



Dependency Explorer



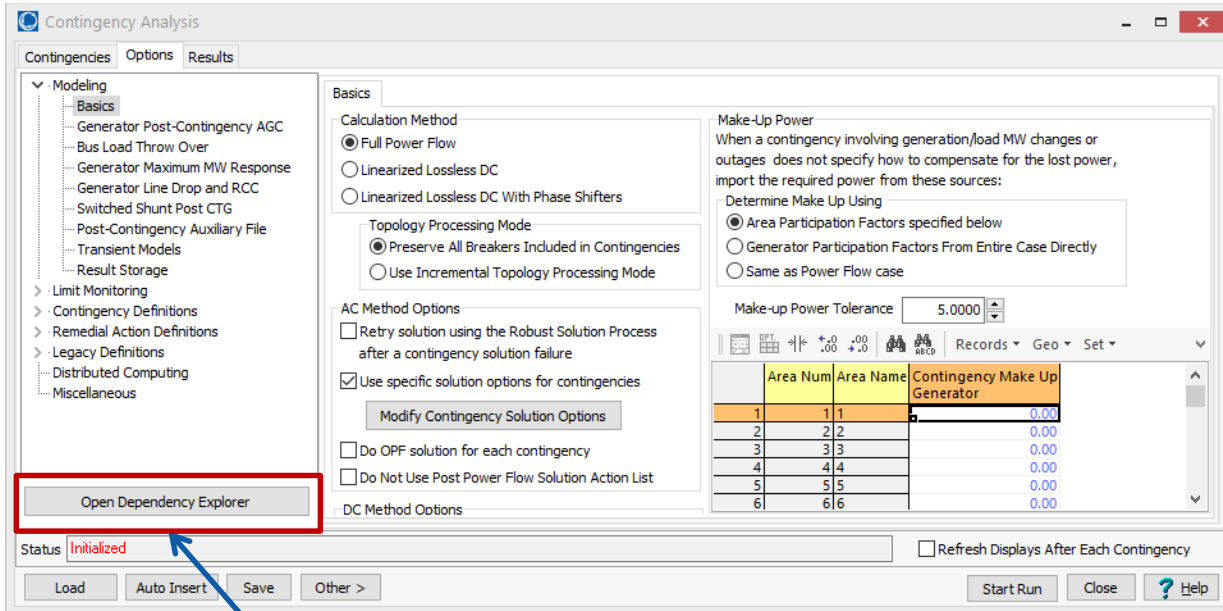
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Overview



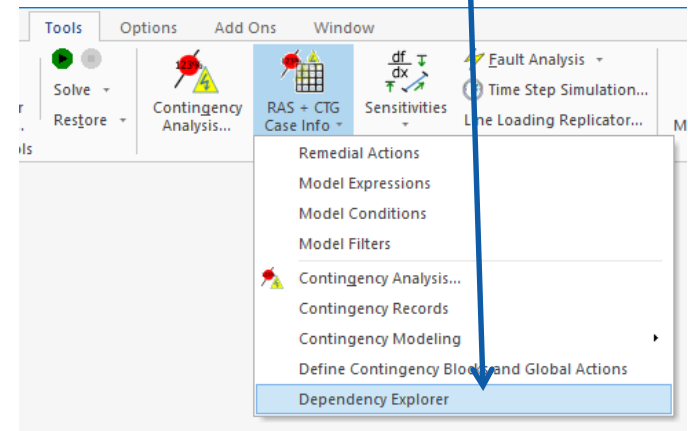
- Enhances the understanding of Remedial Action Schemes (RAS) used with contingency analysis
- Allows for the viewing and modification of all RAS associated objects
 - Remedial Actions, Remedial Action Elements, Model Filters, Model Conditions, etc.

