



# Units of Measure and Conversions



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# Chapter 1

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## Overview

### Topics:

- [About UOM Conversions](#)
- [About Units of Measure](#)
- [Access the Units of Measure and Conversion Set Page](#)

## About UOM Conversions

Using the Units of Measure Conversions feature, you can configure the units of measure conversions and their system of measure if you are a tenant admin or a user with edit permissions for units of measure conversions.

UOM conversions let you specify how one unit of measure will be converted to another unit of measure. The conversions that you define will be used to convert values stored in one UOM to another UOM for display. For example, you might define a conversion for the UOM inches that will convert values stored in inches to centimeters for display.

After you have defined conversions for the UOMs in your system, you can create Conversion Sets, which are sets of conversions that will be used by specific users. For example, if your database is configured to store values in English Standard units and you have a group of users who would prefer to view those measurements in Metric units, you could create an English-to-Metric Conversion Set and assign it to those users. In this way, your database would store the English Standard values, and when the system was accessed by a Metric user, the English Standard values would be converted and displayed in Metric units to that user.

You can view and analyze data in your preferred system of measure units regardless of your location.

The APM system provides a set of default UOM conversions that are used by Thickness Monitoring. You will need to configure manually any other conversion that you want to use for creating Conversion Sets.

**Note:** To define how one UOM will be converted to another, both UOMs must first exist in your system. This means, before you can define the conversions for a UOM, you must first add all the units of measure to which that UOM will be converted in the list of measures. Note also that if you define a conversion from one UOM to another UOM, you should also define a conversion from the converted UOM back to the original UOM. For example, if you define for the Inches UOM a conversion to centimeters, then for the Centimeters UOM, you should define a conversion back to inches.

## About Units of Measure

Any numeric field in any family can have a unit of measure (UOM) associated with it. The UOM associated with a field characterizes the values that are stored in that field. For example, a numeric field with the UOM Feet will store values measured in feet.

The UOM functionality in Configuration Manager allows you to do four things:

- Set up the UOMs available for association with numeric fields. After you have defined UOMs, you can associate them with numeric family fields to characterize the type of data that is stored in the fields.
- Define how one UOM will be converted to another UOM (e.g., how inches will be converted to centimeters).
- Create UOM Conversion Sets, which are groups of UOM conversions that determine how values will be displayed to a certain set of users. After you have configured UOM Conversion Sets, you can associate them with the users in your system.
- If you are using SQL Server Reporting Services (SSRS), then you can display the UOMs for the numeric values in an SSRS Report. Therefore, when you view an SSRS Report, you can see the value and the associated UOM.

**Note:** If the query used to create the reports is in formatted mode, then only the UOM will appear in the Reports.

- To display the UOM in the SSRS Report, use the following expression in the Report Designer.

Fields!<nameofthefield>.FormattedValue

For example: Fields!Operating\_Pressure.FormattedValue

- To view the report without the UOM, use the following expression in the Report Designer.

Fields!<nameofthefield>.value

For example: Fields!Operating\_Pressure.Value

**Note:** Members of the MI APMNow Admin Security Group has full access to Units of Measure and Conversions.

## Access the Units of Measure and Conversion Set Page

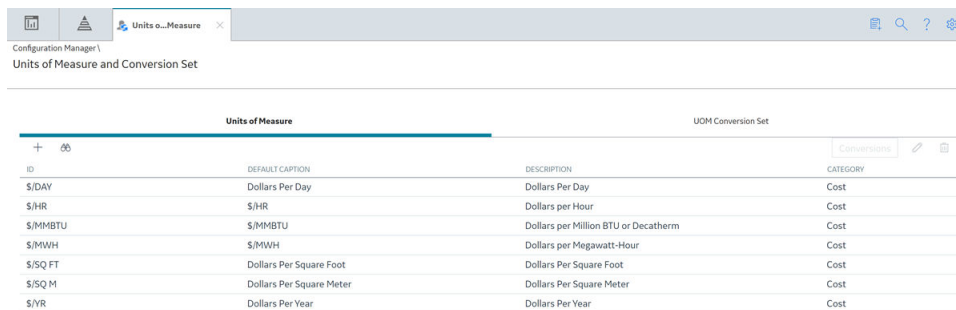
### About This Task

The units of measure that you define for your system determine which UOMs will be available for associating with family fields. You can manage all the UOMs in your system via the **Units of Measure and Conversion Set** page.

