

# VisiRule365 (March 2024)

VR365 is a browser-based charting tool which lets you draw, save, load, and also, publish charts to the web both server side and client side.

This document describes the freely available version of VR365 which has no private namespace in the cloud, but also shows screens from other premium editions.

## **IMPORTANT:**

### **i] PUBLISHING to WEB and HTML:**

You do not 'need' to publish your chart, but if you do choose to do so, the chart needs to be 'conformant' in terms of links and nodes and fields as well as:

- a] The initial start node of chart **MUST** be named **start** (in lower case)
  - b] VisiRule will try to inform you of any missing or detached links when you go to Publish the file.
  - c] when you save the file, do **NOT** include any spaces or hyphens in the file name .... (underscore is OK)
- Note: publishing to web is available to all users

### **ii] Fields in tabbed editor**

- a] Expressions can contain spaces, but, if they do, then they need to be 'quoted'
- b] Questions have 3 fields, the first is the name, the second the user prompt and the 3<sup>rd</sup> an optional explanation; the name should be simple but relevant.

### **iii] LINKING Nodes**

*BE VERY CAREFUL WHEN LINKING 2 OBJECTS. You should RELEASE only after seeing VISUAL CONFIRMATION THAT THE LINK IS OK – as INDICATED BY A GREEN CIRCLE*

If in doubt, you can check by dragging a node or two around after linking to ensure that all the links are connected are move too.

### **iv] Misc**

- a] Currently, VR365 is restricted to one single file at a time
- b] Publishing to HTML/JS requires an account as does importing DMN decision trees

On the PC/Windows Desktop, VisiRule Author uses the underlying LPA Prolog for Windows system to help detect syntax errors and link errors and node type errors. In VR365, this is not the case and some errors may not be detected on the browser but will show as errors downstream, typically when attempting to publish the chart. This may result in the chart not being published.

VisiRule is also documented in:

- VisiRule User Guide (vsr\_ref.pdf)
- VisiRule Tutorial (vsr\_tut.pdf)

These can all be downloaded from the LPA web-site:

[https://www.lpa.co.uk/dow\\_doc.htm](https://www.lpa.co.uk/dow_doc.htm)

In addition, there is a collection of annotated charts available on the VisiRule web-site:

<https://www.visirule.co.uk/visirule-charts>

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## Initial VR365 Screen

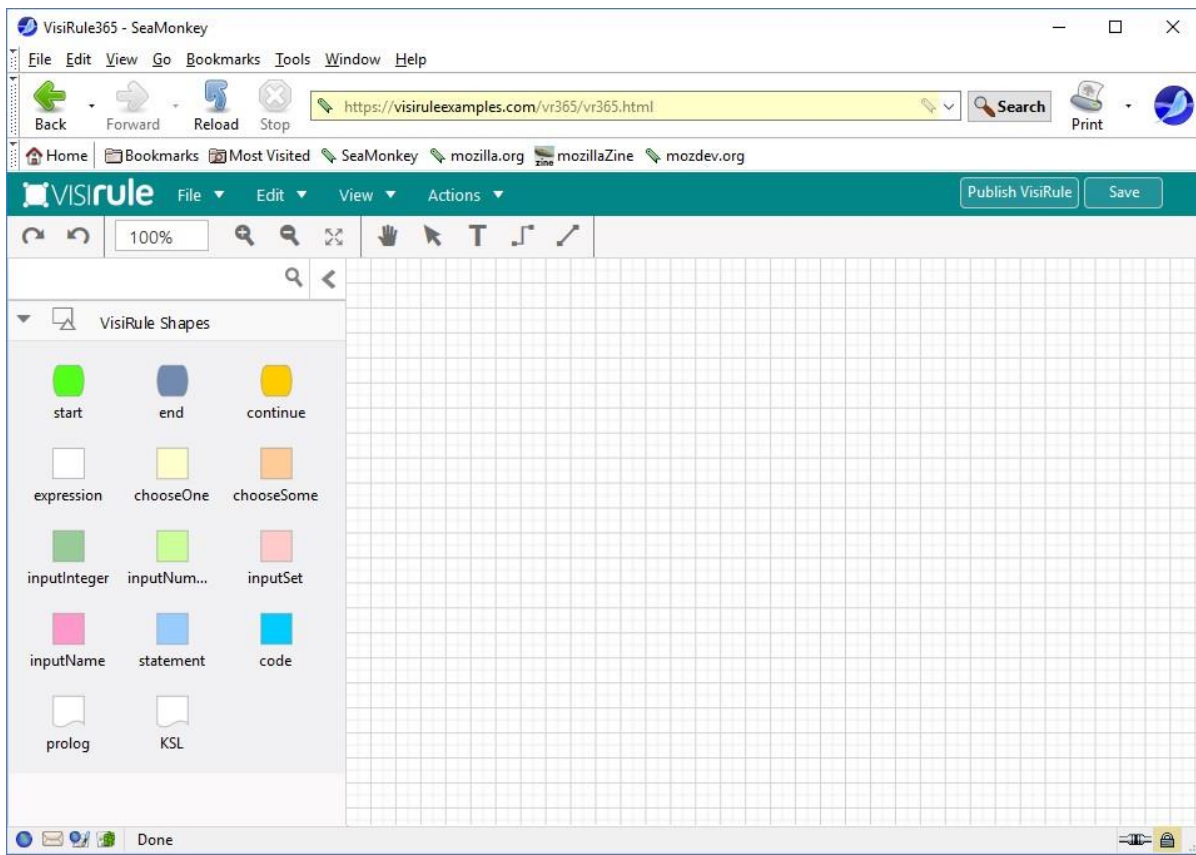


Figure 1 Initial Screen

Note: you turn the grid off if you like

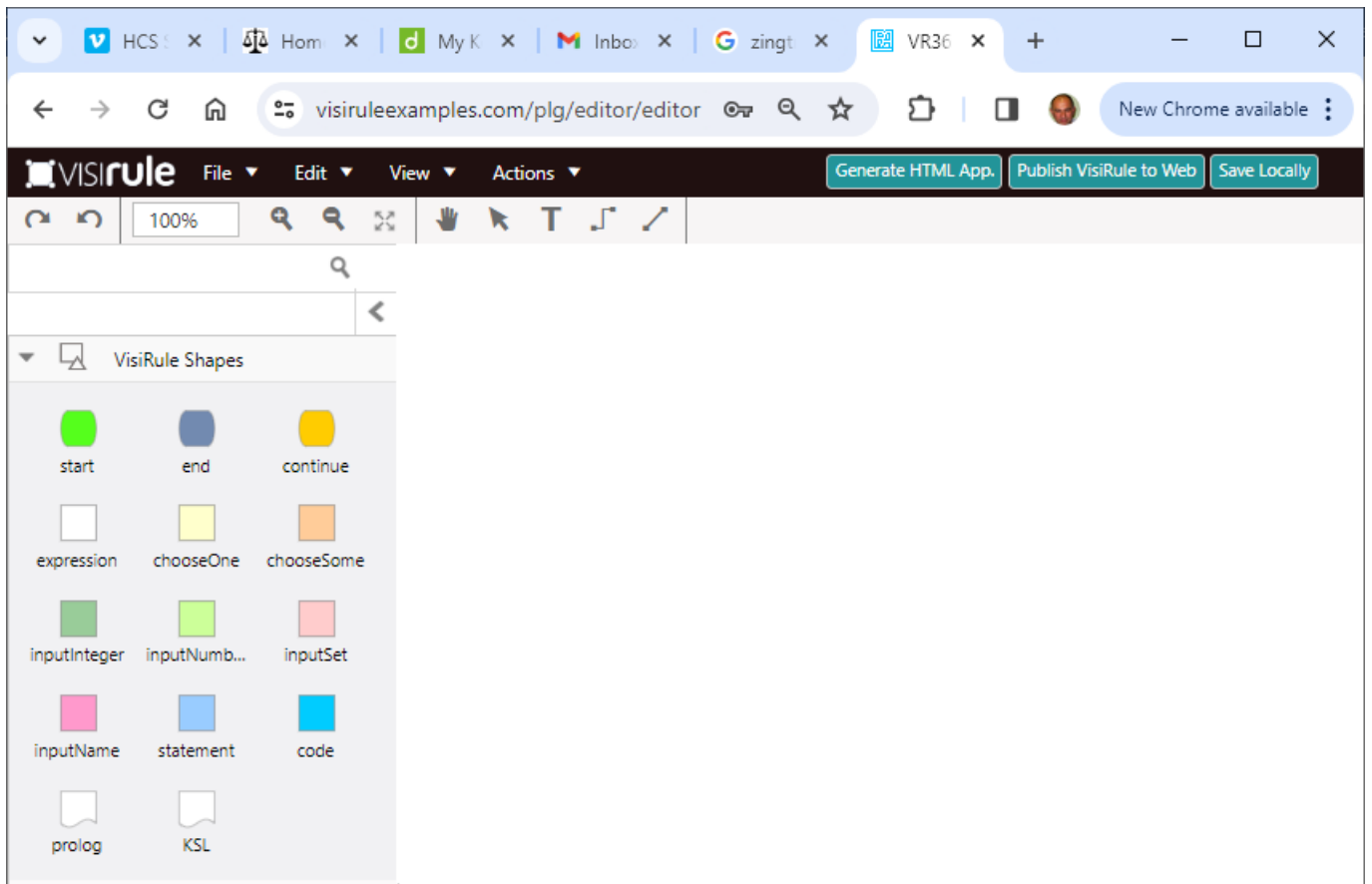


Figure 2 Initial VR365 screen without grid lines

## VisiRule Shapes palette

On the left we see the standard VisiRule Shapes. You select the node type icon for the node you wish to create, and then drag it onto the canvas drawing area.



Figure 3 VisiRule Shapes Palette

Each one of these icons corresponds to a different type of VisiRule Node

**Start Node** – every chart has at least one start node to start the process/chart

**NOTE** – if you do wish to publish your chart, then its main start node **MUST** be named as **start**. You can edit this using the field editor for the first field.

**End Node** – or conclusion – every chart has one or more of these to end the process/chart. They are in effect leaf nodes of the tree and, when reached, end the session.

**Continue Node** – allows you to break charts into sub-charts; each Continue node **MUST** match by name with a corresponding start node otherwise you will get an error when this node is evaluated.

**Expression** – the value which is used to test the preceding question or statement; acts like a guard in that it has to succeed for the computation to carry on down that branch

**chooseOne** – single choice question formed from the values referenced in the expression/s following the question

**chooseSome** – multi-choice multi-answer question formed from the values referenced in the expressions following the question



**integer** – integer input question

**number** – floating point input question

**set** – set input question

**name** – text edit input question

**statement** – a computable question containing executable code which can reference the values in questions

**code** – a code box which contains explicit Prolog/Flex directives/goals to be immediately executed

**Prolog** – can contain any amount of Prolog program statements, routines, functions, predicates

**KSL** – can contain any amount of Flex program/rule/frame statements or rules, actions, procedures

A typical VisiRule chart has a start node, some questions, some answers in the form of expression logic, and branching, and one or more conclusions.

The diagram of the chart is saved either locally or in the cloud and can then be published.

**Local** – means the diagram is saved locally in the user's browser's cache

**Cloud** – means the diagram is saved in the cloud, where it can then be accessed from other machines and from other browsers AND BY OTHER PEOPLE.

If you wish to obtain your own private VR365 user space, which is protected from other authors, you need to contact LPA.

You can publish your chart ONLY once you have saved it – either locally or in the cloud.

VisiRule Server will analyse your chart and attempt to generate a Flex KSL program (question, action, group and relations), a Prolog file, an SVG image of the chart and some other data. All of this is accessible using the VR365 Manager.

The generated KSL file is then executed by the VisiRule run-time engine which asks a page of questions, and once the user has submitted their answers, processes the answers to see which expression or expressions have succeeded. It then follows that branch to the next askable question, and creates the next page, until it reaches a conclusion.

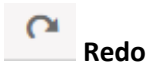
If there are problems in the chart, the publish command may fail and result in an error

## VR365 Toolbar

On the top of the VR365 window we see the VR365 toolbar.



Figure 4 VR365 toolbar



Key points in drawing:

### Drag and Drop Nodes

Drag a node from the Toolbox on the left and drop it on the canvas. You can press and hold your mouse button to select the object, and drag the node to the desired location and drop it by releasing the mouse button.

### Edit Text

You can edit the text of a node in one of two ways. Edit text after you create a new shape by immediately typing, or double-click on the node to edit text or select the edit icon in the top right hand port denoted by the two Ts.

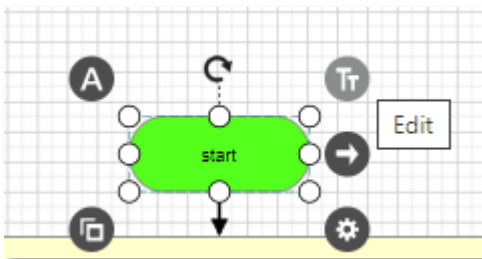


Figure 5 Editing the text of a node

### Connect Nodes

Insert connections between nodes. Just choose one of these methods:

1. Drag and drop one of the line shapes from the panel and select the nodes.
2. Click the port on the right edge of a node denoted by the right arrow and drag your mouse to next node

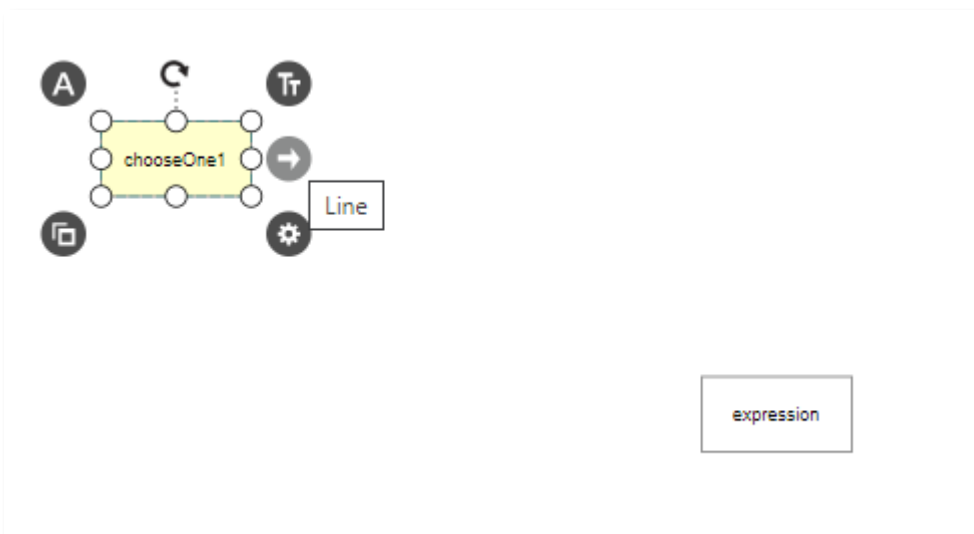


Figure 6 Linking nodes

The entire edge of each shape acts as a connection point to attach lines, but its best to connect to ports on nodes. Once you connect a line to a port/node, the line will move with the node.

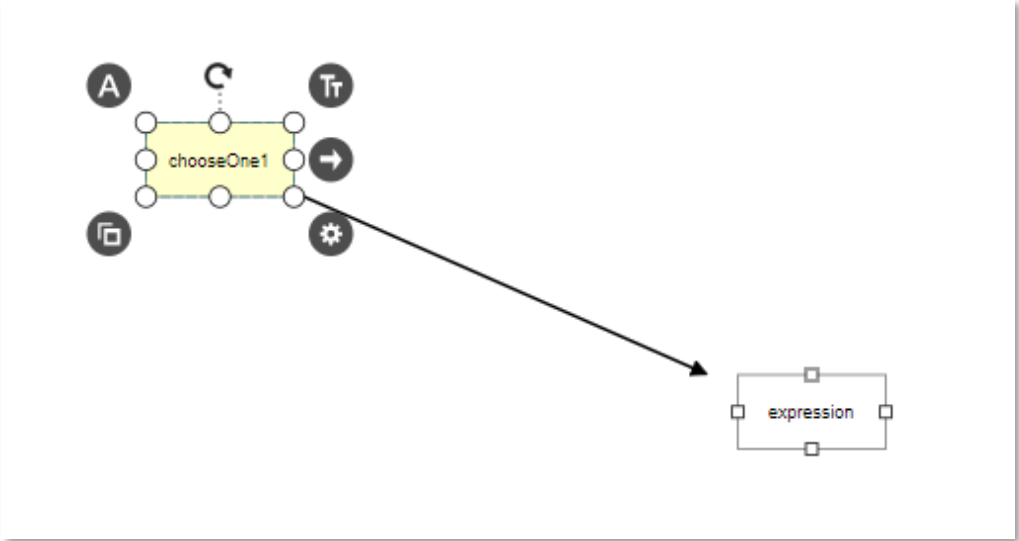


Figure 7 Linking nodes II

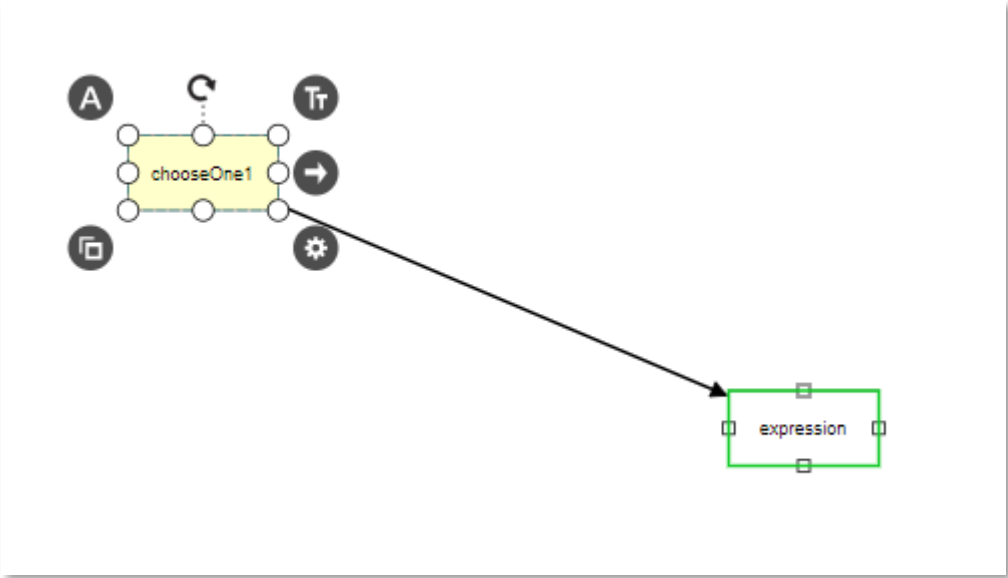


Figure 8 Linking nodes III – the connected node goes GREEN

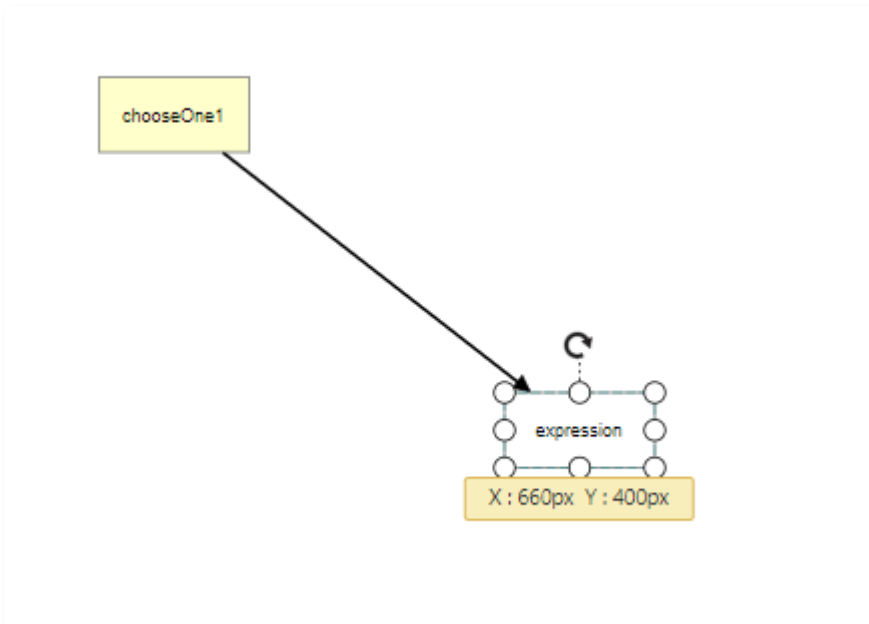


Figure 9 Linking nodes IV

Take care that you have indeed made the connection – if in doubt try dragging the node. If the connection does not follow, then you need to link again.

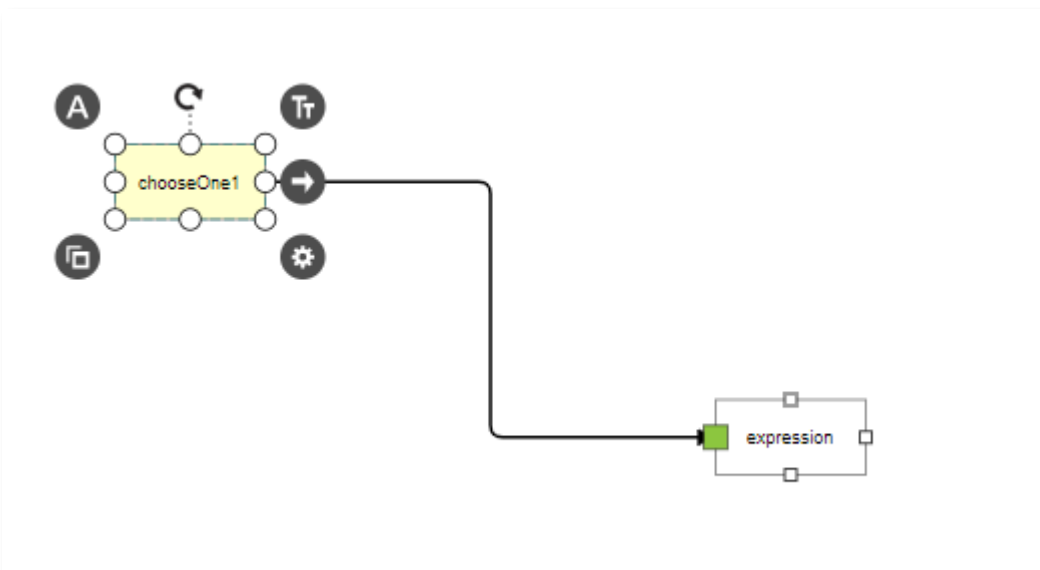


Figure 10 Linked OK

The right hand port of the first box is a right arrow, you can use that to connect to an expression (say)