Opening the Dependency Explorer



Select the **Dependency Explorer** option on the RAS + CTG Case Info dropdown on the Tools tab of Simulator ribbon interface

Click the **Open Dependency Explorer** button on the Options page of the Contingency Analysis dialog

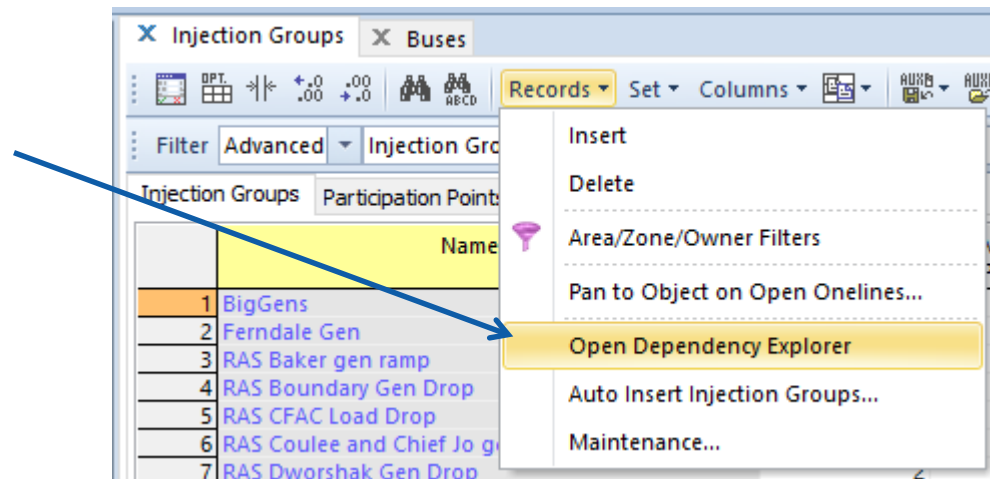


Opening the Dependency Explorer



- Option on local menu of objects that can have dependencies

Select the **Open Dependency Explorer** option on Records dropdown of case information toolbar (or use right-click local menu)