### Procedure

In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.

The **Units of Measure and Conversion Set** page appears.



ID	DEFAULT CAPTION	DESCRIPTION	CATEGORY
\$/DAY	Dollars Per Day	Dollars Per Day	Cost
\$/HR	\$/HR	Dollars per Hour	Cost
\$/MMBTU	\$/MMBTU	Dollars per Million BTU or Decatherm	Cost
\$/MWH	\$/MWH	Dollars per Megawatt-Hour	Cost
\$/SQ FT	Dollars Per Square Foot	Dollars Per Square Foot	Cost
\$/SQ M	Dollars Per Square Meter	Dollars Per Square Meter	Cost
\$/YR	Dollars Per Year	Dollars Per Year	Cost

# Chapter 2

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## Manage Units of Measurement

### Topics:

- [Units of Measurement Workflow](#)
- [Add a Unit of Measure](#)
- [Specify Conversions Between Units of Measurement](#)
- [Modify a Unit of Measure](#)
- [Delete a Unit of Measure](#)



## Units of Measurement Workflow

1. Define a unit of measure.
2. Specify the conversions between the units of measure.
3. If required, modify a Unit of Measure.
4. If required, delete a Unit of Measure.

## Add a Unit of Measure

### Procedure

1. In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.
2. Select **Units of Measure**.  
The **Units of Measure** appears, displaying the list of existing units of measure.

Units of Measure			UOM Conversion Set
ID	DEFAULT CAPTION	DESCRIPTION	CATEGORY
\$/DAY	Dollars Per Day	Dollars Per Day	Cost
\$/HR	\$/HR	Dollars per Hour	Cost
\$/MMBTU	\$/MMBTU	Dollars per Million BTU or Decatherm	Cost
\$/MWH	\$/MWH	Dollars per Megawatt-Hour	Cost
\$/SQ FT	Dollars Per Square Foot	Dollars Per Square Foot	Cost
\$/SQ M	Dollars Per Square Meter	Dollars Per Square Meter	Cost
\$/YR	Dollars Per Year	Dollars Per Year	Cost
\$/bbl	Dollars Per Barrel	Dollars Per Barrel	Currency

3. Select **+**.  
The **New Unit of Measure** window appears.
4. As needed, enter the values in the following fields:
  - **ID:** Enter the ID for unit of measurement. For example, \$/day.
  - **Default Caption:** Enter a label for the UOM. This is the label you will use to create record for a family if the datasheet contains the UOM field. For example, Dollar per Day.
  - **Description:** Enter a description of the unit of measure.
  - **Category:** Enter the category that defines the unit of measure. For example, a unit of measure as \$/day can be of a category Cost.
5. Select **OK**.  
A confirmation message appears, indicating the that the unit of measure is created. The new unit of measure appears in the Units of Measure list.

### Next Steps

- Specify conversions between units of measurement.
- Create a UOM Conversion Set.

# Specify Conversions Between Units of Measurement

## About This Task

**Note:** In the following instructions, we use the term From Value to mean the UOM from which a value is being converted and To Value to mean the UOM to which a value is being converted.

## Procedure

1. In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.
2. Select **Units of Measure**.  
The **Units of Measure** workspace appears, displaying the list of existing units of measures.
3. Select the measure for which you want to specify conversions, and then select **Conversions**.  
The **Conversions for <Label>** page appears, where <Label> is the name of the unit of measure.




DESTINATION UOM	BASE	NUMERATOR	DENOMINATOR	OFFSET
Dollars Per Square Meter	0	0.092903	1	0