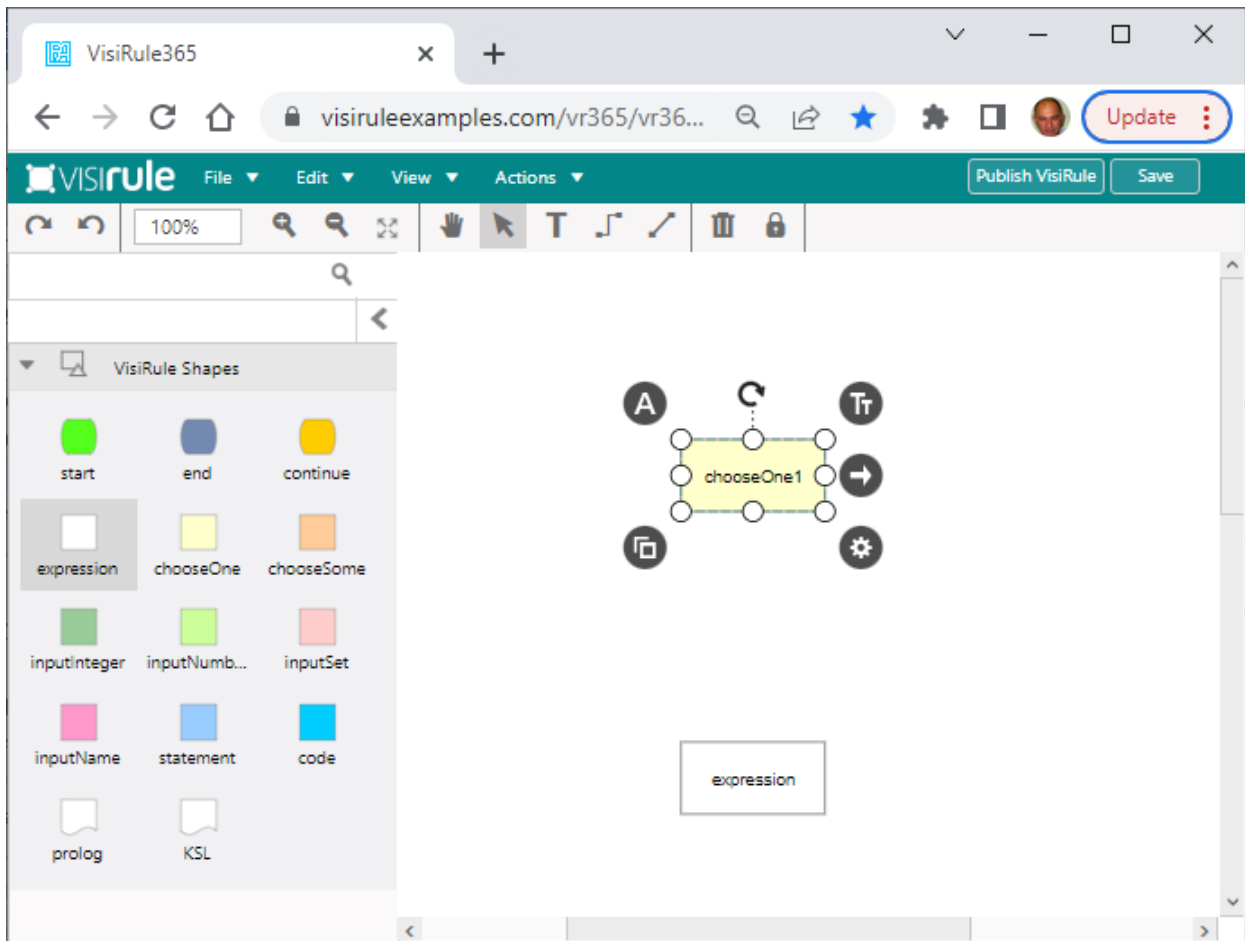


Figure 11 Linking nodes

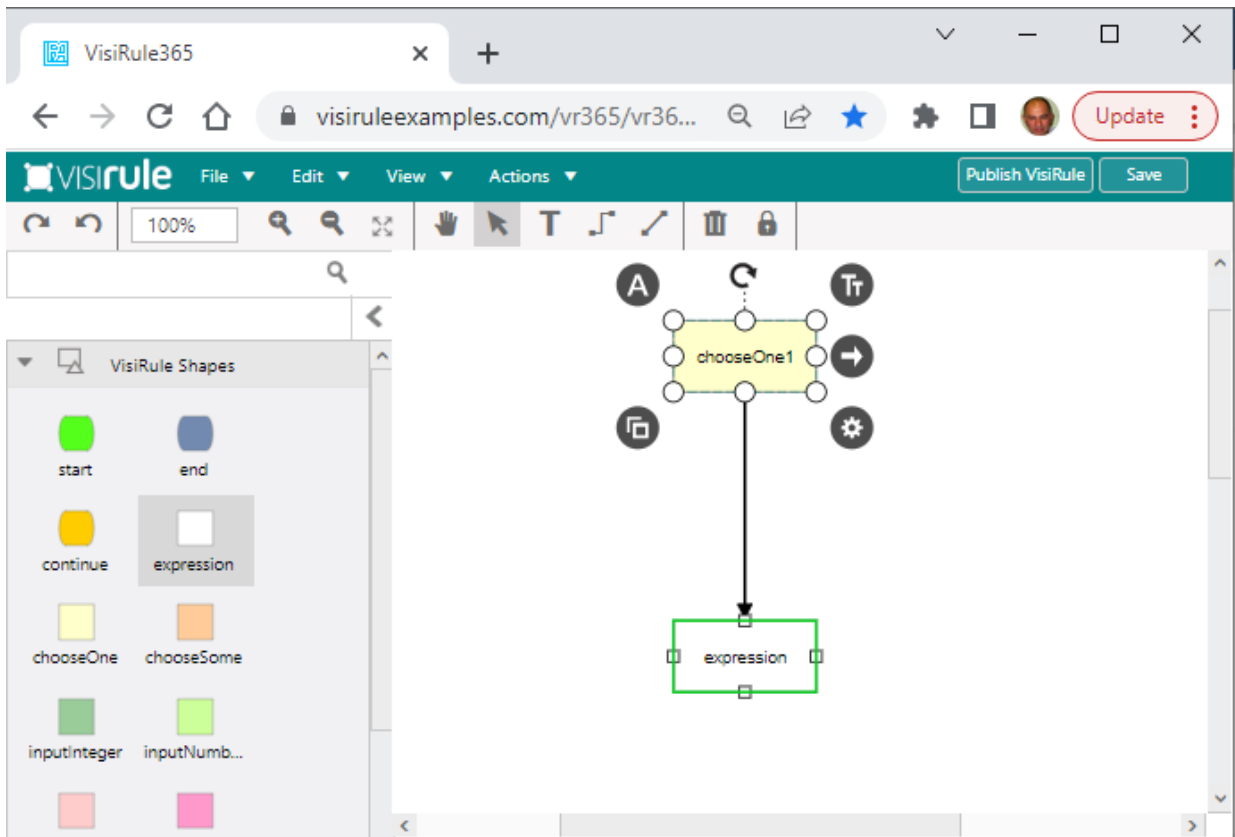


Figure 12 Linking to a Port

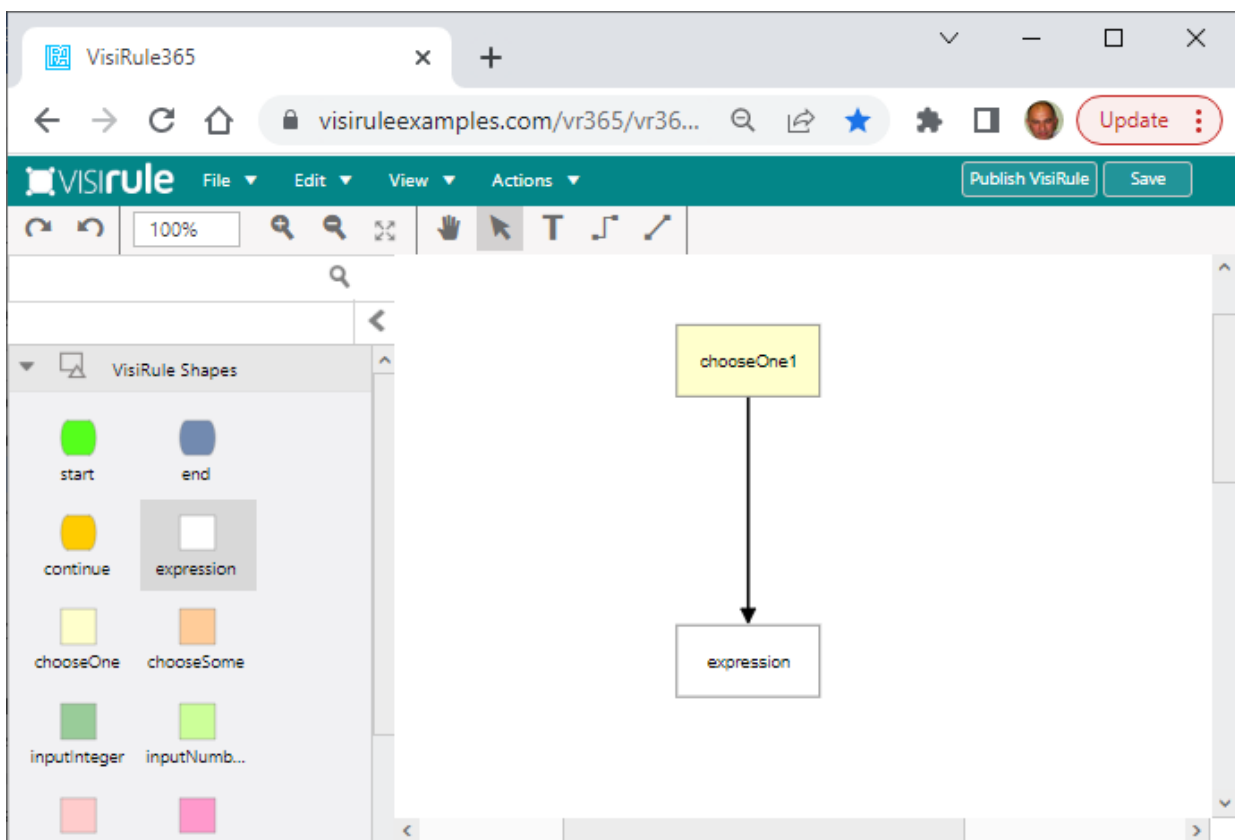


Figure 13 Linked to a Port

## Starting a new chart

Let's start by creating an initial Start node.

First: select the green shape from the VisiRule Shapes pane and drag it over on to the canvas and release.

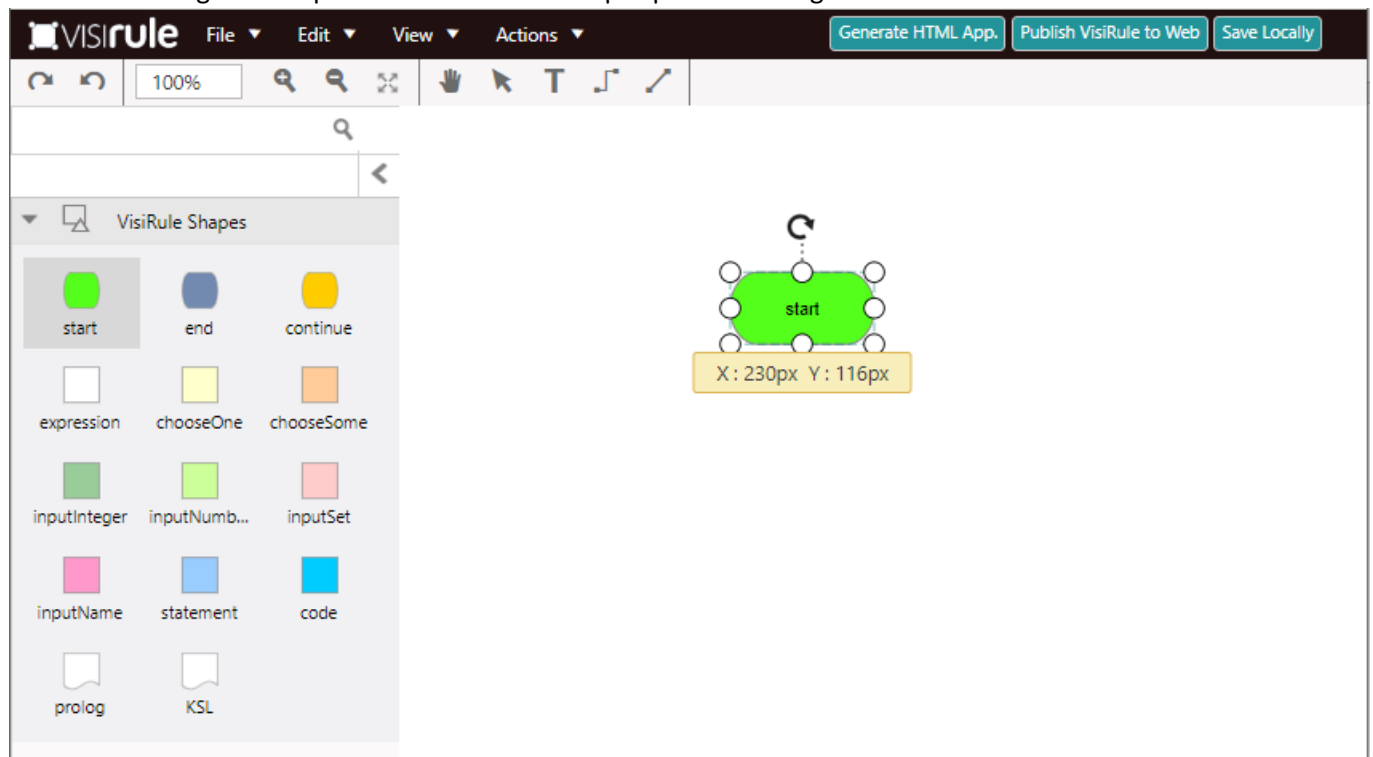


Figure 14 Dragging a New Start Node

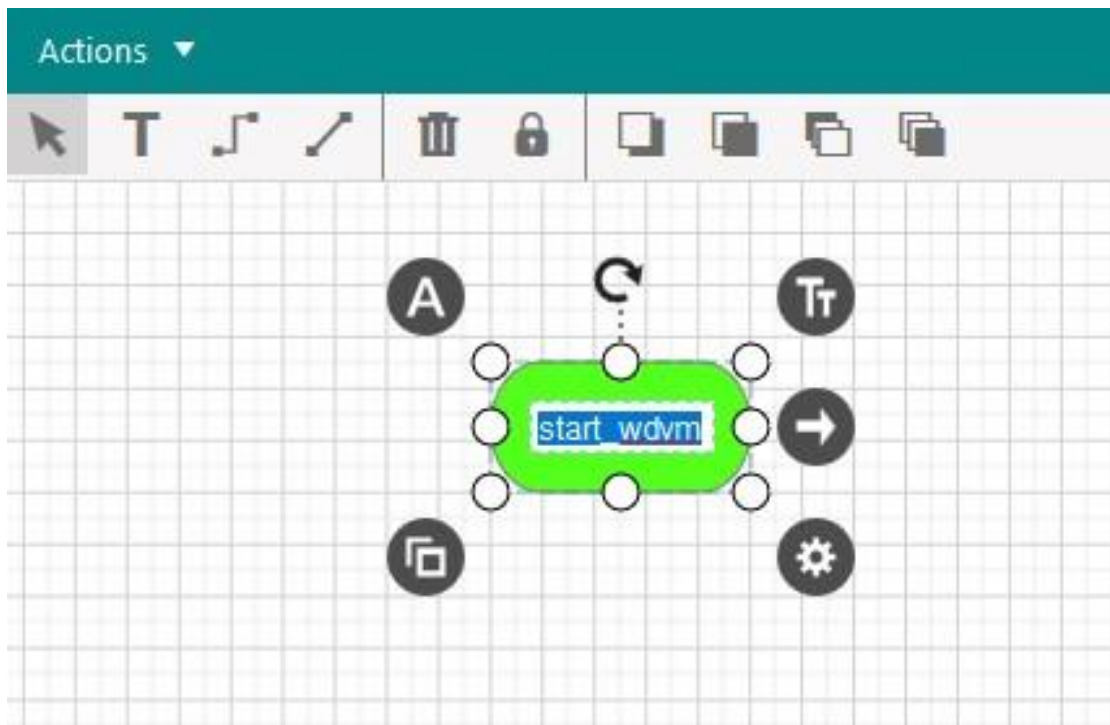


Figure 15 Close up of Start node

Notice we have 8 PORTS --- the white circles - these are important when trying to link nodes together



Notice we have 5 HALOS --- the black circles with white text - these are important when trying do things