Dependency Explorer



Currently selected object known as the *Top Object*

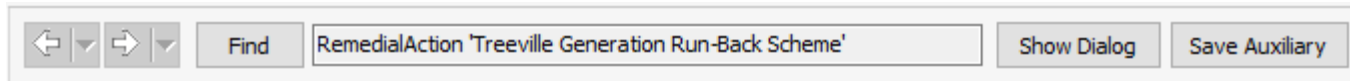
Used By pane

Contains pane

Field Info pane

Filter Visualization pane

Object Selection



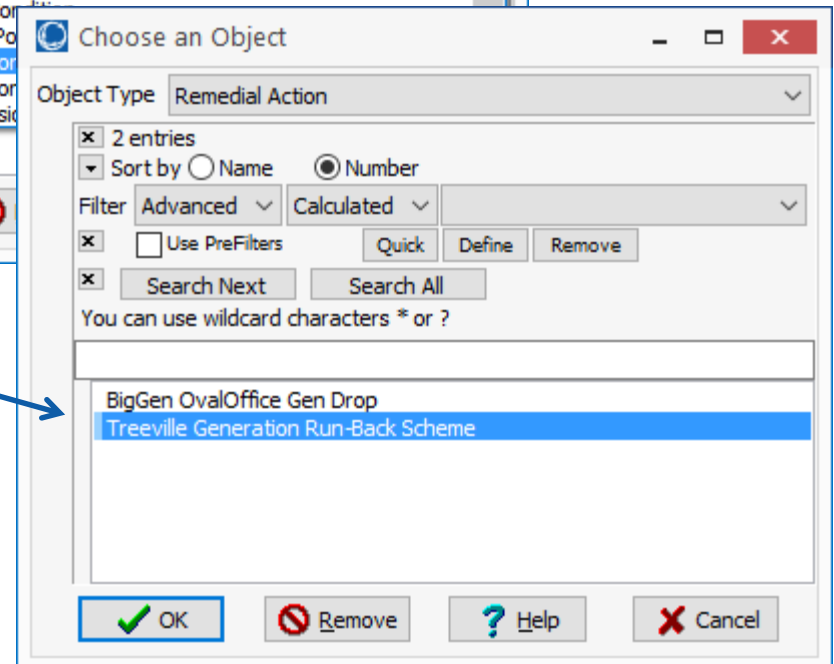
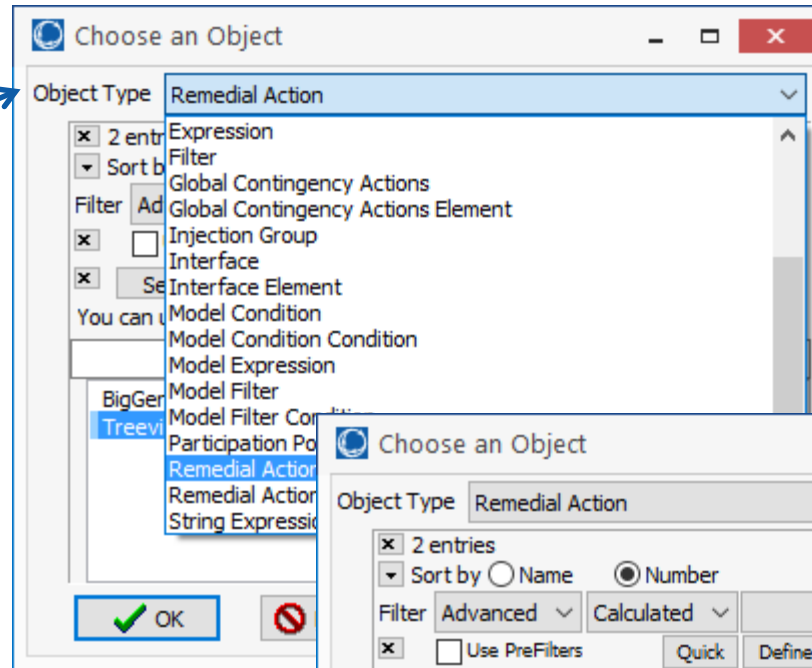
- Currently selected object shown in the top pane of the dialog
 - This will be referred to as the *Top Object*
- Use the **Find** button to open object selector
- **Show Dialog** button will open the user interface dialog for the currently selected object
- **Save Auxiliary** will save the *Top Object* and all of its dependencies to an auxiliary file
 - Format options are the same as those required by the WECC RAS format
- Navigation buttons allow scrolling through previously selected objects

Object Selection



Use **Object Type** dropdown to pick the type of object to display

Use **Object Chooser** to pick the specific object to display



Contains Pane



- Displays all of the objects contained within the currently selected *Top Object*
- Highlighting
 - Red
 - Result of Model Condition or Model Filter is NO
 - Green
 - Result of Model Condition or Model Filters is YES
 - Yellow
 - Model Condition or Model Filter contains unlinked elements
 - Blue
 - Model Condition or Model Filter contains a circular reference

Contains

- > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '1'
- > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '2'
- > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '3'
- > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '4'
- > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '5'
- ... Bus 'Treeville GT2_13.80'
- ▼ ModelExpression 'GT2 Run Back Value'
 - ... Gen 'Treeville GT1_13.80' '1'
 - ... Gen 'Treeville GT2_13.80' '2'
- ▼ RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville ST_1:'
 - ▼ ModelFilter 'Path 1 > 95% OR Path 2 > 102%'
 - > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '1'
 - > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '2'
 - > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '3'
 - > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '4'
 - > ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '5'
 - ... Bus 'Treeville ST_13.80'
 - ▼ ModelExpression 'ST Output After Runback'
 - ... Gen 'Treeville GT1_13.80' '1'
 - ... Gen 'Treeville GT2_13.80' '2'
 - ... Gen 'Treeville ST_13.80' 'L'
- ▼ RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville GT1_'
 - ▼ ModelFilter 'Path 1 Unit 1'
 - > ModelFilterCondition 'Path 1 Unit 1' '1'
 - > ModelFilterCondition 'Path 1 Unit 1' '2'
 - ... Gen 'Treeville GT1_13.80' '1'
- ▼ RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville GT2_'
 - ▼ ModelFilter 'Path 1 Unit 2'
 - > ModelFilterCondition 'Path 1 Unit 2' '1'
 - > ModelFilterCondition 'Path 1 Unit 2' '2'
 - > ModelFilterCondition 'Path 1 Unit 2' '3'
 - ... Gen 'Treeville GT2_13.80' '2'
- ▼ RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville ST_1:'
 - ▼ ModelFilter 'Path 1 Unit 4'

