Unit Level Approval*, while only members of the MI Generation Management Administrator Security Group can set a record's approval level to or lower it from *Corporate Approval*.

Also consider the following notes for setting or modifying approval levels for Incident records:

- All required fields, as defined in the Configuration Manager, must contain a value before you can change the approval level.

- When an Incident record is set to *Corporate Approval*, all fields within that record become disabled. If you decide that you need to modify any of the values in the Incident record, you will have to change the approval to a lower level.

- To approve an Incident record, one of the following conditions must be met:

    - The Gross Max Capacity (G) AND Gross Dependable Capacity (G) must contain a value.

        -or-

    - The Net Maximum Capacity (N) AND Net Dependable Capacity (N) must contain a value.

> **Note:** You can also approve an Incident record if all four of these fields contain a value.

When you report incident data to NERC, the Meridium APM system actually gathers information from *Capacity History records* to build the report results. So approving Incident records is just the first step in the process. After you have approved all the Incident records for a given reporting period, you will want to update all the Capacity History records that are associated with them and approve those records as well.

Incident Record Approval Workflow

To approve Incident records, complete the following steps:

1. Identify all Primary Capacity Incident records for the reporting period.

2. Set all Contributing Capacity Incident records that are linked to those Primary Capacity Incident records to *Unit Level Approval*.

3. Set the Primary Capacity Incident records that you identified in step 1 to *Unit Level Approval*.

4. Set all Contributing Capacity Incident records that you identified in step 2 to *Corporate Approval*.

5. Set all Primary Capacity Incident records that you identified in step 1 to *Corporate Approval*.

Restrictions When Approving Incident Records

Because of the [Incident Record approval workflow](), there are some general restrictions that specify when Capacity History records may be approved and when they may be modified. Note the following when approving:

- In order to enter new values or modify existing ones in fields on an Incident record, it may be necessary to revert the status from Corporate Approval to Unit Approval. This will mean that you will be changing the approval level from a higher level, Corporate Approval, to a lower level, Unit Approval.

Approving Contributing Capacity Incident Records

To approve a Contributing Capacity Incident Record:

1. In the Record Manager, open the Contributing Capacity Incident record that you want to approve.

2. In the **Incident Reporting Status** list, select either *Unit Level Approval* or *Corporate Approval*, depending on your responsibility within the company.

3. On the **Common Tasks** menu, click the **Save** link.

   The record is saved with the selected approval level, along with any other changes that you made to the Contributing Capacity Incident record.

Approving Primary Capacity Incident Records

To approve a Primary Capacity Incident Record:

1. In theRecord Manager, open the Primary Capacity Incident record that you want to approve.

2. In the **Incident Reporting Status** list, select either *Unit Level Approval* or *Corporate Approval*, depending on your responsibility within the company. Note that:

   - If the value in the Incident Validation Status field contains the value *INVALID*, when you select *Unit Level Approval* in the **Incident Reporting Status** list, an error message appears, indicating that you must resolve the invalid information before you can approve the record.

   - When you select either *Unit Level Approval* or *Corporate Approval*, the Cause Code field will become required. Note that the **Cause Code** list will not contain any values until the values in the Cause Code System and Cause Code Component fields have been specified.

3. On the **Common Tasks** menu, click the **Save** link.

   The record is saved with the selected approval level, along with any other changes that you made to the Primary Capacity Incident record.

Why Do I Need to Update Capacity History Records?

When a Capacity History record is created automatically, it will be populated automatically with various values. When you create a Capacity History record manually, it will be populated with the values that you specified when you created it.

Regardless of how the record was first created, after it exists, it will NOT be updated automatically by the Meridium APM system. Because values in Capacity History records will be used in reports, before you begin reporting incident and fuel consumption data, you will want to make sure that all the Capacity History records for that reporting period are up-to-date.

There are two steps that you will need to perform to make sure that all Capacity History records are fully up-to-date for a given reporting period:

1. Update calculated values.

2. Update non-calculated values.

> **Note:** These steps assume that all the Capacity History records for a given reporting period have already been created.

Updating Calculated Values in Capacity History Records

When a Capacity History record is first created, the Meridium APM system populates it using the most current data available. If additional Primary Capacity Incident records are created for the same Generation Unit record for the same reporting month and year combination, those Primary Capacity Incident records will be linked automatically to the Capacity History record, but the Capacity History record will NOT be updated automatically to reflect the data in the new Primary Capacity Incident records. To make sure that Capacity History records contain the most current data, you must update them manually.

> **Note:** In some cases, two Capacity History records may exist for a given reporting month and year. In this case, when *either* Capacity History record is updated, the other one will also be updated.

You can update the calculated fields in Capacity History records by:

- Clicking the **Perform Incident Rollup** link on the **Associated Pages** menu when you are viewing a Primary Capacity Incident record in the Record Manager. In this case, the Meridium APM system will update any Capacity History record that exists for that reporting month and year.
- Selecting the **Refresh Incident Rollup** check box on the **Identification** tab of a Capacity History record.
- Running the query *History Rollup Query*, which the Meridium APM system supplies for this purpose.

The following instructions provide details on updating Capacity History records using the query*History Rollup Query*.

To update a Capacity History record:

1. On the Meridium APM toolbar, click the **Catalog** button.
2. Navigate to the folder **\\Public\Meridium\Modules\Generation Management\Configuration**, and double-click the query **History Rollup Query**.

   The **Enter parameter values** dialog box appears.

3. In the **Plant ID** text box, type the Plant ID of the Generation Plant record whose Capacity History records you want to update. The Generation Plant record must be linked to a Generation Unit record, and that Generation Unit record must be linked to Primary Capacity Incident records that are linked to the Capacity History records that you are going to update.

4. In the **Unit ID** text box, type the Unit ID of the Generation Unit record whose Capacity History records you want to update. The Generation Unit record must be

linked to Primary Capacity Incident records that are linked to the Capacity History records that you are going to update.

5. In the **Start Month** text box, type the first month in the period of time associated with the Capacity History records that you want to update. For example, if the Capacity History records contain *08* in the Reporting Month field, type **08**.

6. In the **End Month** text box, type the last month in the period of time associated with the Capacity History records that you want to update.

7. In the **Start Year** text box, type the first year in the period of time associated with the Capacity History records that you want to update. For example, if the Capacity History records have 2006 in the Reporting Year field, type **2006**.

8. In the **End Year** text box, type the last year in the period of time associated with the Capacity History records that you want to update.

9. Click **OK**.

A message appears, indicating the number of Capacity History records that will be updated.

> **Note:** If you typed invalid data or left any prompt fields blank, the message will indicate that 0 (zero) records will be updated.

10. Click the **Yes** button.

All Capacity History records that are associated with the criteria that you entered in the prompts are updated.

Updating Non-Calculated Values in Capacity History Records

Certain fields in Capacity History records are not populated or calculated automatically. For example, many of the fuel information fields that are used for reporting data to the EIA are not populated by Meridium APM. And while some of the fields that are included in NERC reports *are* calculated by the Meridium APM system, others are not.

When you generate EIA or NERC reports, if you want any non-calculated value to be included, you will need to populate the Capacity History record with the correct value manually.

You should verify the accuracy of the values in *all* fields in the Capacity History record before you approve it.

About Approving Capacity History Records

When you report data to NERC and to the EIA, the data included in the reports comes directly or indirectly from Capacity History records. For this reason, we recommend that you approve Capacity History records before you report the data to the NERC or to the EIA. Approving Capacity History records allows you to review the information in those records before you report the data for a given reporting period.

The baseline GM module provides two approval levels for Capacity History records:

- **Unit Level Approval:** Intended to be used at the unit level for approving all data associated with that unit.

- **Corporate Approval:** Intended to be used at the corporate level for approving all data for all units.

We recommend that you use both approval levels by *first* setting Capacity History records to *Unit Level Approval* and then setting them to *Corporate Approval*. Additionally, we recommend that you update Capacity History records before approving them. We also recommend that you approve any Primary Capacity Incident records that are linked to a Capacity History record before approving it.

When approving Capacity History records, note that certain actions can only be completed by members of certain Security Groups. Only members of the MI Generation Management Administrator or MI Generation Management Analyst Security Group can set a record's approval level to or lower it from *Unit Level Approval*, while only members of the MI Generation Management Administrator Security Group can set a record's approval level to or lower it from *Corporate Approval*.

Also consider the following notes for setting or modifying approval levels for Capacity History records:

- All required fields, as defined in the Configuration Manager, must contain a value before you can change the approval level.

- When a Capacity History record is set to *Corporate Approval*, all fields within that record become disabled. If you decide that you need to modify any of the values in the Capacity History record, you will have to change the approval to a lower level.

- Before you can set a Capacity History record to *Unit Level Approval* or *Corporate Approval*, the Gross Actual Generation (G) and Net Actual Generation (N) fields must contain values.

- To set or change the approval level when the value in the Actual Generation field is greater than 0 (zero), the value in the Service Hours field must also be greater than 0 (zero).

- You cannot approve a Capacity History record that is linked to a Primary Capacity Incident record with the value *Invalid* in the Incident Validation Status field.

- To approve a Capacity History record, one of the following conditions must be met:

- The Gross Max Capacity (G) AND Gross Dependable Capacity (G) must contain a value.

  -or-

- The Net Maximum Capacity (N) AND Net Dependable Capacity (N) must contain a value.

> **Note:** You can also approve a Capacity History record if all four of these fields contain a value.

Approving Capacity History Records

To approve a Capacity History record:

1. Open the desired Capacity History record in theRecord Manager.

2. In the **Reporting Status** list, select the [desired level of approval](#).

3. [Supply values in the appropriate fields as needed](#).

4. On the **Common Tasks** menu, click the **Save** link.

   The Capacity History record is saved with the selected approval level.

How to Report Data to the EIA

After you have collected fuel consumption data for the units in your company, you may need to report that data to the EIA. The following workflow provides the steps that you need to complete to report data after it has been collected and approved.

To report data to the EIA:

1. Create Generation Fuel Annual Report records or Generation Fuel Monthly Report records for each plant in the company for which you want to report fuel consumption data for that year or month.

2. Run the associated EIA report.

3. Send the report results to the EIA. The results of the EIA reports contain the information required by the EIA in the format that they prefer. After you have run the reports, you can print them out and mail them to the EIA, export the results and send them electronically, or provide the information in another way, as specified by the EIA.

IMPORTANT: Before you complete these steps, you should repeat all preliminary steps outlined in the overall reporting workflow.

What Data Will Be Reported to the EIA?

You can run EIA reports to generate reports about the fuel usage of units in a given plant. EIA reports collect data from generation fuel report records. To make sure that your records contain the data that you need to report to the EIA, you will need to make sure that your generation fuel report records contain the correct information. The following fields in generation fuel report records will be included in EIA reports:

- Address 1
- Address 2
- City
- Comments
- Energy Source Code
- Energy Source Consumption
- Gross Generation of Electricity
- Heat Content Per Unit of Fuel
- Net Generation of Electricity
- Prime Mover
- Quantity on Hand
- Report Status
- Report Submitted Date
- Reporting Month
- Reporting Year
- Respondent ID
- Respondent Name
- State
- Survey Contact 1 Email
- Survey Contact 1 Fax Number
- Survey Contact 1 Name
- Survey Contact 1 Phone
- Survey Contact 1 Title
- Survey Contact 2 Email
- Survey Contact 2 Fax Number
- Survey Contact 1 Name
- Survey Contact 2 Phone
- Survey Contact 2 Title

- Type of Respondent
- Zip Code

> **Note:** Much of the data that is included in generation fuel report records comes from Capacity History records. For this reason, before you create generation fuel report records, we recommend that you update and approve all the Capacity History records for a given reporting period. This will help ensure that the generation fuel report records contain accurate information.

About Generation Fuel Report Records

Generation fuel report records can be used to run generation fuel reports to report fuel consumption data to the EIA. Much of the data included in generation fuel report records comes from Capacity History records. Therefore, after you have approved all the Capacity History records for a given plant in a given reporting period, you can create:

- **Generation Fuel Monthly Report Records:** For a given plant, these records store information about the fuels used by units for a particular *month*. If you report data to the EIA on a monthly basis, you will create one Generation Fuel Monthly Report record per month for each fuel type used by the units in a plant.

- **Generation Fuel Annual Report Records:** For a given plant, these records store information about the fuels used by units for an entire *year*. If you report data to the EIA on a yearly basis, you will create one Generation Fuel Annual Report record per year for each fuel type used by the units in a plant.

Generation Fuel Monthly Report and Generation Fuel Annual Report records share many of the same characteristics and are used for largely the same purpose. Therefore, throughout this documentation, we refer to Generation Fuel Annual Report and Generation Fuel Monthly Report records collectively as *generation fuel report records*.

Each generation fuel report record is linked to a Generation Plant record and collects the fuel data for units represented by Generation Unit records that are linked to that Generation Plant record and meet the following criteria:

- Contain a value in one of the EIA Energy Source <1, 2, 3, 4> fields that matches the value in the Energy Source Code field in the generation fuel report record.

  -and-

- Contain a value in the EIA Prime Mover Type field that matches the value in the Prime Mover field in the generation fuel report record.

  -and-

- Contain the value *True* in the Report EIA906 Annually? field (for Generation Fuel Annual Report records) or Report EIA906 Monthly? field (for Generation Fuel Monthly Report records).

How Many Fuel Report Records Do I Need for Reporting Data?

The number of records that you need to create for a given reporting period will depending upon the how many types of fuel were used during that reporting period and the amount of time in the reporting period itself. Because four EIA Energy Source fields exist in Generation Unit records, up to four fuel types can be defined for a given unit. So, if a plant has one unit that uses four types of fuel, you would need to create four Generation Fuel Report Monthly records to report the monthly fuel usage for that plant. If a plant has more than one unit, each of which uses more than one fuel type, you may need to create many more records.

Consider the example of a Generation Plant record, *Generation Plant 1*, which represents a plant that contains three units, represented by the Generation Unit records, *Generation Unit 1*, *Generation Unit 2*, and *Generation Unit 3*. These Generation Unit records store information about the fuel used by the units, as shown in the following table. Each column in the table represents one of the Generation Unit records, and each row represents a field in each record.

	Generation Unit 1	Generation Unit 2	Generation Unit 3
GADS Unit Type	Fossil-Steam (100)	Fossil-Steam (100)	Fossil-Steam (100)
EIA Prime Mover Type	Steam Turbine (ST)	Steam Turbine (ST)	Combined cycle single shaft (CS)
EIA Energy Source 1	Bituminous Coal (BIT)	Municipal Solid Waste (MSW)	Bituminous Coal (BIT)
EIA Energy Source 2	Subbituminous Coal (SUB)	Bituminous Coal (BIT)	Waste Heat (WH)
EIA Energy Source 3	Coal Based Synfuel (SC)	Petroleum Coke (PC)	Other BioMass Solids (OBS)
EIA Energy Source 4	Other BioMass Solids (OBS)	Waste/Other Coal (WC)	Municipal Solid Waste (MSW)

Now, assume that each unit used each type of fuel during January 2009 and that you need to report fuel consumption data for that month. In this case, you will need to create ONE Generation Fuel Monthly Report record for each unique prime mover and fuel type combination across all three Generation Unit records. In total, you would need to create the following 11 Generation Fuel Monthly report records to store all of the fuel data for these three units for January 2009:

- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Bituminous Coal (BIT)
- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Subbituminous Coal (SUB)

- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Coal Based Synfuel (SC)
- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Other BioMass Solids (OBS)
- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Municipal Solid Waste (MSW)
- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Petroleum Coke (PC)
- Generation Plant 1 ~ 2009 ~ 01 ~ Steam Turbine (ST) ~ Waste/Other Coal (WC)
- Generation Plant 1 ~ 2009 ~ 01 ~ Combined cycle single shaft (CS) ~ Bituminous Coal (BIT)
- Generation Plant 1 ~ 2009 ~ 01 ~ Combined cycle single shaft (CS) ~ Waste Heat (WH)
- Generation Plant 1 ~ 2009 ~ 01 ~ Combined cycle single shaft (CS) ~ Other BioMass Solids (OBS)
- Generation Plant 1 ~ 2009 ~ 01 ~ Combined cycle single shaft (CS) ~ Municipal Solid Waste (MSW)

Creating Generation Fuel Report Records

To create a generation fuel report record:

1. On the Meridium APM Framework toolbar, click the **New** button. 🎇

   The **Select Family** dialog box appears.