We can edit the node either directly or by selecting the edit halo

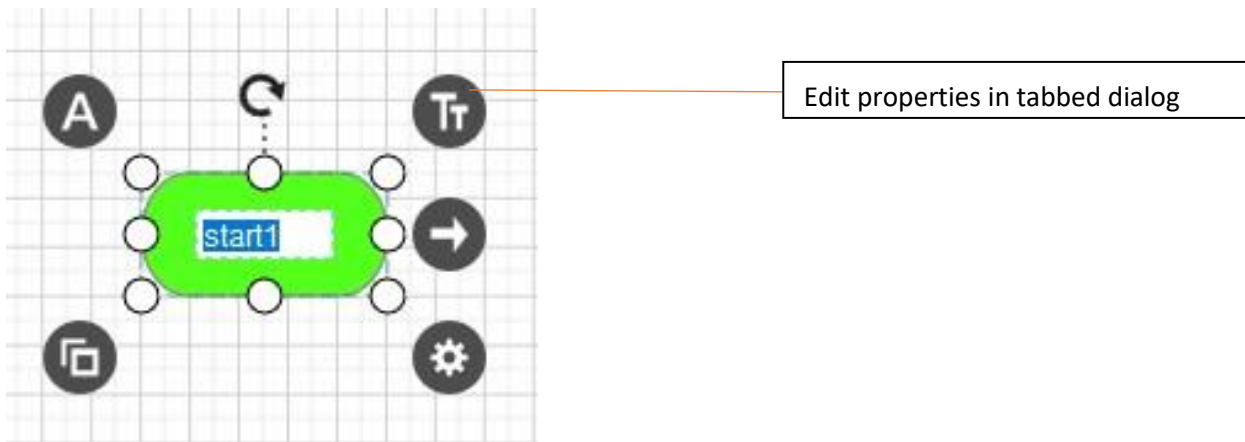


Figure 16 Editing node properties

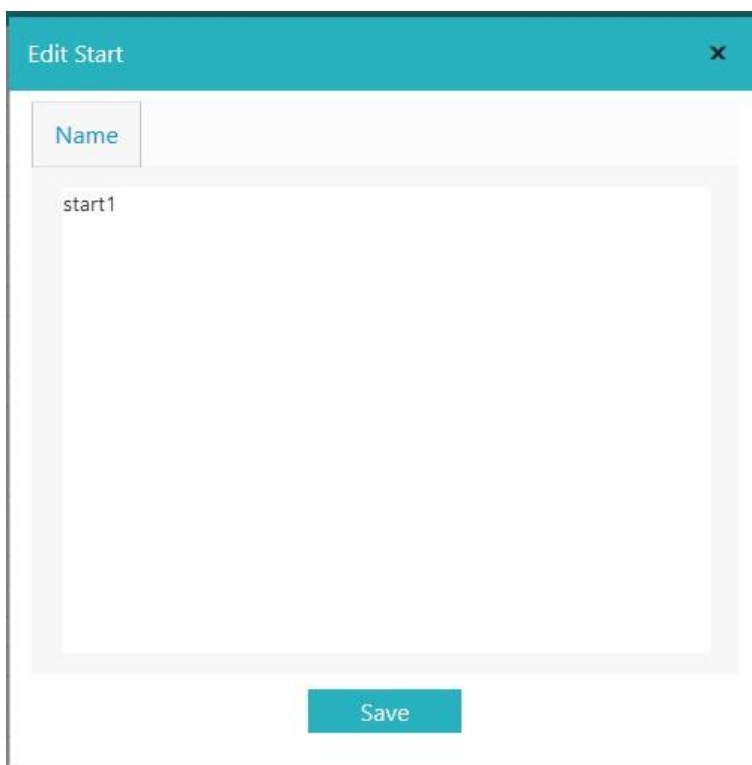


Figure 17 Editing the start node

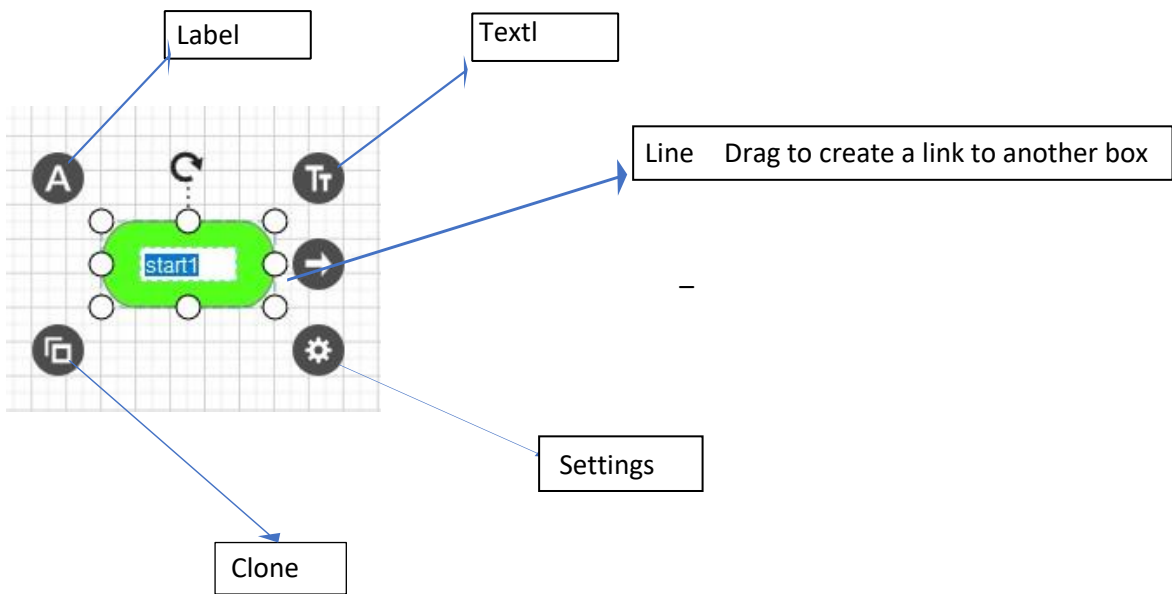


Figure 18 Halos on a start node

## Label

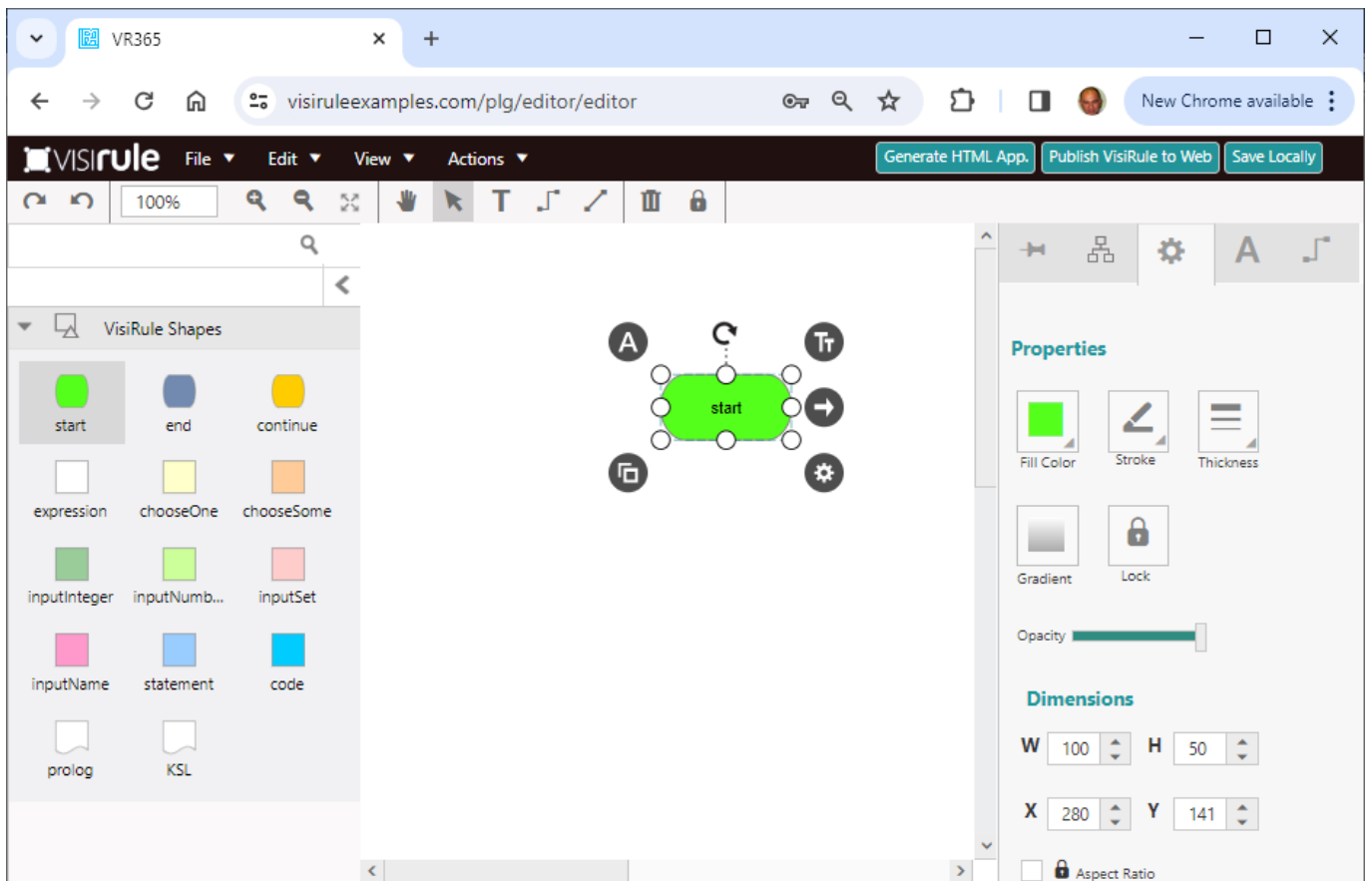


Figure 19 Label dialog pane

## Edit

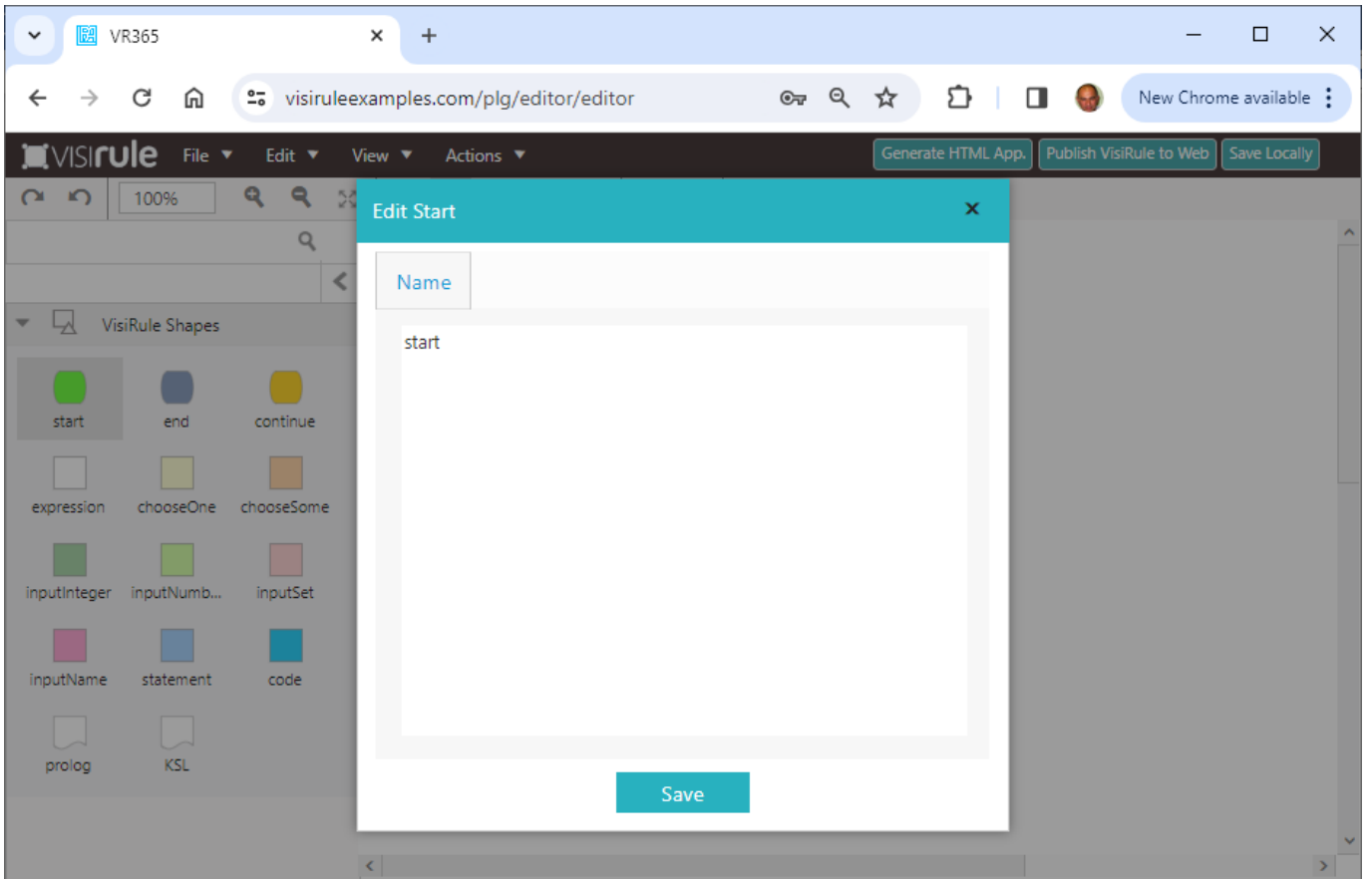


Figure 20 Edit popup dialog

## Link

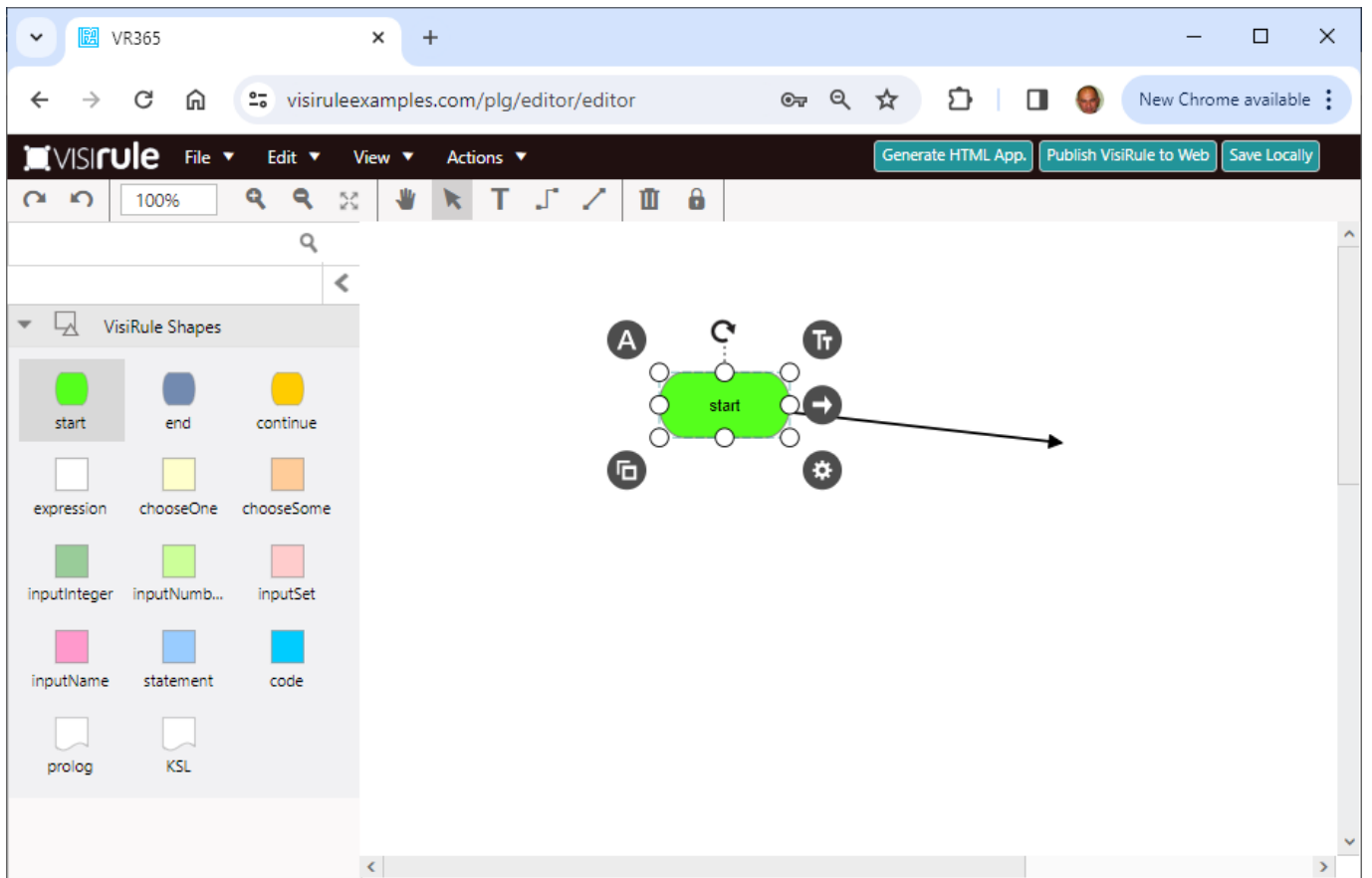


Figure 21 Link node

## Settings

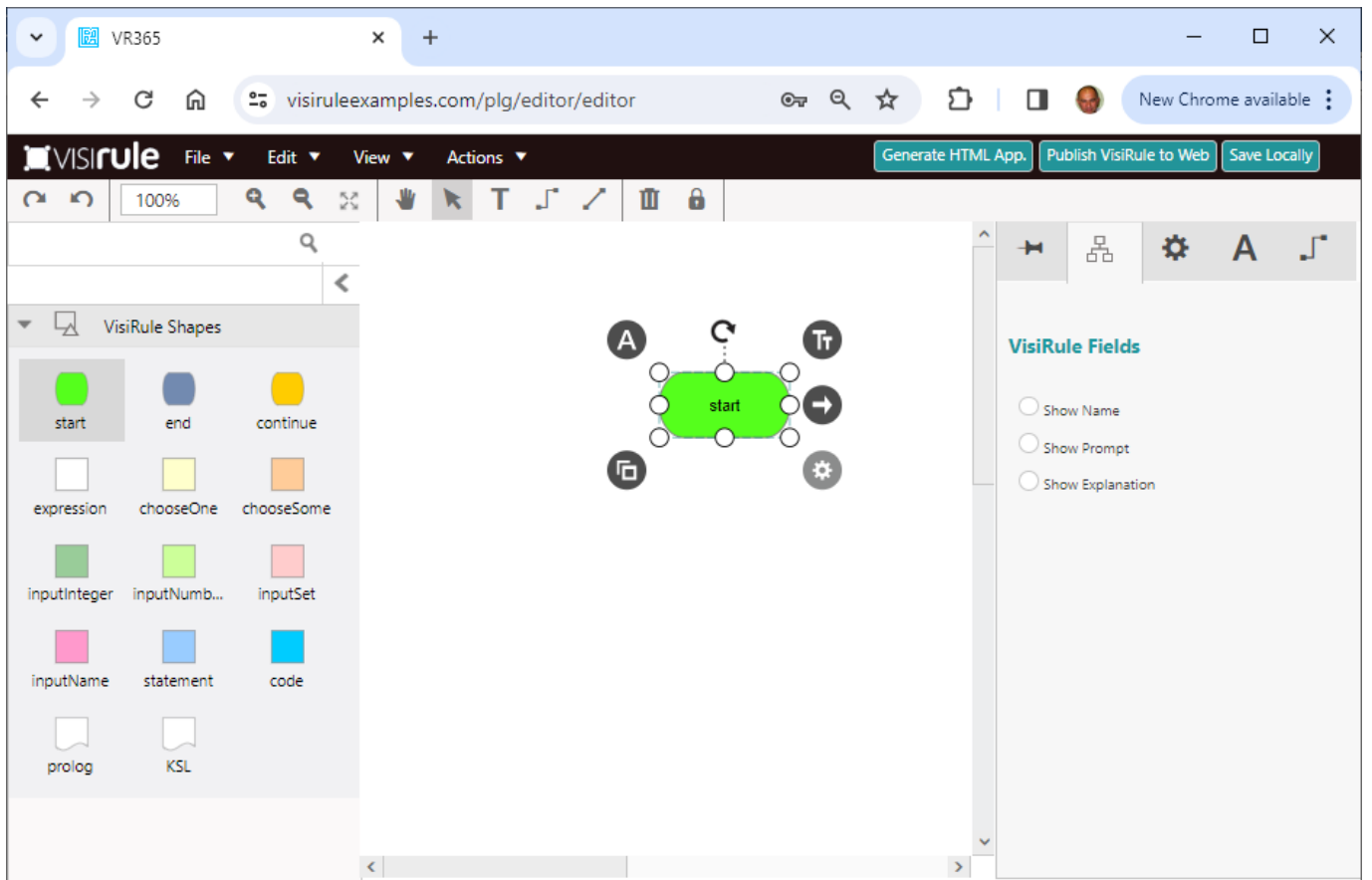


Figure 22 Settings Dialog for Node

## Clobe

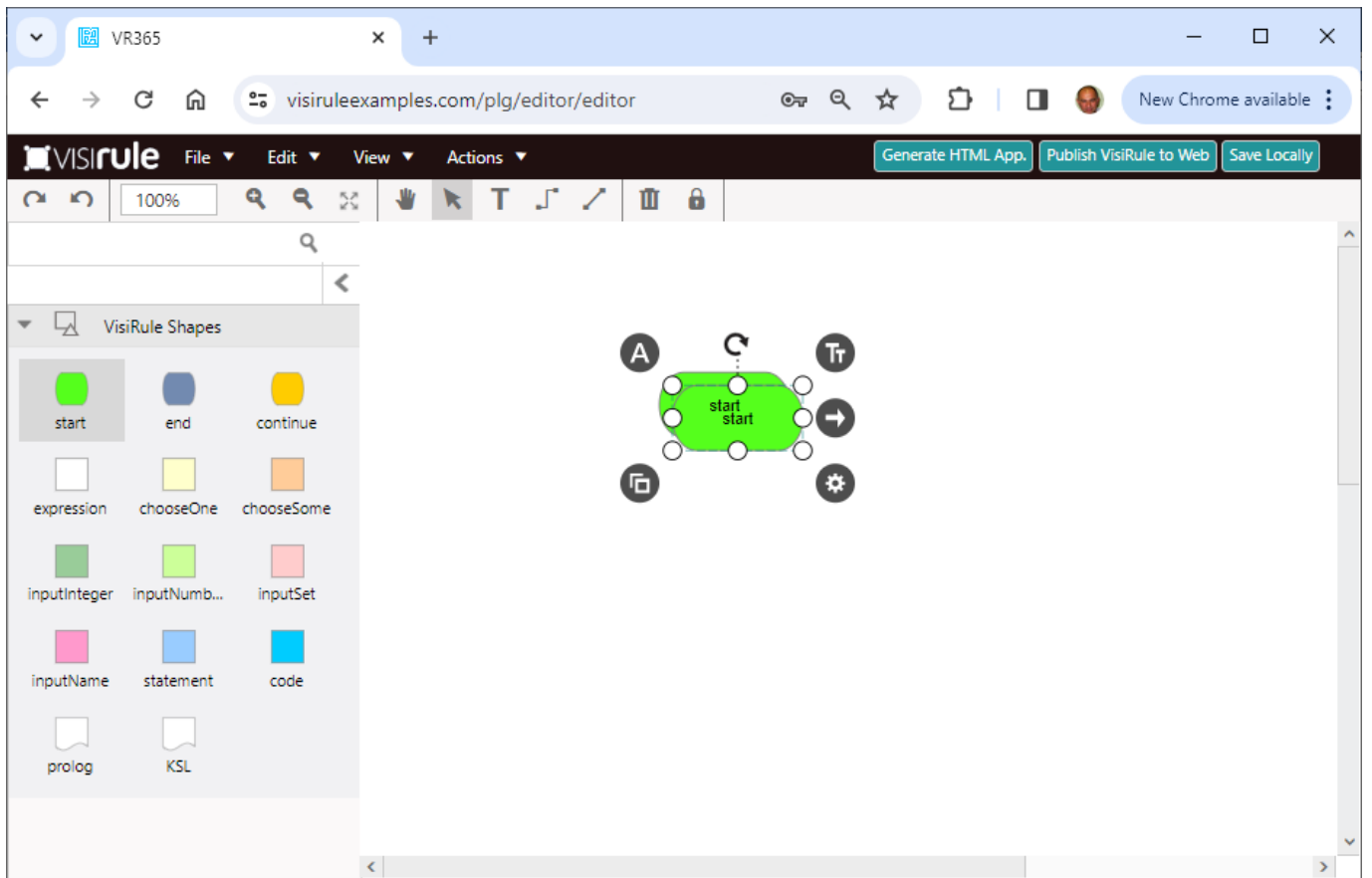


Figure 23 Clone

We can add a question:

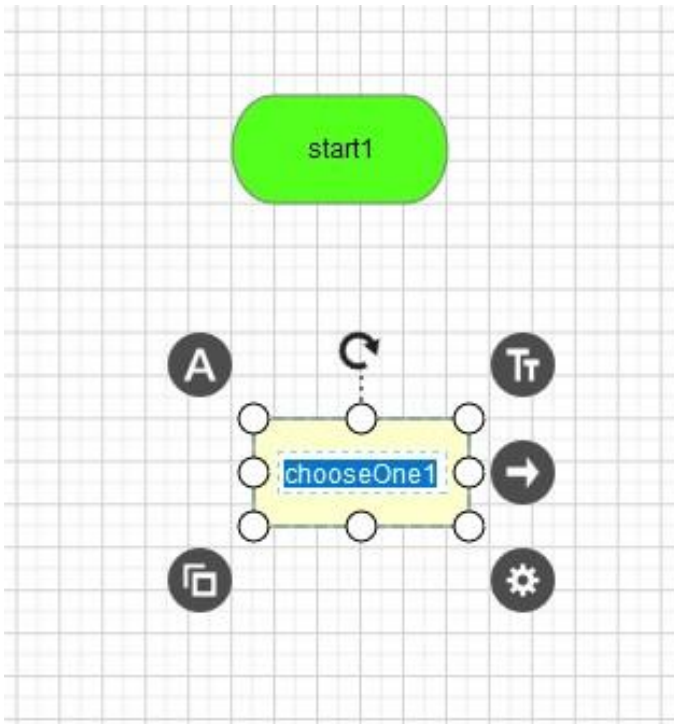


Figure 24 Adding a question

### 3 Tabs in Questions

Tab 1]

The Internal Name for the box ... normally not used nor required UNLESS the question is referenced explicitly later in the chart by name within an expression (or statement box).

The Internal Name is mainly visible from a Chart Developers' viewpoint; it is not visible at run-time (other than for debugging and/or reporting purposes); i.e. the user is generally unaware of the names of the questions.

The name is used in the question trail which records and reports on the user's session.

Try NOT to use spaces (or even a CapitalInitialLetter), as this means quotes are needed in any future expression.

Tab 2]

This contains the text which is to be used at run-time as the question prompt'; this is what the user sees when the question is presented.

Tab 3]

An optional piece of text which serves as an explanation .... could be include a URL which will act as a link ... or any well formed HTML

If interlocutors are supported, such as HOW, WHY, What, then follow the instructions for how to organize them.

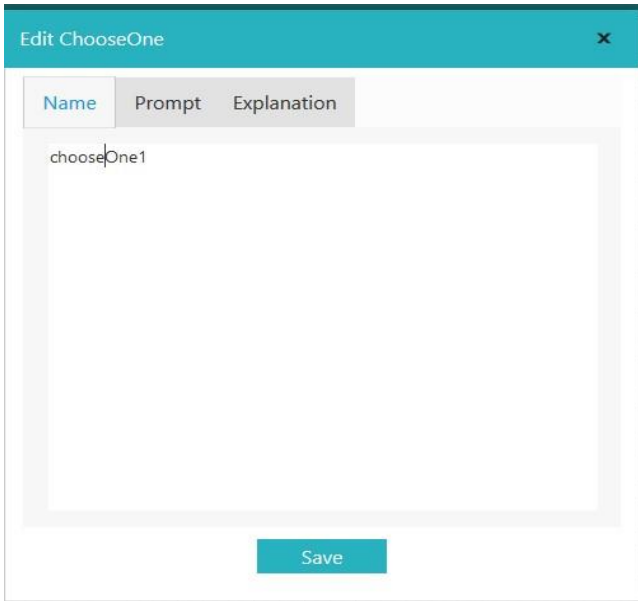


Figure 25 Editing a question name

Changing the name of the question does NOT change the prompt, which by default is set to the single word, prompt.

Explanations to questions can be as big as you like.

Lets copy some text from a VisiRule web page:

