
4 The Model Network – Adding and Deleting Data

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It is recommended that modelers use a data-centered approach to creating data sets, for example using the StateDMI and TSTool software within the State of Colorado’s Decision Support Systems. This will ensure that creation of data sets is automated, repeatable, and transparent. The following are known limitations when editing data using the StateMod GUI (see also the **Release Notes**):

1. The GUI is not current with the StateMod model features.
2. Modeling conventions have not been defined to ensure that spatial data locations are defined for all model data.
3. The GUI does not track edits. Consequently regenerating the files using an automated approach will lose manual edits.

The model network describes the connectivity between stations. Because other data are associated with stations, the network is a key component in organizing and navigating a data set. This chapter presents an overview of the network and describes how data can be added to or deleted from the network. Once data have been added, the data viewing and editing windows described in **Chapter 5 – Data Viewing and Editing** can be used. The following information is most useful to someone who is going to make changes to the model network.

4.1 Model Network Overview

The model network consists of the following information:

1. A list of model nodes of various data types (e.g., diversions, reservoirs, stream gages).
2. Connectivity information that indicates the downstream nodes for each node (it is implied that river networks collect but do not diverge).
3. Information about area and precipitation above flow locations, for use in prorating known flows to estimated streamflow locations.
4. Node coordinates, annotations, and symbol properties, to allow the network to be drawn in schematic fashion.

Although the StateMod river network file contains river node identifiers and downstream information, it does not contain some of the other information listed above. Consequently, the StateMod GUI uses an XML network file (*.net) that is compatible with, and in addition to the StateMod river network file (*.rin).

The coordinates in the model network data allow a schematic representation of the network to be created. These coordinates normally do not correspond to geographical coordinates.

The StateDMI documentation provides a full description of the network file and is not duplicated here. The following sections focus on creating and modifying the model network within the StateMod GUI. StateDMI also allows creation and editing of the network and should be used to edit the network when an automated process is being used to create other data files from the network file. The StateMod GUI

should be used to edit the network if an automated process is NOT being used (e.g., to make minor changes to create a scenario or when tools like StateDMI are not available).

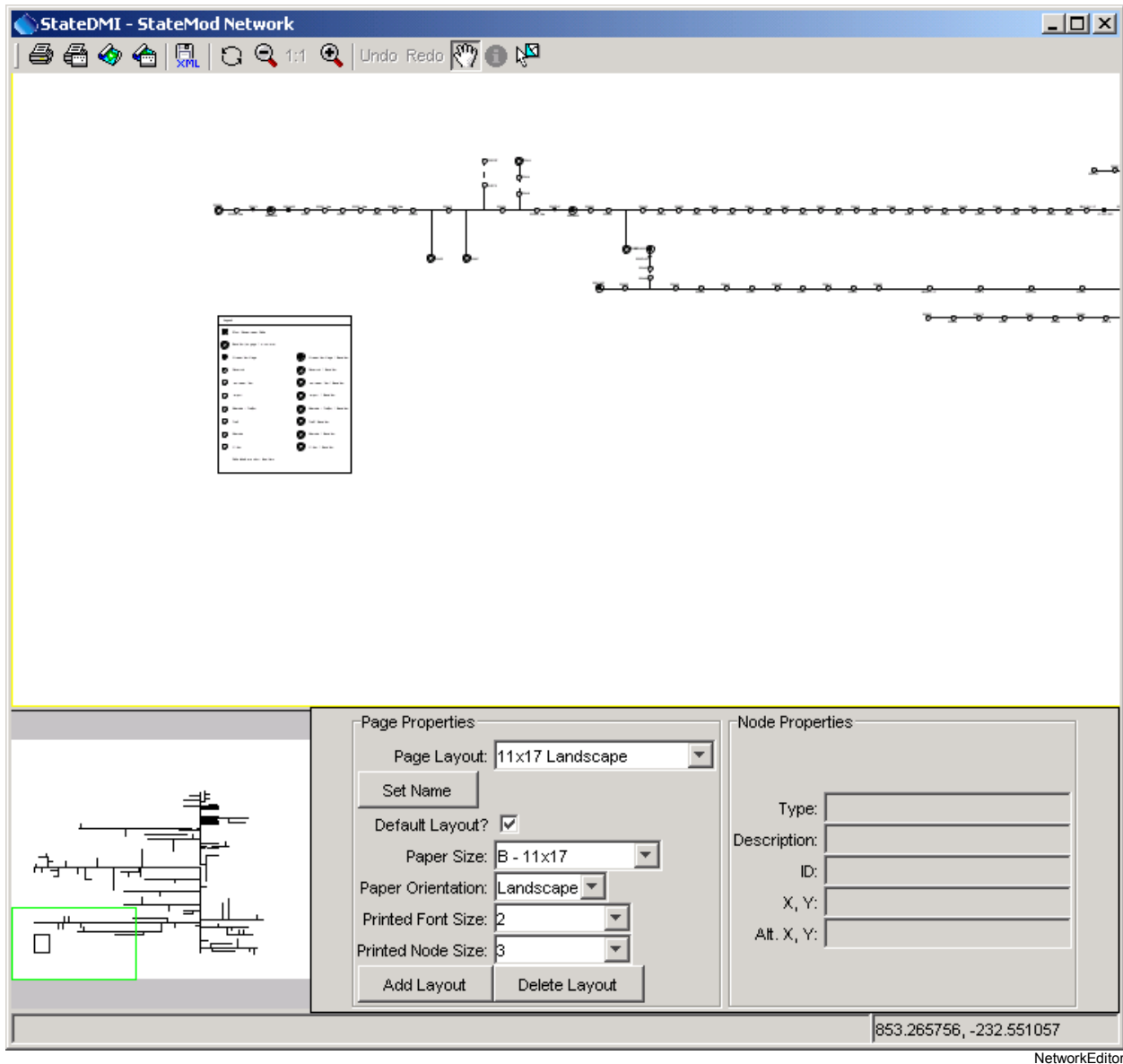
The model network for a StateMod basin model typically consists of a single end node to which all streams in the basin drain. Upstream of the end node is a branching stream network, which may also include human-constructed canals, ditches, and reservoirs. Key locations on the stream network, corresponding to StateMod station types, are locations where model calculations need to occur. A StateMod data set DOES NOT contain river (line) data. Instead, all model locations are stations and the station relationships are defined in the StateMod river network file.

Water is introduced into points in the network using base flow locations, which are stream gages or stream estimate stations, the latter being locations where streamflow is estimated by prorating flows from gaged locations. The resulting water is then allocated through the system, as the simulation occurs. To properly define the system, station types in the network must accurately match physical system features. The network diagram facilitates visual checking of the network and allows printing of the network, for more comprehensive review.

4.2 Model Network Interface

The **View...Network** menu displays the editor window for the StateMod generalized model network (*.net). In addition to the basic display of the network diagram, it is envisioned that additional tools will be added to the network editor to allow for more targeted use in the StateMod GUI (and StateDMI), for example to display the return flow locations, and to display the stations that are referenced in an operating rule.

The following figure shows the network editor after a network file has been read and displayed:



Network Editor

The network editor consists of the following areas:













- Tools (top) – initiate actions (e.g., printing), switch mode, edit tools
- Main canvas (middle) – area where editing occurs
- Overview window (lower left) – indicates the current view as a subset of the total network
- Page properties (lower middle) – the settings used for the network display, if printed
- Node properties (lower right) – the properties of the node that was last selected.

4.2.1 Network Tools

The tools that are available include the following:



Print the entire network using the selected layout (page size, orientation, etc.) This is useful for generation of final products.

	Print the visible network using letter-sized paper. This is useful for troubleshooting or reviewing specific parts of the network.
	Save the entire network to an image file.
	Save the visible network extent to an image file. This is useful for creating inserts for documents.
	Save the network to the XML file.
	Refresh the network (redraw).
	Zoom out by 50%, based on the current extent.
	Reset the scale to match the layout.
	Zoom in by 50%, based on the current extent.
	If a node position has changed, allow it to be undone (or redone).
	Pan the visible extent of the network – currently this is the default when clicking on other than a node.
	Information tool – currently unused. It is envisioned that this tool could be enabled to show model-related data from a data set.
	Select a feature – currently this is the default when clicking on a node.

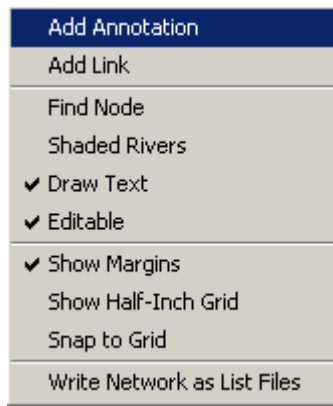
4.2.2 Main Canvas

The main canvas displays the network for the current scale and location. Use the tools to scroll, pan, or zoom to a specific region.

To move an existing node, select it with the mouse and drag to the new location. Use the **Undo/Redo** tool if necessary to discard a change.

See sections below for information about adding/moving/deleting nodes and other actions.

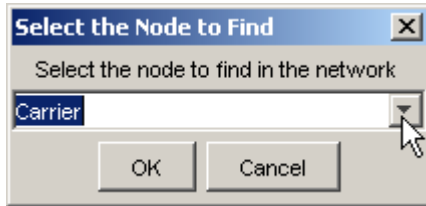
Right-clicking on the canvas (not near a node), displays the following menu:



NetworkEditor_Popup

The actions for the menu items are described in the following table.

Network Editor Popup Menu Items

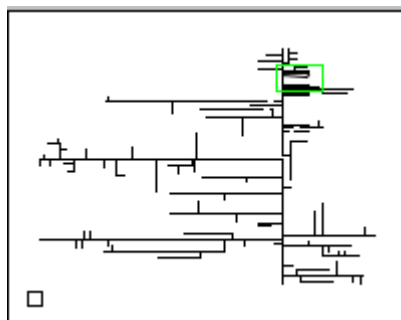
Menu Item	Action
Add Annotation	Add an annotation at the point where the mouse was clicked. See Section 4.2.7 below.
Add Link	Add a link between nodes. See Section 4.2.8 below.
Find Node	<p>Display the following dialog, listing all nodes in the network.</p>  <p>After selecting a node and pressing OK, the network will scroll so that the selected node is in the center of the network window.</p>
Shaded Rivers	If selected, shade the rivers based on stream order. This is useful to emphasize upstream to downstream progression.
Draw Text	If selected, draw text labels on the network. Text can be turned off if only the lines need to be printed.