2. In the list, select:
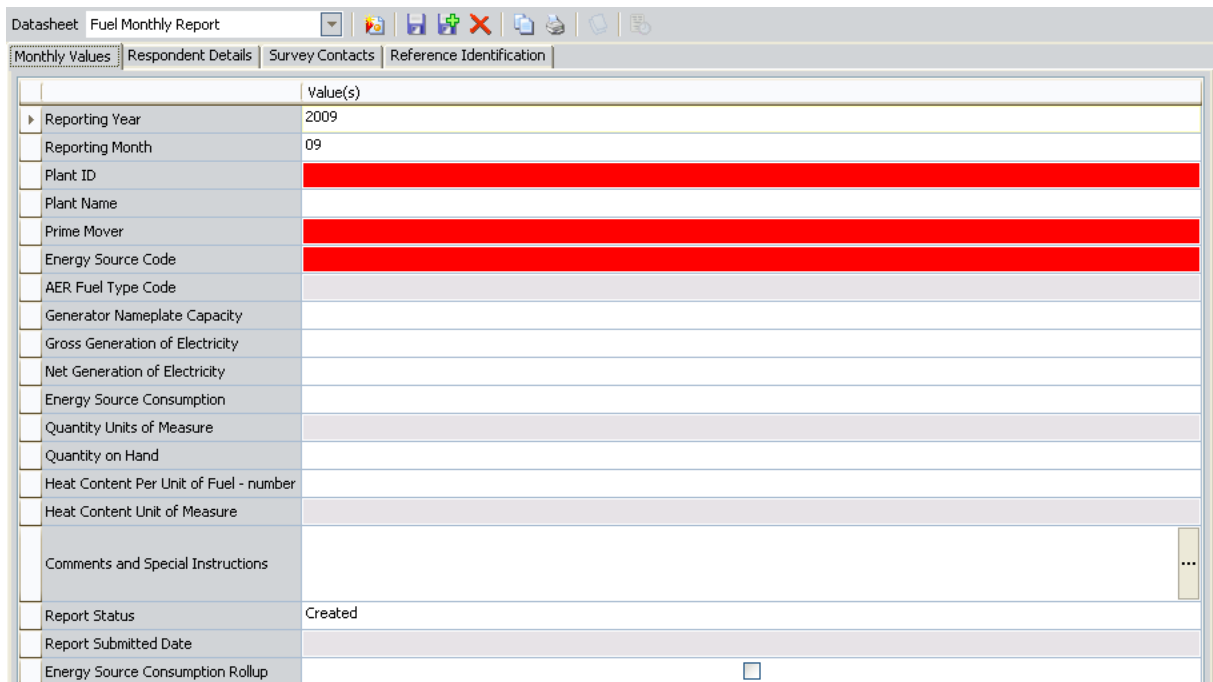
   - **Generation Fuel Annual Report** if you want to create a Generation Fuel Annual Report record.

     -OR-

   - **Generation Fuel Monthly Report**if you want to create a Generation Fuel Monthly Report record.

3. Click **OK**.

   A new Generation Fuel Annual Report or Generation Fuel Monthly Report record appears.

This image displays the baseline Fuel *Monthly* Report datasheet. The baseline Fuel Annual Report datasheet is different from this datasheet, but the same required fields that appear on the **Monthly Values** tab of the Fuel Monthly Report datasheet also appear on the **Annual Values** tab of the Fuel Annual Report datasheet. These instructions provide details on creating a new generation fuel report record using these baseline datasheets.

4. In the **Plant ID** list, select the ID of the Generation Plant record to which you want to link the Generation Fuel Monthly Report record.

    > **Note:** When you select a value in the **Plant ID** list, many other fields will be populated automatically with the appropriate values from the Generation Plant record that you select.

5. In the **Prime Mover** list, select the prime mover of the units whose fuel data you want to report that reside in the plant identified by the value in the **Plant ID** list.

6. In the **Energy Source Code** list, select the EIA energy source code of the fuel that is used by the units whose data you want to report.

    > **Note:** After you select a value in the **Energy Source Code** list, the disabled fields AER Fuel Type Code, Quantity Units of Measure, and Heat Content Unit of Measure are populated automatically.

7. Complete the remaining fields as desired.

8. On the **Common Tasks** menu, click the **Save** link.

    The generation fuel report record is created, linked to the Generation Plant record identified by the value that you selected in the **Plant ID** list, and saved to the database.

Running EIA Reports

After you have a created a generation fuel report record for the report that you want to send to the EIA, you must run a report to create a report that you can send to the EIA.

To run an EIA report:

1. On the Meridium APM Framework toolbar, click the **Catalog** button.

2. Navigate to the folder **\\Public\Meridium\Modules\Generation Management\Reports**.

3. Double-click the desired report.

    The **Enter Query Parameters** dialog box appears.

4. In the **Select the Company Name** list, select, the name of the company for which you want to report data to the EIA.

5. In the **Select the Reporting Year** list, select the year for which you want to report data to the EIA.

6. Click **OK**.

    The report appears on the **Report Viewer** page.

How to Report Data to NERC

For a given reporting period, after you have collected the data for the incidents that have occurred at units, you may need to report that incident data to NERC. To do so, you can run a *NERC report* to compile incident data and then send the output to NERC. In Generation Management, a *NERC report* consists of two components:

- A *query* that specifies which results should be returned.
- A Generation NERC Report *record* that defines which query should be used for returning results and allows the data to be formatted according to NERC's specifications.

Note: A *NERC report*, as defined in the GM documentation, is NOT represented by a report object in the Meridium APM Catalog. Rather, as explained above, it is the combination of a query and a record that together create the *report definition*. To run the report, you will execute the query through a link on the **Associated Pages** menu in the Record Manager to see the formatted report results.

To report data to NERC, you must:

1. [Locate the appropriate Generation NERC Report record and run the associated report](#).

2. Send the report output to NERC.

ʃIMPORTANT: Before you complete these steps, you should repeat all preliminary steps outlined in the [overall reporting workflow](#).

Types of NERC Reports

Meridium APM provides two types of NERC reports, each of which reports a different set of data:

- **NERC Event Reports:** [Return data about capacity incidents](). Meridium APM provides the following baseline Generation NERC Report records that can be used to generate NERC event reports:
  - **NERC GADS Event Report 07:** Returns event data in the 07 format required by NERC.

  - **NERC GADS Event Report 97:** Returns event data in the 97 format required by NERC.

- **NERC Performance Reports:** [Return data about unit performance](). Meridium APM provides the following baseline Generation NERC Report records that can be used to generate NERC performance reports:
  - **NERC GADS Performance Report 05:** Returns performance data in the 05 format required by NERC.

Each of the records in the preceding list uses a query of the same name stored in the Catalog folder \\Public\Meridium\Modules\Generation Management\Queries\NERC Queries.

  - **NERC GADS Performance Report 95:** Returns performance data in the 95 format required by NERC.

What Data Is Included in Event Reports?

Values from the following fields in capacity Incident records are included in NERC event reports:

- Amplification Code
- Capacity Event Type
- Cause Code
- Dominant Derate
- Event Contribution Code
- Event End Date
- Event Start Date
- GADS Unit Code
- GADS Utility Code
- Verbal Description
- Work Ended
- Work Started

> **Note:** In NERC event reports, the following values are gathered only from Primary Capacity Incident records: Event End Date, Event Start Date, Work Ended, and Work Started. Even if these values also exist in Contributing Capacity Incident records, those values are not used.

What Data Is Included in Performance Reports?

Values from the following fields in Capacity History records are included in NERC performance reports:

- Actual Unit Starts
- Attempted Unit Starts
- Available Hrs
- <Fuel Level> Average Heat Content
- Forced Outage Hrs
- <Fuel Level> Fuel Code
- GADS Unit Code
- GADS Utility Code
- <Fuel Level> Grindability Index
- Gross Actual Generation (G)
- Gross Dependable Capacity (G)
- Gross Max Capacity (G)
- Inactive Hours
- Net Actual Generation (N)
- Net Dependable Capacity (N)
- Net Maximum Capacity (N)
- Period Hours
- <Fuel Level> Percent Alkalines
- <Fuel Level> Percent Ash
- <Fuel Level> Percent Moisture
- <Fuel Level> Percent Sulfur
- <Fuel Level> Quantity Burned
- Reporting Month
- Reporting Year
- Reserve Shutdown Hrs
- Revision
- Service Hrs
- Synchronous Condensing Hrs
- Typical Unit Loading
- Unavailable Hrs
- Verbal Description

Options for Running NERC Reports

To run a NERC report, you open a Generation NERC Report record and run the associated query. These records reference queries with the same names that are stored in the Catalog folder \\Public\Meridium\Modules\Generation Management\Queries\NERC Queries. Meridium APM gives you the option of:

- Viewing the results on the **Query Builder** page.
- Formatting the results as a text file in the format accepted by NERC. After you run the report, you can send the results to NERC.

Viewing Report Results in the Query Tool

To run the query used by a Generation NERC Report record:

1. On the Meridium APM Framework toolbar, click the **Search** button.

   The **Search** page appears.

2. In the **Search In** list, select **Generation NERC Report**, and then click **Find Now**.

3. From the search results, click the **Record ID** hyperlink of the desired record whose query you want to run. This may be a [baseline Generation NERC Report record](#) or a [custom Generation NERC Report record](#).

   The Generation NERC Report record appears in the Record Manager.

4. On the **Associated Pages** menu, click the **Run** link, and then click **Query**.

   The results are displayed on the **Query Builder** page.

Formatting Report Results as a Text File

To run a Generation NERC Report and format the results into a text file:

1. On the Meridium APM Framework toolbar, click the **Search** button. 🔍

   The **Search** page appears.

2. In the **Search In** list, select **Generation NERC Report**, and then click **Find Now**.

3. From the search results, click the **RecordID** hyperlink of the record for which you want to run a NERC report. This may be a baseline Generation NERC Report record or a custom Generation NERC Report record.

4. On the **Associated Pages** menu, click the **Run** link, and then click **Report**.

   The report query is run the results are sent to a text file. The **Save Report As** dialog box appears.
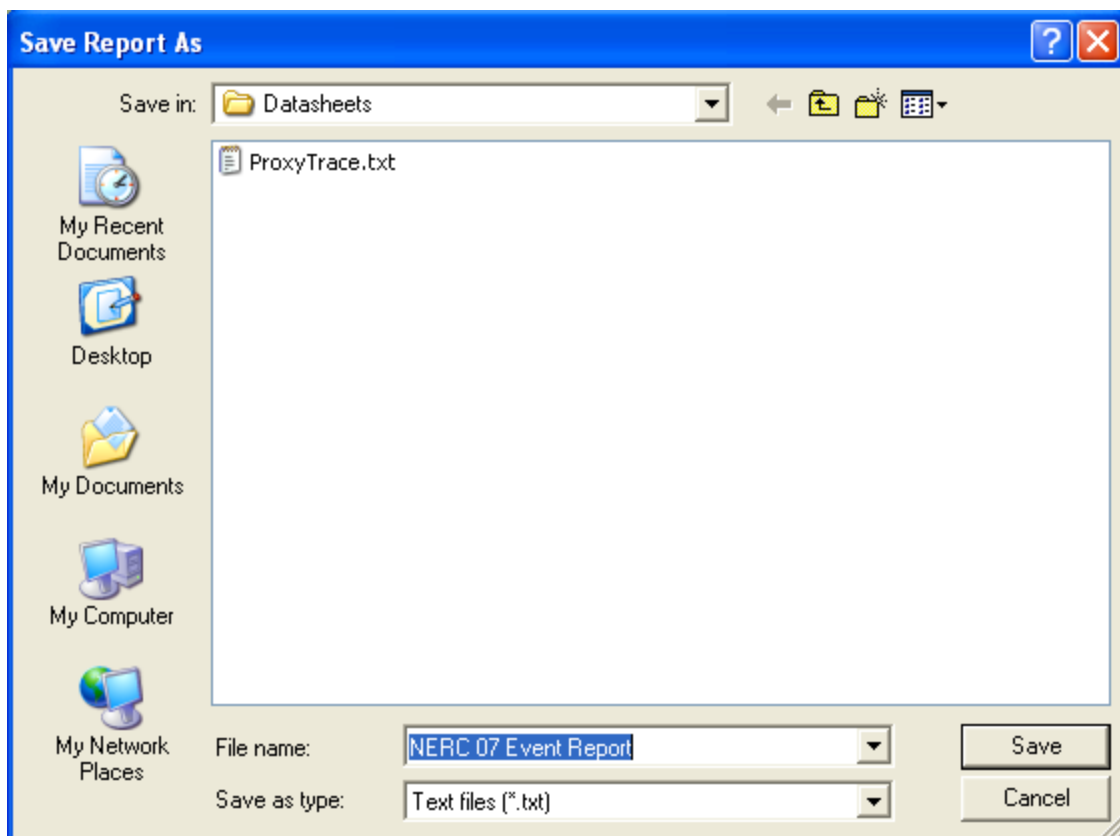
> **Note:** If a value exists in the Report File field of the Generation NERC Report record, the **Save Report As** dialog box will NOT appear, and the text file will be saved automatically to that location.

5. Specify a name for the text file, and save the file to the desired location.

6. Click the **Save** button.

   The NERC Report is saved as a text file, which can be sent directly to NERC.

Why Do I Need to Customize NERC Reports?

By default, the queries used to generate NERC *event* reports return results for ALL Primary Capacity Incident and Contributing Capacity Incident records in the database. Similarly, the queries used to generate NERC *performance* reports return results for ALL Capacity History records in the database. If you want your report results to include a subset of the data that is stored in the database, you will need to develop custom reports. For example, you might want to add a filter that:

- Limits report results to a particular month or unit.
- Takes into account the value in the Report Capacity Data field in Generation Unit records.

In Generation Management, each NERC report consists of two components:

- A query that specifies which results should be returned.
- A Generation NERC Report record that identifies the query and allows you to run the report and format the results according to NERC's specifications.

Therefore, to create custom NERC reports, you must:

1. Create a custom query. As a starting point, you can use the baseline queries in the Catalog folder \\Public\Meridium\Modules\Generation Management\Queries\NERC Queries. Simply create a copy of the desired query, make the necessary changes, and save the query with a new name.

2. Create a Generation NERC Report record that defines the custom query that you created in step 1.

After you have developed custom reports, you can run them in the same way you run the baseline reports.

Customizing the Baseline NERC Queries

To develop a custom NERC report, you will need to create a custom query and then define that query in a Generation NERC Report record. How you customize the query is up to you and will depend upon the results that you want to include in the report output. The following instructions provide an example of how you can customize the report NERC GADS Event Report 97 by filtering the results on the Report Capacity Data field.

To customize a baseline NERC report query:

1. On the Meridium APM Framework toolbar, click the **Catalog** button.

2. Navigate to the folder **\\Public\Meridium\Modules\Generation Management\Queries\NERC Queries**.

3. Open the query **NERC GADS Event Report 97**.

   If any existing Primary Capacity Incident records meet the query criteria, the query results will appear.

4. On the **Query Tasks** menu, click the **Design View** link.

   The query design appears, displaying the fields that are included by default in the query.

5. On the **Query Tasks** menu, click the **Add Source** link.

   The **Add Query Source** dialog box appears.

6. Select the **GenerationUnit** family from the list, and click the **Add** button.

7. Click the **Links** tab.

8. Select the **Has Incident** relationship family, and click the **Add** button.

9. Click the **Close** button.

   The design canvas displays your selections.

10. In the list of fields that appear in the Generation Unit source, double-click **Report Capacity Data**.

    The Report Capacity Data field appears in the design grid.

Field	[Unit ID]	[Unit Name]	[Event ID]	[Capacity Event Typ...	[Cause Code Descrip...	[Event Start Date]	[Event End Date]	[Report Capacity I ▼ ⋯
Alias	Unit ID	Unit Name	Event ID	Capacity Event Type...	Cause Code Description	Event Start Date	Event End Date	Report Capacity Data
Table	[Primary Capacity In...	[Primary Capacity In...	[Primary Capacity In...	[Primary Capacity In...	[Primary Capacity In...	[Primary Capacity In...	[Primary Capacity In...	[Generation Unit]
Sort	Ascending					Ascending		
Sort Index	1					2		
Include	☑	☑	☑	☑	☑	☑	☑	☑
Display	☑	☑	☑	☑	☑	☑	☑	☑
Hyperlink								
Criteria								
Or								

11. In the **Report Capacity Data** column, in the **Criteria** cell, type ONE of the following values:

    - **`'NERC'`**
    - `'Internal'`
    - `'NERC and Internal'`
    - **`'Do Not Report'`**

    > Œ**Hint:** You will need to create a custom query for each distinct results set that you want to generate. These instructions provide details on creating ONE query. You can repeat these instructions to create additional queries.