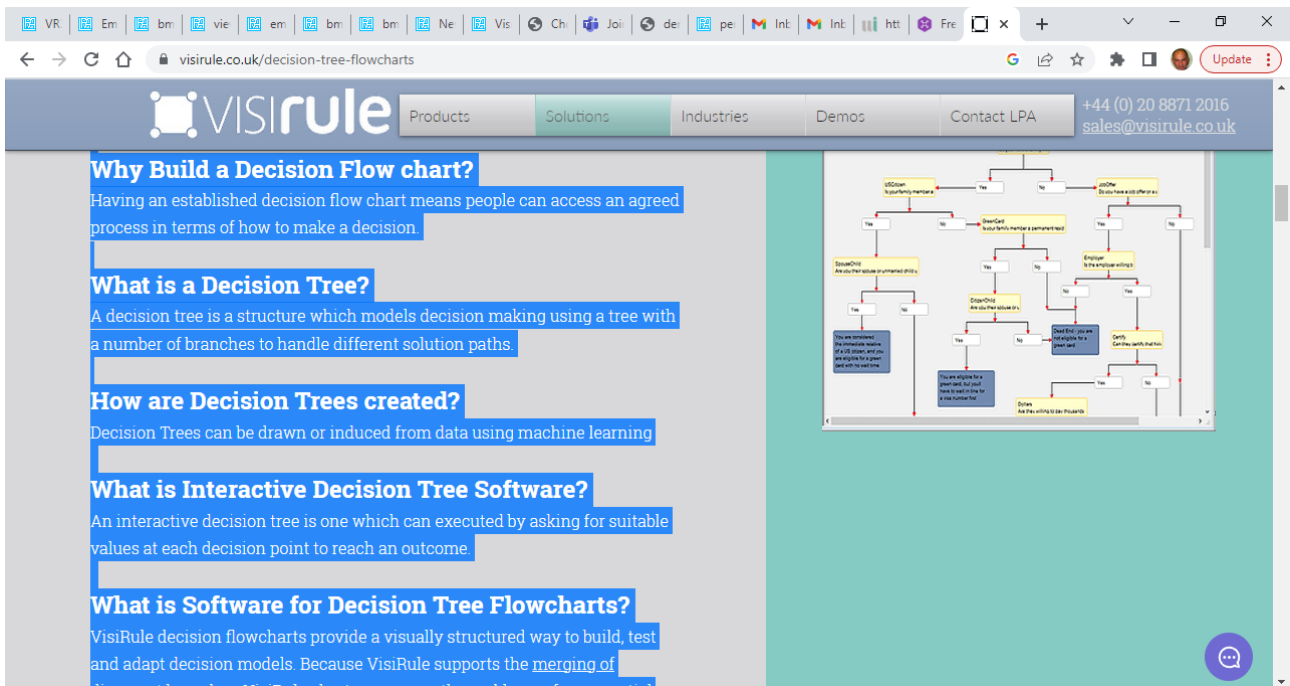


Figure 26 Copying some text from a web page



## Paste it into an HTML editor

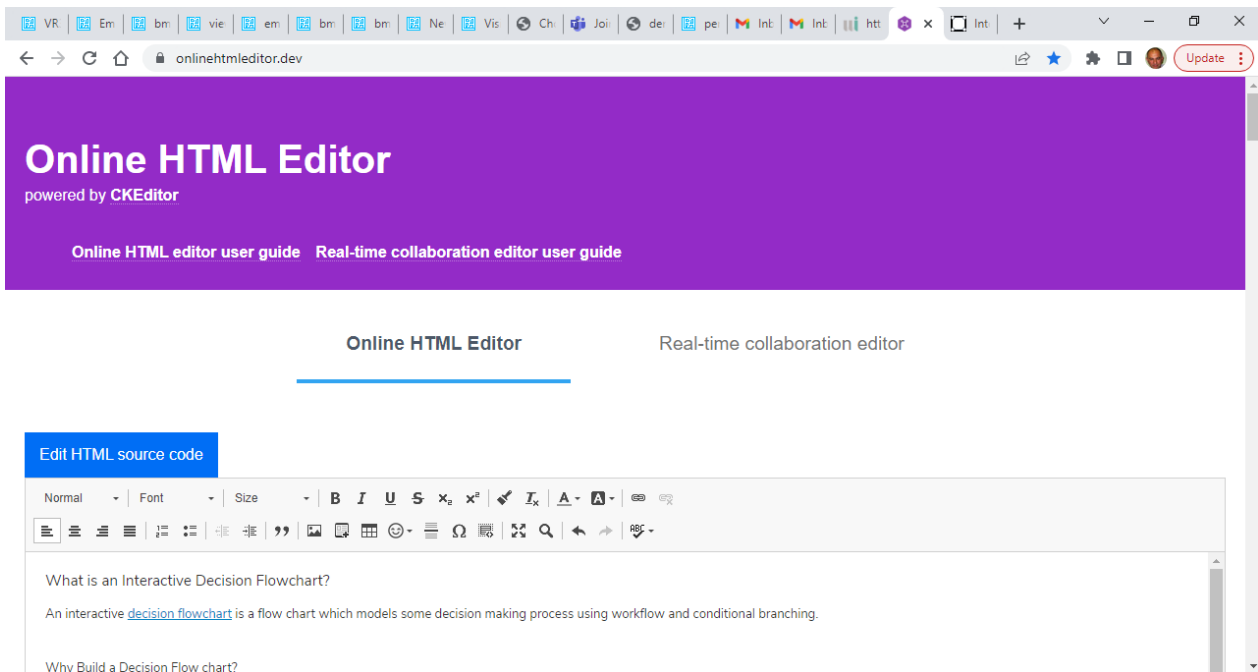


Figure 27 Using an online HTML editor to get the HTML created

## Get the HTML code:

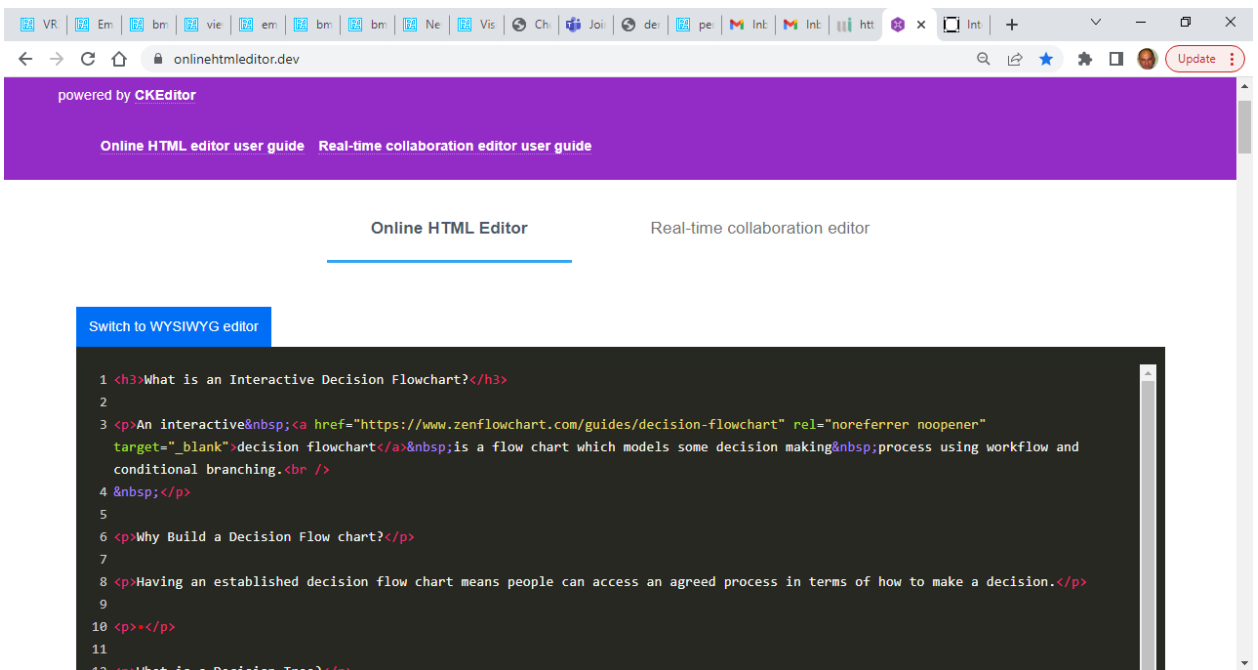


Figure 28 Accessing the HTML code

Copy and paste the HTML into the explanation

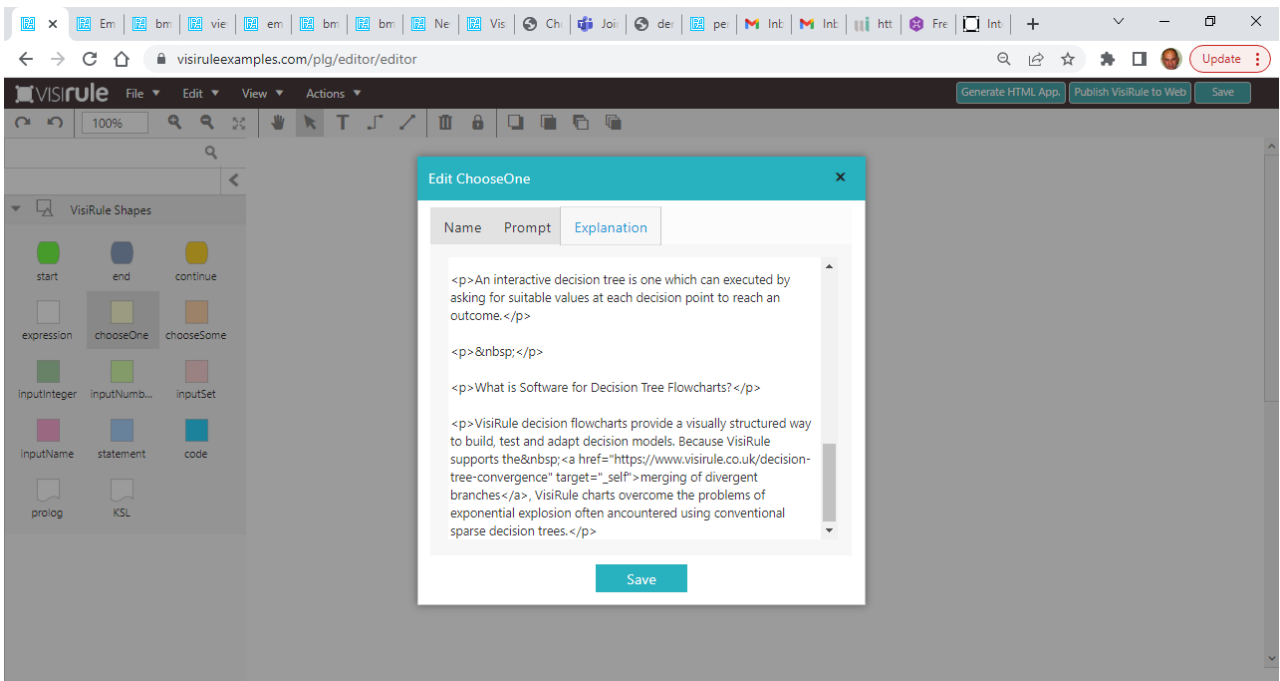


Figure 29 Adding the HTML code to the question

Lets complete the chart with just the one question and save it:

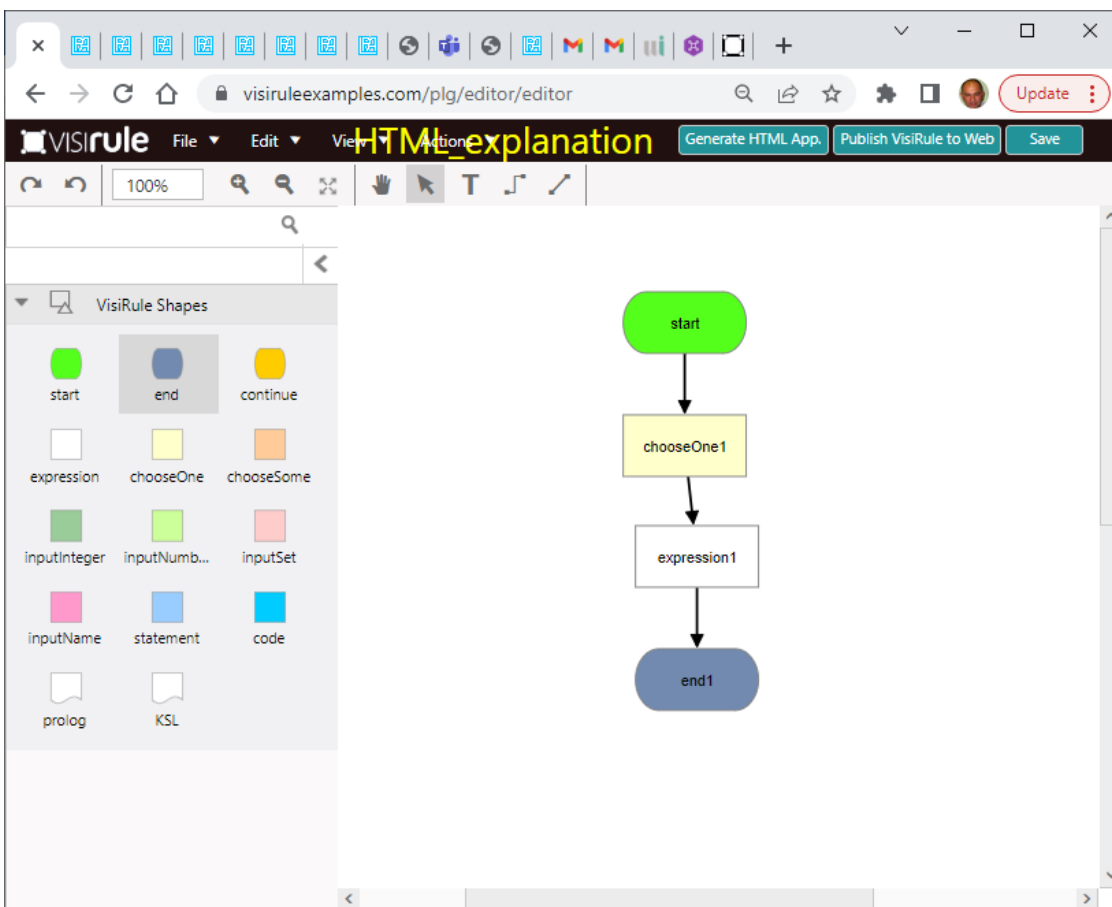


Figure 30 A very very simple chart with one question

When we publish a chart with question we will see something like:

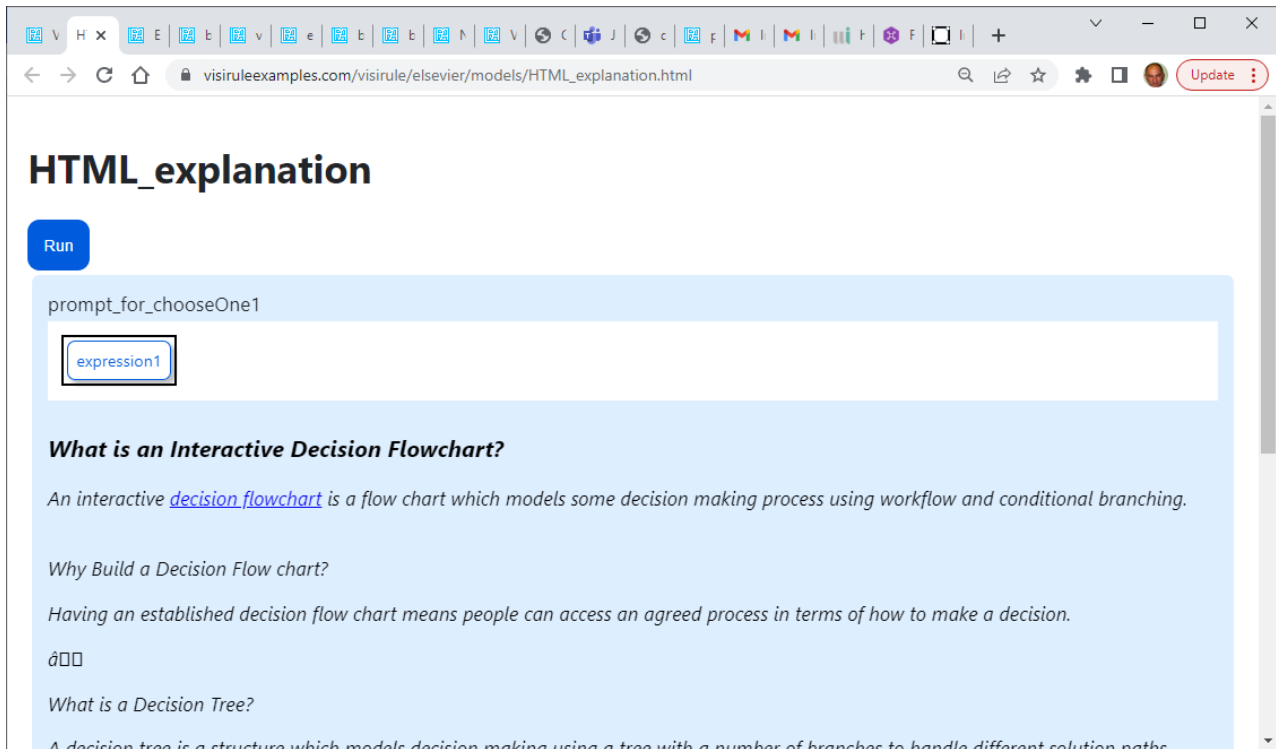


Figure 31 Generated HTML showing explanation for question

The links are there but some of the formatting has gone awry!

## Link the Start node to the Question

One way to do this is to Select the Link tool from the panel at the top of the canvass

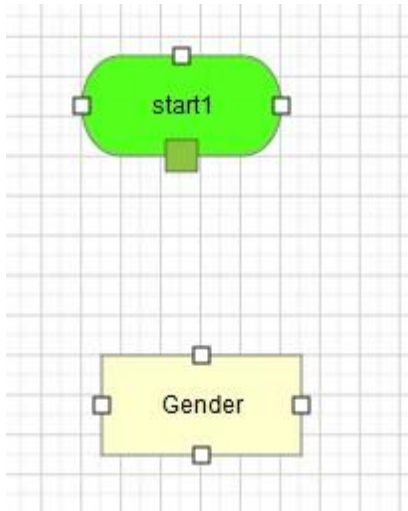
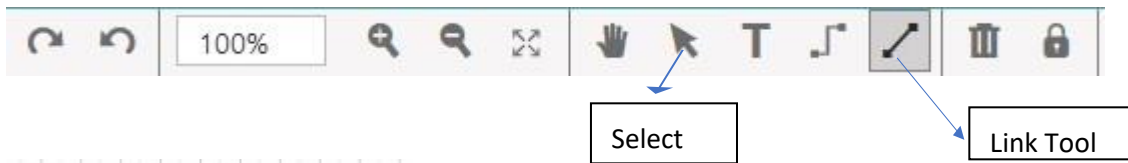


Figure 32 Starting to link

There are various ways to link nodes; one is to Select a Port on the start node – it becomes a solid green box

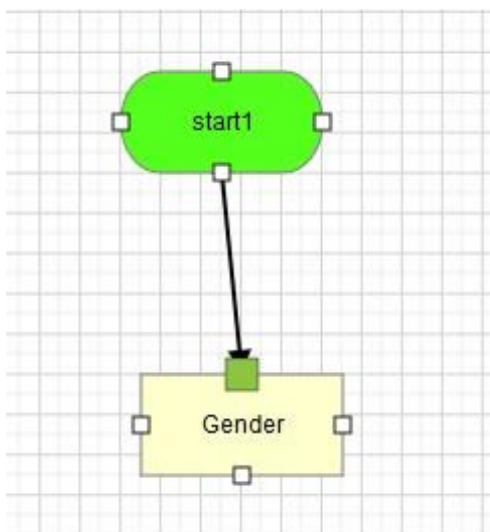


Figure 33 Linking to a Port

Drag to a Port on the 2<sup>nd</sup> Node –when it becomes a solid green box, you should release the mouse drag. You should have created the link – and can check by dragging one of the nodes around.

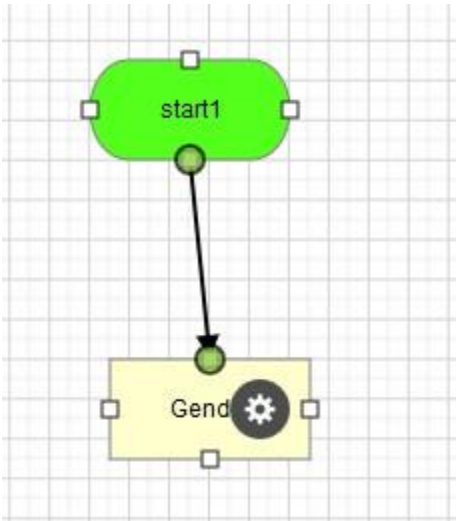


Figure 34 Linked to a pPort

If you connect to a Port, then when you release – both Ports should become green circles

You can check that the boxes are linked correctly, by selecting one of them using the select tool and then dragging the box somewhere. The link should follow!

Conditional logic in VR365 is represented by expressions being linked to Questions.

The expressions act as a logical guard; i.e. the expression has to be true for the execution to be able to follow that path i.e. that line of reasoning.

This is the equivalent of an If-Then rule.

We can create expressions using the Expression tool:

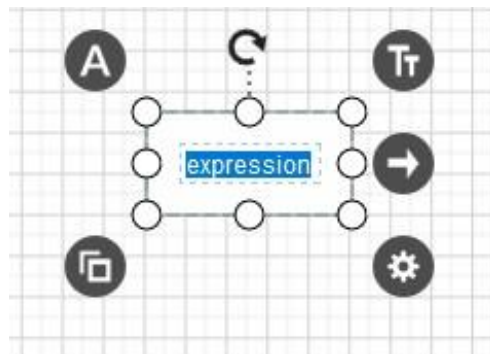


Figure 35 Editing an expression

When we edit the expression we only see a single tab field

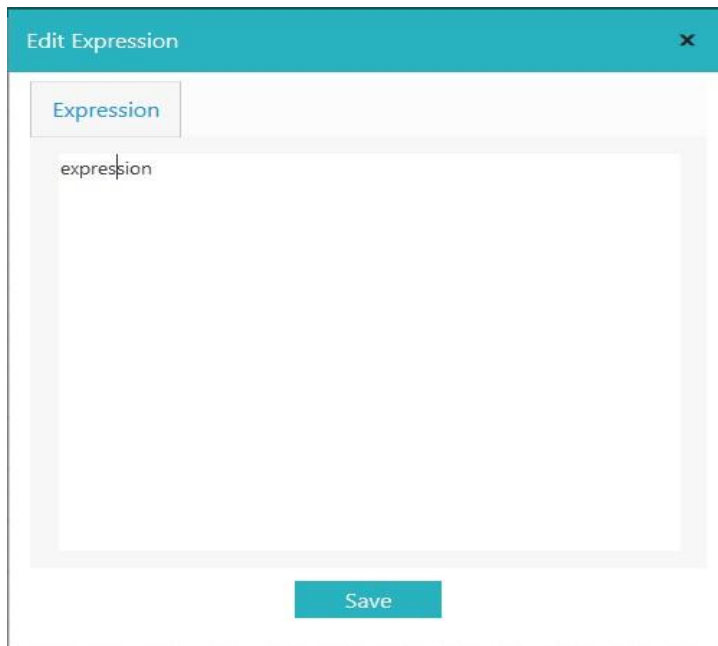


Figure 36 Expression editing in dialog

The type of expression we enter should match the type of question we are testing.

So in the case of single-choice questions, we generally test for simple values as the expression.

Remember: if you have space in your expression, you MUST quote the expression

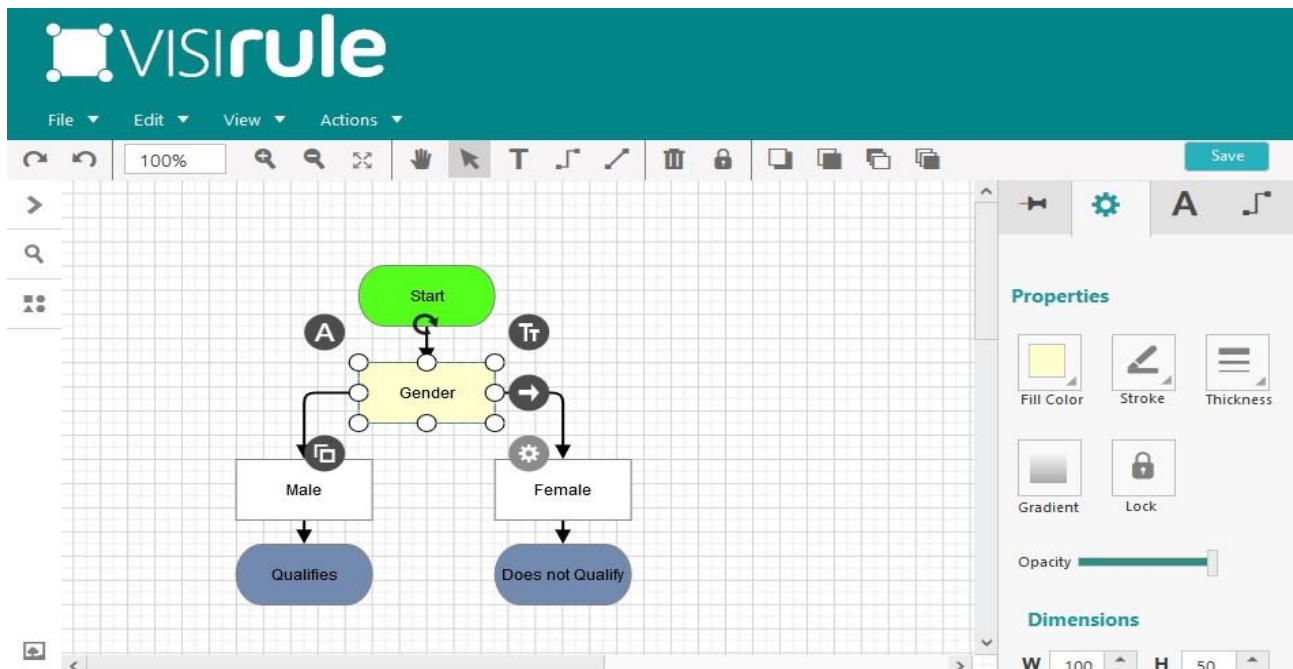


Figure 37 Properties of a node

The Settings pane provides control over how the node is displayed

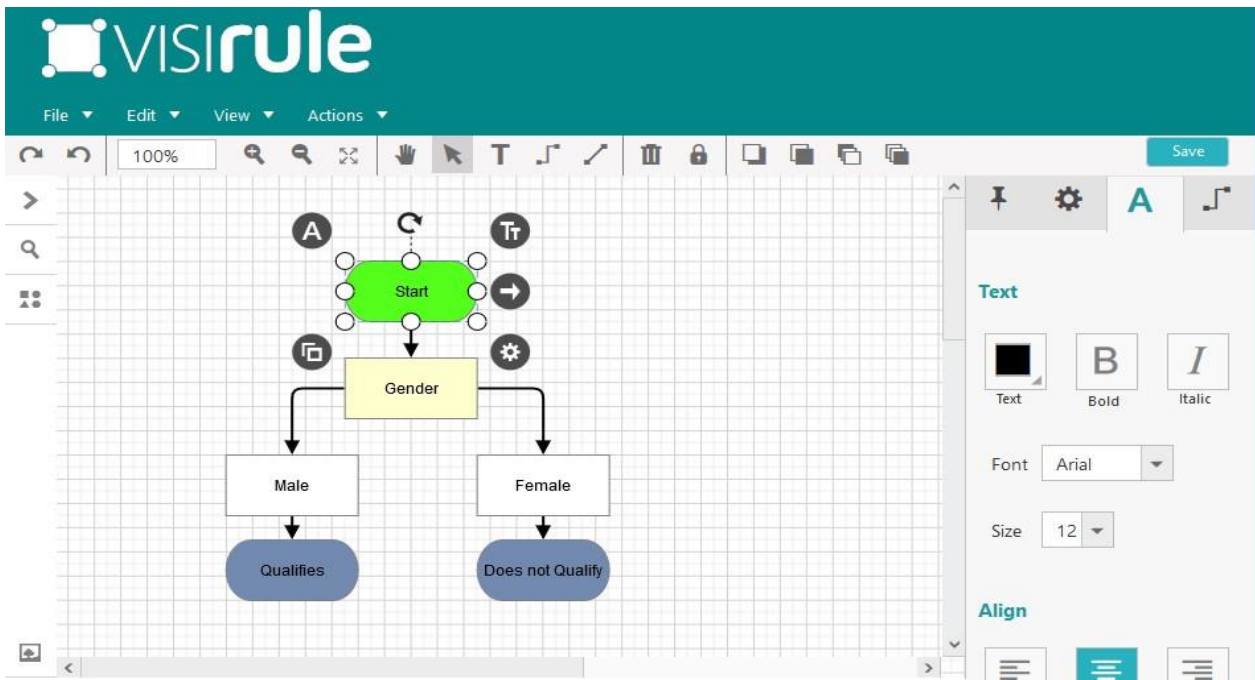


Figure 38 Changing the text properties of a node

The label pane allows us to change the properties of the label such as font, alignment etc

