ValQ Custom Visual for Microsoft Power BI

- User Guide -

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Introduction

Document History

This document is valid for the releases shown in the Table below:

Major Release	Minor Release	Patch	Date
1	0	0	May 2019*

Document History

Who should read this guide?

This User Guide for ValQ as Custom Visual for Microsoft Power BI offered by Visual BI is meant for users that are going to use Apps leveraging the ValQ Custom Visual to analyse value driver relationships, compare versions such as Forecast vs Current Budget and simulate what*if scenarios such a change in price, volumes and efficiencies real*time.

What is the Visual BI ValQ for Power BI as a Custom Visual Component?

ValQ for Microsoft Power BI is a custom visual component which involves mathematical or conceptual business models visualized in a way that links the business KPI's (what management or stakeholders care about) to the operational drivers (the things that can be influenced to change the KPI's).

Definitions

Power BI	Microsoft Power BI
ValQ	ValQ for Microsoft Power BI
Value Driver Tree	Mathematical or conceptual business models visualised in a way that links the business KPI's (what management or stakeholders care about) to the operational drivers (the things that can be influenced to change the KPI's).
Node	A generic reference to a unique KPI or Value Driver in a value driver tree
Node Widget	The visualization of a KPI or Value Driver in a value driver tree
Derived Node	Additional Information for a node but not directly related to the calculation hierarchy. This will often be key benchmarking KPI's such as cost/production unit.
Parent	A reference to the Node one level above in the Value Driver Tree
Children	A reference to the collection of nodes immediately below a Node

Definitions

General Features of ValQ Custom Visual

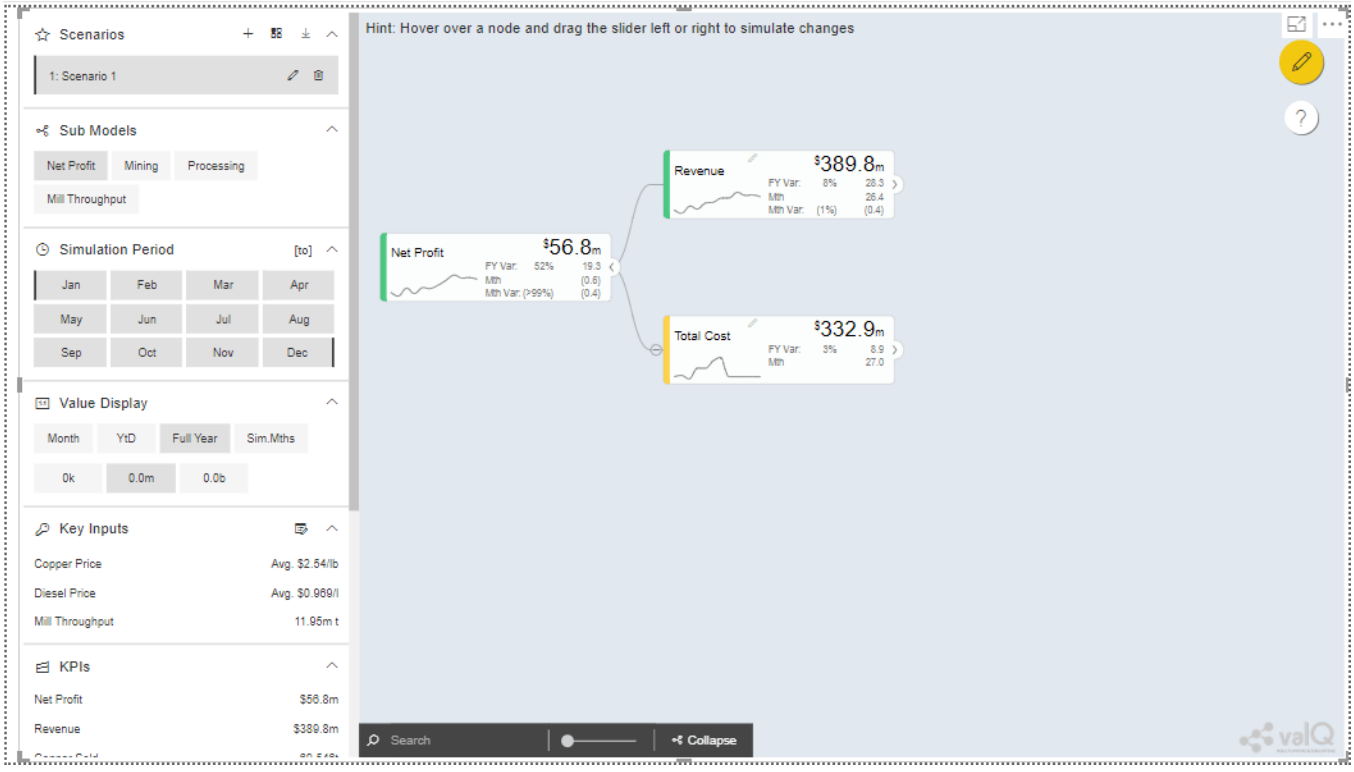
Instructions for ValQ Custom Visual

The ValQ Custom Visual provides various components that the Designer can use in conjunction with Microsoft Power BI. The ValQ custom visual also offers many configuration options.

In this guide, we will describe the common end user functionality using a demo as an example. It is however important to understand that your specific implementation may differ.

Once your designer has implemented and configured the ValQ Custom Visual, it will be accessed the same way you access your current Power BI Apps.

When you open a ValQ Custom Visual, it will open in a similar manner at the screenshot below:



ValQ Screen

The left panel is the navigation panel and on the canvas you will find the value driver tree. By default, the tree is open on collapsed mode at a level defined by the designer. This is typically completely collapsed.

Input Data

The ValQ Custom Visual works with two input data series – the primary and the comparison data series. A common way of using this is to compare Forecast vs Budget, Budget vs Last Year Actuals etc. The data series is at a certain time grain. This would typically be 1 year by 12 months or a multiyear view like 5 years plan by year.

The selecting of the time series will often be based on Filters or Variables. A typical scenario is where the designer has defined 4 variables on the underlying data sources:

Primary:

Version: ie. Defaulted to Forecast

Year: ie. Defaulted to Current Year

Comparison:

Version ie. Defaulted to Budget

Year ie. Defaulted to Current Year

This allows the users to compare different versions and years in the value driver tree model.

The ValQ Custom Visual can display individual periods but can also apply time aggregation such as Full Year, Year-to-Date. You can see the currently selected Value Display aggregation on the Navigation Panel. In the screenshot above, Full Year is selected. The primary value displayed on the Widgets is therefore in this instance the Full Year aggregated data.

Tree Drill Down

Nodes that has children will have an expand '>' button to the right of the Widget as highlighted below:

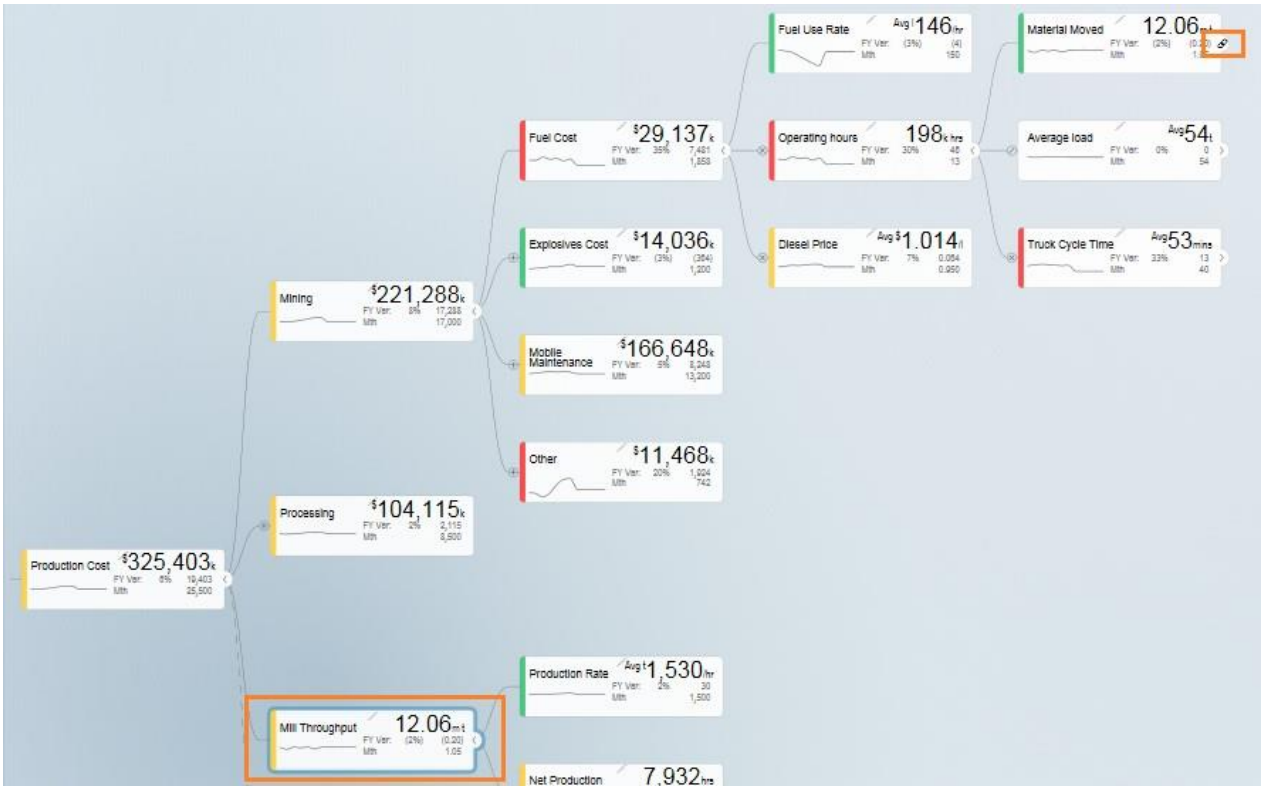
Nodes with children

You can drill down the tree by clicking the expand button.

The tree will focus on the branches that are being expanded. You can collapse any specific node by clicking the '<' collapse button on the right of a widget.

Value Driver Trees are in reality networks. The same driver may impact multiple aspects of the Tree. The component therefore contains a concept of linked nodes. Such nodes have a link icon that you can click which will jump to where the linked node is defined and highlight the node:

Link



Linked Nodes

To collapse all nodes, click on the collapse icon on the bottom left of the canvas

Zoom and Pan

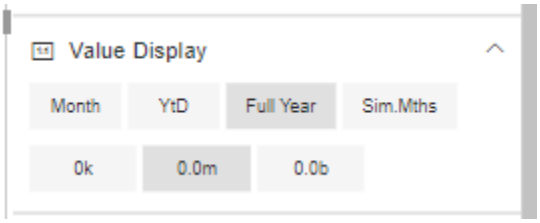
Value Driver Trees can be large. You can zoom and pan the canvas view. If you are using an iPad or iPhone, you can zoom by pinching and pan by dragging the same way you would navigate a map.

If you are using a mouse with a scroll wheel, you can point your curser anywhere in the canvas and scroll the wheel to zoom in and out.

To pan, click and hold the left bottom of the mouse and drag the tree around.

You can also use the zoom button to zoom if your device doesn't support other options

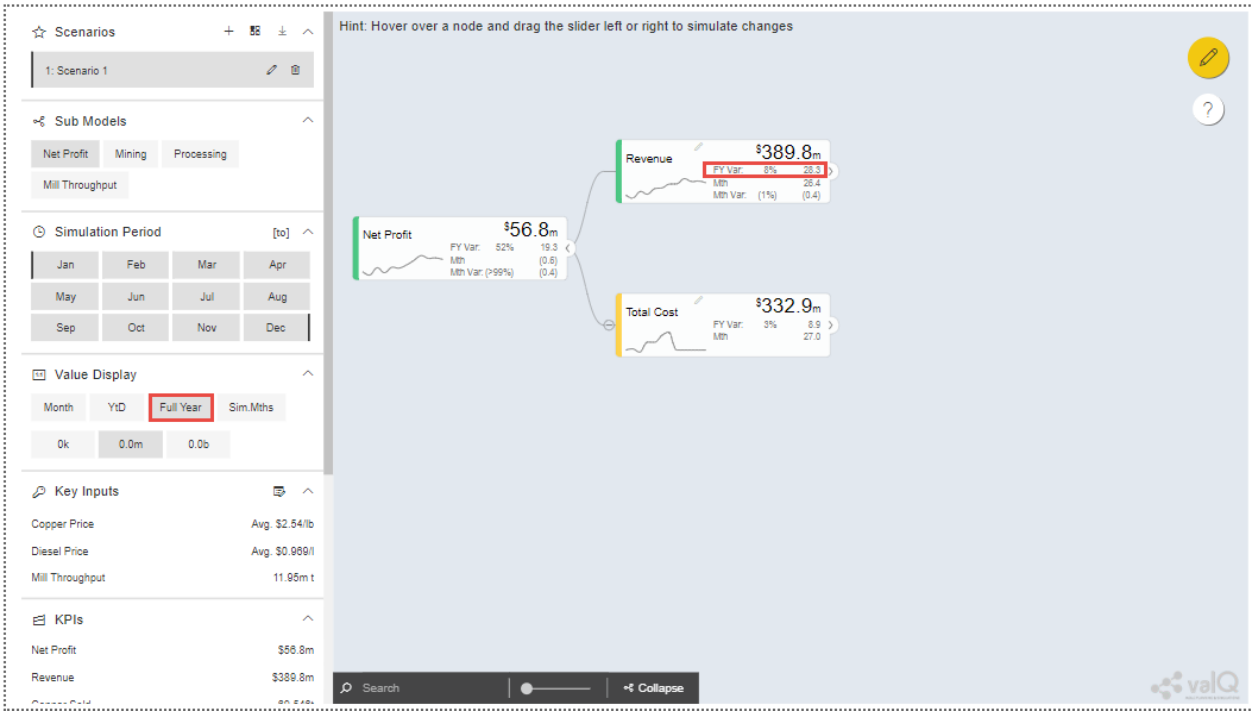
Value Display and Simulation Period



Value Display

With the ‘Value Display’ functionality you can choose the time aggregation you want to display as the primary value. The designer can link certain nodes to a user selected scaling. You can select the scale you wish to display by selecting this under the Value Display section. Note that the options here can be configured so they may differ. It is important to note that not all notes are scaled using this as the value driver tree typically contains both amounts, prices, rates and physical volumes.

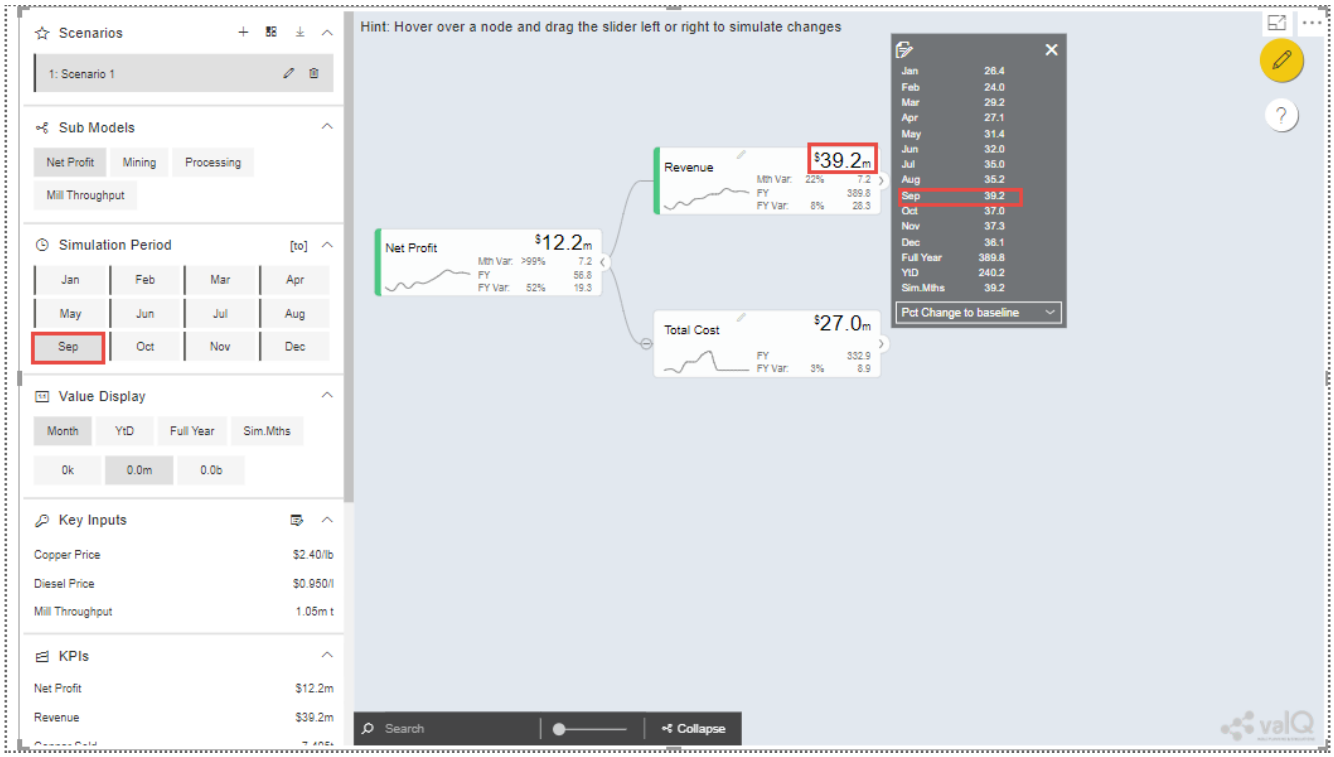
In addition to the primary display value, the designer can also choose a secondary value to be displayed. I.e. if you are showing Full Year as primary, in the below example, it has been configured to visualize the Month data as secondary:



Value Display

The time aggregation and display relates to the Simulation Period selected.

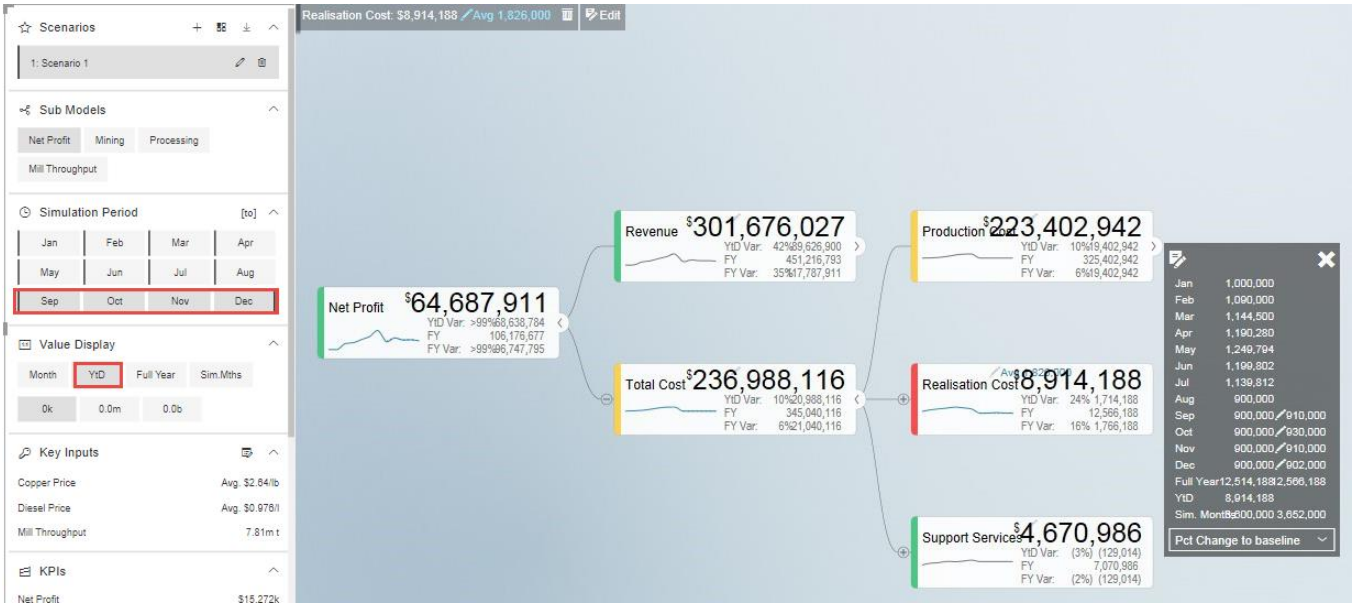
When **Month** is selected, it shows the first month of the simulation interval selected. By default, the simulation period is the selected period and the future. This is an important concept as when we simulate, we generally don't want to apply a change to the past as we can't change it. It is possible to also set the 'to' period in a simulation, just click [to] and highlight the month you want as the end period of a simulation. This is however a special scenario.



Simulation Period

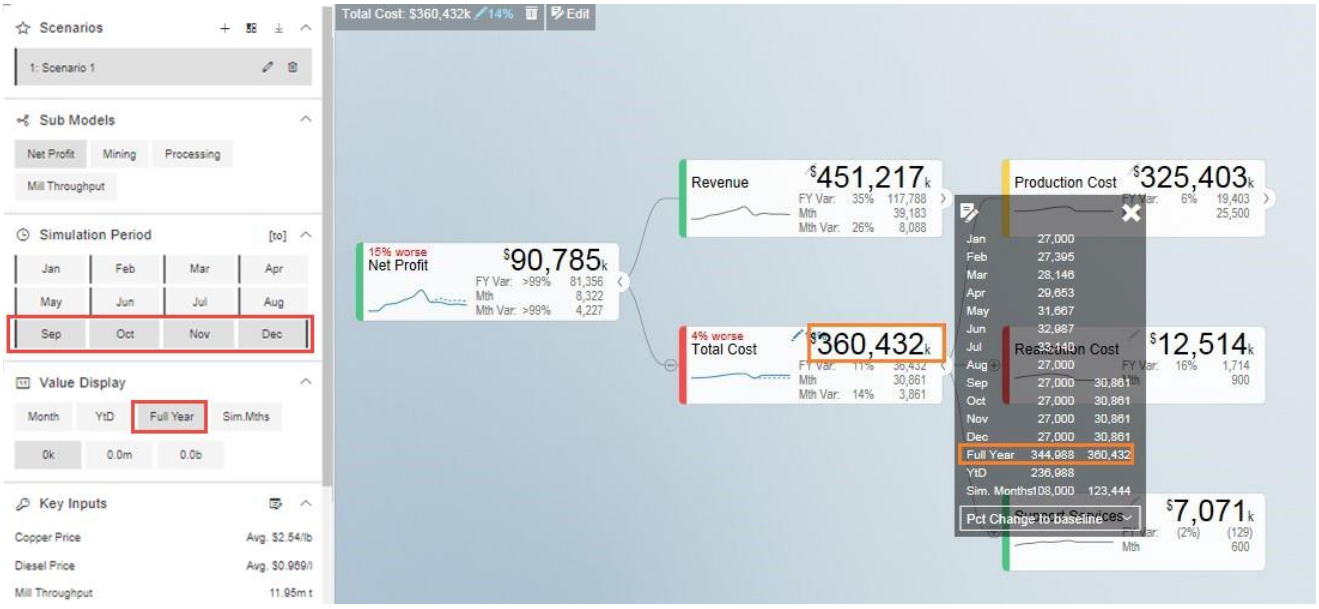
YTD – the selected period -1 is the year to date data (eg. selected simulation period is September to December, the YTD data will be from Jan to August).

Note: Simulation of future periods will not impact the YTD data.



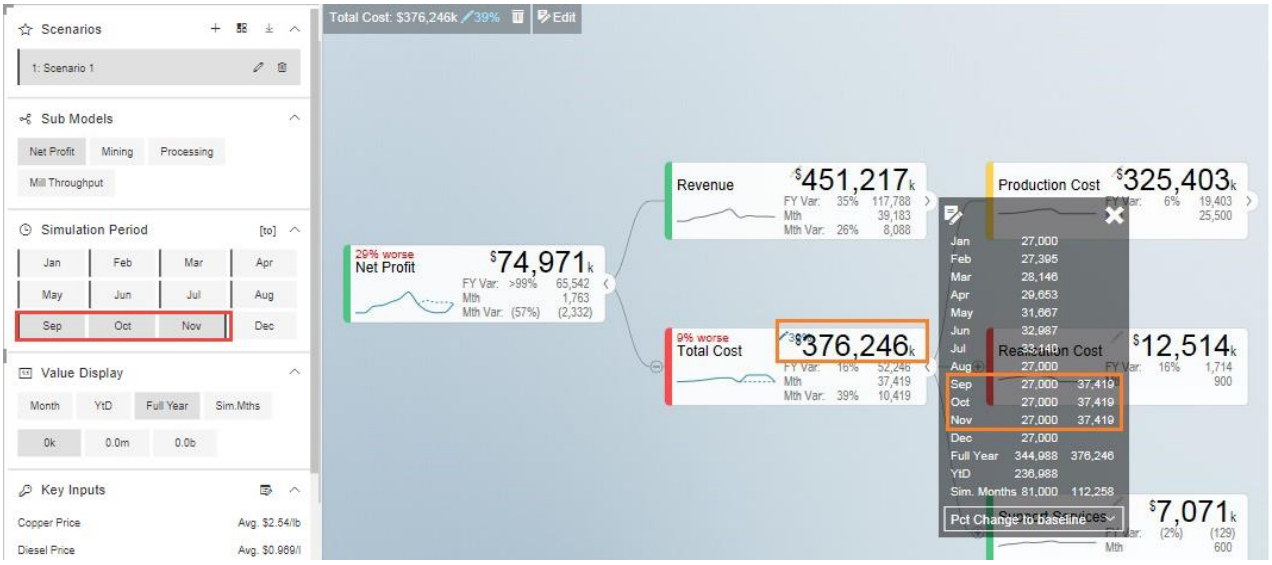
Value Display and Simulation Period

Full Year – Shows the full year cumulated data



Value Display and Simulation Period

Sim. Period – to simulate a specific period, for example a 3 month rolling forecast from September to November, click the first month September then click [to] and click the last month November for simulation. You can then choose to only show the values aggregated for the selected simulation periods



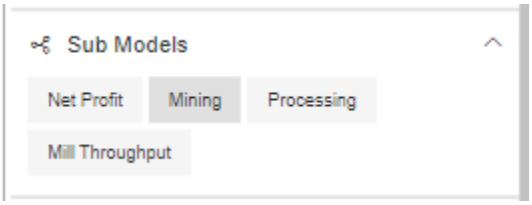
Value Display and Simulation Period

Sub Models - Filters

If your Value Driver Tree is large, the designer may have defined specific sub views. These would be listed under the Sub Models Section of the Navigation Panel. When clicking on one of these views, the tree will be filtered and the specific node will be made the top node. Calculation dependencies are still respected but this significantly improves the navigation as it focuses the tree on a specific area.

In this example, the options defined are:

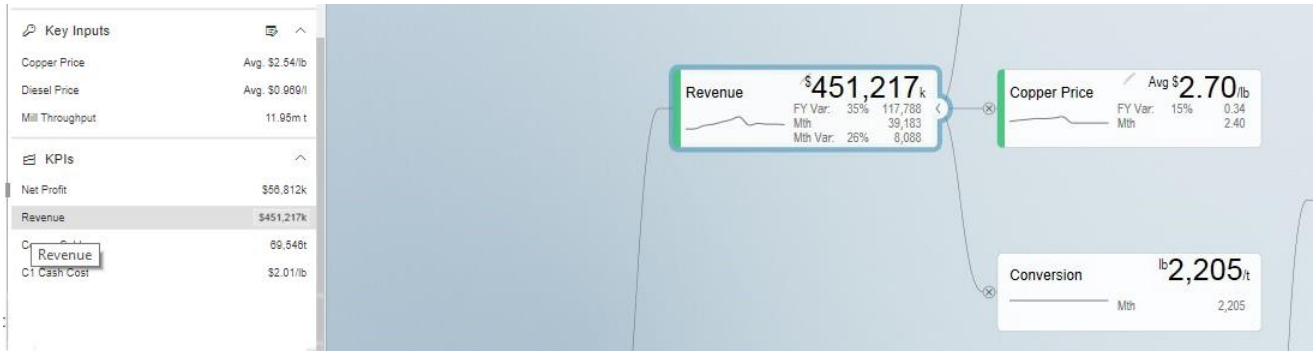
- Open all company level: Net Profit
- Open per department: Mining, Processing or the operational tree for Mill Throughput



Sub Models – Filters

KPIs

The Navigation Panel can be configured to list a set of KPI's from the value driver tree. You are able to navigate to each of them for a fast view on the simulation impact on a given KPI. Click on the KPI to navigate to the node.

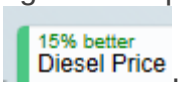


KPIs

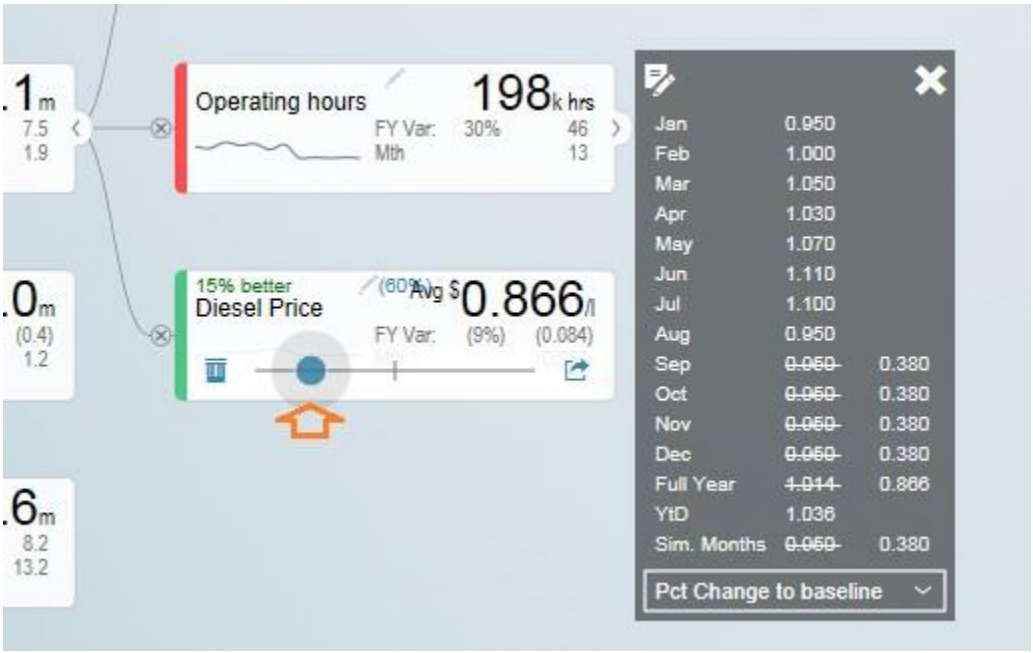
Data Simulation

There are 2 options to simulate:

- Hover over a desired node to simulate, slide the scaling button to right for positive impact or left for negative impact. The simulation will be showed on the right hand side. A window will open displaying the changes. The pencil icon will display the change in percentage that has been made:

, and a legend with percentage showing if the adjust has made the scenario better or worse 

.



Data Simulation

- Click on the arrow icon of the node then click 'Edit Key Input' and manually edit the changes in simulation per period. Click X to close manual input table.

Notes

- You can update the periods highlighted in YELLOW based on the selected simulation period.

Simulation Periods

The edit icon will indicate the months that have been edited.

Simulation Periods

- You can update the 'Variation' column which will overwrite the numbers in the selected simulation periods. Any manual updates in period will not be overwritten by the 'Variation' column. In the example below, in blue are the months which were manually edited and in orange are highlighted the variation and in this case the month to which the variation was applied.

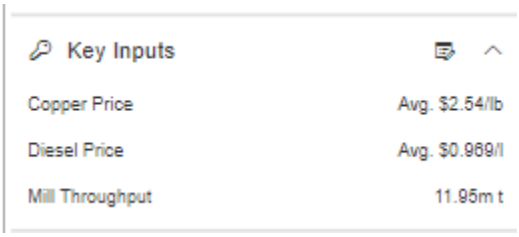
Simulation Periods

Click reset icon to return to the original data .

Key Inputs

Key Inputs is available on the left side panel to directly simulate key cost drivers without going into the node details.

Click the 'Edit Key Input' icon and manually edit the changes in simulation per periods.



Key Inputs

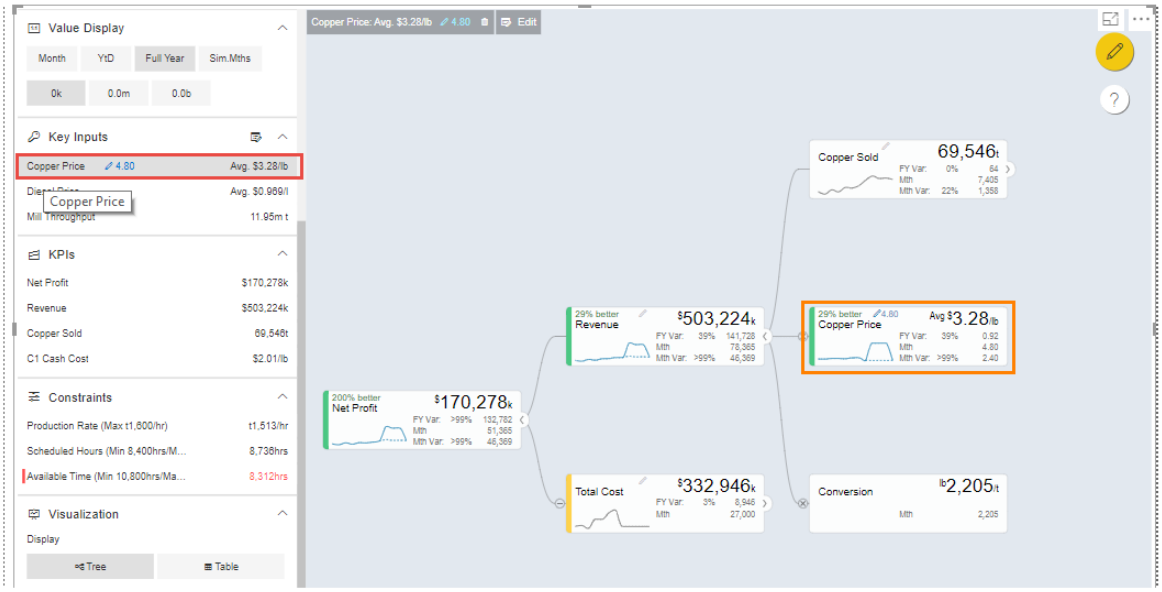
Notes:

- Can update the periods highlighted in YELLOW based on the selected simulation period. All the changes in the Key Assumptions are highlighted in the left side panel side.

Simulation Periods

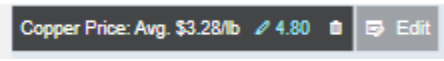
Click X to close manual input table.

- Click a Key Assumption or Key Performance Indicator and it will highlight the source nodes to further check the details.



Key Inputs

All simulations are highlighted in the upper right corner.



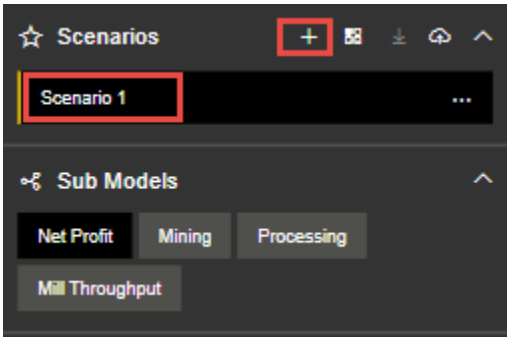
Click to return to the original selected version without any simulation.

Scenarios Functionality

You can create multiple scenarios in parallel, compare them as well as sharing the collection with others.

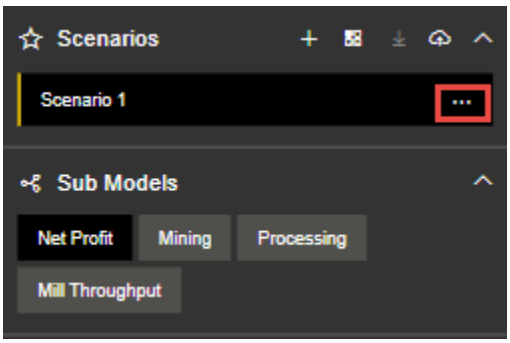
This is how you do it.

- Create a Scenario 1 by clicking the “+” button in the Navigation Panel (see Figure below).



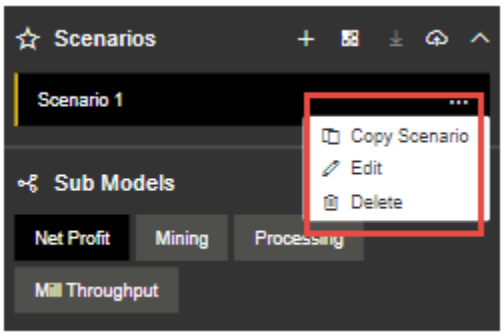
Create Scenario

- You can view the Context Drop Down Menu as shown in the below Figure.



Context Drop Down Menu

- After clicking the Context Drop Down Menu, you will be able to view the Menu items such as Copy Scenario, Edit and Delete Functions (see Figure below).

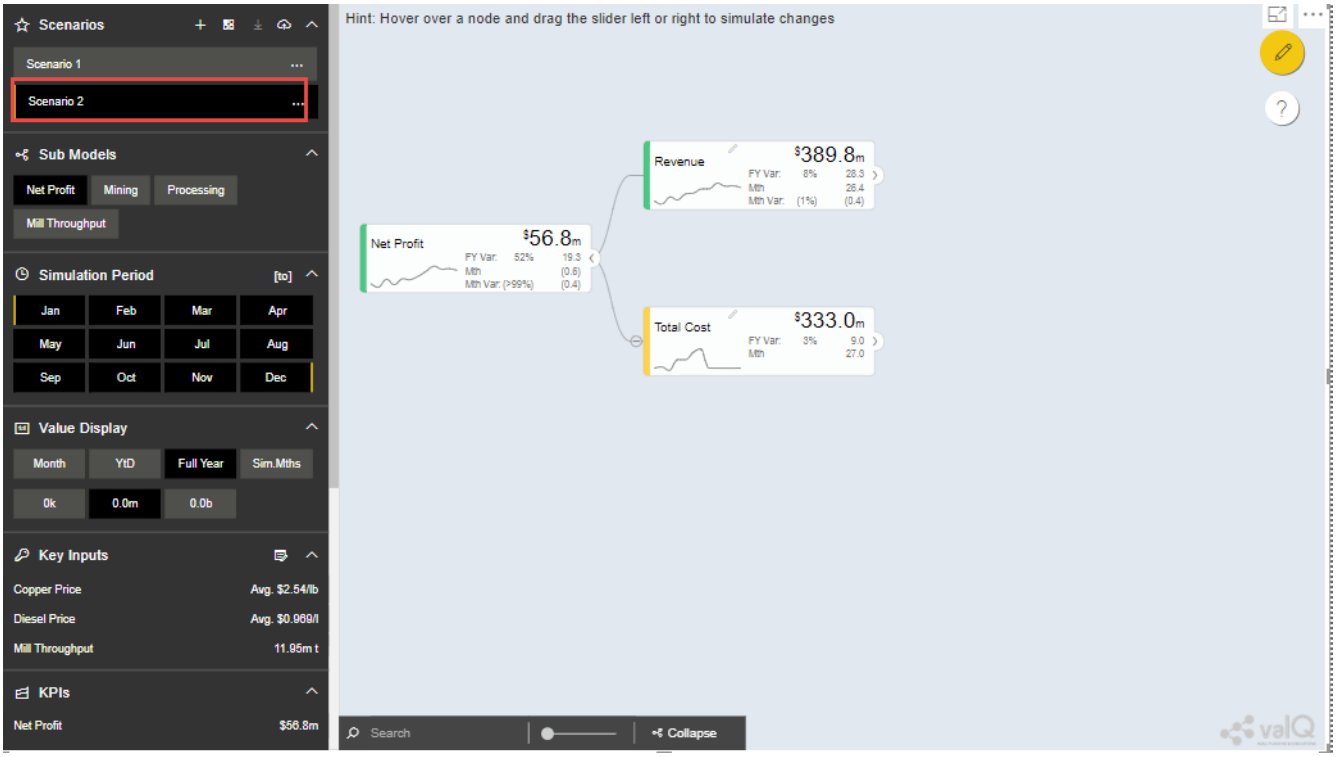


Context Drop Down Menu Items

- When you click the “Copy Scenario” Menu Item, you will be able to create the Scenario 2 with the same configuration as done for Scenario 1.

Scenario 1

The above Figure shows the settings for Scenario 1. When you click the “Copy Scenario” Menu Item, you will be able to view the Scenario 2 being created with the same set of configuration done for Scenario 1 (see Figure below).



Scenario 2

The copied scenario is the replicate of the last scenario (e.g. Scenario 2 will have the same data from the copied Scenario 1.

- By clicking the “Edit” Menu Item, you will be able to edit the Scenario (see Figure below).

Scenario 1 Edit

From the above Figure, you can observe that you will be able to edit the labels for the Title and Description for the selected Scenario.

- By clicking the “Delete” Menu Item, you will be able to delete the entire Scenario.
- Click ‘Create a new Scenario and make it the active scenario’ icon as shown below

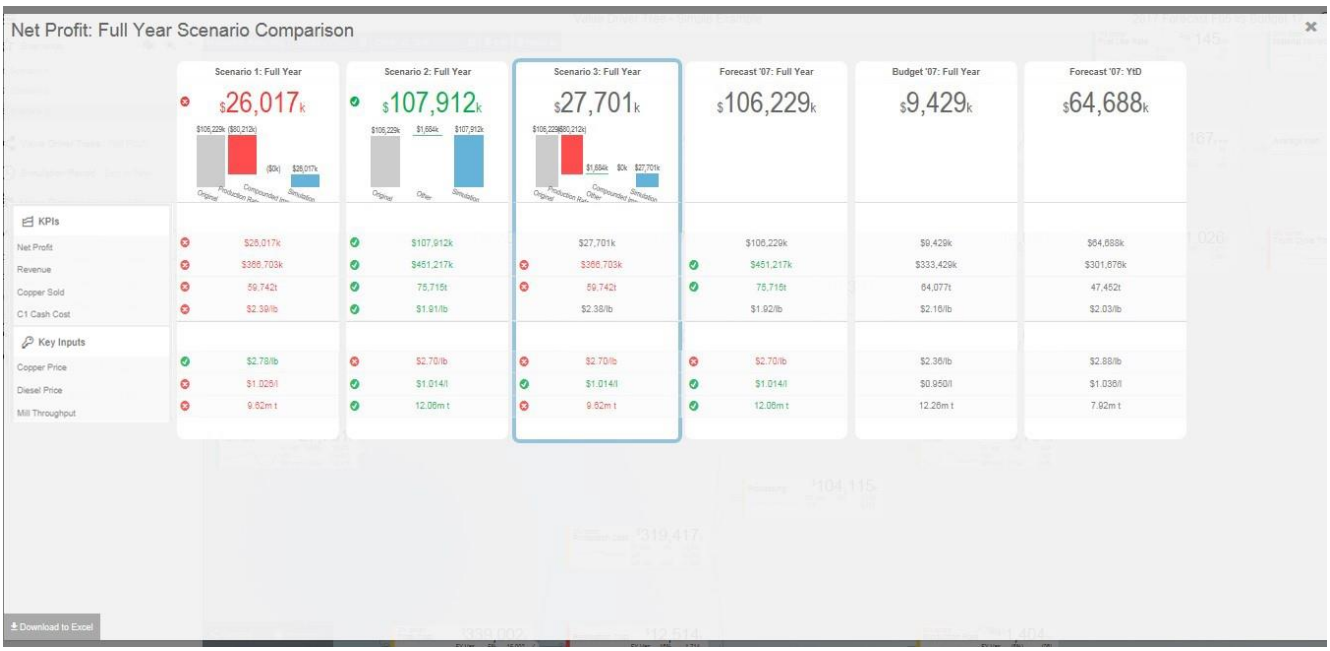
Create a new Scenario and make it the active scenario icon

This will create a new Scenario and will highlight the created Scenario as the active scenario.

- Click ‘Compare Scenario’ icon to generate a report comparison format with the key Assumptions and KPI’s (see Figure below).

Compare Scenario icon

- Comparison report compares all scenarios that have been created in the active collection. It also shows the Simulated Data Scenario (Baseline: Full Year), Comparison Version (Full Year) and Simulated Data Scenario Year to Date (Baseline: YTD).
- From the below Figure, the GREEN fonts denotes the most favorable results and the RED fonts denotes the least favorable result in the scenario comparison report



Full Year Scenario Comparison

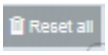
Net Profit: Full Year Scenario Comparison

		Scenario 1: Full Year	Scenario 2: Full Year	Scenario 3: Full Year	Forecast '07: Full Year	Budget '07: Full Year	Forecast '07: YtD
Net Profit	$ k	26017	107912	27701	106229	9429	64688
KPI's							
Net Profit	$ k	26017	107912	27701	106229	9429	64688
Revenue	$ k	366703	451217	366703	451217	333429	301676
Copper Sold	t	59742	75715	59742	75715	64077	47452
C1 Cash Cost	$ /lb	2.39	1.91	2.38	1.92	2.16	2.03
Key Inputs							
Copper Price	$ /lb	2.78	2.7	2.7	2.7	2.36	2.88
Diesel Price	$ /l	1.026	1.014	1.014	1.014	0.95	1.036
Mill Throughput	m t	9.62	12.06	9.62	12.06	12.26	7.92

Scenario Comparison

Full Year Scenario Comparison

- You have the option to make additional simulation in the new scenario or click the icon appearing in the top most right pane to return to the original selected version without any simulation and then make a new simulation (see Figure below).



Reset All icon

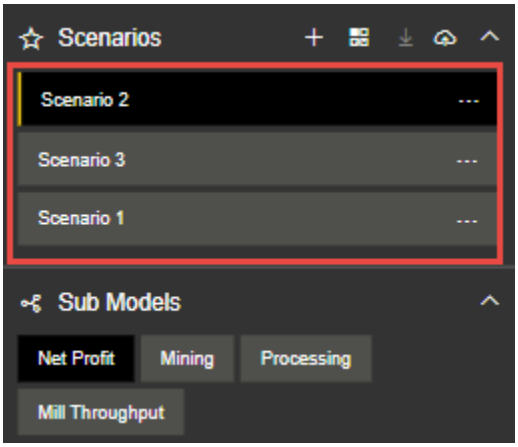
- Click the Download icon located in the Scenarios Section to extract the report in xml format (see Figure below).

Download icon

- Click the icon for write back functionality (see Figure below). By clicking this option you will be able to write back/post ValQ data to a configured URL in the server.

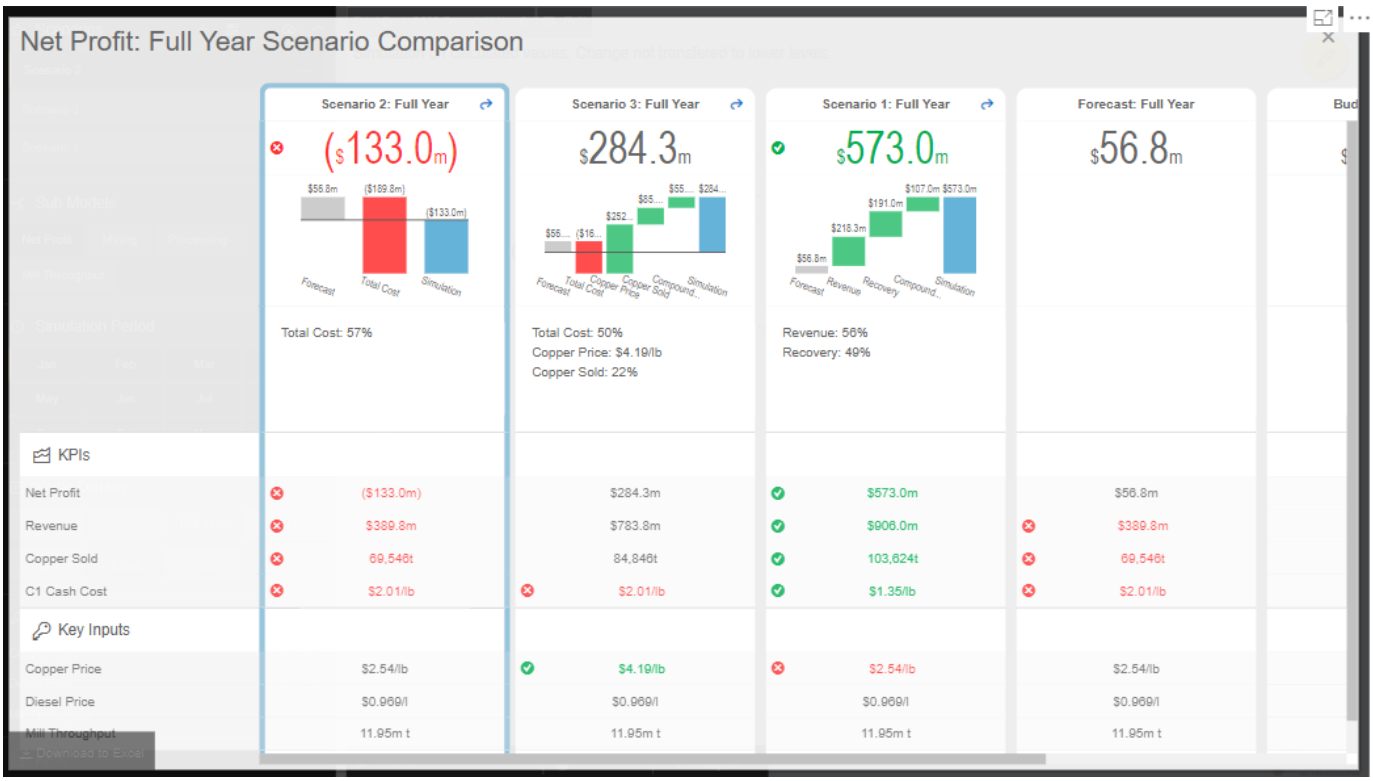
Write back icon

- The created Scenarios can be reordered based on our choice by a simple drag and drop options. For our example, you have reordered the Scenarios as shown in the below Figure.



Reordered Scenarios

Based on the reordered scenarios, you will be able to view the Comparison Report with the similar reordered hierarchy as shown in the below Figure.



Comparison Report with reordered Scenarios

Constraints

Constraints are also available in the left side panel that identifies the metrics that are overcapacity (highlighted in RED fonts) or still have opportunities for further improvements (WHITE fonts).

Notes:

- RED fonts means over capacity as compared to the maximum limit. (e.g. Production Rate 1.680 tonnes per hour is over capacity as compared to the maximum limit of 1.600 tonnes per hour).
- WHITE fonts means still have opportunities for improvement as compared to the maximum limit.

Constraints

Constraints

Understanding Variances

The starting point for a simulation is a selection of two versions - **Primary Version** and a **Comparison Version** and a year. For instance a forecast vs current budget.

Once we start simulating, changes are applied to the primary version. We call this changing version the Simulation.

To understand the improvements we achieve, we also keep track of the original values from the primary version without simulation changes. We therefore have 3 data series in the model that we calculate and compare:

1. Simulation (The Primary Version including applied variations)
2. Original (The Primary Version without variations)
3. Target (The Comparison Version)

Based on the above, we calculate the following variances:

- Simulated Variance (Simulation vs Target)

  Q: If we changed these things, would we hit target?