NetworkEditor_Popup_FindNode

Menu Item	Action
Editable	If selected, the network is editable. If it is important to protect a network from editing, the network can be made non-editable. Editing actions will then be prohibited in the session.
Show Margins	If selected, the page margins are shown, representing an approximate boundary within which drawing should be limited. It is recommended that network features not extend into the margins.
Show Half-Inch Grid	If selected, a grid of lines will be drawn at half-inch intervals. This is useful for layout purposes.
Snap to Grid	If selected, nodes will be restricted to being positioned on grid lines.
Write Network as List Files	<p>Prompt for a base file name and then write delimited list files for each station type, to be used as lists of stations with commands files. Each file is listed in order of upstream to downstream. This recognizes that it can be more generic to use list files with StateDMI processing, rather than reading from the network itself. This approach is being evaluated as list files are used. Issues to be resolved include:</p> <ol style="list-style-type: none"> 1. DIV and D&W nodes both exist in the network and are written as separate lists. Therefore two commands may be needed when processing the lists. 2. Stream gages (FLO nodes) are written as one list and baseflow stations (FLO and other stations where baseflow is True) are written as separate lists. Users must decide which list to use.

4.2.3 Overview Window

The overview window indicates the current extent of the network in the main canvas.

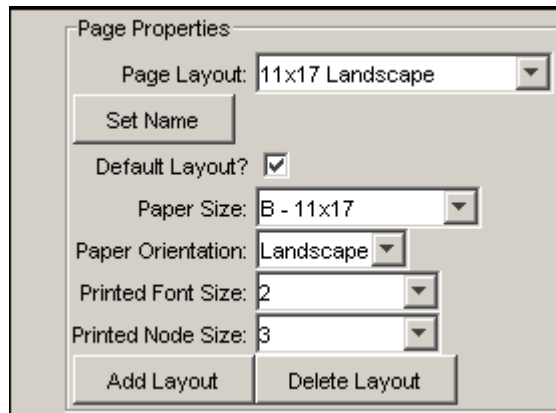


NetworkEditor_Overview

Click anywhere in the overview window to center the main canvas view on that point. Or, drag the overview window extent box to a new location to reposition the network in the main canvas.

4.2.4 Page Properties

The page properties can be set for multiple layouts using the **Page Properties** settings.



NetworkEditor_PageProperties

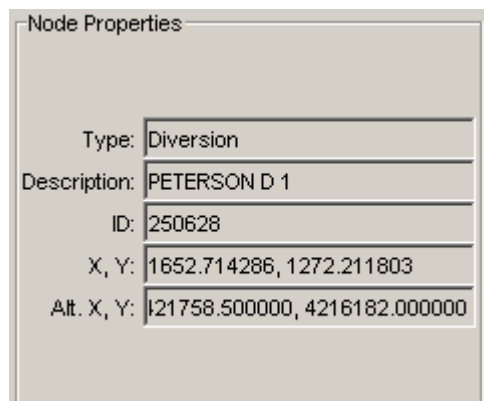
Because one of the primary products related to the network is a printed network diagram, the network is essentially configured as a document. Therefore, the graphics and text on the diagram are scaled (unlike some map and graph displays where the text point size is constant even when the data scale changes).

Modelers responsible for data sets should define one or more layouts for the network to allow printing on common page sizes. Often, there is so much detail on the network that a hard copy can only be printed on large paper sizes. However, more unreadable versions may be appropriate for review. Once layouts are defined, only minor changes should be required. It is recommended that the **Page Layout** name include the page size and orientation.

Network editing should typically occur using the page layout that will be used in production printouts. Differences in the relative dimensions of page sizes can cause some scaling in output when switching between layouts.

4.2.5 Node Properties

The node properties area in the network editor shows the properties for the most recently selected node.

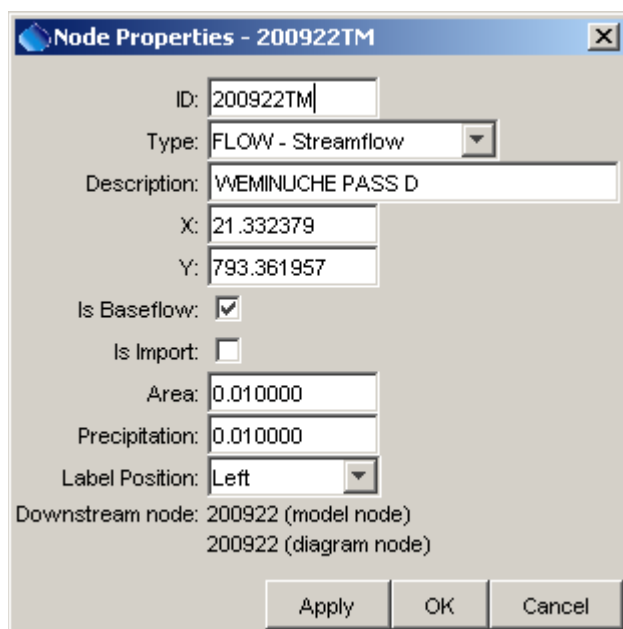


NetworkEditor_NodeProperties

This is useful when scanning network node information. See the next section for information about changing node properties.

4.2.6 Adding/Deleting/Changing a Node

To add a node and insure that data in station files is kept consistent with the network, use the **Edit...Add** menu items, as described in **Section 4.9** below. To delete a node, use the **Edit...Delete** menu items, as discussed in **Section 4.10** below. A node is moved by selecting the node on the network and dragging to a new location. To move multiple nodes draw a box around nodes and then move the group. Node properties for an existing node are edited by selecting a node in the network, right clicking, and pressing the **Properties** menu item, which will display a dialog similar to the following:



The image shows a 'Node Properties' dialog box for node '200922TM'. The fields are as follows:

Field	Value
ID	200922TM
Type	FLOW - Streamflow
Description	WEMINU CHE PASS D
X	21.332379
Y	793.361957
Is Baseflow	<input checked="" type="checkbox"/>
Is Import	<input type="checkbox"/>
Area	0.010000
Precipitation	0.010000
Label Position	Left
Downstream node	200922 (model node) 200922 (diagram node)

Buttons: Apply, OK, Cancel

NetworkEditor_Popup_NodeProperties

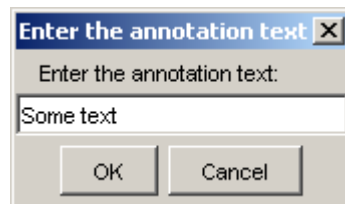
Node Properties Dialog

The node types correspond either to StateMod station types or to node types needed for visualization (e.g., confluences), which are not transferred to StateMod files. Although the legacy CDSS Makenet software allowed **Import** and **Baseflow** node types, these types are no longer supported. Instead, node types correspond to StateMod station types, with the **Other** node type used where needed. The **Is Baseflow** check indicates that **Area** and **Precipitation** information are available for the node – these data are used when processing stream estimate stations.

4.2.7 Adding/Deleting/Changing Annotations

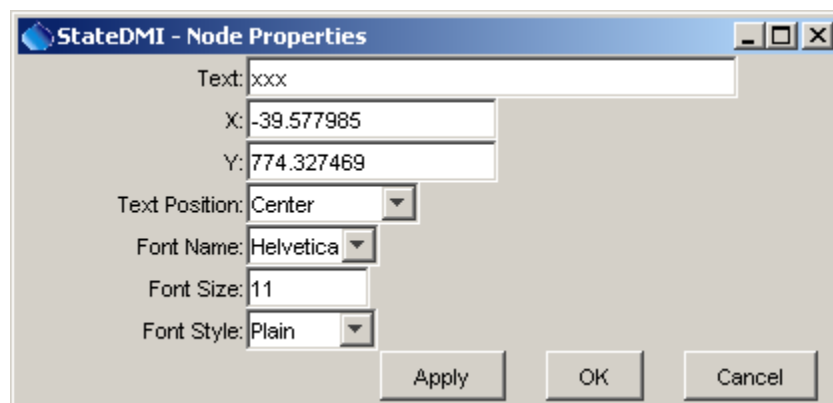
Annotations are text labels that can be drawn on the network. They are typically used for title, author, revision date, stream names, etc., using font sizes appropriate for the information.

To add an annotation, right-click at a point of interest (not near a node) and select the **Add Annotation** menu item, which will display the following dialog:



NetworkEditor_Popup_AddAnnotation

Pressing **OK** displays the annotation text centered at the point where the mouse was clicked. Once an annotation is added, it can be moved and its properties can be set by right clicking on the annotation anchor point and pressing **Properties**:



NetworkEditor_Popup_AnnotationProperties

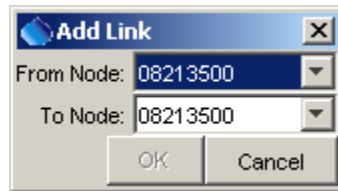
An annotation can be moved by selecting the annotation and dragging it to the new location.

An annotation can be deleted by right clicking on the annotation and pressing the **Delete Annotation** menu item.

4.2.8 Adding/Deleting Links

Links are dashed lines between nodes, typically used to represent an operational relationship between nodes (e.g., to represent carrier ditches). Annotations can be placed next to links to describe the link.

To add a link, right-click on the network (not near a node) and use the **Add Link** menu item. The following dialog will be shown:





NetworkEditor_Popup_AddLink

After selecting nodes and pressing **OK**, the link will be drawn between the nodes as a straight dashed line.