4. Select **+**.  
The **New Conversion** window appears.
5. As needed, enter the values in the following fields:
  - **Destination Unit of Measure (UOM):** Select the unit of measure from the drop-down list that will serve as the destination of the conversion (that is the To Value).
  - **Base:** Enter the value that should be added to the From Value before the Numerator and Denominator are applied. To specify that a value should be subtracted from the From Value, type a negative number. A Base value of 0 (zero) indicates the From Value will not be modified before the **Numerator** or **Denominator** are applied.  
For example, the equation to convert Fahrenheit to Celsius is  $C = (F - 32) / 1.8$ , where 32 is subtracted from the From Value before it is divided by 1.8. In this case, the Base would be -32.
  - **Numerator:** Enter the fraction by which the From Value must be multiplied to arrive at the To Value.  
For example, the equation to convert Centimeters to Inches is  $cm = in \times 2.54$ . In this case, the **Numerator** would be 2.54 and the **Denominator** would be 1.
  - **Denominator:** Enter the fraction by which the From Value must be multiplied to arrive at the To Value.  
For example, The equation to convert Inches to Centimeters is  $in = cm / 2.54$ . In this case, the Denominator would be 2.54 and the Numerator would be 1. Alternatively, you could set the Numerator to 0.39 and the Denominator to 1.
  - **Offset:** Enter the value that should be added to the From Value after the **Numerator** and **Denominator** are applied. To specify that a value should be subtracted from the From Value, type a negative number. An Offset value of 0 (zero) indicates the From Value will not be modified further after the **Numerator** or **Denominator** are applied.  
For example, the equation to convert Fahrenheit to Celsius is  $F = C \times 1.8 + 32$ , where 32 is added after the From Value is multiplied by 1.8. In this case, the Offset would be 32.
6. Select **OK**.

The new conversion is added to the list and appear in the **Conversions for <Label>** page.

## Modify a Unit of Measure

### Procedure

1. In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.
2. Select **Units of Measure**.  
The **Units of Measure** workspace appears, displaying the list of units of measure.
3. In the list, select the measure that you want to modify and then select .  
The **Update Unit of Measure** window appears.
4. As needed, modify the [available fields](#).
5. Select **OK**.  
A confirmation message appears, indicating the that the unit of measure is updated.

## Delete a Unit of Measure


### Before You Begin

- Make sure that the unit of measure is not being used in any field.

### About This Task

**Note:** When deleting a UOM, if you delete a UOM that is being used by one or more fields, it will cause those fields to have no UOM defined.

### Procedure

1. In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.
2. Select **Units of Measure**.  
The **Units of Measure** workspace appears, displaying the list of units of measures.
3. Select the unit of measure that you want to delete, and then select .  
The **Delete Units of Measure** dialog box appears, asking you to confirm that you want to delete the unit of measure.
4. Select **Yes**.  
The unit of measure is deleted and no longer appears in the list.

# Chapter 3

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## Manage UOM Conversion Set

### Topics:

- [About UOM Conversion Set](#)
- [Access the UOM Conversion Set Section](#)
- [UOM Conversion Set Workflow](#)
- [Create a UOM Conversion Set](#)
- [Add the Contents to a UOM Conversion Set](#)
- [Delete the Contents of UOM Conversion Set](#)
- [Modify the UOM Conversion Set](#)
- [Delete a UOM Conversion Set](#)

## About UOM Conversion Set

A UOM Conversion Set is simply a group of UOM conversions. Each Security User will have a UOM Conversion Set associated with it to determine how numeric values will be converted and displayed for that user throughout the APM systems. You can manage all the UOM Conversion Sets in your system through the [UOM Conversion Set](#) workspace, where you can add, modify, and delete UOM Conversion Sets.

UOM Conversion Sets are useful for customizing the display of numeric values for the users in your system. Any numeric field can have a UOM defined for it to indicate the unit of measure for the stored value.

**Note:** You can add or modify the UOM only for the new fields. To modify the UOM for an existing field, you will need to delete the field and create a new field.

The base (or stored) UOM, however, may not be appropriate for all users. For instance, some users may prefer to see a value that is stored in inches converted to and displayed as centimeters. Other users might prefer to see the same value converted to millimeters. You can allow for numeric values to be converted to different display values for different users by defining UOM Conversion Sets.

To take advantage of this functionality, you will need to complete the following steps:

1. [Define the necessary base UOMs](#). For example, Inches.
2. For each base UOM, [define all required UOM conversions](#). For example, for Inches, create two UOM conversions, one for Centimeters and one for Millimeters.
3. For each type of user, [create an appropriate UOM Conversion Set](#). For example, we would create two UOM Conversion Sets.
  - **Conversion Set A:** From *Inches* To *Centimeters*
  - **Conversion Set B:** From *Inches* To *Millimeters*
4. Associate each UOM Conversion Set with the Security User who will want to see the associated UOM conversions by using the **Security Manager**. For example, for any user who wants to see values stored in inches displayed in centimeters, choose Conversion Set A.

**Note:** For more information about associating a UOM Conversion Set with a Security User, refer to the [Create a Security User](#) section of the documentation.