12. On the **Query Tasks** menu, click the **Run Query** link.

    The results are displayed.

13. On the **Common Tasks** menu, click the **Save As** link.

    The **Save Query As** dialog box appears.

14. Type a name for the query. We recommend that you use a descriptive name that indicates the type of filter you applied. For example, you could type **NERC GADS Event Report 97 NERC ONLY** or **NERC GADS Event Report 97 NOT REPORTING**, depending on the criteria that you used.

    > ₣**IMPORTANT:** You must save the query to the Catalog folder \\Public\Meridium\Modules\Generation Management\Queries\NERC Queries.

15. Click the **Save** button.

    The query is saved with the new **Report Capacity Data** filter. When you create a new Generation NERC Report record, this query will now appear in the list of values in the **Report Query** cell.

Creating Generation NERC Report Records
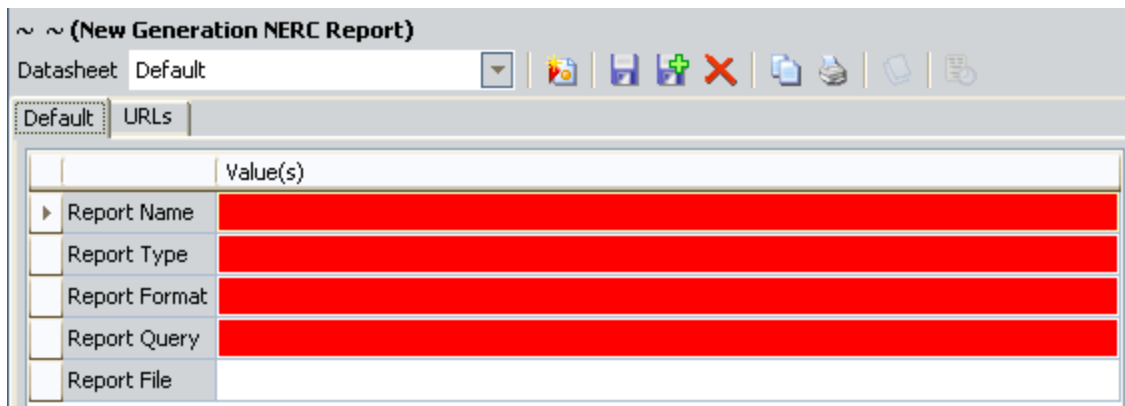
To create a Generation NERC Report record:

1. On the Meridium APM Framework toolbar, click the **New** button. 🎇

   The **Select Family** dialog box appears.

2. In the list, select **Generation NERC Report**.

3. Click **OK**.

   A new Generation NERC Report record appears in the Record Manager.

4. In the **Report Name** cell, type a name for the report. The **Report Name** field is required.

5. In the **Report Type** list, select **Event** or **Performance**. The value you choose in this field will determine the values that are available in the **Report Format** cell. This field is required.

6. In the **Report Format** list, select the desired format.

   - If the **Report Type** list is set to **Event**, the values available in the **Report Format** list will be **97** and **07**.

   - If the **Report Type** list is set to **Performance**, the values available in the **Report Format** list will be **95** and **05**.

   This field is required.

7. In the **Report Query** list, select the query that corresponds to the value you selected in the **Report Format** list. This field displays a list of queries that exist in the Catalog folder \\Public\Meridium\Modules\Generation Management\Queries\NERC Queries.

8. In the **Report File** cell, type the desired path for where you want the report to be saved. This field is optional. If you do NOT specify a desired path, when you run a

report, the **Save Report As** dialog box will appear, where you can navigate to the desired location of where you want to save.

> **Note:** If the path specified is invalid, when you run the report, an error message appears.

9. On the **Common Tasks** menu, click the **Save** link.

   The Generation NERC Report record is created and saved to the database. Afterwards, the **Run** link is enabled on the **Associated Pages** menu.

Capacity History Associated Pages

The following Associated Page is configured by default for the Capacity History family:

- **Power Price by Zone:** Displays the baseline Power Price Curve by Zone graph where the zone is set to North. This Associated Page appears on the **Pricing** sub-menu.

Note: To see the underlying URL for this Associated Page, you can use the URL Manager application.

Contributing Capacity Incident Associated Pages

The following Associated Page is configured by default for the Contributing Capacity Incident family:

- **Revision History:** Displays the Revision History query in the Query Builder.

> **Note:** To see the underlying URL for this Associated Page, you can use the URL Manager application.

Generation Nameplate Associated Pages

The following Associated Page is configured by default for all Generation Nameplate sub-families (it is NOT configured for the *parent* Generation Nameplate family):

- **Revision History:** Displays the Revision History query in the Query Builder.

Note: To see the underlying URL for this Associated Page, you can use the URL Manager application.

Generation NERC Report Associated Pages

The following Associated Pages are configured by default for the Generation NERC Report family.

> **Note:** To see the underlying URL for each Associated Page, you can use the URL Manager application.

Caption	Description
Report	Displays the **Save Report As** dialog box, where you can export the report as a text file. This Associated Page appears on the **Run** submenu.
Query	Displays the NERC GADS Performance Report 95 query in the Query Builder. This Associated Page appears on the **Run** submenu.

Generation Unit Associated Pages

The following Associated Pages are configured by default for the Generation Unit family.

> **Note:** To see the underlying URL for each Associated Page, you can use the URL Manager application.

Caption	Description
Generation Pools for this Unit	Displays the Show Generation Pools for this Unit query in the Query Builder. This associated page appears on the **Unit Information** sub-menu.
Revision History	Displays the Revision History query in the Query Builder.

Generation Unit Loading Profile Associated Pages

The following Associated Page is configured by default for the Generation Unit Loading Profile family:

- **Revision History:** Displays the Revision History query in the Query Builder.

> Note: To see the underlying URL for this Associated Page, you can use the URL Manager application.

Generation Unit Starting Profile Associated Pages

The following Associated Page is configured by default for the Generation Unit Starting Profile family:

- **Revision History:** Displays the Revision History query in the Query Builder.

> **Note:** To see the underlying URL for this Associated Page, you can use the URL Manager application.

Primary Capacity Incident Associated Pages

The following Associated Pages are configured by default for the Primary Capacity Incident family.

> **Note:** To see the underlying URL for each Associated Page, you can use the URL Manager application.

Caption	Description
Create Contributing Incident	Displays a new Contributing Capacity Incident record, which is linked to the current Primary Capacity Incident record. The Unit ID field in the Contributing Capacity Incident record is populated based on the value in the Unit ID field in the Primary Capacity Incident record. This Associated Page appears on the **Create** submenu.
RCA Analysis Builder	Displays the **New Analysis Builder**, which you can use to build a new RCA Analysis based on your incident data. This Associated Page appears on the **RCA** submenu.
Perform Incident Rollup	Updates calculated fields in all Capacity History that exist for the reporting month and year that are associated with the current Primary Capacity Incident record.

GM Catalog Folder Structure

The following table provides a list of the subfolders and items that exist in the Catalog folder \\Public\Meridium\Modules\Generation Management.

> **Note:** All the items in the **Public** folder are also available in the corresponding **Baseline** Folder.

Folder	Item Names	Behavior and Usage
Associated Page	Revision History query Show Generation Pools for this Unit query	You can run any of these queries to view the results on the **Query Builder** page.
Configuration	Create Company query Create Plant query Create Pool by Criteria query Create Unit query History Rollup Query List Units by Generation Pool query Resequence Incidents query Unit List query	The queries in this folder can be used for creating various GM records and help facilitate various GM workflows.
Configuration\Plug-In	GadsCauseCodes query GMUNITS query	If desired, you can use these queries with Meridium APM Plug-In for DataStage jobs. Meridium APM does not, however, supply the jobs in the baseline product.
Explorers	Generation Nameplate Explorer configured explorer	You can use this configured explorer to open Generation Unit records.
Graphs	Power Price Curve graph	This graph displays a graph of power prices for a selected zone.

Folder	Item Names	Behavior and Usage
Metrics	Availability Factor by Date and Plant - All Incidents Metric View Costs by Plant and Cause Metric View EFOR (G) by Date and Plant - All Incidents Metric View EFOR (N) by Date and Plant - All Incidents Metric View	You can open any of these Metric Views to view the results in the Results Viewer.

Folder	Item Names	Behavior and Usage
Queries	Capacity History Records Changed in the Last 30 days query Capacity History Revision query Capacity Loss Summary by Plant query Capacity Summary by Unit query Capacity Summary by Unit and Event Type query Capacity Summary listing by Unit and Event Types query Create Monthly Fuel Report Records query Field Value Changes for Capacity History in Last 30 days query Field Values Changes for Primary Capacity Incident in Last 30 days query Forced Outage Incident Cost Pareto query Heating Range Values query Incident Cost Pareto query NERC GADS Report List query Primary Capacity Cost by Unit and Year query Primary Capacity Incident Records Changed in Last 30 days query Query Units by Region query Unit Nameplate Data query Unit Startup Data query	You can run any of these queries to view the results on the **Query Builder** page.

Folder	Item Names	Behavior and Usage
Queries\Graph Queries	Power Price Curve by Zone query	The Meridium APM system runs this query automatically when you access the Power Price Curve graph.
Queries\NERC Queries	NERC GADS Event Report 07 query NERC GADS Event Report 97 query NERC GADS Performance Report 05 query NERC GADS Performance Report 95 query	These queries return data using the corresponding format for all Capacity History or Capacity Incident records.
Queries\Report Queries	Cause Code Impact Report query Deratings Event Types by Cause Code query EIA 906 Fuel Report Annual query EIA 906 Fuel Report Monthly query Monthly Capacity History and Incident Query Monthly Fuel Report - Quantity on Hand query MWh by Cause Code Report query	You can run any of these queries to view the results on the **Query Builder** page.
Reports	EIA 906 Fuel Report Annual report EIA 906 Fuel Report Monthly report	You can run any of these reports to view the results on the **Report Viewer** page. The reports in this folder are SQL Server Reporting Services reports.
Searches	This folder is empty.	N/A

Folder	Item Names	Behavior and Usage
SSRS	EIA 906 Fuel Report Annual report EIA 906 Fuel Report Monthly report	The reports in the **Reports** and **SSRS** folders contain the same content. The Meridium APM system does not use the **SSRS** folder or its contents.

About the GM Field Reference

The Meridium APM Generation Management module consists almost entirely of managing different types of records. By creating and updating records in GM, you will collect the information that you need to report generation capacity and fuel consumption data to NERC and the EIA. Therefore, it is important to understand the details of the records that are used in GM.

This section of the documentation provides reference information about the fields in various GM record families and provides descriptions of their behavior in the baseline Generation Management module. You can use this information to help you further understand and use Meridium APM Generation Management.

> **Note:** The information in this section of the documentation is not comprehensive. It does not include all GM families and may not describe every baseline field in detail.

APM Event

APM Event records can be used to track the total cost of an event represented by a Primary Capacity Incident record. If your system has been configured to use work order history data, the cost of work history events can be included in the Sum of Work History Costs and Total Costs fields.

When you create a Primary Capacity Incident record that meets the conditions specified by the value in the APM Event Creation field in the Generation Unit record to which the new Primary Capacity Incident record is linked, an APM Event record will be created automatically and linked to that Primary Capacity Incident record.

APM Event records contain various fields that store information about the events represented by Primary Capacity Incident records. Each APM Event record is linked to a single Primary Capacity Incident record and stores information about that incident. Most of the values in an APM Event record are populated automatically using the values in the Primary Capacity Incident record that is linked to the APM Event record and records associated with that Primary Capacity Incident record.

The following table provides a list and description of the fields that are defined for the APM Event family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

> **Note:**The following list is not comprehensive and does not include all the fields that exist in the APM Event family in the baseline Meridium APM database.

Field	Description
APM Event Date	A value that indicates when the event began. This field is populated automatically using the value in the Event Start Date field in the Primary Capacity Incident record that is linked to the APM Event record.
APM Description	A value that describes the APM event. You can type a description into this field.

Field	Description
APM ID	A value that identifies the APM event. This field is populated automatically using the following template: **APM~<Unit Name>~<Event Start Date>** ...where: • *<Unit Name>* is the value in the Unit ID field in the Generation Unit record that is linked to the Primary Capacity Incident record for which the APM Event record exists. • *<Event Start Date>* is the value in the Event Start Date field in the Primary Capacity Incident record that is linked to the APM Event record.
Critical Event Flag	A value that indicates if the event was a critical event. If the value in this field is *True*, the event was a critical event. If the value in this field is*False*, the event was NOT a critical event.
Plant ID	A value that indicates the plant in which the event occurred. This field is populated automatically with the value in the Plant ID field in the Generation Plant record that is linked to the Generation Unit record that is linked to the Primary Capacity Incident record for which the APM Event record exists.
Plant Name	A value that indicates the plant in which the event occurred. This field is populated automatically with the value in the Plant name field in the Generation Plant record that is linked to the Generation Unit record that is linked to the Primary Capacity Incident record for which the APM Event record exists.
Primary Capacity Event Description	A value that indicates the capacity event type for the event. This field is populated automatically with the value in the Capacity Event Type Descr field in the Primary Capacity Incident record that is linked to the APM Event record.
Primary Capacity Event Type	A value that indicates the NERC event code for the capacity event type for the event. This field is populated automatically with the value in the Capacity Event Type field in the Primary Capacity Incident record that is linked to the APM Event record.
Primary Cause	A value that indicates the cause code for the event. This field is populated automatically with the value in the Cause Code field in the Primary Capacity Incident record that is linked to the APM Event record.

Field	Description
Primary Cause Description	A value that indicates the cause code description for the event. This field is populated automatically with the value in the Cause Code Description field in the Primary Capacity Incident record that is linked to the APM Event record.
Primary Contact	A value that indicates the person responsible for information about the APM event. You can type an alphanumeric value into this field.
Sum of Capacity Loss Costs	A value that represents the cost of the event from lost generation capacity. This field is populated automatically with the value in the Capacity Incident Cost field in the Primary Capacity Incident record that is linked to the APM Event record.
Sum of Work History Costs	A value that represents the maintenance related cost of the event. If your system has been configured to do so, this field can be automatically populated using a work order history system.
Total Costs	A value that represents the total cost of the event. This field is populated automatically using the following formula: **Sum of Capacity Loss Costs + Sum of Work History Costs**
Unit ID	A value that indicates the unit to which the event occurred. This field is populated automatically with the value in the Unit ID field in the Generation Unit record that is linked to the Primary Capacity Incident record for which the APM Event record exists.
Unit Name	A value that indicates the unit to which the event occurred. This field is populated automatically with the value in the Unit Name field in the Generation Unit record that is linked to the Primary Capacity Incident record for which the APM Event record exists.

Capacity History

The following table provides a list and description of the fields that are defined for the Capacity History family in the baseline Meridium APM database. In the following table, note that:

- The descriptions reflect baseline behavior.

- Wherever we refer to *the unit*, we mean the unit represented by the Generation Unit record to which the Capacity History record is linked.

- Most fields are listed in alphabetical order by field caption. They may not appear or may appear in a different order on each datasheet. Fuel information fields have been sorted by *ignoring* the first word in the field caption (i.e., Primary, Secondary, Tertiary, or Quaternary). For example, the fields *<Fuel Level> Ash Softening Temp* are sorted alphabetically using only *Ash Softening Temp*.

- The list of fields is not comprehensive and does not include all the fields that exist in the Capacity History family in the baseline Meridium APM database.

Field	Description
Actual Unit Starts	Specifies the number of *actual* times the unit started within a given month and year. When the value in the Reporting Status field is set to *Unit Level Approval*, validation is performed on this field to ensure that the value is equal to the number of Attempted Unit Starts minus the number of Startup Failures.
AER Fuel Type Code <1, 2, 3, 4>	Identifies the AER fuel type code for the primary, secondary, tertiary, or quaternary fuel used by the unit. This field is populated automatically with the value in the AER Fuel Type Code <1, 2, 3, 4> field in the Generation Unit record to which the Capacity History record is linked.
<Fuel Level> Ash Softening Temp	Identifies the ash softening temperature for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
Attempted Unit Starts	Specifies the number of *attempted* starts for the unit within a given month and year. When the value in the Reporting Status field is set to *Unit Level Approval*, validation is performed on this field to ensure that the value is equal to the number of outage events that occurred within the month that the Capacity History record represents.