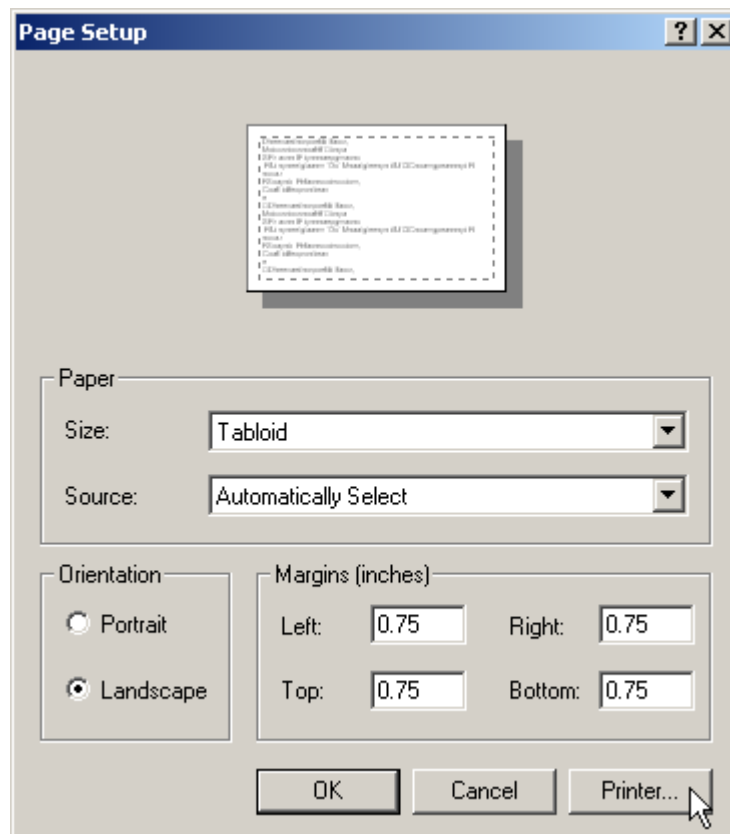
To delete the link, select one of the nodes involved in the link, right-click and select **Delete Link**. If the node is involved in more than one link, a list of links will be shown.

4.3 Printing a Model Network

To print the entire network, use the  tool and follow the procedure described below. To save the visible network as an image, use the  tool and follow the procedure described below. Note that when printing, curved graphics are drawn using a technique called “anti-aliasing,” where curves are created by using shades of gray. This may result in graphics that are difficult to read for some page sizes.

When the print tools are used, several dialogs are shown, as required by the Java and Microsoft environments. Although options are available in various dialogs, the following approach is recommended (improvements are being evaluated):

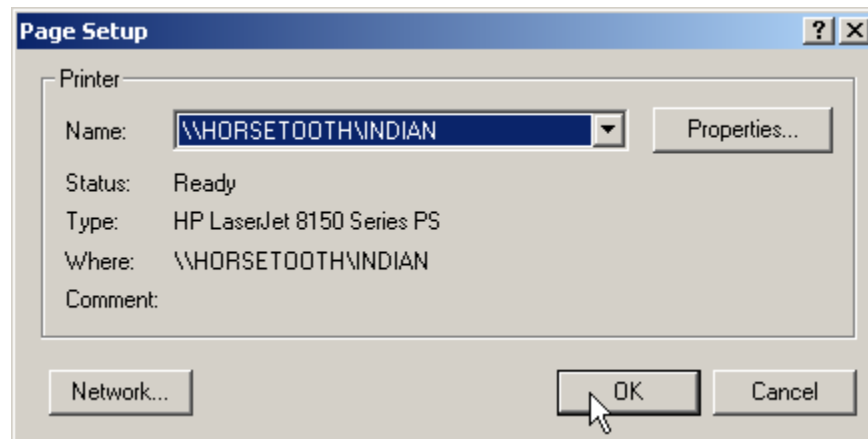
1. After selecting one of the tools mentioned above, a Java **Page Setup** dialog will be shown (this should be the same regardless of Windows version):



NetworkEditor_Print1

Select the printer of interest by using the **Printer...** button, as discussed in the next item.

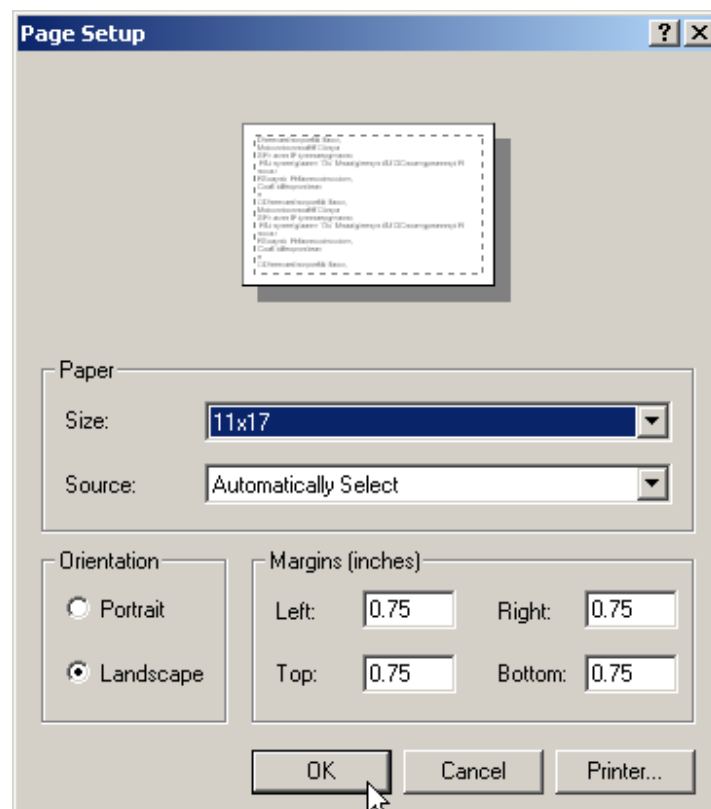
2. A Windows **Page Setup** dialog will be shown:



NetworkEditor_Print2

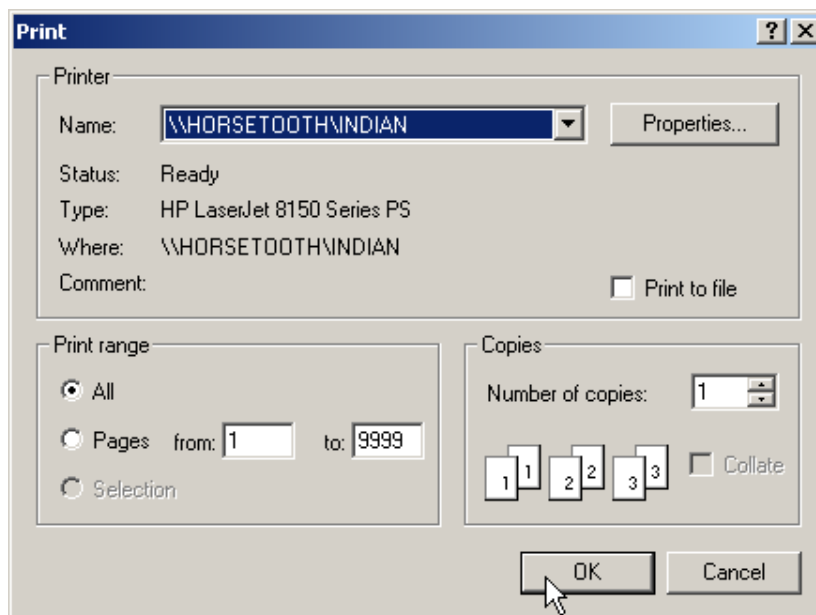
Pick a printer that can handle the page size specified in the current network editor page layout and press **OK**.

3. In the original dialog, select the paper size to match the current network layout and press **OK**:



NetworkEditor_Print3



4. A Windows **Print** dialog will be shown:



NetworkEditor_Print4

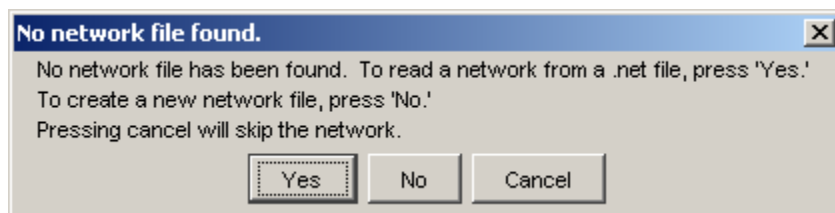
DO NOT change the printer settings. Simply press **OK** to finish printing.

4.4 Saving a Model Network as an Image

To save the entire network as an image, use the  tool and select an image file. To save the visible network as an image, use the  tool and select an image file.

4.5 Adding an Existing Model Network to an Existing Data Set

Older StateMod data sets did not directly reference the general network file (*.net). When opening older data sets, the StateMod GUI will display the following warning:



Menu_File_Open_Warning

Warning Message When the Data Set Has No Network File

If a model network is available, either from the older Makenet software or from StateDMI, press **Yes** and select the *.net file. Saving the response file from the StateMod GUI (see the **File...Save** menu) will associate the network file with the data set and the warning will not be displayed the next time that the data set is opened.

4.6 Creating a New Model Network for an Existing Data Set

The StateMod GUI does not allow a network to be created for an existing data set because the **Edit...Add** and **Edit...Delete** menus attempt to keep the various data files synchronized with the network. To create a new network to use with an existing data set, use the StateDMI software. Once the network is created, use the procedure described in **Section 4.4** to attach the network to the data set.

4.7 Creating a New Model Network With a New Data Set

If **File...New** is selected, a completely new data set will be initialized. At this time, a new network can be started. Using the **Edit...Add** menu items will create new model data (see **Section 4.9** below). The positions of the model nodes on the network can be adjusted during this process.

The StateDMI software can also be used to create a network and automate data set creation.

4.8 Synchronizing a Model Network with a Data Set

The model network, when used with the StateMod GUI, is primarily a visualization tool and therefore is secondary to the core data files. The features that have been implemented help enforce consistency of the network with other data. If the network becomes inconsistent with other data files, then it is recommended that the StateDMI software be used to edit the network. The network file can then be copied over the previous version in the data set and the Edit menu can once again be used, as described below.