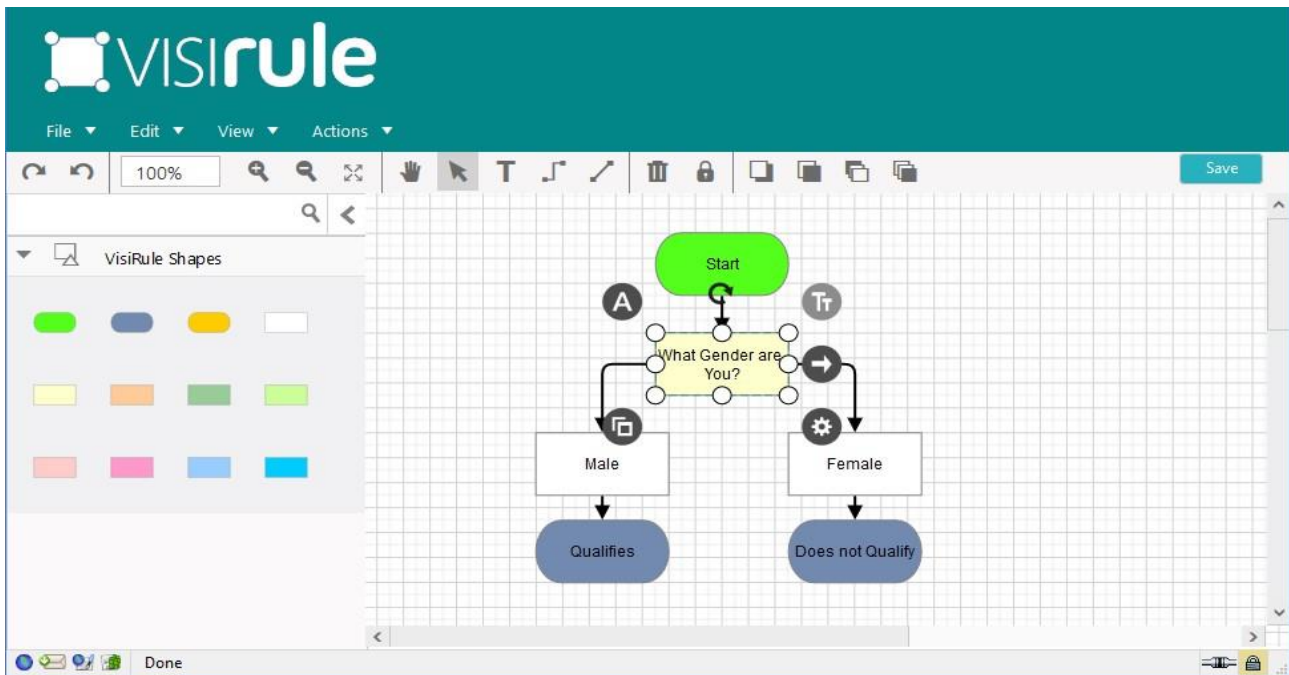


Figure 39 Curved connectors

You can also use non-straight lines to link nodes

Again, care must be taken ensure that the link does start ON a Port and end ON a Port