Buttons: Collapse, Expand, Navigate, Dialog, Delete, Show Drag/Drop Editor

Contains Pane Buttons



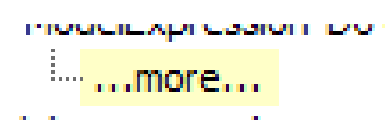
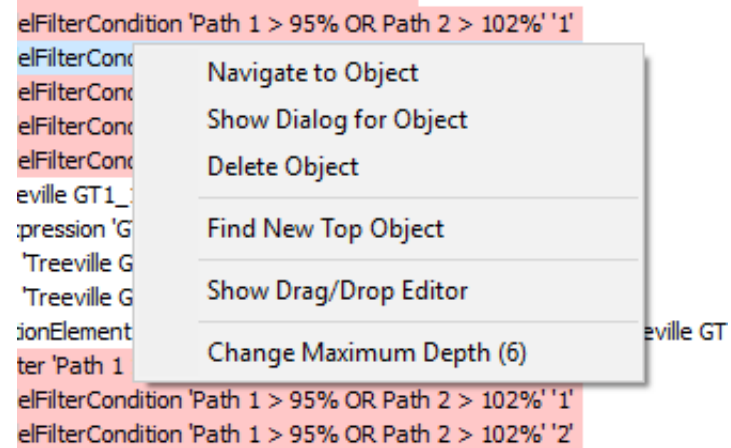
- Collapse
 - Collapse all nodes in the Contains tree view
- Expand
 - Expand all nodes in the Contains tree view
- Navigate
 - Set the object that is currently selected in the Contains tree view as the *Top Object* for the tool
- Dialog
 - Open the user interface dialog for the object that is currently selected in the Contains tree view
 - This will allow modification of the selected object through the dialog
- Delete
 - Delete the object that is currently selected in the Contains tree view
- Show Drag/Drop Editor
 - Open an editor that will allow modifying Model Filters by choosing Model Filters and Model Conditions to add or remove from a Model Filter
 - More information on this is provided in later slides