4.9 Editing a Model Network – Adding Data

The lists of nodes in the network diagram must remain consistent with the list of stations in the various StateMod files. Therefore, when adding data, the **Data...Add** menu should be used. **Important: If the data set is created and maintained using an automated procedure (e.g., StateDMI and TSTool software within CDSS), it is recommended that the command files used to create the set be edited and DMIs be rerun, rather than editing the data set directly.**

The following figure illustrates the data that can be added:



Menu_Data_Add

Edit...Add Menu

The above figure illustrates that not all data that can be added are represented in the network and in some cases secondary data components can be added. Secondary components may need to be added because an initial modeling effort used defaults for data but later work requires the addition of more specific data. Therefore, constraining data edits through the menu allows a single entry point for users. When adding data that are represented in the network, a node will automatically be added to the network by

interpolating or extrapolating coordinates. The network interface can then be used to position the node in the diagram, if appropriate. In the future, data may be added from the network interface, but in this case, the intervening dialogs shown below will still be needed to provide important required and initial values for the data.

The basic procedure to add data is as follows:

1. Select the appropriate **Data...Add** menu item.
2. Fill out the information that is requested (see examples below). Default information can be specified and can be edited in more detail in step 4.
3. Acknowledge the information by pressing the **Add** button, resulting in new data being added to one or more data lists in memory.
4. The appropriate data window for the data will be shown and can be used to further edit the information.
5. If the item that was added corresponds to a node in the network, automatically add the node to the network.
6. If appropriate, interactively use the network editor to position the node.

The following sections illustrate features to add data.

4.9.1 Adding Stream Gage Data

The **Edit...Add...Stream Gage Station...** menu adds a new stream gage station:

StateMod - rgtwd - Add Stream Gage Station

Stream gage stations are on-channel point features with historical flows and are defined as follows:

1. Determine from the map or other reference the location of the new node and its position relative to other nodes.
2. Select the river node downstream from the new stream gage (see below, listed top to bottom of network).
This will allow the upstream nodes to be determined. Select None for a new separate stream reach.

River node downstream from new stream gage: rg_lastnd - END

3. Select the river node upstream from the new stream gage.
If the stream gage is on a new branch, select None.

River node upstream from new stream gage: RG_RFNode - Dummy _OTH

4. Enter a stream gage identifier and name.
The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
The name should be <= 24 characters.
The river node identifier and name in the network will be set to the same as the stream gage.

New stream gage station identifier: NewGage

New stream gage station name: NewGage

5. Enter default monthly time series data (values will be repeated and can be edited later).

Start year (Calendar Year - Jan...Dec): 1950

End year (Calendar Year - Jan...Dec): 1997

Historical flow (ACFT, Jan to Dec):

100	150	160	165	400	700	500	400	200	150	100	100
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

6. Indicate where to add the stream gage in data files (the network file is always upstream to downstream).

Add Position: Alphabetically by ID

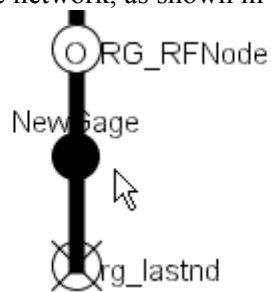
7. Press Add below to confirm adding the stream gage to the data set.

Add Cancel

Edit_Add_StreamGage

Data for New Stream Gage Station

A node will automatically be added to the network, as shown in the following figure:



Stream Gage Added to Network

Edit_Add_StreamGage2

The **Edit...Add...Stream Gage Historical TS (Monthly)...** menu adds a new or redefines a monthly historical time series for an existing stream gage station:

StateMod - rgtwd - Add Stream Gage Historical Time Series (Monthly)

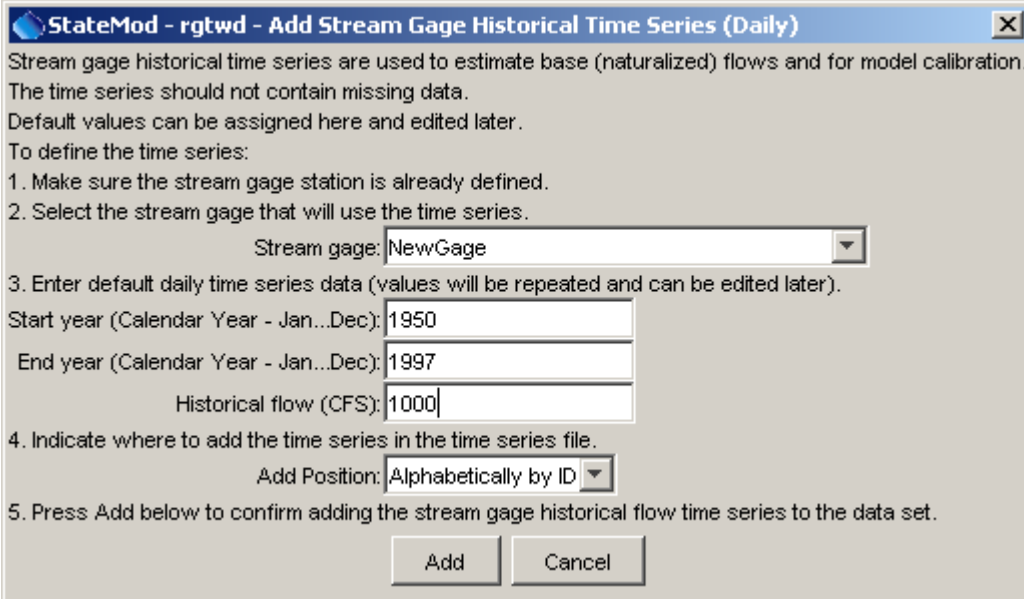
Stream gage historical time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later. To define the time series:

1. Make sure the stream gage station is already defined.
2. Select the stream gage that will use the time series.
Stream gage:
3. Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec):
End year (Calendar Year - Jan...Dec):
Historical flow (ACFT, Jan to Dec):
4. Indicate where to add the time series in the time series file.
Add Position:
5. Press Add below to confirm adding the stream gage historical flow time series to the data set.

Data_Add_StreamGage_TSMonthly

New Stream Gage Historical Time Series (Monthly)

The **Edit...Add...Stream Gage Historical TS (Daily)...** menu adds a new or redefines a daily historical time series for an existing stream gage station:



The dialog box is titled "StateMod - rgtwd - Add Stream Gage Historical Time Series (Daily)". It contains the following text and controls:

Stream gage historical time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later.

To define the time series:

1. Make sure the stream gage station is already defined.
2. Select the stream gage that will use the time series.
Stream gage: NewGage
3. Enter default daily time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
Historical flow (CFS): 1000
4. Indicate where to add the time series in the time series file.
Add Position: Alphabetically by ID
5. Press Add below to confirm adding the stream gage historical flow time series to the data set.

At the bottom are "Add" and "Cancel" buttons.

Edit_Add_StreamGage_TSDaily

New Stream Gage Historical Time Series (Daily)

4.9.2 Adding Delay Table Data

The **Edit...Add...Delay Table (Monthly)...** menu adds a new monthly delay table:

The **Edit...Add...Delay Table (Daily)...** menu adds a new daily delay table:

4.9.3 Adding Diversion Data

The **Edit...Add...Diversion...** menu adds a new diversion station:

StateMod - rgtwd - Add Diversion Station

Diversion stations are on-channel point features and are defined as follows:

1. Determine from the map or other reference the location of the new node and its position relative to other nodes.
2. Select the river node downstream from the new diversion (see below, listed top to bottom of network).
This will allow the upstream nodes to be determined. Select None for a new separate stream reach.
River node downstream from new diversion:
3. Select the river node upstream from the new diversion.
If the diversion is on a new branch, select None.
River node upstream from new diversion:
4. Enter a diversion identifier and name.
The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
The name should be <= 24 characters.
The river node identifier and name in the network will be set to the same as the diversion.
New diversion station identifier:
New diversion station name:
5. Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec):
End year (Calendar Year - Jan...Dec):
Historical diversions (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

Demands (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---
6. Select a default delay table for return flows. Returns will go to the downstream node.
Delay Table:
7. Indicate where to add the diversion in data files (the network file is always upstream to downstream).
Add Position:
8. Press Add below to confirm adding the diversion to the data set.

Edit_Add_Diversion

New Diversion Station

The **Edit...Add...Diversion Historical Diversion TS (Monthly)...** menu adds a new or redefines a diversion historical time series (monthly) for an existing diversion station:

StateMod - rgtwd - Add Diversion Historical Time Series (Monthly)

Diversion historical time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later.

To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
Diversion: **NewDiv**
3. Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
Historical diversion (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion historical time series to the data set.

Add **Cancel**

Edit_Add_Diversion_HistoricalTS_Monthly

New Diversion Historical Time Series (Monthly)

The **Edit...Add...Diversion Historical Diversion TS (Daily)...** menu adds a new or redefines a diversion historical time series (daily) for an existing diversion station:

StateMod - rgtwd - Add Diversion Historical Time Series (Daily)

Diversion historical time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later.

To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
Diversion: **NewDiv**
3. Enter default daily time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
Historical diversion (CFS): 1000
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion historical time series to the data set.

Add **Cancel**

Edit_Add_Diversion_HistoricalTS_Daily

New Diversion Historical Time Series (Daily)

The **Edit...Add...Diversion Demand TS (Monthly)...** menu adds a new or redefines a diversion demand time series (monthly) for an existing diversion station:

StateMod - rgtwd - Add Diversion Demand Time Series (Monthly)

Diversion demand time series are used when simulating.
 Demand values are at the headgate and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
 Diversion: **NewDiv**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion demand time series to the data set.

Add **Cancel**

Edit_Add_Diversion_DemandTS_Monthly

New Diversion Demand Time Series (Monthly)

The **Edit...Add...Diversion Demand Override TS (Monthly)...** menu adds a new or redefines a diversion demand override time series (monthly) for an existing diversion station:

StateMod - rgtwd - Add Diversion Demand Override Time Series (Monthly)

Diversion demand time series are used when simulating.
 Demand values are at the headgate and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
 Diversion: **NewDiv**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion demand time series to the data set.