- Simulation Impact (Simulation vs Original)

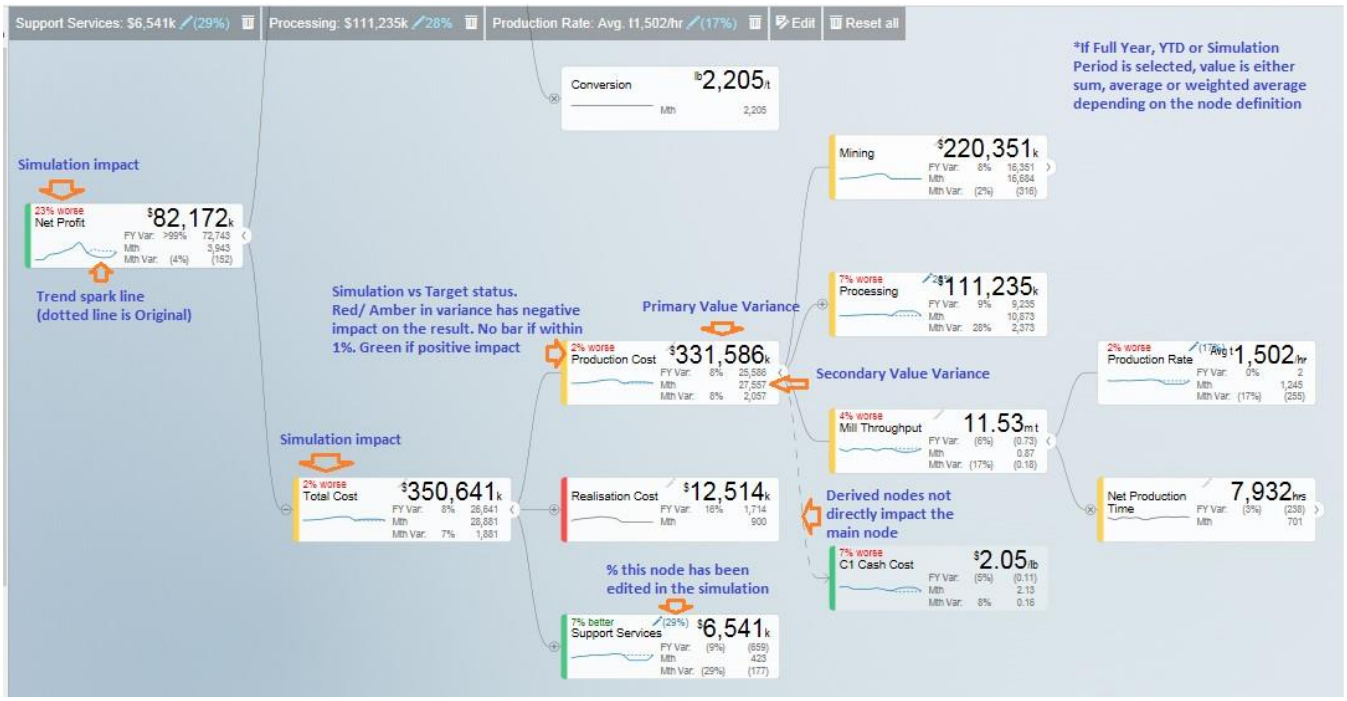
  Q: How much would we improve if we made these changes?

- Original Variance (Original vs. Target)

  Q: What was our variance if we did nothing?

Understanding the Node Widget Information

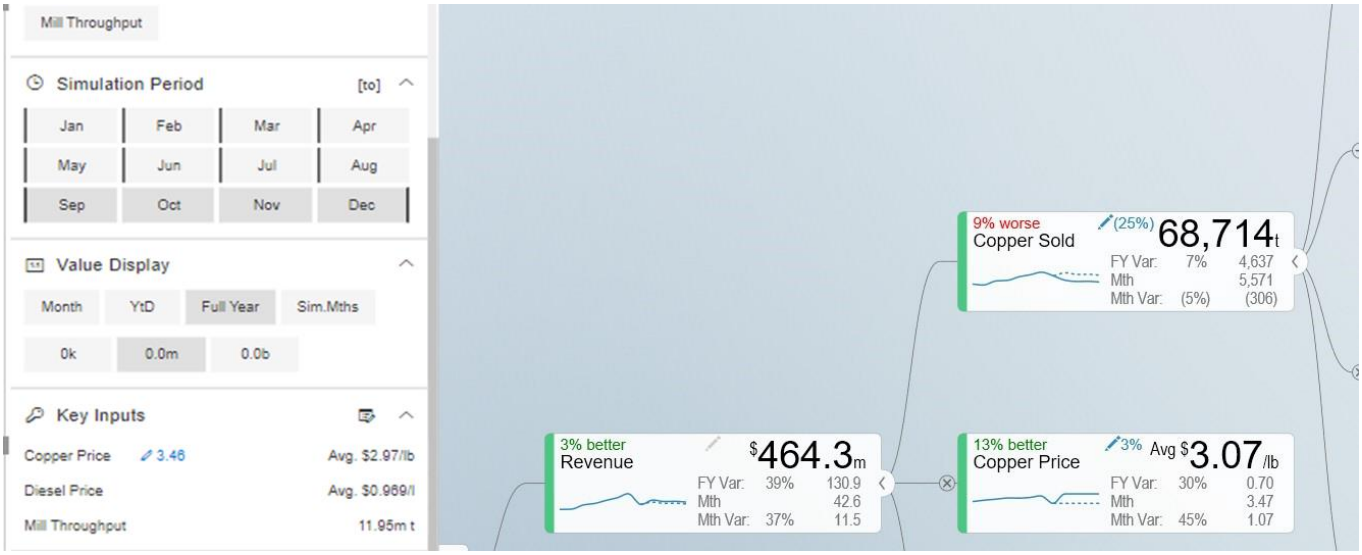
The Node Widget for a Value Driver displays key information such as value, variance, simulation impacts and trend without having to navigate further.



Node Widget Information

Conducting what-if analysis

One of the main aspects of the ValQ Custom Visual is to be able to simulate the impacts changes to key drivers such as prices have on the full year forecast. As we can't change the past, such a simulated change should only be applied to future period. The ValQ Custom Visual have this capability. When performing what-if analysis, the period that a simulation should be applied from is selected in the Side Panel (current period is default):

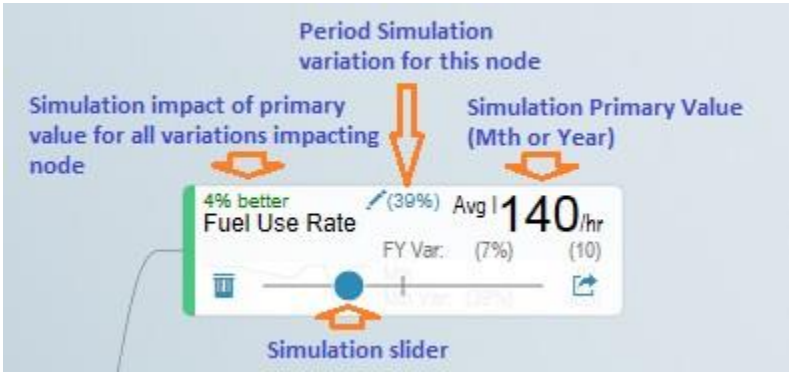


What-if-Analysis

Assuming that we calculate fuel cost based on litre per month and price as $/l and we are at the end of period 9, the simulated cost should be calculated first at the monthly level with the % change applied to period 9 and onwards. Once the individual months are calculated, they can then be aggregated based on the rule of the node (sum for diesel cost, weighted average for diesel price):

$$Simulated\ Forecast\ Fuel\ Cost = \sum_{i=1}^{6} Litres_i \times Price_i + \sum_{i=9}^{12} Litres_i \times Price_i \times Price\ Change\%$$

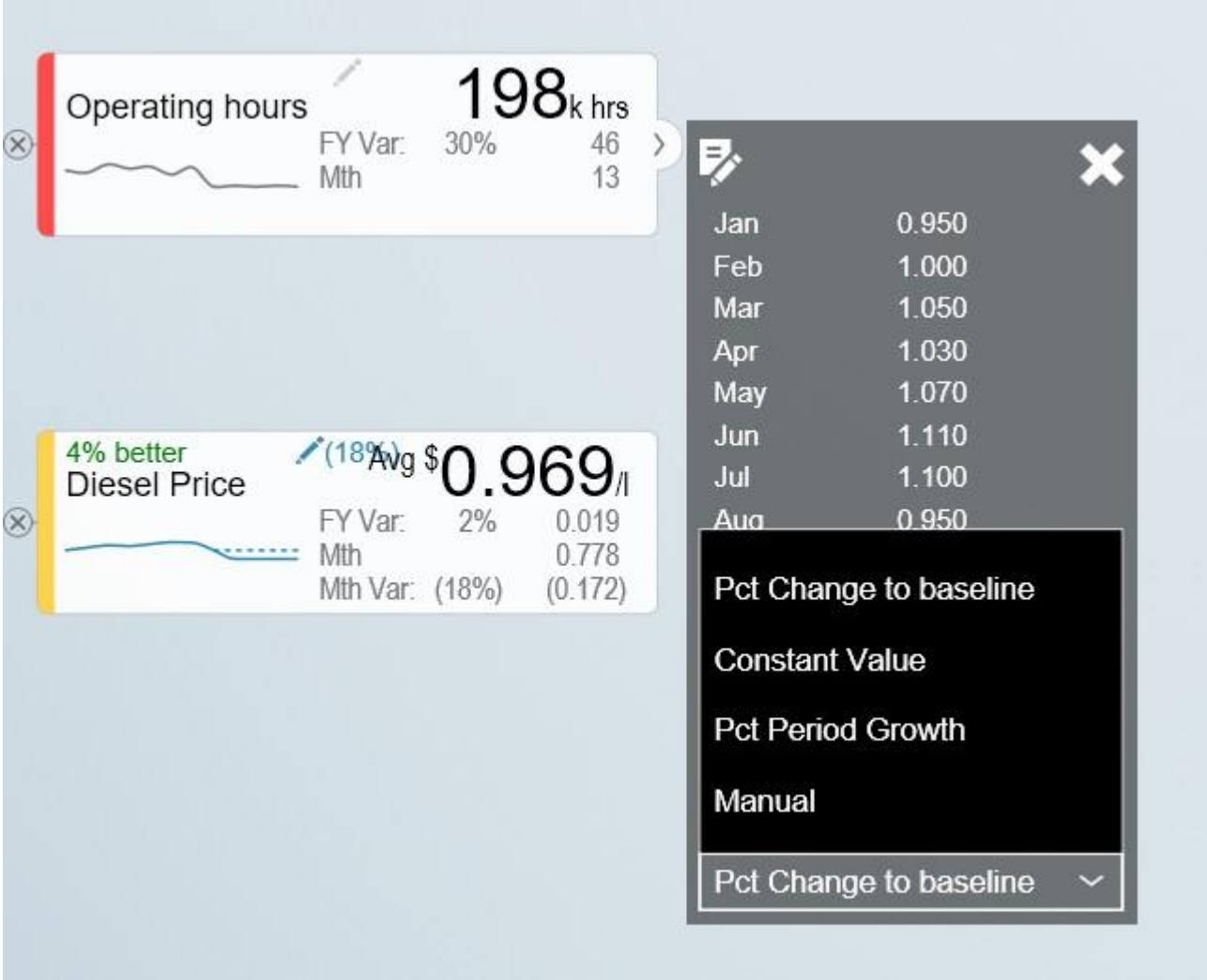
When hovering over a node, the bottom half of the node becomes a slider. Drag the slider left to vary the node by a negatively, drag right for positive. As you drag, the values for the selected node is dynamically recalculated and displayed. When releasing, the tree will immediately recalculate all dependent nodes and show the result.



Simulation

A simulation change is either a pct. Change, a fixed future price or a pct. Growth depending on the simulation model defined for the value driver.

The default method for the driver can be seen on the simulation tooltip. You can also change the selected model by selecting at the bottom of the tooltip.



Simulation Tooltip

Understanding that a change is applied to the selected periods only is particularly important to understand when displaying the Full Year value and the node is using a weighted average. The displayed value is the weighted average value for the full year, not the value for future periods.

A simplified example will help understanding this critical concept. Let's assume that the diesel price is $1.014 for all periods and the monthly fuel consumption is constant as well at 1m litres and we have selected period 9 as we want to apply the simulation to the remaining periods of the year.

We now drag the slider for the fuel price to the right and the node will show the new weighted average value. Let's say we drag it to the right so the full year weighted average is $1.030. As the first 8 periods were $1.014, the weighted average of $1.030 means that the simulated price change is equivalent of a future fuel price of $1.20. To better understand the individual future period simulations when looking a Full Year aggregated number, it is useful to pay attention to the Month Data also shown on the node. The real world is a little more complex as the price is not necessarily the same every month and the fuel consumed is unlikely to be constant as well. Below is an example of such a simulation based on a real data set:

Simulation

The weighted average price was 1.014. We now simulated a 2% increase in the prices selected and future periods which equates to a new weighted average price of 1.030. If you look at the month Value, you can see for the selected month, this equates to the higher price of 1.195.

Multiple variations can be applied in parallel as they are expressed as pct. The top left % indicate the cumulative impact on this particular node of all simulation that impacts it.

Any node with a variation will have the blue pen icon in the top middle showing the percentage the node has been varied with. For quick what-if analysis at any level and a dynamic work process from the general to the specific, you can apply a simulation on any level.

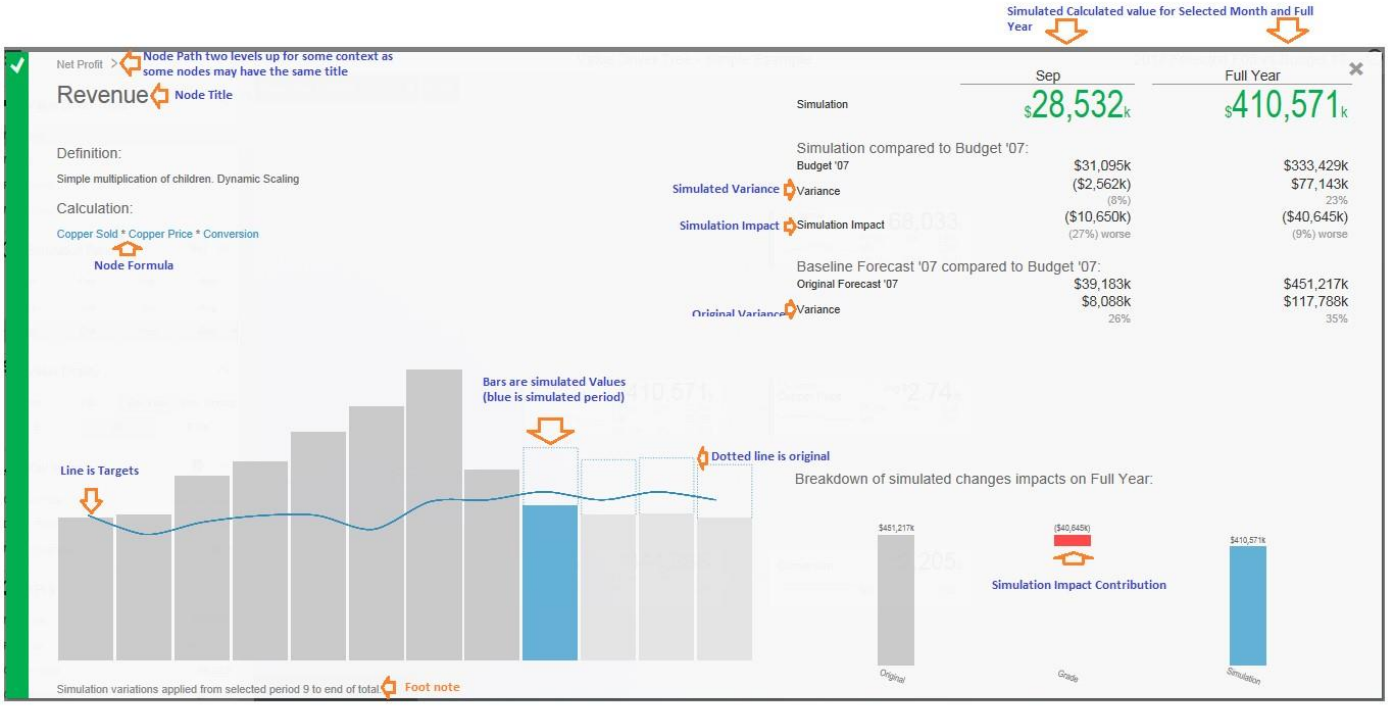
Certain nodes may have been locked from changes in the model. This is generally when there is a specific reason not to vary this node directly for consistency purposes. A locked node will not have the grey pen icon or a slider when hovering.

Certain nodes may be displayed multiple times in the tree. An example is Material Moved as it affects Mining and Mill Throughput. In these scenarios, one node is linked to the other. If you simulate a change in a linked node, the node it is pointing to is instead changed so it applies both to the selected node and anywhere else where the driver is used. If a node is a linked node, it has the Linked node text in the bottom right corner:

Simulation

Getting more information about a Value driver

If you click on a node Widget, a detail screen is displayed with additional information on the selected node.



Information on Value Driver

For some nodes, the designer may have added a description beyond the title. If so, this will be displayed below the title.

If a node is calculated, a simplified version of the formula is displayed. This is the technical formula that is used to calculate individual period values. To calculate the real values, all simulation variations that affects the node are applied to selected and future periods and the aggregation rules for the node is applied (sum or weighted average).

The trend chart compares the simulated value to the comparison version as well as showing the original value as the dotted line on the bar if simulation variations are active. If you hover over the bar, you will the see the details for the period.

The table on the top right shows the period and full year values and the variance calculations as per the definition previously in this document.

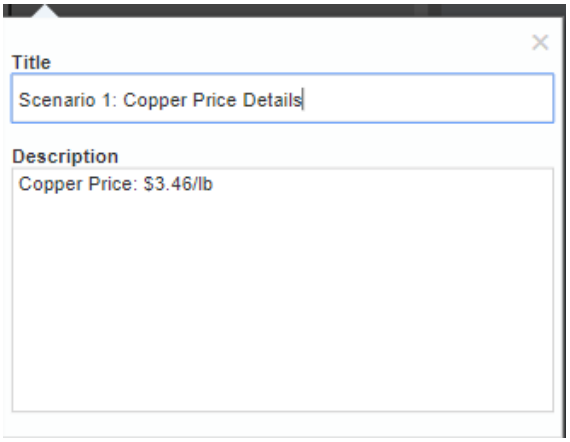
The ValQ Custom Visual also analyses all the active simulations to see if any impacts this particular node. If so, it then analyses how much each of the active simulation changes contributes to the overall impact on this node and generates a waterfall diagram with the break down which is displayed in the bottom right panel.

In some scenarios, you may vary multiple factors impacting the same node in a compound nature. I.e. you vary both sales volume and sales price and want to know the impact on revenue. As the sum of both changes is more than the impact of each individually, the waterfall chart breaks down each of the individual impacts and a compound impact bar.

Saving and Opening Scenarios

The standard ValQ Custom Visual template contains functionality for saving and opening a scenario collection.

When clicking the Edit button , you will be asked to provide a Scenario Title Name.



Scenario Title Name

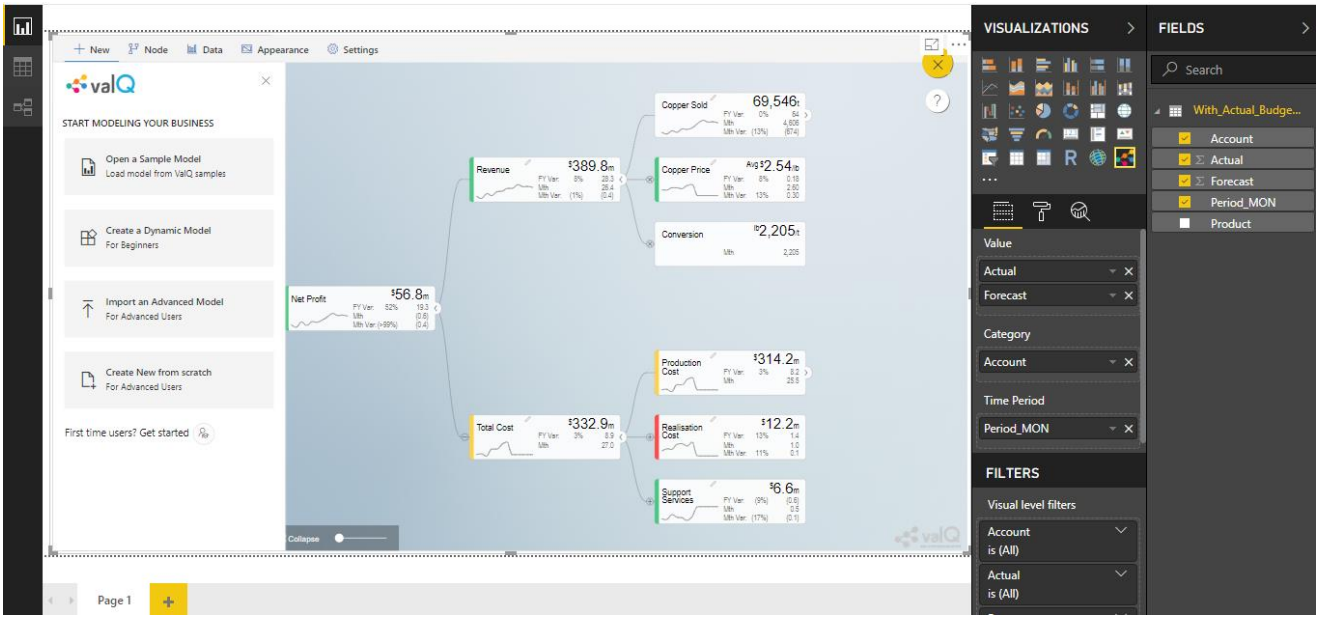
You will be also able to delete the existing scenario from there using the Delete button .

There is also an option to export the value driver tree data set to xml. It will create an unformatted spreadsheet with the tree and all the node data.

ValQ in Power BI

The ValQ Custom Visual has two different panels along with the VISUALIZATIONS and FIELDS input screen from Power BI. The left panel represents the Advanced Editor and Navigation Panel. The right canvas is provided with Enter Design Mode button and Exit Design Mode button at the top rightmost corner. When the Enter Design Mode is clicked, you will be able to view the Advanced Editor at the left and when the Exit Design Mode is clicked, you will be able to view the Navigation panel at the left.

The right canvas also represents the Value Driver Tree with Nodes where the simulation can be done at the Node Level (see Figure below).



ValQ Panel in Power BI

The left panel has five different Tab categories as Advanced Editor options and they are listed below:

1. New Tab – To configure the design for the Value Driver Tree using the options such as Sample Demo Tree, Create a Simple Dynamic Tree, Import an Advanced Tree and Create a New value driver tree from the scratch.
2. Node Tab – To configure the settings of Nodes and Child Nodes for the Value Driver Tree
3. Data Series Tab – To configure the data settings such as Value Labels, Time Period Labels, Time Aggregation Labels, Periods of Interest, Node Mapping and Data Manager for the Value Driver Tree.

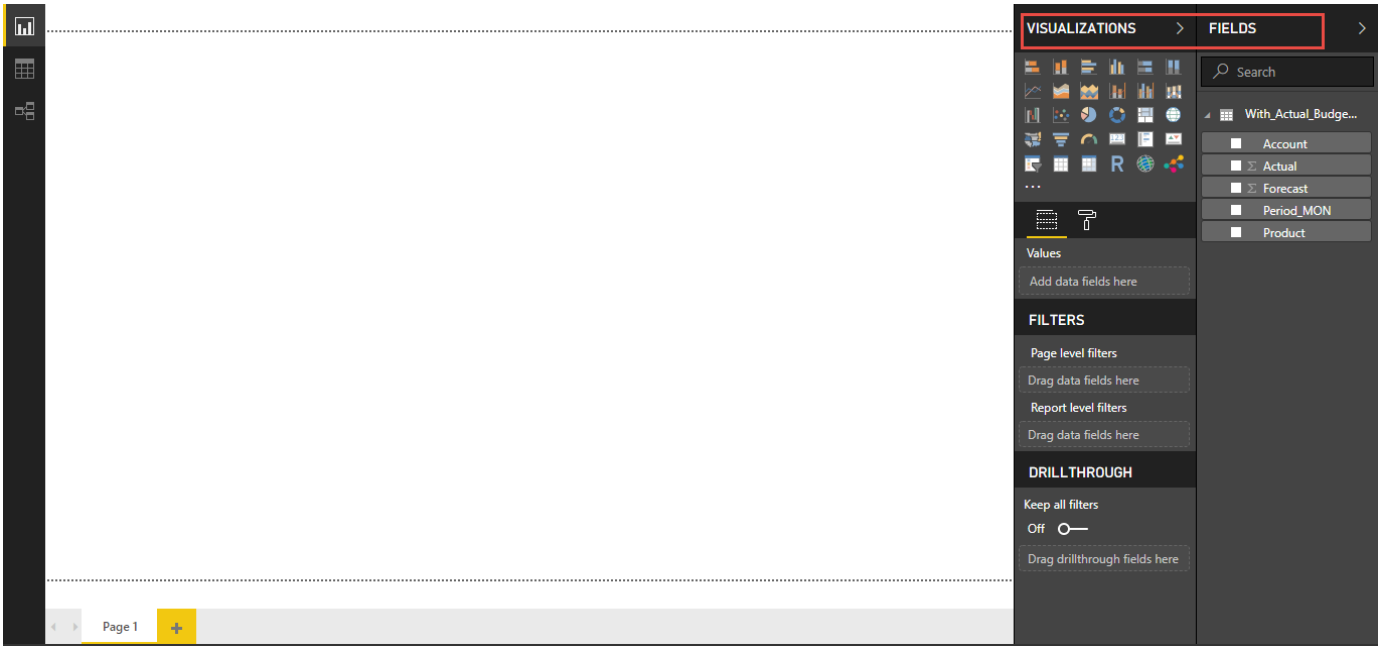
4. Appearance Tab – To configure the appearance parameters such as General Settings, Status Bar, Visualization and Colors for the Value Driver Tree
5. Settings Tab – To configure the Navigational Panel and Export settings for the Value Driver Tree.

In the next sections, you will be able to understand about these five different Tab categories in detail.

Designing a Value Driver Tree in Power BI

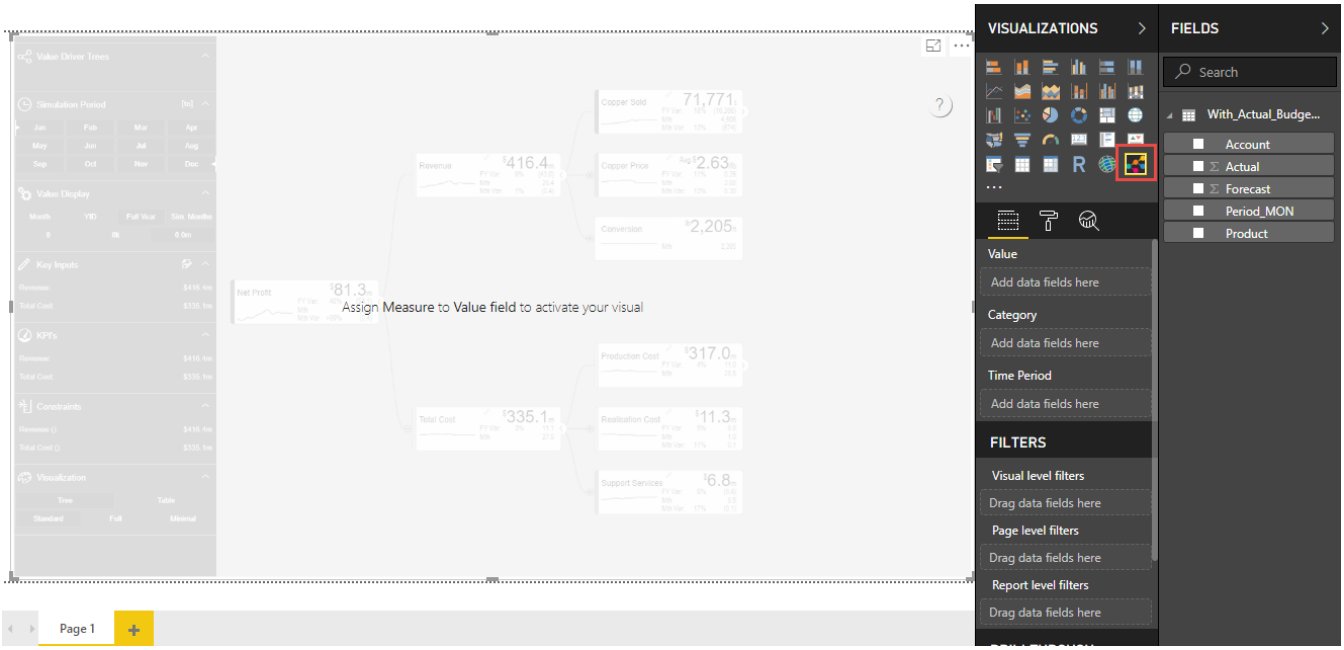
As an initial step, follow the below steps to configure the design for the value driver tree in Power BI.

1. Navigate to the “Visualizations Panel” and “Fields” Panel in Power BI (see Figure below).



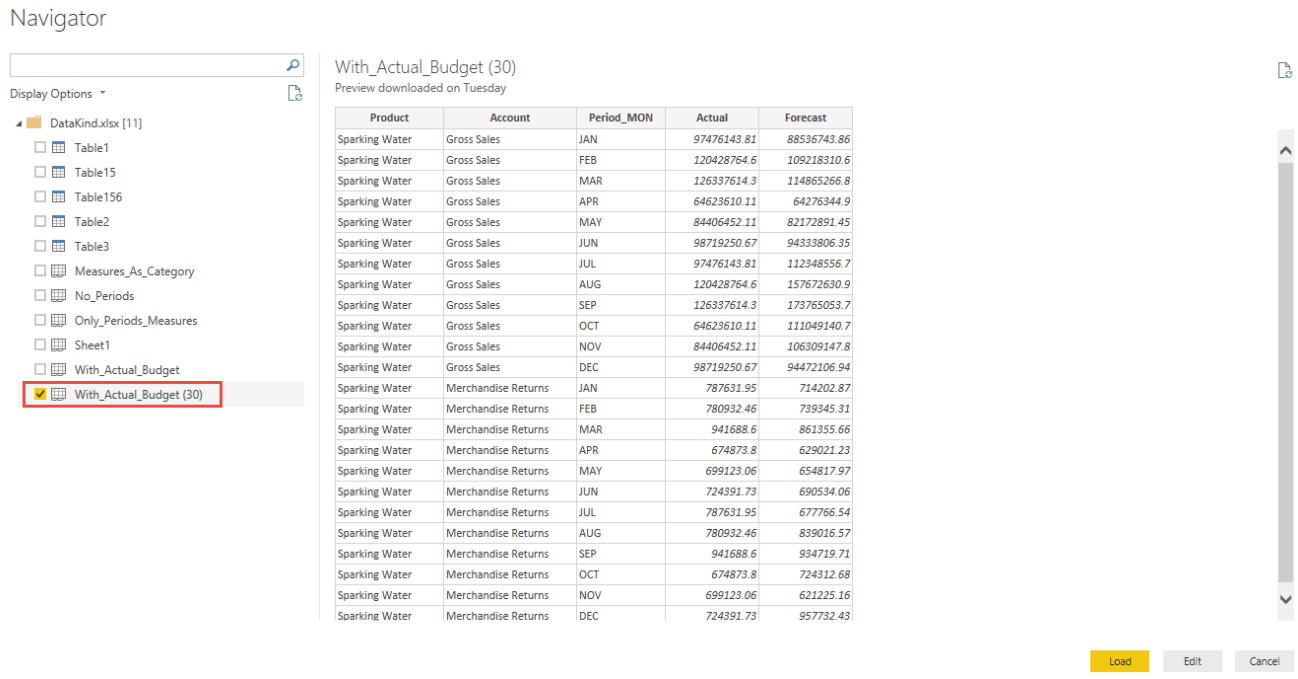
Power BI with Visualizations and Fields Panel

2. In the Visualizations Panel, select the ValQ Custom Visual and extend the screen to its full view as shown in the Figure below.



ValQ Screen - Measures to be assigned

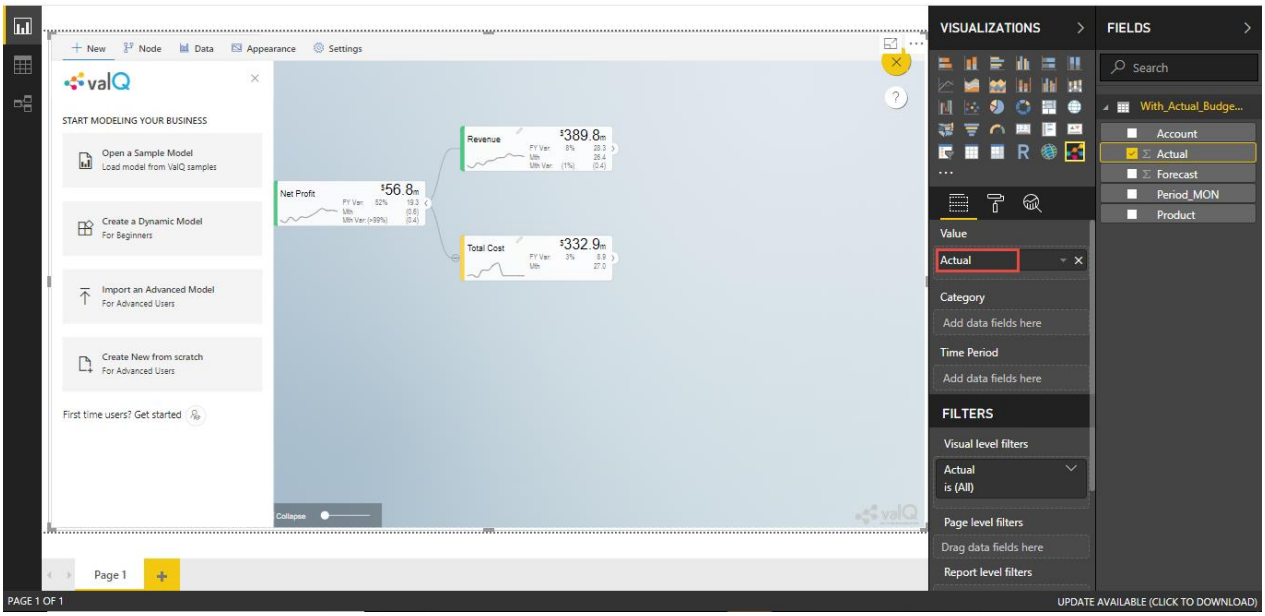
3. To create a value driver tree (ValQ) in Power BI, it is mandatory to assign a Data Source to the value driver tree. For our example, a data source (sample data shown below) has been assigned to the value driver tree.



Product	Account	Period_MON	Actual	Forecast
Sparking Water	Gross Sales	JAN	97476143.81	88536743.86
Sparking Water	Gross Sales	FEB	120428764.6	109218310.6
Sparking Water	Gross Sales	MAR	126337614.3	114865266.8
Sparking Water	Gross Sales	APR	64623610.11	64276344.9
Sparking Water	Gross Sales	MAY	84406452.11	82172891.45
Sparking Water	Gross Sales	JUN	98719250.67	94333806.35
Sparking Water	Gross Sales	JUL	97476143.81	112348556.7
Sparking Water	Gross Sales	AUG	120428764.6	157672630.9
Sparking Water	Gross Sales	SEP	126337614.3	173765053.7
Sparking Water	Gross Sales	OCT	64623610.11	111049140.7
Sparking Water	Gross Sales	NOV	84406452.11	106309147.8
Sparking Water	Gross Sales	DEC	98719250.67	94472106.94
Sparking Water	Merchandise Returns	JAN	787631.95	714202.87
Sparking Water	Merchandise Returns	FEB	780932.46	739345.31
Sparking Water	Merchandise Returns	MAR	941688.6	861355.66
Sparking Water	Merchandise Returns	APR	674873.8	629021.23
Sparking Water	Merchandise Returns	MAY	699123.06	654817.97
Sparking Water	Merchandise Returns	JUN	724391.73	690534.06
Sparking Water	Merchandise Returns	JUL	787631.95	677766.54
Sparking Water	Merchandise Returns	AUG	780932.46	839016.57
Sparking Water	Merchandise Returns	SEP	941688.6	934719.71
Sparking Water	Merchandise Returns	OCT	674873.8	724312.68
Sparking Water	Merchandise Returns	NOV	699123.06	621225.16
Sparking Water	Merchandise Returns	DEC	724391.73	957732.43

Sample Data

4. Now at least one Measure Value has to be assigned to the property “Values” in Visualizations panel. In our example, we have assigned the Measure Value “∑ Actual” to the property “Values” by clicking the check box option against the Measure Value “∑ Actual” (see Figure below).

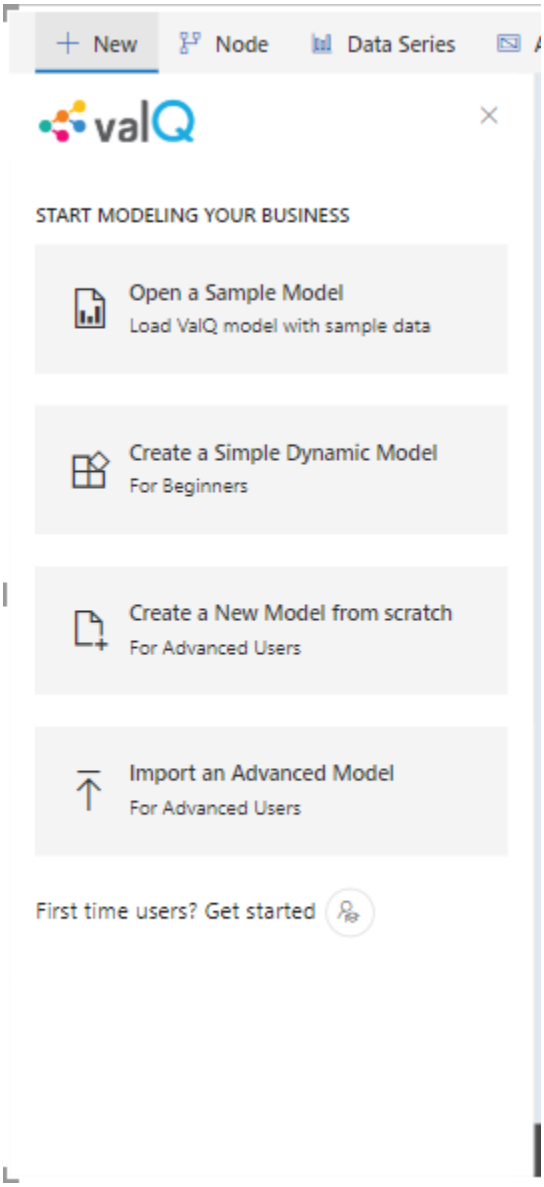


Assigning the Measure Value

New Tab

The Value Driver Tree can be created in Power BI using the below listed options by clicking the New Tab in the left panel (see Figure below)

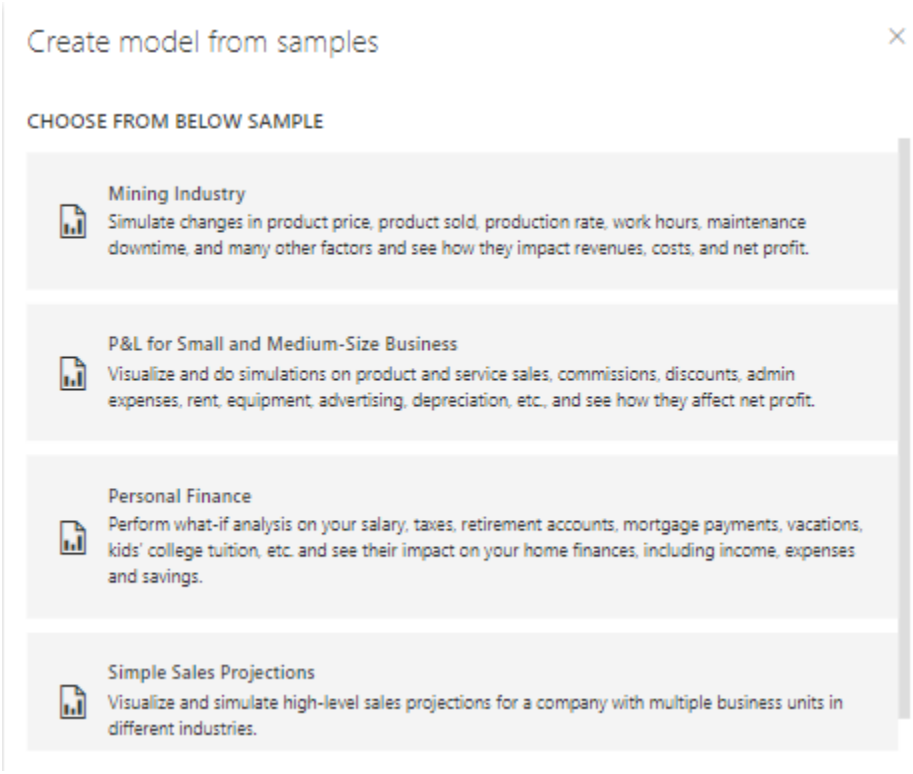
- Open a Sample Model
- Create a Dynamic Model
- Import as Advanced Model
- Create New from scratch



New Tab

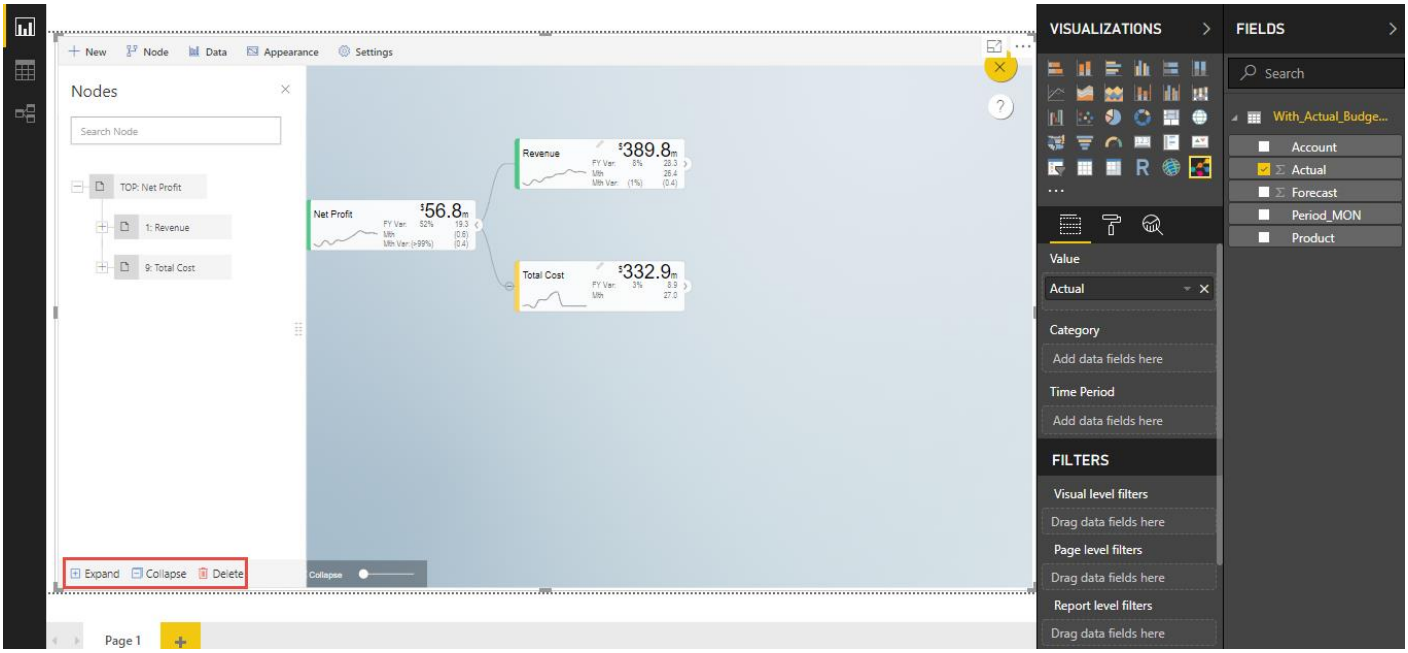
Open a Sample Model

Click the “New” Tab in the left panel. Now navigate to the Open a Sample Model option. You will be able to explore a Demo Tree. By clicking the Open a Sample Model option, you will be able to view the pop up as shown below.



Selection of sample model

For our example, the sample “Mining Industry” has been selected. Based on the selection, you will be able to view the ValQ screen as shown below.

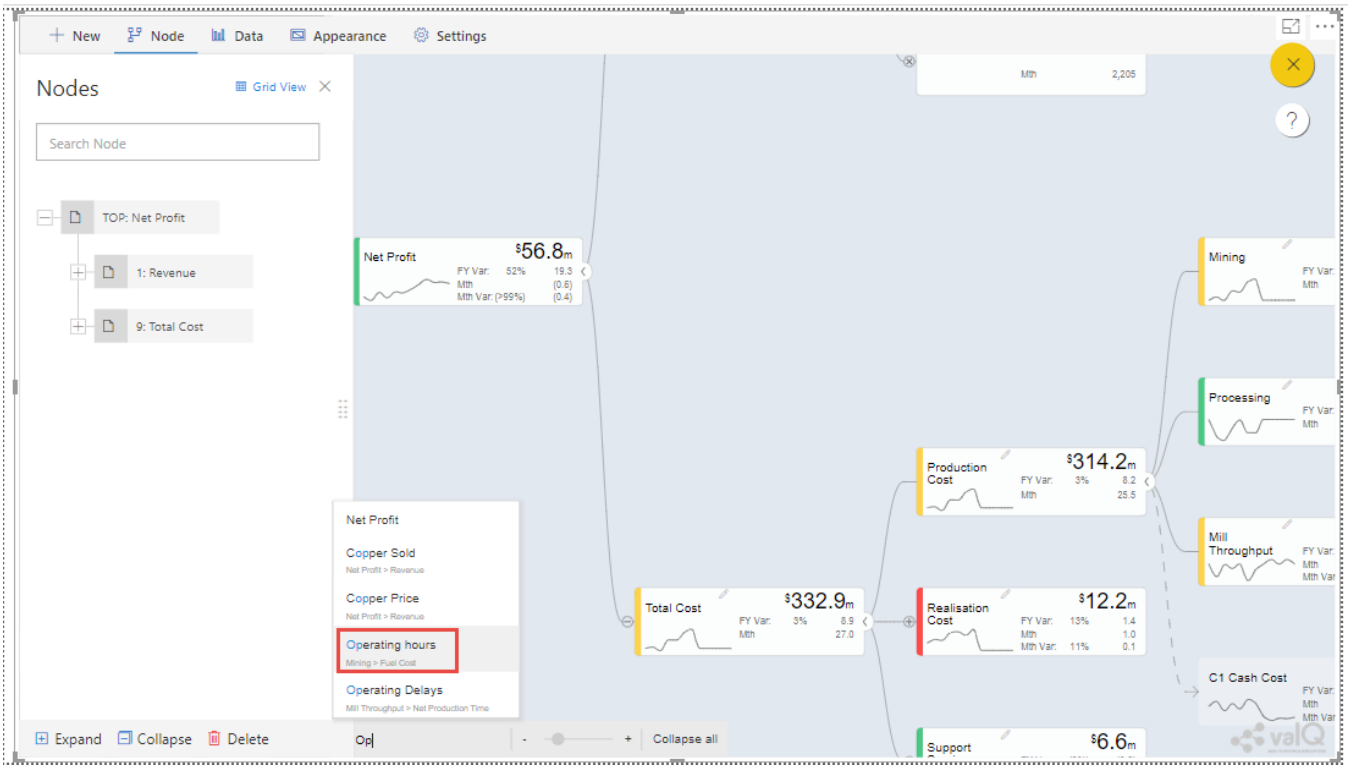


ValQ screen with Nodes settings

The Nodes hierarchy will be displayed in the Advance Editor option as shown in the above Figure. Here you will be able to add number of child nodes from the parent node

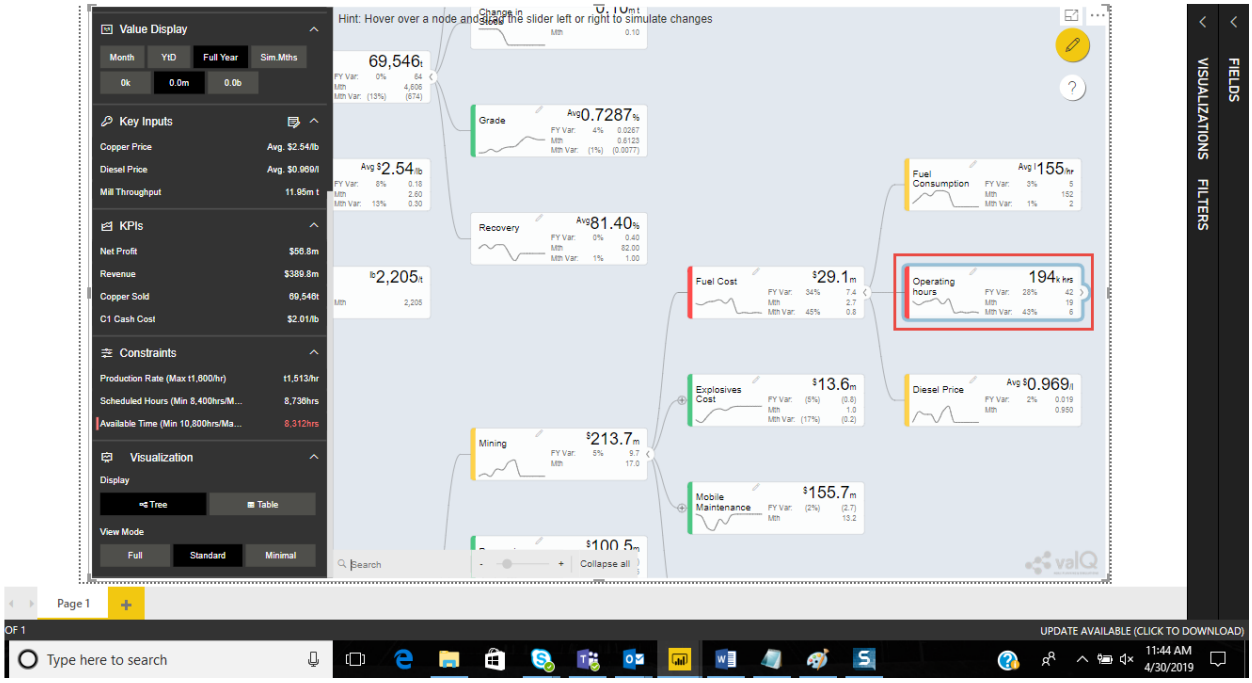
"Net Profit". By clicking the Parent Node, you will be able to add number of child nodes as shown below. Also you will be able to expand, collapse and delete the entire Nodes Hierarchy using the options "Expand", "Collapse" and "Delete" (see Figure above).

By providing the Node Name in the Search option on the right canvas, you will be able to search for the particular Node when there are more number of nodes appearing on the right canvas.