## Access the UOM Conversion Set Section

### About This Task

You can manage all the UOM conversion sets in your system on the **UOM Conversion Set** section, where you can add, modify, and delete UOM conversion sets.

### Procedure

1. In the module navigation menu, select **Admin > Configuration Manager > Units of Measure and Conversions**.
2. Select **UOM Conversion Set**.  
The **UOM Conversion Set** section appears.

ID	DESCRIPTION
AQA EU Set	AQA EU Set
Criticality	UOM currently defined for Criticality Calculator
Metric	Metric conversion set
None	Default conversion set
TSMH	For TH conversion to Millimeters per Year, Months, and Millimeters

## UOM Conversion Set Workflow

1. [Define UOM Conversion Set](#) by providing an ID and Description.
2. [Define the contents for UOM Conversion Set.](#)
3. If required, [modify the UOM Conversion Set.](#)
4. If required, [delete the UOM Conversion Set.](#)


## Create a UOM Conversion Set

UOM Conversion Sets are useful for customizing the display of numeric values for the users in your system. Any numeric field can have a UOM defined for it to indicate the unit of measure for the stored value. The base (or stored) UOM, however, may not be appropriate for all users. For instance, some users may prefer to see a value that is stored in inches converted to and displayed as centimeters. Other users might prefer to see the same value converted to millimeters. You can allow for numeric values to be converted to different display values for different users by defining UOM Conversion Sets.

### Before You Begin

- [Create the necessary units of measure.](#)
- [Specify the conversions between the units of measurement.](#)

### Procedure


1. [Access the UOM Conversion Set](#) section.
2. Select  .  
The **New Conversion Set** window appears.
3. In the **Conversion Set ID** box, enter an ID for the conversion set.
4. In the **Description** box, enter a description of the conversion set.  
The description is optional.
5. Select **OK**.  
The new UOM conversion set is created and appears in the **UOM Conversion Set** workspace.

## Add the Contents to a UOM Conversion Set

### About This Task


The content of a Conversion Set defines how values stored in one UOM will be converted for display in another UOM when a user uses that Conversion Set. You can modify the content of any user-defined Conversion Set. You cannot modify the content of the baseline APM Conversion Set.

### Procedure

1. Access the [UOM Conversion Set](#) section.
2. Select the conversion set for which you want to add content.
3. Select **Set Content**.  
The **Conversion in <Label>** page appears, where <Label> is the name of the conversion set that you have selected in Step 2.
4. Select  .  
The **New Set Content** window appears.
5. To add the conversion list:
  - In the **From** box, select the UOM that defines the stored values. The available UOMs are those for which the conversions are defined but not selected in the conversion set.
  - In the **To** box, select the UOM to which values stored in the **From** UOM will be converted for display. The available options are limited to the UOMs that are defined for the **From** UOMs.  
For example, if you have defined conversions for Inches to Feet and Inches to Centimeters, when you select Inches in the **From** column, the **To** column will list Feet and Centimeters.
6. Select **OK**.  
A confirmation message appears, indicating that the new conversion set is added. The new Conversion Set appears in the list on the **Conversion in <Label>** page.

## Delete the Contents of UOM Conversion Set

### Procedure

1. Access the [UOM Conversion Set](#) section.
2. Select the conversion set, and then select **Set Content**.  
The **Conversion in <Label>** page appears, where <Label> is the name of the conversion set that you have selected.
3. Select the content that you want to delete, and then select  .  
The **Delete Set Content** dialog box appears, asking if you want to delete the set content.
4. Select **OK**.  
The set content is deleted and no longer appears in the **Conversion in <Label>** page.


## Modify the UOM Conversion Set

When modify the UOM Conversion Set properties, you can only edit the description of the conversion set.

### Before You Begin

- [Create a UOM Conversion Set](#) .


### Procedure

1. Access the [UOM Conversion Set](#) section.
2. In the list of conversion sets, select the conversion set that you want to modify.
3. Select  .  
The **Update Conversion Set** window appears, displaying the current ID and description of the conversion set.

4. As needed, modify the value in the **Description** box.
5. Select **OK**.  
Your changes are saved.

## Delete a UOM Conversion Set

### Procedure

1. [Access the UOM Conversion Set section.](#)
2. Select the conversion set that you want to delete.
3. Select .  
The **Delete Conversion Set** dialog box appears, asking if you want to delete the conversion set.
4. Select **OK**.  
The conversion set is deleted.