Add **Cancel**

Edit_Add_Diversion_DemandOverrideTS_Monthly

New Diversion Demand Override Time Series (Monthly)

The **Edit...Add...Diversion Demand TS (Average Monthly)...** menu adds a new or redefines a diversion demand time series (average monthly) for an existing diversion station:

StateMod - rgtwd - Add Diversion Demand Time Series (Average Monthly)

Diversion demand time series are used when simulating.
 Demand values are at the headgate and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
 Diversion: **NewDiv**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Demand (ACFT, Jan to Dec):
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion demand time series to the data set.

Add **Cancel**

Edit_Add_Diversion_DemandTS_AverageMonthly

New Diversion Demand Override Time Series (Average Monthly)

The **Edit...Add...Diversion Demand TS (Daily)...** menu adds a new or redefines a diversion demand time series (daily) for an existing diversion station:

StateMod - rgtwd - Add Diversion Demand Time Series (Daily)

Diversion demand time series are used when simulating.
 Demand values are at the headgate and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the diversion station is already defined.
2. Select the diversion that will use the time series.
 Diversion: **NewDiv**
3. Enter default daily time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec):
 End year (Calendar Year - Jan...Dec):
 Demand (CFS):
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the diversion demand time series to the data set.

Add **Cancel**

Edit_Add_Diversion_DemandTS_Daily

New Diversion Demand Time Series (Daily)

4.9.4 Adding Precipitation Data

The **Edit...Add...Precipitation TS (Monthly)...** menu adds a new monthly precipitation time series:

StateMod - rgtwd - Add Precipitation Time Series (Monthly)

Precipitation time series (monthly) are referenced by reservoirs.
 Each time series should have a location identifier (i.e., station identifier).
 Evaporation time series should be pan evaporation when used with precipitation time series
 or should contain net evaporation when used without a corresponding precipitation time series.
 Precipitation time series may be used by more than one reservoir.
 After adding the precipitation time series, edit the data in the time series viewer.

New precipitation station ID:

New precipitation station name:

Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec):

End year (Calendar Year - Jan...Dec):

Data units:

Initial values (Jan to Dec):

Add Position:

Edit_Add_Precip

New Precipitation Time Series

4.9.5 Adding Evaporation Data

The **Edit...Add...Evaporation TS (Monthly)...** menu adds a new monthly evaporation time series:

StateMod - rgtwd - Add Evaporation Time Series (Monthly)

Evaporation time series (monthly) are referenced by reservoirs.
 Each time series should have a location identifier (i.e., station identifier).
 Evaporation time series should be pan evaporation when used with precipitation time series
 or should contain net evaporation when used without a corresponding precipitation time series.
 Evaporation time series may be used by more than one reservoir.
 After adding the evaporation time series, edit the data in the time series viewer.

New evaporation station ID:

New evaporation station name:

Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec):

End year (Calendar Year - Jan...Dec):

Data units:

Initial values (Jan to Dec):

Add Position:

Edit_Add_Evap

New Evaporation Time Series

4.9.6 Adding Reservoir Data

The **Edit...Add...Reservoir...** menu adds a new reservoir station:

StateMod - rgtwd - Add Reservoir Station

Reservoir stations are point features and are defined as follows:

- Determine from the map or other reference the location of the new node and its position relative to other nodes.
- Select the river node downstream from the new reservoir (see below, listed top to bottom of network).
This will allow the upstream nodes to be determined. Select None for a new separate stream reach.
River node downstream from new reservoir:
- Select the river node upstream from the new reservoir.
If the reservoir is on a new branch, select None.
River node upstream from new reservoir:
- Enter a reservoir identifier and name.
The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
The name should be <= 24 characters.
The river node identifier and name in the network will be set to the same as the reservoir.
New reservoir station identifier:
New reservoir station name:
- Enter the reservoir capacity.
Reservoir capacity (ACFT):
- Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec):
End year (Calendar Year - Jan...Dec):
End of month content (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

Target minimum (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

Target maximum (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---
- Indicate where to add the reservoir in data files (the network file is always upstream to downstream).
Add Position:
- Press Add below to confirm adding the reservoir to the data set.

Edit_Add_Reservoir

New Reservoir Station

The **Edit...Add...Reservoir Content End of Month TS (Monthly)...** menu adds a new or redefines a reservoir end of month content time series (monthly) for an existing reservoir station:

StateMod - rgtwd - Add Reservoir Content Time Series Series (Monthly)

Reservoir historical content time series are used to estimate base (naturalized) flows and for model calibration. Content values are specified at the end of the data interval. The time series should not contain missing data. Default values can be assigned here and edited later. To define the time series:

1. Make sure the reservoir station is already defined.
2. Select the reservoir that will use the time series.
Reservoir: **NewRes**
3. Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
End of month content (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the reservoir content time series to the data set.

Add **Cancel**

Edit_Add_Reservoir_ContentTS_Monthly

New Reservoir Content Time Series (Monthly)

The **Edit...Add...Reservoir Content End of Day (Daily)...** menu adds a new or redefines a reservoir end of day content time series (daily) for an existing reservoir station:

StateMod - rgtwd - Add Reservoir Content Time Series (Daily)

Reservoir historical content time series are used to estimate base (naturalized) flows and for model calibration. Content values are specified at the end of the data interval. The time series should not contain missing data. Default values can be assigned here and edited later. To define the time series:

1. Make sure the reservoir station is already defined.
2. Select the reservoir that will use the time series.
Reservoir: **NewRes**
3. Enter default daily time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
End of day content (ACFT): 1
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the reservoir content time series to the data set.

Add **Cancel**

Edit_Add_Reservoir_ContentTS_Daily

New Reservoir Content Time Series (Daily)

The **Edit...Add...Target TS (Monthly)...** menu adds a new or redefines a reservoir target time series (monthly) for an existing reservoir station:

StateMod - rgtwd - Add Reservoir Target Time Series Series (Monthly)

Reservoir target time series are used when simulating.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the reservoir station is already defined.
2. Select the reservoir that will use the time series.
 Reservoir: **NewRes**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Target, Minimum (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0 0
 Target, Maximum (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the reservoir target time series to the data set.

Add **Cancel**

Edit_Add_Reservoir_TargetTS_Mnthly

New Reservoir Target Time Series (Monthly)

The **Edit...Add...Target TS (Daily)...** menu adds a new or redefines a reservoir target time series (daily) for an existing reservoir station:

StateMod - rgtwd - Add Reservoir Target Time Series (Daily)

Reservoir target time series are used when simulating.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the reservoir station is already defined.
2. Select the reservoir that will use the time series.
 Reservoir: **NewRes**
3. Enter default daily time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Target, Minimum (ACFT): 1
 Target, Maximum (ACFT): 1
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the reservoir target time series to the data set.

Add **Cancel**

Edit_Add_Reservoir_TargetTS_Daily

New Reservoir Target Time Series (Daily)

4.9.7 Adding Instream Flow Data

The **Edit...Add...Instream Flow...** menu adds a new instream flow station:

StateMod - rgtwd - Add Instream Flow Station

Instream flow stations are on-channel point features consistent with StateMod's node-based network. However, StateMod can model instream flow reaches by using upstream and downstream terminii nodes. Typically this is done by adding an "other node" as the downstream node and defining a upstream node as an instream flow station with water rights, etc.

To define an instream flow station:

- Determine from the map or other reference the location of the new node and its position relative to other nodes.
- Select the river node downstream from the new instream flow station (see below, listed top to bottom of network). This will allow the upstream nodes to be determined. Select None for a new separate stream reach.
- Select the river node upstream from the new instream flow station. If the instream flow station is on a new branch, select None.
- Enter an instream flow station identifier and name. The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters. The name should be <= 24 characters. The river node identifier and name in the network will be set to the same as the instream flow station.
- Enter monthly time series data (values can be edited later).
- Indicate where to add the instream flow station in data files (the network file is always upstream to downstream).
- Press Add below to confirm adding the instream flow station to the data set.

River node downstream from new instream flow station: rg_lastnd - END

River node upstream from new instream flow station: RG_RFNode - Dummy _OTH

New instream flow station identifier: NewISF

New instream flow station name: NewISF

Start year (Calendar Year - Jan...Dec): 1950

End year (Calendar Year - Jan...Dec): 1997

Average monthly demands (ACFT, Jan to Dec):	0	0	0	0	0	0	0	0	0	0	0	0	0
Monthly demands (ACFT, Jan to Dec):	0	0	0	0	0	0	0	0	0	0	0	0	0

Add Position: Alphabetically by ID

Add Cancel

Edit_Add_InstreamFlow

New Instream Flow Station

The **Edit...Add...Instream Flow Demand TS (Monthly)...** menu adds a new or redefines an instream flow demand time series (monthly) for an existing instream flow station:

StateMod - rgtwd - Add Instream Flow Demand Time Series (Monthly)

Instream, non-consumptive, demand time series are used when simulating.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the instream flow station is already defined.
2. Select the instream flow station that will use the time series (typically the upstream terminus).
 Instream flow: **NewISF**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the instream flow demand time series to the data set.