Contains Pane Local Menu



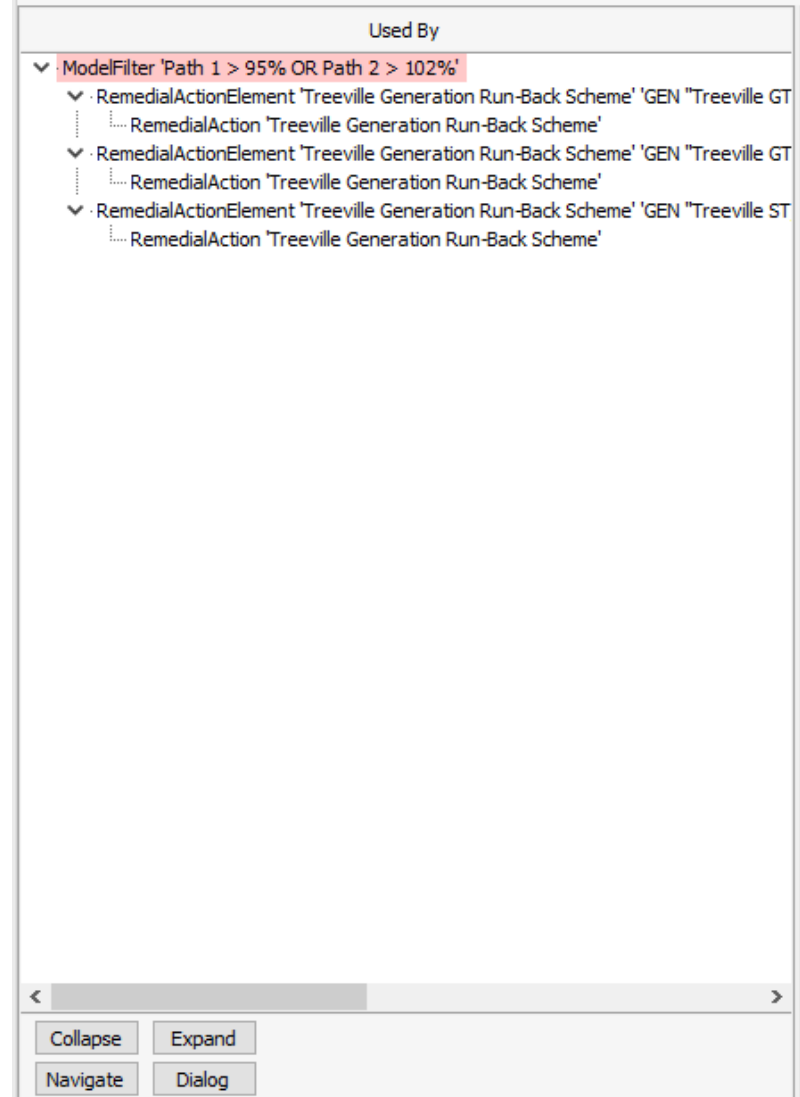
- Right click on the Contains pane to open the local menu
- Navigate to Object
 - Same as Navigate button
- Show Dialog for Object
 - Same as Dialog button
- Delete Object
 - Same as Delete button
- Find New Top Object
 - Open the object chooser dialog for *Top Object* selection and navigate to a newly selected object
- Show Drag/Drop Editor
 - Same as Show Drag/Drop Editor button
- Change Maximum Depth (6)
 - The maximum depth of the tree view is set to 6 by default
 - When limit is reached no additional detailed information is presented
 - You will see ..more...
 - User can choose to increase the depth
 - Don't make too large as it could take minutes to refresh the dialog



Used By Pane



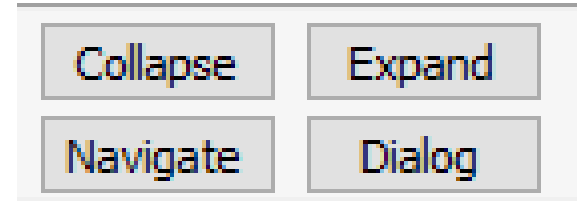
- Displays all of the objects used by the currently selected *Top Object*
- Highlighting
 - Red
 - Result of Model Condition or Model Filter is NO
 - Green
 - Result of Model Condition or Model Filters is YES
 - Yellow
 - Model Condition or Model Filter contains unlinked elements
 - Blue
 - Model Condition or Model Filter contains a circular reference



Used By Pane Buttons



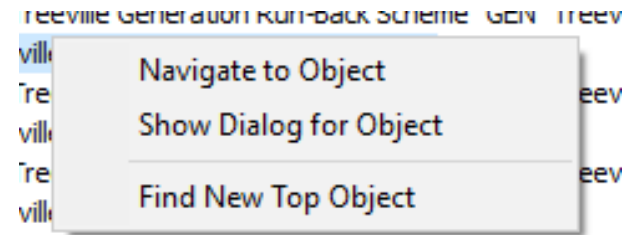
- Collapse
 - Collapse all nodes in the Used By tree view
- Expand
 - Expand all nodes in the Used By tree view
- Navigate
 - Set the object that is currently selected in the Used By tree view as the *Top Object* for the tool
- Dialog
 - Open the user interface dialog for the object that is currently selected in the Used By tree view
 - This will allow modification of the selected object through the dialog