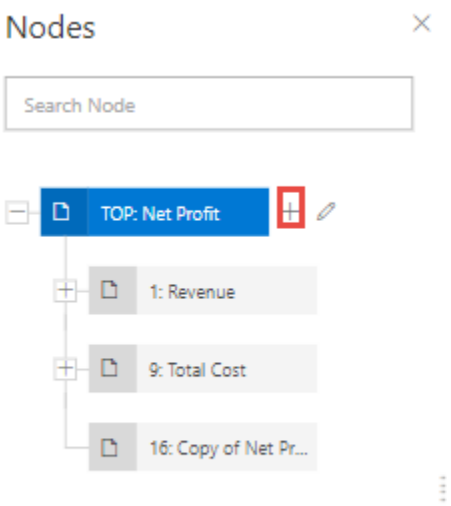


Node Search option in right canvas

For our example, the Node name is given as "Operating Hours" and based on the search you will be able to view the Node as shown in the Figure below.

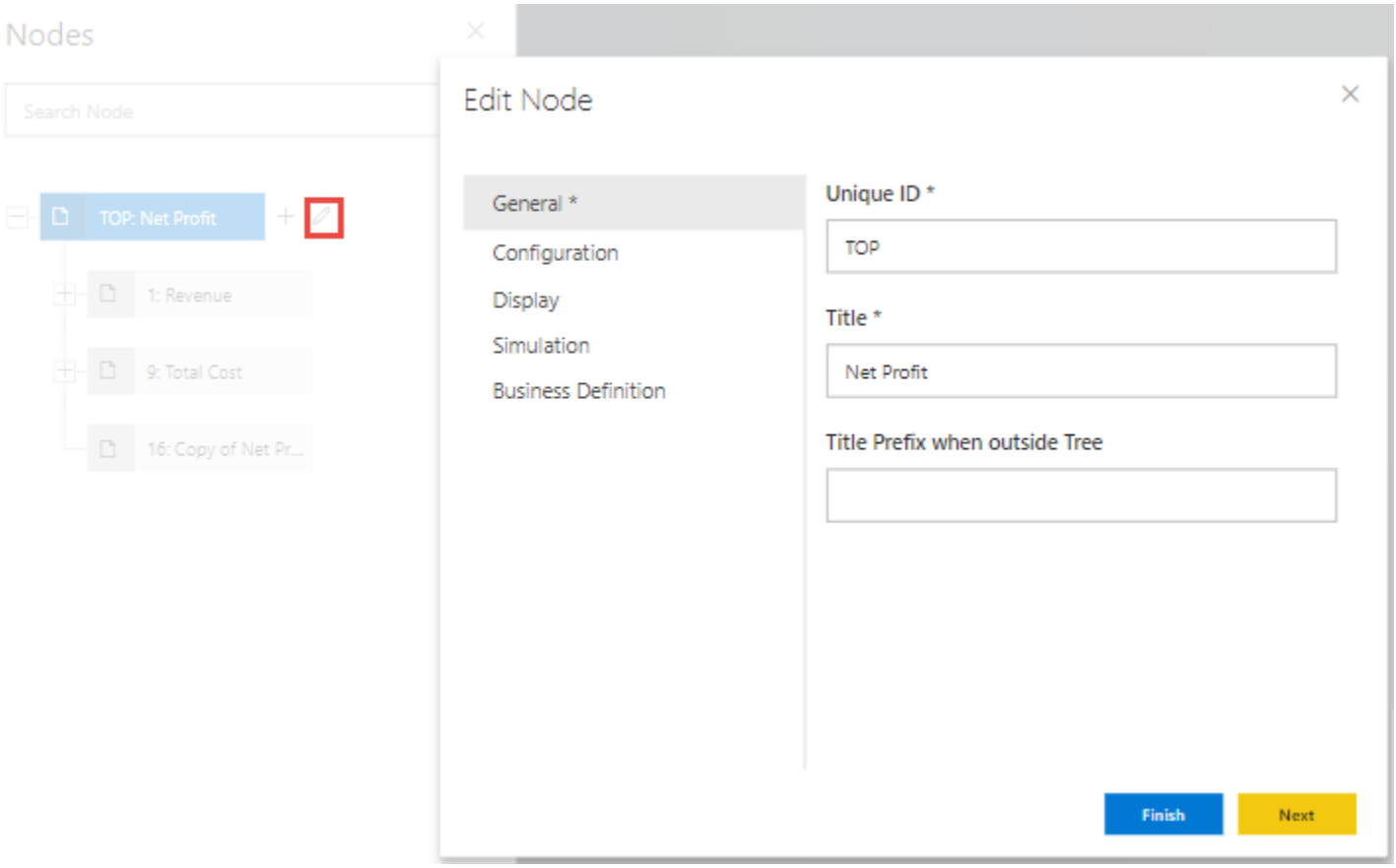


Display of the Searched Node



Nodes Structure with Add option

In the above Figure, you can observe that by clicking the “+” button, a Node “Copy of Net Profit” has been added. Similarly you can edit the Parent Node details by clicking the Edit button as shown below. For our example, the Edit button has been clicked.



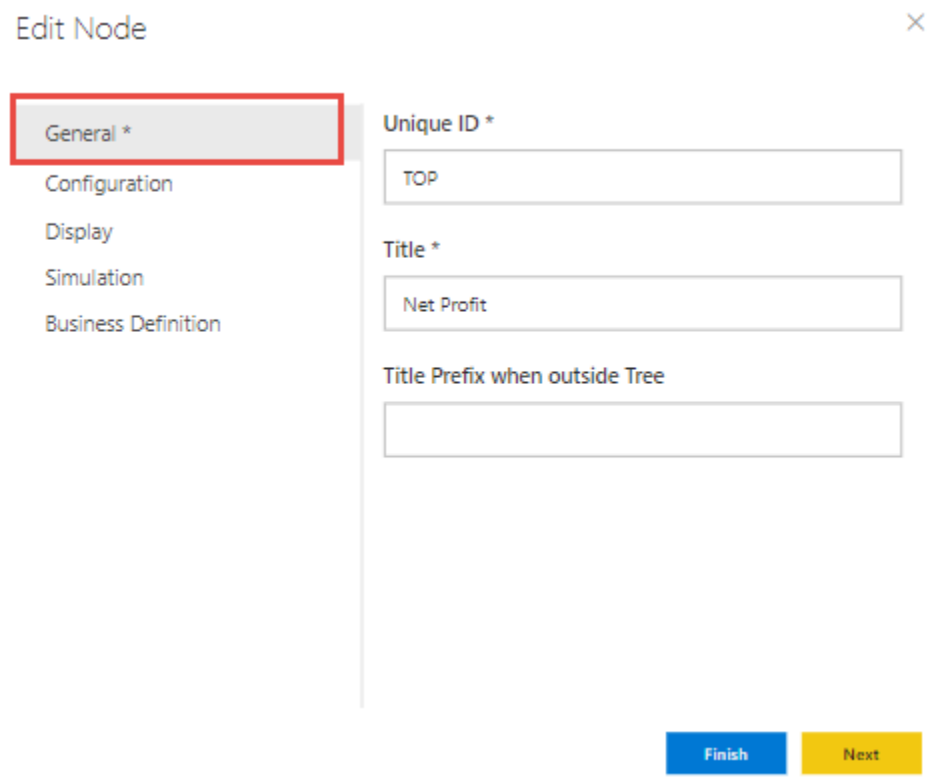
Nodes Structure with Edit option

By clicking the Edit option you will be able to view the Edit Settings for the Node. The Edit Settings are categorized as follows:

1. General
2. Configuration
3. Display
4. Simulation
5. Business Definition

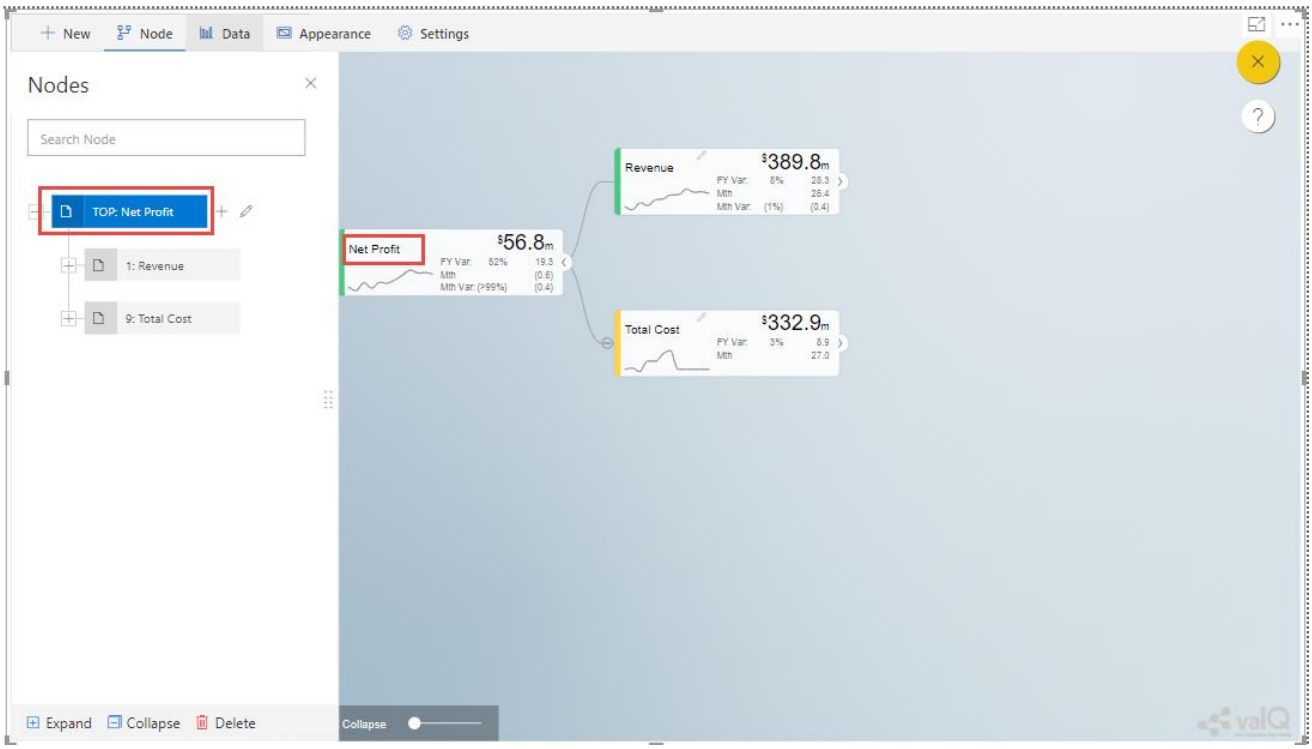
General

In General settings you will be able to configure the Node details such as Unique ID, Title and the Title Prefix when outside the Tree with the values as shown in the below Figure. The Title Prefix can be set at Node Level and during simulation it is useful to identify at which node the parameter value changes. The additional properties of the Node Tab has been listed in Section 13.2.



Edit Node – General Settings

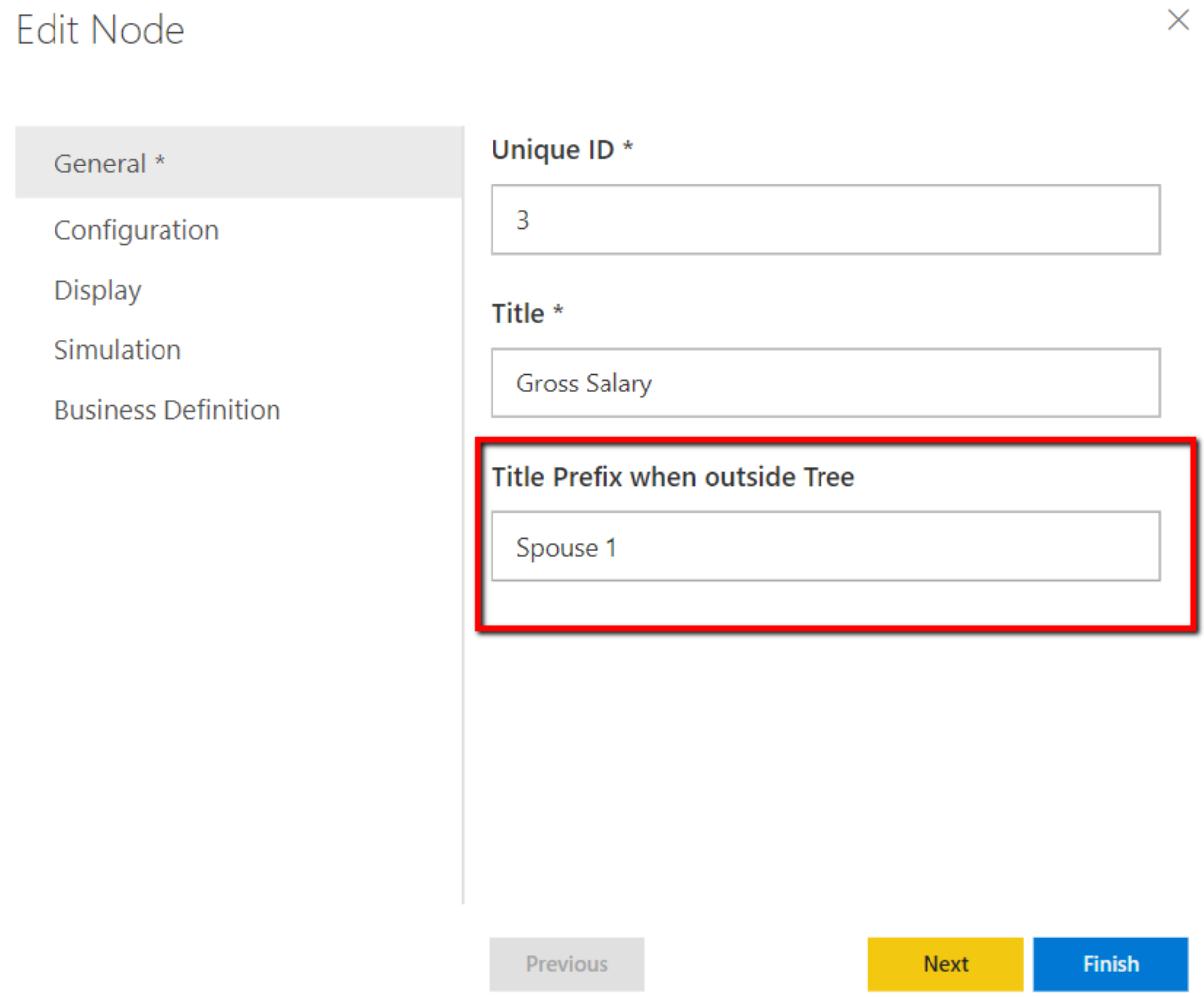
Based on the above configuration, you will be able to view the ValQ screen as shown below.



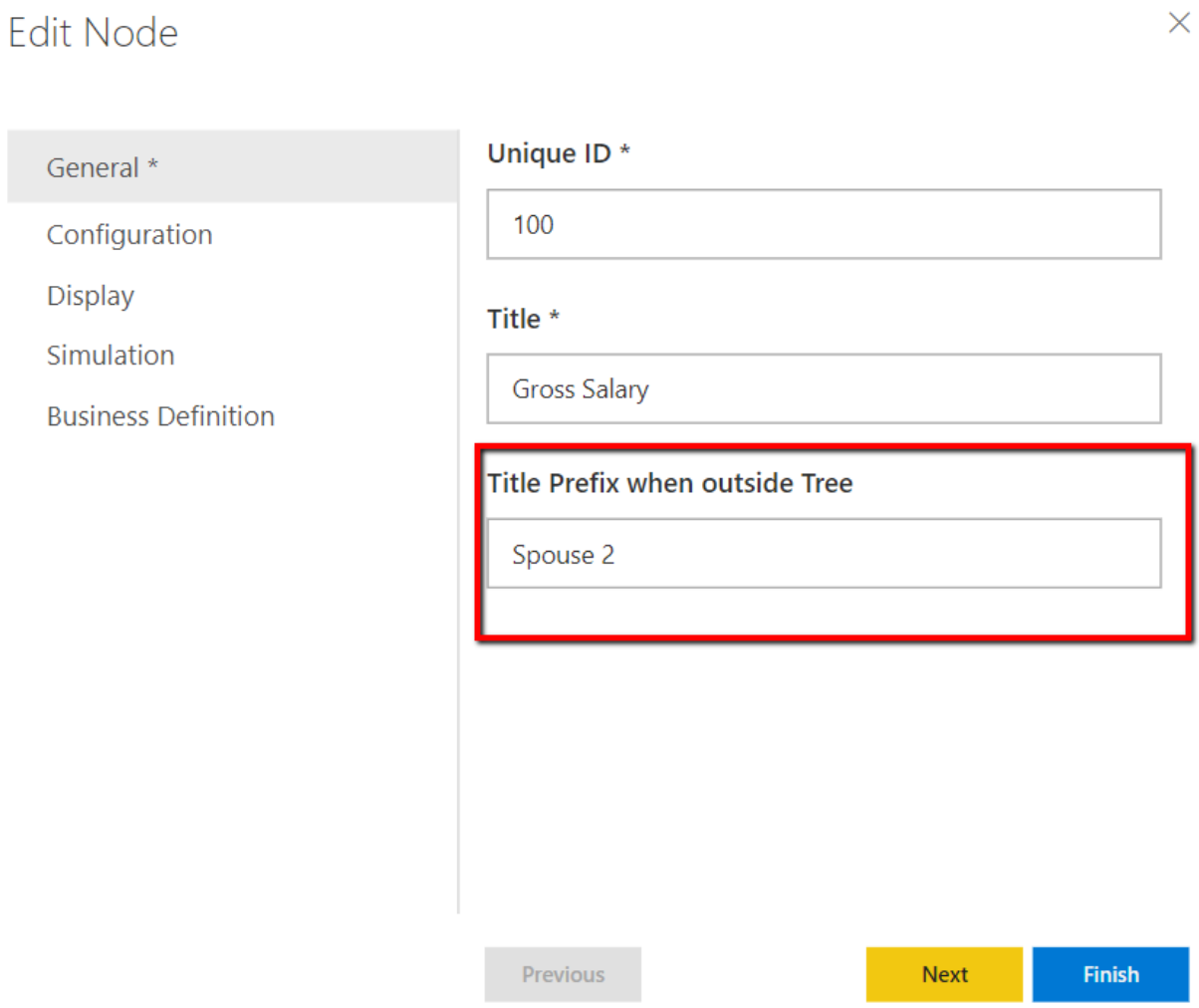
ValQ screen with General settings

From the above Figure, you can observe that the Unique ID for the Parent Node is “TOP” and the Title of the Parent Node is “Net Profit”.

In our other example as shown below, we have configured the Title Prefix for two different Nodes (see Figures below).

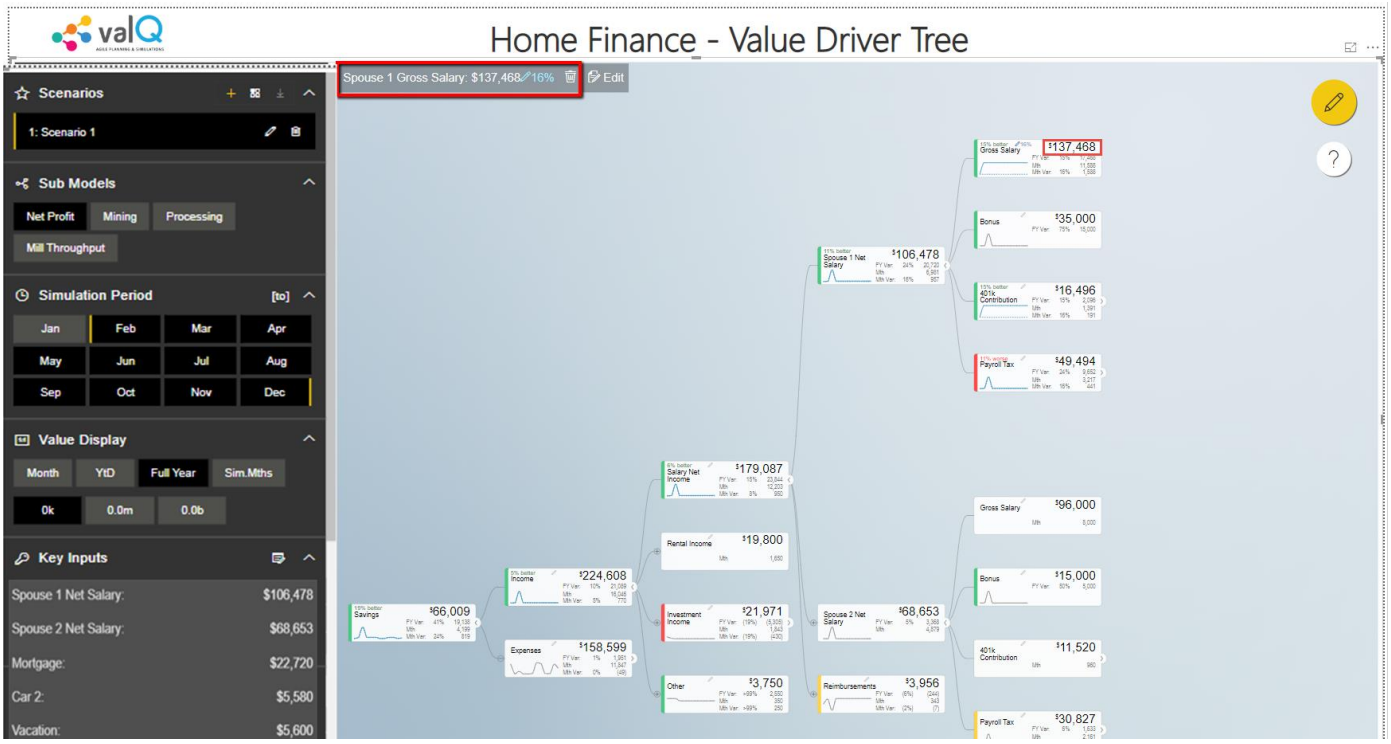


Node with Prefix value as Spouse 1

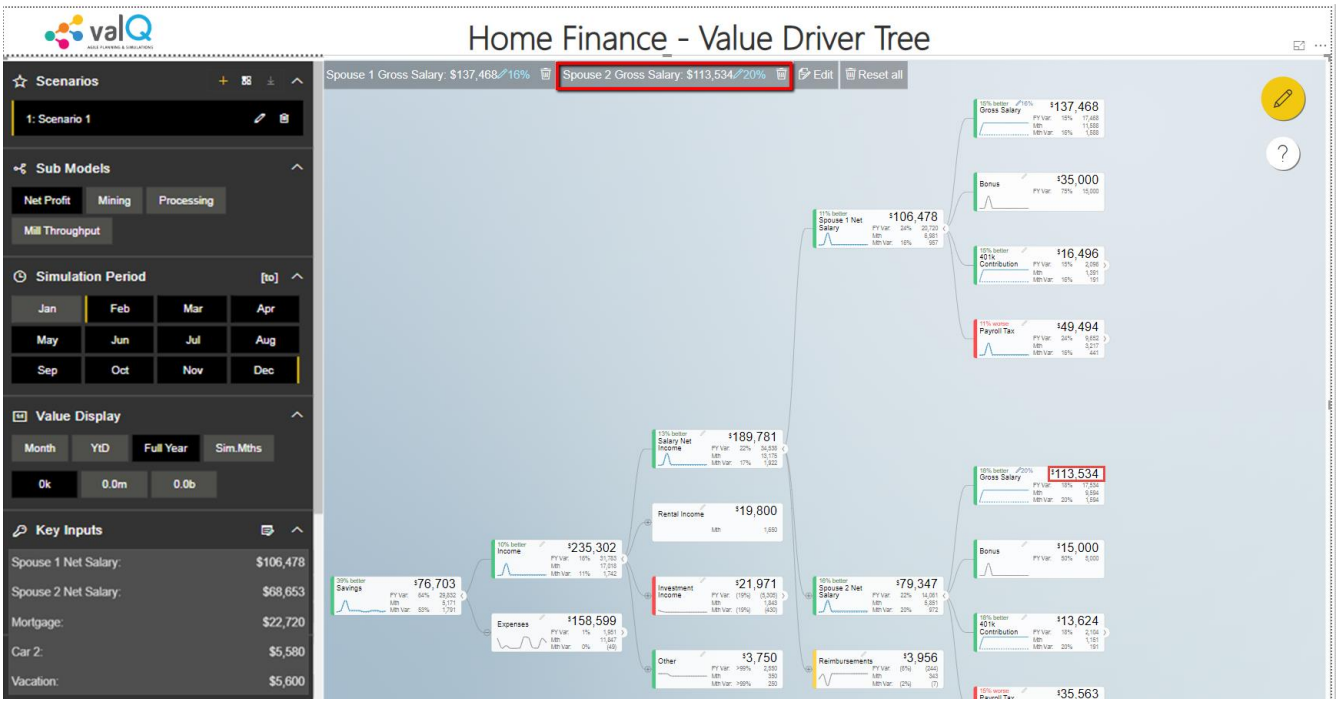


Node with Prefix value as Spouse 2

Based on the above set of configurations, you will be able to view the ValQ screens as shown below.



ValQ screen with Spouse 1 Prefix

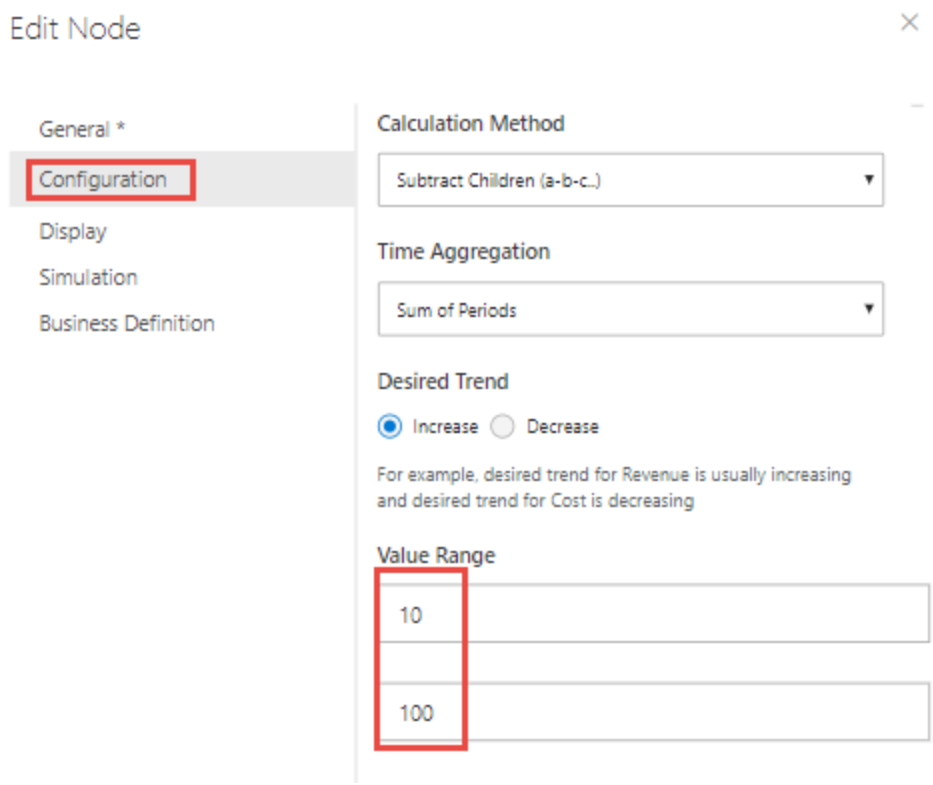


ValQ screen with Spouse 2 Prefix

From the above two Figures you can observe that the “Gross Salary” is the common Title for two different Nodes. In order to differentiate them, we have provided the value for “Title Prefix when outside the Tree” as Spouse1 for one Node and Spouse 2 for the other Node. After simulation, you can see which Node’s value has been changed.

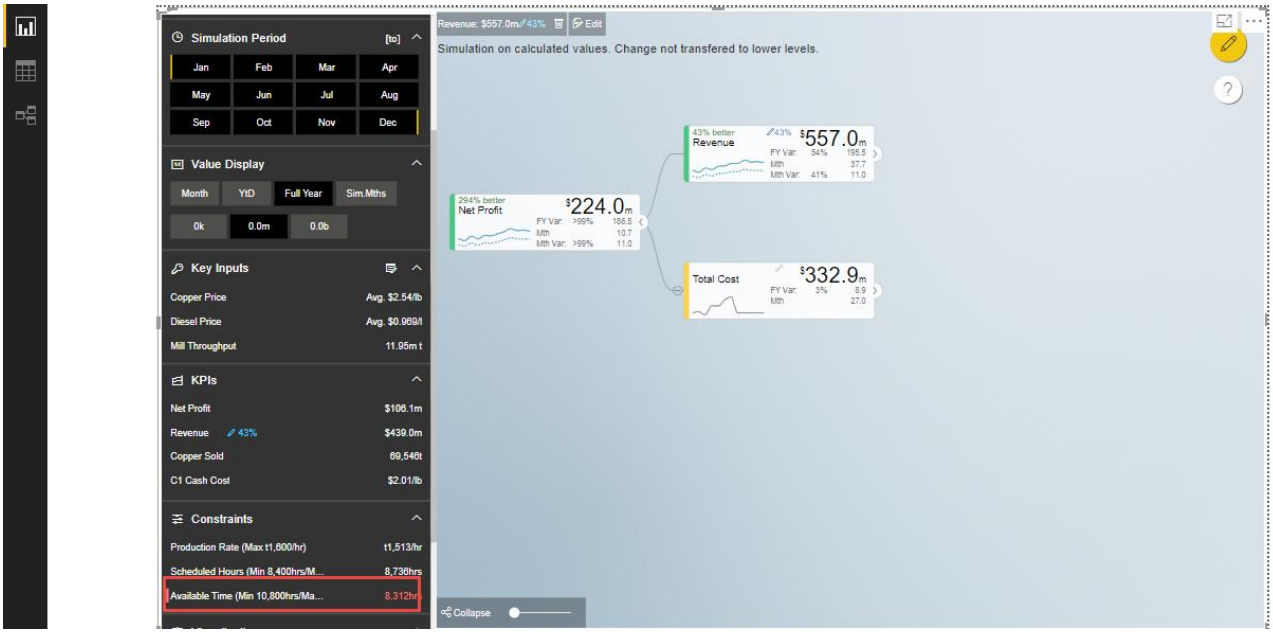
Configuration

In Configuration Settings, you will be able to configure the Node details such as Calculation Method, Time Aggregation, Desired Trend and Value Range with the values as shown in the below Figure.



Edit Node – Configuration Settings

Based on the above Configuration settings, you will be able to view the ValQ screen as shown in the below Figure.

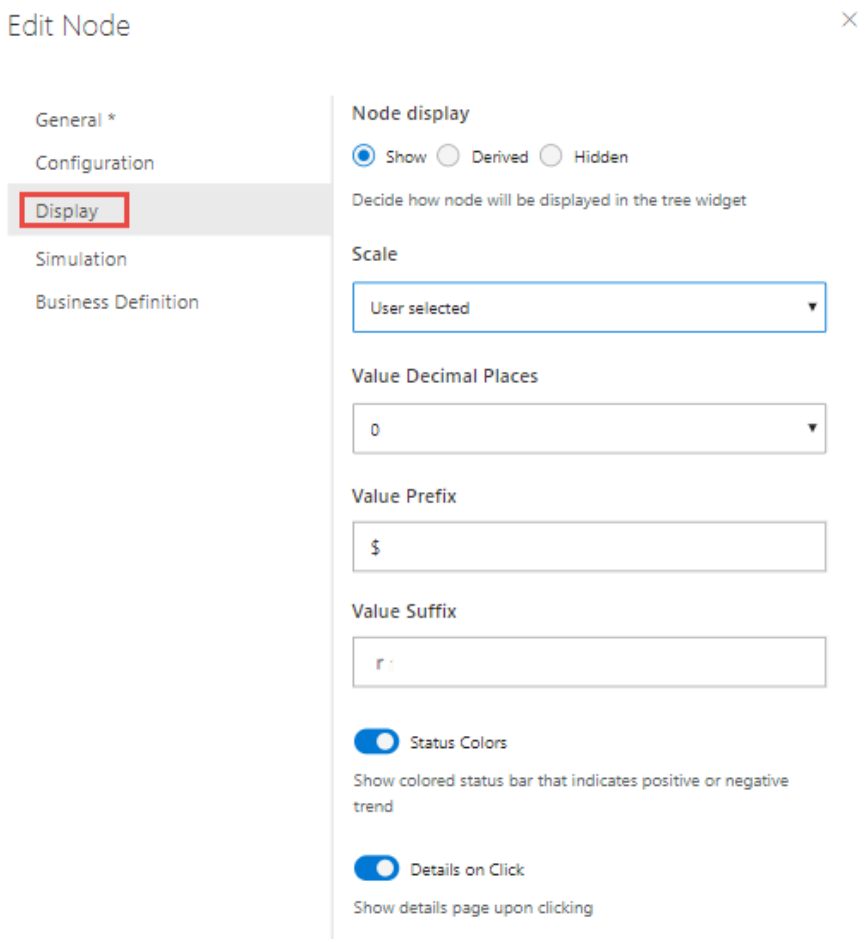


ValQ with Configuration settings

From the above Figure you can observe that in the Navigation Panel, the value that is displayed in the Constraints section will lie in the range from minimum 10 to maximum 100 for a specific month based on the configuration done for the Value Range. In our example, the calculation method is selected as “Subtract Children (a-b-c)” meaning that the child node having greater value will get subtracted from the child node having smaller value and its result will be displayed in the Parent Node. The Time Aggregation is set to Sum of Periods where we have considered 12 months as period. As the result of simulation, each Node will display the values based on the Sum of Periods. Also the “Desired Trend” has been set to the Increase option. When simulated, the desired Trend for the Revenue will be increasing and the value for the Total Cost will be decreasing.

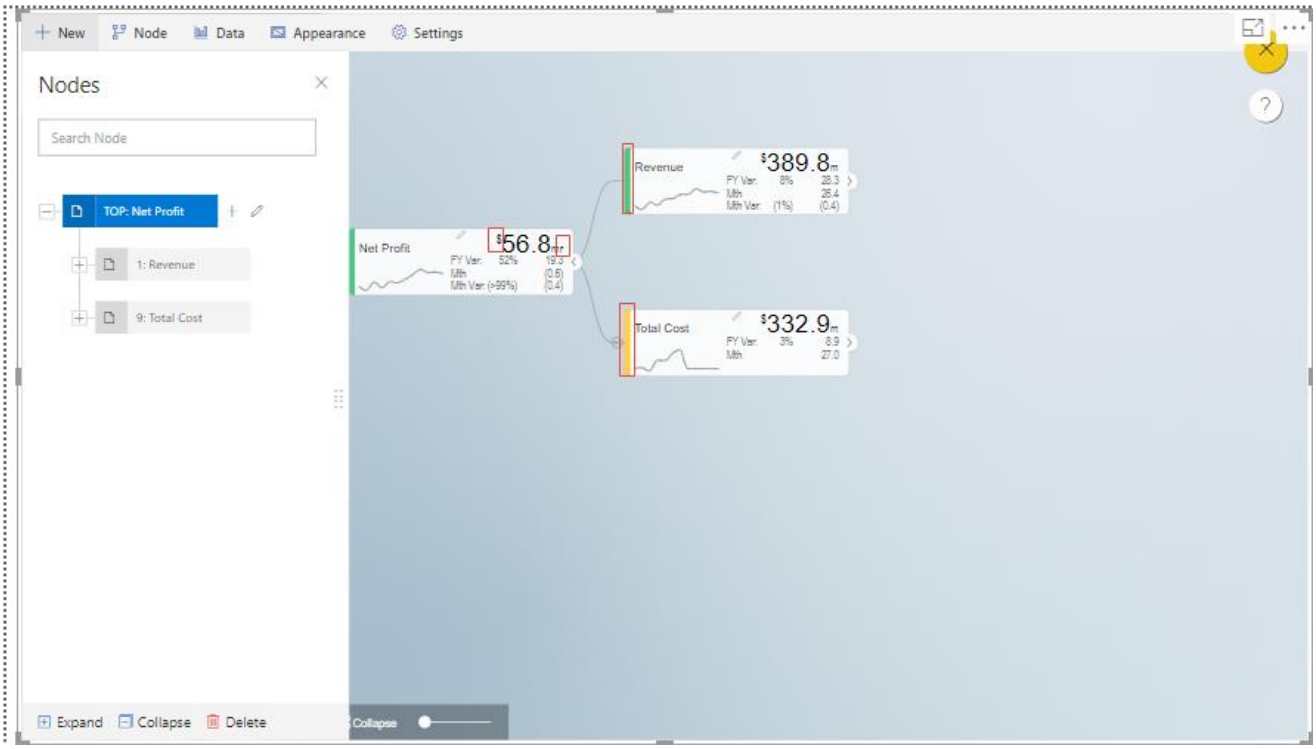
Display

In the Display Settings, you will be able to configure the Node Display settings such as Node Display, Scale, Value Decimal Places, Value Prefix, Value Suffix, Simulation, Status Colors and Details with the values as shown in the below Figure.



Edit Node – Display Settings

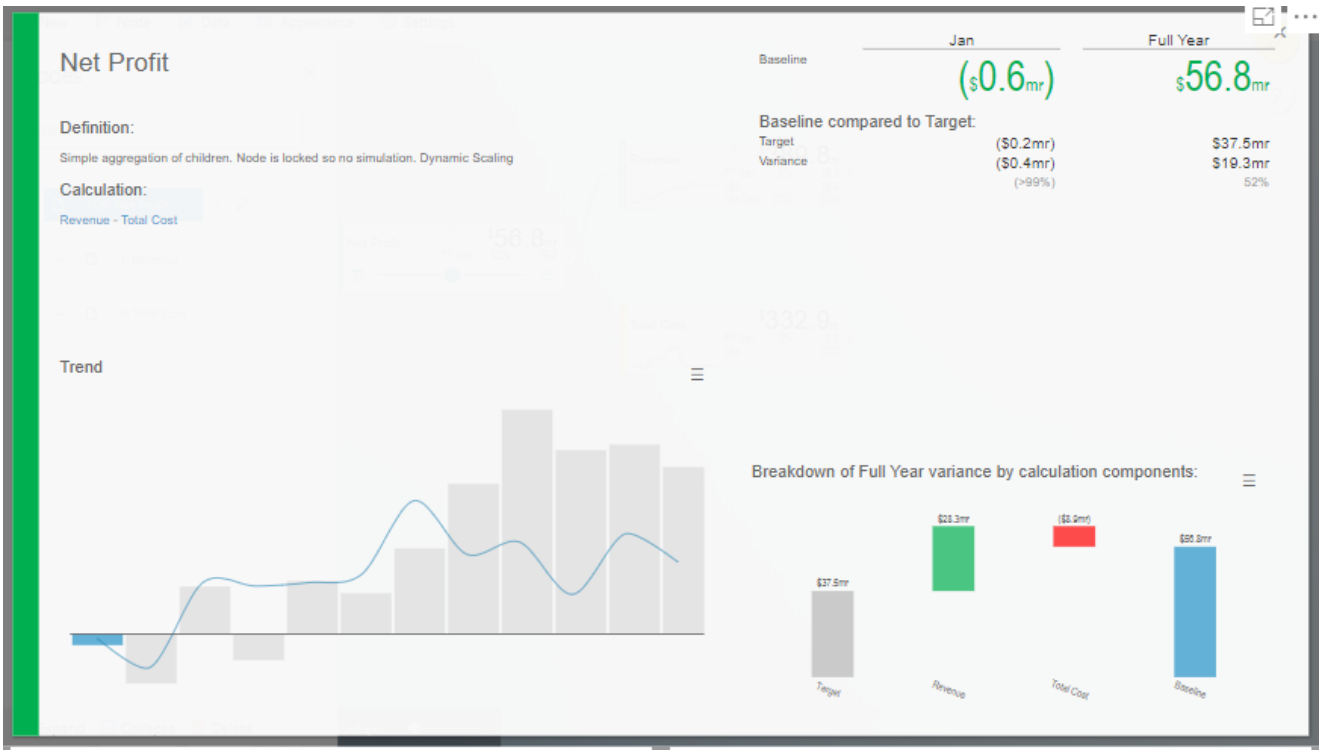
Based on the above Display settings, you will be able to view the ValQ screen as shown in the below Figure.



ValQ with Display settings

From the above Figure, you can observe that the Node Display is set to “Show” option. The Scale has been set to the User Selected option and now you can edit the Scaling options in the Value Display under Settings Tab. When the Scale is set to other options you will not be able to edit the Scaling options in the Value Display. You can also view the Nodes with the values configured with Value Decimal Places as “0”, Value Prefix as “$” and Value Suffix as “r”. The Simulation option has been enabled which allows the real time change to Nodes value and its effect on others. The Status Colors option has been enabled which shows the colored status bar indicating positive or negative trend.

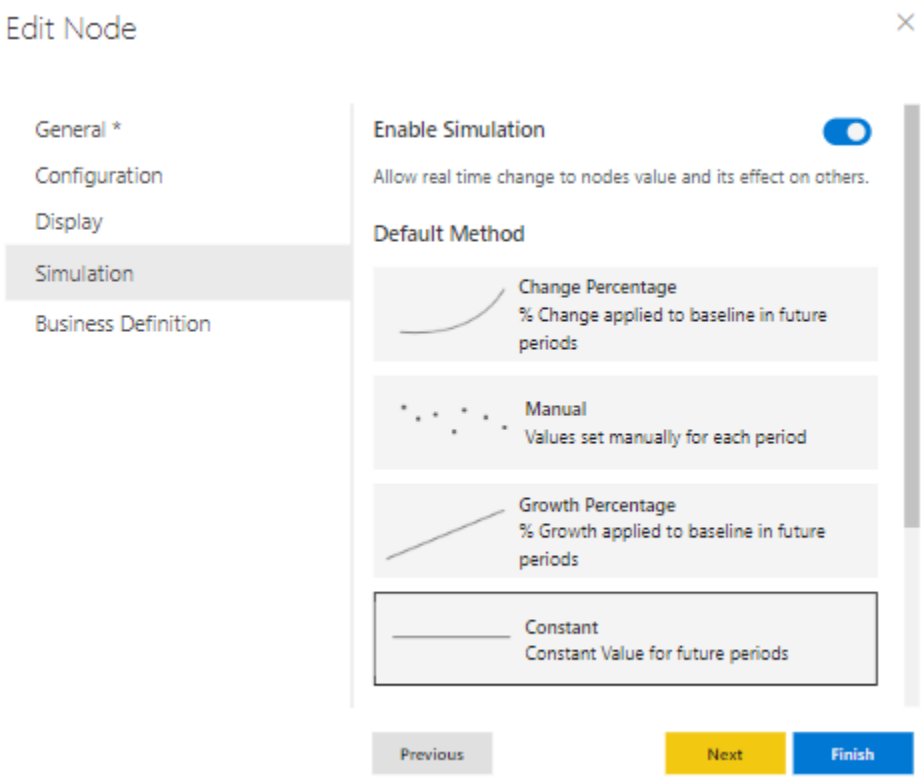
Since the Details on Click option is enabled in the Display settings, you can observe the Detail Page being displayed after clicking the Node “Net Profit” (see Figure below). If the Details on Click option is disabled in the Display settings, then you will not be able to view the Detail page.



Detail Page

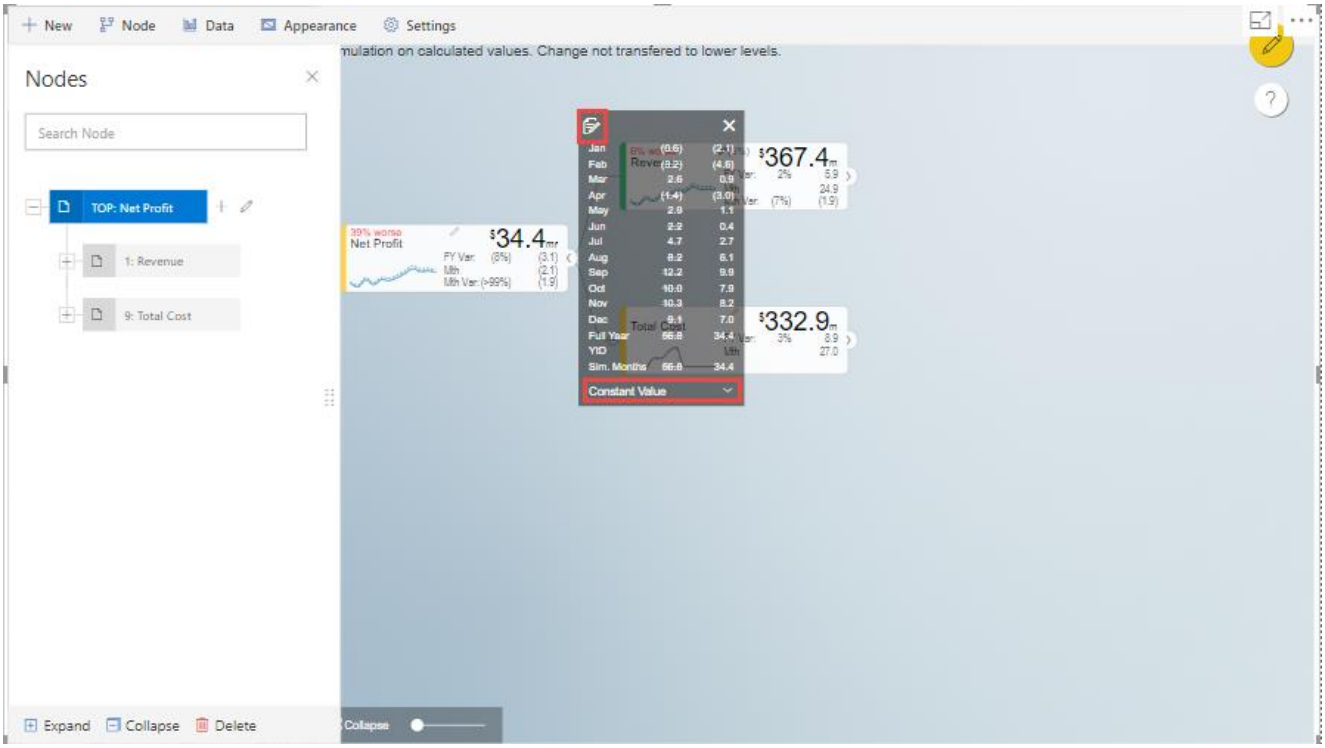
Simulation

In the Simulation Settings, you will be able to configure Simulation details such as selection of Default Simulation Method and assigning the Node for the Linked Simulation (see Figure below). You have the option to enable/disable the Simulation function for the Node (see Figure below).



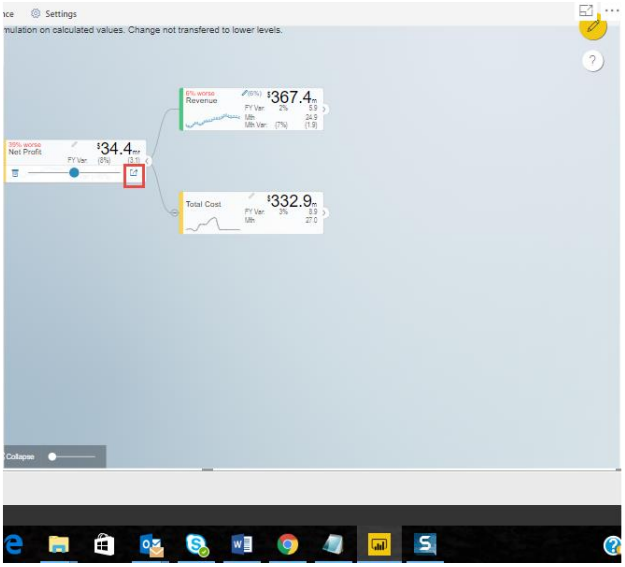
ValQ with Simulation Settings

In this Simulation Settings, you have selected the Default Method as “Constant” for the Simulation and you have selected the Node for the Linked Simulation as “First Node” (see Figure above). Based on the above settings you will be able to view the ValQ page as shown in the Figure below. The other options for the Default Simulation Method are Change Percentage, Manual and Growth Percentage.



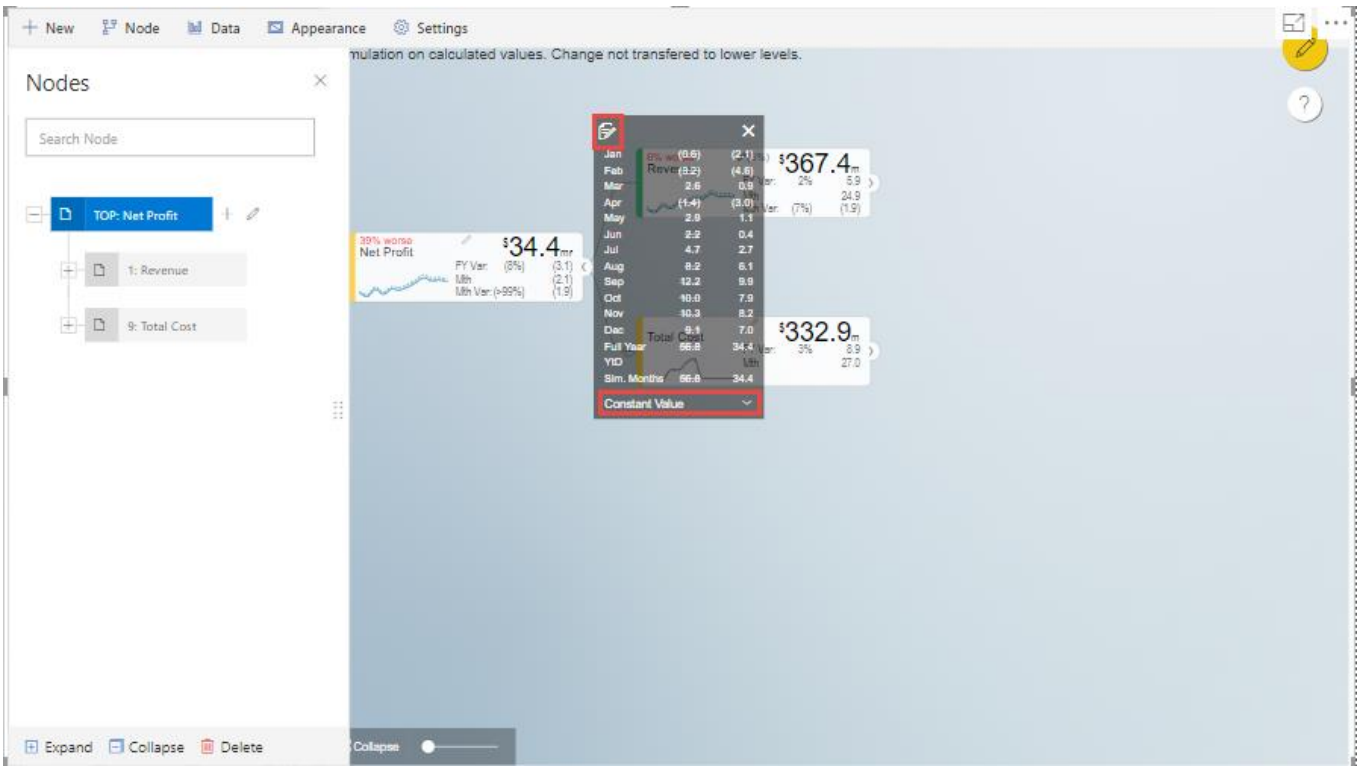
ValQ screen with Constant value selection

From the above Figure, you will be able to view the pop window as shown in the above screen by clicking the Arrow icon in the Net Profit Node as shown in the Figure below.