Add **Cancel**

Edit_Add_InstreamFlow_DemandTS_Monthly

New Instream Flow Demand Time Series (Monthly)

The **Edit...Add...Instream Flow Demand TS (Average Monthly)...** menu adds a new or redefines an instream flow demand time series (average monthly) for an existing instream flow station:

StateMod - rgtwd - Add Instream Flow Demand Time Series (Average Monthly)

Instream, non-consumptive, demand time series are used when simulating.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

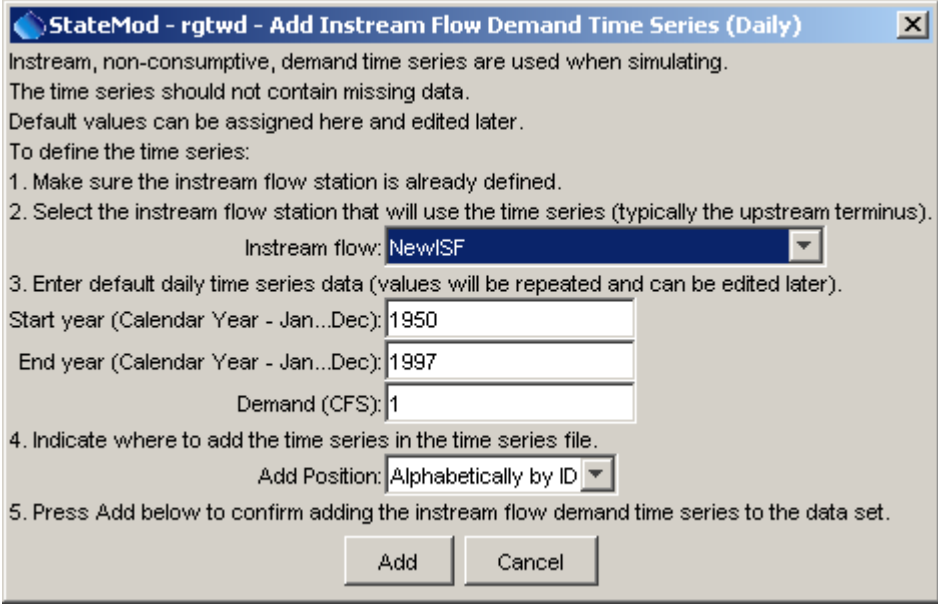
1. Make sure the instream flow station is already defined.
2. Select the instream flow station that will use the time series (typically the upstream terminus).
 Instream flow: **NewISF**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the instream flow demand time series to the data set.

Add **Cancel**

Edit_Add_InstreamFlow_DemandTS_AverageMonthly

New Instream Flow Demand Time Series (Average Monthly)

The **Edit...Add...Instream Flow Demand TS (Daily)...** menu adds a new or redefines an instream flow demand time series (daily) for an existing instream flow station:



The dialog box is titled "StateMod - rgtwd - Add Instream Flow Demand Time Series (Daily)". It contains the following text and controls:

- Instructions: "Instream, non-consumptive, demand time series are used when simulating. The time series should not contain missing data. Default values can be assigned here and edited later. To define the time series:"
- Step 1: "1. Make sure the instream flow station is already defined."
- Step 2: "2. Select the instream flow station that will use the time series (typically the upstream terminus)."
Control: "Instream flow: NewISF" (dropdown menu)
- Step 3: "3. Enter default daily time series data (values will be repeated and can be edited later)."
Controls: "Start year (Calendar Year - Jan...Dec): 1950", "End year (Calendar Year - Jan...Dec): 1997", "Demand (CFS): 1" (text input)
- Step 4: "4. Indicate where to add the time series in the time series file."
Control: "Add Position: Alphabetically by ID" (dropdown menu)
- Step 5: "5. Press Add below to confirm adding the instream flow demand time series to the data set."
- Buttons: "Add" and "Cancel"

Edit_Add_InstreamFlow_DemandTS_Daily

New Instream Flow Demand Time Series (Daily)

4.9.8 Adding Well Data

The **Edit...Add...Well...** menu adds a new well station:

StateMod - rgtwd - Add Well Station

Well stations are point features that may or may not be connected to the main channel.
 A well can be "well only" (WEL) if it is the only supply for land or D&W if a well supplies to lands that also have a diversion (surface water) supply.
 Wells are defined as follows:

- Determine from the map or other reference the location of the new node and its position relative to other nodes.
- Select the river node downstream from the new well (see below, listed top to bottom of network).
 This will allow the upstream nodes to be determined. Select None for a new separate stream reach.

River node downstream from new well:

- Select the river node upstream from the new well.
 If the well is on a new branch, select None.

River node upstream from new well:

- Enter a well identifier and name.
 The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
 The name should be <= 24 characters.
 The river node identifier and name in the network will be set to the same as the well.

New well station identifier:
 New well station name:

- Enter default monthly time series data (values will be repeated and can be edited later).

Start year (Calendar Year - Jan...Dec):
 End year (Calendar Year - Jan...Dec):

Historical pumping (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

 Demands (ACFT, Jan to Dec):

0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---

- Select a default delay table for return flows. Returns will go to the downstream node.
 Delay Table (returns):
- Select a default delay table for river depletions. Depletions will reduce the flow at the downstream node.
 Delay Table (depletions):
- Indicate where to add the well in data files (the network file is always upstream to downstream).
 Add Position:
- Press Add below to confirm adding the well to the data set.

Edit_Add_Well

New Well Station

The **Edit...Add...Well Historical Pumping TS (Monthly)...** menu adds a new or redefines a well historical pumping time series (monthly) for an existing well station:

StateMod - rgtwd - Add Well Historical Pumping Time Series (Monthly)

Well historical pumping time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later.

To define the time series:

1. Make sure the well station is already defined.
2. Select the well that will use the time series.
Well: **NewWell**
3. Enter default monthly time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
Historical well pumping (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the well historical pumping time series to the data set.

Add **Cancel**

Edit_Add_Well_HistoricalTS_Monthly

New Well Historical Pumping Time Series (Monthly)

The **Edit...Add...Well Historical Pumping TS (Daily)...** menu adds a new or redefines a well historical time series (daily) for an existing well station:

StateMod - rgtwd - Add Well Historical Pumping Time Series (Daily)

Well historical pumping time series are used to estimate base (naturalized) flows and for model calibration. The time series should not contain missing data. Default values can be assigned here and edited later.

To define the time series:

1. Make sure the well station is already defined.
2. Select the well that will use the time series.
Well: **NewWell**
3. Enter default daily time series data (values will be repeated and can be edited later).
Start year (Calendar Year - Jan...Dec): 1950
End year (Calendar Year - Jan...Dec): 1997
Historical well pumping (CFS): 1
4. Indicate where to add the time series in the time series file.
Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the well historical pumping time series to the data set.

Add **Cancel**

Edit_Add_Well_HistoricalTS_Daily

New Well Historical Pumping Time Series (Daily)

The **Edit...Add...Well Demand TS (Monthly)...** menu adds a new or redefines a well demand time series (monthly) for an existing well station:

StateMod - rgtwd - Add Well Demand Time Series (Monthly)

Well demand time series are used when simulating.
 Demand values are at the well and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the well station is already defined.
2. Select the well that will use the time series.
 Well: **NewWell**
3. Enter default monthly time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (ACFT, Jan to Dec): 0 0 0 0 0 0 0 0 0 0 0 0
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the well demand time series to the data set.

Add **Cancel**

Edit_Add_Well_DemandTS_Monthly

New Well Historical Demand Time Series (Monthly)

The **Edit...Add...Well Demand TS (Daily)...** menu adds a new or redefines a well demand time series (daily) for an existing well station:

StateMod - rgtwd - Add Well Demand Time Series (Daily)

Well demand time series are used when simulating.
 Demand values are at the well and should therefore reflect conveyance/system losses that will occur.
 See the consumptive water requirement time series for requirements on the farm/site.
 The time series should not contain missing data.
 Default values can be assigned here and edited later.
 To define the time series:

1. Make sure the well station is already defined.
2. Select the well that will use the time series.
 Well: **NewWell**
3. Enter default daily time series data (values will be repeated and can be edited later).
 Start year (Calendar Year - Jan...Dec): 1950
 End year (Calendar Year - Jan...Dec): 1997
 Demand (CFS): 1
4. Indicate where to add the time series in the time series file.
 Add Position: **Alphabetically by ID**
5. Press Add below to confirm adding the well demand time series to the data set.

Add **Cancel**

Edit_Add_Well_DemandTS_Daily

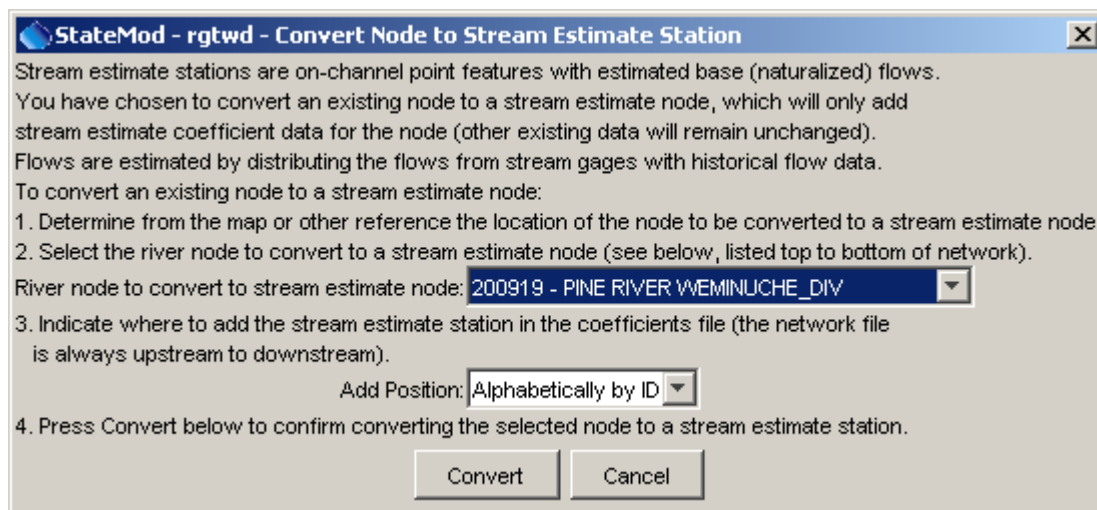
New Well Historical Demand Time Series (Daily)

The **Edit...Add...Well Consumptive Water Requirement TS (Monthly)...** menu adds a new or redefines a well consumptive water requirement time series (monthly) for an existing well station.

The **Edit...Add...Well Consumptive Water Requirement TS (Daily)...** menu adds a new or redefines a well consumptive water requirement time series (daily) for an existing well station.