You can change the link type using the gear icon



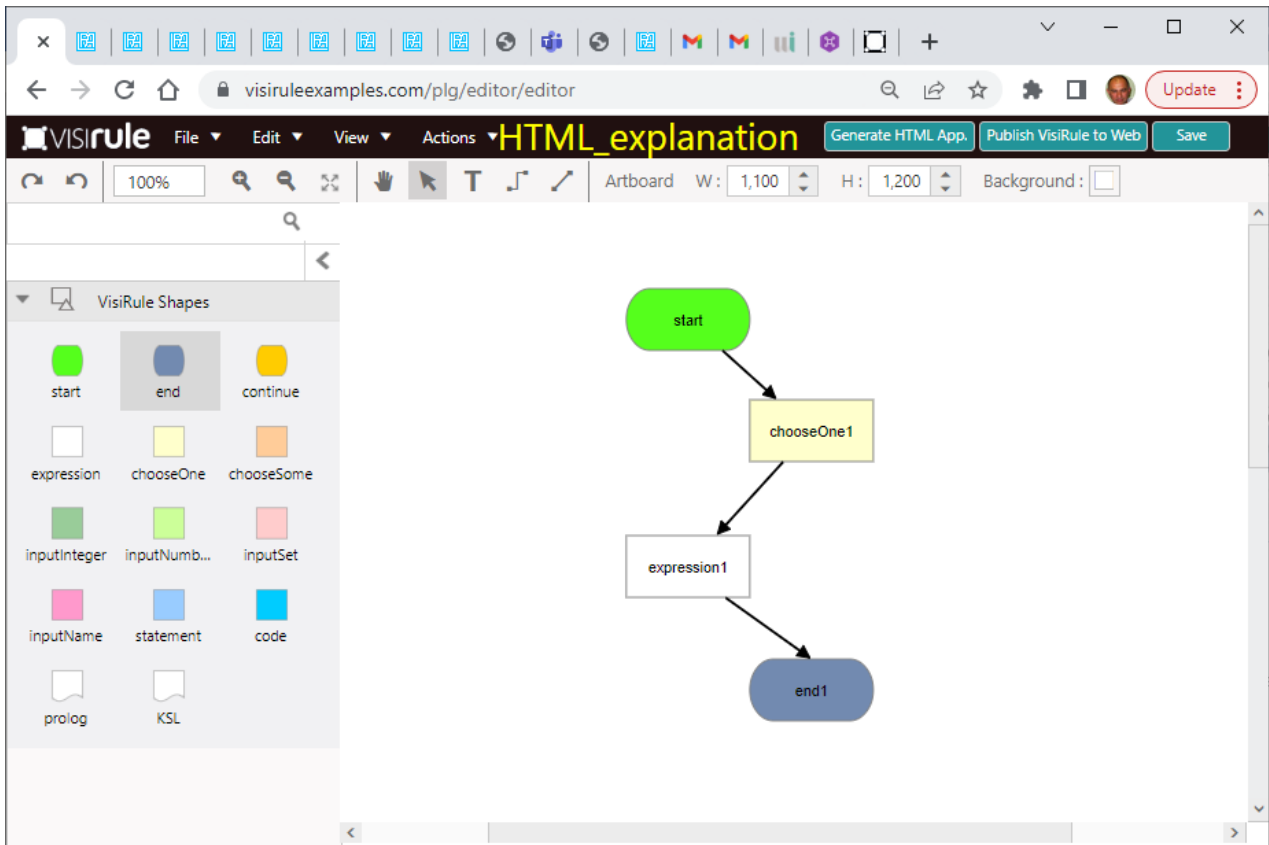


Figure 40 Initial Chart

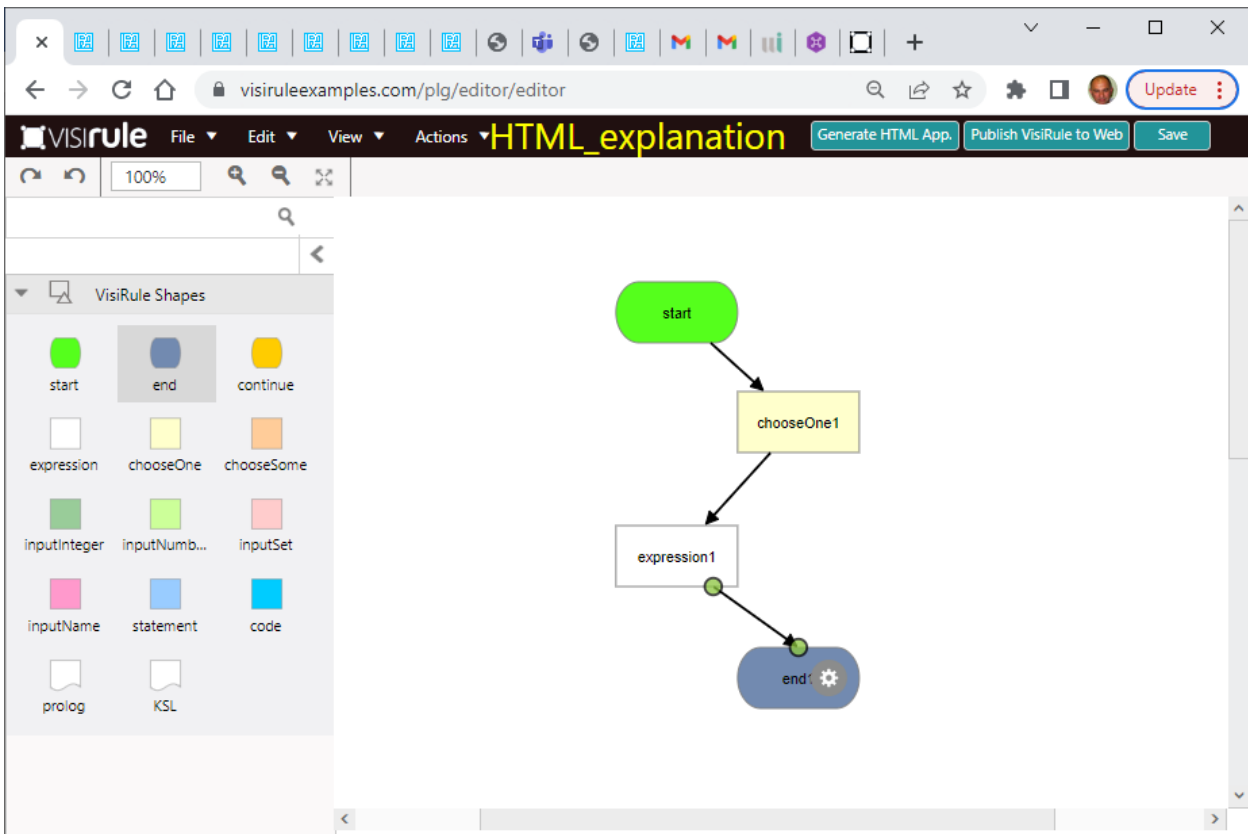


Figure 41 Selecting a straight link connector

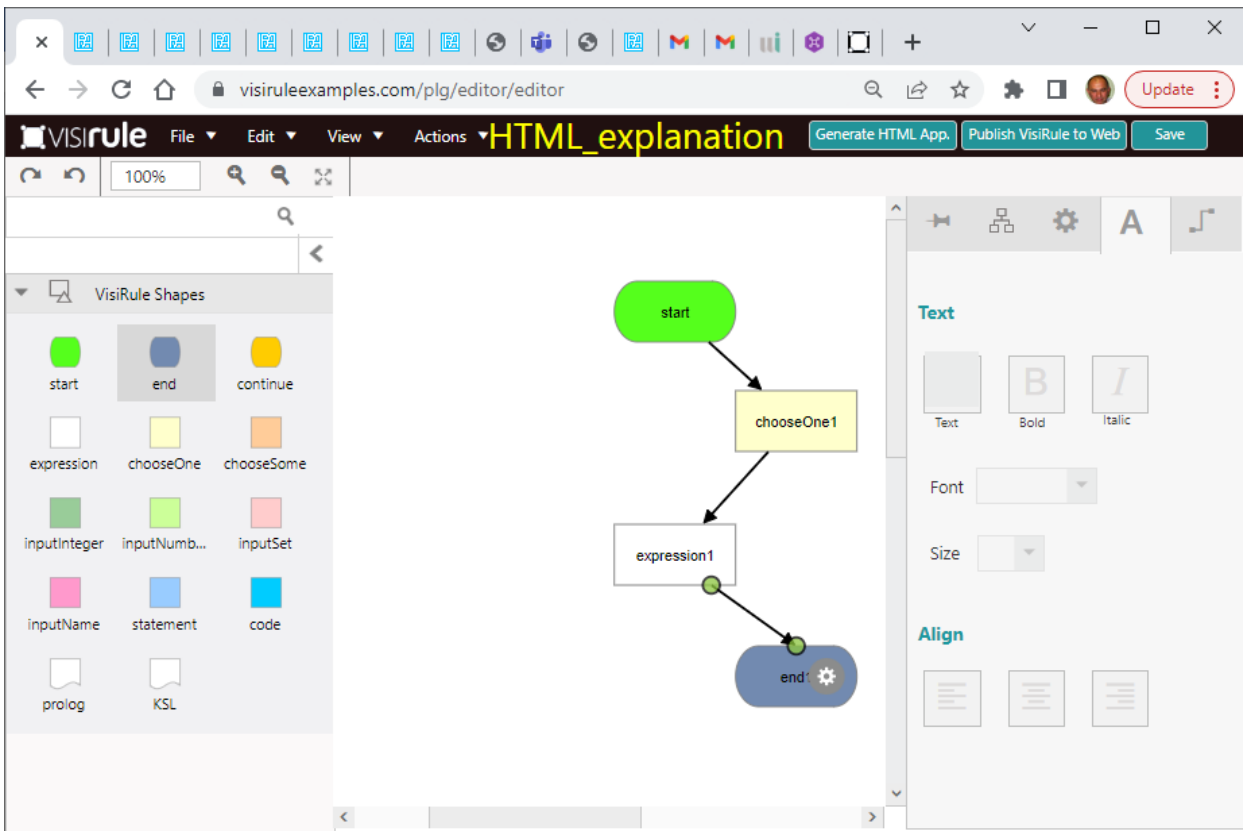


Figure 42 Clicking on the gear cog will open up the property panel to the right

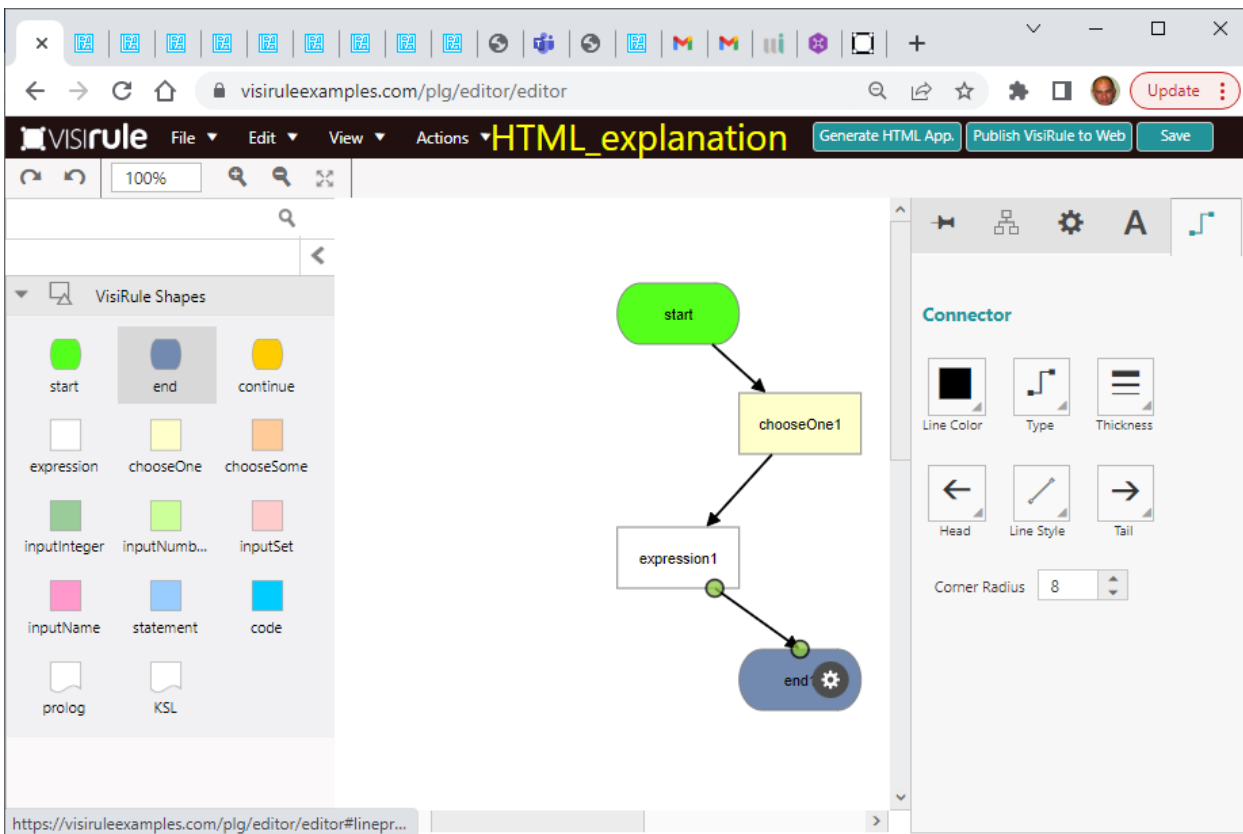


Figure 43 Selecting the 5th (last) icon accesses the connector properties

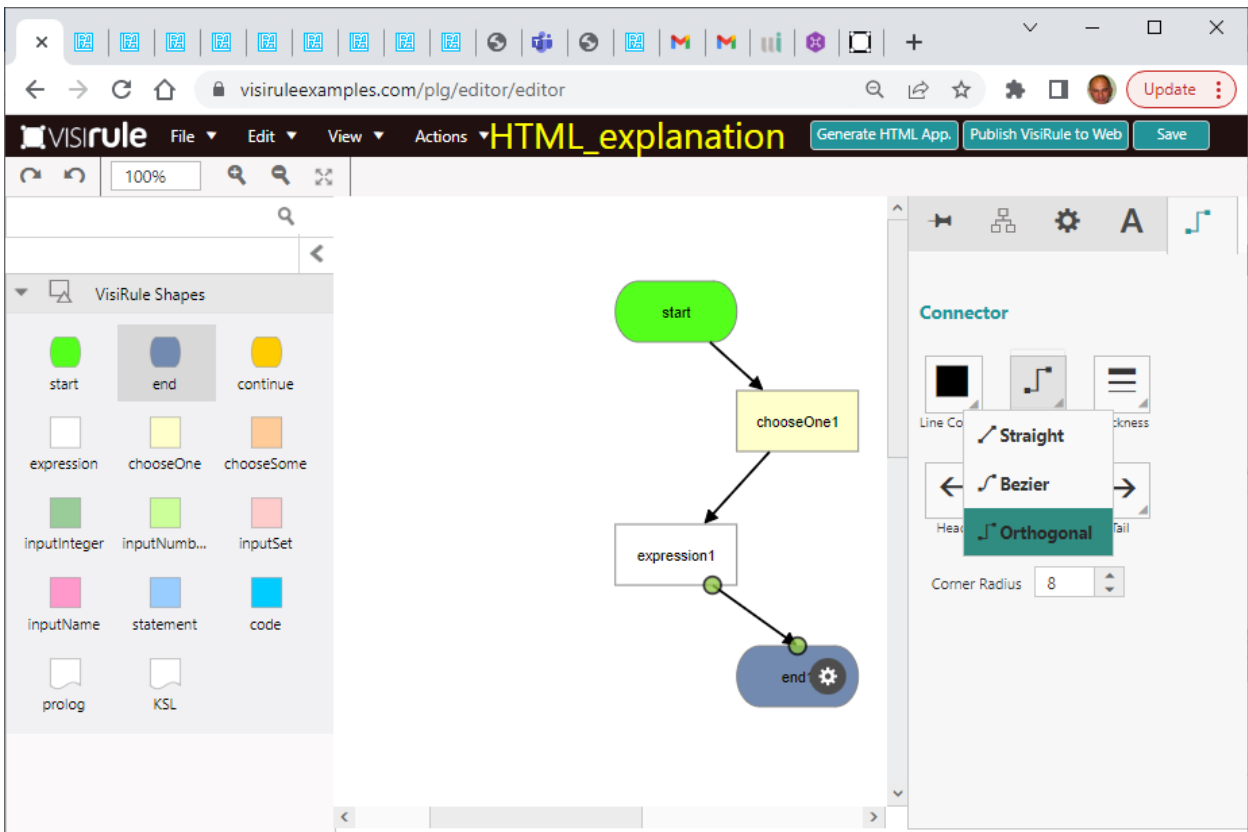


Figure 44 Changing line type to Orthogonal for connector link

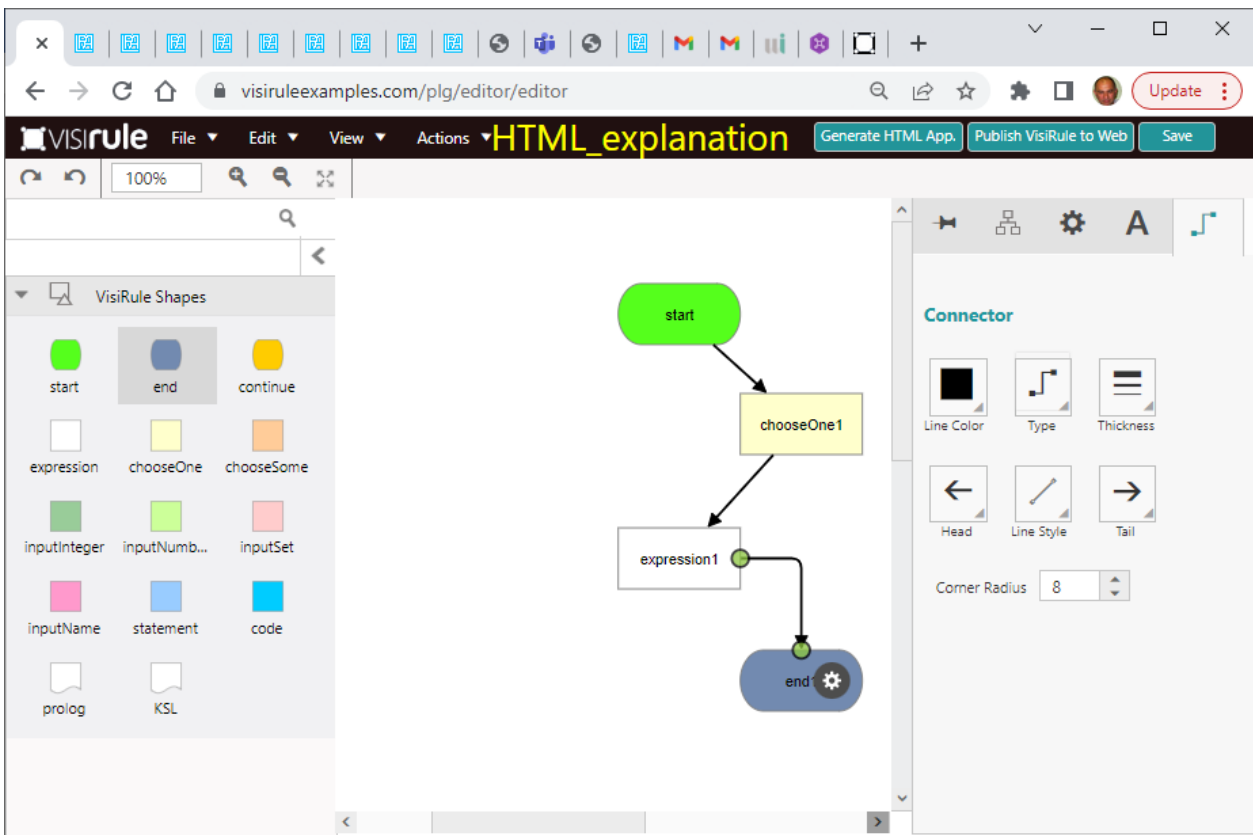


Figure 45 New curved link connector

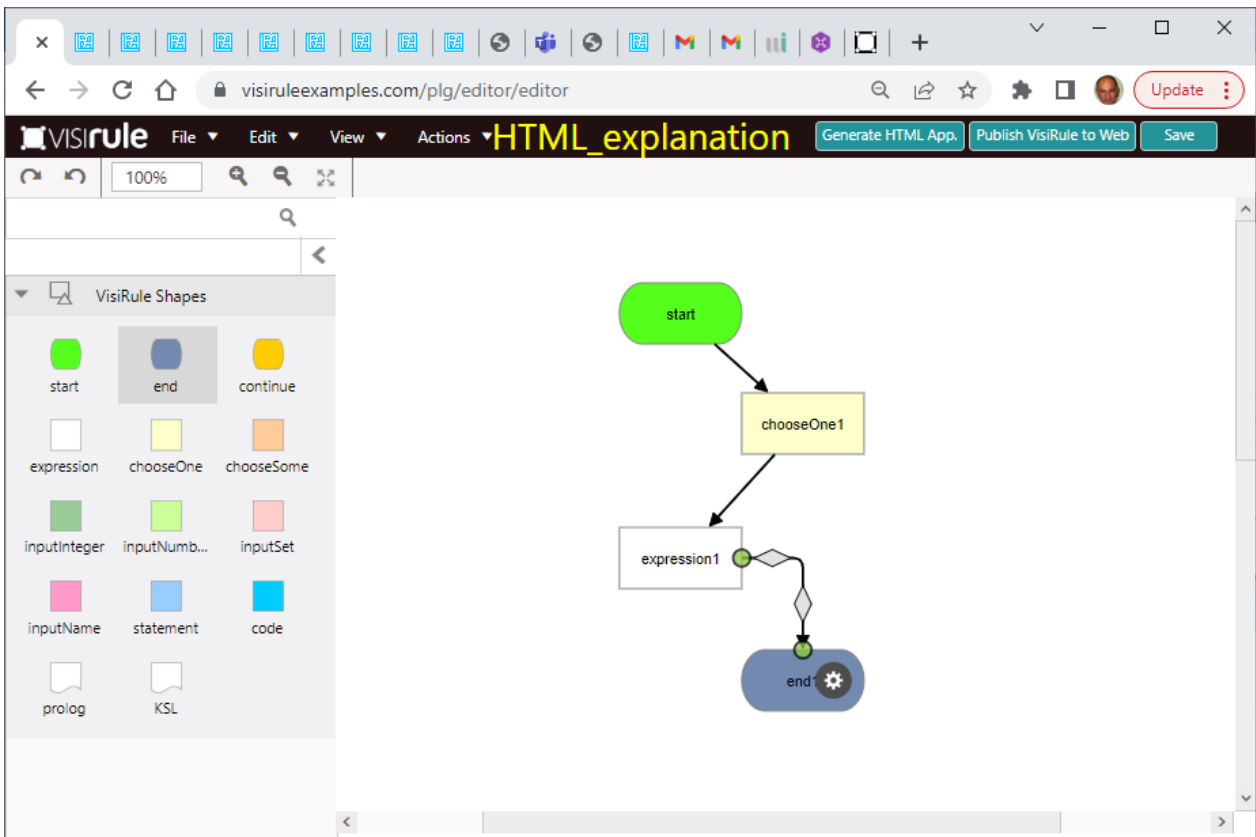


Figure 46 Selecting curved link shows diamond handles

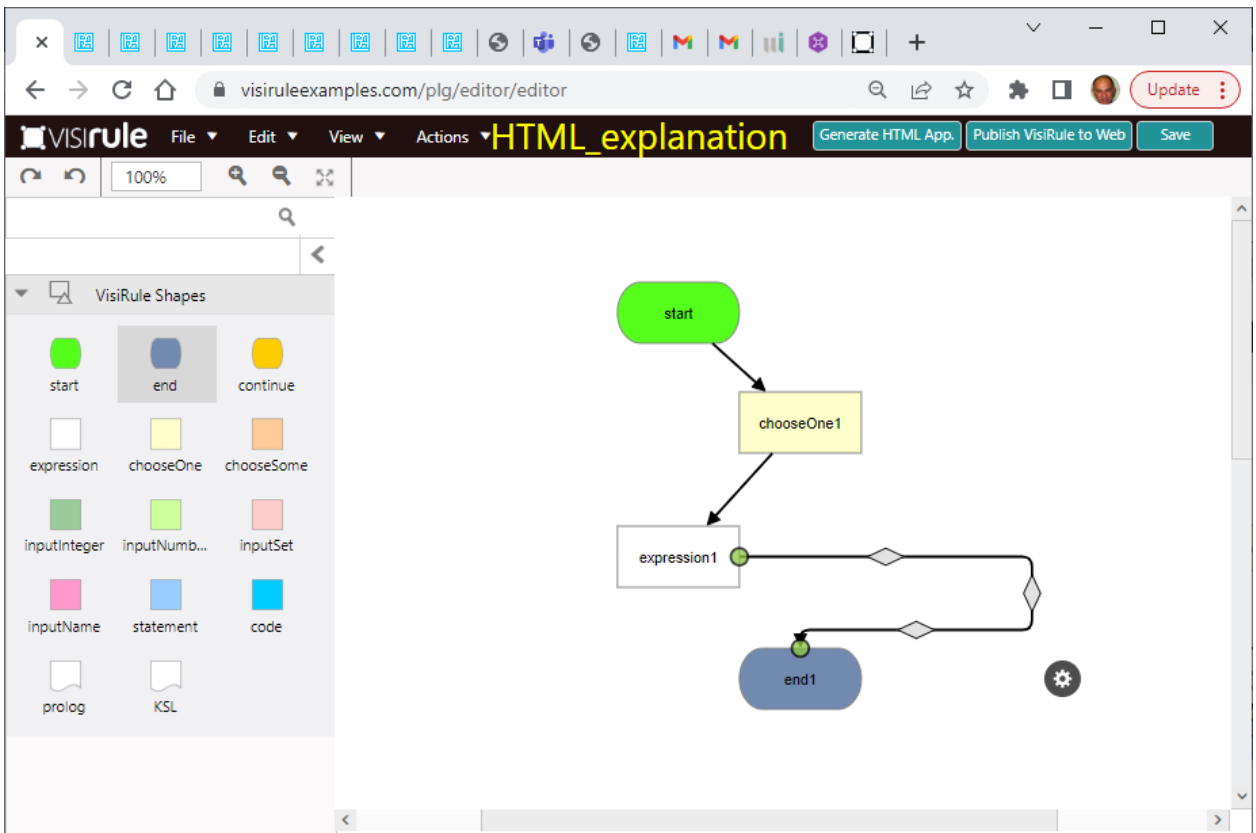


Figure 47 Dragging handles reshapes link

## Statement Boxes

Statement boxes are in effect computational questions, i.e. rather than ask the user for an answer, they compute the answer using some code which typically refers to other answers in other questions ... i.e. a derived value based on earlier input or look-up values.

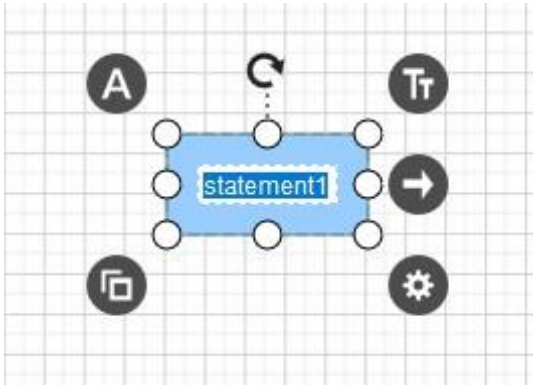


Figure 48 Simple statement box

Statement boxes also have 3 fields:

Name

Variable (to be used to expose the result)

Code (which contains at least one use of the exposed variable)

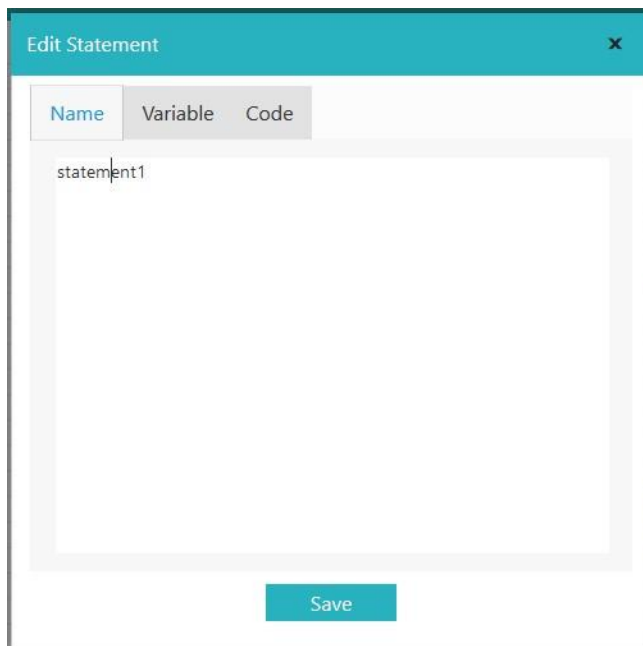


Figure 49 Statement node tabs

### The 3 Tabs in a Statement Box

Tab 1) The Internal Name for the Statement Box ... normally never used UNLESS the statement box is referenced explicitly by name in a later expression (or statement box) in the chart. As with Question Names, the Internal Name is only visible from a Chart Developers' viewpoint; it is not visible at run-time (other than for debugging and/or reporting purposes)

Tab 2) The name of the logical Variable (UpperCaseInitialLetter) which occurs in the statement box code (Tab 3) which contains the answer

A typical logical variable is:

```
o X o Answer o Income
```

Tab 3) Some program code which can use one or more LogicalVariables; only one of which (the one in Field 2) will be used to communicate the computed value of the statement

### Logical Implication

Implication syntax (ala Prolog) can be used to conditionally set answers. Examples of implication (If-Then-Else) are:

```
( 'Value' > 0, 'Value' < 50 -> Answer = 'Low';  
  'Value' >= 51, 'Value' < 100 -> Answer = 'Medium';  
  Answer = 'High' )
```

This reads that is the value of the item called 'Value' is between 0 and 50, then set the Answer variable to 'Low'; otherwise, if it is between 51 and 100, then set the Answer variable to 'Medium', otherwise set the Answer variable to 'High'.

### Simple Calculations in Statement Boxes

Examples:

i]

```
Total is 'Question1' + 'Question2'
```

ii]

```
Total1 is 'Q1' + 'Q2' * 12,  
Total2 is 'Q3' + 'Q4' * 12, Diff is Total1 - Total2
```

The variable of interest in [i] is Total and in [ii] is Diff

iii]

```
TotalCost is ('CarCost' * 1.2 ) + 120
```

## Changing your View

You can change which of the fields is displayed on the canvass for a node.

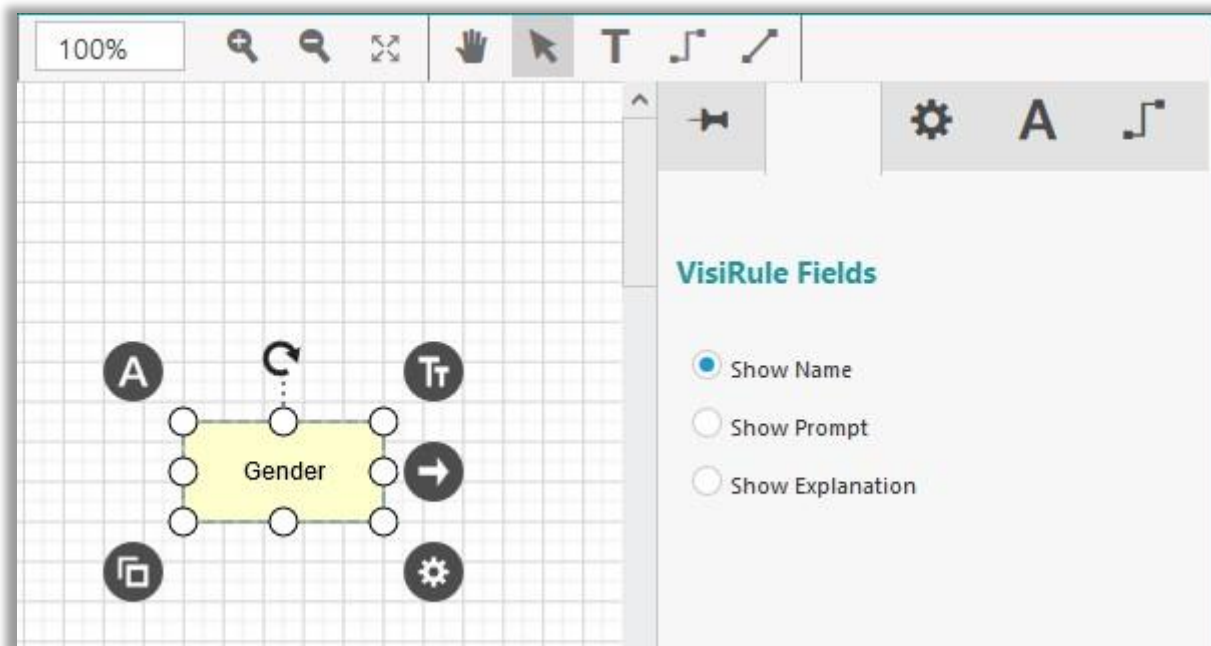


Figure 50 Switching views for display purpose

## Exporting as a diagram

You can use File/Export to save a PNG or JPG of your chart which you can then share with others or include in documentation etc

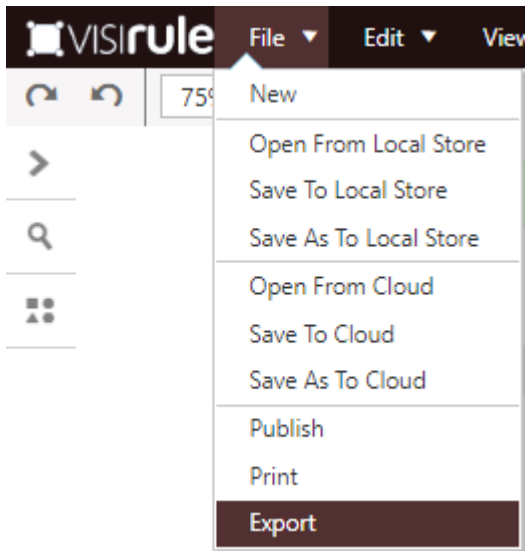


Figure 51 File/Export diagram

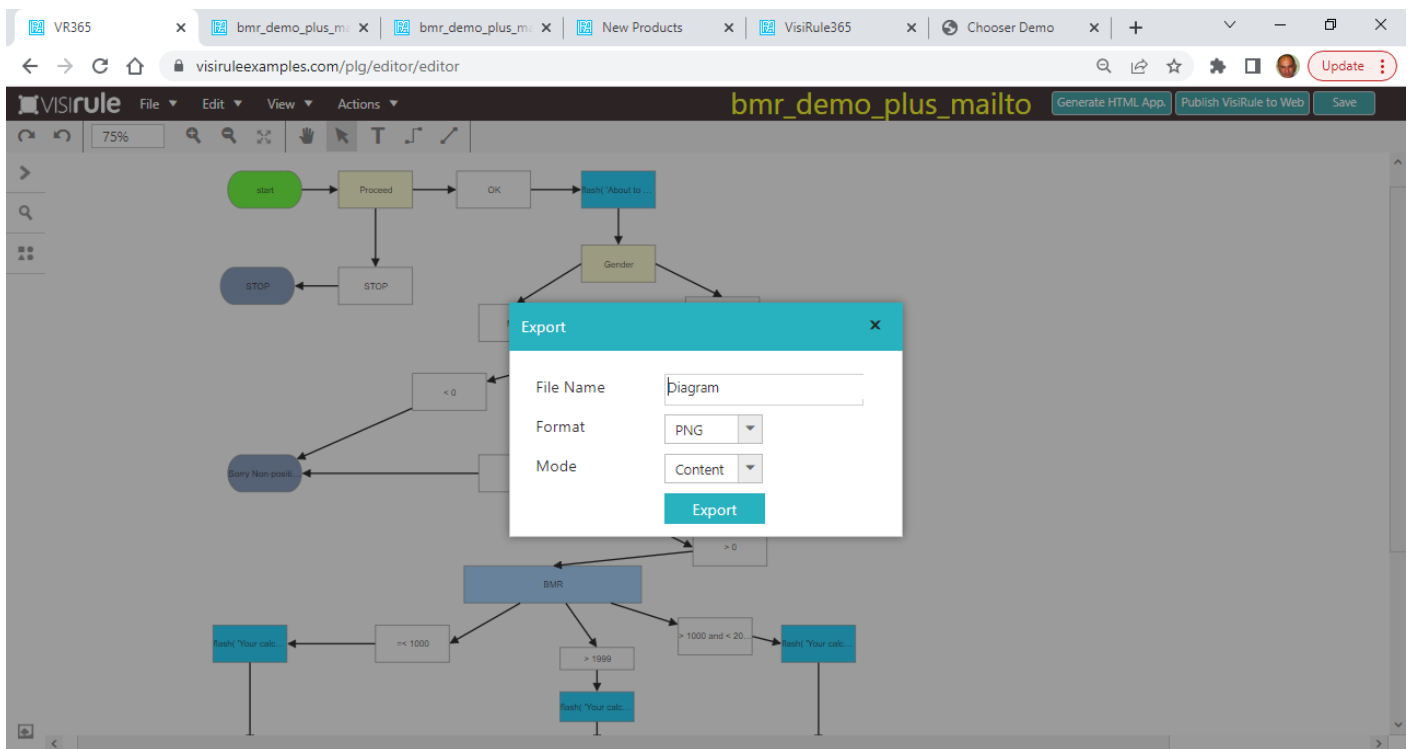


Figure 52 Exporting a diagram as a PNG



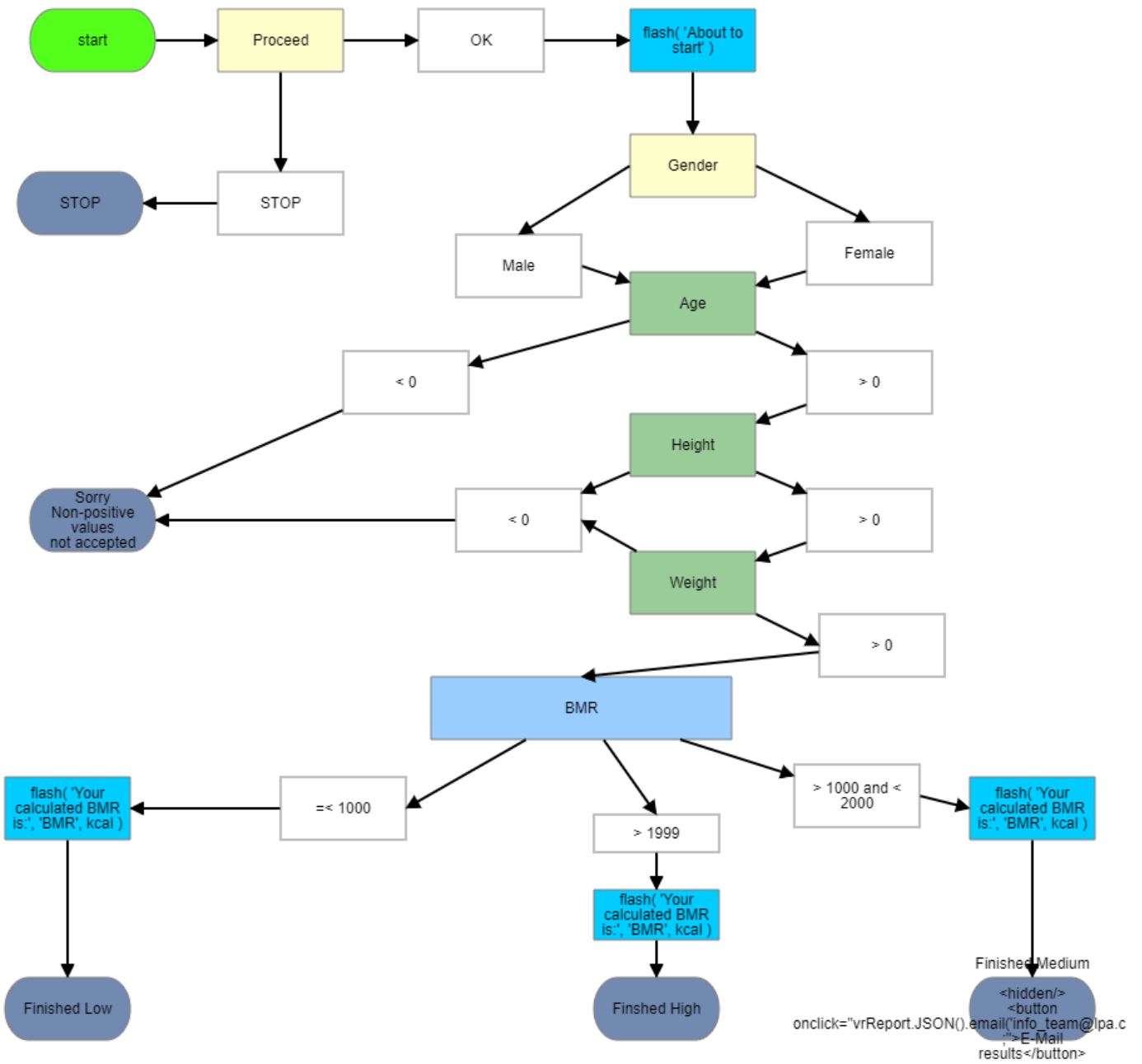


Figure 53 Exported chart as a PNG

## Cloning

Cloning allows you to copy multiple items in a chart and duplicate them.