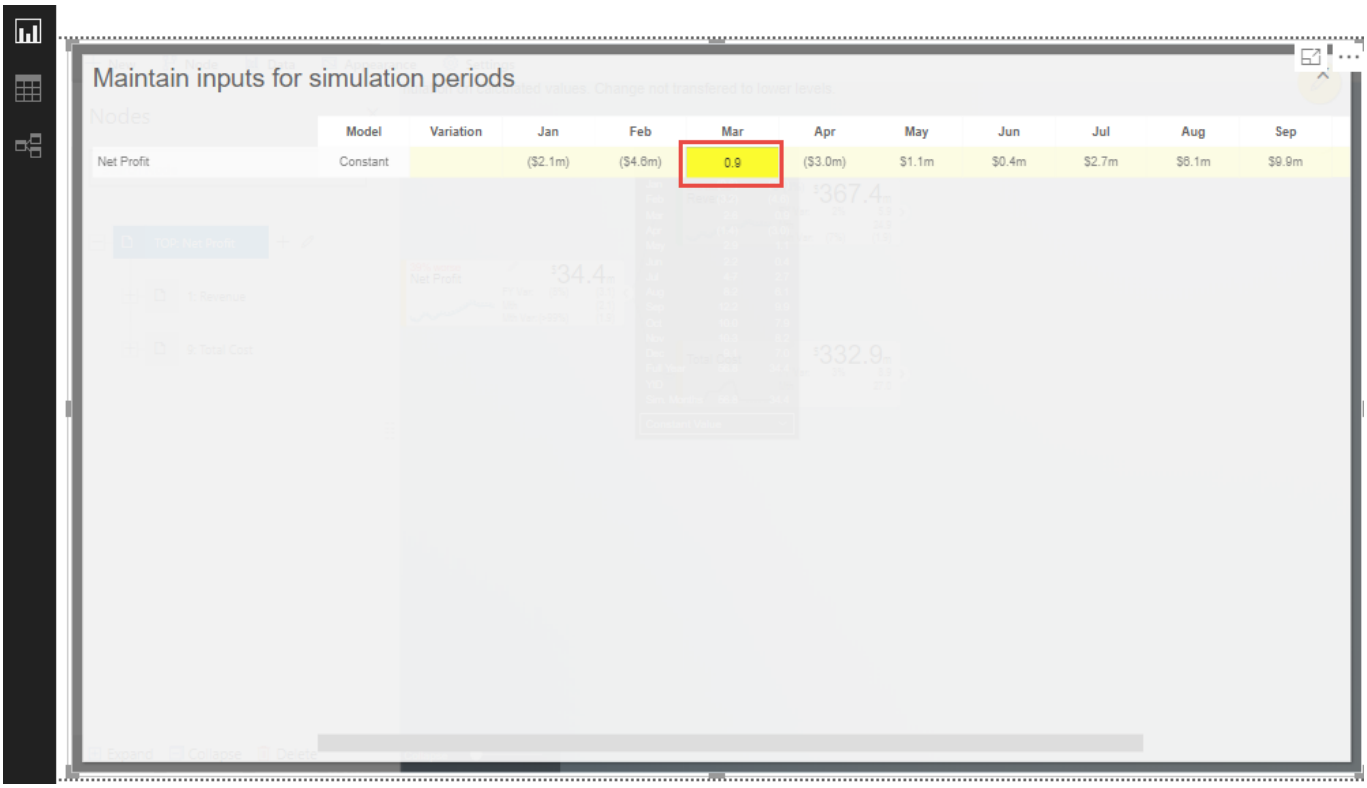
Net Profit Node

Now click the Edit option in the pop window as shown in the Figure below.



Edit option

By clicking the Edit option, you will be able to view and edit the input values for the Simulation Period (see Figure below).

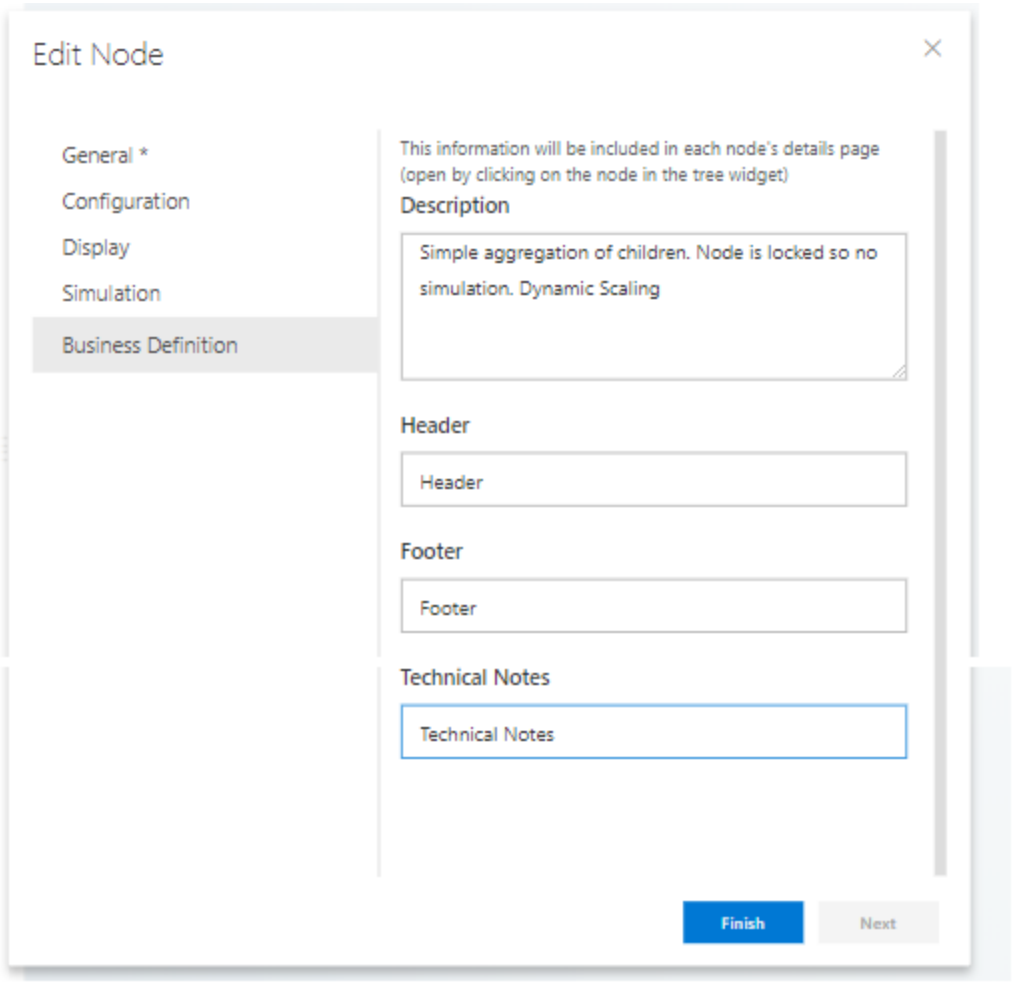


Edit Inputs for Simulation Periods

For our example, the value for March month has been edited and as a result it gets reflected for all the Nodes.

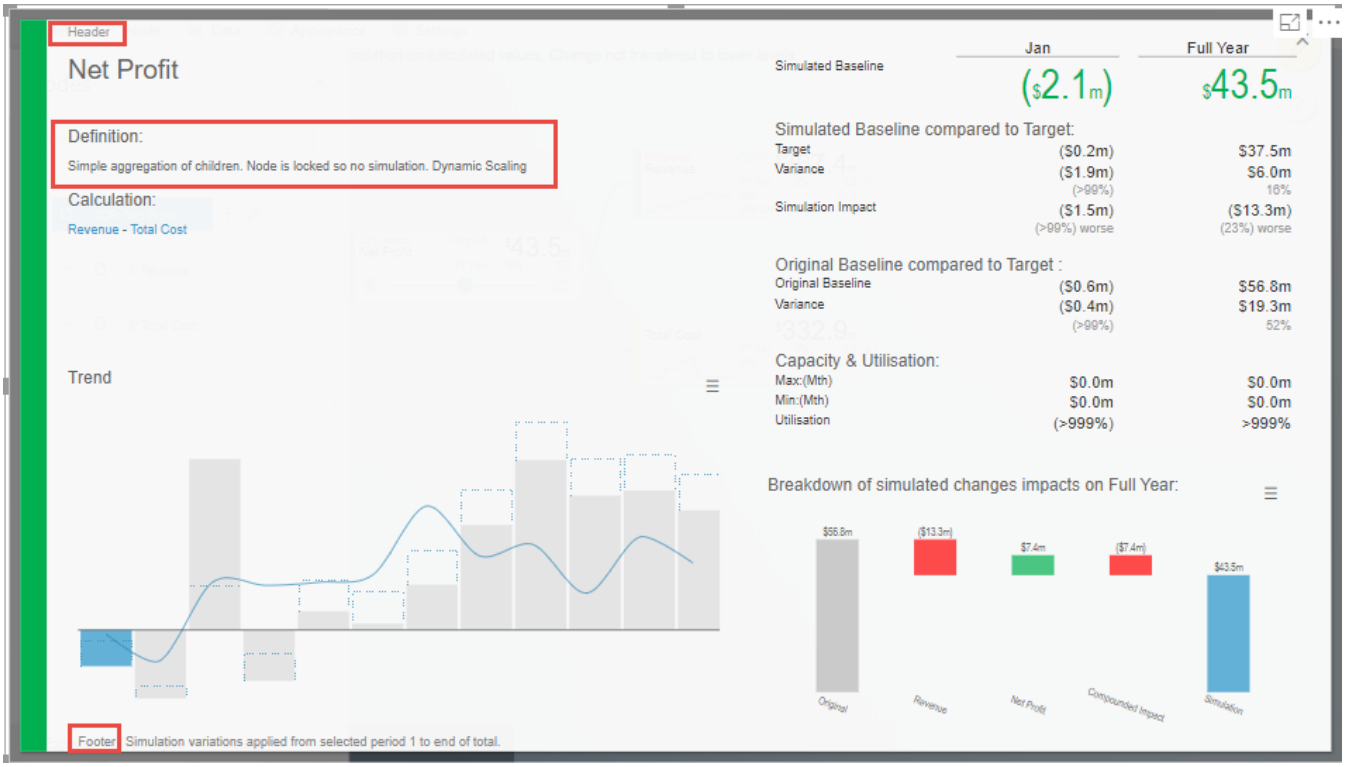
Business Definition

Using this option, you will be able to configure the Business Definition details such as Description, Header, Footer and Technical Notes with the values as shown in the below Figure.



ValQ with Business Definition Settings

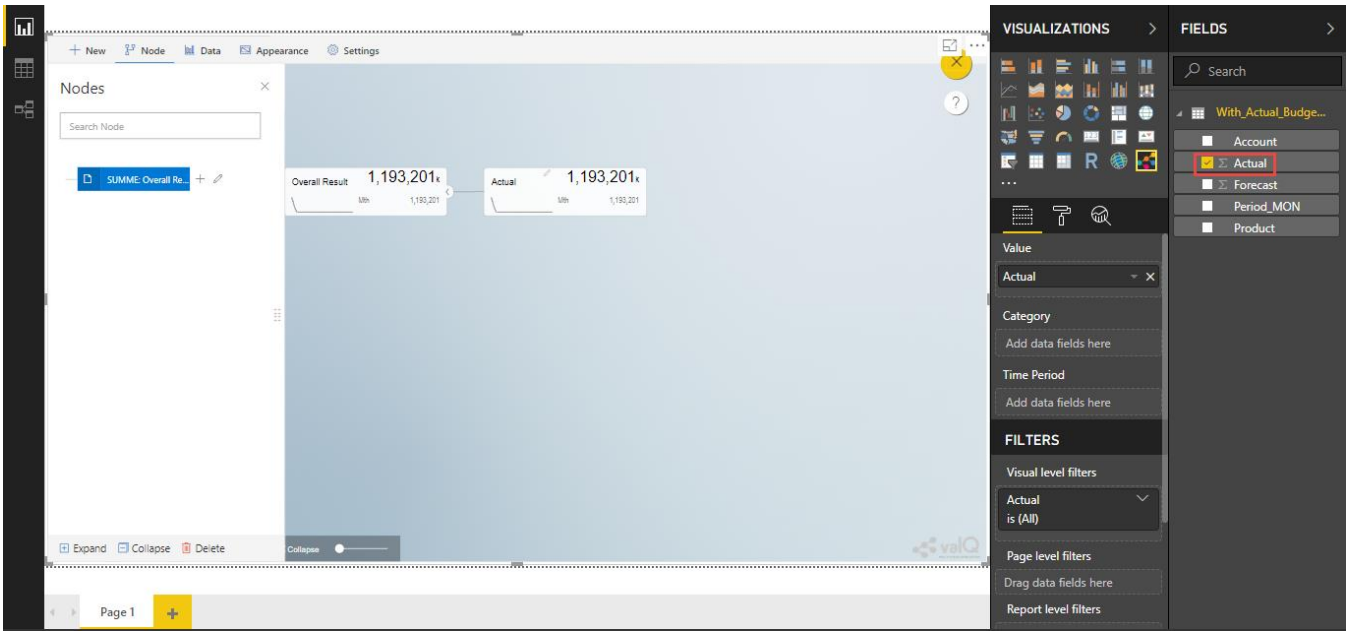
Based on the above settings, you will be able to view the Business Definitions details in the Detail Page as shown below.



Detail Page with Business Definitions

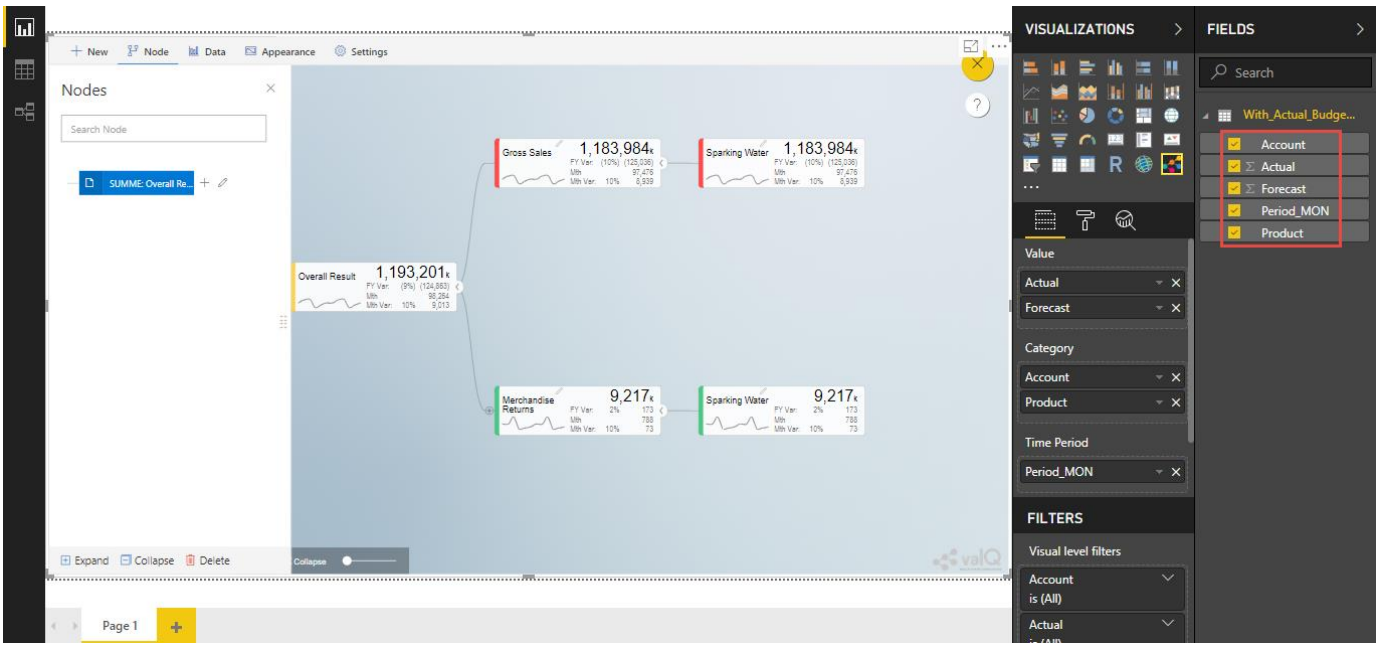
Create a Dynamic Model

Using this option, it is very simple for the beginners to create a tree automatically based on their own data source. By clicking the Create a Dynamic Model option, you will be able to view the ValQ screen as shown in the below Figure.



Simple Dynamic Tree created with one single Measure

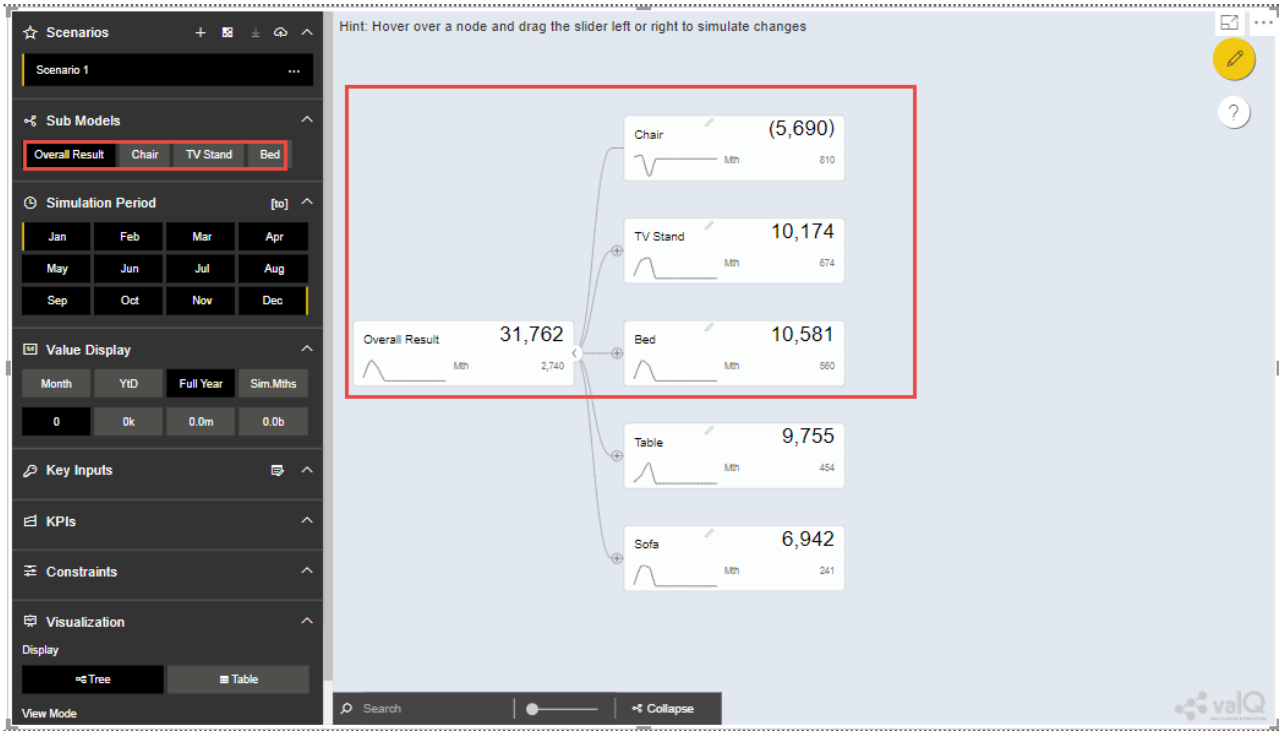
By default, the Measure “Actual” has been selected as a Mandatory criteria for getting the Tree widget. Now you can select the other Measures and Dimensions based on your choice as indicated in the Figure below.



Simple Dynamic Tree created with Measures and Dimensions

From the above Figure, you can observe that the other Measure “Forecast” is assigned to “Value” and the Dimensions namely Account and Product has been assigned to the “Category” and the Period_MON is assigned to “Time period”. Now based the assigned data source, the Tree is being configured. Hence now you can create a tree directly from your data. For step by step instructions on how to get started to build a Dynamic Model, please follow this link: https://ValQ.com/wp-content/uploads/ValQ-for-microsoft-power-bi-beginners-tutorial.pdf.

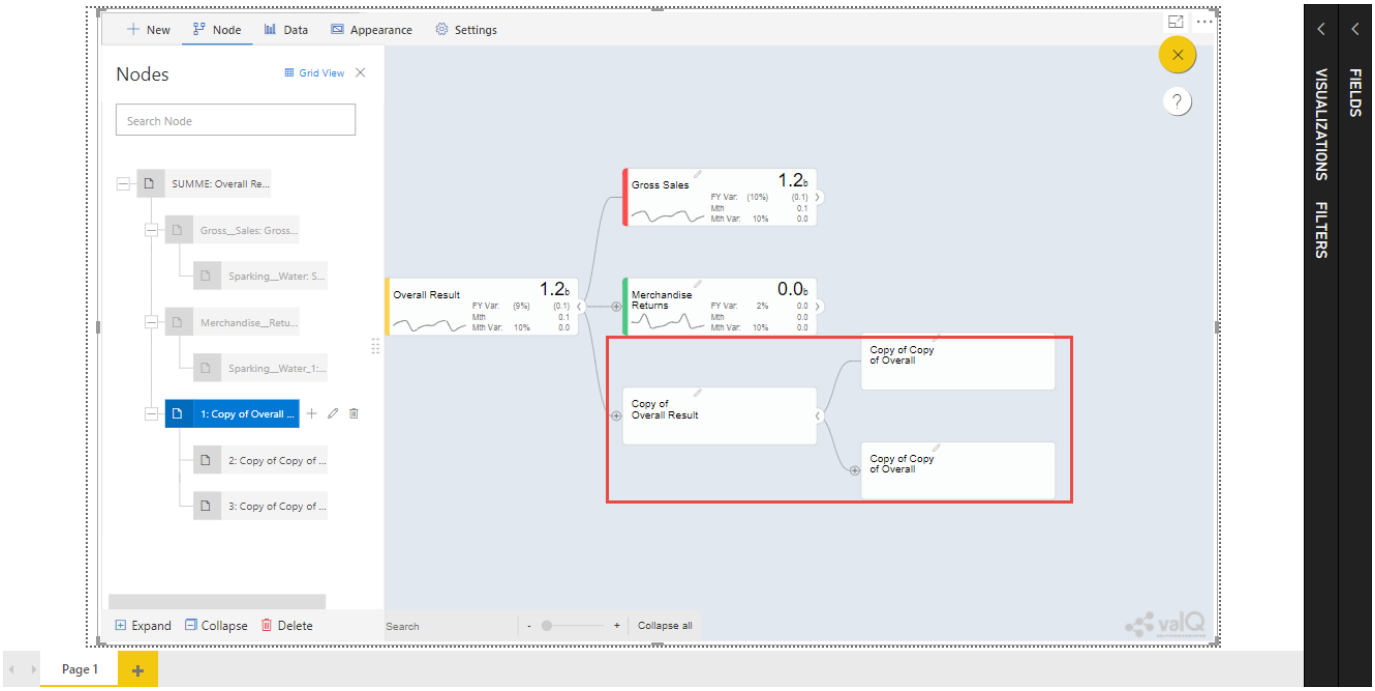
Note: For Dynamic Model, you will be able to view the Root Node and first three Nodes in the next level hierarchy under the Sub Models section of the Navigation Panel (see Figure below).



Sub Models Section showing the Root Node and first three Nodes in the next level hierarchy

Read only Dynamic Tree in Editor

When Dynamic Model is selected, you will be able to only view the value driver tree with Parent and Children Nodes and you cannot undergo any configuration part on it. But you can generate a copy of the Parent Node and proceed with configuration part based on your choice (see Figure below).



Read Only Dynamic Tree

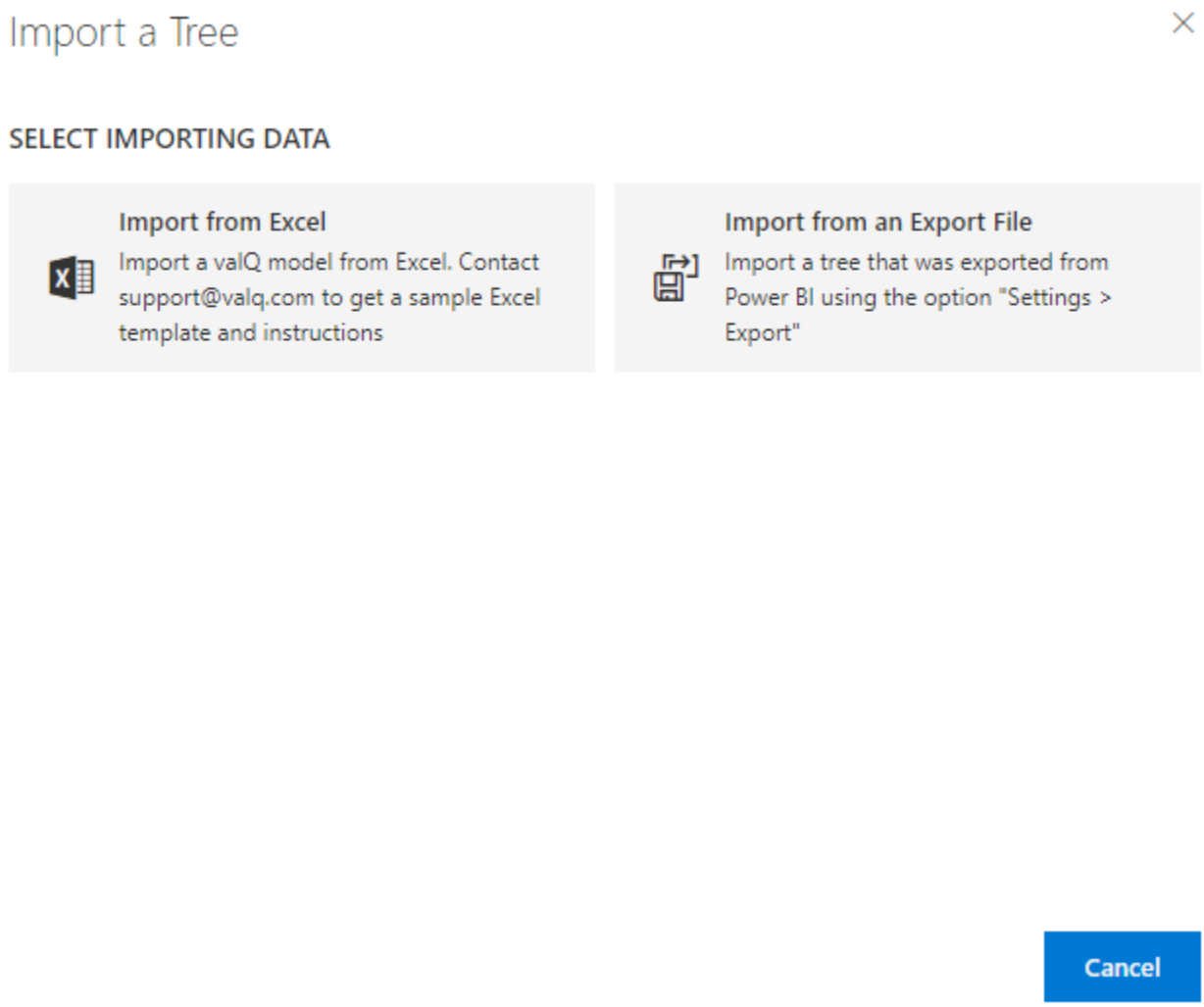
Dynamic Scaling on Dynamic Tree

Based on your data source, the value driver tree will get generated and the Number Scaling for all the Nodes will be updated appropriately based on the data source (see Figure below). For our example, the Number Scaling is “0.0b”.

Dynamic Scaling on Dynamic Tree

Import an Advanced Model

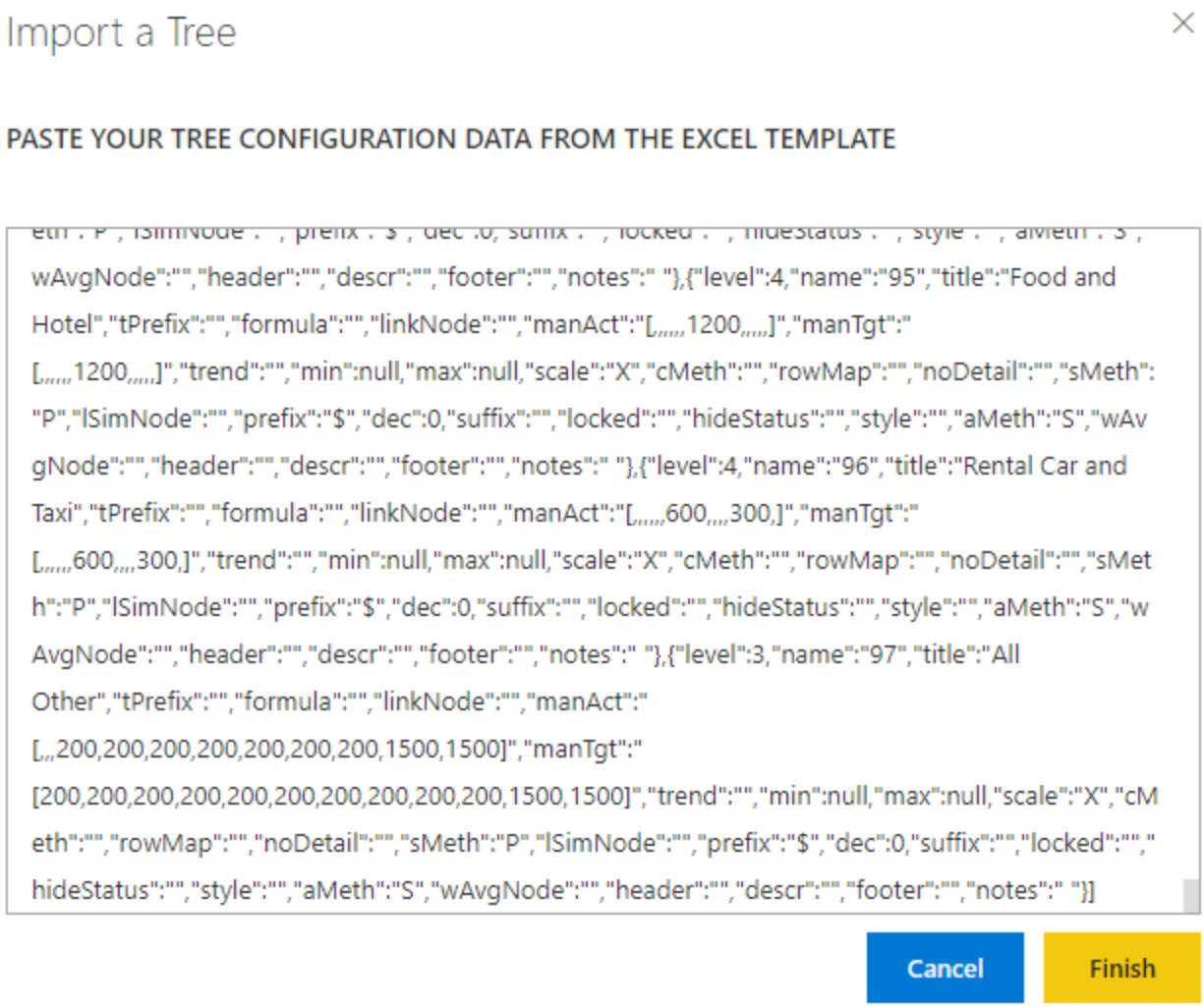
Using the “Import an Advanced Model” option, you will be able to import data through two different options as shown below.



ValQ – Import from Excel

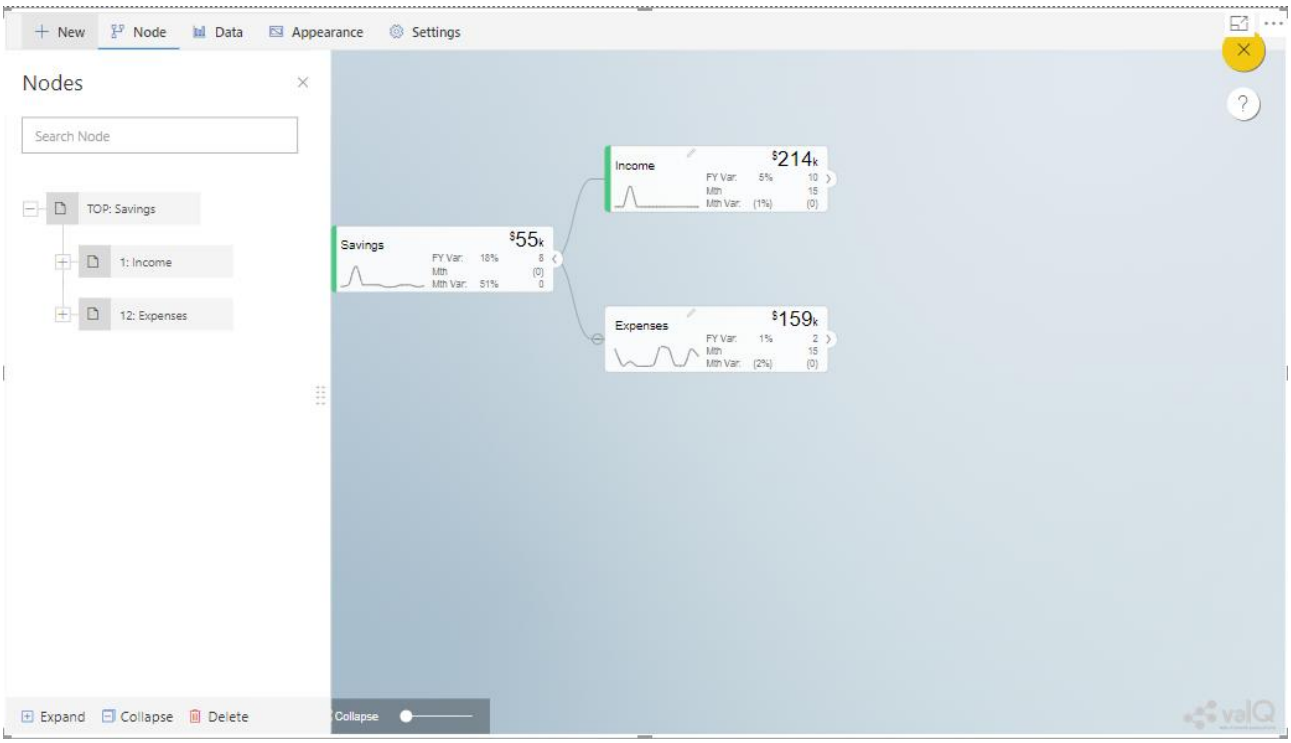
Import from Excel

Using the option “Import from Excel”, you will be able to paste the JSON File Data Format text into the Text Editor as shown in the below Figure.



Configuration Data from Excel Format

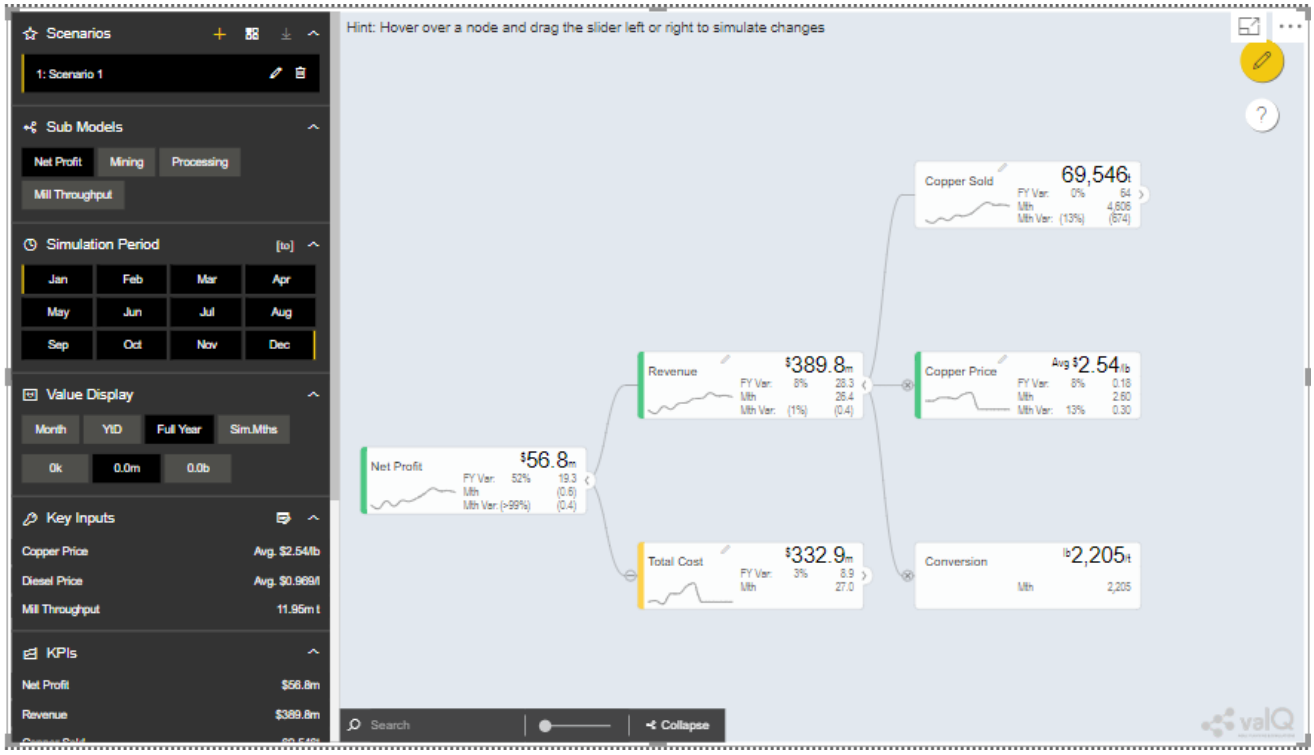
Now based on the above configuration, you will be able to view the Tree formed with Nodes in the ValQ screen.



ValQ screen derived from Excel Data

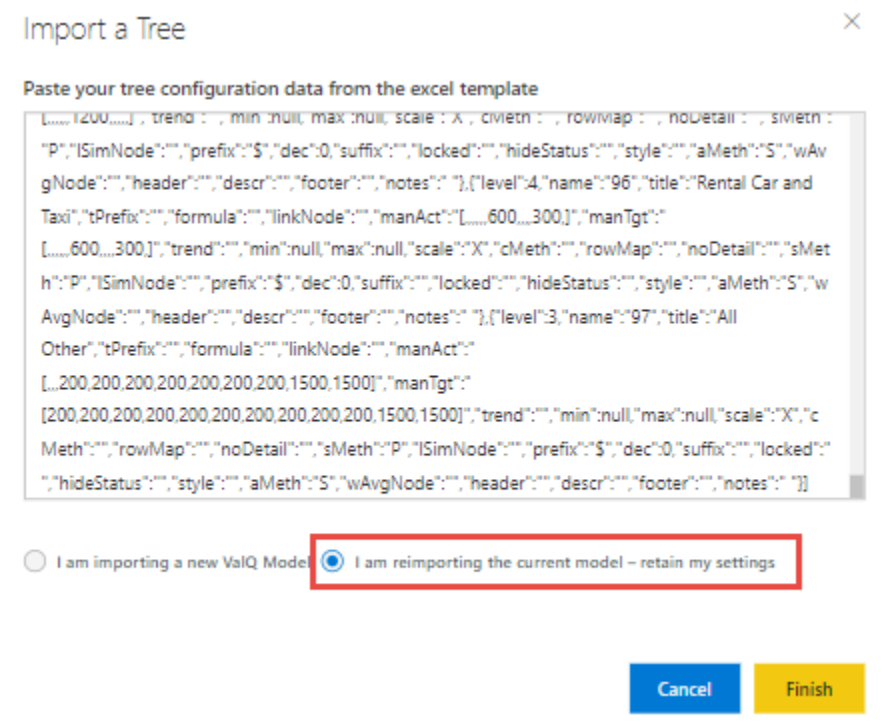
Retain Existing Navigation Panel Configuration and overwrite only Tree Configuration

Through this option, you will be able to retain the existing Navigation Panel configuration and apply the same for the next Tree configuration. For our example, the Figure below shows the Navigation panel for the first Tree configuration.



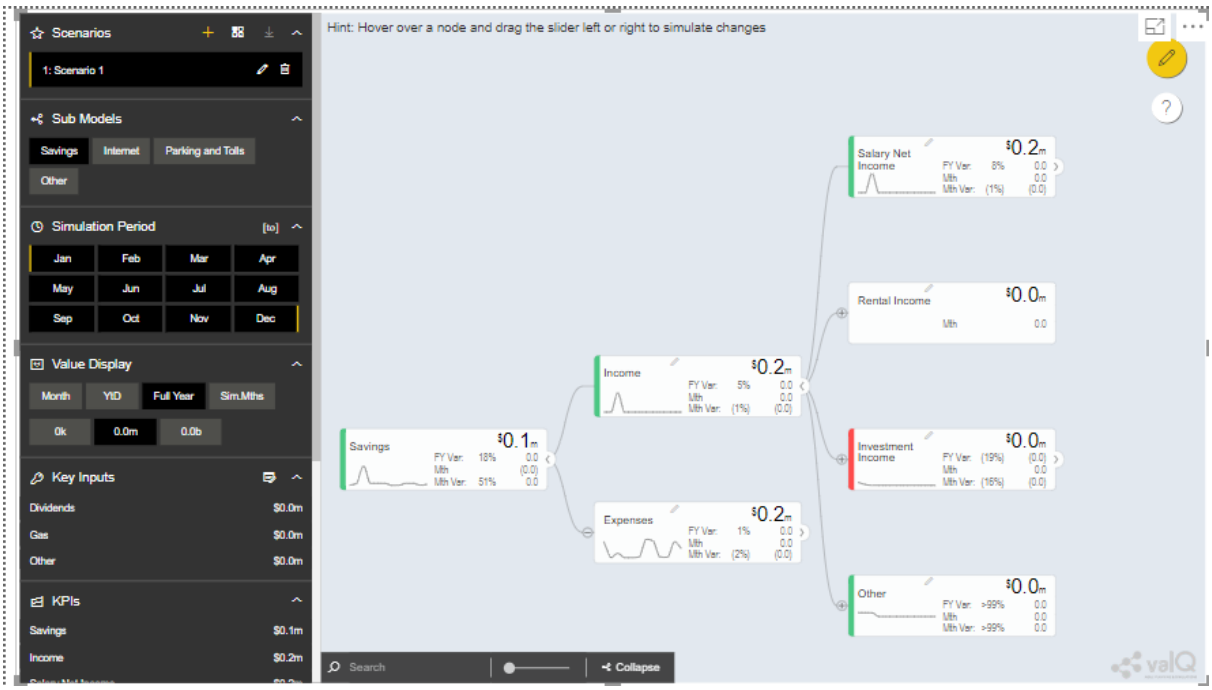
Navigation Panel for the first tree configuration

Now navigate to the Import an Advanced Model option in New Tab and paste the JSON File Data Format text for the second tree into the Text Editor as shown in the below Figure.



Import a Tree

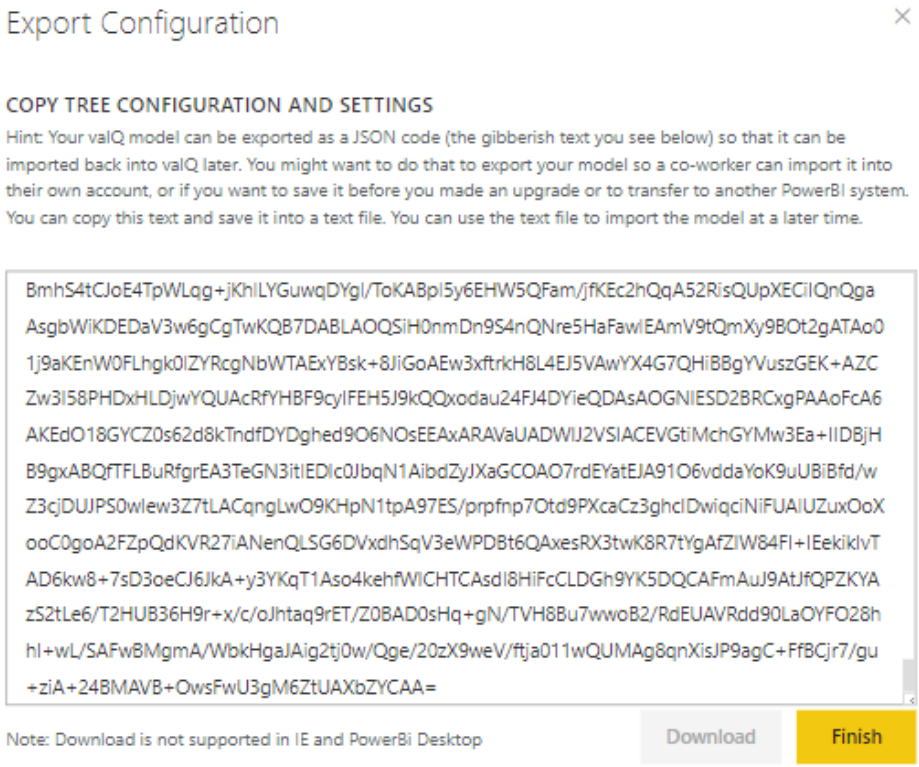
Now select the option “I am reimporting the current model – retain my settings” so that you will able to view the second tree configuration being applied with the Navigation Panel settings already configured for the first tree (see Figure below).



Navigation Panel for the second tree configuration

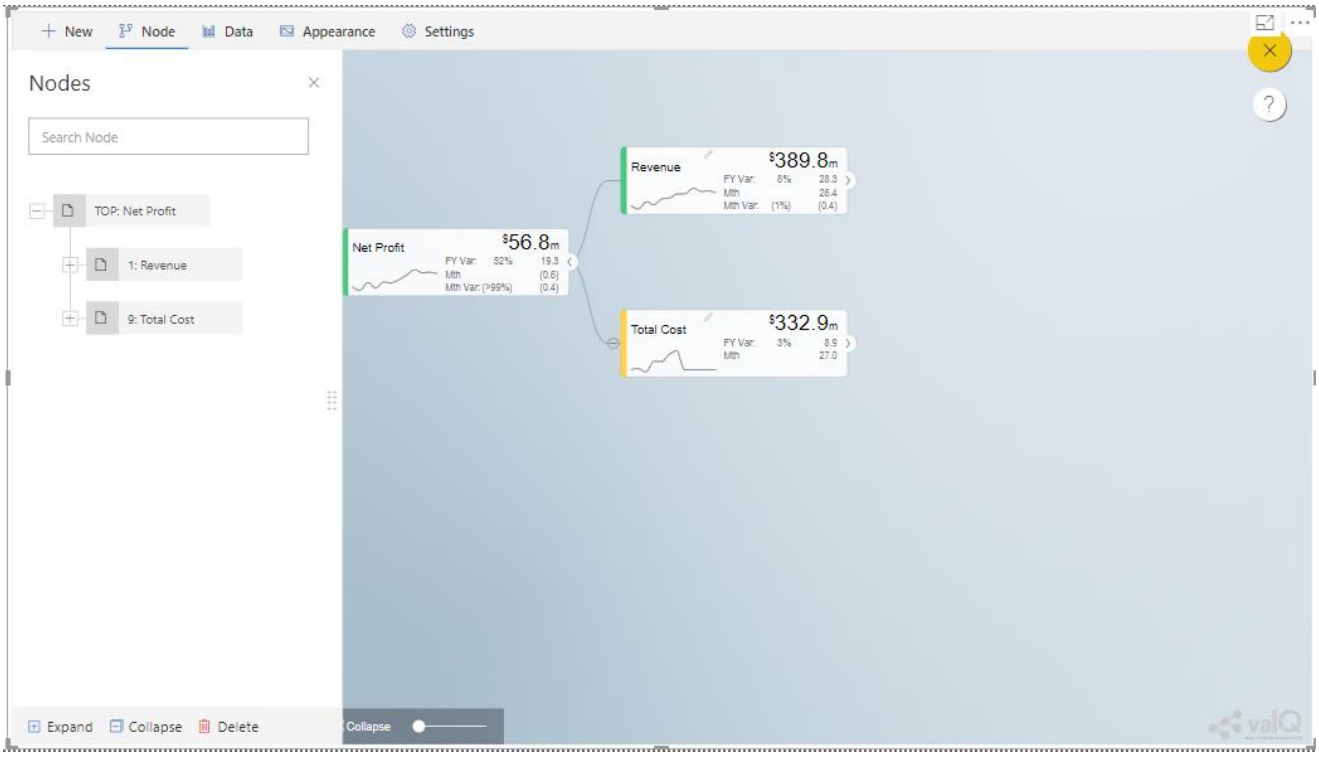
Import from an Export File

Using this option “Import from an Export File”, you will be able to paste the Export file data format from an already exported tree data as shown in the below Figure. This Export File will be generated by navigating to the Settings Tab and by clicking the Export button.



Configuration Data from Export File Data Format

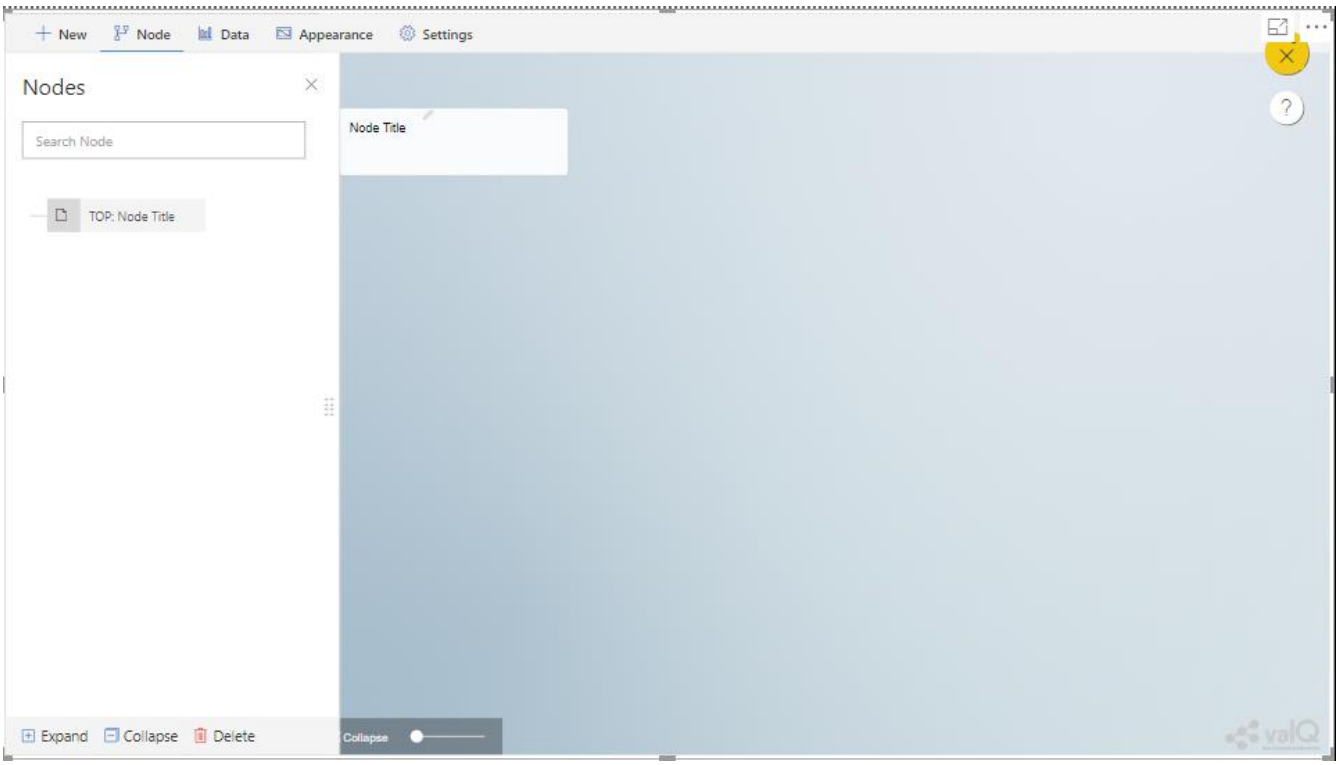
Now based on the above configuration, you will be able to view the Tree formed with Nodes in the ValQ screen.