4.9.9 Adding Stream Estimate Data

The **Edit...Add...Stream Estimate Station (Convert Node to Stream Estimate)...** menu converts an existing station to a stream estimate station:



Edit_Add_StreamEstimate_Convert

Converting a Station to a Stream Estimate Station

The **Edit...Add...Stream Estimate Station (Create New Stream Estimate Node)...** menu creates a new stream estimate station:

StateMod - rgtwd - Add Stream Estimate Station

Stream estimate stations are on-channel point features with estimated base (naturalized) flows. Although other nodes can be converted to stream estimate stations, you have chosen to create a new node. The new node will be listed in the network and the stream estimate files only. Flows are estimated by distributing the flows from stream gages with historical flow data. To define a new stream estimate node:

1. Determine from the map or other reference the location of the new node and its position relative to other nodes.
2. Select the river node downstream from the new stream gage (see below, listed top to bottom of network). This will allow the upstream nodes to be determined. Select None for a new separate stream reach.
River node downstream from new stream gage:
3. Select the river node upstream from the new stream estimate station. If the stream gage is on a new branch, select None.
River node upstream from new stream estimate station:
4. Enter a stream estimate station identifier and name.
The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
The name should be <= 24 characters.
The river node identifier and name in the network will be set to the same as the stream estimate station.
New stream estimate station identifier:
New stream estimate station name:
5. Indicate where to add the stream estimate station in data files (the network file is always upstream to downstream).
Add Position:
6. Press Add below to confirm adding the stream estimate station to the data set.

Edit_Add_StreamEstimate

New Stream Estimate Station

4.9.10 Adding Other Data

The **Edit...Add...Other Node...** menu creates a new node in the river network file that is not a station in any other file:

StateMod - rgtwd - Add Other Node

Other nodes are point features, with no additional input data other than the network node.
 These nodes should not be confused with streamflow estimate stations.
 For example, a node may be inserted to represent the confluence of a river, where a gage does not exist.
 Another use is to represent a possible future diversion or reservoir.
 Another example is to represent the downstream terminus for an instream flow reach -
 in this case, the downstream terminus is defined first and is referenced when defining the upstream terminus as an instream flow station.
 Define a new node as follows:

1. Determine from the map or other reference the location of the new node and its position relative to other nodes.
2. Select the river node downstream from the new node (see below, listed top to bottom of network).
 This will allow the upstream nodes to be determined. Select None for a new separate stream reach.

River node downstream from new stream gage:

3. Select the river node upstream from the new node.
 If the node is on a new branch, select None.

River node upstream from new stream gage:

4. Enter the identifier and name.
 The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
 The name should be <= 24 characters.
 This information appears only in the river network file.

New node identifier:
 New node name:

5. Press Add below to confirm adding the node to the data set.

Edit_Add_Other

New Other (River Node) Station

4.9.11 Adding Operational Right Data

The **Edit...Add...Operational Right...** menu creates a new operational right:

StateMod - rgtwd - Add Operational Right

Operational rights define operational relationships between data set features.
 For example, operational rights define how water is released from a reservoir to supply a diversion.
 Operational rights should be defined with a good understanding of how a system is operated.
 Various operational right types describe different behavior - the controlling data are defined with each right.
 Define a new operational right as follows:

1. Determine how the actual system is operated and identify real-world features in the StateMod data set.
 In particular, identify how the structures/stations interact.
2. Enter the operational right identifier.
 The identifier should be unique in the data set, <= 12 characters and not contain space or dash characters.
 Typically, the first part of the identifier matches the water source identifier, followed by a ".NN" counter, similar to other water rights.

New operational right identifier:

New operational right name:

3. Select the operational right type.
 Operational right type:
3. Indicate where to add the operational right in the operational rights file.
 Add Position:

4. Press Add below to confirm adding the selected operational right.

Edit_Add_Other

New Operational Right

4.10 Editing a Model Network – Deleting Data

Similar to adding data to the data set, deleting data requires using the **Edit...Delete** menu to maintain consistency between the model network and data components:

- Stream Gage Station...
- Delay Table (Monthly)...
- Delay Table (Daily)...
- Diversion...
- Precipitation TS (Monthly)...
- Evaporation TS (Monthly)...
- Reservoir...
- Instream Flow...
- Well...
- Stream Estimate Station...
- Other Node...
- Operational Right...**

Menu_Edit_Delete

Edit...Delete Menu

Features that exist in the network will be deleted, and the corresponding upstream/downstream nodes will be reconnected as appropriate. After deleting the node, the data files should be saved and the StateMod data check should be run. The StateMod GUI will not reconnect return flows, operational rights, or baseflow nodes. Edit windows must be used to adjust these data. Any problems associated with the deletion will be described in the StateMod log file.

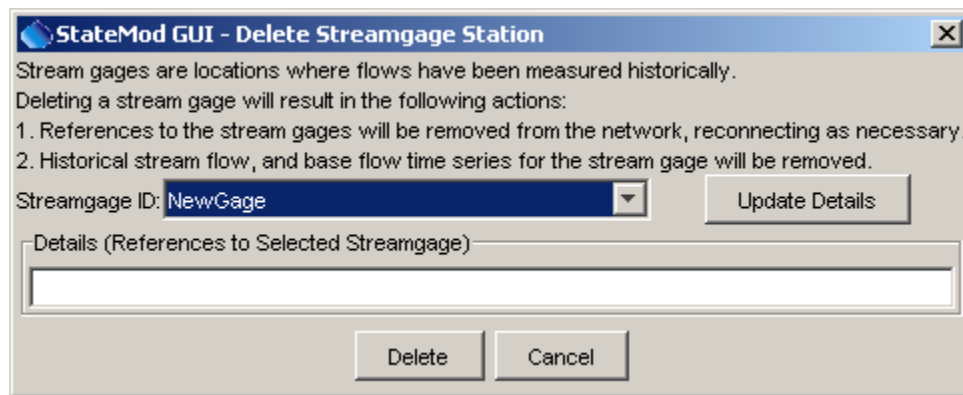
The basic procedure to delete data is as follows:

1. Select the appropriate **Data...Delete** menu item.
2. Select the data item to delete. The **Update Details** button can be pressed to show information about the data item – this feature is under development and is envisioned to indicate related data that could be impacted by the delete.
3. Confirm the delete by pressing the **Delete** button, resulting in data being deleted from one or more data lists in memory. If a station is being deleted, the related time series will also be deleted.
4. If the item that was added corresponds to a node in the network, automatically remove the node from the network and reconnect effected nodes.
5. If appropriate, interactively use the network editor to position the node.

The following sections illustrate features to delete data.

4.10.1 Deleting a Stream Gage Data

The **Edit...Delete...Stream Gage...** menu deletes a stream gage:



Edit_Delete_StreamGage

Deleting a Stream Gage Station

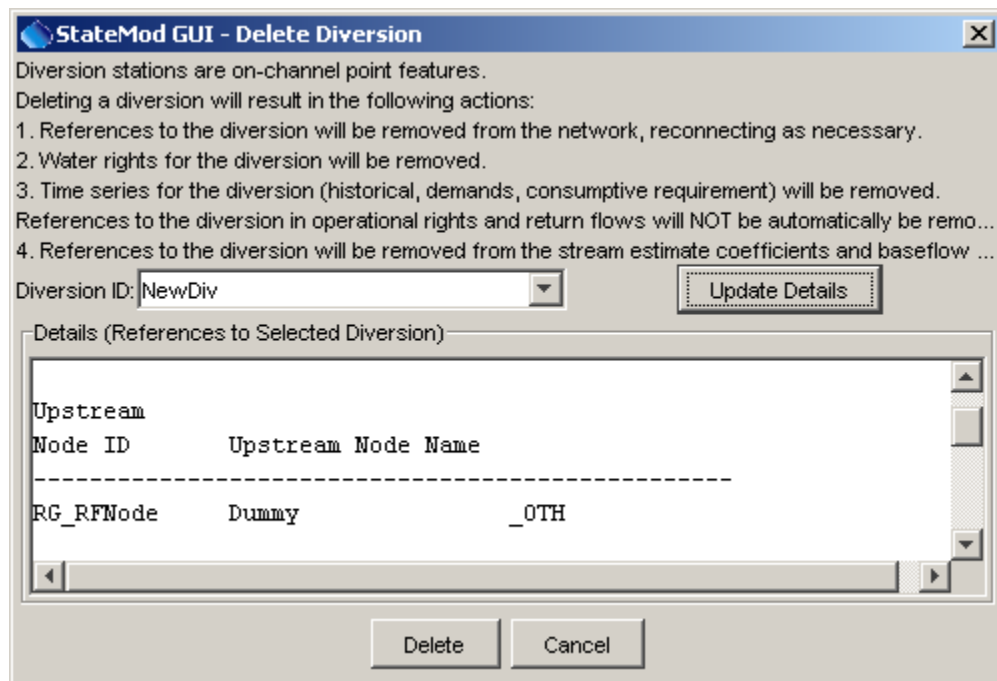
4.10.2 Deleting Delay Table Data

The **Edit...Delete...Delay Table (Monthly)...** menu deletes a monthly delay table:

The **Edit...Delete...Delay Table (Daily)...** menu deletes a daily delay table:

4.10.3 Deleting Diversion Data

The **Edit...Delete...Diversion...** menu deletes a diversion station:



Edit_Delete_Diversion

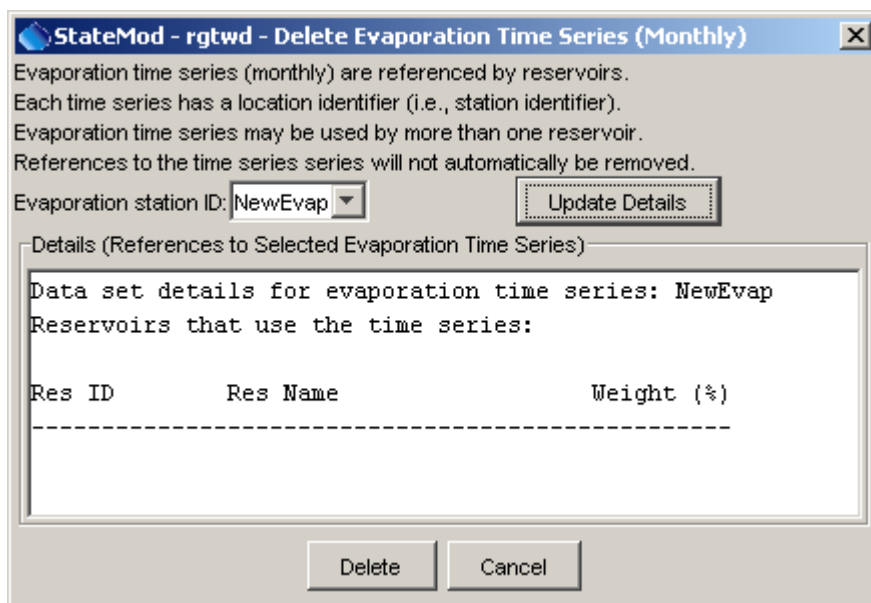
Deleting a Diversion Station

4.10.4 Deleting Precipitation Data

The **Edit...Delete...Precipitation TS (Monthly)...** menu deletes a monthly precipitation time series.

