

Patterns

Patterns are used to represent the temporal (time-dependent) variability such as diurnal demand within a hydraulic system.

Whereas a curve depicts the relation between one variable and another variable, a pattern is always one variable vs. time. As those variables with patterns change over time, they are primarily used for Extended Period Simulation (EPS) analysis. For a Steady State analysis, the pattern value at the time of the steady state simulation will be used.

The Pattern dialog box enables you to create, edit, clone, and delete patterns. It shows all existing patterns on the top and the highlighted pattern's data in both tabular and graphical format on the bottom.

The screenshot shows the 'Pattern' dialog box. At the top, there is a toolbar with icons for file operations and a list of existing patterns:

ID	Description
1	Average Day Demand
2	Energy Pattern

Below the list, the 'Pattern Type' is set to '1: Demand Multiplier'. The bottom section displays a detailed view of pattern 1, including a table and a bar chart.

Value
1.00
1.60
1.50
1.40
1.20
1.20
1.20
1.10
1.00
1.00
1.10
1.20

The bar chart shows the values for each hour of the day (1-24). The y-axis ranges from 0.0 to 1.8. The values are: 1.00, 1.60, 1.50, 1.40, 1.20, 1.20, 1.20, 1.10, 1.00, 1.00, 1.10, 1.20, 1.30, 1.30, 1.20, 1.10, 1.00, 0.80, 0.60, 0.50, 0.40, 0.40, 0.50, 0.70.

Pattern Dialog Box Toolbar

Refer to the [Object Dialog Toolbar](#) for the Operation tab within the Model Explorer.

ID & Description

This box shows the ID and description of curves. Use the **Edit Description** button on the Pattern Dialog Box Toolbar to revise the description.

Pattern Type

Select the pattern from the pull-down menu. The following are the available pattern types.

- General (Multi-Purpose)
- Demand Multiplier

- Reservoir Head
- Energy Rate
- Demand Charge
- Pipe Status
- Pump Speed Ratio
- Pressure
- Flow
- Minor Loss Setting
- % Opening
- Water Quality Multiplier
- Carbon Footprint Factor

Pattern Editor

The Pattern Editor is located on the bottom left and used to enter or modify the values for the highlighted pattern. After the number of rows for the pattern is entered, use this box to enter the values for the pattern. When a value is entered, it will automatically be reflected in the adjacent graph. The value can also be adjusted by clicking on the graph and moving the bar up or down to the desired value. It is important to note that the values given to a pattern are dependent upon its end use. For example, a demand pattern is used as a multiplier to the base water demand while a reservoir head pattern is used to represent the actual value of the reservoir head. The Windows Copy (Ctrl-C) and Paste (Ctrl-V) functions may be used to populate values to the pattern editing box. It is possible to copy and paste rows and columns from a spreadsheet to the pattern editing box. Use the **Set Rows Button** first to set the proper number of rows.

Insert Row Button - Select the row in which to insert a new record and then click this icon to insert a new row.

Append Row Button - Use this icon to create a row at the end of the table.

Delete Row Button - By selecting one or more rows, click this icon to delete those records.

Set Rows Button - This icon enables you to specify the number of rows to create in the pattern. If 12 rows are desired, type 12 in the dialog box.

Block Edit Button - This icon enables you to perform a block edit on the selected records to some value specified by the user.

Format Button - The **Format** button enables you to justify the text in the pattern table, to apply a comma separator, and to specify the number of decimal places for the pattern.

Save Button - Save the current pattern data to a text file.

Open Button - Open and read pattern data from a data text file.

Pattern Graph Display

The Pattern Graph Display is located on the bottom right and used to demonstrate the highlighted pattern's values graphically. The graph is generated directly from the values entered. Likewise, values can be adjusted by clicking on any portion of the graph and dragging the bar up or down to the desired value. The new value will automatically be reflected in the cell value to the left.

Pattern Graph Toolbar - Refer to the [General Graph Toolbar](#).