ValQ screen derived from Export File Data Format

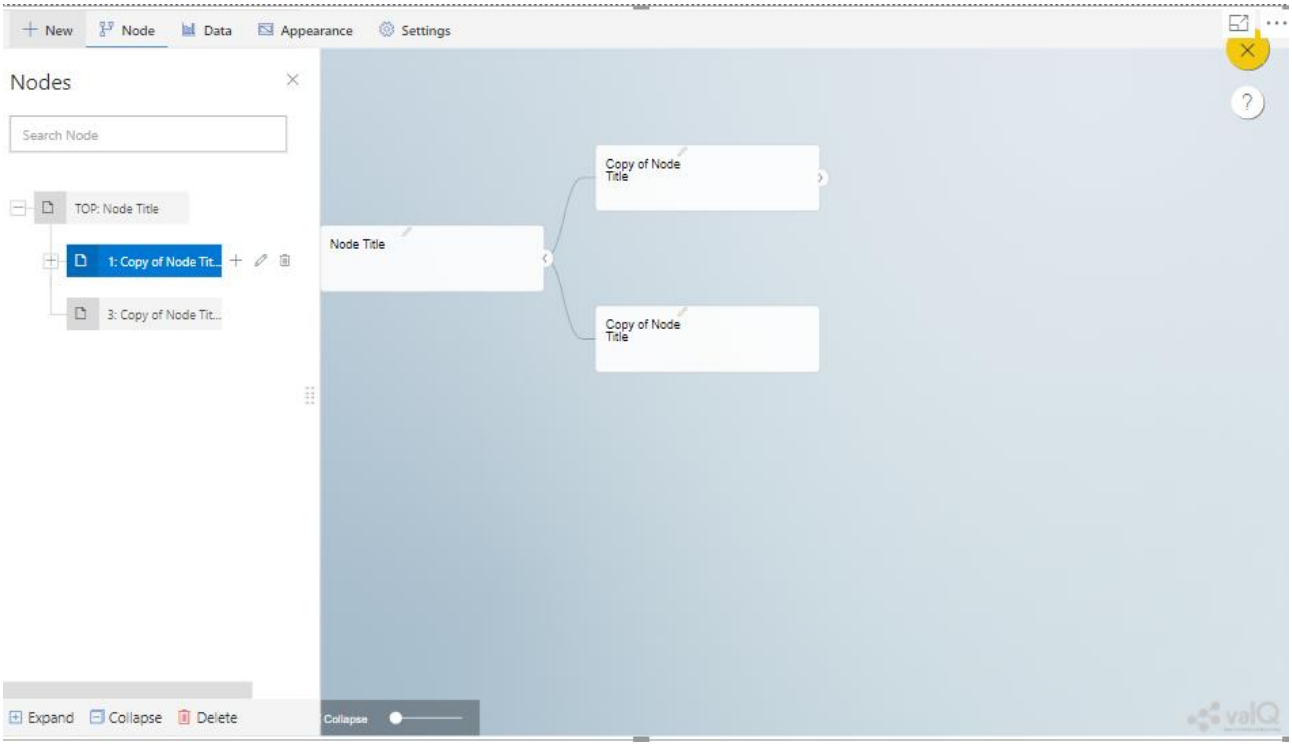
Create New from Scratch

This option is used to create a Tree in ValQ manually Node by Node based on your choice. By clicking the Create New from Scratch option, you will be able to view the ValQ screen as shown in the below Figure.



Create New from Scratch

For our example we have created a Parent Node and two child Nodes (see Figure below).



Tree with one Parent Node and two Child Nodes

Now with the help of Section: Open a Sample Model, you will be able to configure the General, Configuration, Display, Simulation and Business Definition settings for the Tree (Please refer Section: Open a Sample Model for more details).

Additional Properties of New Tab

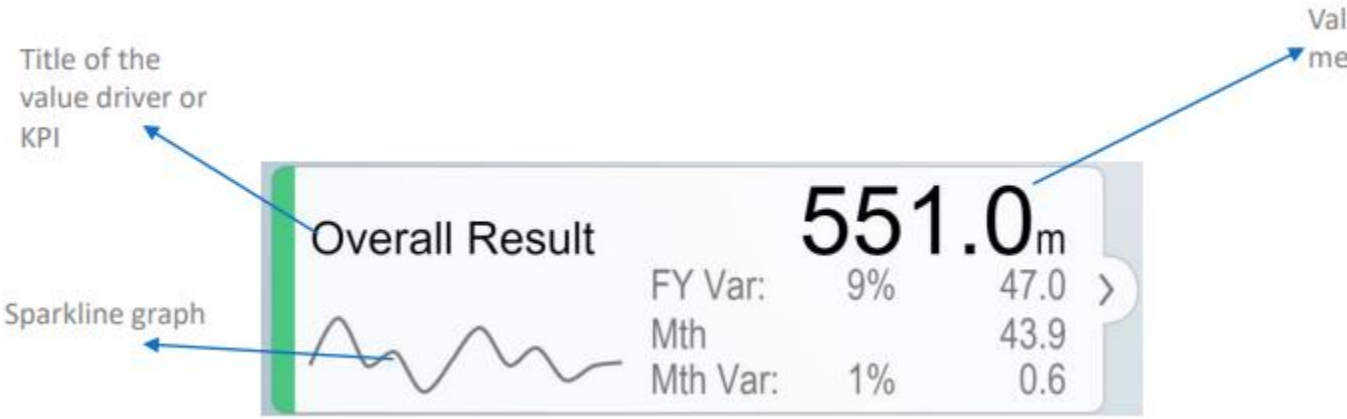
Property	Description
Open a sample Model	Using this model, you can load the required model from the sample ValQ Models. The sample Models are Mining Industry, P&L for Small and Medium-Size Business, Personal Finance and Simple Sales Projections.
Create a simple Dynamic Model	Using this Model, you can build a Dynamic ValQ Model (For details, please refer: https://ValQ.com/wp-content/uplo ads/ValQ-for-microsoft-power-bi-b eginners-tutorial.pdf)
Import an Advanced Model	Using this Model, you can import a Tree by selecting the data from an Excel file or by selecting the data from an Export File.
Create New from Scratch	This Model can be used for creating a Tree with Nodes right from the beginning.

Additional Properties of New Tab

Node Tab

Each node represents a metric, and can contain the following:

- Name of the value driver or KPI
- A sparkline graph indicating the recent trend
- The value of the metric in bold letters

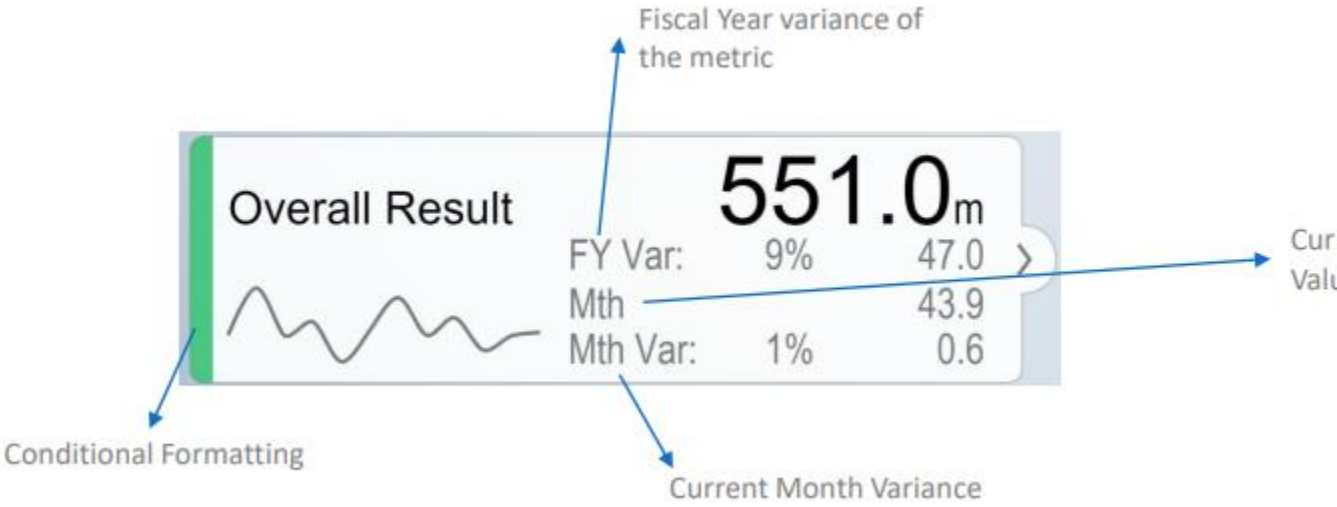


Node Details

In addition, each node also contains several performance metrics (see Figure below). They are listed as follows:

- The Fiscal Year variance of the metric vs. a benchmark (in this case, Sales Forecast vs. Sales Budget) – this is shown in both % and absolute terms
- Absolute value of the metric for the current month (usually the first period in the series)
- Variance of the metric vs. a benchmark for the current month – this is shown in both % and absolute terms.

A node may be decorated by a performance indicator color band on the left – typically Green (for good), Amber (neither good nor bad) and Red (Poor).



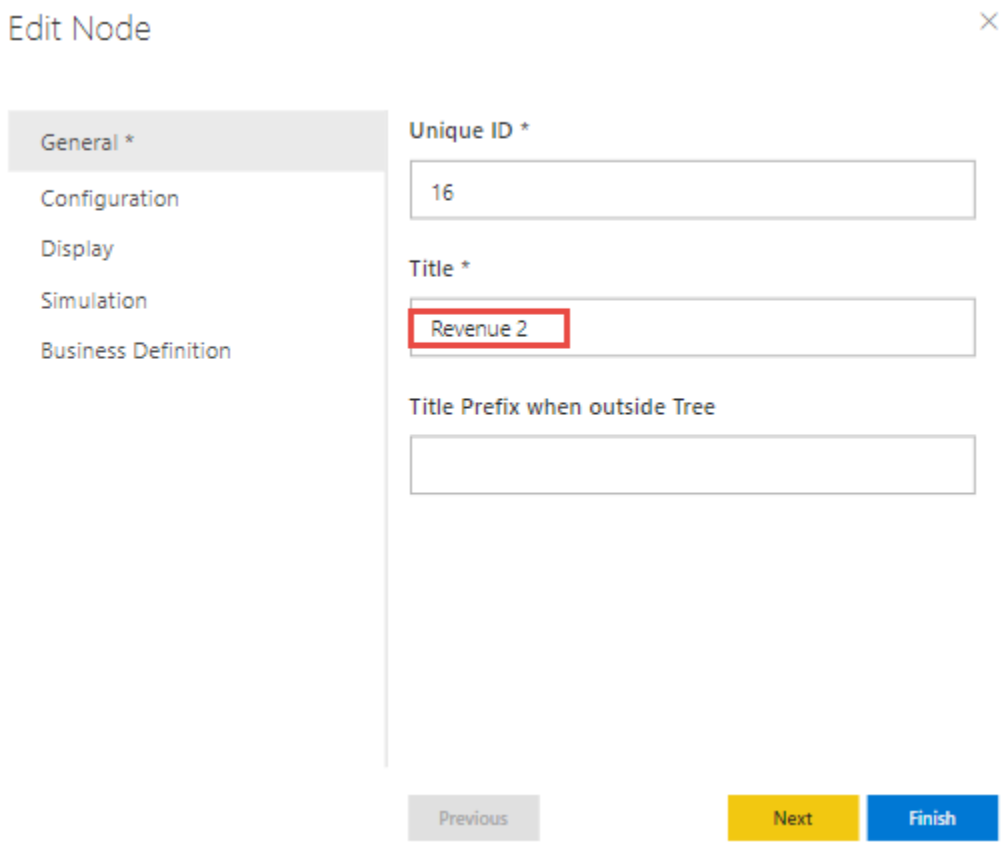
Node Details

The entire configuration part of the Node Tab has been already explained in detail in Section 12.1.

Templated Nodes

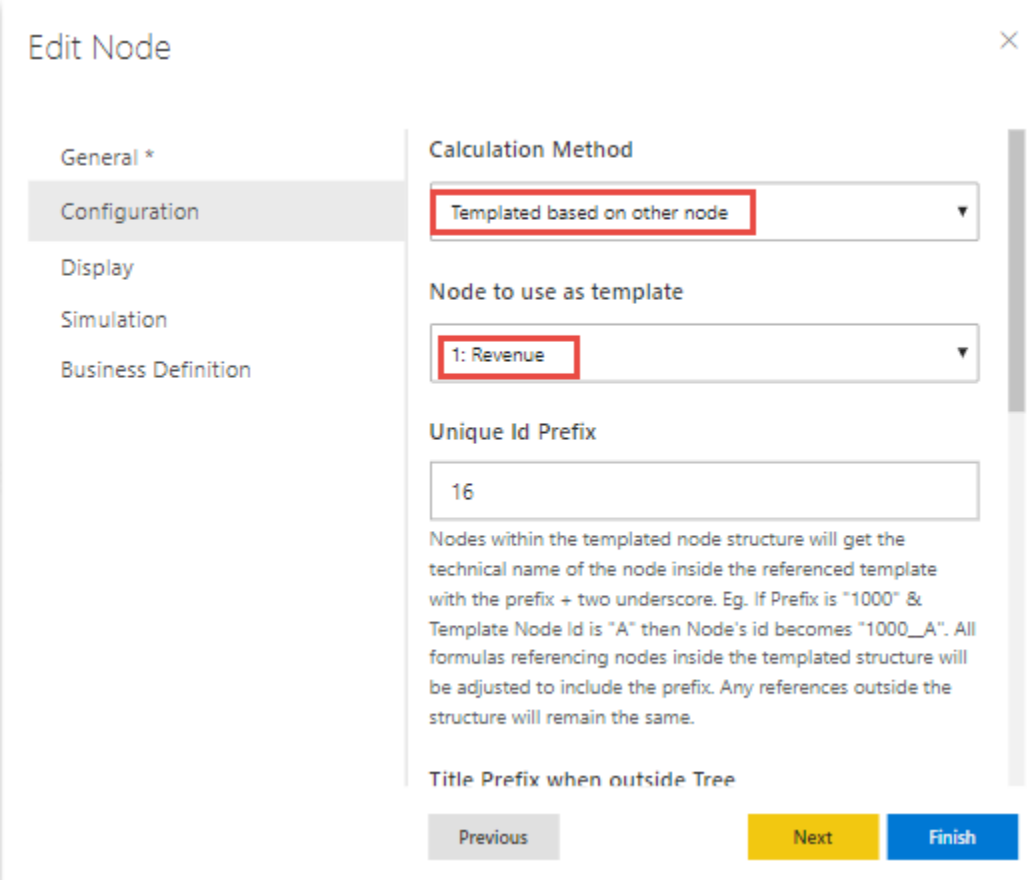
Also you can create a Templated Node for the already existing Node. It is very specific that the Templated Nodes should not map the Parent Node. You need to select the particular Node and copy a Node under the selected Node for creating the Templated Node.

In the below Figure as an example, you can observe that a copy of Revenue Node has been created by the right click copy and paste actions. Now the copied Revenue Node version is labelled as “Revenue 2” in General Property of the Edit Node Window (see Figure below).



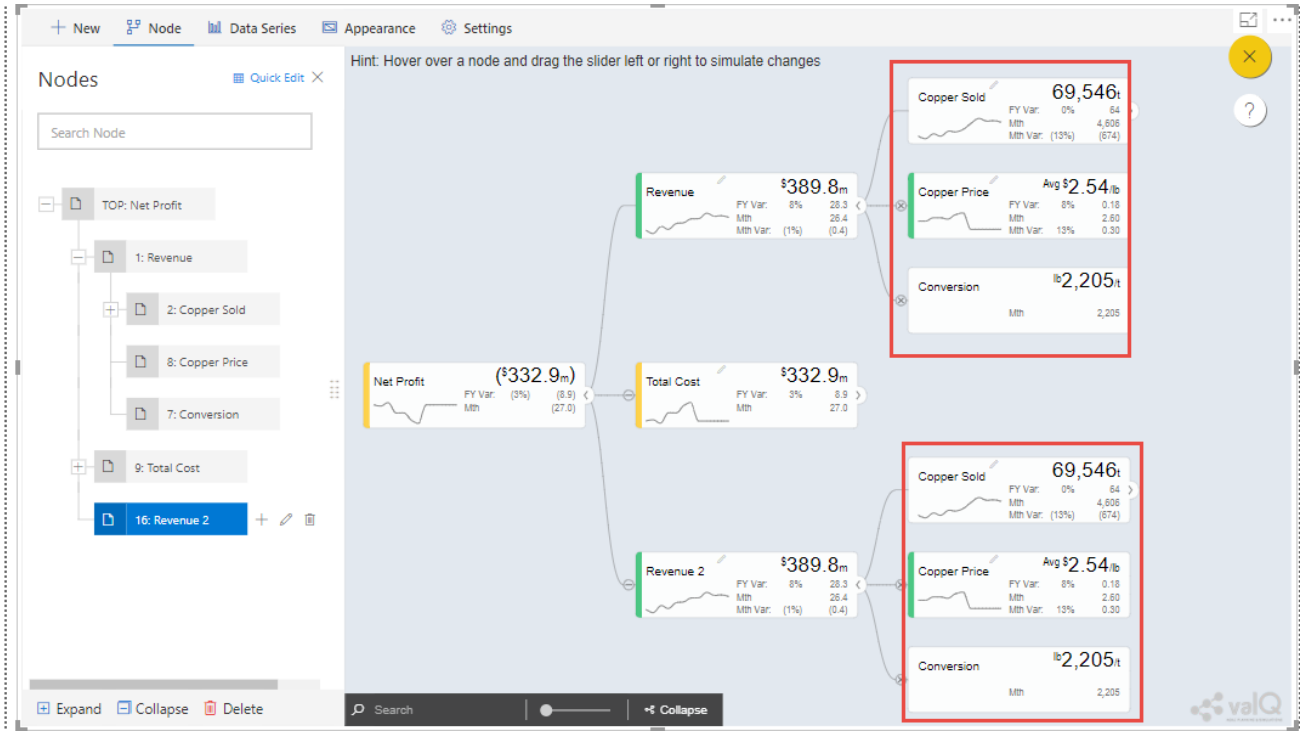
Edit Node: Copy of Revenue Node labelled as Revenue 2

Now navigate to the Configuration property of the Edit Node Window. Set the Calculation Method to the option Template based on the node. Also set the Node to use as Template to the option 1:Revenue (see Figure below).



Edit Node: Calculation Method selected as Template based on other node and Revenue Node to be used as Template

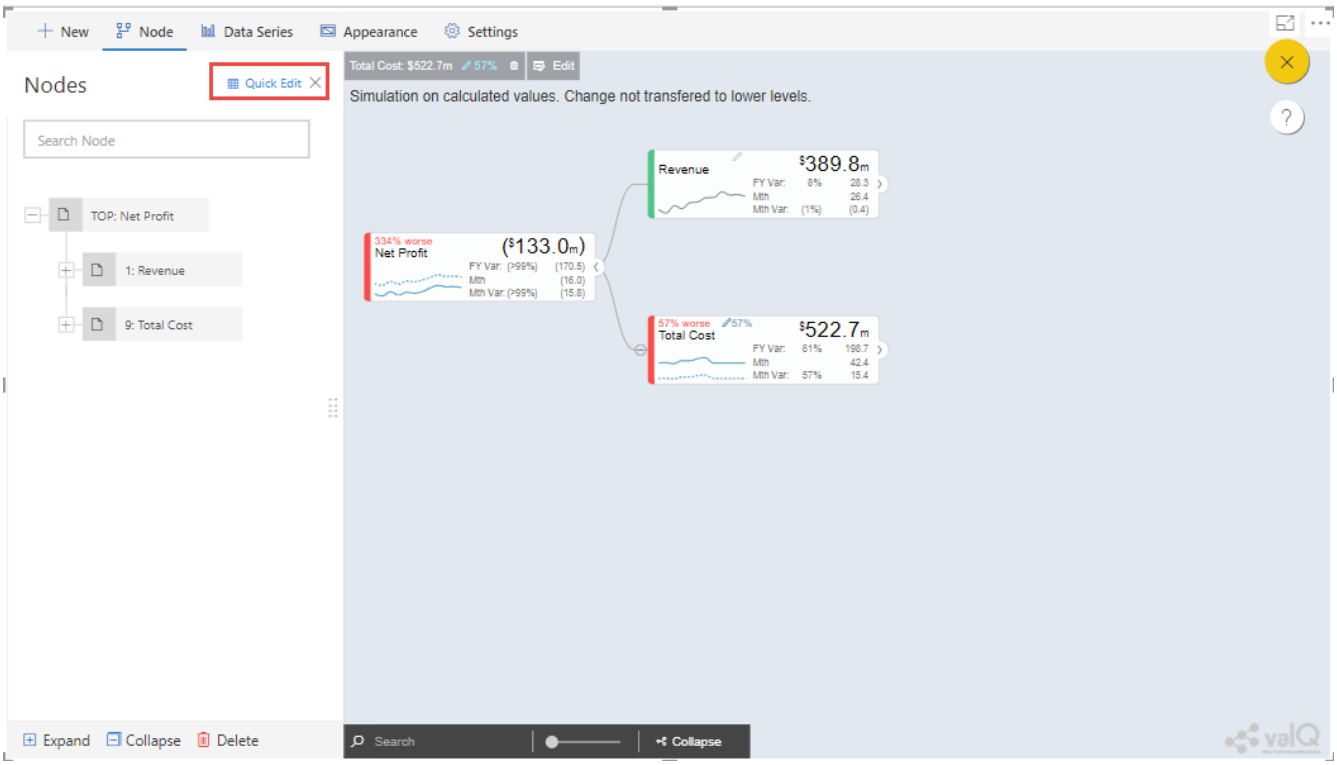
Based on the above configuration, you will be able to view the Templated Node Revenue 2 having all its Nodes similar to the Revenue Node as per our example.



Templated Node

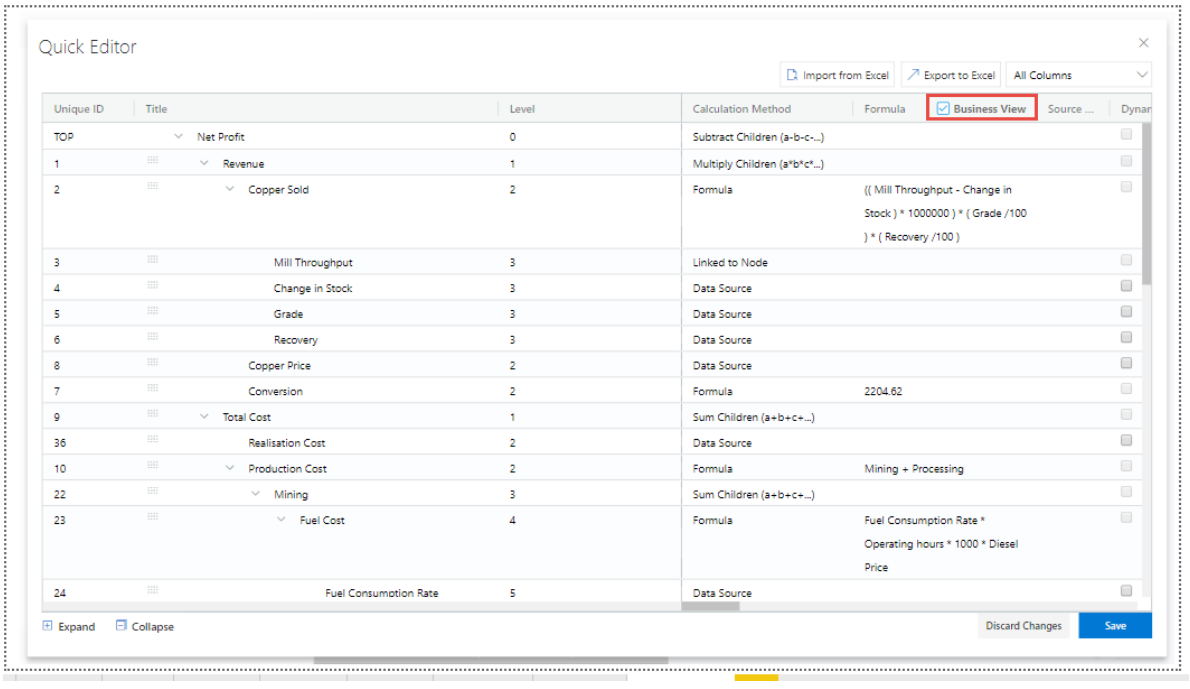
Quick Edit in Node Tab

Using the Quick Edit option in the Node Tab, you will be able to view the entire Tree Hierarchy in a Grid View. For our example, the below Figure shows the normal Tree Hierarchy View.



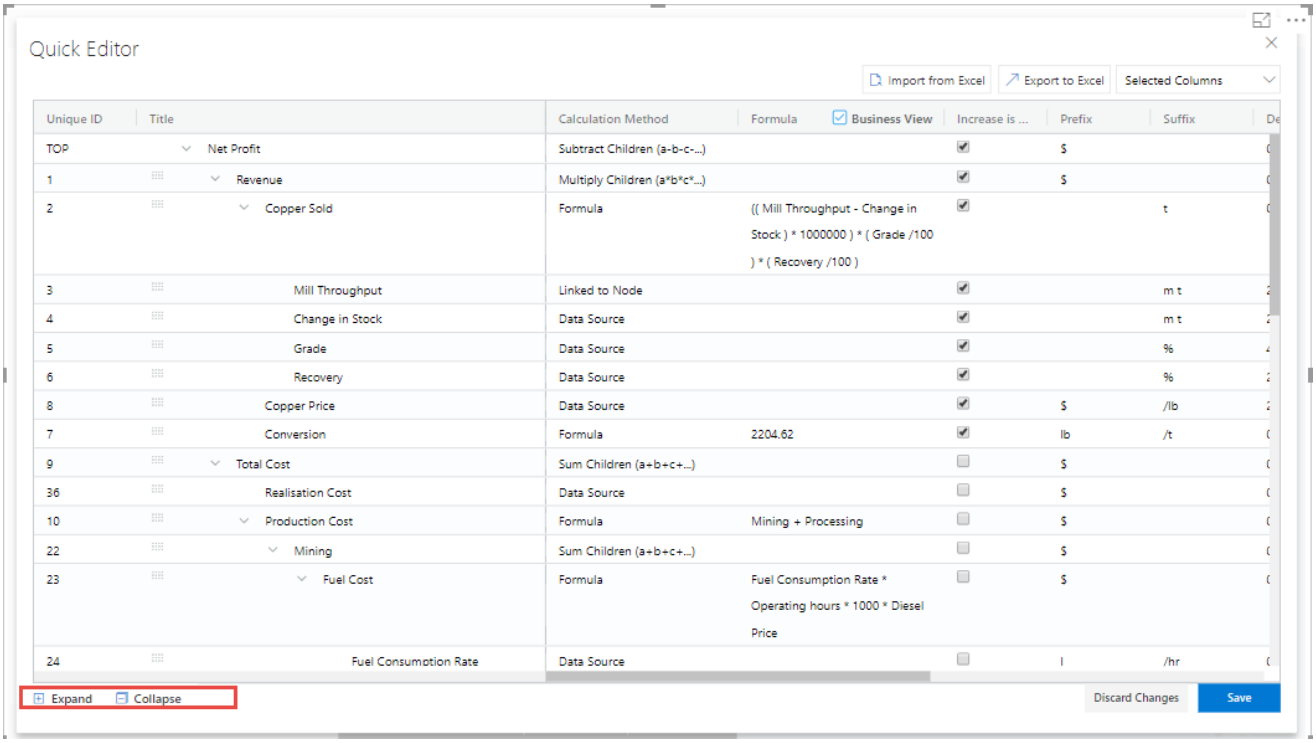
Normal Tree Hierarchy View

After clicking the Quick Edit option as shown in the above Figure, you will be able to view the Grid View as shown below. You can observe that there will be a Business View information in the Formula column and it will get displayed when you select the Business View option (see Figure below).



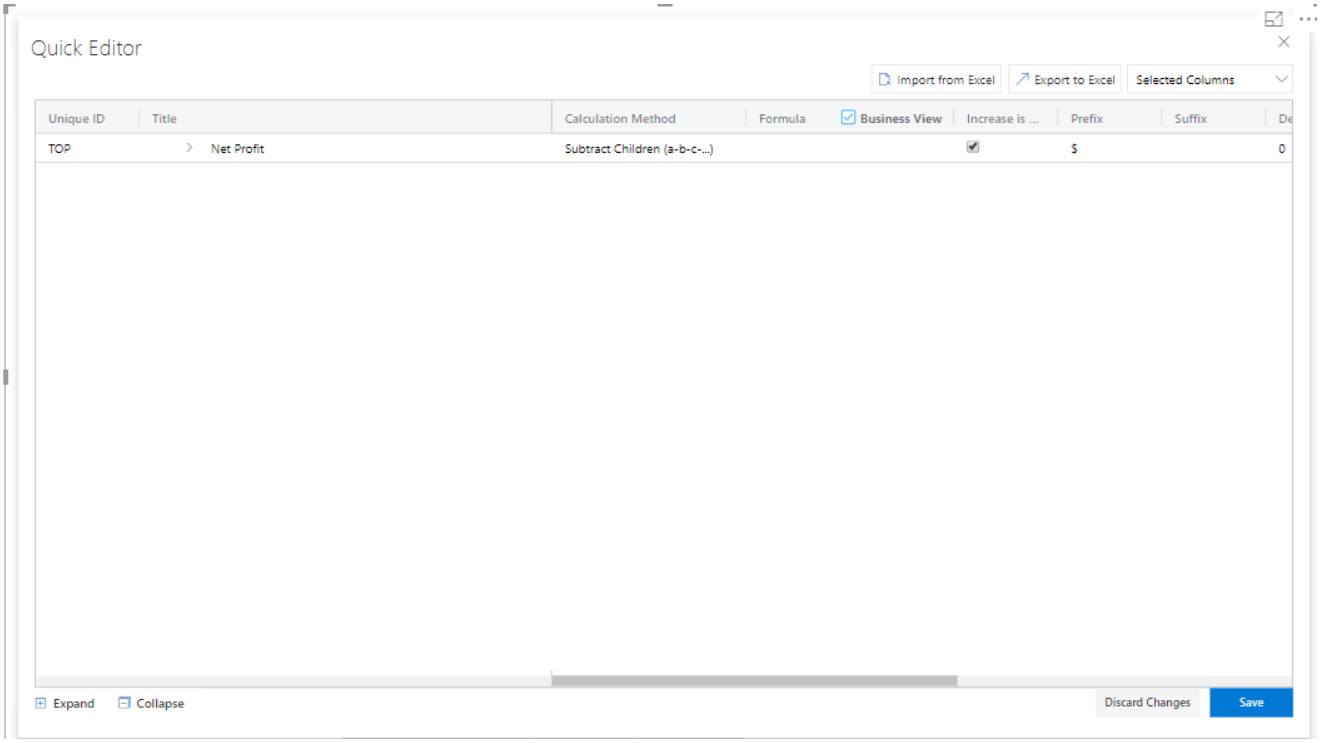
Grid View

In the Grid View, you will be able to edit the changes and save it so that the changes will get reflected in the Tree Structure which can be viewed in the canvas. In the Grid View, you can also Expand and Collapse the Node Structure using the Expand and Collapse icons (see Figure below).



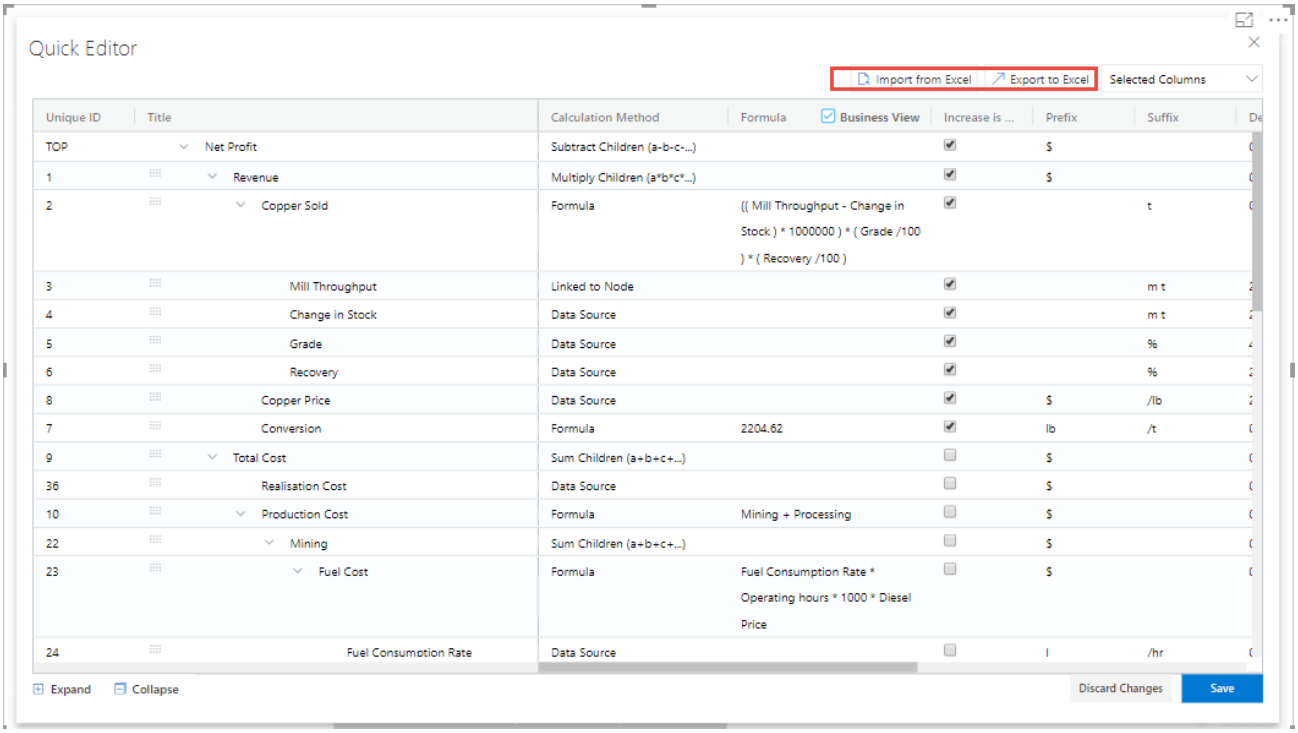
Grid View in Expanded Form

For our example, the above Figure shows the expanded form of the Grid View. The below Figure shows the collapsed form of the Grid View.



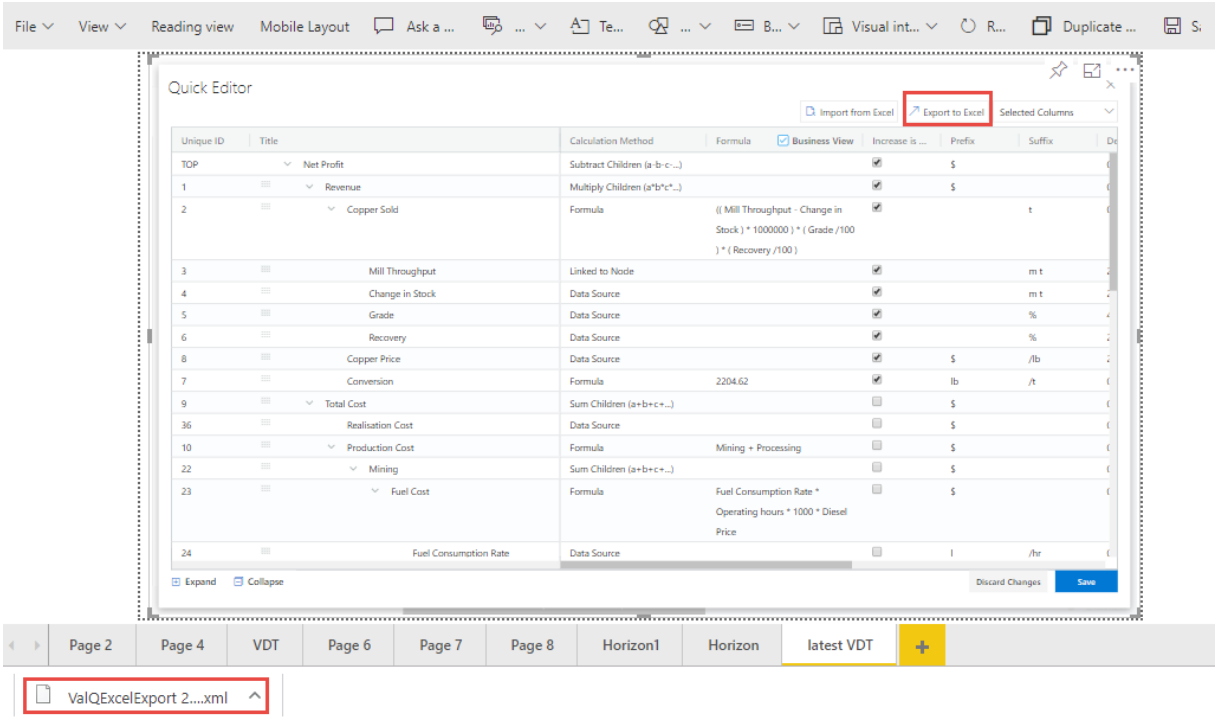
Grid View in Collapsed Form

You will be able to import and export the data in the form of excel file using the Import from Excel and Export to Excel buttons as shown in the below Figure.



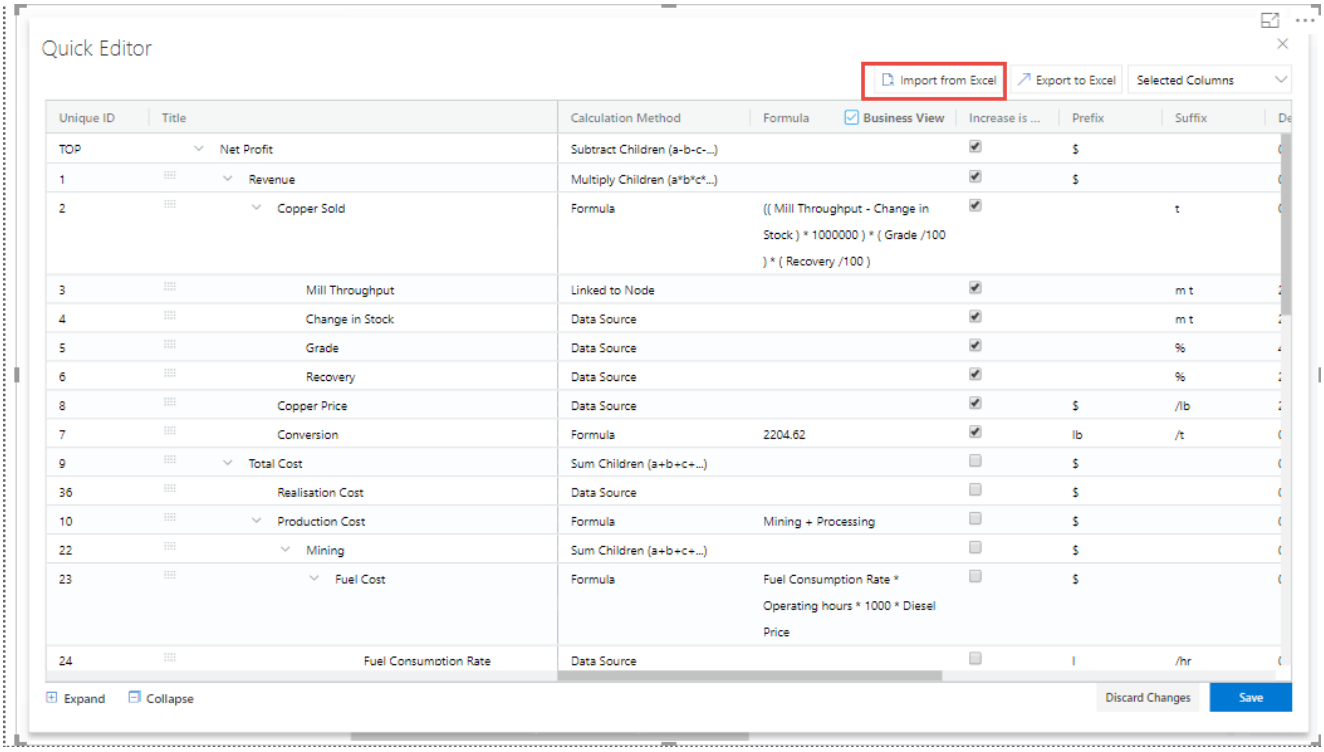
Grid View - Import from Excel and Export to Excel

The Export to Excel File button will be only functional in the web version of the Power BI (see Figure below).



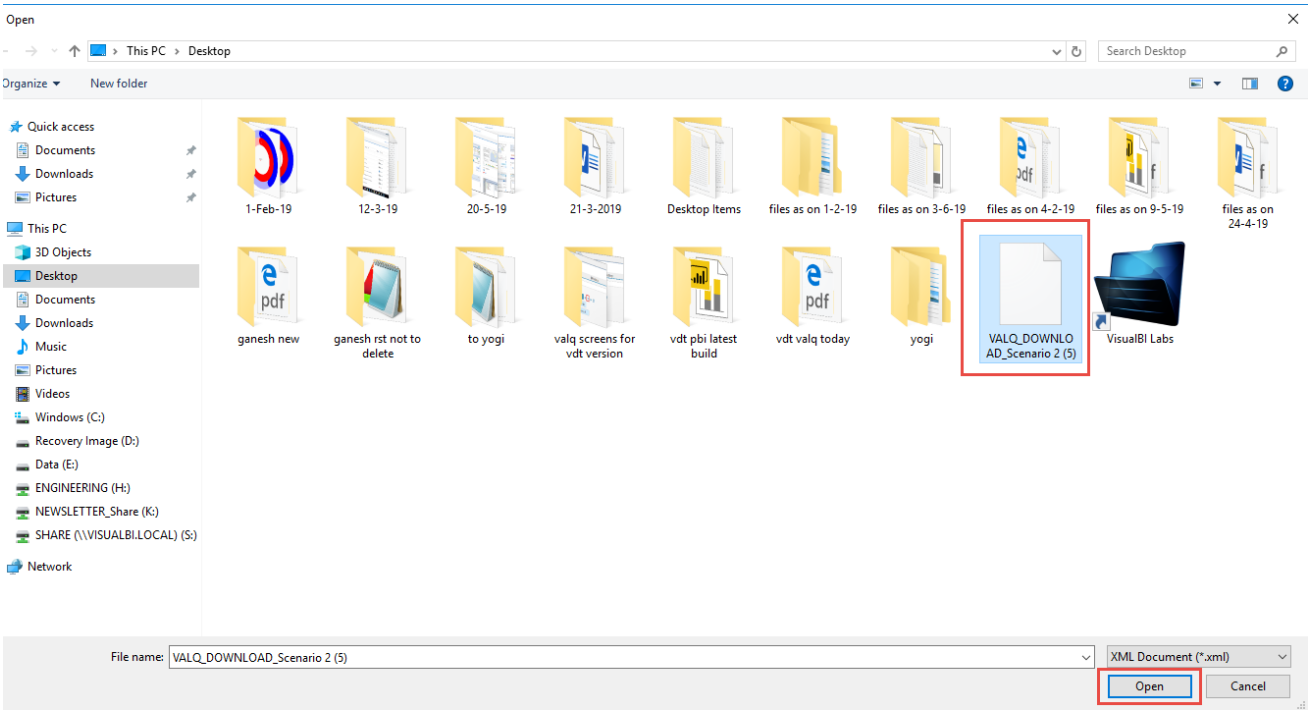
Export to Excel File

The exported file can be edited and it can be imported by clicking the Import from Excel File button.



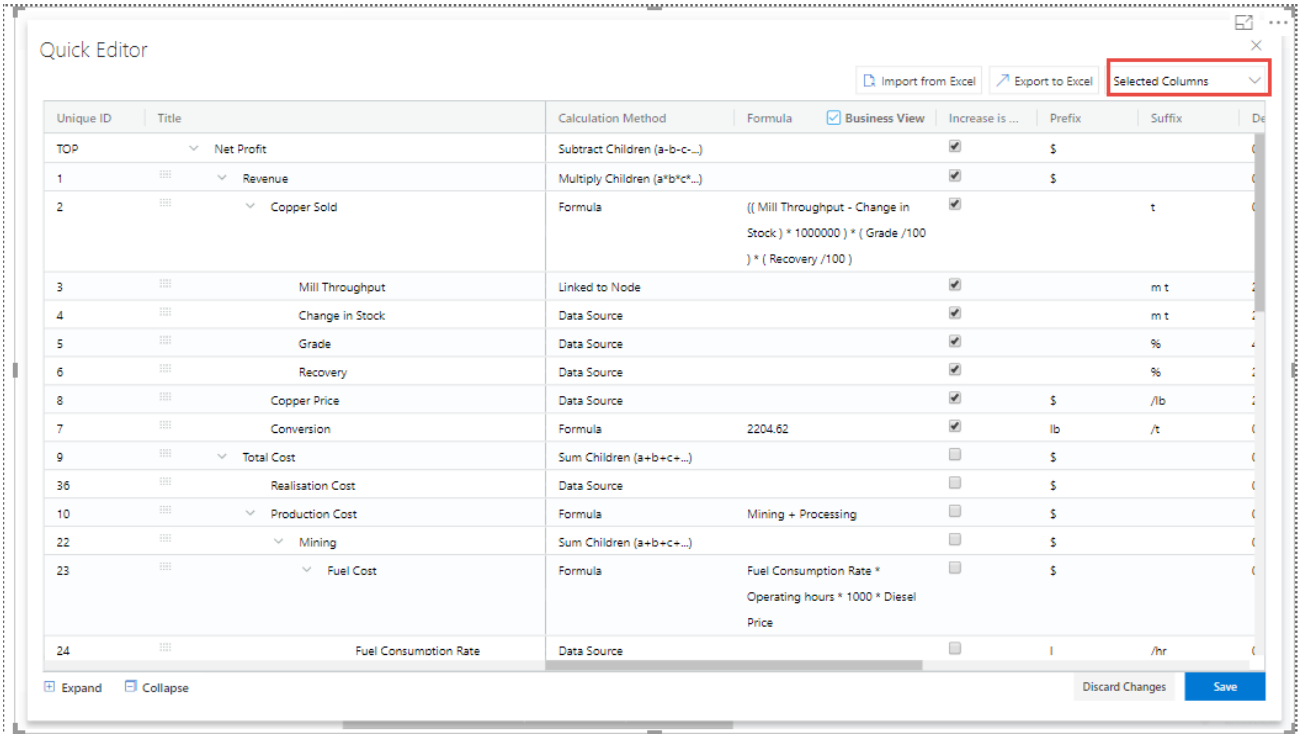
Import from Excel File

The import function can be done by browsing the location of the file (see Figure below).



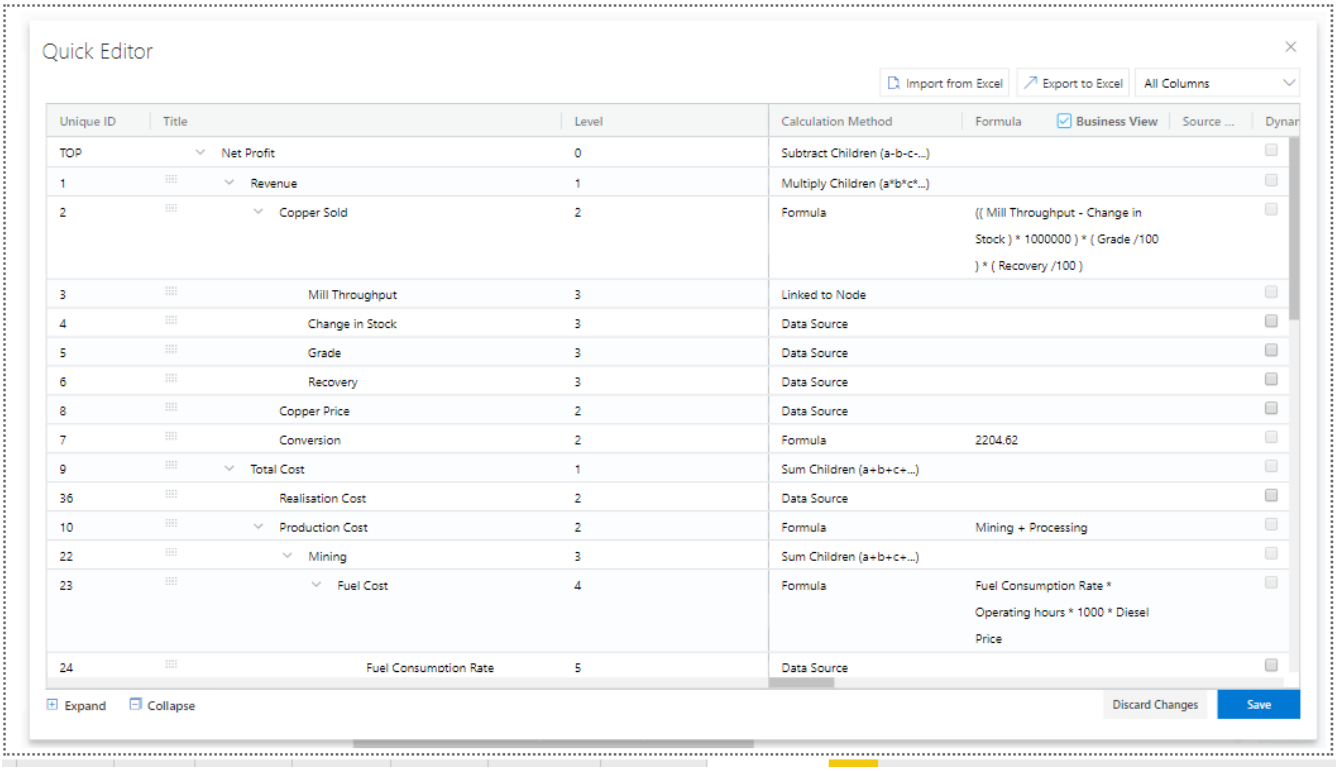
File Location

The Columns cab be filtered based on the selection from “Selected Columns” Drop Down (see Figure below). All the Columns can be selected to get displayed in the grid or the user can select the columns of their choice.