4.10.5 Deleting Evaporation Data

The **Edit...Delete...Evaporation TS (Monthly)...** menu deletes a monthly evaporation time series:

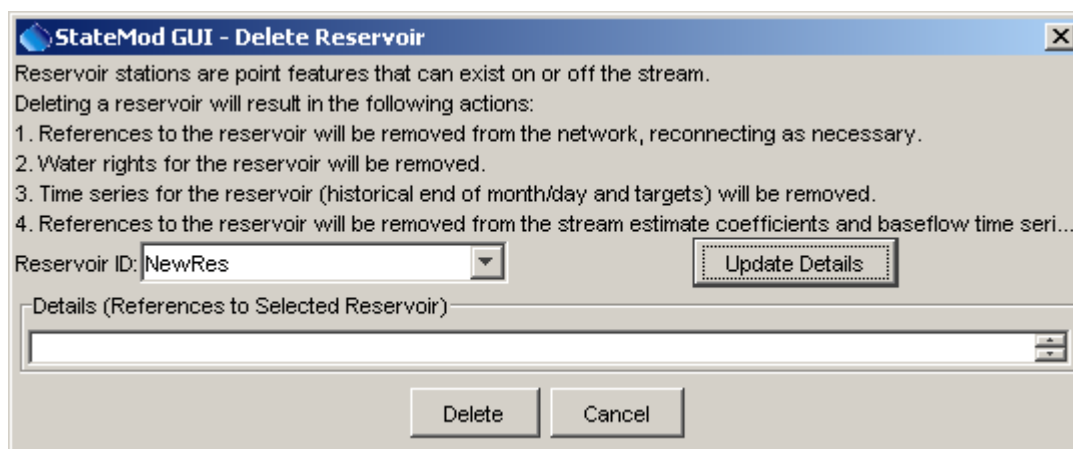


Edit_Delete_Evap

Deleting an Evaporation Time Series

4.10.6 Deleting Reservoir Data

The **Edit...Delete...Reservoir...** menu deletes a reservoir station:

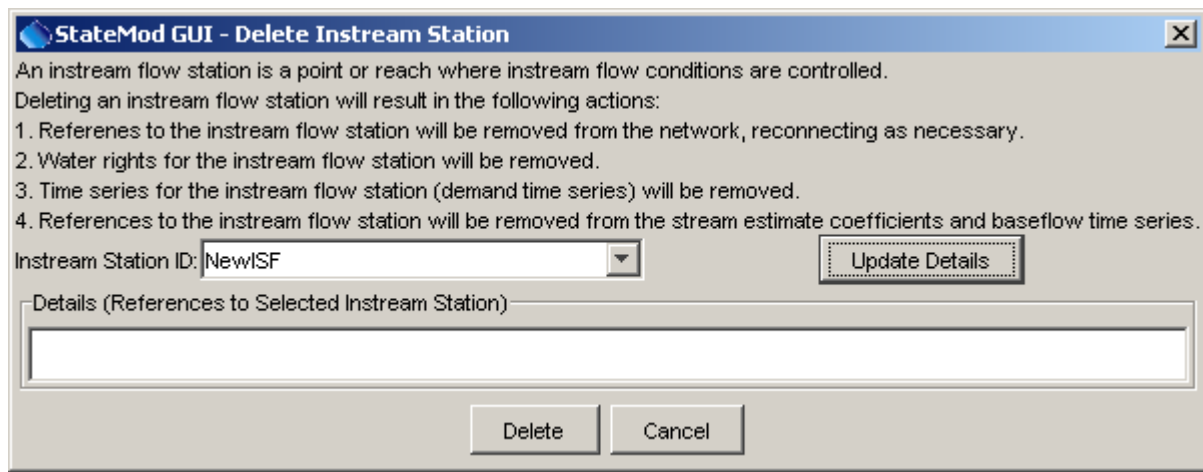


Edit_Delete_Reservoir

Deleting a Reservoir Station

4.10.7 Deleting Instream Flow Data

The **Edit...Delete...Instream Flow...** menu deletes an instream flow station:

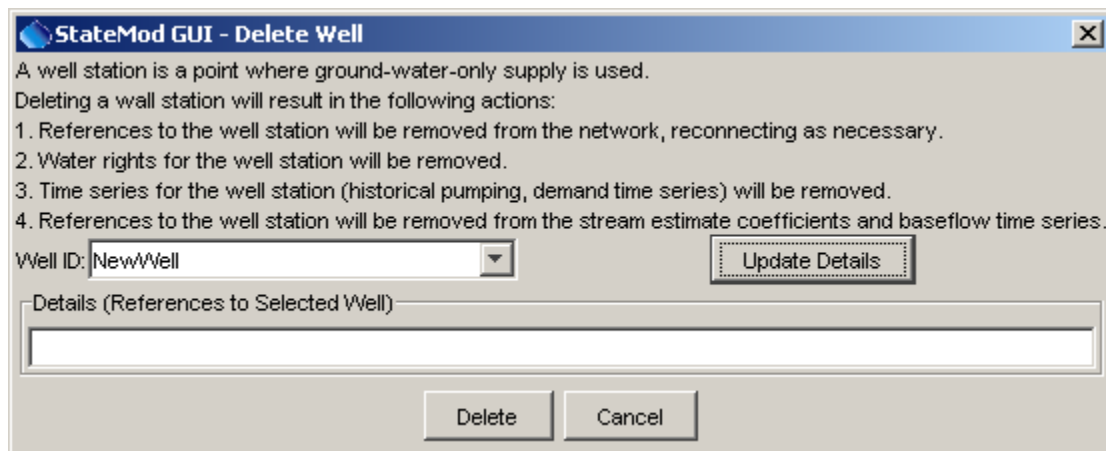


Edit_Delete_InstreamFlow

Deleting an Instream Flow Station

4.10.8 Deleting Well Data

The **Edit...Delete...Well...** menu deletes a well station:

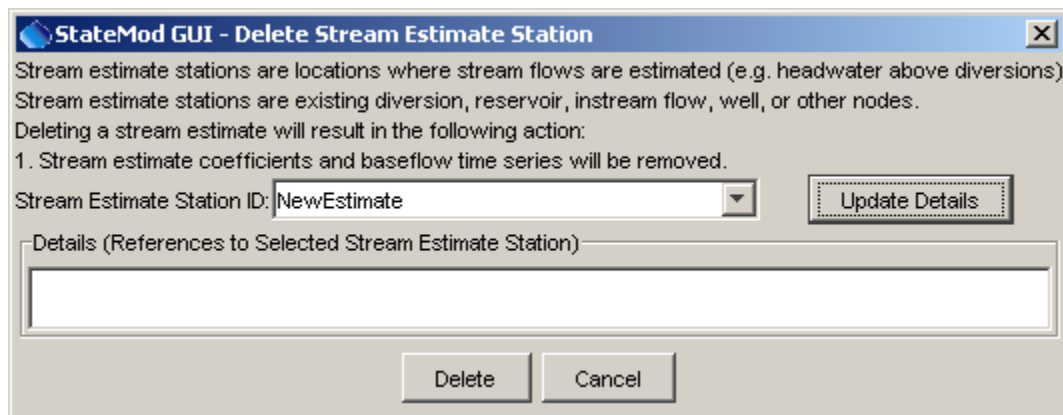


Edit_Delete_Well

Deleting a Well Station

4.10.9 Deleting Stream Estimate Data

The **Edit...Delete...Stream Estimate Station...** menu deletes a stream estimate station:

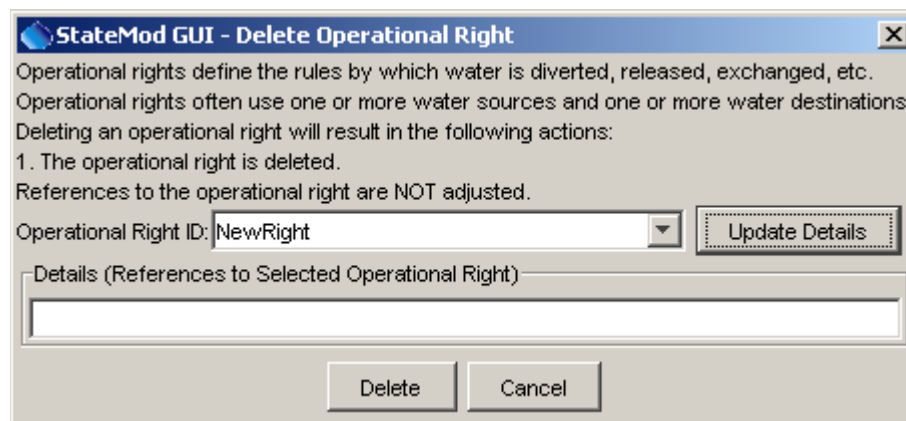


Edit_Delete_StreamEstimate

Deleting a Stream Estimate Station

4.10.10 Deleting Operational Right Data

The **Edit...Delete...Operational Right...** menu deletes an operational right:



Edit_Delete_OpRight

Deleting an Operational Right

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