Field	Description
Availability Factor	Indicates the percentage of total time in the unit was available. This field is disabled and populated automatically using the following formula: **(Available Hours / Period Hours) x 100** This value is defined by NERC in the GADS DRI.
Available Hours	Indicates the total number of hours in which the unit was available. This field is disabled and populated automatically as the sum of the values in the following fields: • Pumping Hrs • Reserve Shutdown Hrs • Service Hrs • Synchronous Condensing Hrs This value is defined by NERC in the GADS DRI and included in NERC performance reports.
<Fuel Level> Average Heat Content	For a given fuel type, indicates the heat content in BTUs per unit of measure stored in the corresponding <Fuel Level> Quantity Burned Unit of Measure field. This value is defined by NERC in the GADS DRI.
Capacity Factor (G)	Identifies the percentage of the total potential gross capacity that was generated by the unit. This field is disabled and calculated automatically using the following formula: **(Gross Actual Generation / (Period Hours x Gross Maximum Capacity)) x 100** This value is defined by NERC in the GADS DRI.
Capacity Factor (N)	Identifies the percentage of the total potential net capacity that was generated by the unit. This field is disabled and calculated automatically using the following formula: **(Net Actual Generation / (Period Hours x New Maximum Capacity)) x 100** This value is defined by NERC in the GADS DRI.

Field	Description
Capacity History Statistics Type	Contains a value that indicates what type of data is stored in the Capacity History record. This field can contain the following values: • All Incidents: The Capacity History record contains data calculated using data from all Primary Capacity Incident records for a given unit for a given month and year combination. • Excludes OMC Incidents: The Capacity History record contains data using only Primary Capacity Incident records in which the value in the OMC Event field is *False*.
Common Fuel Code <1, 2, 3, 4>	Identifies the common fuel code for the primary, secondary, tertiary, or quaternary fuel used by the unit. This field is populated automatically with the value in the Common Fuel Code <1, 2, 3, 4> field in the Generation Unit record to which the Capacity History record is linked.
Demonstrated Max Capacity (G)	Identifies the demonstrated gross maximum capacity of the unit. This field is populated automatically with the value in the Demonstrated Gross Maximum Capacity field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.
Demonstrated Max Capacity (N)	Identifies the demonstrated net maximum capacity of the unit. This field is populated automatically with the value in the Demonstrated Net Maximum Capacity field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.
EIA Energy Source <1, 2, 3, 4>	Identifies the EIA energy source code for the primary, secondary, tertiary, or quaternary fuel used by the unit. This field is populated automatically with the value in the EIA Energy Source <1, 2, 3, 4> field in the Generation Unit record to which the Capacity History record is linked.
<Fuel Level> Fuel BTUs - Contract	Identifies the BTUs generated as a result of burning fuel of a given type as part of a contract to external parties. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Fuel BTUs - Plant Heat and Cooling	Identifies the BTUs generated for plant heating and cooling for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.

Field	Description
\<Fuel Level\> Fuel BTUs - Process Steam	Identifies the BTUs generated to create process steam for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
\<Fuel Level\> Fuel BTUs Total	For a given fuel type, identifies the total BTUs generated by the unit during the month for which the Capacity History record stores generation data. This field is disabled and populated automatically as the sum of the values in the following fields for the corresponding fuel level: • \<Fuel Level\> Fuel BTUs - Electrical Generation • \<Fuel Level\> Fuel BTUs - Plant Heat and Cooling • \<Fuel Level\> Fuel BTUs - Process Steam • \<Fuel Level\> Fuel BTUs - Contract
GADS Unit Code	Identifies the unit represented by the Generation Unit record to which the Capacity History record is linked. This field is disabled and populated automatically with the value in the GADS Unit Code field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
GADS Utility Code	Identifies the utility under which the unit represented by the Generation Unit record to which the Capacity History record is linked operates. This field is disabled and populated automatically with the value in the GADS Utility Code field in the Generation Unit record. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
\<Fuel Level\> Grindability Index/Percent Vanadium	Identifies the grindability index of a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.

Field	Description
Gross Actual Generation (G)	Identifies the actual gross generation of the unit during the month for which the Capacity History record stores generation data. This field is used to calculate the value in the Gross Generation of Electricity field in Generation Fuel Report records that are linked to the Capacity History record. This field accepts both positive and negative numbers. In some cases, if a unit does not produce power during the month, the equipment in the plant still consumes power, causing a negative Gross Actual Generation value. This field becomes required when the value in the Reporting Status field is set to *Unit Level Approval*. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Gross Dependable Capacity (G)	Identifies the gross dependable capacity of the unit. This field is populated automatically with the value in the Gross Dependable Capacity field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Gross Max Capacity (G)	Identifies the gross maximum capacity of the unit during the month for which the Capacity History record stores generation data. This field is populated automatically with the value in the Gross Maximum Capacity field in the Generation Unit record that is linked to the Capacity History record. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Inactive Hours	Identifies the number of hours the unit was inactive during the month for which the Capacity History record stores generation data. This field that is populated automatically with the value from the Event Duration field in the Primary Capacity Incident record that is linked to the Capacity History record. This value is defined by NERC in the GADS DRI.

Field	Description
Net Actual Generation (N)	Identifies the actual net generation of the unit during the month for which the Capacity History record stores generation data. This field is used to calculate the value in the Net Generation of Electricity field in Generation Fuel Report records that are linked to the Capacity History record. This field accepts both positive and negative numbers. In some cases, if a unit does not produce power during the month, the equipment in the plant still consumes power, causing a negative Net Actual Generation value. This field becomes required when the value in the Reporting Status field is set to *Unit Level Approval*. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Net Dependable Capacity (N)	Identifies the net dependable capacity of the unit. This field is populated automatically with the value in the Net Dependable Capacity field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Net Maximum Capacity (N)	Identifies the net maximum capacity of the unit during the month for which the Capacity History record stores generation data. This field is populated automatically with the value in the Net Maximum Capacity field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
<Fuel Level> Percent Alkalines	Identifies the average sodium and potassium content for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Percent Ash	Identifies the average ash content for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Percent Moisture	Identifies the average moisture content for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Percent Sulfur	Identifies the average sulfur content for a given fuel type. This is an optional numeric field. This value is defined by NERC in the GADS DRI.

Field	Description
Plant ID	Identifies the plant in which the unit resides. This field is disabled and populated automatically with the value in the Plant ID field in the Generation Plant record that is linked to the Generation Unit record for which the Capacity History record exists.
Plant Name	Identifies the full name of the plant in which the unit resides. This field is disabled and populated automatically with the value in the Plant Name field in the Generation Plant record that is linked to the Generation Unit record for which the Capacity History record exists.
Primary Fuel Code	Identifies the NERC fuel code for the primary fuel used by the unit. This field is populated automatically with the value in the Primary Fuel Code field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.
Pumping Hrs	Indicates the number of hours the unit operated as a pump. This field is enabled in Capacity History records that contain the value *Pumped Storage/Hydro* in the Unit Type field. This field is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Quantity Burned	For a given fuel type, identifies the amount of fuel that was consumed by the unit during the month for which the Capacity History record stores generation data. The value in this field is used to calculate the value in the Energy Source Consumption field in Generation Fuel Report records that are linked to the Capacity History record. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
<Fuel Level> Quantity Burned Unit of Measure	Stores the unit of measure associated with a given fuel type. This field is disabled and populated automatically with the value in the Fuel Unit of Measure field in the Heating Value Ranges record with values in the NERC Fuel Description and NERC Fuel Code fields that match the values in the Primary Fuel Code field. This value is defined by NERC in the GADS DRI.
Quaternary Fuel Code	Identifies the NERC fuel code for the quaternary fuel used by the unit. This field is populated automatically with the value in the Quaternary Fuel Code field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.

Field	Description
Refresh Incident Rollup	Determines what happens when the Capacity History record is saved. • If the value in this field is *True* when the Capacity History record is saved, the Meridium APM system will recalculate any values based on values in associated records and set the value in this field to *False* before saving the Capacity History record. • If the value in this field is *False* when the Capacity History record is saved, the Meridium APM system will save any changes you have made to the Capacity History record but will NOT recalculate any values based on values in associated records.
Reporting Date	Indicates the date on which the Capacity History record was approved and reported. When the value in the Reporting Status field is set to *Corporate Approval*, this field is populated automatically with the current date.
Reporting Month	Indicates the month that the Capacity History record represents. The combination of the value in this field and the Reporting Year field represent a unique year and month combination. This value is included in NERC performance reports.
Reporting Status	Indicates the level of approval of the Capacity History record: *Created*, *Unit Level Approval*, or *Corporate Approval*. In new Capacity History records, this field is set to *Created* by default.
Reporting Year	Indicates the year that the Capacity History record represents. The combination of the value in this field and the Reporting Month field represent a unique year and month combination. This value is included in NERC performance reports.
Revision	Identifies the revision number of the Capacity History record and should be incremented each time you resubmit a report which includes information in the Capacity History record to NERC. This value is defined by NERC in the GADS DRI.
Secondary Fuel Code	Identifies the NERC fuel code for the secondary fuel used by the unit. This field is populated automatically with the value in the Secondary Fuel Code field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.

Field	Description
Service Hrs	Identifies the number of hours that the unit was in service. This field is disabled and populated automatically using the following formula: **Available Hours - Synchronous Condensing Hours** When the value in the Reporting Status field is set to *Unit Level Approval* and the value in the Gross Actual Generation or Net Actual Generation field is greater than 0 (zero), the Service HRs field cannot be empty or contain the value 0 (zero). If it does, an error message will be displayed when you attempt to save the record. This error condition indicates that the Gross Actual Generation, Net Actual Generation, Available Hours, or Synchronous Condensing Hours fields contain invalid data. This value is defined by NERC in the GADS DRI and included in NERC performance reports.
Sched Outage Hrs	Identifies the number of hours that the unit was scheduled to be inactive. This field is populated automatically as the sum of the values in the following fields: • Planned and Ext Outage Hrs • Maint and Ext Outage Hrs • Forced Outage Hrs • Total Eqv Derate Hrs (N) • NonCurtailing Event Hrs This value is defined by NERC in the GADS DRI.
Start Reliability	Identifies the starting reliability of the unit. This field is disabled and populated automatically using the following formula: **Attempted Unit Starts / Actual Unit Starts**
Sum of Fuel BTUs	Identifies the sum of all BTUs generated by all fuels consumed by the unit during the month for which the Capacity History record stored generation data. This field is disabled and populated automatically as the sum of the values in the ALL <Fuel Level> Fuel BTUs Total fields. This value is defined by NERC in the GADS DRI.

Field	Description
Synchronous Condensing Hrs	Indicates the number of hours the unit operated in synchronous condensing mode. This field is enabled in Capacity History records that contain the value *Pumped Storage/Hydro* in the Unit Type field. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
Tertiary Fuel Code	Identifies the NERC fuel code for the tertiary fuel used by the unit. This field is populated automatically with the value in the Tertiary Fuel Code field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.
Typical Unit Loading	Indicates the time during which the unit was responsible for generating power. This field is populated automatically with the value in the Default Unit Loading field in the Generation Unit record to which the Capacity History record is linked. This value is defined by NERC in the GADS DRI.
Unit ID	Identifies the unit. This field is populated automatically with the value in the Unit ID field in the Generation Unit record to which the Capacity History record is linked.
Unit Name	Identifies the full name of the unit. This field is disabled and populated automatically with the value in the Unit Name field in the Generation Unit record to which the Capacity History record is linked.
Unit Type	Identifies the type of unit. This field is disabled and populated automatically with the value in the GADS Unit Type field in the Generation Unit record to which the Capacity History record is linked.
Unavailable Hrs	Identifies the number of hours that the unit was unavailable. This field is disabled and populated automatically as the sum of the values in the following fields: • Forced Outage Hrs • Maint Outage Basic Hrs • Maint Outage Sched Ext Hrs • Planned Outage Basic Hrs • Pln Outage Sched Ext Hrs This value is included in NERC performance reports.

Field	Description
Verbal Description	Indicates additional information about the Generation Unit record that is linked to the Capacity History record. This is an optional character field.
YTD Actual Unit Starts	Identifies the number of times the unit has been started during the year up to the end of the month for which the Capacity History record stores generation data. This field is disabled and populated automatically as the sum of values in the Actual Unit Starts field in ALL the Capacity History records that represent months in the same year *before* the month that the current Capacity History record represents AND the value in the Actual Unit Starts field in the Capacity History record. This value is defined by NERC in the GADS DRI.
YTD Attempted Unit Starts	Identifies the number of times that starting the unit has been attempted during the year up to the end of the month for which the Capacity History record stores generation data. This field is disabled and populated automatically as the sum of values in the Attempted Unit Starts field in ALL the Capacity History records that represent months in the same year *before* the month that the current Capacity History record represents AND the value in the Attempted Unit Starts field in the Capacity History record. This value is defined by NERC in the GADS DRI.
YTD Start Reliability	Identifies the starting reliability of the unit during the year up to the end of the month for which the Capacity history record stores generation data. This field is disabled and populated automatically using the following formula: **(YTD Attempted Unit Starts / YTD Actual Unit Starts) x 100** This value is defined by NERC in the GADS DRI.
Zone	Identifies the zone for which you want to record power price data.

Daylight Saving Time Reference

The following table provides a list and description of the fields that are defined for the Daylight Saving Time Reference family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Daylight Saving Time Reference records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

Field	Description
DST Adjustment	Indicates the duration of the time shift during Daylight Saving Time. This is a numeric field that is disabled and populated automatically with the value *1* (one), which indicates that the clock moves forward by one hour when Daylight Saving Time begins and moves backward one hour when Daylight Saving Time ends.
DST End	Indicates when Daylight Saving Time ends in a given year. This is a required date field. Note that the value in the DST End field must represent a date in the same year as the value in the DST Start field.
DST Region Code	Identifies the region that observes Daylight Saving Time as identified by the Daylight Saving Time Reference record. This is a required character field.
DST Start	Indicates when Daylight Saving Time begins in a given year. This is a required date field. Note that the value in the DST Start field must represent a date in the same year as the value in the DST End field.
Enterprise Support <1-8> Code	An optional character field that is not used by Generation Management.
Enterprise Support <1-8> Description	An optional character field that is not used by Generation Management.

EIA Federal Region

The following table provides a list of the fields that are defined for the baseline EIA Federal Region family and describes how they are used to populate values in Generation Plant records. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

Field	Description
Census Division	Used to populate the EIA Census Division field. This value is defined by the Energy Information Administration (EIA).
Enterprise Support <1-8> Code	Not used.
Enterprise Support <1-8> Description	Not used.
Federal Region	Used to populate the EIA Federal Region field. This value is defined by the Energy Information Administration (EIA).
State	Used to locate the EIA Federal Region record whose fields will be used to populate the EIA Census Division and EIA Federal Region fields in a Generation Plant record.

GADS Cause Codes

The following table provides a list and description of the fields in the GADS Cause Codes family that are used to populate the cause code fields in Primary Capacity Incident records. The descriptions in the following table reflect how the fields will be used to populate the cause code fields in Incident record.

> **Note:** Any field that is NOT listed in the following table is NOT used in the baseline GM product.

Field	Description
Cause Code Description	Used to populate the Cause Code and Cause Code Description fields. This value is defined by NERC in the GADS DRI.
Cause Code	Used to populate the Cause Code field. This value is defined by NERC in the GADS DRI.
Component	Used to populate the Cause Code Component field and to restrict the list in the Cause Code field to values in GADS Cause Codes records that contain a value in this field that matches the value in the Cause Code Component field in the incident record. This value is defined by NERC in the GADS DRI.
OMC Code	Used to set the value in the OMC Event field automatically. In Incident record, when you set the value in the Cause Code field, if the value in this field is: • *True*, the Meridium APM system will automatically set the value in the OMC Event field to *True*. • *False*, the Meridium APM system will automatically set the value in the OMC Event field to *False*.
System	Used to populate the Cause Code System field and to restrict the list in the Cause Code Component and Cause Code fields to values in GADS Cause Codes records that contain a value in this field that matches the value in the Cause Code System field in the incident record. This value is defined by NERC in the GADS DRI.
Unit Type	Used to restrict the list in the Cause Code System, Cause Code Component, and Cause Code fields to values in GADS Cause Codes records that contain a value in this field that matches the value in the GADS Unit Type field in Generation Unit record with which the incident record is associated. This value is defined by NERC in the GADS DRI.