Used By Pane Local Menu



- Right click on the Used By pane to open the local menu
- Navigate to Object
 - Same as Navigate button
- Show Dialog for Object
 - Same as Dialog button
- Find New Top Object
 - Open the object chooser dialog for *Top Object* selection and navigate to a newly selected object



Field Info Pane



- Similar to a case information display for a single object
 - Lists all the fields vertically with edit boxes and dropdowns
- Shows fields deemed relevant for RAS purposes
 - Uses fields that are hardcoded as part of the Auxiliary Export Format Description “Complete Case” button
- Fields that can be modified through a case information display can also be modified here
 - Color scheme is the same as that used for case information displays
 - Blue means enterable, green means toggleable, etc.

Field Info Pane



- When showing information for Model Filters and Model Conditions, the background will be green if result is true, pink if result is false
- Dialog button
 - Open the user interface dialog for the selected object
- Headings
 - Use the dropdown to change how the field labels are displayed
 - Corresponds to field headers and variable names as they are shown in a case information display

The screenshot shows a dialog box titled "ModelCondition 'Path 1D to 1E > 95%'". Below the title is a subtitle "Model Condition Field Info". The dialog contains several fields:

- Name: Path 1D to 1E > 95%
- Object: Branch 'Path1D_115.0' 'Path1E_115.0' '1'
- FilterObjectType: Branch
- FilterLogic: AND (dropdown)
- DisableIfTrueInRef: NO (dropdown)
- EvaluateInRef: NO (dropdown)
- Memo: (empty text area)
- DataMaintainerAssign: (dropdown)

At the bottom of the dialog, there is a "Dialog" button and a "Headings" dropdown menu set to "Concise Variable Names". The main content area of the dialog is highlighted in pink.

Setting Object in the Field Info Pane



Information shown in the Field Info pane corresponds to the object selected in the Contains pane

The screenshot displays two panes from a software application. The left pane, titled "Contains", shows a hierarchical tree structure of objects. The right pane, titled "Model Condition Field Info", displays the properties of the selected object.