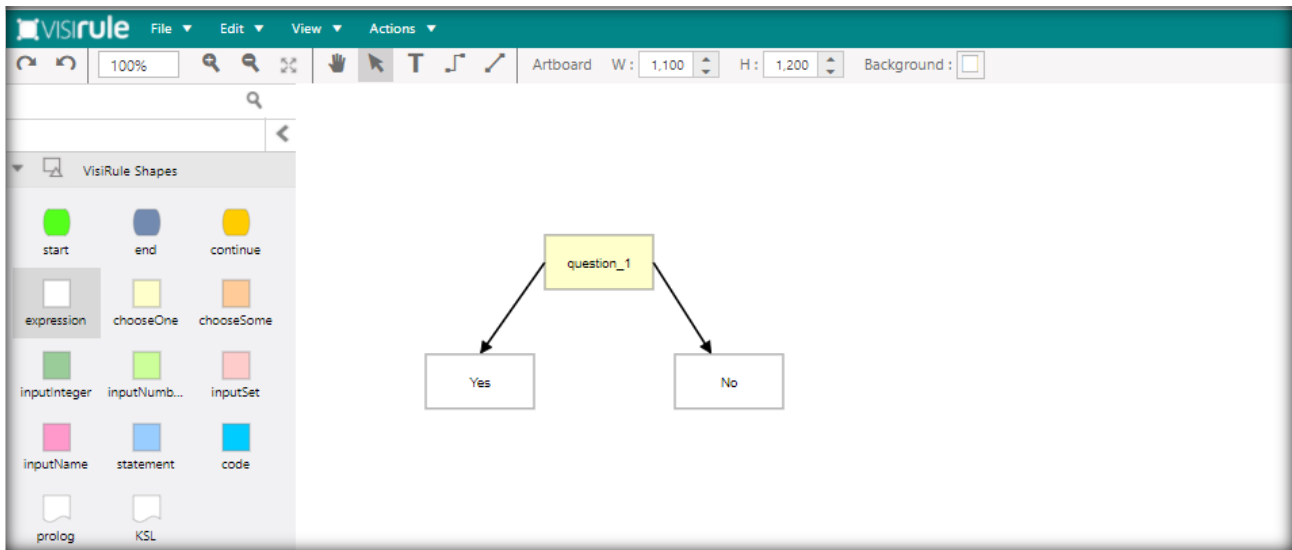


Figure 54 Initial chart before cloning

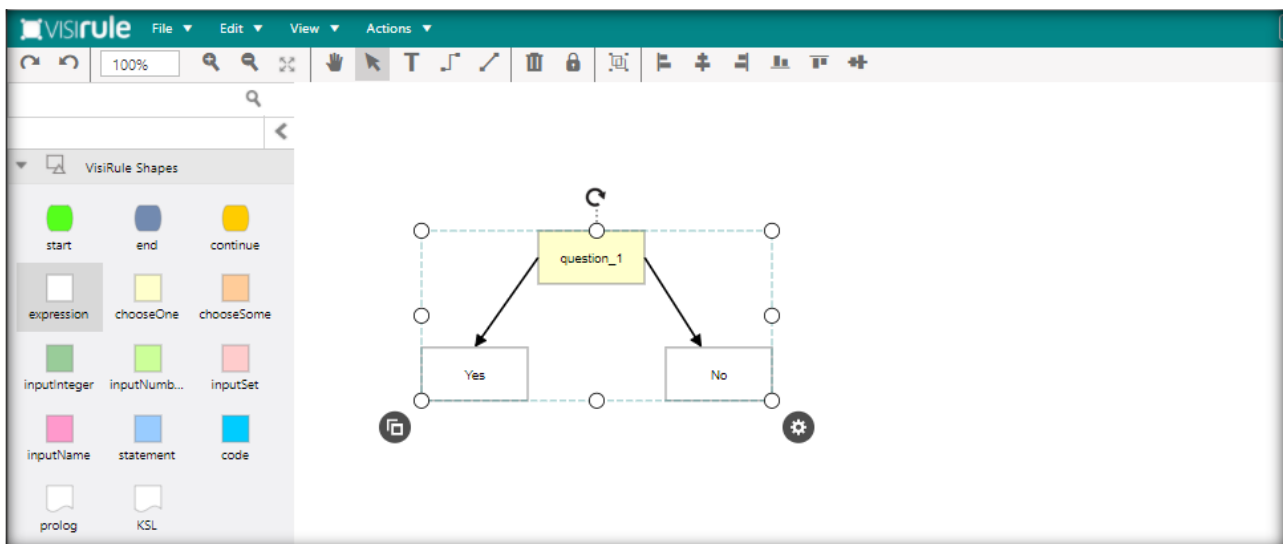


Figure 55 Making a selection

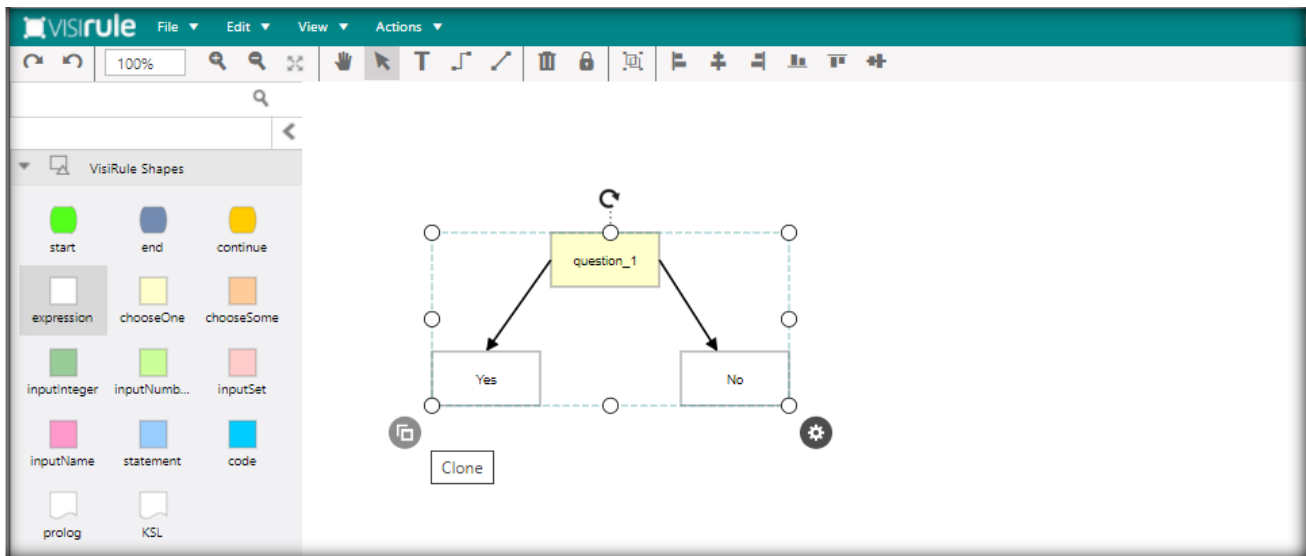


Figure 56 Selecting 'clone' function

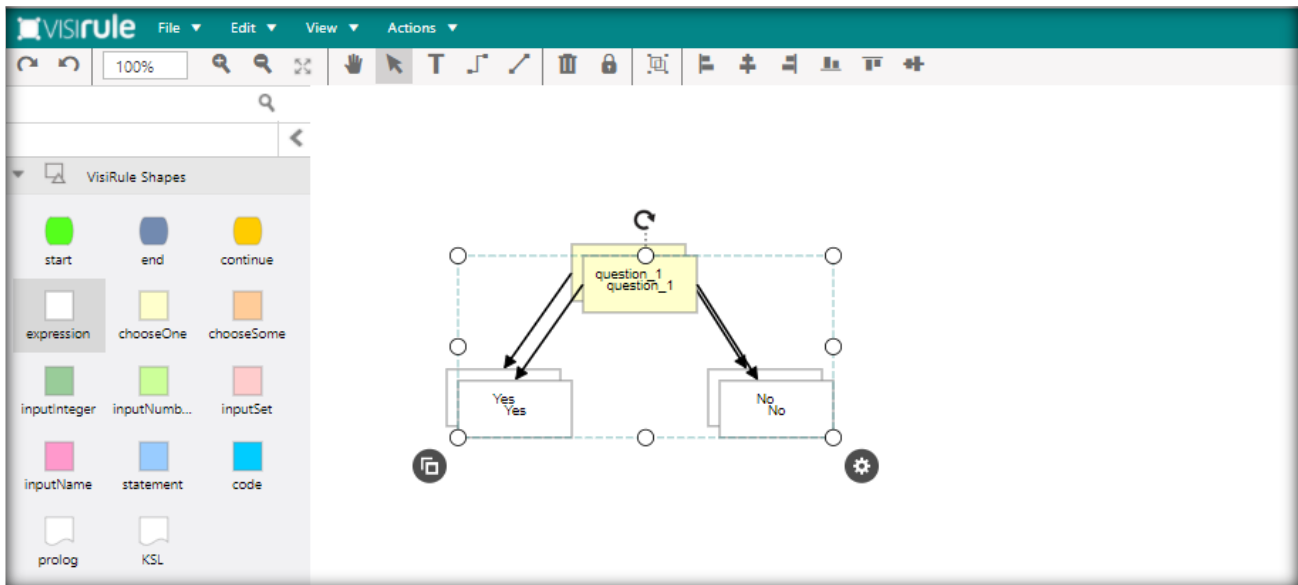


Figure 57 Result after cloning selected nodes

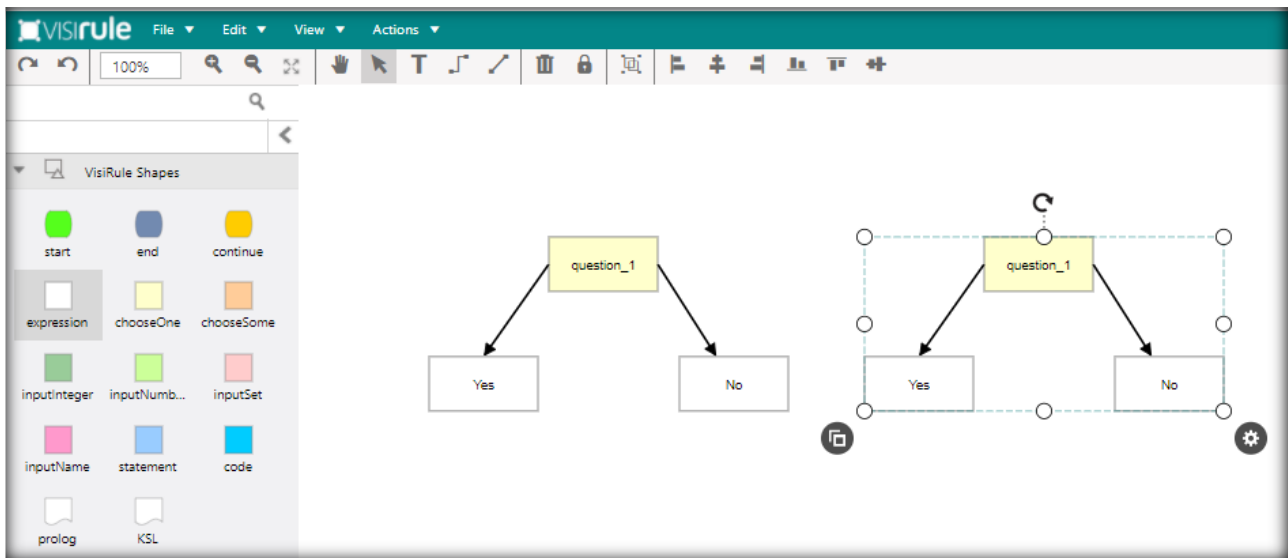


Figure 58 Result after dragging cloned nodes

## VR365 Drop Down Menus

There are 4 menus

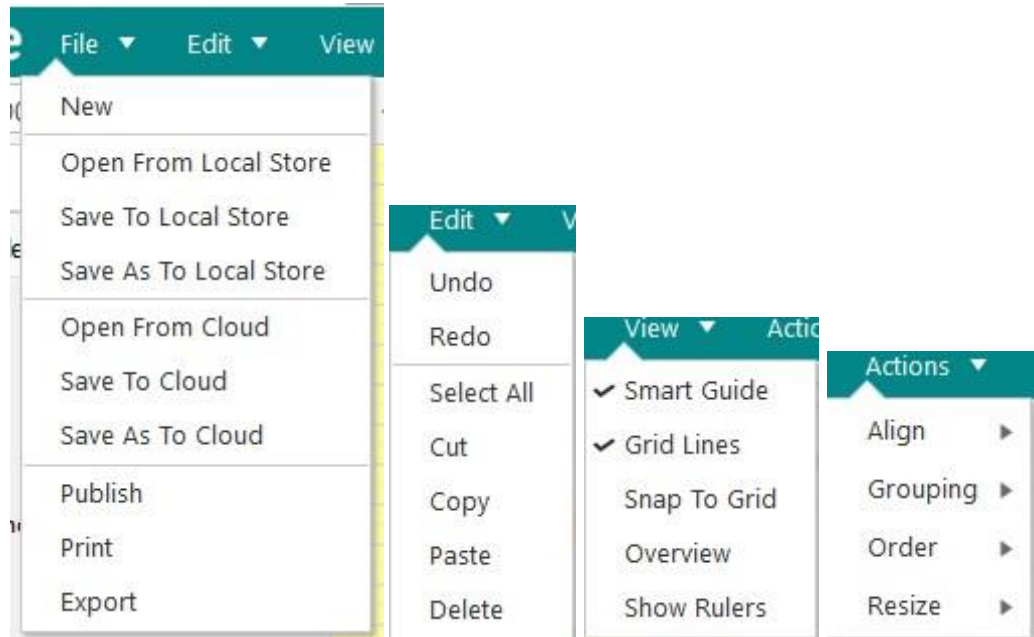


Figure 59 VisiRule Menus

The last menu has 4 sub-menus

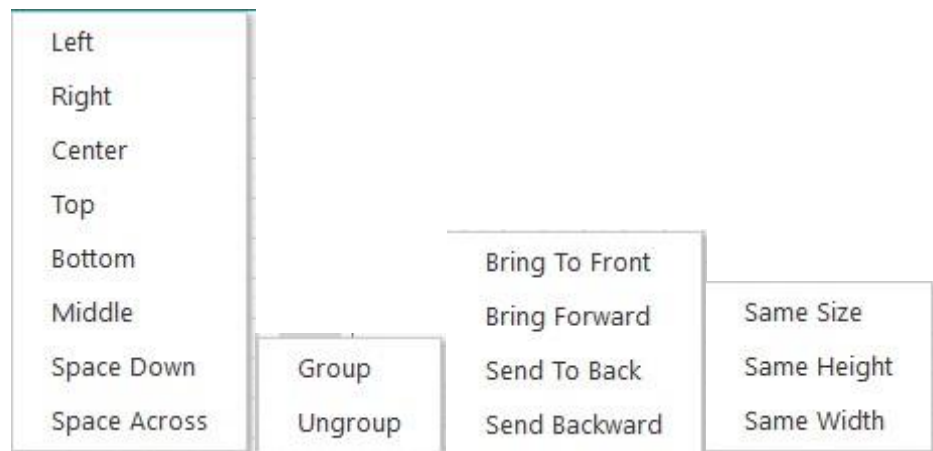
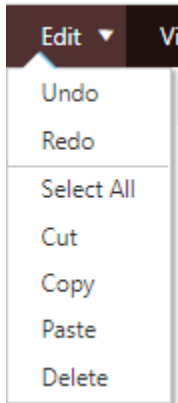


Figure 60 VisiRule sub-menus

## Edit Functions



You can select all the nodes using Seelect All

You can drag one or more items by selecting them and dragging

You can also copy/clone one or more items.

## Saving Files

You can save your chart, either locally or globally (to the cloud).

Cloud-based saving means you can share file/charts with colleagues. Local saving ensures privacy.

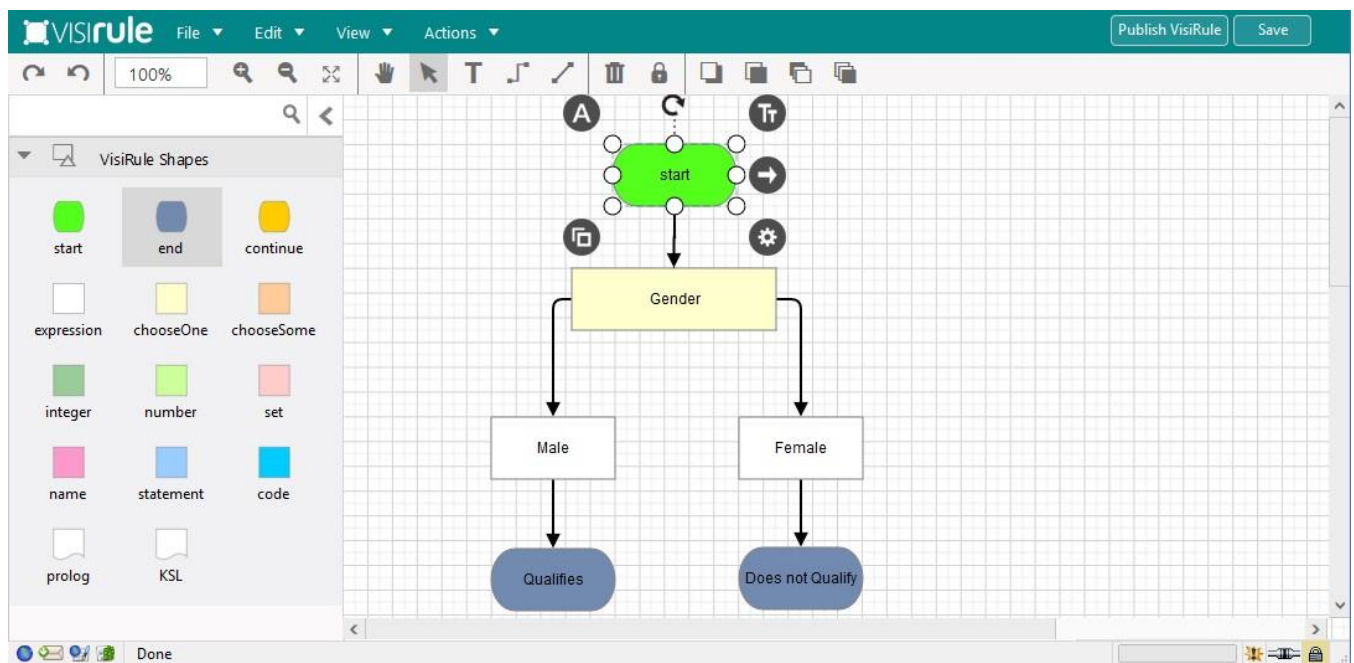


Figure 61 Completed VisiRule chart ready to be saved

You can save a chart locally so that you can come back another time and carry on editing it on that same browser.

The chart is saved on to your browser.



Figure 62 saving menu: local

## IMPORTANT: Do NOT include any spaces in the file name



Figure 63 saving menu: cloud

In addition, you can upload and save your chart the cloud so that others can access it.

This also allows you to share your chart with other users of VR365.

If you have acquired your own private workspace, then you can save to that and gain privacy.

We can save our chart using the Save to Cloud or Save To Local Store option from the File menu or using the Save button in the Top Right Hand Corner (which saves locally)



Figure 64 Save button

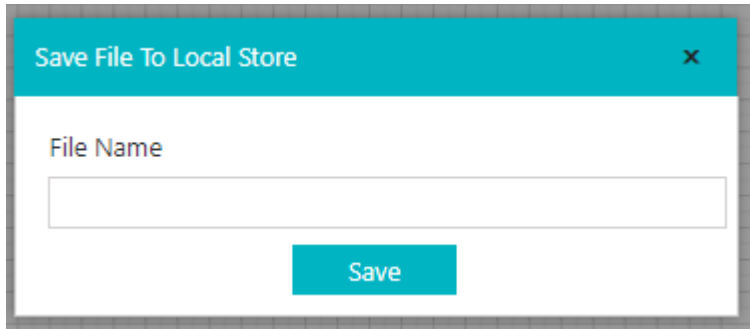


Figure 65 Save to local

If it's a new untitled chart ... you will be prompted to supply a file name.

**Do NOT include any spaces in the file name**



## How to Publish your Chart

You can Publish your saved chart using the Publish button next to the Save button or by using the Publish option on the File menu.

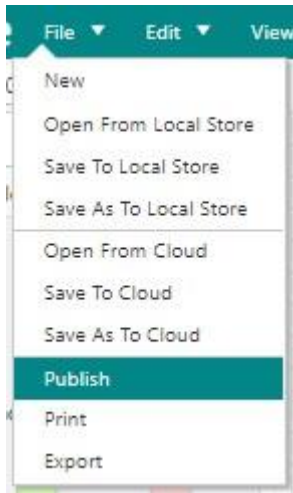


Figure 66 Publish menu



Figure 67 Published chart

If this doesn't work then there is a problem with the chart, or the file name. or something else!

**IMPORTANT:** – for the purposes of uploading and publishing, every chart **MUST** have a main start node named **start**.

**Each question needs a unique name. All nodes need to be properly linked.**

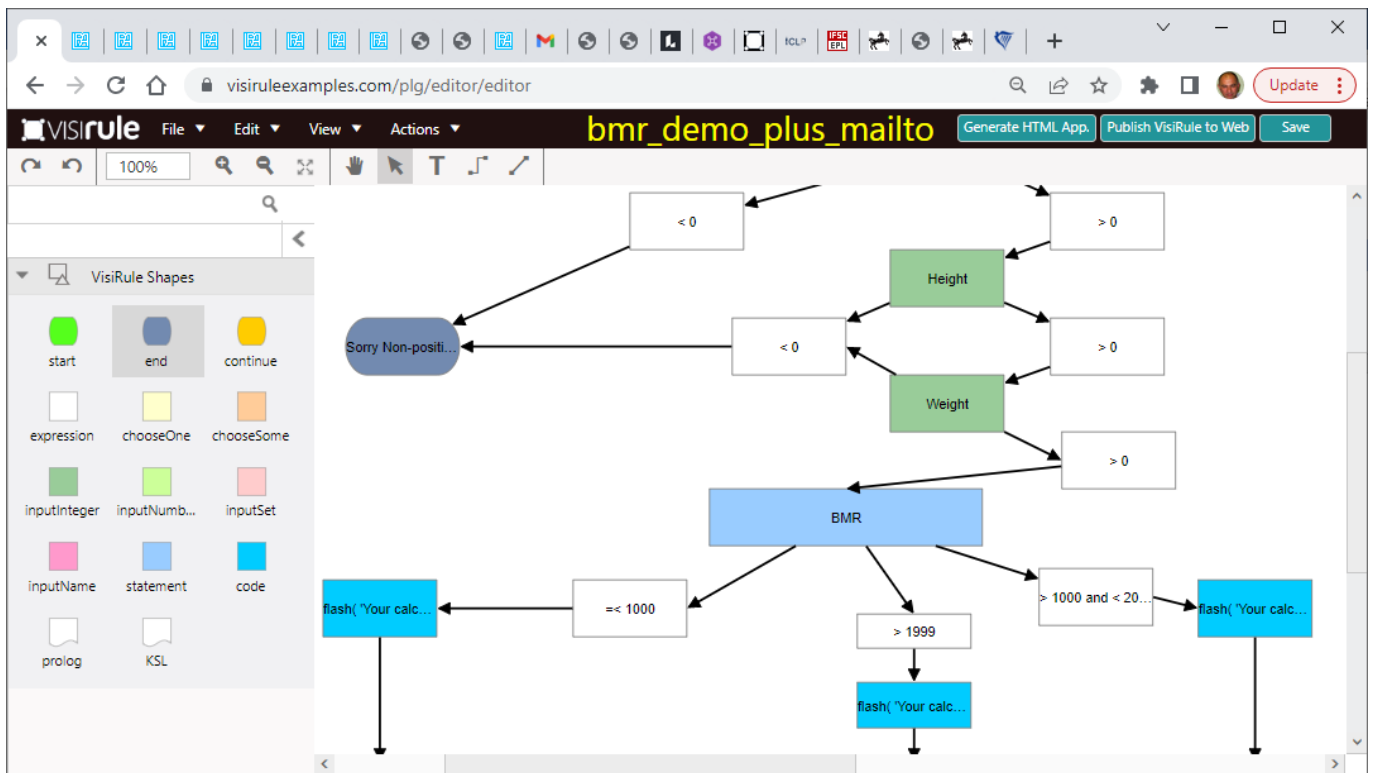


Figure 68 BMR chart with mailto

With premium editions you can publish your chart both to the web and also as HTML

**Basal metabolic rate (BMR)**

BMR is the rate of energy expenditure per unit time by endothermic animals at rest. It is reported in energy units per unit time ranging from watt (joule/second) to ml O<sub>2</sub>/min or joule per hour per kg body mass J/(h kg). Proper measurement requires a strict set of criteria be met. These criteria include being in a physically and psychologically undisturbed state, in a thermally neutral environment, while in the post-absorptive state (i.e., not actively digesting food).

Metabolism comprises the processes that the body needs to function. Basal metabolic rate is the amount of energy per unit time that a person needs to keep the body functioning at rest. Some of those processes are breathing, blood circulation, controlling body temperature, cell growth, brain and nerve function, and contraction of muscles. BMR affects the rate that a person burns calories and ultimately whether that individual maintains, gains, or loses weight. The basal metabolic rate accounts for about 60 to 75% of the daily calorie expenditure by individuals. It is influenced by several factors. BMR typically declines by 1-2% per decade after age 20, mostly due to loss of fat-free mass.