Generation Company

The following table provides a list and description of the fields that are defined for the Generation Company family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Generation Company records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet. Any field NOT designated as required in the following table is *optional*.

> **Note:** The following list is not comprehensive and does not include all the fields that exist in the Generation Company family in the baseline Meridium APM database.

Field	Description
Address 1	Identifies the first line of the address of the company.
Address 2	Indicates the second line of the address of the company.
City	Indicates the city in which the company is based.
Company Financial Web Address	Identifies the URL of the company's financial website.
Company ID	Identifies the company and is used to populate the Record ID. This is a character field that is required for all Generation Company records.
Company Name	Indicates the full name of the company and is used to populate the Record ID. This is a character field that is required for all Generation Company records.
Company Web Site Address	Identifies the URL of the company's corporate website.
Contact	Identifies the name of a person within the company to contact in regards to NERC reporting.
Council	Indicates NERC council to which the company belongs and is used to populate the Record ID. A baseline rule exists to populate the Council field with a list of System Codes in the MI_GM_POWER_REGION System Code Table.
Email Address	Identifies the email address of the person identified by the value in the Contact field.
Enterprise <1-8> Code	Optional character fields that are not used by Generation Management.

Field	Description
Enterprise <1-8> Description	Optional character fields that are not used by Generation Management.
GADS Utility Code	Indicates the three-digit code that is assigned to the company by NERC.
Keyword	Indicates the NERC keyword for the company.
Phone Fax	Indicates the fax number for the person identified by the value in the Contact field.
Phone Voice	Indicates the phone number for the person identified by the value in the Contact field.
State	Indicates the state in which the company is based. This is a required field, and a baseline rule exists to populate the State field with a list of System Codes in the MI_GM_STATE System Code Table.
Stock Symbol	Identifies the symbol that represents the company in stock trading.
Zip Code	Indicates the zip code of the location where the company is based.

Generation Fuel Report

The following table provides a list and description of the fields that are defined for the Generation Fuel Annual Report and Generation Fuel Monthly Report families in the baseline Meridium APM database. In the following table, note that:

- The descriptions reflect baseline behavior.
- Whenever we refer to:
  - The *plant*, we mean the plant represented by the Generation Plant record to which the generation fuel report record is linked.
  - The *units*, we mean the units for which the generation fuel report record stores data. These units are represented by Generation Unit records that are linked to the Generation Plant record to which the generation fuel report record is linked.
  - The *fuel*, we mean the fuel that is used by the units for which the generation fuel report record stores data. The fuel for which data is stored is determined by the values in the Energy Source Code and Prime Mover fields in the generation fuel report record.
- Fields are listed in alphabetical order by field caption; they may not appear or may appear in a different order on each datasheet.
- Any field that is defined for these families but NOT listed in the following table is NOT used in the baseline GM product.

Field	Description
Address 1	Identifies the first line of the address of the plant. This is an optional character field that is populated automatically with the value in the Address 1 field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Address 2	Identifies the second line of the address of the plant. This is an optional character field that is populated automatically with the value in the Address 2 field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.

Field	Description
AER Fuel Type Code	Identifies the AER fuel type code for the fuel. This field is disabled and populated automatically with the value in the AER Fuel Description and AER Fuel Code fields in the Heating Value Ranges record in which the value in the Fuel Type field matches the value in the Energy Source Code field in the generation fuel report record. This value is defined by the Energy Information Administration (EIA).
City	Identifies the city in which the plant resides. This is an optional character field that is populated automatically with the value in the City field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Combined Heat and Power Plant	Indicates whether the plant is a cogeneration plant. If the value in this field is: • *True*, the plant IS a cogeneration plant. • *False*, the plant is NOT a cogeneration plant. This value is defined by the Energy Information Administration (EIA).
Comments	Indicates additional information about the generation fuel report record. This is an optional text field.
Company ID	Identifies the company that owns the plant. This is an optional character field that is populated automatically with the value in the Company ID field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.

Field	Description
Company Name	Identifies the full name of the company that owns the plant. This is an optional character field that is populated automatically with the value in the Company Name field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
County	Identifies the county in which the plant resides. This is an optional character field that is populated automatically with the value in the County field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
EIA Plant ID	Identifies the plant ID to be used on EIA forms. This is an optional numeric field that is populated automatically with the value in the EIA Plant ID field in the Generation Plant record to which the generation fuel report record is linked. This value is defined by the Energy Information Administration (EIA).
EIA Plant Name	Identifies the name of the plant as it is reported to the EIA. This is an optional character field that is populated automatically with the value in the EIA Plant Name field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
EIA Utility Code	Identifies the company under which the plant operates. This is an optional numeric field that is populated automatically with the value in the EIA Utility Code field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.

Field	Description
Energy Source Code	Identifies the EIA energy source code for the fuel. This is a required field, and a baseline rule exists to populate this field with values in the Fuel Type and Fuel Type Description fields in Heating Value Ranges records using the format *Fuel Type Description (Fuel Type)*. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Energy Source Consumption	Identifies the total amount of consumption of the fuel by the units. This is an optional numeric field that is calculated as the sum of ALL the values in the <Fuel Level> Quantity Burned fields in ALL the Capacity History records that are linked to a Generation Unit record for which the generation fuel report record collects data. This value is defined by the Energy Information Administration (EIA).
Energy Source Consumption Rollup	Indicates whether or not the following fields in the generation fuel report record will be calculated using values in the associated Generation Unit and Capacity History records: • Energy Source Consumption • Generation Nameplate Capacity • Gross Generation of Electricity • Net Generation of Electricity When you save a generation fuel report record, if the value in this field is: • *True*, the values in the preceding fields will be calculated based upon information in the associated Generation Unit and Capacity History records. If the values in these records have changed since the generation fuel report record was last saved, these fields will be updated. • *False*, the fields in the preceding list will be populated with the value *0* (zero).
Generator Nameplate Capacity	Identifies the total generator nameplate capacity of all the units. This is an optional numeric field that is calculated as the sum of ALL the values in the EIA Generator Nameplate Capacity field in ALL the Generation Unit records for which the generation fuel report record collects data. This value is defined by the Energy Information Administration (EIA) and is included in EIA reports.

Field	Description
Gross Generation of Electricity	Identifies the total gross generation of all the units. This is an optional numeric field that is calculated as the sum of ALL the values in the Gross Actual Generation field in ALL the Capacity History records that are linked to a Generation Unit record for which the generation fuel report record collects data. This value is defined by the Energy Information Administration (EIA).
Heat Content Per Unit of Fuel	Identifies the average heat content of the fuel consumed by all units. This field is populated automatically with a value that is calculated using the following formula: Σ **Average Heat Content** / Σ **Quantity Burned** ...where: • Σ **Average Heat Content** is the sum of the values in the <Fuel Level> Average Heat Content fields in ALL associated Capacity History records in which a value in the corresponding EIA Energy Source <1, 2, 3, 4> field matches the value in the Energy Source Code field in the generation fuel report record. • Σ **Quantity Burned** is the sum of the values in the <Fuel Level> Quantity Burned fields in ALL associated Capacity History records in which a value in the corresponding EIA Energy Source <1, 2, 3, 4> field matches the value in the Energy Source Code field in the generation fuel report record. This value is included in EIA reports.
Heat Content Unit of Measure	Identifies the unit of measure associated with the value stored in the Heat Content Per Unit of Fuel field. This field is disabled and populated automatically with the value in the Heat Content Unit of Measure field in the Heating Value Ranges record with a value in the Fuel Type field that matches the value in the Energy Source Code field in the generation fuel report record.
Net Generation of Electricity	Identifies the total net generation of all the units. This is an optional numeric field that is calculated as the sum of ALL the values in the Net Actual Generation field in ALL the Capacity History records that are linked to a Generation Unit record for which the generation fuel report record collects data. This value is included in EIA reports.

Field	Description
Plant ID	Identifies the plant ID. This is a required field, and a baseline rule exists to populate this field with a list of values in the Plant ID field in all Generation Plant records that you have permission to modify. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
Plant Name	Identifies the name of the plant. This is an optional character field that is populated automatically with the value in the Plant Name field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
Prime Mover	Identifies the prime mover of the units. This is a required field, and a baseline rule exists to populate this field with a list of System Codes from the MI_GM_PRIME_MOVER_CODE System Code Table. This value is defined by the Energy Information Administration (EIA) and is included in EIA reports.
Quantity on Hand	Identifies the amount of the fuel that is on hand at the time the generation fuel report record is approved. This is a numeric field that becomes required when the value in the Report Status field is changed to *Approved*. The unit of measure for this value can be specified in the Quantity Units of Measure field. This value is included in EIA reports.
Quantity Units of Measure	Identifies the unit of measure associated with the value in the Quantity on Hand field. This field is disabled and populated automatically with the value in the Fuel Unit of Measure field in the Heating Value Ranges record with a value in the Fuel Type field that matches the value in the Energy Source Code field.

Field	Description
Report Status	Identifies the level of approval of the generation fuel report record. If desired, you can use this field to manage a custom approval process for generation fuel report records. This field must contain a value, and a baseline rule exists to populate this field with a list of the following values: • **Created:** Assigned to generation fuel report records when they are first created. • **Submitted:** Indicates that the information in the record has been submitted to the EIA. When this field is set to *Submitted*, the Report Submitted Date field is populated automatically with the current date and time. • **Approved:** Indicates that the EIA has accepted and approved the information. When this field is set to *Approved*, the Energy Source Consumption and Quantity on Hand fields become required. This value is included in EIA reports.
Report Submitted Date	Identifies the date on which the value in the Report Status field was changed to *Submitted*. This field is disabled and populated automatically with the date and time that the value in the Report Status field is changed to *Submitted*. This value is included in EIA reports.
Reporting Month	Identifies the month for which the generation fuel report record exists. This field is disabled, and: • In Generation Fuel Annual Report records, this field is an optional character field that is not used. • In Generation Monthly Report records, this field must contain a value, is populated automatically with a list of values that represent each month, and is populated automatically with the current month.
Reporting Year	Identifies the year for which the generation fuel report record exists. This field must contain a value and is populated with a list of values that represent each year from 1960 to 2019. This field is populated automatically with the current year.
Respondent ID	Identifies the ID assigned to the plant by the EIA. This is an optional numeric field that is populated automatically with the value in the EIA Respondent ID field in the Generation Plant record to which the generation fuel report record is linked. This value is defined by the Energy Information Administration (EIA) and is included in EIA reports.

Field	Description
Respondent Name	Identifies the name of the respondent identified by the value in the EIA Respondent ID field. This is an optional character field that is populated automatically with the value in the EIA Respondent Name field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
State	Identifies the state in which the plant resides. This is an optional character field that is populated automatically with the value in the State field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
Survey Contact 1 Email	Identifies the email address of the person identified by the value in the Survey Contact 1 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 1 Email field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 1 Fax Number	Identifies the fax number of the person identified by the value in the Survey Contact 1 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 1 Fax Number field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.

Field	Description
Survey Contact 1 Name	Identifies the primary person within the company for the EIA to contact with questions about the information in the report. This is an optional character field that is populated automatically with the value in the EIA Contact 1 Name field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 1 Phone	Identifies the phone number of the person identified by the value in the Survey Contact 1 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 1 Phone field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 1 Title	Identifies the title of the person identified by the value in the Survey Contact 1 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 1 Title field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 2 Email	Identifies the email address of the person identified by the value in the Survey Contact 2 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 2 Email field in the Generation Plant record to which the generation fuel report record is linked.
	After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.

Field	Description
Survey Contact 2 Fax Number	Identifies the fax number of the person identified by the value in the Survey Contact 2 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 2 Fax Number field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 2 Name	Identifies an alternate person within the company for the EIA to contact with questions about the information in the report. This is an optional character field that is populated automatically with the value in the EIA Contact 2 Name field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 2 Phone	Identifies the phone number of the person identified by the value in the Survey Contact 2 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 2 Phone field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.
Survey Contact 2 Title	Identifies the title of the person identified by the value in the Survey Contact 2 Name field. This is an optional character field that is populated automatically with the value in the EIA Contact 2 Title field in the Generation Plant record to which the generation fuel report record is linked. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is included in EIA reports.

Field	Description
Thermal Output for Processes	Identifies the thermal output of cogeneration plants for processes *other than* power generation. This is an optional numeric field. After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match.
Type of Respondent	Indicates whether the plant is a utility or an independent power producer. This field is populated automatically with the value in the EIA Respondent Type field in the Generation Plant record to which the fuel report record is linked. This field must contain a value, and a baseline rule exists to populate this field with a list of the following values: • Regulated Generator • Unregulated Generator After the fuel report record has been created, this value can be modified and is not required to match the value in the field from which it was populated. We recommend, however, that you do *not* modify the value so that the values *will* match. This value is defined by the Energy Information Administration (EIA) and is included in EIA reports.
Zip Code	Identifies the zip code of the location of the plant. This is an optional character field that is populated automatically with the value in the Zip Code field in the Generation Plant record to which the generation fuel report record is linked. This value is defined by the Energy Information Administration (EIA) and is included in EIA reports.

Generation Plant

The following table provides a list and description of the fields that are defined for the Generation Plant family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Generation Plant records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet. Any field *not* designated as required in the following table is optional.

Field	Description
Address 1	Identifies the first line of the address of the plant. We recommend that you use the address that is on file with the EIA.
Address 2	Identifies the second line of the address of the plant. We recommend that you use the address that is on file with the EIA.
Area	Used to group Generation Plant records into an area. A baseline rule exists to populate this field with a list of each unique value that exists in the Area field in all other Generation Plant records.
City	Identifies the city in which the plant resides. We recommend that you use the city associated with the address that is on file with the EIA.
Company ID	Identifies the company that owns the plant. When a Generation Plant record is created, this field is populated automatically with the value in the Company ID field in the Generation Company record to which the Generation Plant record is linked. After the Generation Plant record exists, the value in this field can be modified and is not required to match the value in the Generation Company record.
Company Name	Identifies the full name of the company that owns the plant. When a Generation Plant record is created, this field is populated automatically with the value in the Company Name field in the Generation Company record to which the Generation Plant record is linked. After the Generation Plant record exists, the value in this field can be modified and is not required to match the value in the Generation Company record.
County	Indicates the county in which the plant resides. We recommend that you use the county associated with the address that is on file with the EIA.

Field	Description
Date/Time Alternate Format	Indicates the date and time format that will be used in records that are associated with the Generation Plant record.
DST Region	Indicates the DST region to be used when using Daylight Saving Time in Incident records. A baseline rule exists to populate this field with a list of each unique value that exists in the DST Region Code field in all Daylight Saving Time Reference records.
EIA Census Division	Identifies the name of the EIA census division of the plant. This field is disabled and populated automatically using the EIA Federal Region reference table. This value is defined by the Energy Information Administration (EIA).
EIA Contact 1 Email	Identifies the email address of the person identified by the value in the EIA Contact 1 Name field.
EIA Contact 1 Fax Number	Identifies the fax number of the person identified by the value in the EIA Contact 1 Name field.
EIA Contact 1 Name	Identifies the primary person within the company for the EIA to contact with questions.
EIA Contact 1 Phone	Identifies the telephone number of the person identified by the value in the EIA Contact 1 Name field.
EIA Contact 1 Title	A value that identifies the title of the person identified by the value in the EIA Contact 1 Name field.
EIA Contact 2 Email	Identifies the email address of the person identified by the value in the EIA Contact 2 Name field.
EIA Contact 2 Fax Number	Identifies the fax number of the person identified by the value in the EIA Contact2 Name field.
EIA Contact 2 Name	Identifies an alternate person within the company for the EIA to contact with questions.
EIA Contact 2 Phone	Identifies the telephone number of the person identified by the value in the EIA Contact 2 Name field.
EIA Contact 2 Title	Identifies the title of the person identified by the value in the EIA Contact 2 Name field.
EIA Federal Region	Identifies the EIA federal census division code of the plant. This field is disabled and populated automatically using values in EIA Federal Region records.This value is defined by the Energy Information Administration (EIA).