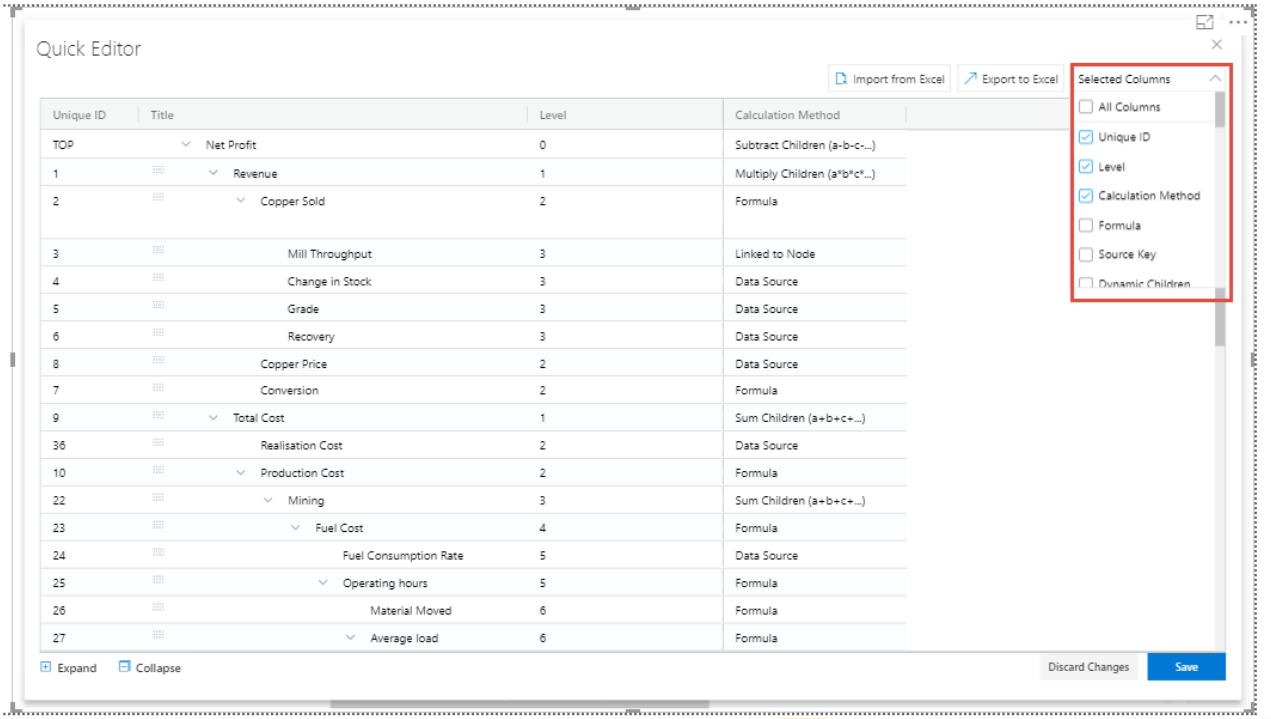
Filtering Columns in the grid

The below Figure shows that all the columns are being selected and they are displayed in the grid. The user can scroll the Horizontal scroll bar in order to view the remaining columns.



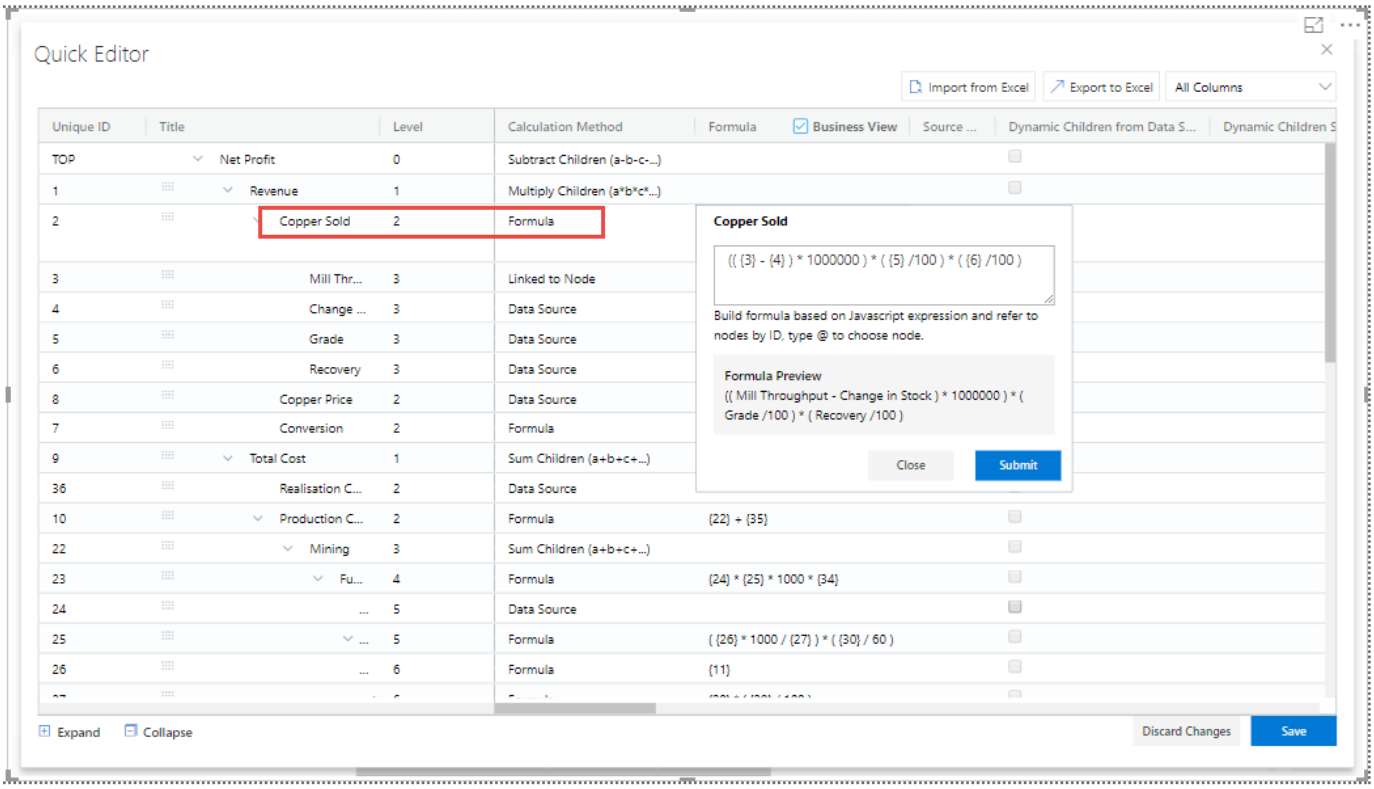
Grid Display with all the columns being selected.

The below Figure shows that only the selected columns get displayed in the grid.



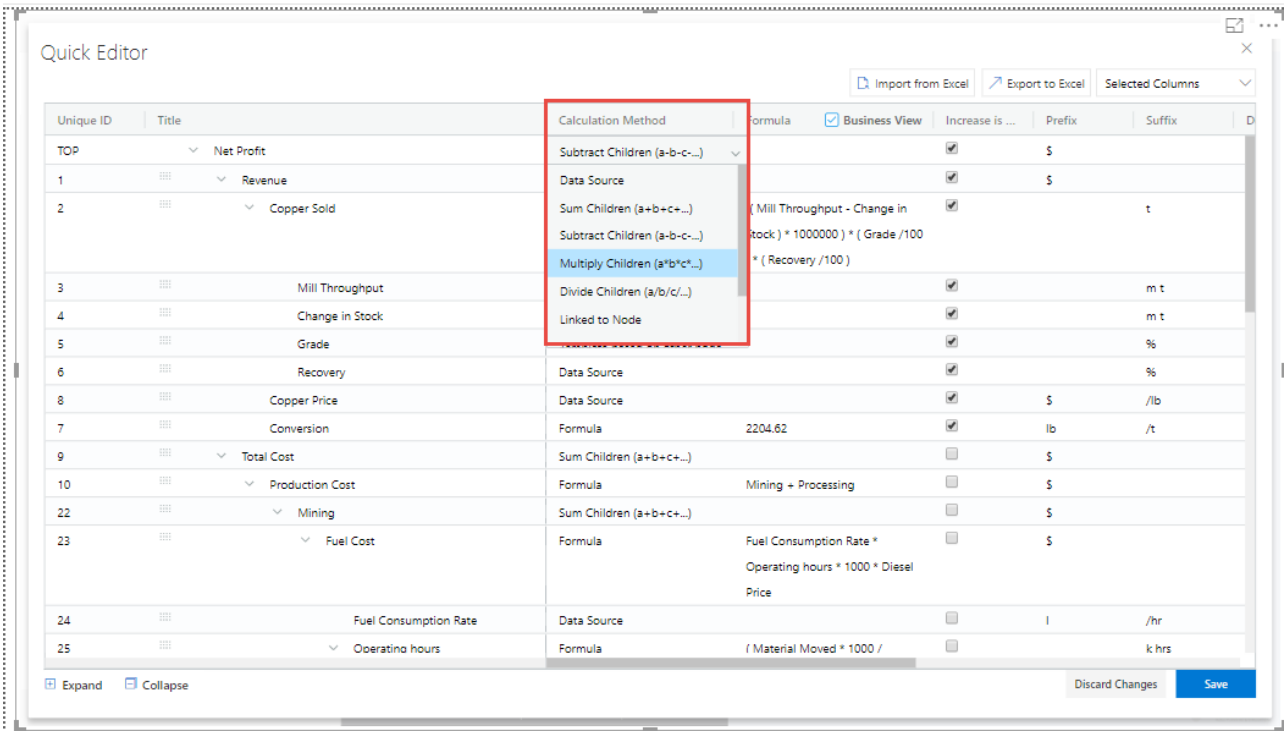
Grid Display with the selected columns

Also the user has the option to edit the properties like Formula, Calculation Method and Aggregation Method directly in the Grid view where it gets updated in the actual properties in the Advanced Editor. In our example, you can view that the Formula has been double clicked for editing (see Figure below).



Grid view edit for Formula Column

The above Figure shows that the Formula for the row item Copper Sold has been edited. As another example, the below Figure shows that the Calculation Method has been edited.

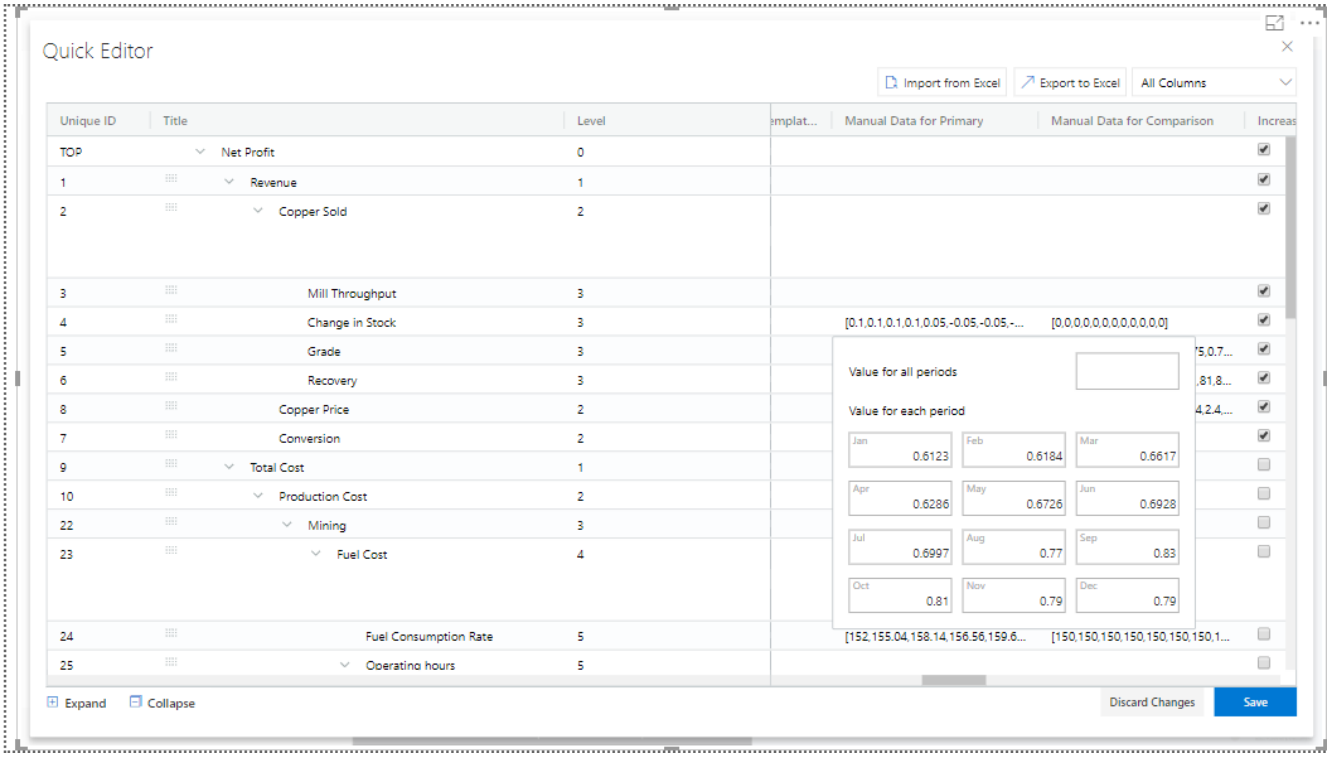


Grid view edit for Calculation Method Column

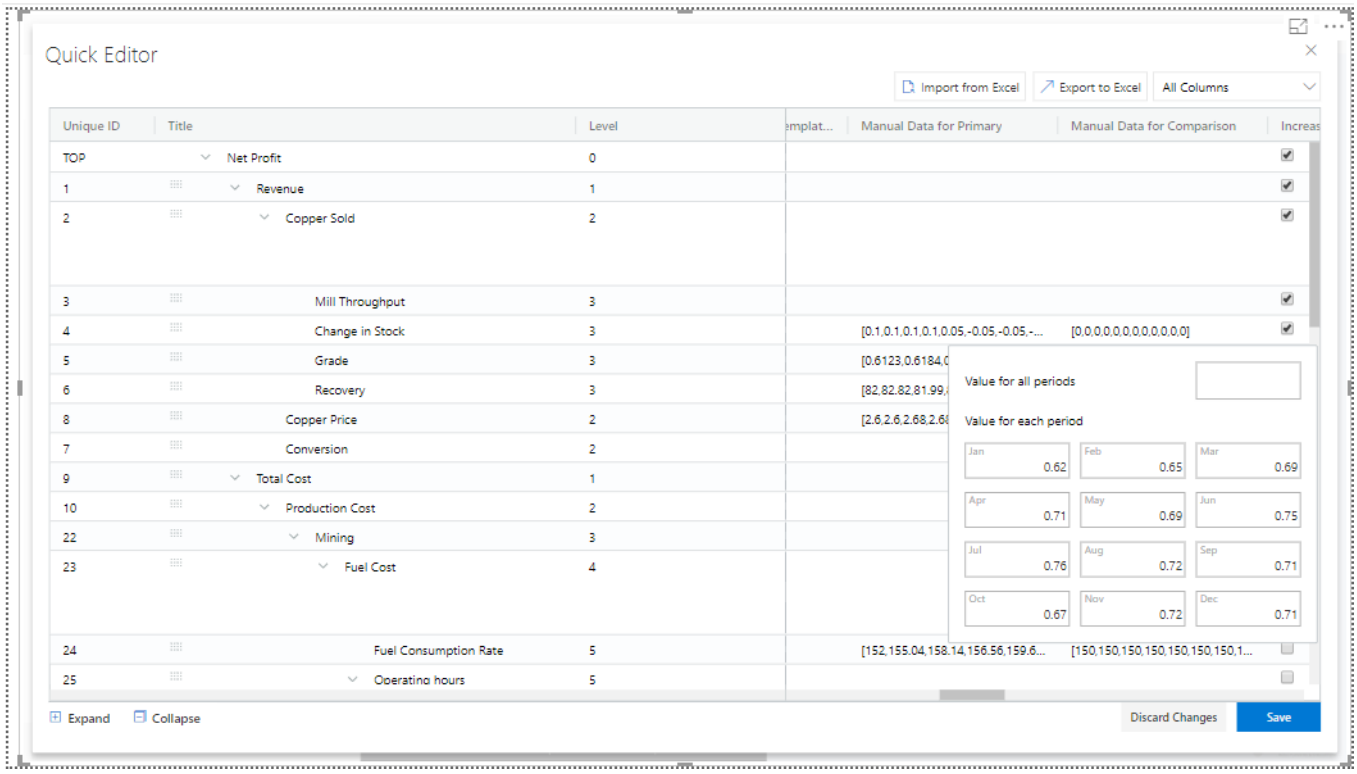
In a similar way, the following columns can be edited in the Grid view.

- Manual Data for Primary
- Manual Data for Comparison

The below Figures represents the screen shots for both Manual Data for Primary and Manual Data for Secondary.

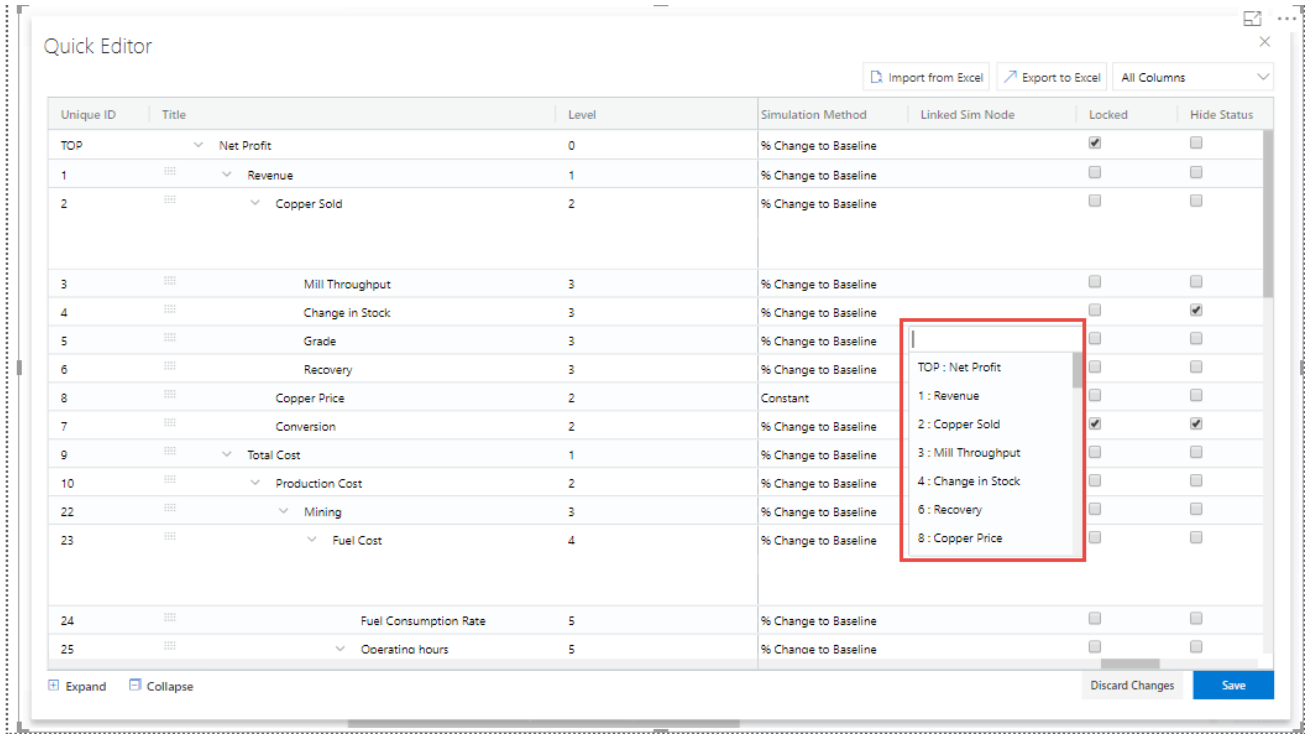


Grid View Edit for Primary Data



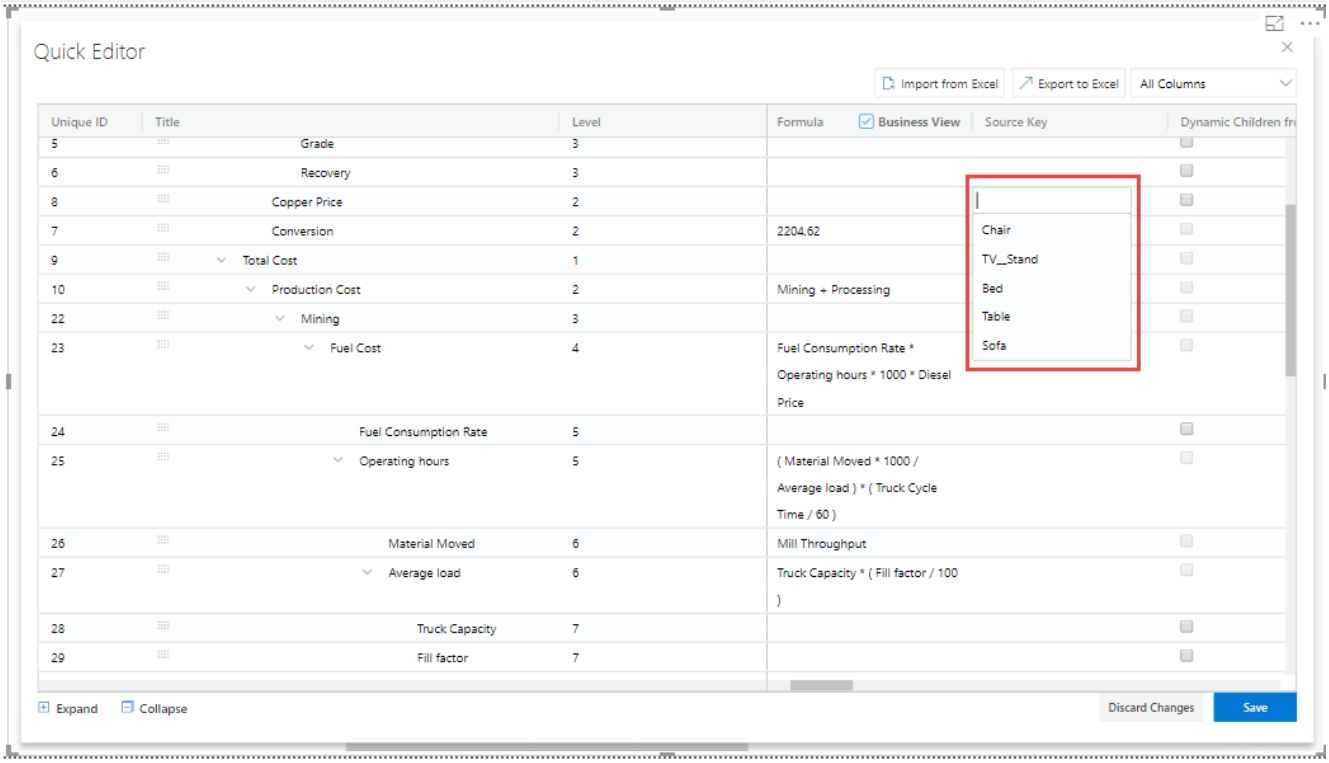
Grid View Edit for Comparison Data

The Node Search for the columns Linked Node, Linked Simulation Node and Weighted Average Node in the Data Grid will be in Drop Down List and the user can select the appropriate Node from the Drop Down List. For our example, the Node Search for the Linked Simulation Node has been done (see Figure below).



Node Search for Linked Simulation Node Column

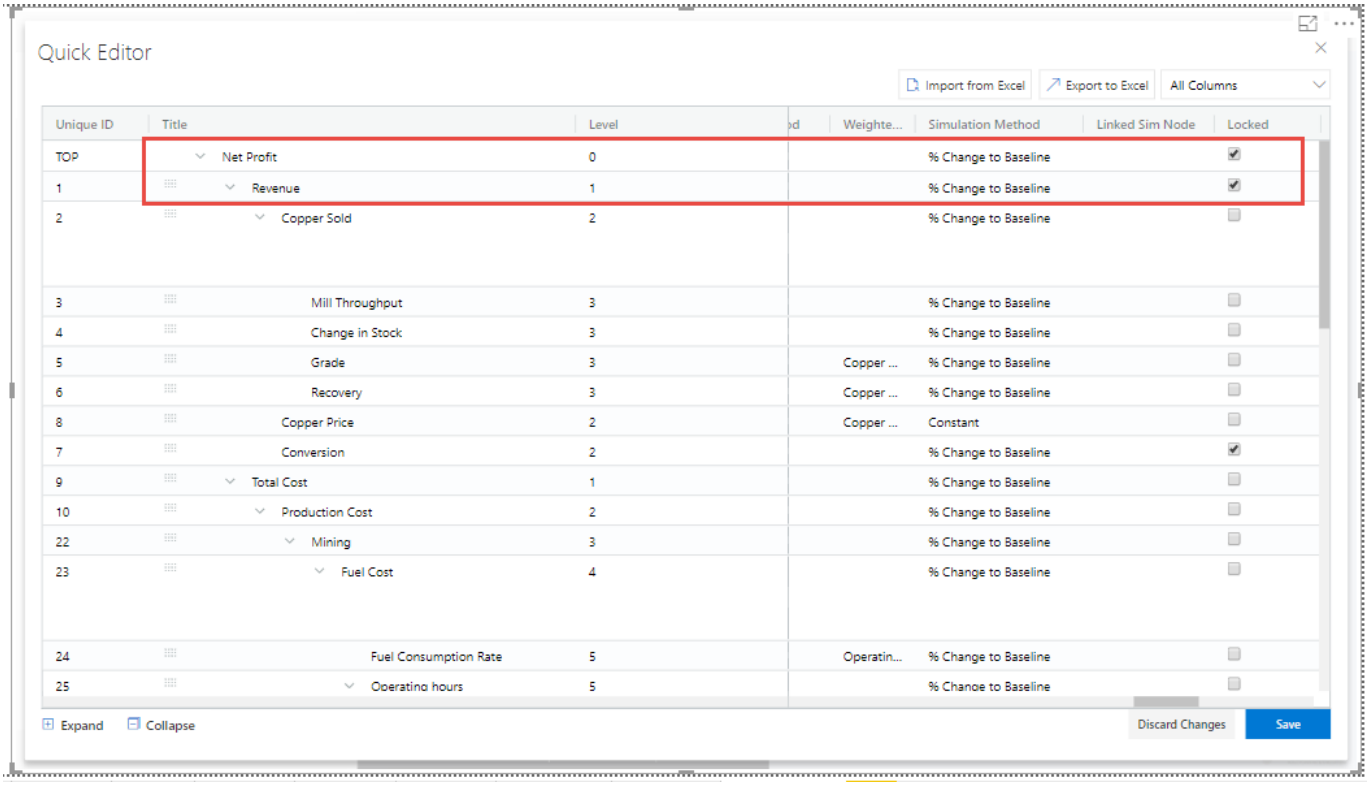
Similarly the Node Search for the Source Key Column will be in Drop Down List showing the Nodes from the assigned Data Source and the user can select the appropriate Node from the Drop Down List (see Figure below).



Node Search for Source Key Column

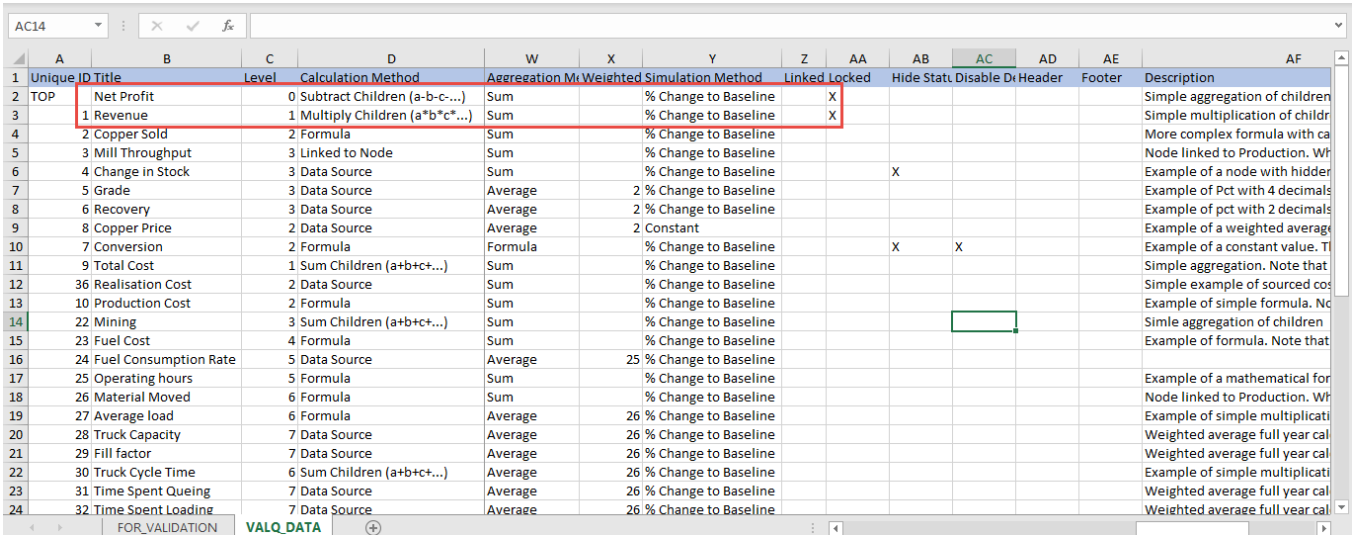
There is an option to lock the simulation for the Node in the Grid View. The same function can be also done in the exported Excel File and the Excel file can be imported in the Grid to see the updates done for the locked simulation.

The below Figure shows the Locked Simulation in the Grid View.



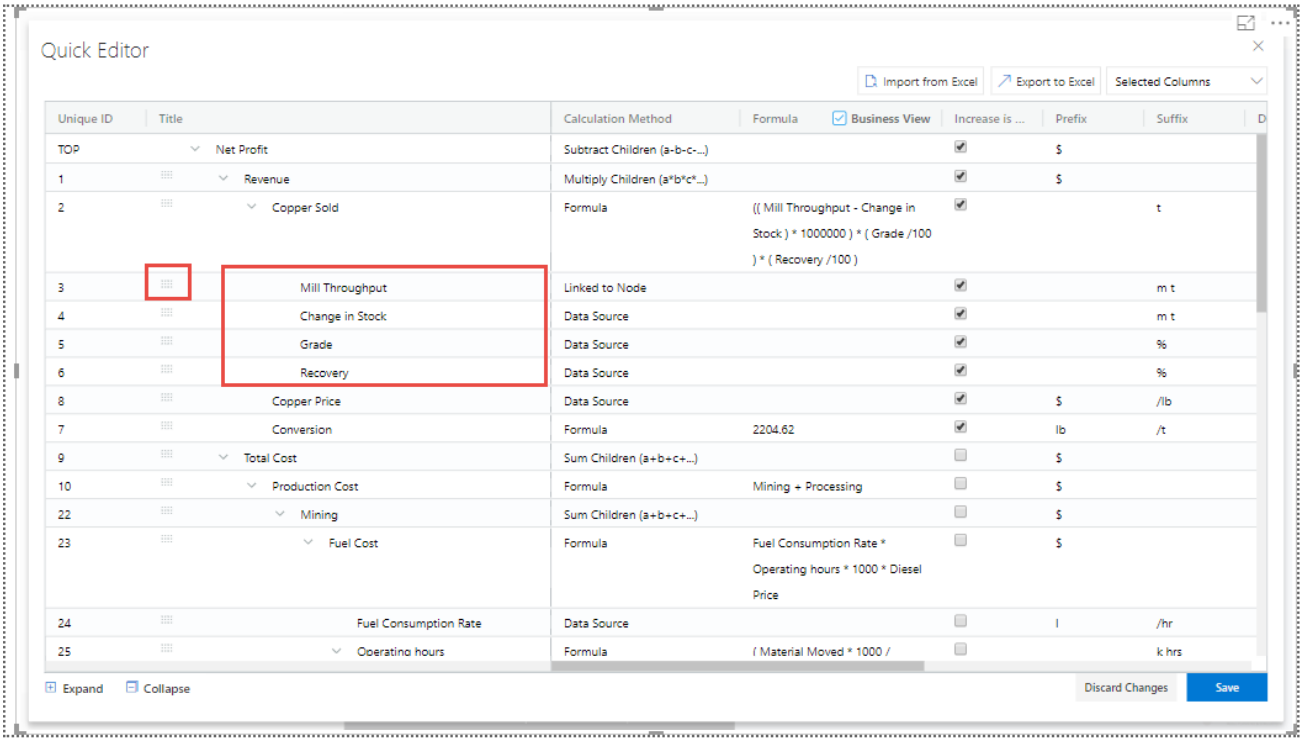
Locked Simulation in Grid View

The below Figure shows the Locked Simulation in the Excel File which can be imported to the Grid view.



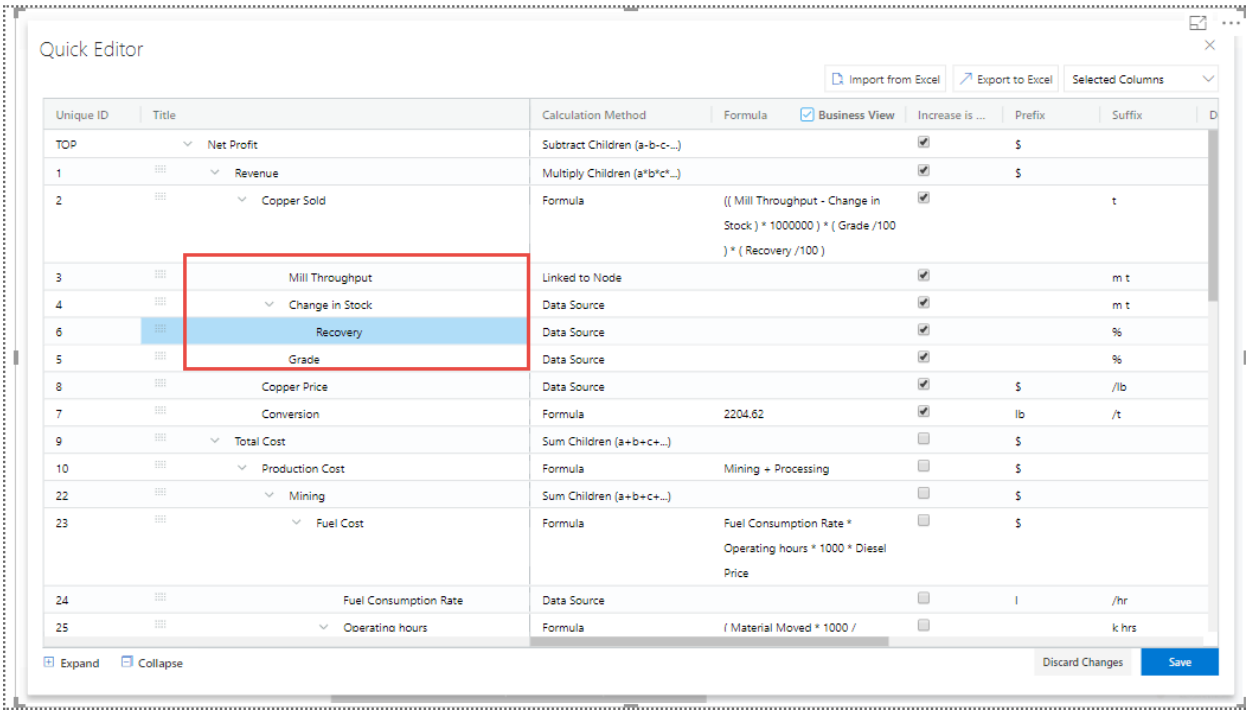
Locked Simulation in Excel File

The rows can be reordered for the child nodes which exists under a Parent Node. The below Figure shows the Grid view before reordering the child nodes.



Grid view before reordering the child nodes

The below Figure shows the Grid view after reordering the child nodes.



Grid view after reordering the child nodes

Additional Properties of Node Tab

Area	Property	Description
General	Unique ID	This property shows the Unique ID for the Node and it can be edited.
	Title	This property sets the Title for Node.
	Title Prefix when outside Tree	This property sets the Title Prefix for the Node when outside the Tree.
Configuration	Calculation Method	This property sets the Calculation Method for the Node. The options are Data Source, Sum Children (a+b+c….), Subtract Children (a-b-c….), Multiply Children (a*b*c….), Divide Children (a/b/c….), Formula, Linked to Node, Manual and Templated based on other node. **Note:** When the Calc. Method is selected as Linked to Node option, then you can select the desired Node from the Nodes List.
	Source Key	This property sets the Source Key for the Node. You can map the Node value with data source using the source key.
	Time Aggregation	This property sets the Time Aggregation for the Node. The options are Sum of Periods, Average, Formula, Last and Cumulative.
	Desired Trend	This property sets the Desired Trend for the Node. The options are Decrease and Increase. For example, the desired Trend for the Revenue usually increases and the desired Trend for the Cost decreases.
	Value Range	This property sets the Value Range for the Node.
	Dynamic Children from Data Source	If the referenced data source row is a hierarchy node with children or has dimension below in the data source, the

Area	Property	Description
		children can be automatically generated based on the data source. If Node Mapping selected is “Automatic based on text” then any special character and space in the member text will be replaced by “__”(double underscore) in the Unique Id for the Node. Eg. “Total Cost” will become “Total__Cost”.
	Dynamic Children Simulation	Children settings will generally be cascaded from the configuration of this node except visualisation, calculation method and simulation. The children will always be with visual style normal. Aggregation formulas can dynamically be generated and simulation feature set based on the below options like All, Nodes w/o children and None.
Display	Node display	This property decides on how the Node will be displayed in the Tree Widget. The options are Show, Derived and Hidden.
	Scale	This property sets the Scale for the Node. The options are None, User Selected, 0m, 0k and Pct.
	Value Decimal Places	This property sets the Value Decimal Places for the Node. The range is from 0 to 7.
	Value Prefix	This property sets the Prefix Value for the Node.
	Value Suffix	This property sets the Suffix Value for the Node.
	Simulation	This property allows the real time change to nodes value and its effect on others.
	Status Colors	This property shows the colored status bar that indicates positive or negative trend.
	Details On Click	This property shows the detail page upon clicking.
Simulation	Enable Simulation	This property enables or disables the Simulation.

Area	Property	Description
	Default Method	This property sets the Default Method for the Simulation. The options are . Change Percentage: % Change applied to baseline in future periods. . Manual: Values set manually for each period. . Growth Percentage: % Growth applied to baseline in future periods. . Constant: Constant Value for future periods.
	Linked Simulation	Using this property, you can select the desired Node from the Nodes List for Link Simulation.
Business Definition		This information will be included in each node's details page (open by clicking on the node in the tree widget). They are listed as follows: . Description: This property sets the Description for the Node. . Header: This property sets the Header for the Node. . Footer: This property sets the Footer for the Node. . Technical Notes: This property sets the Technical Notes for the Node.

Additional Properties of Node Tab

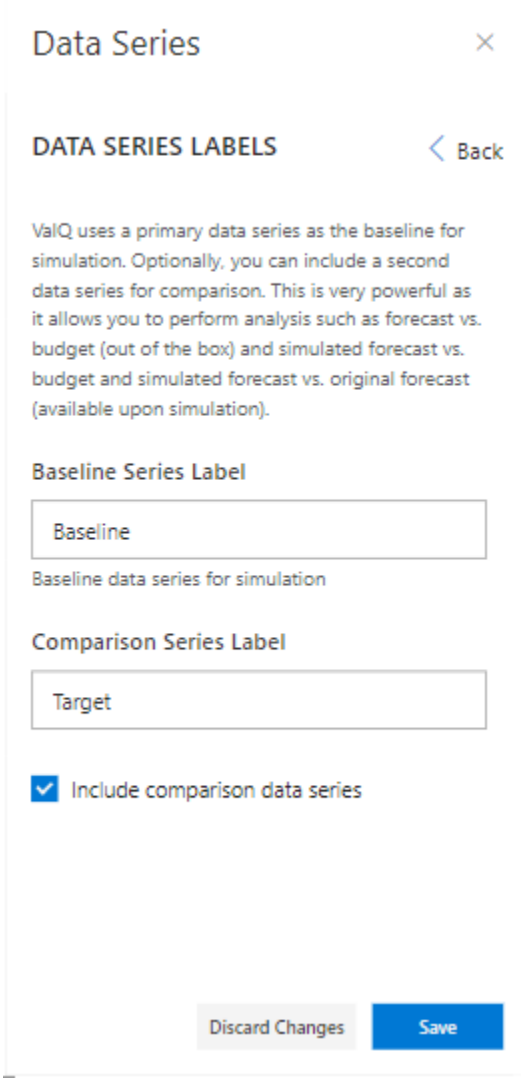
Data Series Tab

Using the “Data Series” Tab, you will be able to configure the Data settings for the Tree created in ValQ. There are 6 different options as listed below to configure the data settings for the Tree.

1. Data Series Labels
2. Time Period Labels
3. Time Aggregation Labels
4. Periods of Interest
5. Node Mapping
6. Data Manager

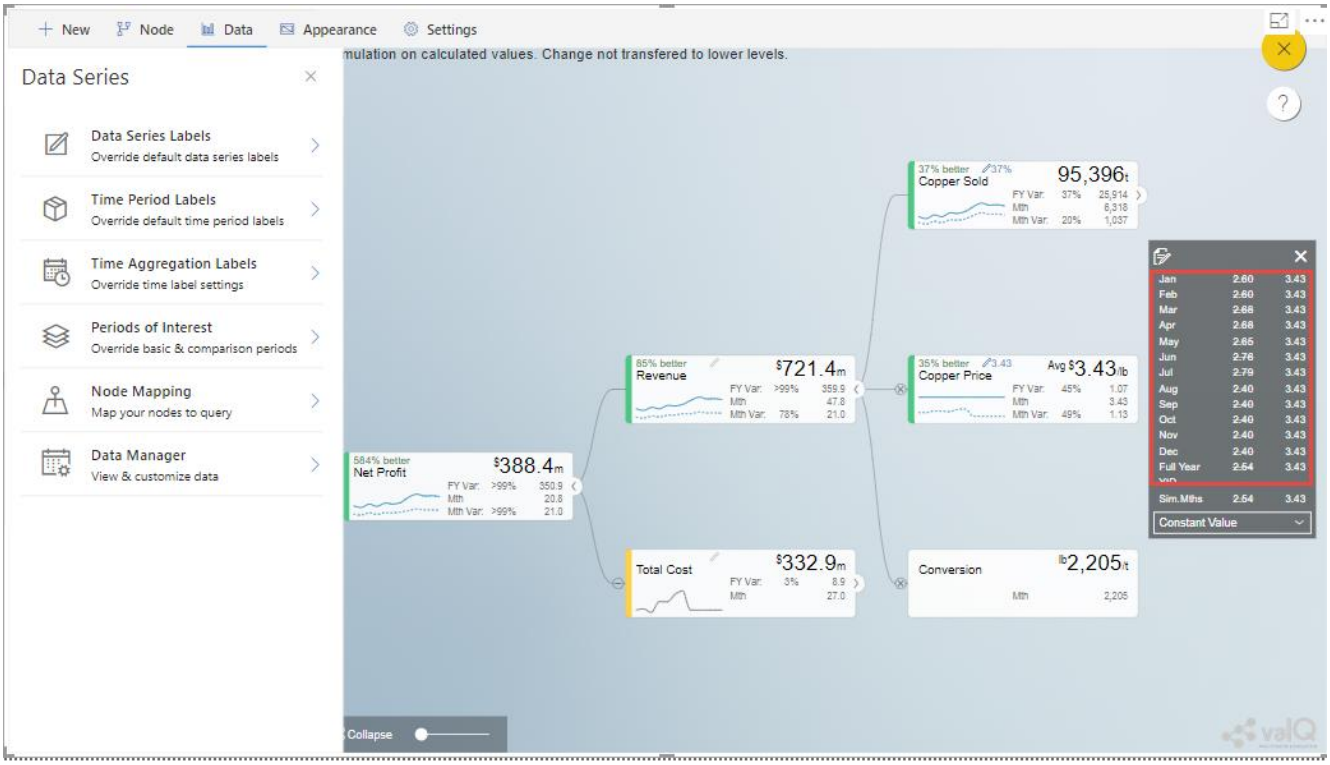
Data Series Labels

Using the option “Data Series Labels”, you will be able to configure the Baseline Series Label, Comparison Series Label and activate the option “Include Comparison Data Series” using Comparison Series Label (see Figure below).



Data Series Tab – Data Series Labels

Based on the above configuration, you will be able to view the ValQ screen as shown below.

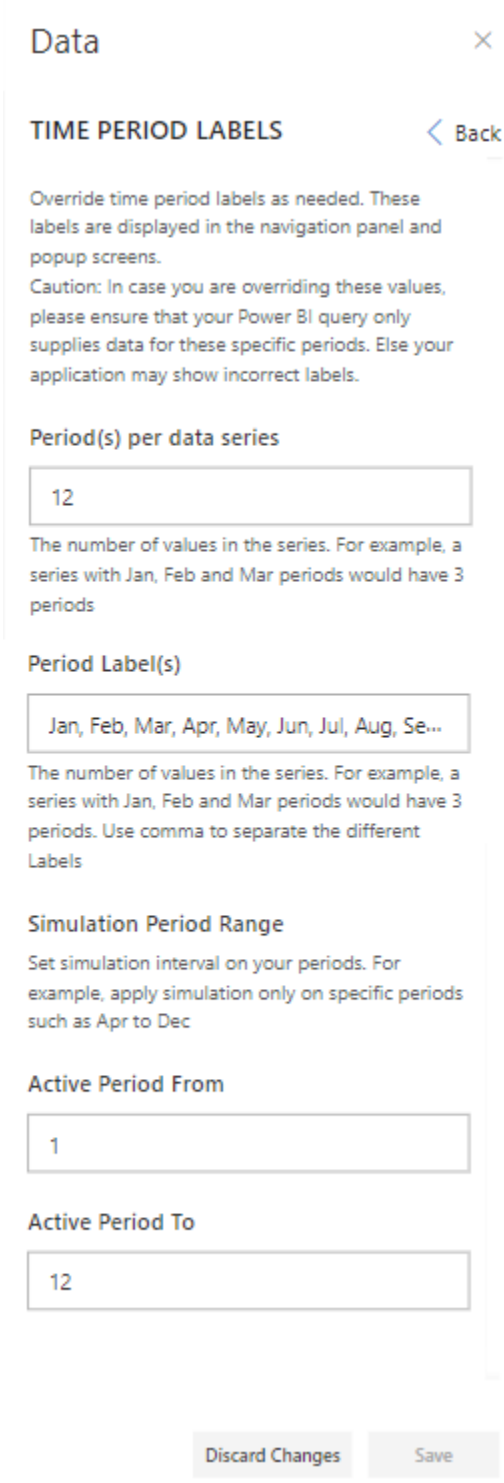


ValQ screen with Data Series Labels

You can observe from the above Figure that after simulating the Node Copper Price, you will be able to view the Baseline data in comparison with Target data.

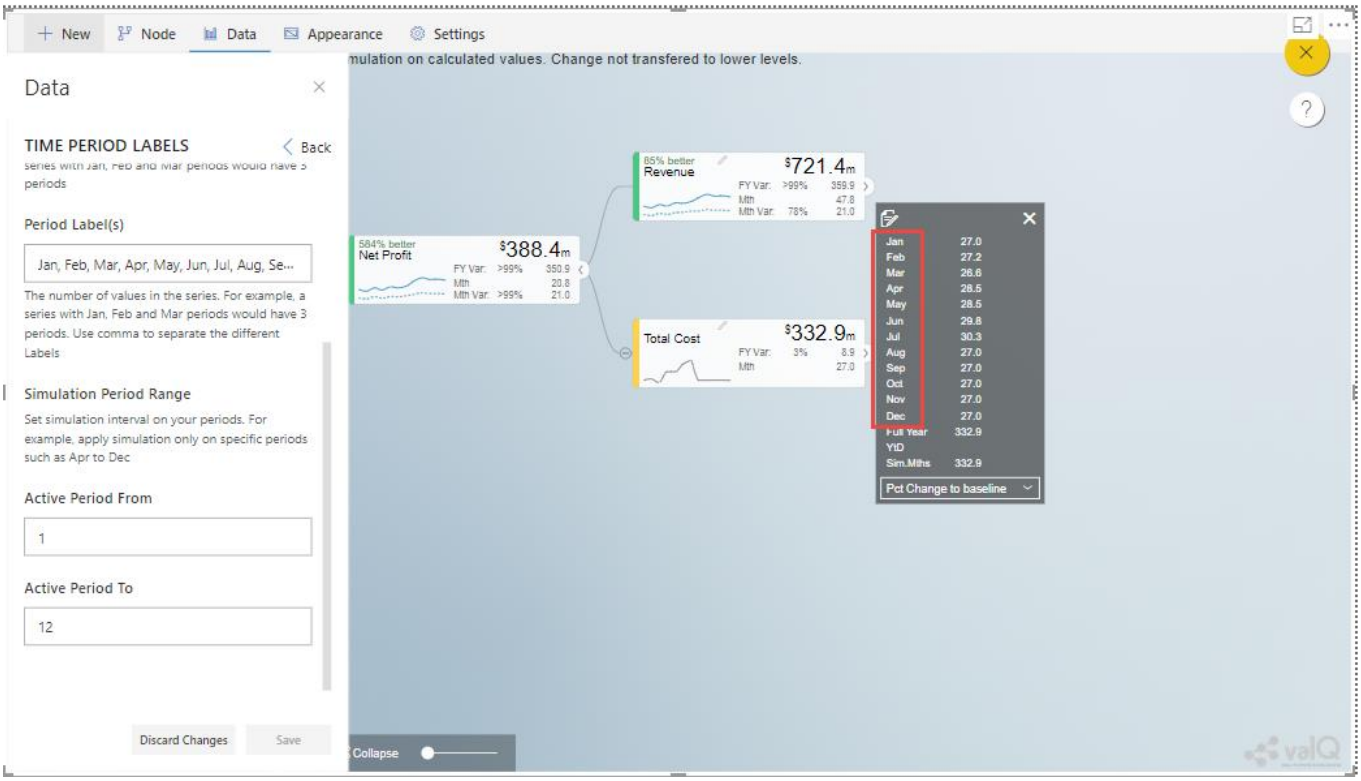
Time Period Labels

Using the option “Time Period Labels”, you will be able to configure the Period Labels, Simulation Period Range, Active Period From and Active Period To settings (see Figure below).



Data Series Tab – Time Period Labels

Based on the above configuration, you will be able to view the ValQ screen as shown below.

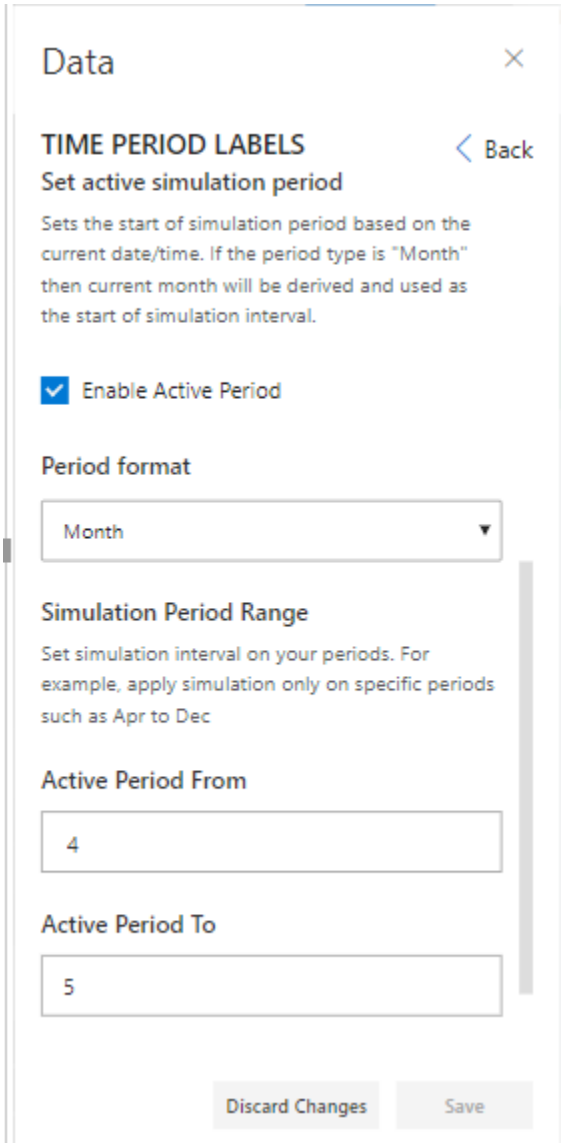


ValQ screen with time period labels

From the above Figure, you can observe that the Node Total Cost shows the Time Period Labels from January Month till December Month based on the configuration.