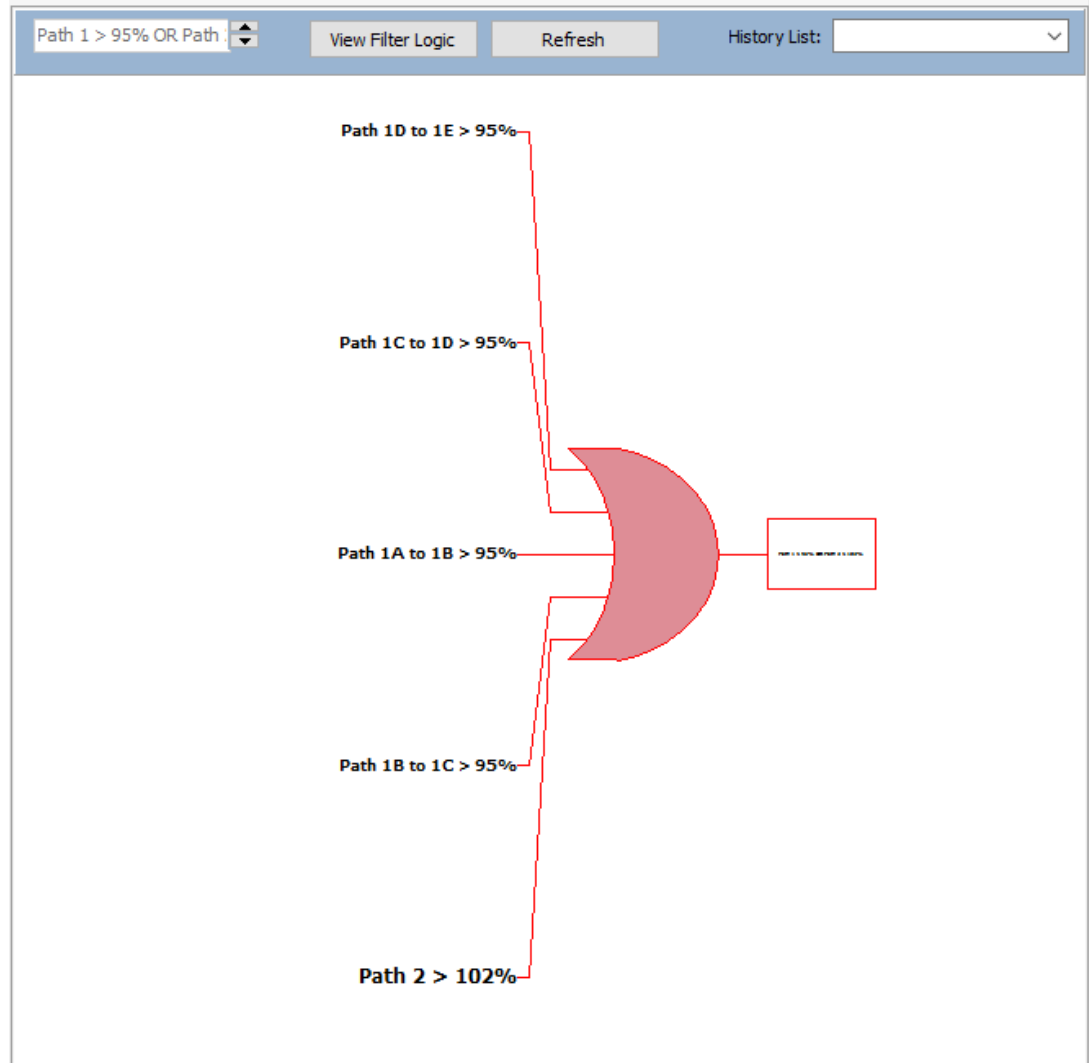
Contains Pane:

- RemedialAction 'Treeville Generation Run-Back Scheme'
 - RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville GT1_13.80'
 - ModelFilter 'Path 1 > 95% OR Path 2 > 102%'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '1'
 - ModelCondition 'Path 1D to 1E > 95%' (Selected)
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '2'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '3'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '4'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '5'
 - Bus 'Treeville GT1_13.80'
 - ModelExpression 'GT1 Run Back Value'
 - Gen 'Treeville GT1_13.80' '1'
 - Gen 'Treeville GT2_13.80' '2'
 - RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville GT2_13.80'
 - ModelFilter 'Path 1 > 95% OR Path 2 > 102%'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '1'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '2'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '3'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '4'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '5'
 - Bus 'Treeville GT2_13.80'
 - ModelExpression 'GT2 Run Back Value'
 - Gen 'Treeville GT1_13.80' '1'
 - Gen 'Treeville GT2_13.80' '2'
- RemedialActionElement 'Treeville Generation Run-Back Scheme' 'GEN "Treeville ST_13.80'
 - ModelFilter 'Path 1 > 95% OR Path 2 > 102%'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '1'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '2'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '3'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '4'
 - ModelFilterCondition 'Path 1 > 95% OR Path 2 > 102%' '5'

Filter Visualization Pane



- Filter visualization will appear if selecting a Model Filter (or Advanced Filter) in the Contains pane
- Left clicking on a Model Filter in the visualization will set the *Top Object*
- Right clicking on an object in the visualization will open the user interface dialog for that object



Drag/Drop Editor



- Allows modification of Model Filters by adding or removing other Model Filters or Model Conditions
- Adding
 - Left click and drag the Model Filter or Model Condition from the editor and drop it on the appropriate Model Filter in the Contains pane
- Removing
 - Left click and drag a Model Filter or Model Condition from a Model Filter in the Contains pane and drop it on the **Drag/Drop here to Delete** section of the dialog