Field	Description
EIA Operator ID	Indicates the name of the person that operates the plant. This value is defined by the Energy Information Administration (EIA).
EIA Plant Code	Identifies the plant code to be used on EIA forms. This value is defined by the Energy Information Administration (EIA).
EIA Plant ID	Identifies the plant ID to be used on EIA forms. This value is defined by the Energy Information Administration (EIA).
EIA Plant Name	Identifies the name of the plant as it is reported to the EIA. This value is defined by the Energy Information Administration (EIA).
EIA Respond-ent ID	Identifies the ID assigned to the plant by the EIA. This value is defined by the Energy Information Administration (EIA).
EIA Respond-ent Name	Identifies the name of the respondent identified by the value in the EIA Respondent ID field. This value is defined by the Energy Information Administration (EIA).
EIA Respond-ent Type	Indicates whether the plant is a utility or an independent power producer. This field must contain a value, and a baseline rule exists to populate this field with a list of the following options: • Regulated Generator • Unregulated Generator This value is defined by the Energy Information Administration (EIA).
EIA Sector Name	Identifies the name of the EIA sector of the plant. This value is defined by the Energy Information Administration (EIA).
EIA Sector Num-ber	Identifies the number of the EIA sector of the plant. This value is defined by the Energy Information Administration (EIA).
EIA Utility Code	Identifies the company under which the plant operates. This value is defined by the Energy Information Administration (EIA).
Enterprise <1-8> Code	Optional character fields that are not used by Generation Management.
Enterprise <1-8> Description	Optional character fields that are not used by Generation Management.
GADS Region	Indicates the GADS region code of the plant. A baseline rule exists to populate this field with a list of System Codes in the MI_GM_POWER_REGION System Code Table. This value is defined by NERC in the GADS DRI.

Field	Description
GADS Subre-gion	Indicates the GADS subregion of the plant. A baseline rule exists to populate this field with a list of the System Codes in the MI_GM_POWER_SUBREGION System Code Table that contain a System Code Reference to the System Code identified by the value in the GADS Region field. This value is defined by NERC in the GADS DRI.
NAICS Code	Identifies the plant's NAICS code. This value is defined by the Energy Information Administration (EIA).
Organization	Identifies the organization to which the plant belongs.
Plant ID	Identifies the plant and is used to populate the Record ID. This is a character field that is required for all Generation Plant records. This value is defined by the Energy Information Administration (EIA).
Plant Name	Identifies the full name of the plant and is used to populate the Record ID. This is a character field that is required for all Generation Plant records. This value is defined by the Energy Information Administration (EIA).
State	Indicates the state in which the plant resides. We recommend that you use the state associated with the address that is on file with the EIA. A baseline rule exists to populate this field with a list of System Codes in the MI_GM_STATE System Code Table.
Use Daylight Saving Time	Indicates whether Daylight Saving Time should be used in records that are associated with the Generation Plant record. If the value in this field is: • *True*, Daylight Saving Time will be used. • *False*, Daylight Saving Time will *not* be used.
Zip Code	Identifies the zip code of the location of the plant. We recommend that you use the zip code associated with the address that is on file with the EIA.

Generation Pool

The following table provides a list and description of the fields that are defined for the Generation Pool family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

Field	Description
Business Category	A value that represents the category to which the Generation Unit record that is associated with the Generation Pool record belongs. This field contains a list of values in the Business Category field in all existing Generation Pool records and is a character field.
Enterprise Support <1-8> Code	A field that is not used by Generation Management and contains no value in the baseline Meridium APM database.
Enterprise Support <1-8> Description	A field that is not used by Generation Management and contains no value in the baseline Meridium APM database.
GADS Unit Type	A value that indicates the GADS unit type of the Generation Unit with which the Generation Pool record is associated. This field is disabled and populated automatically with the value in the GADS Unit Type field in the Generation Unit record identified in the Unit ID field.
Generation Pool Description	A value that describes the generation pool.
Generation Pool Name	A value that identifies the generation pool. This field contains a list of values in the Generation Pool Name field in all existing Generation Pool records and is a character field.
Gross Maximum Capacity	A value that indicates the gross maximum capacity of the Generation Unit record that is associated with the Generation Pool record. This field is disabled and populated automatically with the value in the Gross Maximum Capacity field in the Generation Unit record identified in the Unit ID field.
Net Maximum Capacity	A value that indicates the net maximum capacity of the Generation Unit record that is associated with the Generation Pool record. This field is disabled and populated automatically with the value in the Net Maximum Capacity field in the Generation Unit record identified in the Unit ID field.
Unit ID	A value that indicates the Generation Unit that is associated with the Generation Pool record. This field is required.

Field	Description
Unit Name	A value that indicates the Generation Unit that is associated with the Generation Pool record. This field is disabled and populated automatically with the value in the Unit Name field in the Generation Unit record identified in the Unit ID field.
Weighting Factor	A value that indicates the weighting factor for the Generation Unit record that is associated with the Generation Pool record. This field is required and is populated automatically with the value in the Net Maximum Capacity field in the Generation Unit record identified in the Unit ID field.

Generation Unit

The following table provides a list and description of the fields that are defined for the Generation Unit family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Generation Unit records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

> **Note:** The following list is not comprehensive and does not include all the fields that exist in the Generation Unit family in the baseline Meridium APM database.

Field	Description
AER Fuel Type Code <1, 2, 3, 4>	Identifies the AER fuel type code for the primary, secondary, tertiary, or quaternary fuel used by the unit. These are optional character fields, and baseline rules exists to populate these fields with values in Heating Value Ranges records.
APM Event Creation Reference Value	Used to determine when an APM Event record will be created. This is a numeric field that becomes enabled and required if the value in the APM Event Creation is *MWH Loss Exceeds Reference* or *Production Loss Exceeds Reference*.
APM Event Creation	Determines under what conditions APM Event records will be created. This is a required field, and a baseline rule exists to populate this field with a list of the following values: • All Primary Capacity Incidents • MWH Loss Exceeds Reference • Production Loss Exceeds Reference

Field	Description
Block Number	Identifies the generation block for the unit. This is an optional character field and contains a list of all values in the Block Number field in all other Generation Unit records.
	In Primary Capacity Incident records and Contributing Capacity Incident records that are linked to a Generation Unit record that has a value in the Block Number field, the following fields will contain the cause code values that are associated with the value in the GADS Unit Type field of ALL Generation Unit records which contain the *same* value in the Block Number field.
	• Cause Code System
	• Cause Code Component
	• Cause Code fields
Common Fuel Code <1, 2, 3, 4>	Identifies the common fuel code for the primary, secondary, tertiary, or quaternary fuel used by the unit. These are optional character fields, and baseline rules exist to populate these fields with values in Heating Value Ranges records.
Company ID	Identifies the company that owns the unit. When a Generation Unit record is first created, this field is populated automatically with the value in the Company ID field in the Generation Plant record to which the Generation Unit record is linked. After the Generation Unit record exists, the value in this field can be modified and is not required to match the value in the Generation Plant record. This is an optional character field.
Company Name	Identifies the full name of the company that owns the unit. When a Generation Unit record is first created, this field is populated automatically with the value in the Company Name field in the Generation Plant record to which the Generation Unit record is linked. After the Generation Unit record exists, the value in this field can be modified and is not required to match the value in the Generation Plant record. This is an optional character field.

Field	Description
Create Outside Management Control Statistics?	Indicates whether a Capacity History record will be created to exclude Primary Capacity Incident records and Contributing Capacity Incident records in which the value in the OMC Event field is *True*. If the value in this field is: • *True*, a Capacity History record *will* be created to exclude data for OMC events. • *False*, a Capacity History record will NOT be created to exclude data for OMC events.
Default Unit Loading	Indicates the time during which the unit is responsible for generating power. This is a required field, and a baseline rule exists to populate this field with a list of System Codes in the MI_GM_UNIT_LOADING System Code Table.
Demonstrated Gross Maximum Capacity	Indicates the gross maximum capacity that the unit has demonstrated on a continuous basis. This is an optional numeric field.
Demonstrated Net Maximum Capacity	Indicates the net maximum capacity that the unit has demonstrated on a continuous basis. This is an optional numeric field.
Derating Calculation Method	Used by the History Rollup Query when it rolls up incident data in the order that the incidents occurred based on their start date. This field must contain a value. You should accept the default value, *Event Order Number*. You should NOT select *Ranked Masking* and *All Additives*.
EIA Combined Heat and Power Unit	Indicates whether the unit generates both heat and electricity. If the value in this field is: • *True*, it indicates that the unit IS a combined heat and power unit. • *False*, it indicates that the unit is NOT a combined heat and power unit and generates either heat OR power, but not both.
EIA Energy Source <1, 2, 3, 4>	Identifies the EIA energy source code for the primary, secondary, tertiary, or quaternary fuel used by the unit. These fields are optional but are required for each fuel for which a NERC fuel code is defined in order to generate useful EIA fuel reports. Baseline rules exist to populate these fields with values from Heating Value Ranges records.

Field	Description
EIA Generator ID	Identifies the generator. This is an optional character field. This value is defined by the Energy Information Administration (EIA).
EIA Generator Nameplate Capacity	Identifies the generator nameplate capacity of the unit. This is an optional numeric field. This value is defined by the Energy Information Administration (EIA).
EIA Plant Code	Identifies the plant in which the unit resides. This is an optional numeric field. We recommend that you populate this field with the value in the EIA Plant Code field in the Generation Plant record to which the Generation Unit record is linked. This value is defined by the Energy Information Administration (EIA).
EIA Prime Mover Type	Identifies the prime mover of the of the unit. A baseline rule exists to populate this field with a list of System Codes in the MI_GM_PRIME_MOVER_CODE System Code Table. This is an optional field but is required to generate useful EIA fuel reports.
EIA Utility Code	Identifies the EIA Utility Code of the plant in which the unit resides. This is an optional numeric field. We recommend that you populate this field with the value in the EIA Utility Code field in the Generation Plant record to which the Generation Unit record is linked. This value is defined by the Energy Information Administration (EIA).
Enterprise Support <1-8> Code	Optional character fields that are not used by Generation Management.
Enterprise Support <1-8> Description	Optional character fields that are not used by Generation Management.

Field	Description
GADS Data Locked	Determines whether Primary Capacity Incident or Capacity History records that are linked to the Generation Unit record can be modified. If the value in this field is: • *True*, only a member of the MI Generation Management Administrator Security Group will be allowed to create Primary Capacity Incident or Capacity History records to link to the Generation Unit record or modify Primary Capacity Incident records or Capacity History records that are already linked to the Generation Unit record. • *False*, the ability to create and modify Primary Capacity Incident records and Capacity History records will be controlled by GM Role-Based Security.
GADS Net Rating	Identifies the manufacturer's official net rating for the unit. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
GADS Region	Indicates the GADS region code of the plant in which the unit resides. This is a required field, and a baseline rule exists to populate this field with a list of System Codes in the MI_GM_POWER_REGION System Code Table. This value is defined by NERC in the GADS DRI.
GADS Subregion	Indicates the GADS subregion of the plant in which the unit resides. This is an optional field, and a baseline rule exists to populate this field with a list of the System Codes in the MI_GM_POWER_SUBREGION System Code Table that contain a System Code Reference to the System Code identified by the value in the GADS Region field. This value is defined by NERC in the GADS DRI.
GADS Unit Code	Identifies the unit in NERC reports. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
GADS Unit Type	Identifies the type of unit. This is a required field, and a baseline rule exists to populate this field with a list of System Codes in the MI_GM_UNIT_TYPE System Code Table. Note that the value in this field will be used in conjunction with the Gross Maximum Capacity or Net Maximum Capacity to calculate missing capacity values. This value is defined by NERC in the GADS DRI.

Field	Description
GADS Utility Code	Identifies the utility under which the unit operates. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
Generation Cost Model	Determines how the Potential Capacity Incident Cost will be calculated in Primary Capacity Incident records that are linked to the Generation Unit record. This is a required field, and a baseline rule exists to populate this field with a list of the following values: • Price Curve • Reference Value • No Cost Calculation
Generation Cost Reference Value	Determines the cost of power lost by reduced capacity of the unit. This is a numeric field that becomes enabled and required when the value in the Generation Cost Model field is set to *Reference Value*.
Gross Dependable Capacity	Identifies the gross dependable electrical generation capacity of the unit. This is a numeric field that must contain a value.
Gross Maximum Capacity	Identifies the gross maximum electrical generation capacity of the unit. Either this field or the Net Maximum Capacity field must be populated in order to save a Generation Unit record.
Net Dependable Capacity	Identifies the net dependable electrical generation capacity of the unit. This is a numeric field that must contain a value.
Net Maximum Capacity	Identifies the net maximum electrical generation capacity of the unit. Either this field or the Gross Maximum Capacity field must be populated in order to save a Generation Unit record.
Percent Generation	Represents the percentage of the unit's generation from the unit that belongs to the company represented by the Generation Company record that is associated with the Generation Unit record. This is an optional numeric field.
Percent Operated	Represents the percentage of the unit's operation that belongs to the company represented by the Generation Company record that is associated with the Generation Unit record. This is an optional numeric field.

Field	Description
Percent Owned	Represents the percentage of the unit owned by the company represented by the Generation Company record that is associated with the Generation Unit record. This is an optional numeric field.
Plant ID	Identifies the plant in which the unit resides. When a Generation Unit record is created, this field is populated automatically with the value in the Plant ID field in the Generation Plant record to which the Generation Unit record is linked. After the Generation Unit record exists, the value in this field can be modified and is not required to match the value in the Generation Plant record. This is an optional character field.
Plant Name	Identifies the full name of the plant in which the unit resides. When a Generation Unit record is created, this field is populated automatically with the value in the Plant Name field in the Generation Plant record to which the Generation Unit record is linked. After the Generation Unit record exists, the value in this field can be modified and is not required to match the value in the Generation Plant record. This is an optional character field.
Primary Fuel Code	Identifies the NERC fuel code for the primary fuel used by the unit. This is a required field, and a baseline rule exists to populate this field with values in Heating Value Ranges records.
Quaternary Fuel Code	Identifies the NERC fuel code for the quaternary fuel used by the unit. This is an optional field, and a baseline rule exists to populate this field with values in Heating Value Ranges records.
Report Capacity Data	Specifies how incident data should be reported for Primary Capacity Incident records that are linked to the Generation Unit record. This is a required field, and a baseline rule exists to populate this field with a list of the following values: *NERC*, *Internal*, *NERC and Internal*, and *Do Not Report*. This field is set to *NERC* by default.
Report EIA906 Annually?	Indicates whether you will use the information in the Incident records that are linked to the Generation Unit record to create Generation Fuel Annual Report records with the same Prime Mover and Energy Source Code values as the current Generation Unit record. This field is optional but is required to generate useful EIA annual reports.

Field	Description
Report EIA906 Monthly?	Indicates whether you will use the information in the Incident records that are linked to the Generation Unit record to create Generation Fuel Monthly Report records with the same Prime Mover and Energy Source Code values as the current Generation Unit record. This field is optional but is required to generate useful EIA monthly reports.
Secondary Fuel Code	Identifies the NERC fuel code for the secondary fuel used by the unit. This is an optional character field, and a baseline rule exists to populate this field with values in Heating Value Ranges records.
Summer Net Capacity	Identifies the demonstrated net capacity under summer conditions. This is an optional numeric field. This value is defined by the Energy Information Administration (EIA).
Tertiary Fuel Code	Identifies the NERC fuel code for the tertiary fuel used by the unit. This is an optional character field, and a baseline rule exists to populate this field with values in Heating Value Ranges records.
Unit Hyperlink Address	Determines the URL of the hyperlink contained in the Unit Web Site Link field. This is an optional character field. Note that for the link in the Unit Web Site Link field to function properly, you must include the scheme (e.g., http://) in the value in this field.
Unit ID	Identifies the unit and is used to populate the Record ID. This is a required character field. The value in this field should not exceed 50 characters in length. While you can save a Generation Unit record that contains more than 50 characters in this field, when you attempt to create a Primary Capacity Incident record for that unit, an error message will be displayed.
Unit Name	Identifies the full name of the unit and is used to populate the Record ID. This is a required character field.
Unit Operating Characteristics	Stores any information about the unit that is not captured in other fields. This is an optional character field.