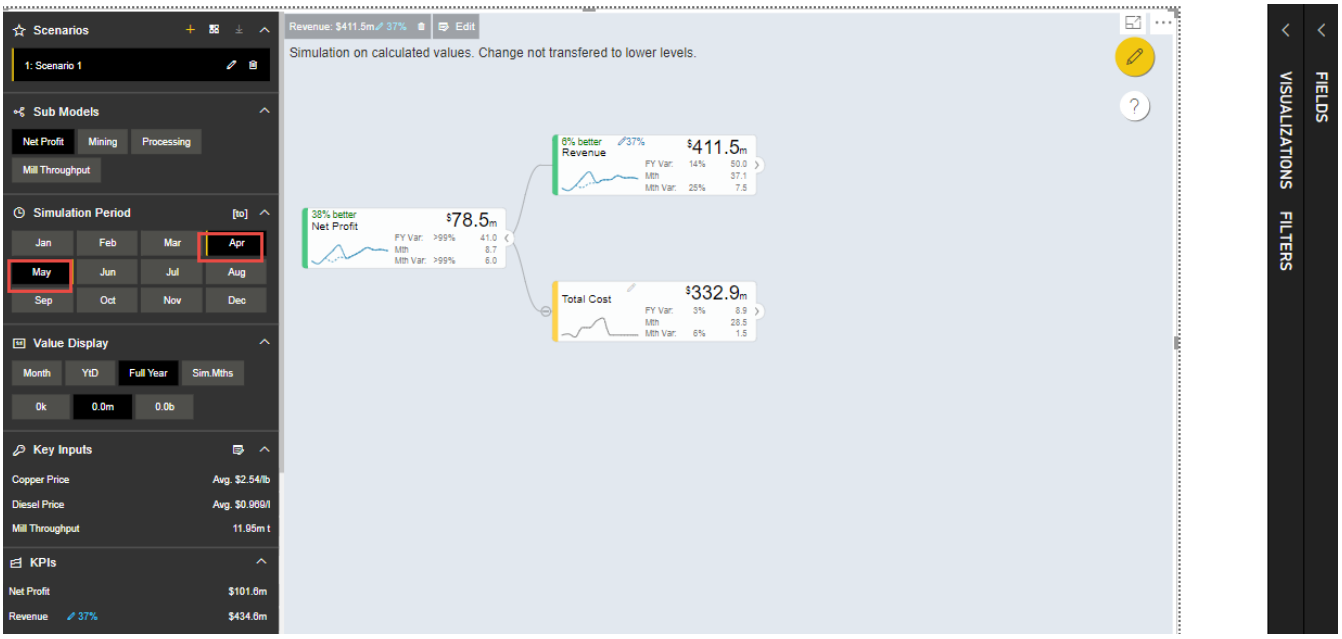
Setting Active Period for Simulation

In the Data Series Tab, you will be able to set the active period for simulation (see Figure below). You can observe that the property Enable Active Period is activated and the Simulation Period is set from month 3 to month 5.



Set Active Period for Simulation

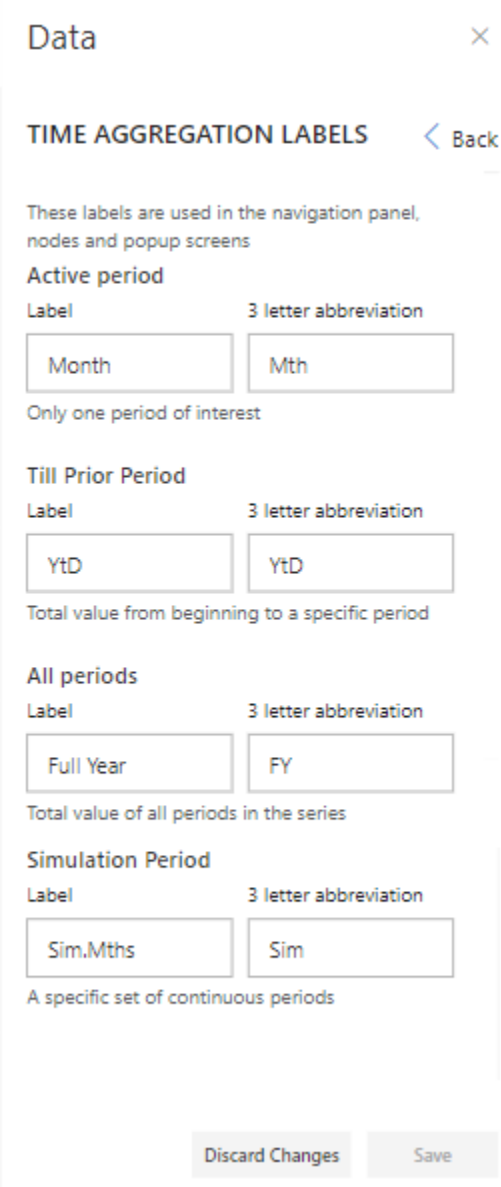
Based on the above configuration, you will be able to view the Navigation Panel as shown in the below Figure. You can observe that the Simulation Period in the Navigation Panel is active from April to May.



Configured Simulation Period

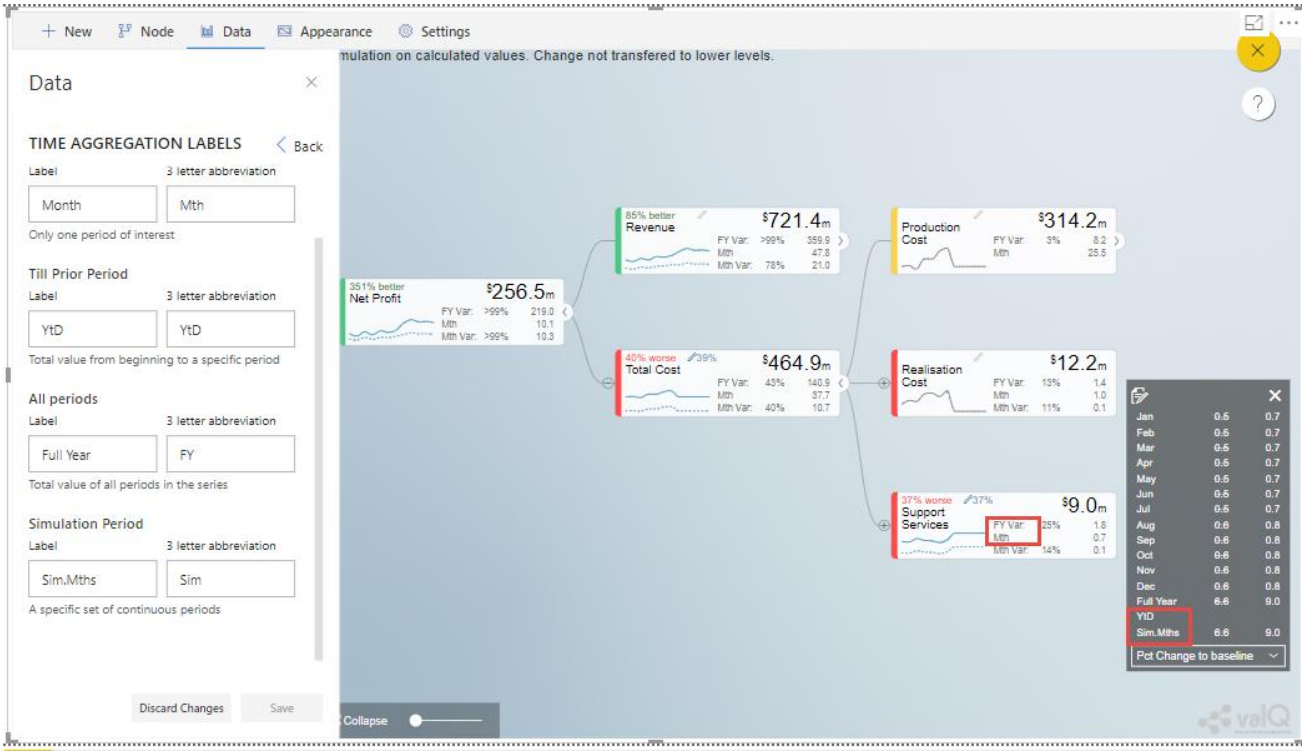
Time Aggregation Labels

Using the option “Time Aggregation Labels”, you will be able to configure the Active Period, Till Prior Period, All Periods and Simulation Period settings (see Figure below).



Data Label – Time Aggregation Labels

Based on the above configuration, you will be able to view the ValQ screen as shown below.

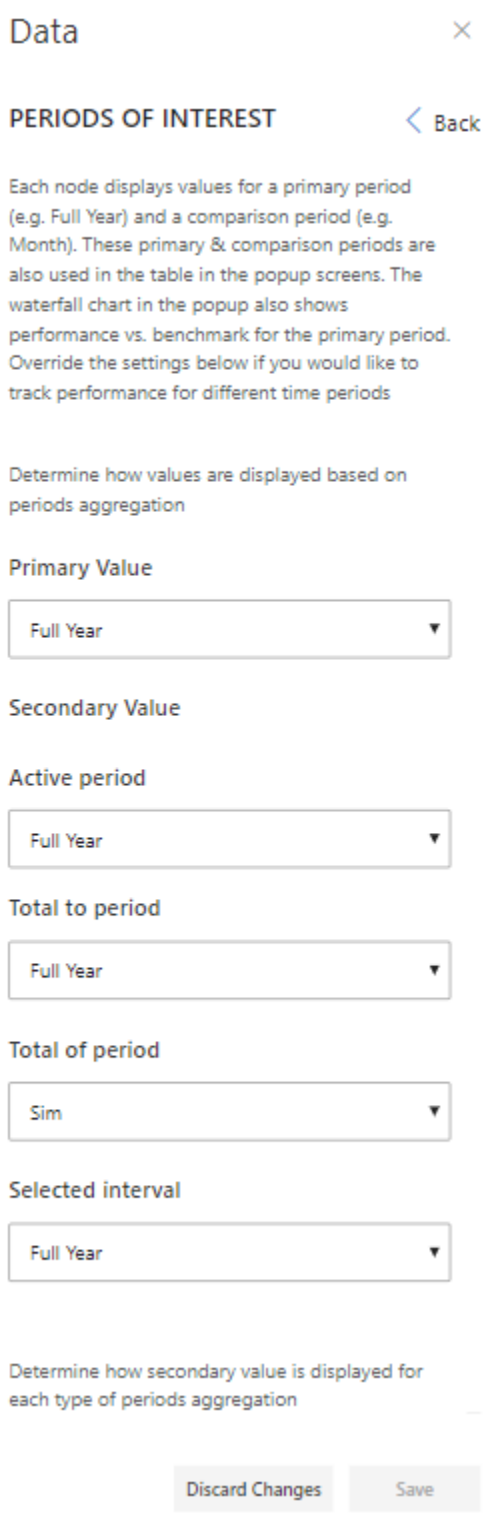


ValQ screen with time aggregation labels

From the above Figure, you will be able to view the Time Aggregation Labels as highlighted in the ValQ screen.

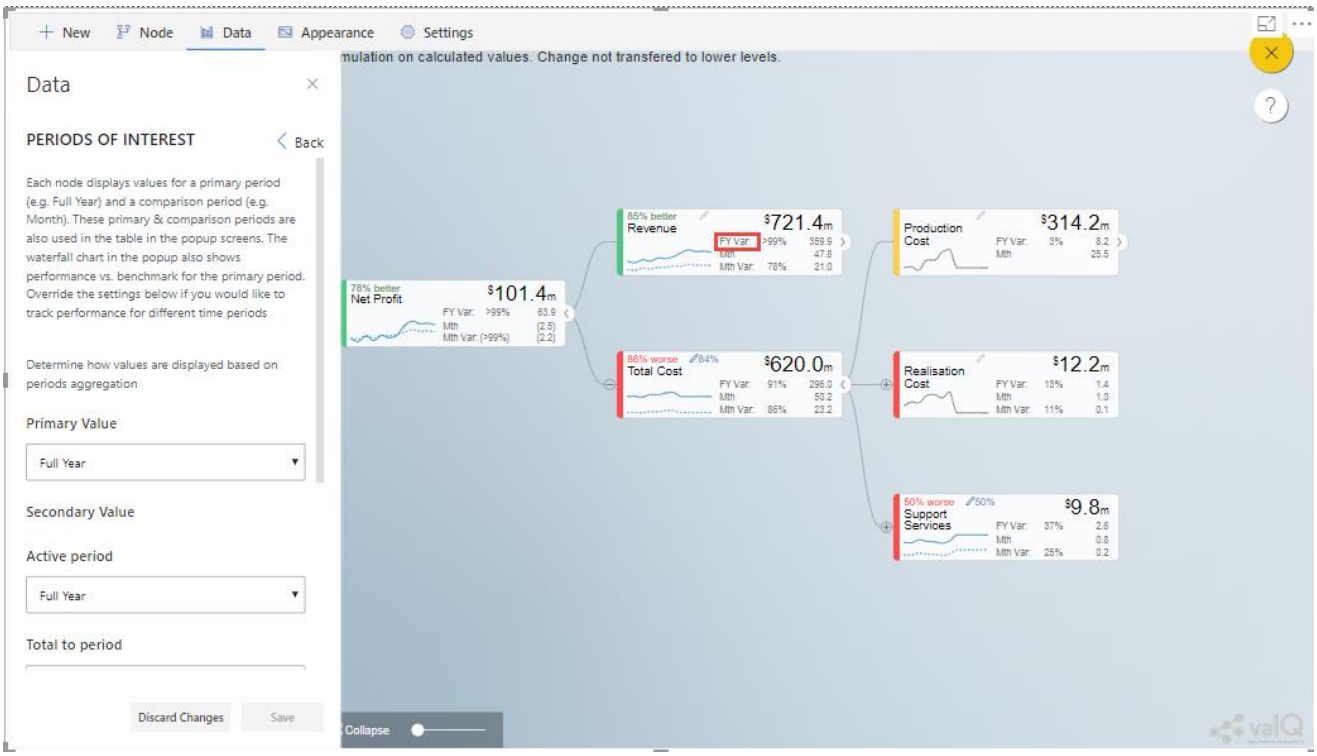
Periods of Interest

Using the option “Periods of Interest”, you will be able to configure the Primary Value with the Secondary Values which involves Active Period, Total to Period, Total of Period and the Selected Interval. (see Figure below).



Data Label – Period of Interest

Based on the above configuration, you will be able to view the ValQ screen as shown below.



ValQ screen with Periods of Interest

From the above Figure, you can observe that the Primary Value “Full Year” is being compared with the simulated secondary values for Active Period, Total to Period, Total of Period and the Selected Interval.

Node Mapping

This setting captures how data from Power BI Queries is mapped to the Nodes in the Tree. These settings are enabled only if your Queries are mapped to this Custom Visual.

In the Node Mapping settings in ValQ, there are 3 options available as listed below:

1. Automatic mapping based on whole field value - For example, you can use this option if the field value exactly matches your Node’s unique ID (e.g., ‘Canada’)
2. Automatic mapping based on a key-text paired field value - For example, you can use this option if your field has a key-text format (e.g., ‘CA:Canada’), and your Node’s ID corresponds to a key (e.g., ‘CA’).
3. Manual Mapping – Using this option, you can map each Node manually.

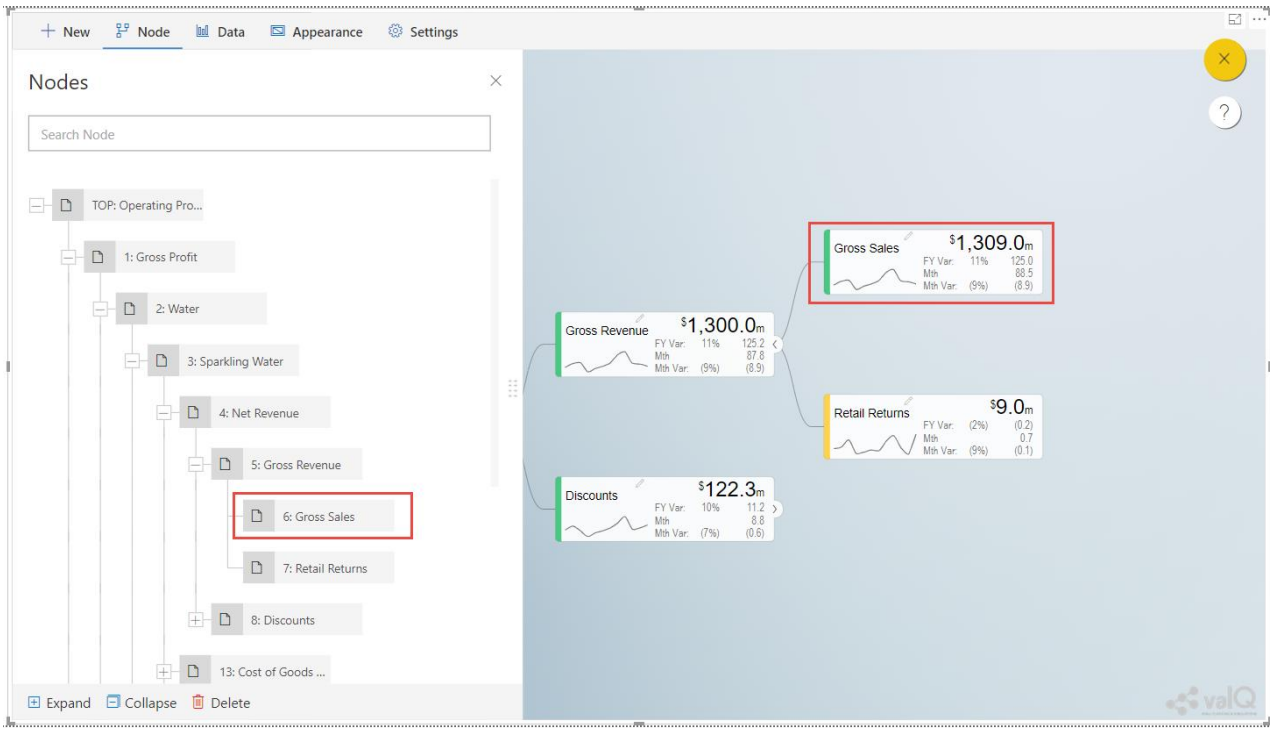
For our example, we would explore the settings for Automatic mapping based on a key-text paired field value. The data source which is assigned for the Node Mapping is shown below:

	A	B	F	G	H	I	O	P
1	Product	Account	NodeID	Category	Period_MON	Period_MON-YYYY	Actual	Forecast
2	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	JAN	JAN 2019	97476143.81	88536743.86
3	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	FEB	FEB 2019	120428764.6	109218310.6
4	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	MAR	MAR 2019	126337614.3	114865266.8
5	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	APR	APR 2019	64623610.11	64276344.9
6	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	MAY	MAY 2019	84406452.11	82172891.45
7	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	JUN	JUN 2019	98719250.67	94333806.35
8	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	JUL	JUL 2019	97476143.81	112348556.7
9	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	AUG	AUG 2019	120428764.6	157672630.9
10	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	SEP	SEP 2019	126337614.3	173765053.7
11	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	OCT	OCT 2019	64623610.11	111049140.7
12	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	NOV	NOV 2019	84406452.11	106309147.8
13	Sparking Water	Gross Sales	6	6:SparkingWater_GrossSales	DEC	DEC 2019	98719250.67	94472106.94
14	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	JAN	JAN 2019	787631.95	714202.87
15	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	FEB	FEB 2019	780932.46	739345.31
16	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	MAR	MAR 2019	941688.6	861355.66
17	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	APR	APR 2019	674873.8	629021.23
18	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	MAY	MAY 2019	699123.06	654817.97
19	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	JUN	JUN 2019	724391.73	690534.06
20	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	JUL	JUL 2019	787631.95	677766.54
21	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	AUG	AUG 2019	780932.46	839016.57
22	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	SEP	SEP 2019	941688.6	934719.71
23	Sparking Water	Merchandise Returns	7	7:SparkingWater_MerchandiseReturns	OCT	OCT 2019	674873.8	724312.68

Excel Data Source with Node Mapping

From the above Figure, you will be able to view the Node ID as 6 and Category as 6:SparklingWater_GrossSales.

Based on the above configuration, you will be able to view the ValQ screen as shown below.



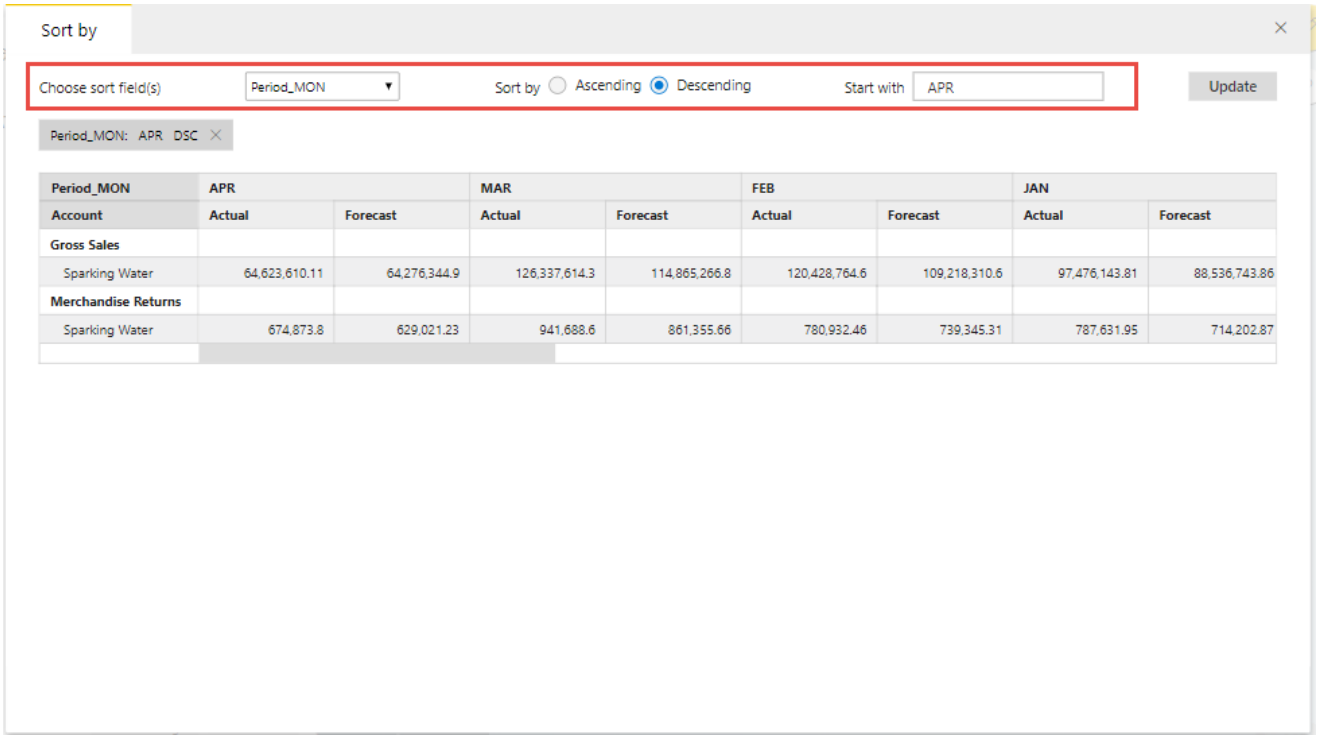
ValQ screen with Node Mapping

From the above Figure, you will be able to observe that the key-text format here is 6:SparklingWater_GrossSales.

You can also undergo Manual Data Override by using the option “Use Manual Data configured in the Nodes”.

Data Manager

Using the Data Manager settings, you will be able to view and customize your Data Source. You will be able to select the Sort fields, sort the data with Ascending or Descending Order and select the Start With field with the required Month (see Figure below).



Period_MON	APR		MAR		FEB		JAN	
Account	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
Gross Sales								
Sparking Water	64,623,610.11	64,276,344.9	126,337,614.3	114,865,266.8	120,428,764.6	109,218,310.6	97,476,143.81	88,536,743.86
Merchandise Returns								
Sparking Water	674,873.8	629,021.23	941,688.6	861,355.66	780,932.46	739,345.31	787,631.95	714,202.87

Data Manager Settings

Additional Properties of Data Series Tab

Area	Property	Description
Data Series Labels		ValQ uses a primary data series as the baseline for simulation. Optionally, you can include a second data series for comparison. This is very powerful as it allows you to perform analysis such as forecast vs. budget (out of the box) and simulated forecast vs. budget and simulated forecast vs. original forecast (available upon simulation).
	Baseline Series Label	This series sets the Baseline data series for simulation
	Comparison Series Label	This series can be used to compare against primary series. For example, primary series are forecasted values for each period, while comparison series are budgeted values
	Include comparison data series	This property activates the Comparison Series Label option.
Time Period Labels		This property overrides the time period labels as needed. These labels are displayed in the navigation panel and popup screens. **Caution**: In case you are overriding these values, please ensure that your Power BI query only supplies data for these specific periods. Else your application may show incorrect labels.
	Period(s) per data series	This property represents the number of values in the series. For example, a series with Jan, Feb and Mar periods would have 3 periods
	Period Label(s)	This property represents the number of values in the series. For example, a series with Jan, Feb and Mar periods would have 3 periods. Use comma to separate the different Labels.
	Set Active Simulation Period	This property sets the Start of Simulation Period based on the current date/time. If the period type is “Month” then current month will be

Area	Property	Description
		derived and used as the Start of the Simulation Interval.
	Enable Active Period	This property enables/disables the Active Period for the Simulation.
	Period Format	This property sets the Period Format for the Simulation. The options are Day, Week, Month and Quarter.
	Simulation Period Range	This property sets the simulation interval on your periods. For example, apply simulation only on specific periods such as Apr to Dec.
	Active Period From	This property sets the Active Period From value.
	Active Period To	This property sets the Active Period To value.
Time Aggregation Labels		These labels are used in the navigation panel, nodes and popup screens.
	Active period	This property sets only one period of interest. A Label and a three letter abbreviation can be provided for this property.
	Till Prior Period	This property sets Total value from beginning to a specific period. A Label and a three letter abbreviation can be provided for this property.
	All periods	This property sets Total value of all periods in the series. A Label and a three letter abbreviation can be provided for this property.
	Simulation Period	This property sets a specific set of continuous periods. A Label and a three letter abbreviation can be provided for this property.
Periods of Interest		Each node displays values for a primary period (e.g. Full Year) and a comparison period (e.g. Month). These primary & comparison periods are also used in the table in the popup screens. The waterfall chart in the popup also shows performance vs. benchmark for the primary period.

Area	Property	Description
		The Periods of Interest determines how the values are displayed based on periods aggregation.
	Primary Value	This property sets the Primary Value for the Node. The options are Month, YtD, Full Year and Sim.Mths.
	Secondary Value	This property determines how secondary value is displayed for each type of periods aggregation.
	Secondary Value – Active Period	This property sets the Secondary Value for the Active Period. The options are YtD, Full Year and Sim.Mths.
	Secondary Value – Total to Period	This property sets the Secondary Value for the Total to Period. The options are Month, Full Year and Sim.Mths.
	Secondary Value – Total of Period	This property sets the Secondary Value for the Total of Period. The options are Month, YtD and Sim.Mths.
	Secondary Value – Selected Interval	This property sets the Secondary Value for the Selected Interval. The options are Month, YtD and Full Year.
Node Mapping		This setting captures how data from Power BI queries is mapped to the nodes in your tree. These settings are enabled only if your queries are mapped to this custom visual.
	Automatic mapping based on whole field value	Use this property if the field value exactly matches your node's unique ID (e.g. "Canada")
	Automatic mapping based on a key-text paired field value	Use this property if your field has a key-text format (e.g. "CA:Canada"), and your node's id corresponds to a key (e.g. "CA")
	Manual Mapping	This property is used to map each node manually.

Area	Property	Description
	Manual Data Override	When this property is enabled, then use manual data configured in the nodes if data for the nodes are missing in the query.
Data Manager		This property is used to view and customize the data.
	Choose Sort Fields	This property sets the Period.
	Sort by	This property sets the Ascending or Descending order for the Period.
	Start with	This property sets the Starting month.

Additional Properties of Data Series Tab

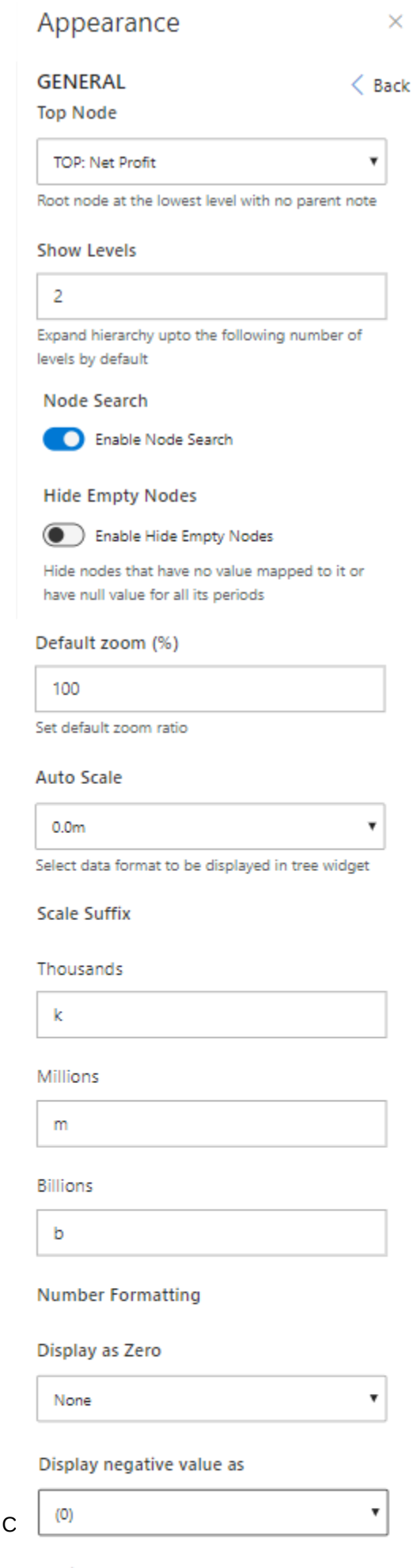
Appearance Tab

Using the “Appearance” Tab, you will be able to configure the Appearance for the Node. There are 4 different options as listed below to configure the Appearance for the Node.

1. General
2. Status Bar
3. Visualization
4. Colors

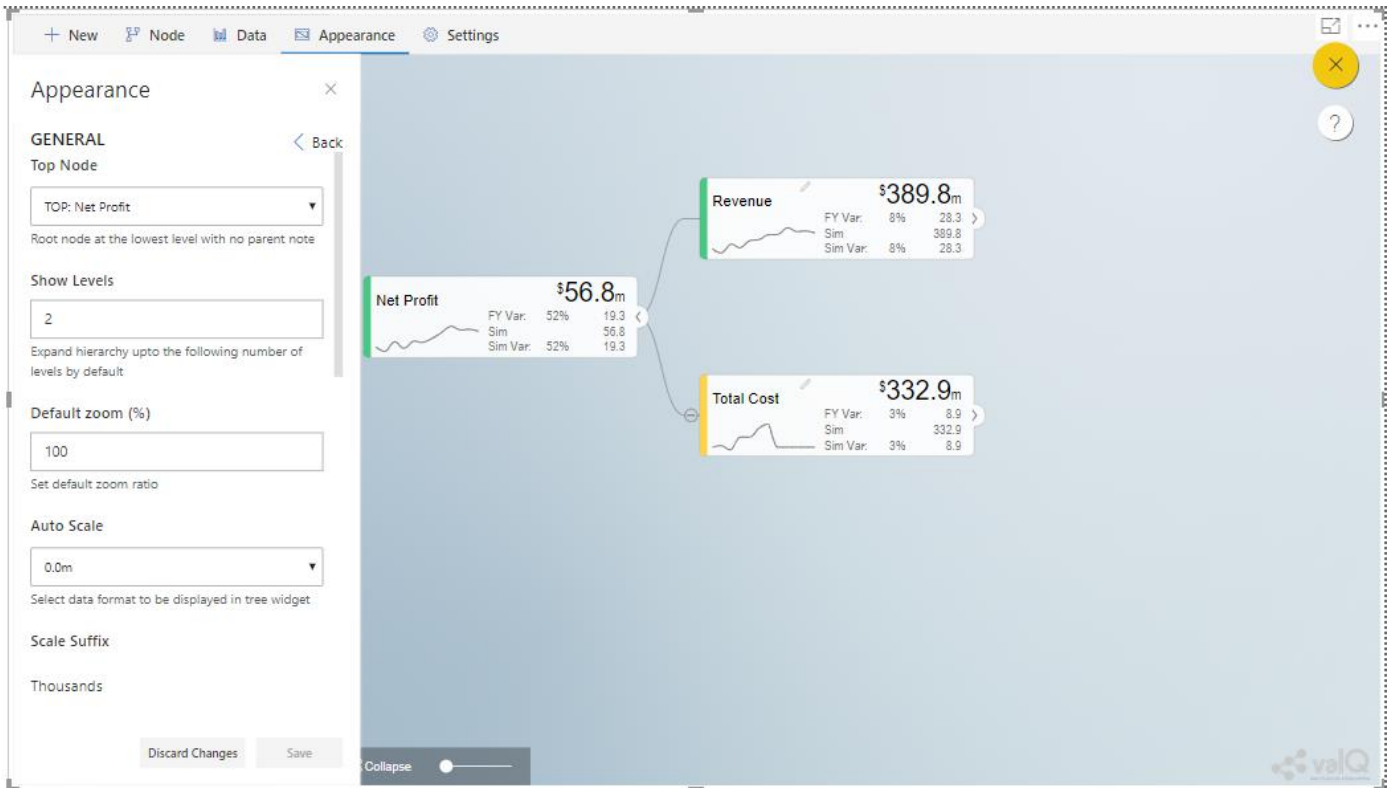
General

In General settings you have the ability to configure the Top Node, setting the display of number of children Nodes for the Top Node, set the zoom ratio for the Node, set the Auto scale for the data format to be displayed in the Tree Widget and configure the scale suffix for the units Thousands, Millions and Billions at the Node level. You will be able to configure the Number Format Settings namely Display as Zero, Display Negative Value as, Decimal Separator and Thousand Separator and provide the Hint information at the top of the canvas (see Figure below).


Appearance
GENERAL
Back
Top Node
TOP: Net Profit
Root node at the lowest level with no parent note
Show Levels
2
Expand hierarchy upto the following number of levels by default
Node Search
Enable Node Search
Hide Empty Nodes
Enable Hide Empty Nodes
Hide nodes that have no value mapped to it or have null value for all its periods
Default zoom (%)
100
Set default zoom ratio
Auto Scale
0.0m
Select data format to be displayed in tree widget
Scale Suffix
Thousands
k
Millions
m
Billions
b
Number Formatting
Display as Zero
None
Display negative value as
(0)

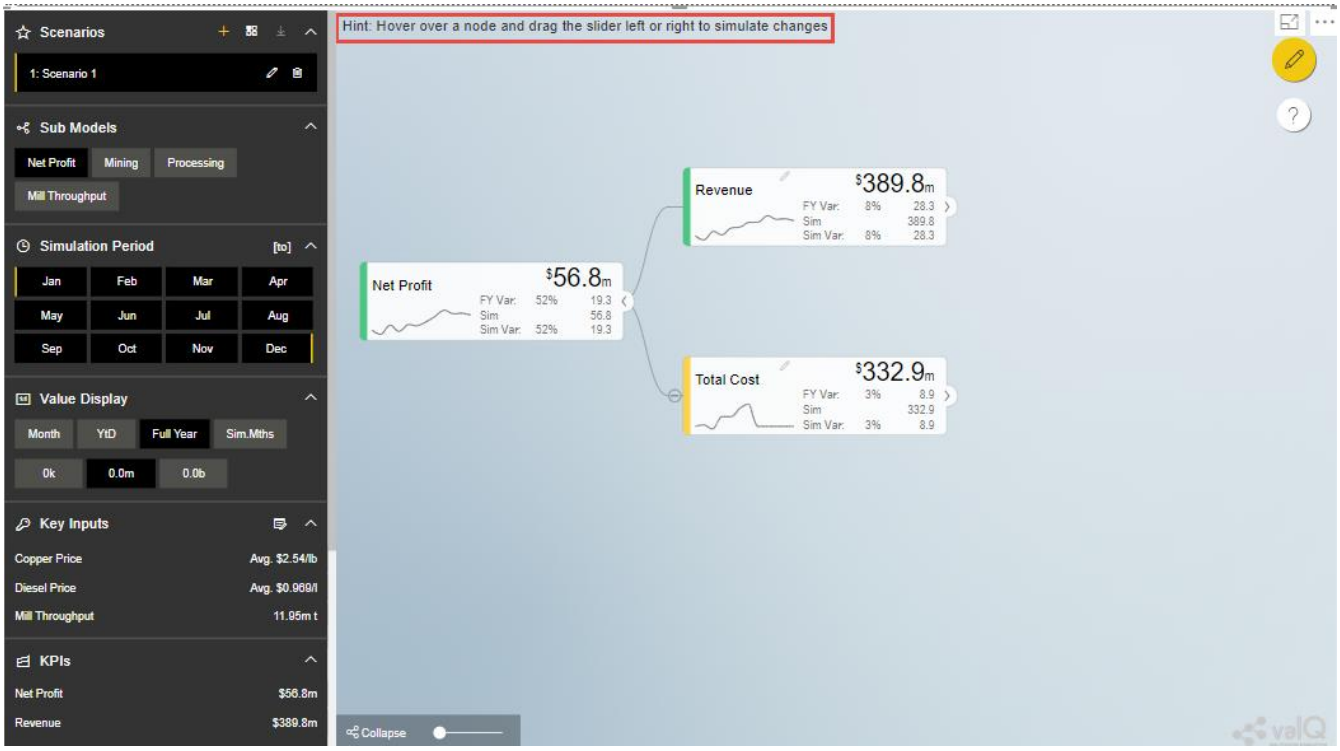
Appearance Tab

Based on the above settings you will be able to view the ValQ screen as shown below.



ValQ screen with configured Appearance settings

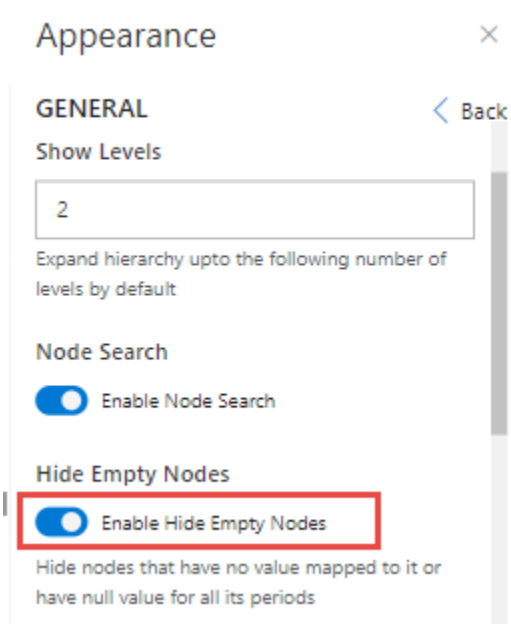
From the above Figure, you can observe that the Top Node “Net Profit” shows only two levels namely Node “Revenue” and Node “Total Cost”. Also by switching to Navigation Panel, you can view the Hint in the canvas before simulation is done (see Figure below).



Hint Details

Hide Empty Nodes

For our example, activate the property Enable Hide Empty Nodes in the Appearance Tab (see Figure below).



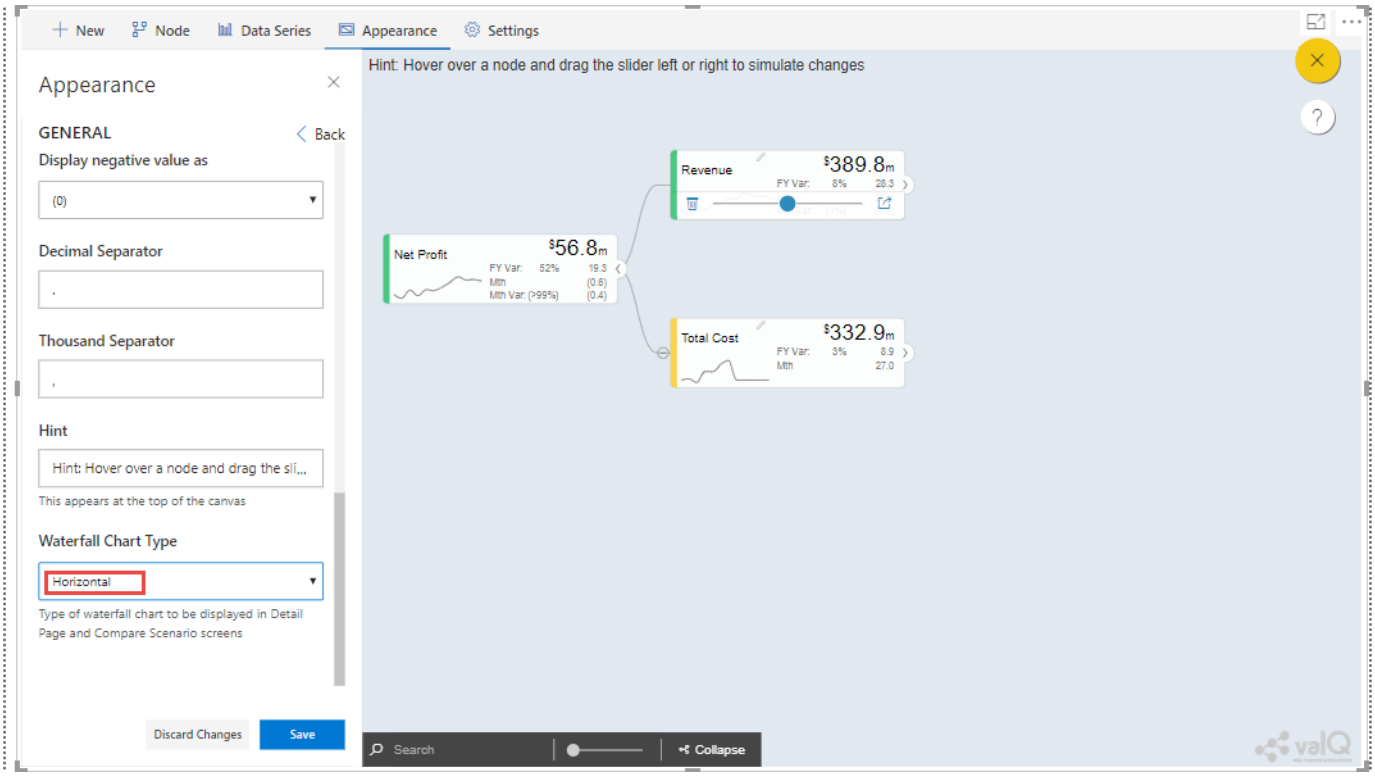
Hide Empty Nodes

The below condition will be applied when the property Enable Hide Empty Nodes is enabled.

When one of the child node has null value, then the specific child node will be hidden. Also when the Writeback Functionality is enabled, then the child with null values will not undergo the writeback functionality.

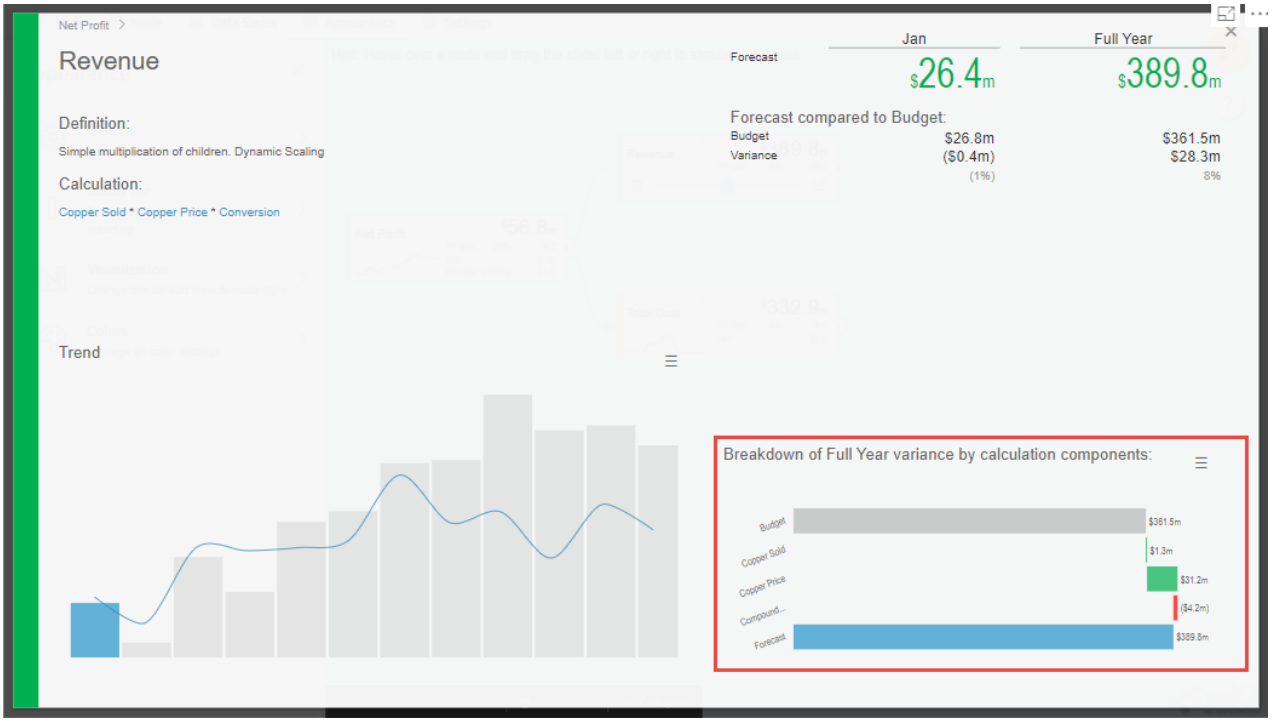
Horizontal Waterfall Chart Type

By default, the Detail page will be displayed with the Vertical Chart type. You can also select the “Horizontal” Waterfall Chart Type by navigating to the appearance Tab as shown in the below Figure.



Appearance Tab with Horizontal Waterfall Chart Type selection

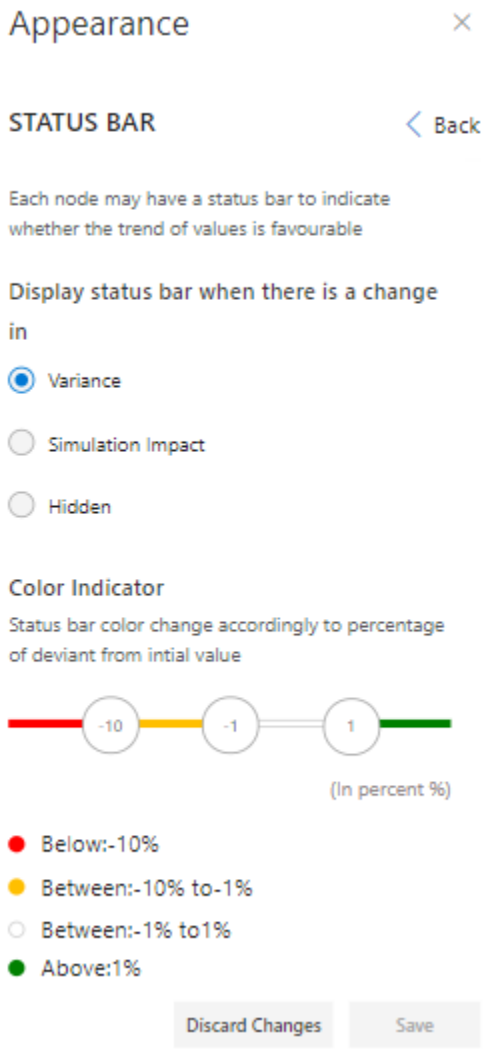
Based on the above configuration, you will be able to view the Detail Page showing the Horizontal Waterfall Chart (see Figure below). For our example, the Revenue Node in the above Figure has been clicked to view the Detail Page.



Detail Page of the Revenue Node with Horizontal Waterfall Chart Type

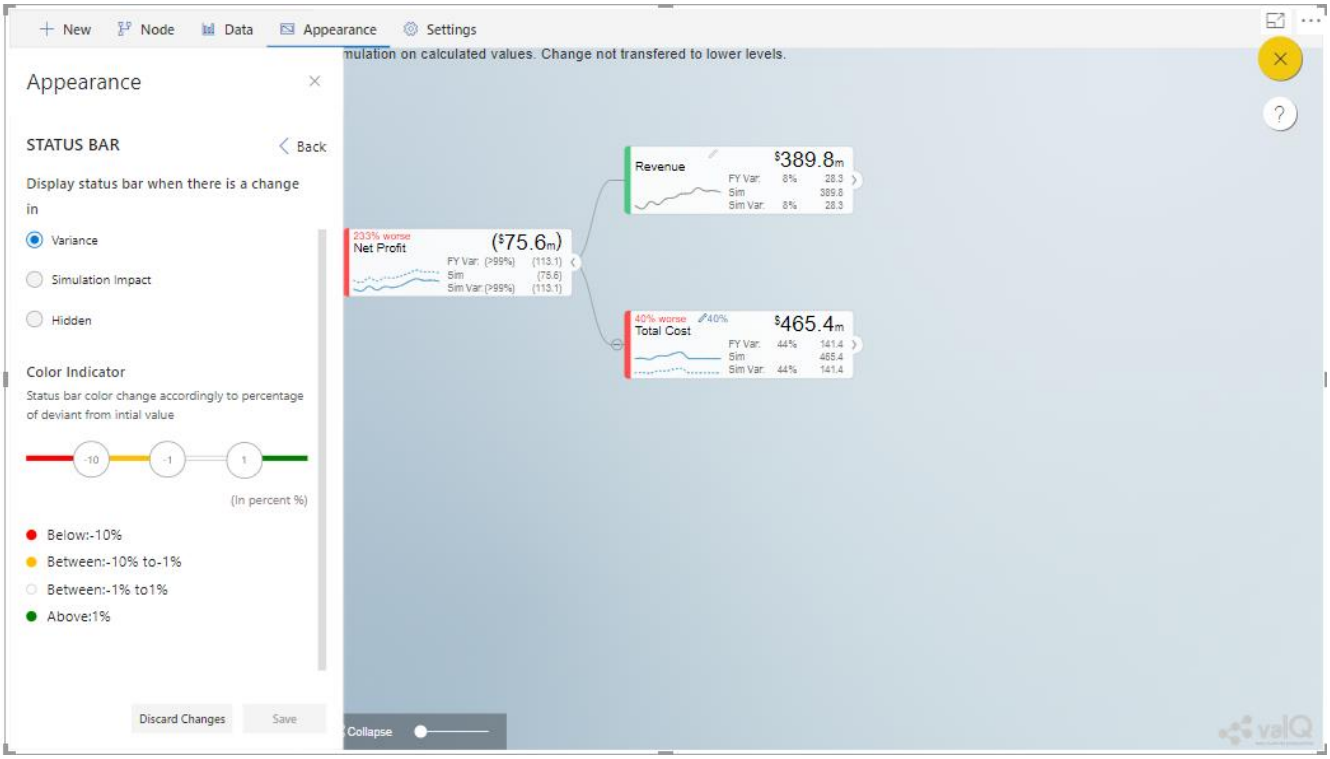
Status Bar

In Status Bar settings, you have the ability to define the status bar for the Node and also define the meaning for the statuses. Each Node will display the status bar when there is a change in Variance, Simulation Impact and Hidden conditions (see Figure below). The status bar color changes based on the percentage of deviant from the initial value.