Field	Description
Unit State	Indicates whether the unit represented by the Generation Unit record is active. This is a required field, and a baseline rule exists to populate this field with a list of the following values: • Active • Inactive Note that in new Generation Unit records, the value in this field is *Active* by default.
Unit Web Site Link	Can be used to link to a website for the unit. • If the Unit Hyperlink Address field contains any value, this field will display a hyperlink with the text *Unit Web Site Link*. If the value in the Unit Hyperlink Address field is a value URL, clicking the link will open the associated website in Internet Explorer. • If the Unit Hyperlink Address field contains NO value, this field will display a hyperlink with the text *Website not found* that will open the Meridium, Inc. website (i.e., www.meridium.com).
Verbal Description	Stores a description of the unit. This is an optional character field.
Winter Net Capacity	Identifies the demonstrated net capacity under winter conditions. This is an optional numeric field. This value is defined by the Energy Information Administration (EIA).
Zone	Identifies the zone in which the unit resides for the purpose of associating Power Price Curve records with the Generation Unit record. If the value in the Generation Cost Model field is *Price Curve*, this field becomes required and the value will be used to associate Power Price Curve records with the same Zone with incidents linked to the Generation Unit record. A baseline rule exists to populate this field with a list of System Codes in the MI_GM_POWER_PRICE_ZONE System Code Table.

Heating Value Ranges

The following table provides a list and description of the fields in the Heating Value Ranges family that are used to populate fuel code fields in Generation Unit, Capacity History, and fuel report records. Any field that is NOT listed in this table is NOT used in the baseline GM product.

Field	Description
AER Fuel Code	Identifies the fuel using the EIA AER fuel code for the fuel. This value is defined by the Energy Information Administration (EIA).
AER Fuel Description	Describes the fuel as defined in the EIA AER. This value is defined by the Energy Information Administration (EIA).
Common Fuel Code	Identifies a common code for the fuel as defined by Meridium APM.
Common Fuel Description	Describes the fuel as define by Meridium APM.
Fuel Type Description	Describes the fuel as defined by the EIA.
Fuel Type	Identifies the EIA energy source code for the fuel.
Fuel Unit of Measure	Identifies the unit of measure associated with the fuel.
Heat Content High	Identifies the highest potential heat content of the fuel. This value is defined by the Energy Information Administration (EIA).
Heat Content Low	Identifies the lowest potential heat content of the fuel. This value is defined by the Energy Information Administration (EIA).
Heat Content Unit of Measure	Identifies the unit of measure used in measuring heat content associated with the fuel. This value is defined by the Energy Information Administration (EIA).
NERC Fuel Code	Identifies the NERC fuel code for the fuel. This value is defined by NERC in the GADS DRI.
NERC Fuel Description	Describes the fuel as defined by NERC. This value is defined by NERC in the GADS DRI.

Incident

The following table provides a list and description of the fields that are defined for the Primary Capacity Incident and Contributing Capacity Incident families in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Primary Capacity Incident and Contributing Capacity Incident records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

> **Note:** Any field that is defined for these families but *not* listed in the following table is *not* used in the baseline GM product.

Field	Description
Amplification Code	Identifies the failure mode of the event. This field becomes enabled when the Cause Code field is populated with a value. A baseline rule exists to populate this field with a list of System Codes in the MI_GM_AMPLIFICATION_CODE System Code Table. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Block Number	Identifies the block number in which the event occurred. This field is disabled and is populated automatically with the value in the Block Number field in the Generation Unit record to which the Primary Capacity Incident record is linked.
Capacity Event Type	Identifies the type of event. • In Primary Capacity Incident records, this field contains a list of System Codes defined in the MI_GM_EVENT_TYPE_ CODE System Code Table. • In Contributing Capacity Incident records, this field is disabled and populated automatically with the value in the Capacity Event Type field in the Primary Capacity Incident record to which it is linked. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Capacity Event Type Descr	Describes the event. This field is disabled and populated automatically with the value in the Capacity Event Type field. The field caption for this field in Contributing Capacity Incident records is Capacity Event Type Desc.

Field	Description
Capacity Incident Cost	Identifies the potential cost of the event. This is an optional field that is disabled and populated automatically with the calculated incident cost, if a cost has been calculated. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Cause Code	Identifies the cause code of the cause for the incident. This is an optional field, and a baseline rule exists to populate this field with a list of values in fields in GADS Cause Codes records using the format *Cause Code (Cause Code Description)*. This value is defined by NERC in the GADS DRI.
Cause Code Component	Identifies the cause code component for the cause of the incident. This is an optional field, and a baseline rule exists to populate this field with a list of values in the Component field in GADS Cause Codes records. This value is defined by NERC in the GADS DRI.
Cause Code Description	Describes the cause code associated with the incident. This field is disabled and populated automatically with the value in the Cause Code Description field in the GADS Cause Code record with a value in the Cause Code field that matches the value in the Cause Code field in the Incident record. This value is defined by NERC in the GADS DRI.
Cause Code System	Identifies the system for the cause code associated with the incident. This is an optional field, and a baseline rule exists to populate this field with a list of values in the System field in GADS Cause Code records. This value is defined by NERC in the GADS DRI.
Contributing Incidents Count	Indicates the number of Contributing Capacity Incident records that exist for the Primary Capacity Incident record. This field is disabled and populated automatically with a value that indicates the number of Contributing Capacity Incident records that are linked to the Primary Capacity Incident record. The value in this field is updated each time you link a new Contributing Capacity Incident record to the Primary Capacity Incident record and each time you unlink a Contributing Capacity Incident record from the Primary Capacity Incident record. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
Cost Calculation Status	Indicates the status of the cost calculation. This field is populated automatically with information regarding the status of the calculation performed in the Capacity Incident Cost field. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Dominant Derate	Indicates whether the Incident record represents the dominant derate event. This field is optional and becomes enabled when the Capacity Event Type field contains a value that identifies the event as a derate event. If the value in this field is: • *True*, the Incident record represents the dominant derate event. • *False*, the Incident record does *not* represent the dominant derate event. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
End Date is Estimated?	Indicates whether the value in the Event End Date field is an estimate. If the value in this field is: • *True*, the value in the Event End Date field represents an estimate of when the event ended. • *False*, the value in the Event End Date field represents the actual time that the event ended.
Event Contribution Code	Indicates how the incident contributed to the event. This field will always contain a value. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Event Duration	Indicates how long the event lasted. This field is disabled and calculated automatically using the following formula: **Event Start Date + Event End Date** Note that the Event Duration takes into account any existing Daylight Saving Time Reference records for the time period between the Event Start Date and Event End Date. This value is defined by NERC in the GADS DRI.

Field	Description
Event End Date	Indicates the date and time that the incident ended. • In Primary Capacity Incident records, this field will always contain a value by may or may not appear on the data-sheet. When you save the Primary Capacity Incident record: ■ If this field contains a value and the Event End Date (Alternate Format) field does *not*, the Event End Date (Alternate Format) field will be populated automatically with the value in this field. ■ If neither the Event End Date field NOR the Event End Date (Alternate Format) field contains a value, they will both be populated automatically with a value that indicates that the incident ended on the last day of the month specified in the value in the Event Start Date field at 11:59 P.M. and the End Date is Estimated? field will be set to *True*. • In Contributing Capacity Incident records, this field is disabled and is populated automatically with the value in the Event End Date field from the Primary Capacity Incident record to which it is linked. Note that you cannot specify a value in the Event End Date field with a year that is *different* from the year in the value in the Event Start field. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Event End Date (Alternate Format)	Indicates the date and time that the incident ended. This is an optional field that will always contain a value that uses the date and time format specified for the Generation Plant record that is associated with the Primary Capacity Incident record. • When you populate this field with a value, the Event End Date field will be populated automatically with that value. • If this field does *not* contain a value, it will be populated with the value in the Event End Date field when the Incident record is saved. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
Event ID	• In Primary Capacity Incident records, this value identifies the incident with a value that is unique to all Primary Capacity Incident records that are linked to a given Generation Unit record. This field is disabled and populated automatically. • In Contributing Capacity Incident records, this value identifies the Primary Capacity Incident record for which the Contributing Capacity Incident record exists. This field is disabled and populated automatically.
Event Number	Indicates the order in which the incident occurred with respect to other incidents that exist for the same unit. • In Primary Capacity Incident records, a value that indicates the chronological order in which the event took place. When you create a Primary Capacity Incident record, this field is populated automatically. For example, when you create the *third* Primary Capacity Incident record for a given Generation Unit record for a given reporting month and year, this field will be populated automatically with the value *3* (three). • In Contributing Capacity Incident records, this field is populated automatically with the value in the Event Number field in the Primary Capacity Incident record to which it is linked. This value is defined by NERC in the GADS DRI.

Field	Description
Event Start Date	Indicates the date and time that the incident began. • In Primary Capacity Incident records, if neither this field nor the Event Start Date (Alternate Format) fields contain a value, this is a required date field. When you save the Primary Capacity Incident record, if this field contains a value and the Event Start Date (Alternate Format) field does *not*, the Event Start Date (Alternate Format) field will be populated automatically with the value in this field. Note that you cannot specify a value in the Event Start Date field with a year that is *different* from the year in the value in the Event End field. • In Contributing Capacity Incident records, this field is disabled and is populated automatically with the Event Start Date value in the Primary Capacity Incident record to which it is linked. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Event Start Date (Alternate Format)	Indicates the date and time that the incident started. This is an optional field that will contain a value that uses the date and time format specified for the Generation Plant record that is associated with the Primary Capacity Incident record. • When you populate this field with a value, the Event Start Date field will be populated automatically with that value. • If this field does *not* contain a value, it will be populated with the value in the Event Start Date field when the Incident record is saved. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Event Type	Indicates the type of event represented by the Incident record. This is an optional character field.
Failure Mechanism	Indicates the manner in which the component failed. This is an optional field, and a baseline rule exists to populate this field with a list of System Codes in the MI_GM_FAILURE_MECHANISM System Code Table. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
GADS Unit Code	Identifies the GADS Unit Code of the unit at which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI and included in NERC event reports.
GADS Unit Type	Identifies the GADS Unit Type of the unit at which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI.
GADS Utility Code	Identifies the GADS Utility Code of the utility under which the unit at which the incident occurred operates. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Generation Cost Model	Identifies the method that will be used to calculate the cost of the incident. This is an optional character field that is populated automatically with the value in the Generation Cost Model field in the Generation Unit record that contains a value in the Unit ID field that matches the value in the Unit ID field in the Incident record. After the Incident record has been created, this field can be modified, and the value is not required to match the value in the Generation Cost Model field in the Generation Unit record. We recommend that you do not modify the value in this field. If you do so, the incident cost will not be calculated.
Generation Cost Ref Value	Identifies the reference value that will be used to calculate the cost of the incident if the value in the Generation Cost Model field is *Reference Value*. This field is populated automatically with the value in the Generation Cost Reference Value field in the Generation Unit record that contains a value in the Unit ID field that matches the value in the Unit ID field in the Incident record. After the Incident record has been created, this field can be modified, and the value is not required to match the value in the Generation Cost Model field in the Generation Unit record. If you change the value in this field, the incident cost will be calculated using the new value.

Field	Description
Gross Available Capacity	Identifies the gross available generation capacity of the unit during the event. • In Primary Capacity Incident records, this field contains a value that is calculated depending on the value in the Capacity Event Type field. If the value in the Capacity Event Type field contains a value that identifies the event as: ▪ A derate event, this field will become *required*, and the value must be less than the value in the Gross Dependable Capacity field. This field is cleared and becomes required when the Gross Derate Amount field contains no value or the value *0* (zero). If the Gross Derate Amount field contains a value other than *0* (zero), this field will be populated automatically using the following formula: **Gross Dependable Capacity - Gross Derate Amount** ▪ An outage event, this field will become disabled and populated with the value *0* (zero). • In Contributing Capacity Incident records, this field is disabled and populated automatically with the value in the Gross Available Capacity field in the Primary Capacity Incident record to which it is linked. This value is defined by NERC in the GADS DRI.
Gross Dependable Capacity	Identifies the gross dependable generation capacity of the unit at which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
Gross Derate Amount	Indicates the gross amount of generation capacity that was lost during the event.
	• In Primary Capacity Incident records, this value is used to calculate the value in the Gross Available Capacity field. The default value is *0* (zero). If the value in the Capacity Event Type field contains a value that identifies the event as:
	▪ A derate event, this field will be optional. If this field contains a value other than *0* (zero), the value in the Gross Available Capacity field will be disabled and populated automatically using the following formula:
	Gross Dependable Capacity - Gross Derate Amount
	If this field contains NO value or the value *0* (zero), the Gross Available Capacity field becomes required.
	▪ An outage event, this field will become disabled and populated with the value *0* (zero).
	• In Contributing Capacity Incident records, this field is disabled and populated automatically with the value in the Gross Derate Amount field in the Generation Unit record for which the Contributing Capacity Incident record exists.
	This value is defined by NERC in the GADS DRI.
Gross Maximum Capacity	Identifies the gross maximum generation capacity of the unit. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI.
Incident Reported Date	The date and time that the incident was reported. When the Incident Reporting Status field is set to *Corporate Approval*, this field becomes disabled and populated automatically with the current date and time when the Incident Reporting Status field is set to the value *Corporate Approval*. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
Incident Reporting Status	A value that represents the level of approval for the Incident record. This field is set to the value *Created* by default, and a baseline rule exists to populate this field with a list of the following values: • **Created:** The Incident record has not begun the approval process. • **Unit Level Approval:** The incident has unit-level approval. • **Corporate Approval:** The unit has corporate-level approval. When this field is set to the value *Corporate Approval*, all other fields in the Incident record become disabled.
Incident Validation Status	A value that indicates the validity of the record. If this field contains the value: • *INVALID*, one or more values in the Incident record are invalid, and you will be unable to set the value in the Incident Reporting Status field to *Unit Level Approval*. If the value in this field contains *INVALID*, this field will contain additional information regarding what value is invalid and why. • *Valid*, all calculations and values in the Incident record are valid. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Man-hours Worked	Identifies the number of man hours that were worked correcting the cause of the event or repairing the unit. This is an optional numeric field. This value is defined by NERC in the GADS DRI.
Meridium Event Family	Identifies the family to which the Incident record belongs. • In Primary Capacity Incident records, this field is disabled and populated automatically with the value *Primary Capacity Incident*. • In Contributing Capacity Incident records, this field is disabled and populated automatically with the value *Contributing Capacity Incident*.

Field	Description

Net Available Capacity	Identifies the net available capacity of the unit during the event.
	
	• In Primary Capacity Incident records, this field contains a value that is calculated depending on the value contained in the Capacity Event Type field. If the value in the Capacity Event Type field contains a value that identifies the event as:
	
	   ■ A derate event, this field will become *required*, and the value must be less than the value in the Net Dependable Capacity field. This field is cleared and becomes required when the Net Derate Amount field contains no value or the value *0* (zero). If the Net Derate Amount field contains a value, this field will be populated automatically using the following formula:
	
	   Net Dependable Capacity - Net Derate Amount
	
	   ■ An outage event, this field will become disabled and populated with the value *0* (zero).
	
	• In Contributing Capacity Incident records, this field is disabled and populated automatically with the value in the Net Available Capacity field in the Generation Unit record that contains a value in the Unit ID field that matches the value in the Unit ID field in the Incident record.
	
	This value is defined by NERC in the GADS DRI.

Net Dependable Capacity	Identifies the net dependable generation capacity of the unit at which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description

Net Derate Amount	Indicates the net amount of generation capacity that was lost during the event.
	
	• In Primary Capacity Incident records, this value is used to calculate the value in the Net Available Capacity field. The default value is *0* (zero). If the value in the Capacity Event Type field contains a value that identifies the event as:
	
	    ■ A derate event, this field is an optional field. If this field contains a value other than *0* (zero), the value in the Net Available Capacity field will be disabled and populated automatically using the following formula:
	
	    Net Dependable Capacity - Net Derate Amount
	
	    If this field contains *no* value or the value *0* (zero), the Net Available Capacity field is cleared and becomes required.
	
	    ■ An outage event, this field will become disabled and populated with the value *0* (zero).
	
	• In Contributing Capacity Incident records, this field is disabled and populated automatically with the value in the Net Derate Amount field in the Generation Unit record that contains a value in the Unit ID field that matches the value in the Unit ID field in the Incident record.
	
	This value is defined by NERC in the GADS DRI.

Net Maximum Capacity	Identifies the net maximum generation capacity of the unit at which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records. This value is defined by NERC in the GADS DRI.
OMC Event	Indicates whether the incident occurred for reasons that are outside of management control, such as a flood or lightning. If the value in this field is: • *True*, the event is considered *outside* of management control. • *False*, the event is considered to be *within* management control. This value is defined by NERC in the GADS DRI.

Field	Description
Plant ID	Identifies the plant in which the unit at which the incident occurred resides. This field is populated automatically with the value in the Plant ID field in the Generation Plant record to which the Generation Unit record for which the Incident record exists is linked.
Plant Name	Identifies the plant in which the unit at which the incident occurred resides. This field is populated automatically with the value in the Plant Name field in the Generation Plant record to which the Generation Unit record for which the Incident record exists is linked.
Primary Incident ID	Identifies the Primary Capacity Incident for which the Contributing Capacity Incident record exists. This field is disabled and populated automatically with the value in the Event ID field in the Primary Capacity Incident record to which the Contributing Capacity Incident record is linked. This field exists in the Contributing Capacity Incident family but not the Primary Capacity Incident family.
Problem Alert	Indicates whether the problem that caused the event is the result of a design flaw or standard operating practices. If the value in this field is: • *True*, the problem was the result of a design flaw or standard operating practices. • *False*, the problem was the result of another cause.
Refresh Incident Cost	Indicates whether the Meridium APM system should refresh the cost calculation for the Primary Capacity Incident record. When you save the Primary Capacity Incident record, if the value in this field is: • *True*, the Meridium APM system will update the value in the Capacity Incident Cost field and then save the new value, along with any other changes that you made the Primary Capacity Incident record. • *False*, the Meridium APM system will save any changes that you made to the Primary Capacity Incident record but will NOT update the value in the Capacity Incident Cost field.
Reporting Month	Identifies the month for which the data in the Primary Capacity Incident record should be reported. This field is populated automatically with the month indicated by the value in the Event Start Date field. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.

Field	Description
Reporting Year	Identifies the year for which the data in the Primary Capacity Incident record should be reported. This field is populated automatically with the year indicated by the value in the Event Start Date field. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Revision	Identifies the revision number of the Incident record and should be incremented each time you re-submit a report which includes information in the Incident record to NERC. This value is defined by NERC in the GADS DRI.
Start Date is Estimated?	Indicates whether the value in the Event Start Date field is an estimate. If the value in this field is: • *True*, the value in the Event Start Date field represents an estimate of when the event began. • *False*, the value in the Event Start Date field represents the actual time that the event began. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Total Eng Starts at Evnt Time	Identifies the total number of engine starts the unit had experienced as of the time the event occurred. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Total Eqv Derate Hrs wo Shadow	Identifies the total loss of capacity in terms of the number of hours that were lost if the unit operated at the net dependable capacity as a result of the event. This field is disabled and populated automatically using the following formula: **((Net Dependable Capacity - Net Available Capacity) / Net Maximum Capacity) x Event Duration** This value is defined by NERC in the GADS DRI.
Total Eqv Derate MWh wo Shadow	Identifies the total MWH lost as a result of the event. This field is disabled and populated automatically using the following formula: **(((Net Dependable Capacity - Net Available Capacity) / Net Maximum Capacity) x Event Duration) x Net Maximum Capacity** This value is defined by NERC in the GADS DRI and.

Field	Description
Total Fired Hrs at Evnt Time	Identifies the total cumulative number of hours the unit spent generating power as of the time the event occurred. This value is defined by NERC in the GADS DRI.
Trip Mech-anism	Indicates how the unit was shut down during the event. This is an optional field that contains no value by default, and a baseline rule exists to populate this field with a list of the following values: • **A - Automatic:** The unit shut down automatically. • **M - Manual:** The unit was shut down manual by an oper-ator. Note that after you select a value in this field and save the Incid-ent record, you will *not* be able to clear the field. This value is defined by NERC in the GADS DRI. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Unit ID	Identifies the Unit ID of the Generation Unit record with which the Incident record is associated. • In Primary Capacity Incident records, this field is required, and a baseline rule exists to populate this field with a list of values from the Unit ID and Unit Name fields in all Gen-eration Unit records that you have permission to modify using the formula *Unit ID (Unit Name)*. Note that after the Primary Capacity Incident record has been created, this field will become disabled. • In Contributing Capacity Incident records, this field is dis-abled and populated automatically with the value in the Unit ID field in the Primary Capacity Incident record for which the Contributing Capacity Incident record exists.
Unit Name	Identifies the name of the unit to which the incident occurred. This field is populated automatically using values from Capacity History, Generation Forecast, or Generation Unit records.

Field	Description
Validate Incident	Indicates whether the Meridium APM system will validate the record against all other existing Primary Capacity Incident records. When you save the Primary Capacity Incident record, if the value in this field is: • *True*, the Meridium APM system will check all other Primary Capacity Incident records to validate any sequential incident pairs of which the Primary Capacity Incident record is a part, update the value in the Incident Validation Status field if necessary, and then save the Primary Capacity Incident record to the database. • *False*, the Meridium APM system will save any changes that you made to the record, but will *not* validate the Primary Capacity Incident record against any other Primary Capacity Incident records. This field exists in the Primary Capacity Incident family but not the Contributing Capacity Incident family.
Verbal Description	Describes the incident. This is an optional character field that can be used to store any information about the incident that is not captured in the other fields in the Incident record. If the Cause Code field is populated with any value, the Verbal Description field is required. The value in this field cannot match the value in the Cause Code Description field, except when the Cause Code Description field contains the value *Reserve Shutdown*.
Work Duration	Indicates the duration of the work that was completed as a result of the event. This field is disabled and populated automatically using the following formula: **Work Started + Work Ended**
Work Ended	Indicates the date and time when work on the unit ended as a result of the incident. This is an optional date field. You can populate either this field or the Work Ended (Alternate Format) field, and the empty field will be populated automatically with the same value. [This value is defined by NERC in the GADS DRI](#) and [included in NERC event reports](#).

Field	Description
Work Ended (Alternate Format)	Indicates the date and time when work on the unit ended as a result of the incident. This is an optional field that must contain a value that uses the date and time format specified for the Generation Plant record that is associated with the Incident record. You can populate either this field or the Work Ended field, and the empty field will be populated automatically with the same value.
Work Started	Indicates the date and time when work on the unit started as a result of the incident. This is an optional date field. You can populate either this field or the Work Started (Alternate Format) field, and the empty field will be populated automatically with the same value. This value is defined by NERC in the GADS DRI and included in NERC event reports.
Work Started (Alternate Format)	Indicates the date and time when work on the unit started as a result of the incident. This is an optional field. When it contains a value, the value must use the date and time format specified for the Generation Plant record that is associated with the Incident record. You can populate either this field or the Work Started field, and the empty field will be populated automatically with the same value.

Plant Reference

The following table provides a list and description of the fields that are defined for the Plant Reference family in the baseline Meridium APM database. The descriptions in the following table reflect how the fields will be used when Plant Reference records are used to create Generation Plant records using the Create Plant query. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet. Any field that is NOT listed in this table is NOT used in the baseline GM product.

Field	Description
Address 1	Used to populate the Address 1 field.
Address 2	Used to populate the Address 2 field.
Area	Used to populate the Area field.
City	Used to populate the City field.
County	Used to populate the County field.
EIA Plant Code	Used to populate the EIA Plant Code and EIA Plant ID fields.
EIA Utility Code	Used to populate the EIA Utility Code field.
Plant ID	Used to populate the Plant ID.
Plant Name	Used to populate the Plant Name field.
State	Used to populate the State field.
Utility ID	Used to populate the Company ID field.
Utility Name	Used to populate the Company Name field.
Zip Code	Used to populate the Zip Code field.

Power Price Curve

The following table provides a list and description of the fields that are defined for the Power Price Curve family in the baseline Meridium APM database. The descriptions in the following table reflect baseline behavior and assume that you have created Power Price Curve records using the recommended workflow. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet.

Field	Description
Enterprise Support <1-8> Code	Not used.
Enterprise Support <1-8> Description	Not used.
Power Price Date	Indicates the time, day, month, and year for which the Power Price Curve record represents the price. This is a required date field.
Power Price Month	Indicates the month for which the Power Price Curve record represents the price. This field is disabled and populated automatically with the month in the Power Price Date field.
Power Price Year	Indicates the year for which the Power Price Curve record represents the price. This field is disabled and populated automatically with the year in the Power Price Date field.
Price	Identifies the price of power *ending* at the time indicated in the Power Price Date field. This is a required numeric field.
Zone	Identifies the zone for which the Power Price Curve Record represents the price of power. When the price of power is calculated for a Primary Capacity Incident record, the Meridium APM system uses Power Price Curve records with a value in the Zone field that matches the value in the Zone field in the Generation Unit record to which the Primary Capacity Incident record is linked. This is a required field, and a baseline rule exists to populate this field with a list of System Codes in the MI_GM_POWER_PRICE_ZONE System Code Table.

Unit Reference

The following table provides a list and description of the fields that are defined for the Unit Reference family in the baseline Meridium APM database. The descriptions in the following table reflect how the fields will be used when Unit Reference records are used to create Generation Unit records via the Create Unit query. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet. Any field that is NOT listed in this table is NOT used in the baseline GM product.

Field	Description
GADS Region Code	Used to populate the GADS Region field. The Create Unit query contains a prompt on this field so that when you run the query, you can select a region and limit the results based upon that selection.
GADS Unit Code	Used to populate the GADS Unit Code field.
GADS Unit Name	Used to populate the Unit Name field.
GADS Utility Code	Used to populate the GADS Utility Code field.
MW Rating	Used to populate the GADS Net Rating field.
State	Used as a prompt in the Create Unit query. When you run the query, you can select a state and limit the results based upon that selection.
Unit Type	Used to populate the GADS Unit Type field.

Utilities Reference

The following table provides a list and description of the fields that are defined for the Utilities Reference family in the baseline Meridium APM database. The descriptions in the following table reflect how the fields will be used when Utilities Reference records are used to create Generation Company records via the Create Company query. Fields are listed in alphabetical order in the following table; they may not appear or may appear in a different order on each datasheet. Any field that is NOT listed in this table is NOT used in the baseline GM product.

Field	Description
Address 1	Used to populate the Address 1 field.
Address 2	Used to populate the Address 2 field.
City	Used to populate the City field.
Council	Used to populate the Council field.
GADS Utility Code	Used to populate the GADS Utility Code field.
GADS Utility Name	Used to populate the Company Name field.
GADS Utility Record Number	Not used to populate any fields but is a required numeric field.
Keyword	Used to populate the Keyword field.
Phone Fax	Used to populate the Phone Fax field.
Phone Voice	Used to populate the Phone Voice field.
State	Used to populate the State field.
Zip Code	Used to populate the Zip Code field.

System Code Tables Used by GM

The following table provides a list of the System Code Tables that are used by GM.

Table ID	Table Description	Function
MI_GM_AER_FUEL_CODE	Generation Management, AER Fuel Types and Description	Populates the list of values in the **Primary Fuel Code** field on the **Defaults** tab of Generation Unit records.
MI_GM_AMPLIFICATION_ CODE	Generation Management, Amplification Code	Populates the list of values in the **Amplification Code** field in Primary Capacity Incident records.
MI_GM_ENERGY_SOURCE	Generation Management, EIA Energy Source	Populates the list of values in the **Energy Source Code** field in Generation Fuel Annual Report and Generation Fuel Monthly Report records.
MI_GM_EVENT_TYPE_ CODE	Generation Management, GM Event Type Code	Populates the list of values in the **Capacity Event Type** field in Primary Capacity Incident records.
MI_GM_EVENT_TYPE_ DESC	Generation Management, GM Event Type Description	Not currently used.
MI_GM_FAILURE_ MECHANISM	Generation Management, Failure Mechanism	Populates the list of values in the **Failure Mechanism Code** field in Primary Capacity Incident records.

Table ID	Table Description	Function
MI_GM_FUEL_CODE	Generation Management, GM Fuel Code	Populates the list of values in the following fields in Generation Unit records: • **Primary Fuel Code** • **Secondary Fuel Code** • **Tertiary Fuel Code** • **Quaternary Fuel Code** Also populates the list of values in the **Fuel Code** field in Generation Forecast records.
MI_GM_POWER_PRICE_ ZONE	Generation Management, Power Price Zone	Populates the list of values in the **Zone** field in Power Price Curve and Generation Unit records.
MI_GM_MFG	Generation Management, Manufacturers	Contains all System Codes that are used as references in the MI_GM_ MFG_REFERENCE System Code Table.
MI_GM_MFG_REFERENCE	Generation Management, Manufacturer Reference	Populates the list of values in various **Manufacturer** fields in Generation Nameplate records. System codes in this System Code table contain references from the MI_GM_MFG System Code Table.
MI_GM_NERC_REPORT_ FORMAT	Generation Management, NERC Report Formats	Populates the list of values in the **Report Format** field in Generation NERC Report records.

Table ID	Table Description	Function
MI_GM_NERC_REPORT_TYPE	Generation Management, NERC Report Types	Populates the list of values in the **Report Type** field in Generation NERC Report records.
MI_GM_POWER_REGION	Generation Management, GM Power Region or Council	Populates the list of values in the **GADS Region** field in Generation Plant records.
MI_GM_POWER_SUBREGION	Generation Management, GM Power Subregion	Populates the list of values in the **GADS Subregion** field in Generation Plant records.
MI_GM_PRIME_MOVER_CODE	Generation Management, Prime Mover Codes	Populates the list of values in the **PrimeMover** field in Generation Fuel Annual Report and Generation Fuel Monthly Report records.
MI_GM_STATE	Generation Management, American and Canadian States	Populates the list of values in the **State** field in the following records: • Generation Company • Generation Plant • Utilities Reference • Plant Reference • Unit Reference
MI_GM_UNIT_STATE	Generation State	Populates the list of values in the **Unit State** field in Generation Unit records.

Table ID	Table Description	Function
MI_GM_UNIT_LOADING	Generation Management, Typical Unit Loading	Populates the list of values in the **Default Unit Loading** field in Generation Unit records, the **Unit Loading Profile Expected** field in Generation Forecast records, and the **Unit Loading Characteristics** field in all Generation Nameplate records.
MI_GM_UNIT_TYPE	Generation Management, GM Unit Type Description	Populates the list of values in the **GADS Unit Type** field in Generation Unit and GADS Cause Codes records.

URL Paths for Generation Management Features

The following table lists and describes the URL paths for accessing Generation Management features in Meridium APM. Note that to construct a valid URL, you must prepend **meridium://** to the paths listed in the following table. In some cases, you must define [parameters following the path](#).

Feature	URL Path	Description
NERC Reports	GM/NERC	Runs the report for the specified entity.
Record Linking	GM/Utilities	Lets you link two existing records together using a specified relationship.

Parameters for the NERC Report URL

The URL for running a Generation NERC Report, **meridium://GM/NERC**, accepts the parameters described in the following table.

Parameter Name	Description	Accepted Value(s)	Notes
Key	Specifies which Generation NERC Report you want to run.	A numeric Entity Key of the desired Generation NERC Report record.	This parameter is required.

Examples of the NERC Report URL

- meridium://GM/NERC**?Key=64251696617**

  Prompts you to save the results of the report to the desired location and then runs the NERC report for the Generation NERC Report record with the Entity Key 64251696617.

Parameters for the GM Record Linking URL

The URL for invoking the GM record linking functionality, **meridium://GM/Utilities**, accepts the parameters described in the following table.

Parameter Name	Description	Accepted Value (s)	Notes
PredKey	Specifies the predecessor record in the link that you want to create.	The Entity Key of the record that will serve as the predecessor in the link.	This parameter is required.
Prompt	Specifies whether a dialog box will appear confirming the link.	True False	A value of True will display a message if the records are successfully linked together. A value of False will cause Meridium APM NOT to display this message.
RelKey	Specifies the relationship that you want to use to link the records together.	The Entity Key of the record that will serve as the relationship in the link.	This parameter is required.
Routine	Invokes the record linking functionality.	link	This parameter is required.
SucKey	Specifies the successor record in the link that you want to create.	The Entity Key of the record that will serve as the successor in the link.	This parameter is required.

Examples of the GM Record Linking URL

- meridium://GM/Utilities?**Routine-e=link&PredKey=2004649&SuccKey=2003222&RelKey=1001&Prompt=True**

  Links the record with the Entity Key 2004649 to the record with the Entity Key 2003222 using the relationship with the relationship Family Key 1001 and afterwards displays a confirmation message indicating that the records have been linked.

Generation Availability Database System (GADS)

A series of databases that is used to collect and record data that is reported to the North American Electric Reliability Corporation (NERC) and the Energy Information Administration (EIA). Generation Management uses GADS data-reporting requirements.