Status Bar for the Node

Based on the above settings you will be able to view the ValQ screen having Nodes with different statuses bar (see Figure below).

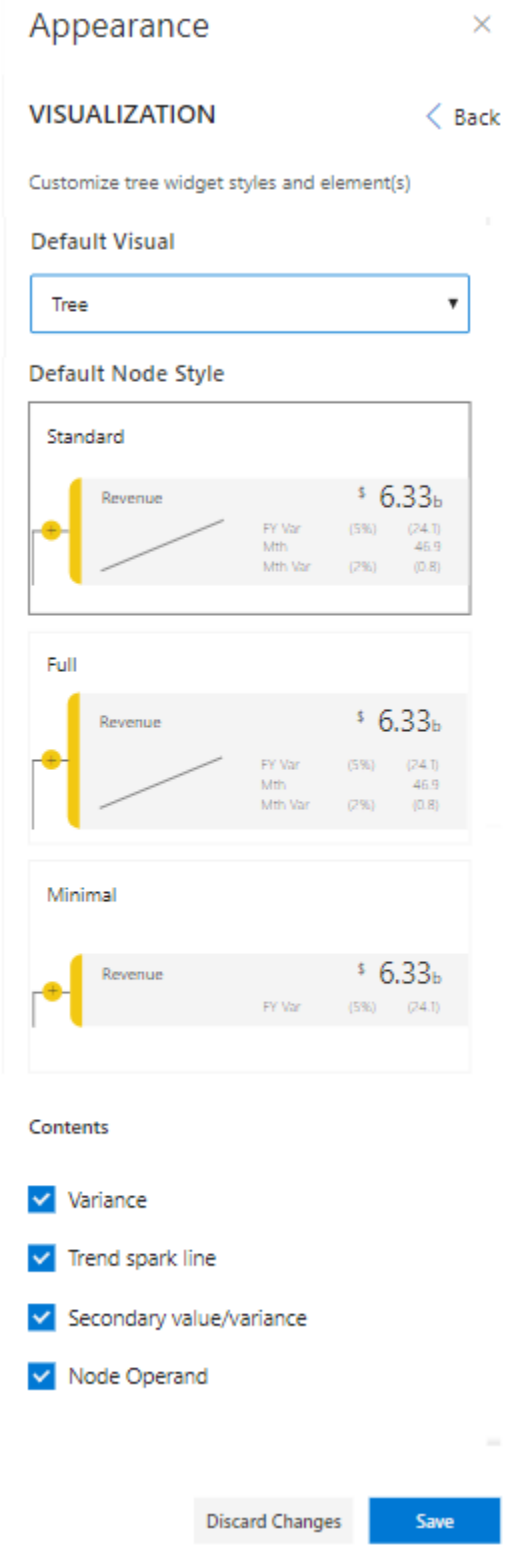


Nodes with different status bars

From the above Figure, you will be able to observe that the Nodes “Net Profit” and “Total Cost” has red status bar since the variance values for both the Nodes are below -10%. The Node “Revenue” has the green status bar since the variance value for this Node is above 1%.

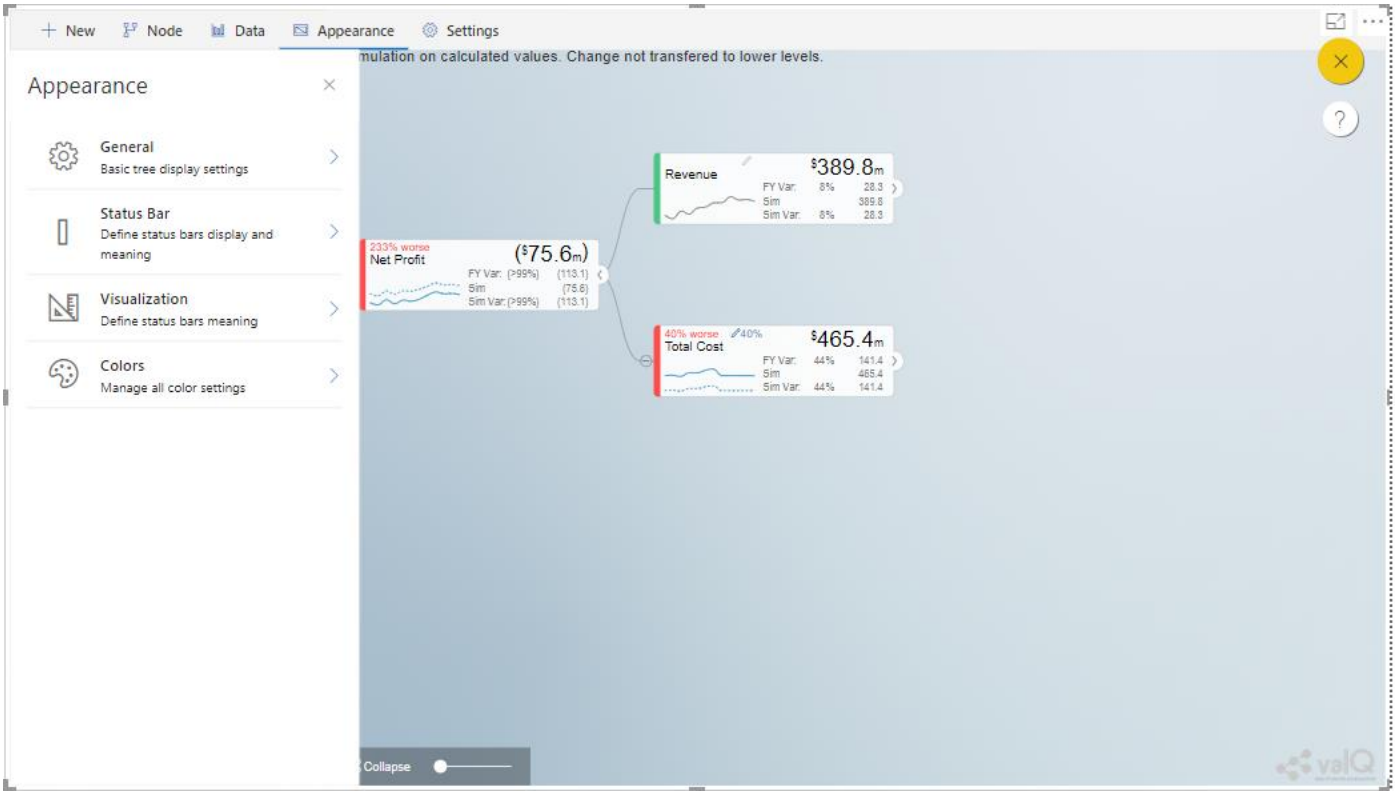
Visualization

In the Visualization settings, you will be able to configure the Node Style with three different options namely Standard, Full and Minimal. Also you will be able to enable/disable the contents like Variance, Trend Spark Line, Secondary Value/Variance and Node Operand in the Node. You can set the Default Visual as Table or Tree option. For our example, the Default Visual has been selected as Tree (see Figure below).



Visualization Settings for the Node

Based on the above settings you will be able to view the ValQ screen having Nodes configured with Standard Node Style as Default Node Type (see Figure below).

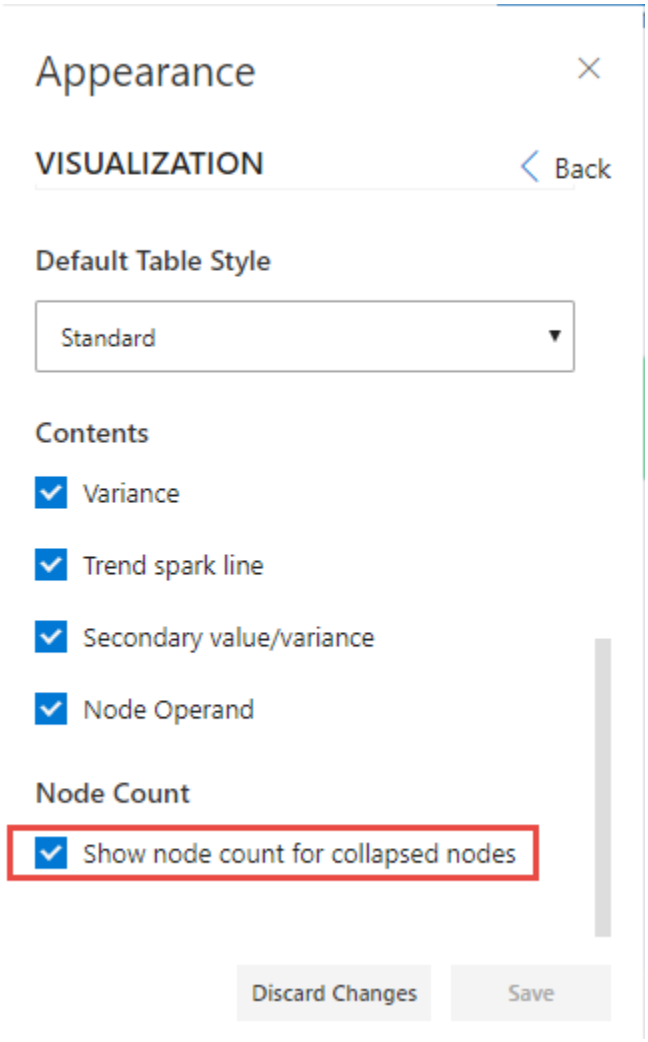


ValQ screen with Default Node Style as Standard Type

From the above Figure, you can observe that the Node Styles is set to “Standard” Type and the contents like Variance, Trend Spark Line, Secondary Value/Variance and Node Operand are displayed in the Node based on the configuration.

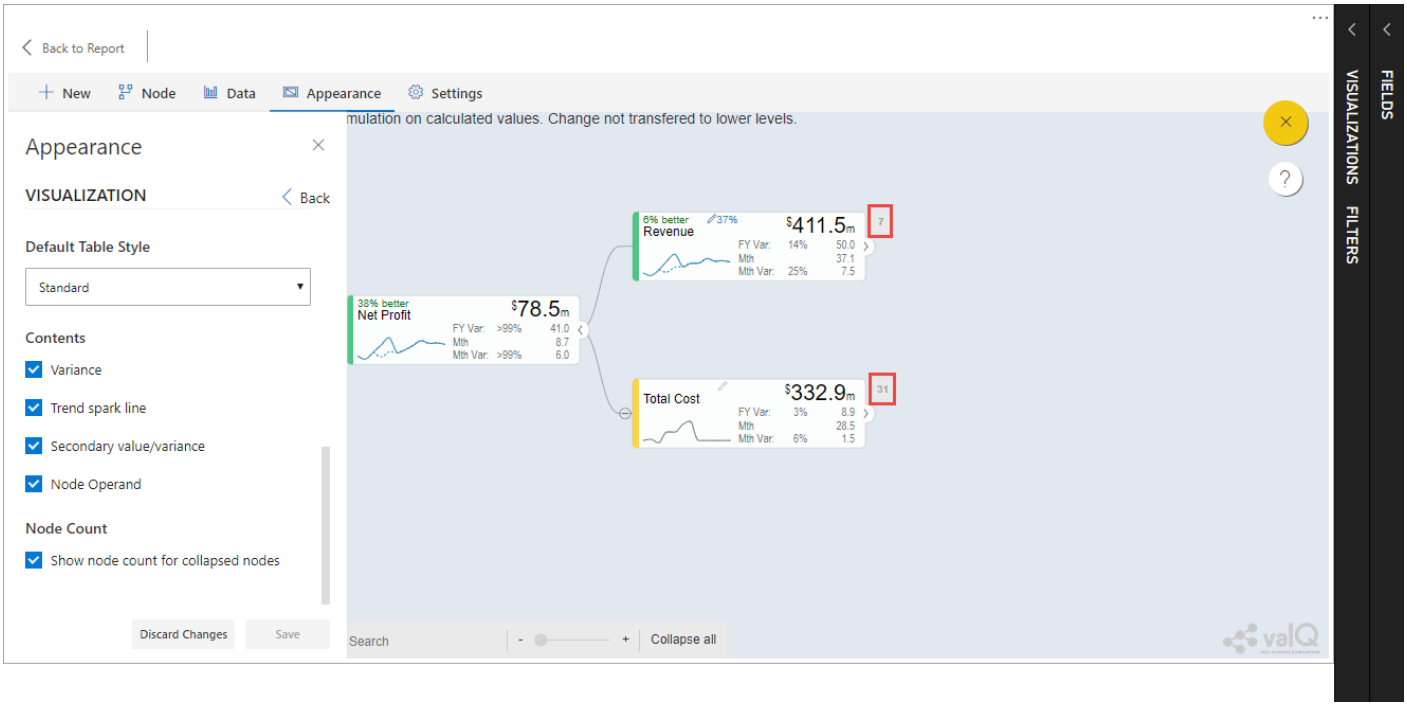
Descendant Node Count

You will be able to view the Total Number of Node Counts by activating the property Show Node Count for collapsed Nodes in the Visualization settings in Appearance Tab (see Figure below).



Node Count option enabled in Advanced Editor

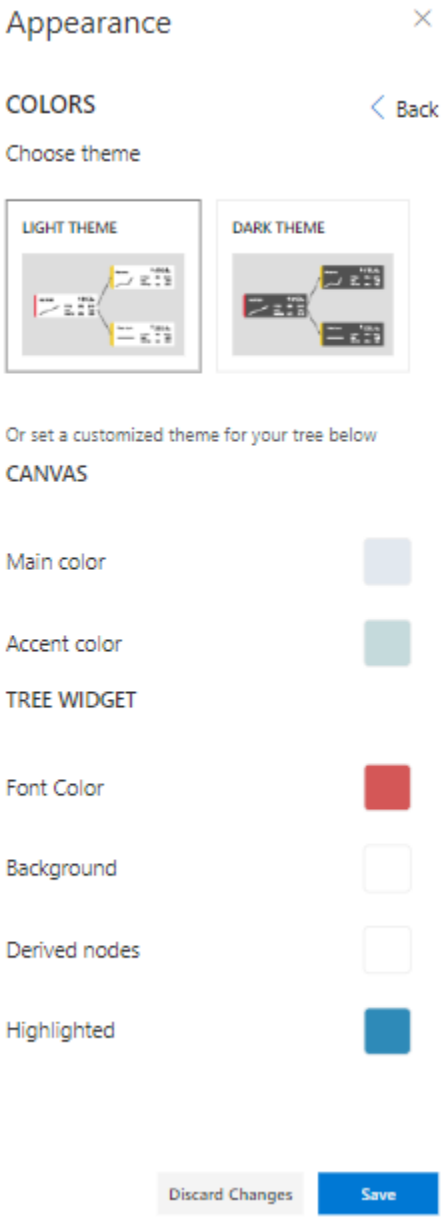
After activating the Show Node Count for collapsed Nodes option, you will be able to view the value driver tree with the Nodes count for the collapsed Node as shown below in the below Figure.



Nodes Count display for the collapsed Node

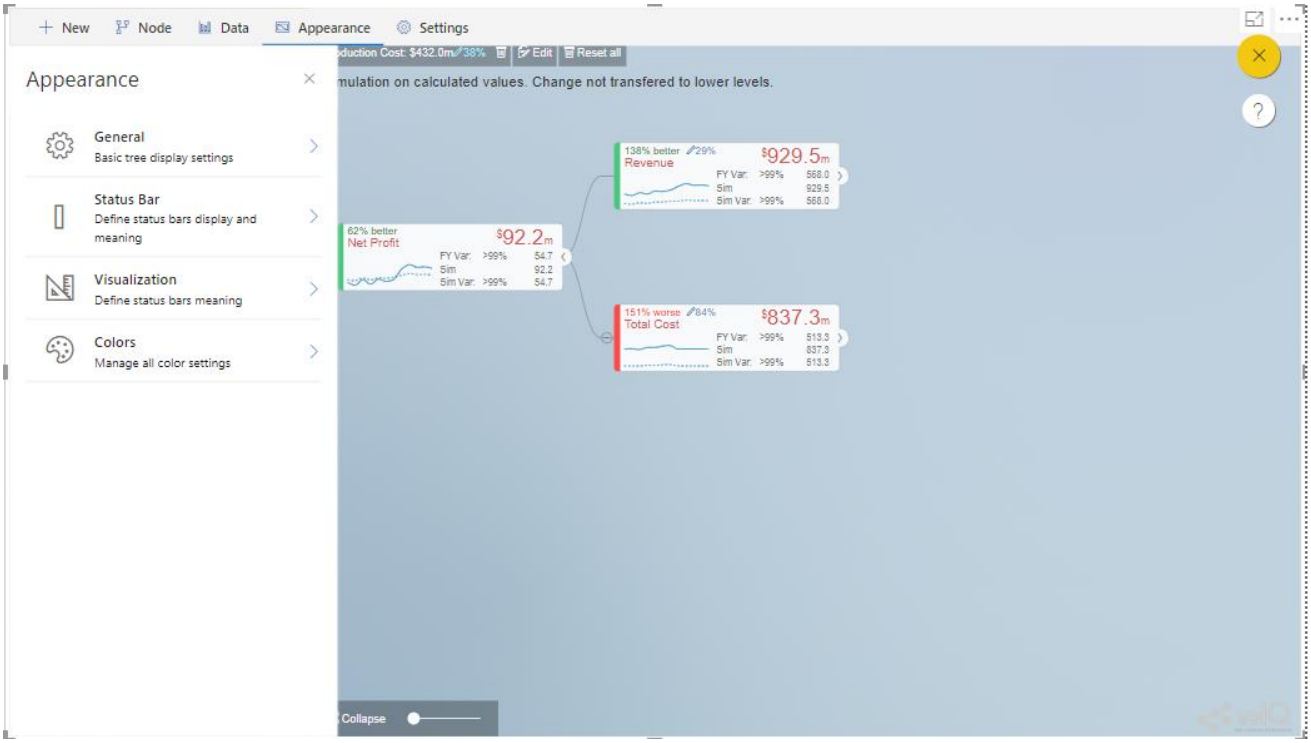
Colors

In the Colors settings, you will be able to manage all the color settings for the Nodes. You can either select the Light Theme or Dark Theme for the Nodes. You can also select the desired color for the canvas and also the color for the Tree Widget (see Figure below).



Color Settings

Based on the above color settings you will be able to view the ValQ screen having different Theme color along with different colors selected for both the canvas as well as the tree widget based on the configured settings (see Figure below).



ValQ screen with color settings

Additional Properties of Appearance Tab

Area	Property	Description
General	Top Node	This property sets the Root node at the lowest level with no parent note. You can select the Nodes from the list.
	Show Levels	Using this property, you can expand the hierarchy upto the following number of levels by default. The minimum level is 2.
	Node Search	This property enables/disables the Node Search.
	Hide Empty Nodes	This property hide Nodes that have no value mapped to it or have null value for all its periods.
	Default zoom (%)	This property sets the default zoom ratio.
	Number Scaling	This property sets the data format to be displayed in the Tree Widget. The options are 0.0t, 0.00t, 0.0b, 0.00b, 0m, 0.0m, 0.00m, 0k, 0.0k, 0 and Auto.

Area	Property	Description
	Scale Suffix	This property sets the Thousand, Million and Billion suffix for the scale.
	Number Formatting	This property sets the Number Formatting for the following fields: . Display as Zero None, - or 0 . Display Negative Value as (0), -0 or 0- . Decimal Separator . Thousand Separator
	Hint	This property sets the Hint which appears at the top of the canvas.
	Waterfall Chart Type	This property sets the Waterfall Chart Type in the Detail Page when a Node is clicked. The options are Vertical and Horizontal.
Status Bar		Each node will have a status bar property to indicate whether the trend of values is favorable and this property can be configured.
	Display status bar when there is a change in	The options for this property are Variance, Simulation Impact and Hidden.
	Color Indicator	Status bar color will be changed based on the percentage of deviant from initial value. The color ranges are given below: . Red - Below:- 10% . Yellow - Between: -10% to-1% . White - Between: -1% to1% . Green - Above: 1%
Visualization		This property is used to customize the Tree Widget Styles and Elements.
	Default Visual	This property sets the Default Visual as Tree or Table in the right pane.
	Default Node Style	This property is used to configure the style of the Node. The options are Standard, Full and Minimal.

Area	Property	Description
	Default Table Style	This property is used to configure the style of the Table. The options are Standard and Full.
	Contents	This property is used to display the below listed contents in the Node: . Variance . Trend Sparkline . Secondary Value/Variance . Node Operand
	Node Count	This property activates the Node Count for the Collapsed Nodes.
Colors	Choose Theme	This Property sets the Theme for the Node. The options are Light Theme and Dark Theme.
	Canvas	This property sets the Main Color and Accent Color for the Canvas.
	Tree Widget	This property sets the Font color, Background color, Derived Nodes color and Highlighted color for the Tree Widget.

Additional Properties of Appearance Tab

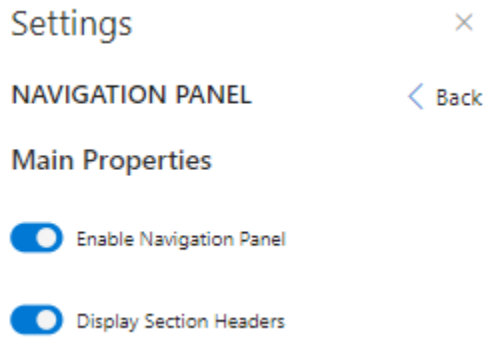
Settings Tab

Using the Settings Tab, you will be able to configure the settings for the Navigation Panel and then configure the Export File settings.

Navigation Panel

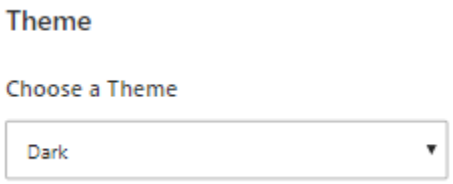
In the Navigation Panel settings, you will be able to configure the entire settings for the Navigation Panel. The following properties can be configured for the Navigation Panel.

1. Main Properties – Here you can enable/disable the Navigation Panel and also enable/disable the Display Section Headers property (see Figure below).



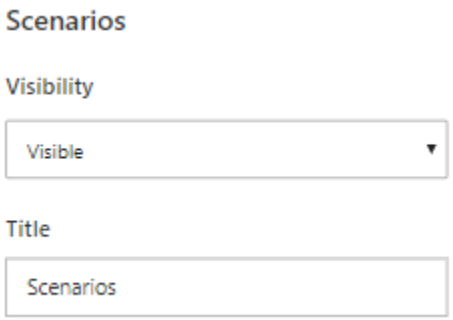
Main Properties

2. Theme – You can select the different Theme options for the Navigation Panel (see Figure below).



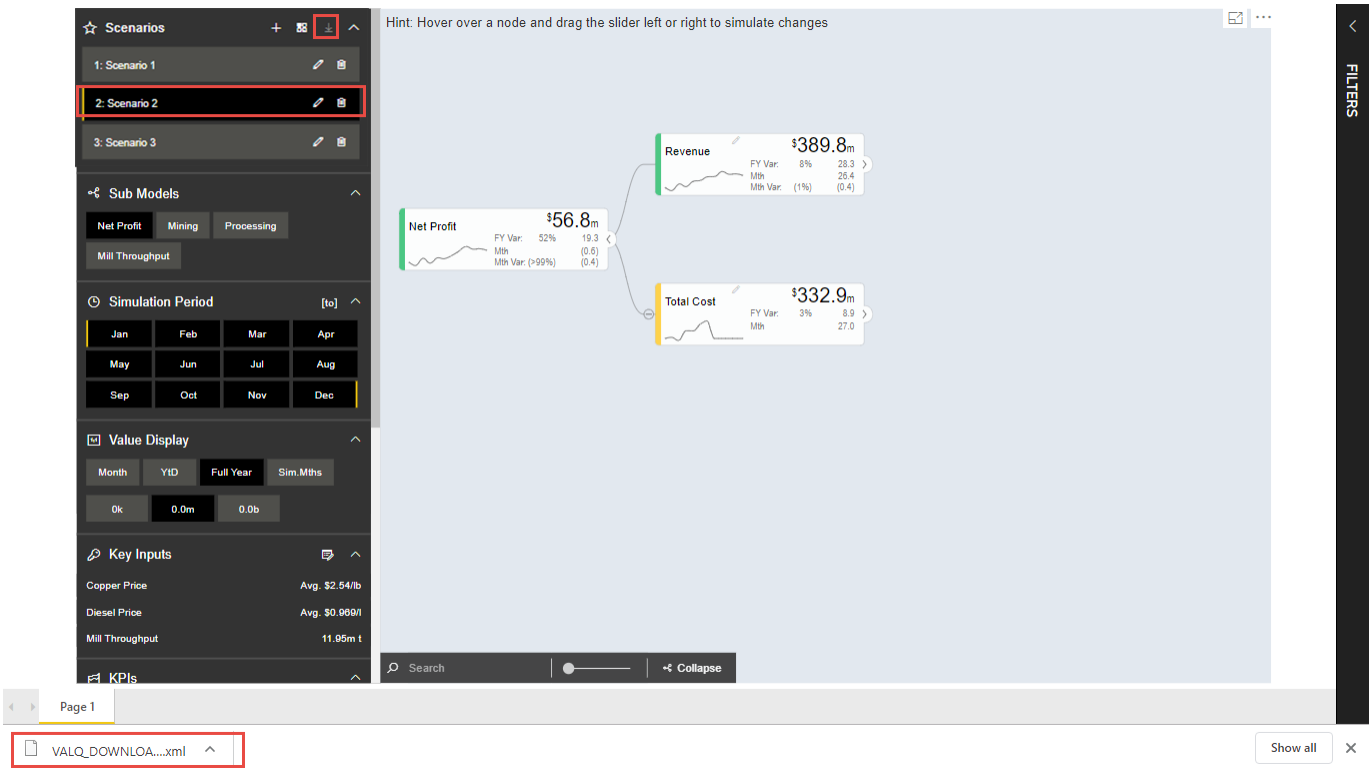
Theme

3. Scenarios - You can select the different Visibility options for the Scenarios and also set the Title for the Scenario in the Navigation Panel (see Figure below).



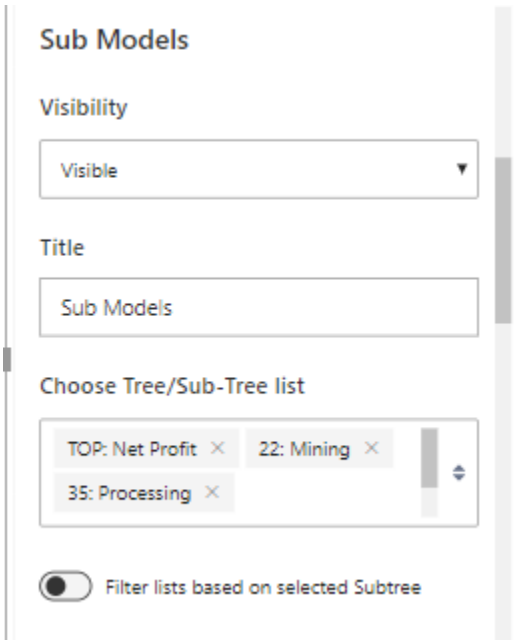
Scenarios

You will be also able to download the xml files of the Scenarios from the Scenario Window in the Navigation Panel by clicking the Download option (see Figure below). In our example, the data for the Scenario 2 has been downloaded.



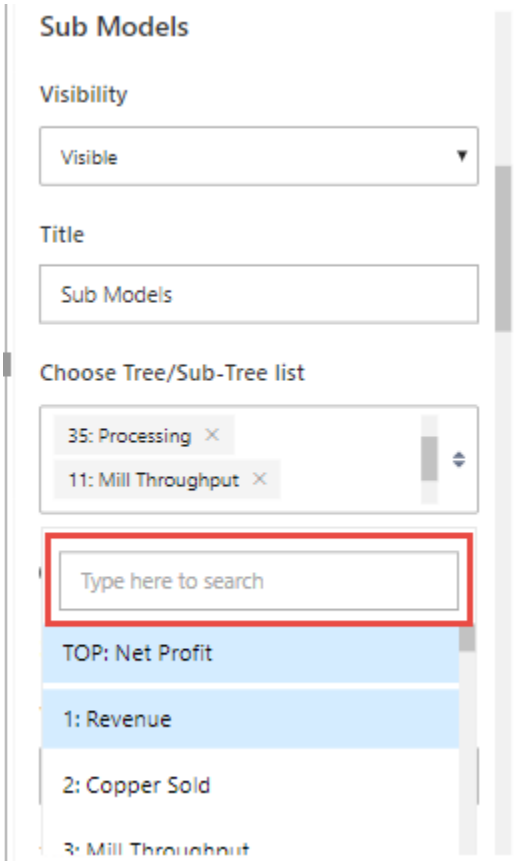
xml download of the Scenario 2 data

4. Sub Models - You can select the different Visibility options for the Sub Models, set the Title for the Sub Models and further select the Nodes from Tree/Sub-Tree List from the Navigation Panel. You can also enable/disable the property for filtering the list based on the selected sub tree (see Figure below).



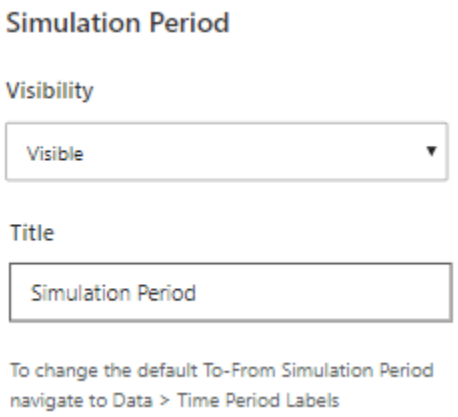
Sub Models

You can also search for the Node directly in the Search option as shown in the below Figure. This is common throughout all the properties in the Navigation Panel (see Figure below).



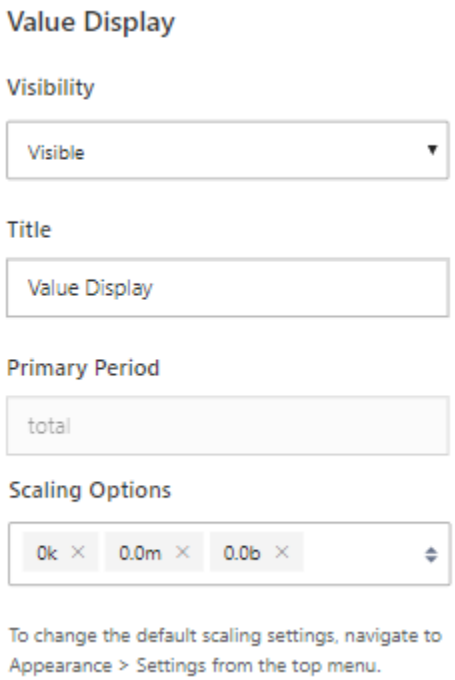
Search option for the Nodes

5. Simulation Period - You can select the different Visibility options for the Simulation Period and also set the Title for the Simulation Period in the Navigation Panel (see Figure below).



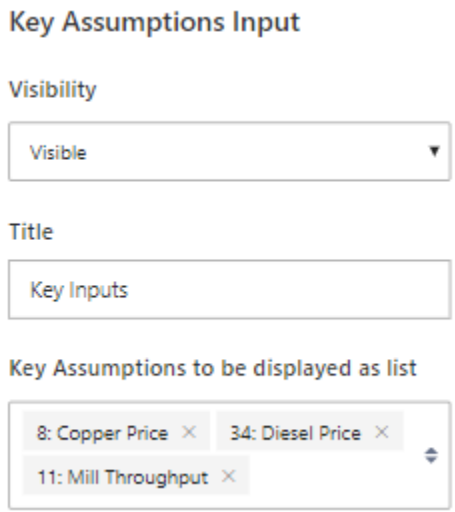
Simulation Period

6. Value Display - You can select the different Visibility options for the Value Display, set the Title for the Value Display and select the Primary Period and Scaling options for the Value Display in the Navigation Panel (see Figure below).



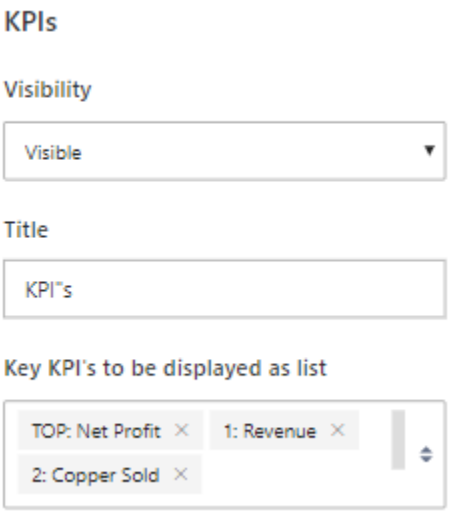
Value Display

7. Key Assumptions Input - You can select the different Visibility options for the Key Assumptions Input, set the Title for the Key Assumptions Input and further select the Key Assumptions to be displayed as List in the Navigation Panel (see Figure below).



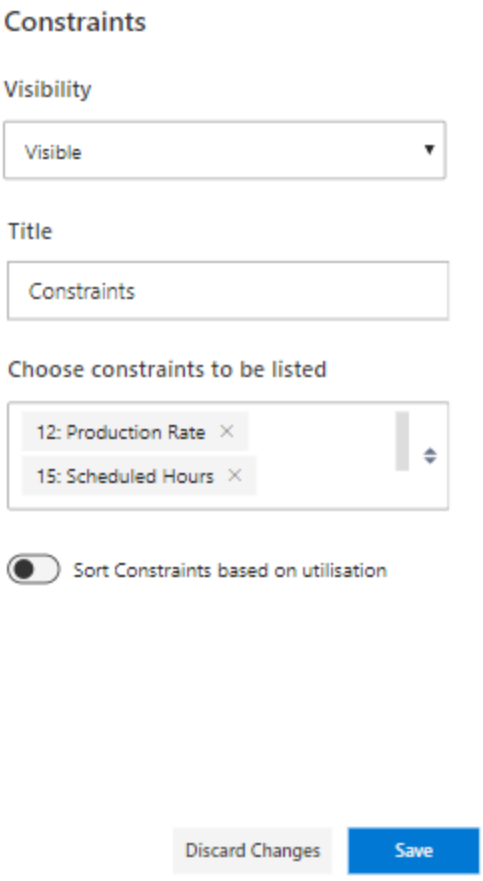
Key Assumptions Input

8. KPIs - You can select the different Visibility options for the KPIs, set the Title for the KPIs and further select the KPIs to be displayed as List in the Navigation Panel (see Figure below).



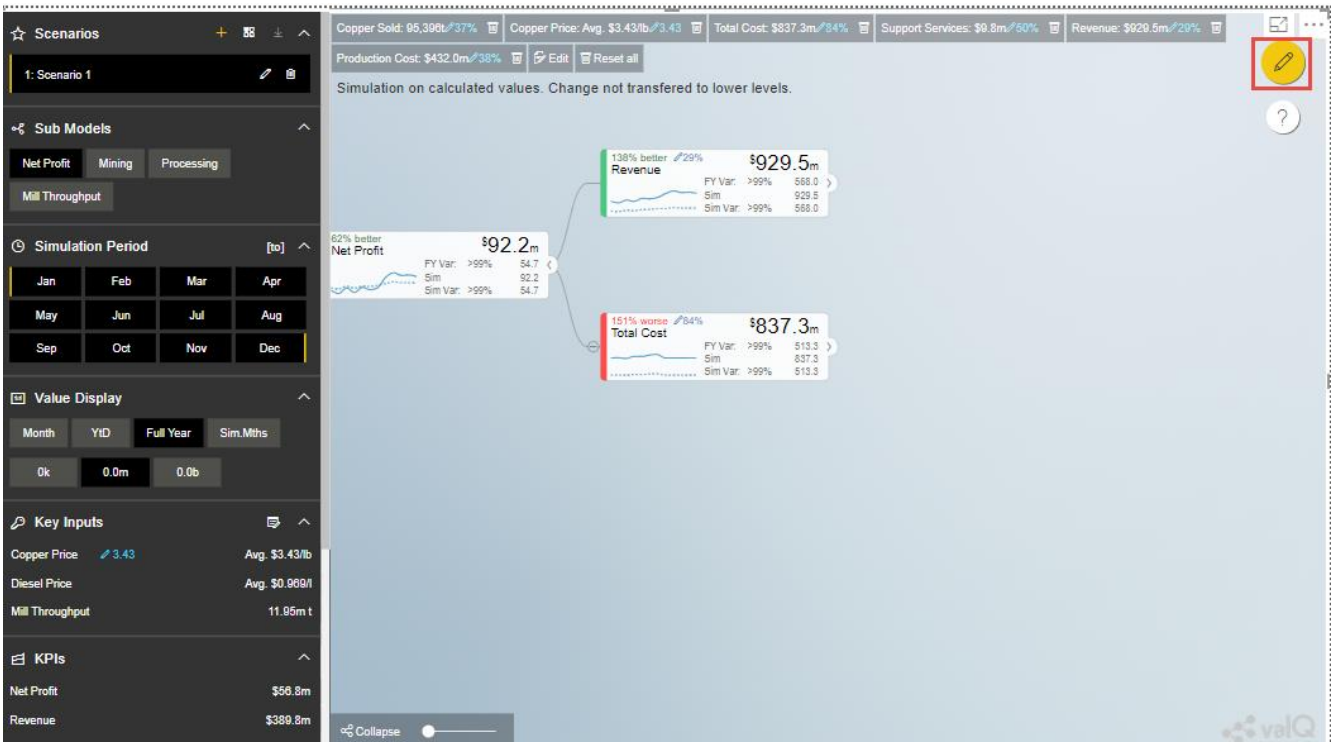
KPIs

9. Constraints - You can select the different Visibility options for the Constraints, set the Title for the Constraints and further select the Constraints to be displayed as List in the Navigation Panel. You can also enable/disable the property for sorting the constraints based on utilization (see Figure below).



Constraints

Based on the above set of configurations, you will be able to view the ValQ screen with Navigation Panel as shown below. By clicking the Edit button in the right canvas, you will be able to view the Navigation Panel (see Figure below).



ValQ screen with Navigation Panel

Table View of the Nodes

In the Navigation Panel, you will be able to view the Table View of the value driver tree in the right canvas by clicking the Table option in the Navigation Panel (see Figure below).

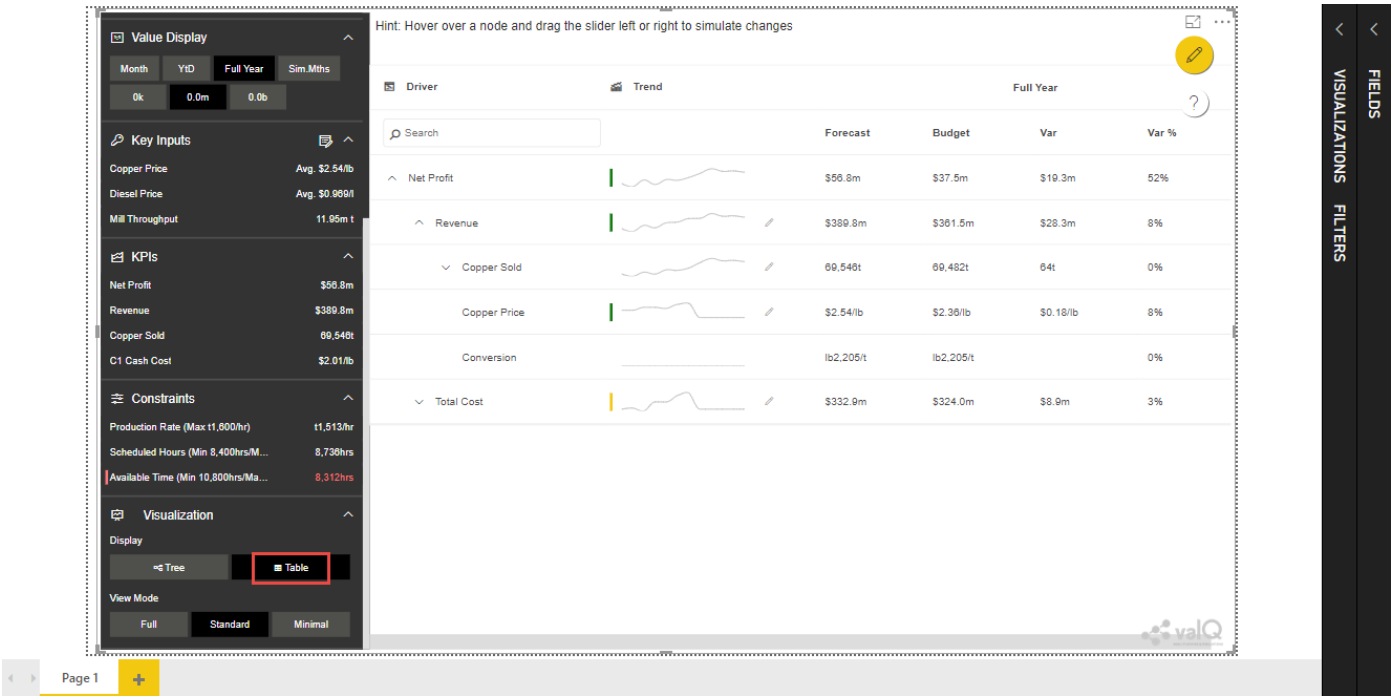
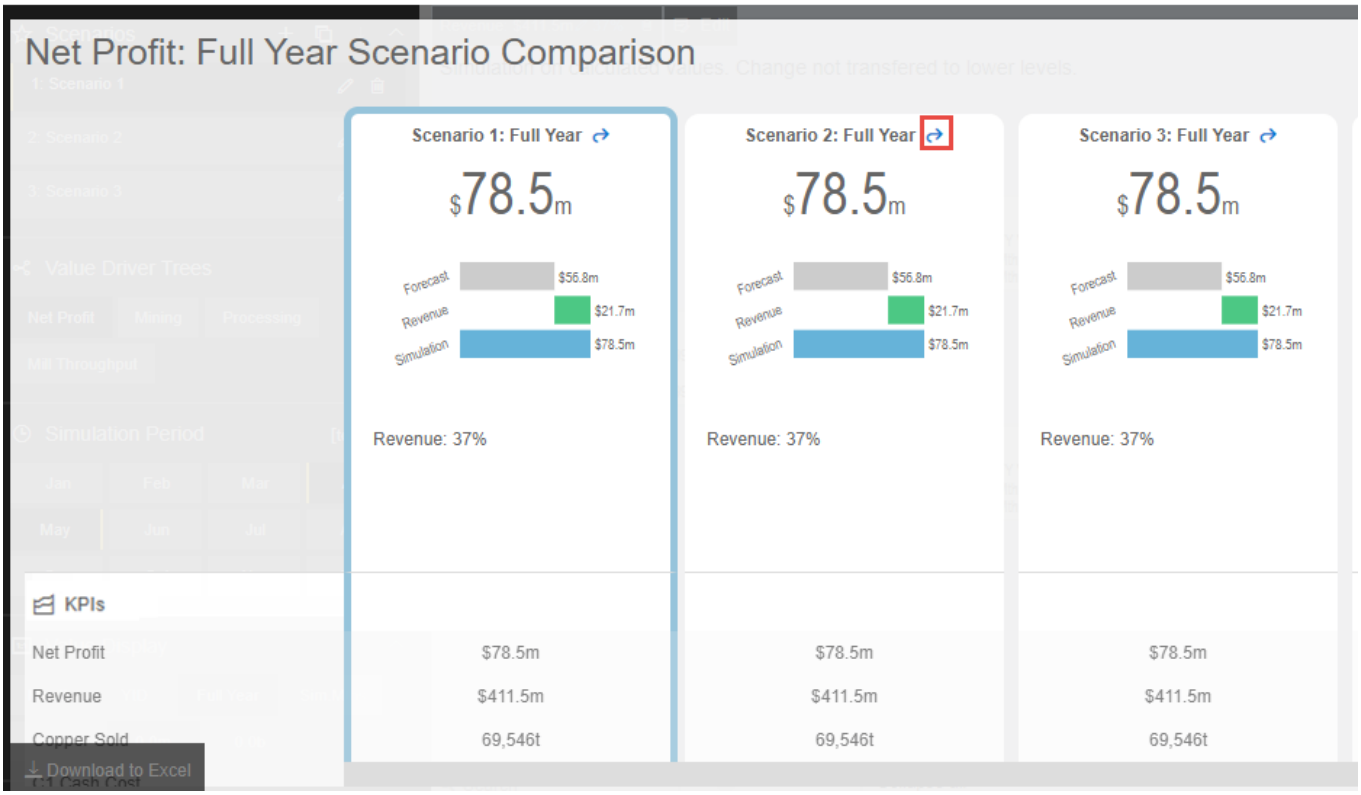


Table option in Navigation Panel

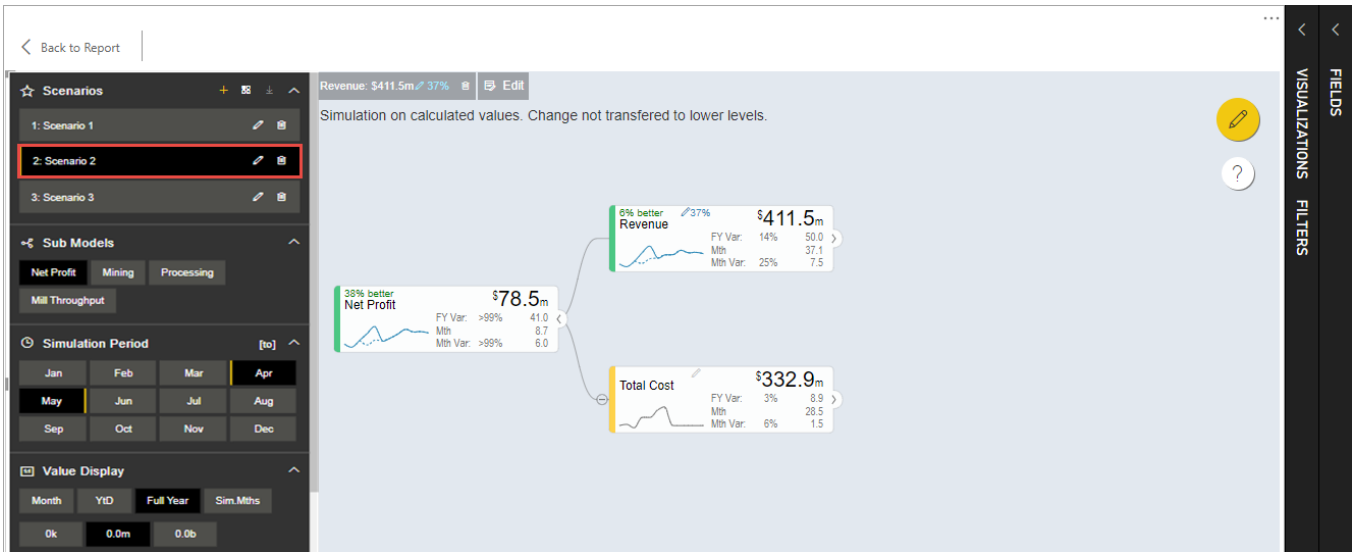
Navigation from Comparison Scenario to Clicked Scenario

When there is more number of Comparison Scenarios, the user can click any one comparison slide in order to get navigated to the clicked scenario in the Navigation Panel. For our example, we have 3 comparison slides (as shown in the below Figure) being displayed by clicking the “Compare Scenarios in collection” in the Scenarios Window of the Navigation Panel.



Scenario Comparison Screen

For our example , the arrow icon for the Scenario 2 slide has been clicked (see above Figure). Now you will be able to view the Navigation Panel with the scenario 2 option being selected by default (see Figure above).



Navigation Panel with Scenario 2 being selected by default

Export

In the Export settings, you will be able to configure the export functionality. There is also an option to include the navigation settings panel in the Export File (see Figure below).

Export option

The saved file can be exported and this exported file can be used in the “Import from an Excel file” option in “Import an Advanced Model” category (Refer Section: Import from an Export File).

Additional Properties of Settings Tab

Area	Property	Description
Navigation Panel - Main Properties	Enable Navigation Panel	This property enables/disables the Navigation Panel in the ValQ screen.
	Display Section Headers	This property enables/disables the display of Section Headers in the Navigation Panel.
Navigation Panel - Theme	Choose a Theme	This property sets the Theme for the Navigation Panel. The options are Dark and Light.
Navigation Panel - Scenarios	Visibility	This property sets the visibility of the Scenarios window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Scenarios window.
Navigation Panel – Sub Models	Visibility	This property sets the visibility of the Value Driver Trees window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Value Driver Trees window.
	Choose Tree/Sub-Tree list	Using this property, you can select the Tree and Subtree from the list which would get displayed in the Value Driver Trees window.
	Filter lists based on selected Subtree	This property when activated will filter the lists based on the selected Subtree.
Navigation Panel – Simulation Period	Visibility	This property sets the visibility of the Simulation Period window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Simulation Period window.

Area	Property	Description
		Note: To change the default To-From Simulation Period, navigate to Data > Time Period Labels.
Navigation Panel – Value Display	Visibility	This property sets the visibility of the Value Display window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Value Display window.
	Primary Period	This property sets the Primary Period in the Value Display window of the Navigation Panel.
	Scaling Options	This property sets the Scaling options in the Value Display window. The scaling values are 00.0t, 0.00t, 0.0b, 0.00b, 0m, 0.0m, 0.00m, 0k, 0.0k and 0. **Note**: To change the default scaling settings, navigate to Appearance > Time Settings from the Top Menu.
Navigation Panel - Key Inputs	Visibility	This property sets the visibility of the Key Assumptions Input window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Key Assumptions Input window.
	Key Assumptions to be displayed as List	This property shows the selected Key Assumptions as a List in the Key Assumptions window.
Navigation Panel - KPIs	Visibility	This property sets the visibility of the KPIs window in the Navigation Panel. The options are Visible, Collapsed and Hidden.

Area	Property	Description
	Title	This property sets the Title for the KPIs window.
	KPI‘s to be displayed as List	This property shows the selected KPI‘s as a List in the KPIs window.
Navigation Panel - Constraints	Visibility	This property sets the visibility of the Constraints window in the Navigation Panel. The options are Visible, Collapsed and Hidden.
	Title	This property sets the Title for the Constraints window.
	Choose Constraints to be listed	Using this property, you can select the required Constraints to be listed in the Constraints window.
	Sort Constraints based on utilization	This property when activated sorts the Constraints based on utilization.
Export – Export Configuration as File	Include navigation panel settings in the export file	This property when activated exports the file along with Navigation Panel settings.
	Export Scenarios via Write Back URL	Using this property, you can write back or consume the scenarios created in the run-time using the Sync Scenarios Feature.
	Export URL	This property configures the URL to submit the Scenarios data.

Additional Properties of Settings Tab

Known Issues and Limitations

Below are the known issue as of the writing of the document. This list will be updated in the online version to reflect the current state at any point in time.

Known Issues and Limitations	Description
Pinch zoom is not supported in IE on Windows touch enabled devices	The Pinch zoom doesn't work within Windows touch interfaces. A zoom slider has been added to ensure users has access to zoom even when

Known Issues and Limitations