**BMR estimation formulas**

Several equations to predict the number of calories required by humans have been published from the early 20th/21st centuries. The Harris-Benedict equations revised by Mifflin and St Jeor in 1990 is:

Men	$BMR = (10 \times \text{weight in kg}) + (6.25 \times \text{height in cm}) - (5 \times \text{age in years}) + 5$
Women	$BMR = (10 \times \text{weight in kg}) + (6.25 \times \text{height in cm}) - (5 \times \text{age in years}) - 161$

Next

Figure 69 BMR chart published to web

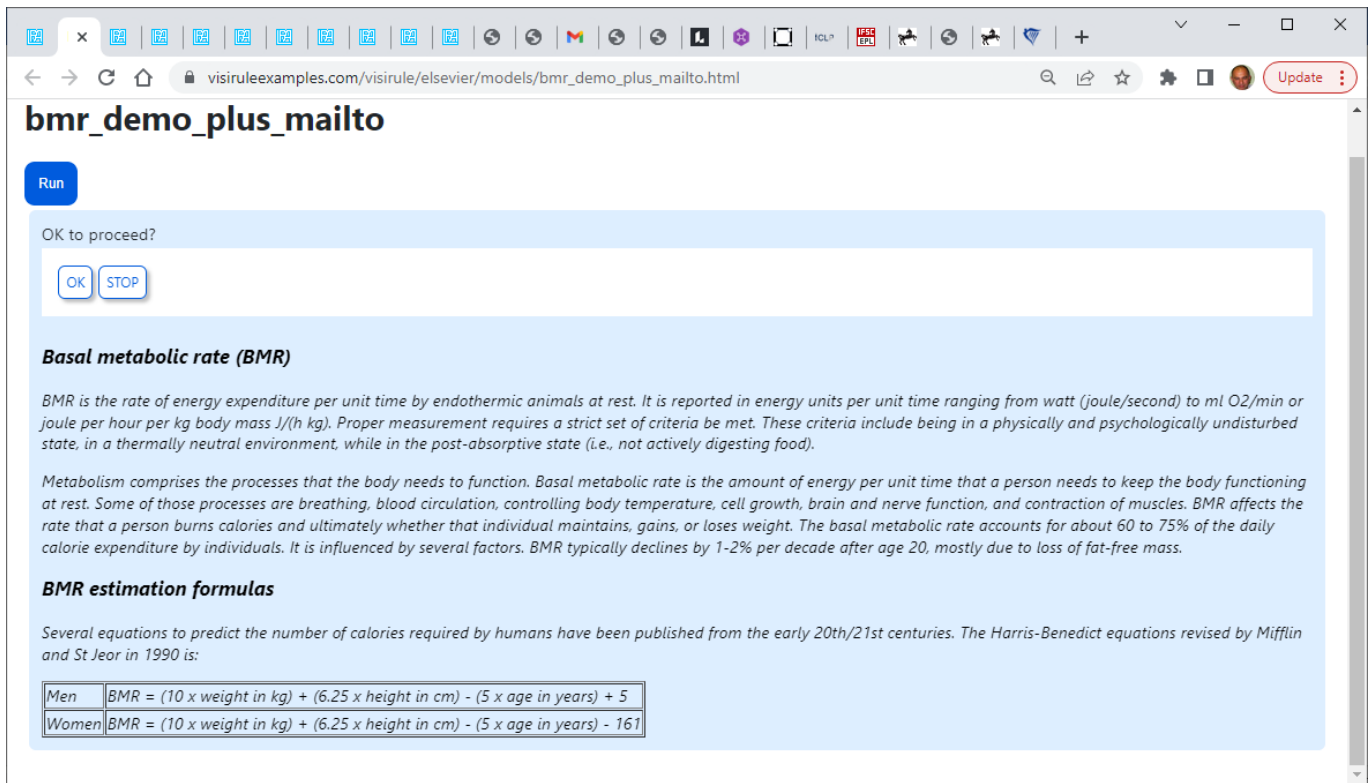


Figure 70 BMR chart as HTML

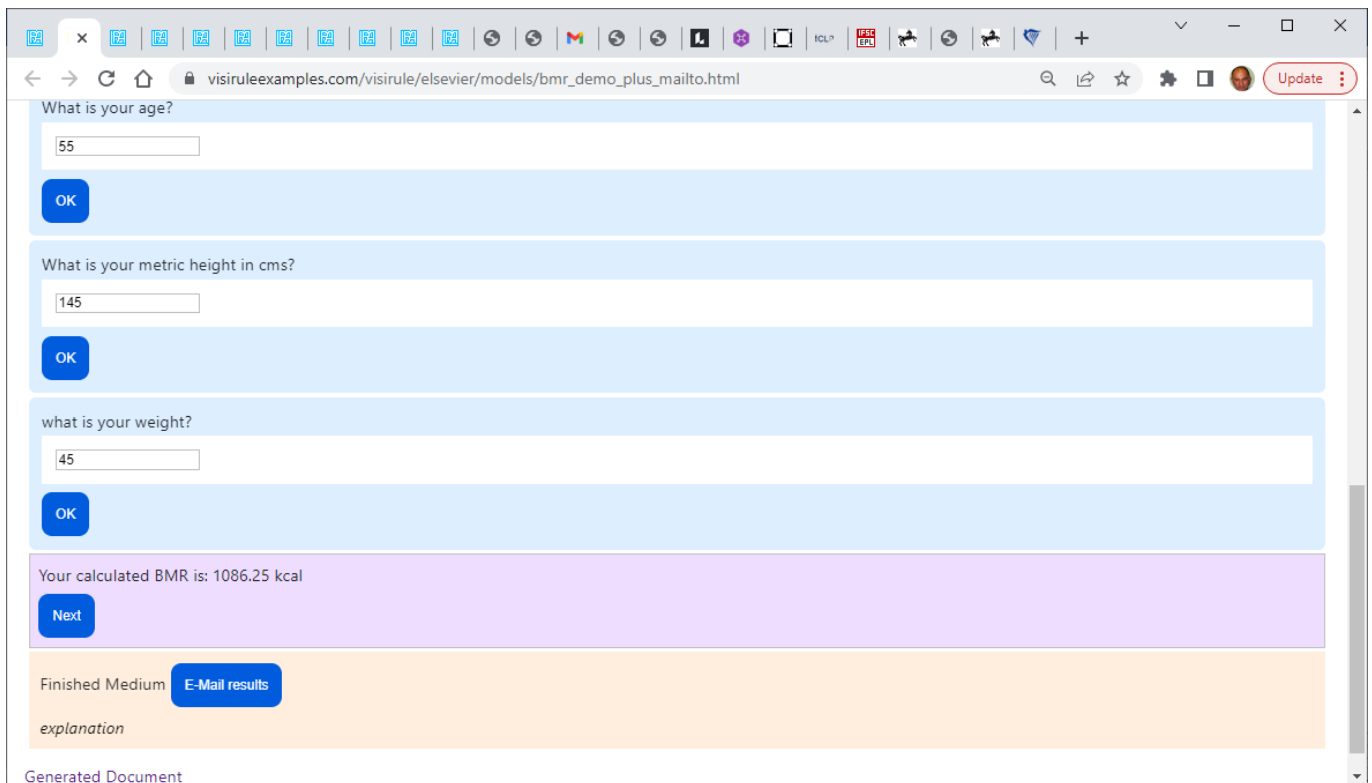


Figure 71 BMR chat as HTML showing mailto button

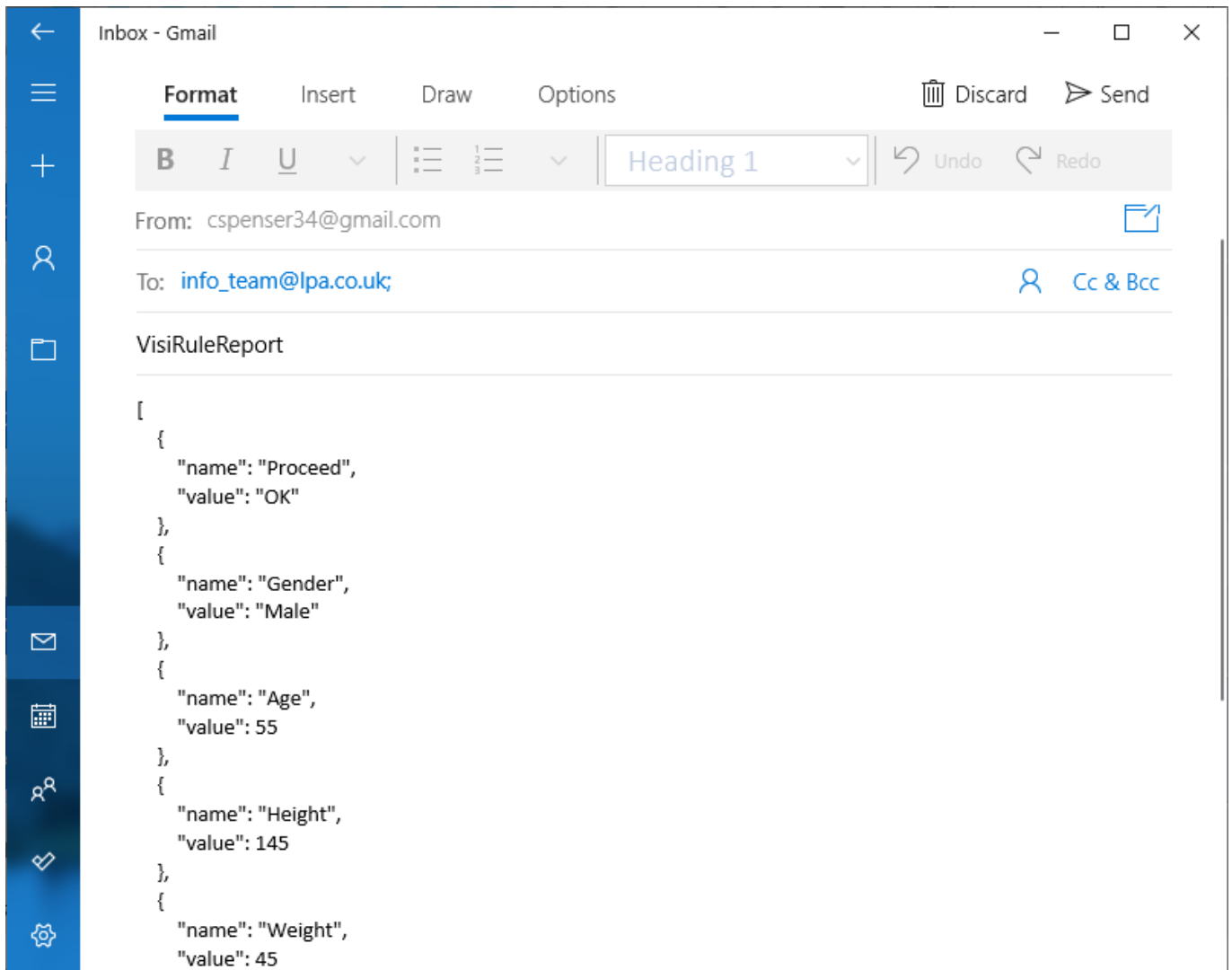
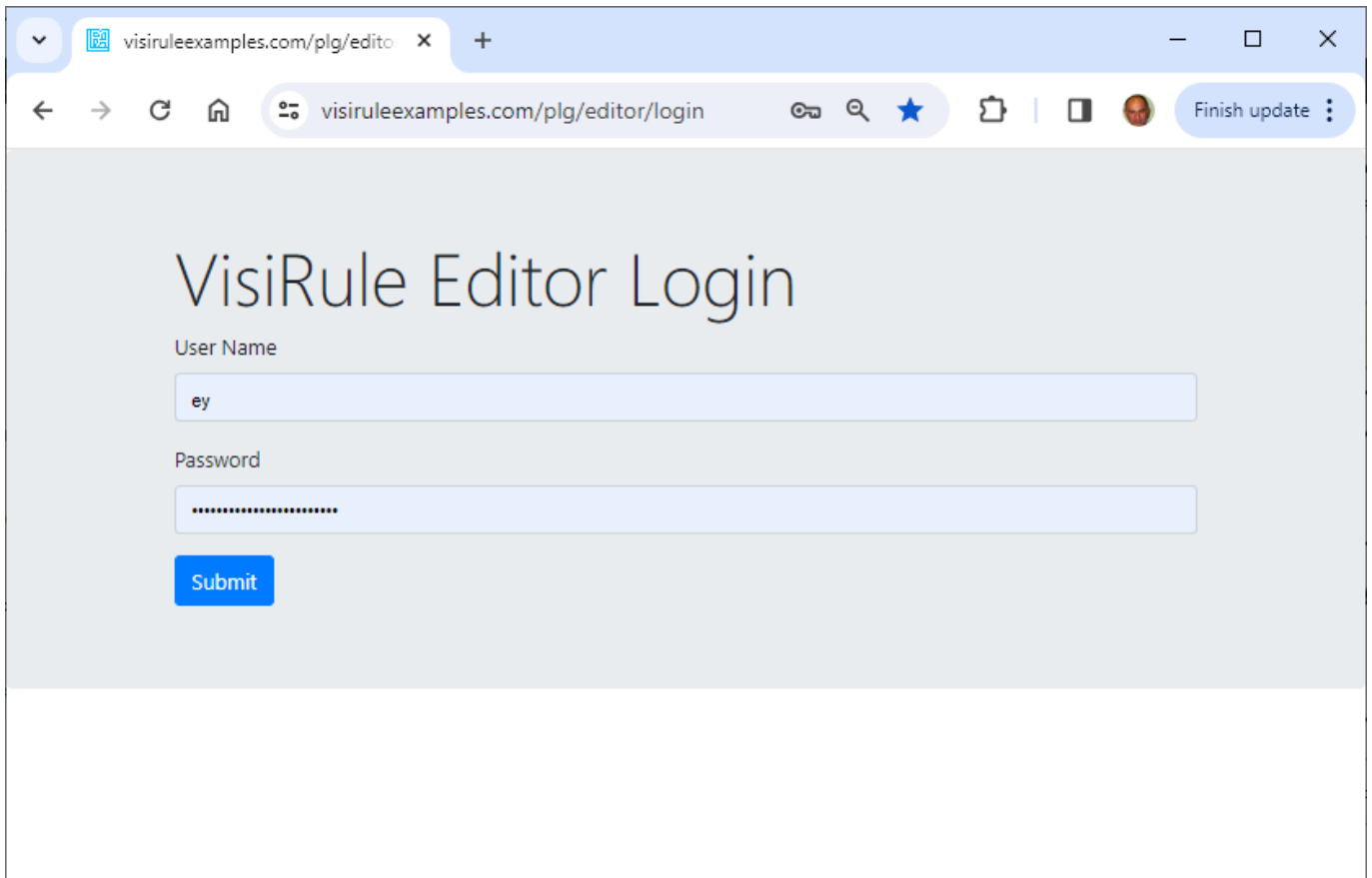


Figure 72 Mailto showing HTML session data

## How to Login

You can access your private space by the login on:  
<https://visiruleexamples.com/plg/editor/login>



The image shows a web browser window displaying the login page for VisiRule Editor. The browser's address bar shows the URL [visiruleexamples.com/plg/editor/login](https://visiruleexamples.com/plg/editor/login). The page title is "VisiRule Editor Login". Below the title, there are two input fields: "User Name" with the text "ey" and "Password" with masked characters. A blue "Submit" button is located below the password field. The browser's toolbar includes navigation buttons (back, forward, refresh, home), a search bar, and a "Finish update" button.

Figure 73 VR365 Login

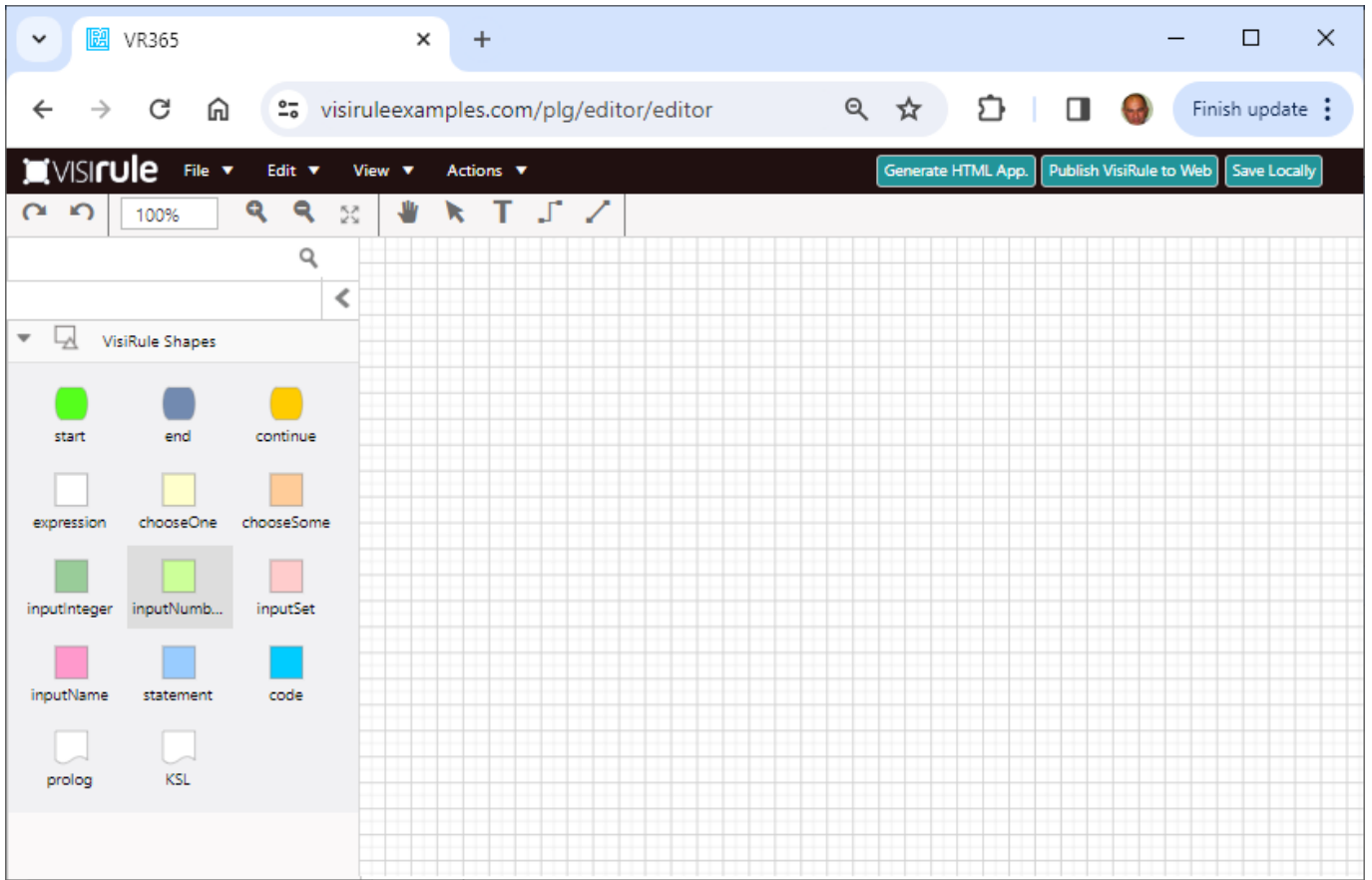


Figure 74 VR365 Initial Screen

You should see the extra Generate HTML App button

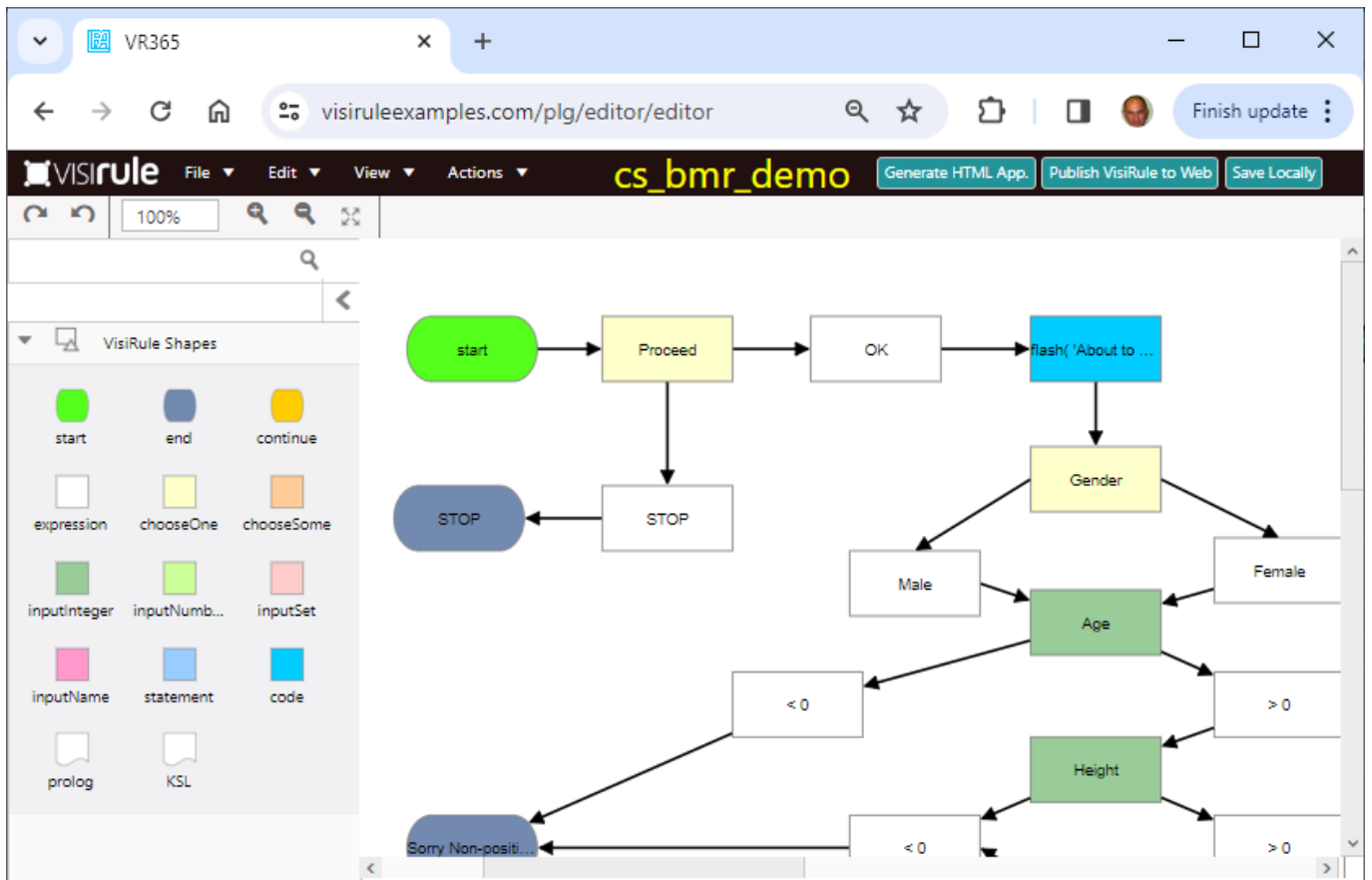


Figure 75 Loaded the BMR demo

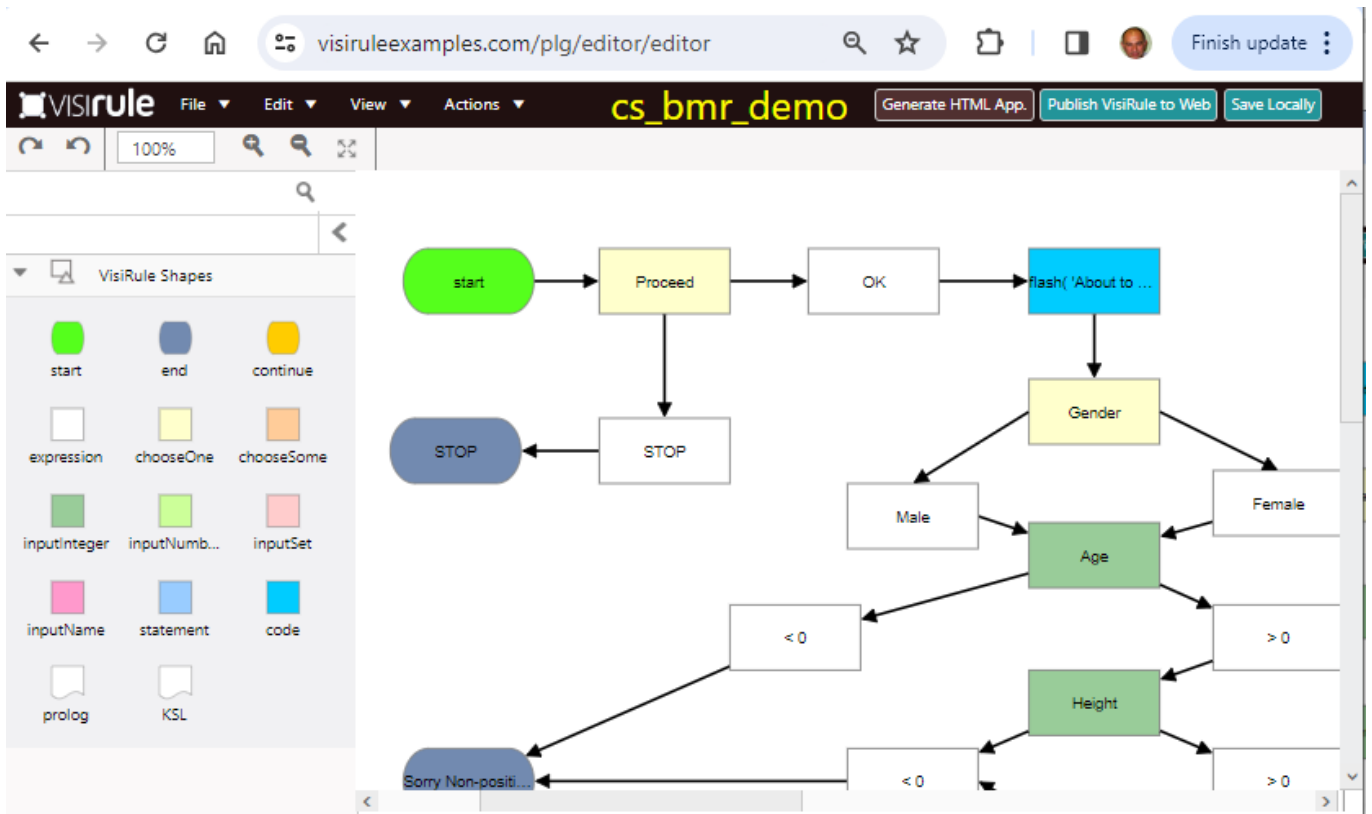


Figure 76 Generating the HTML application



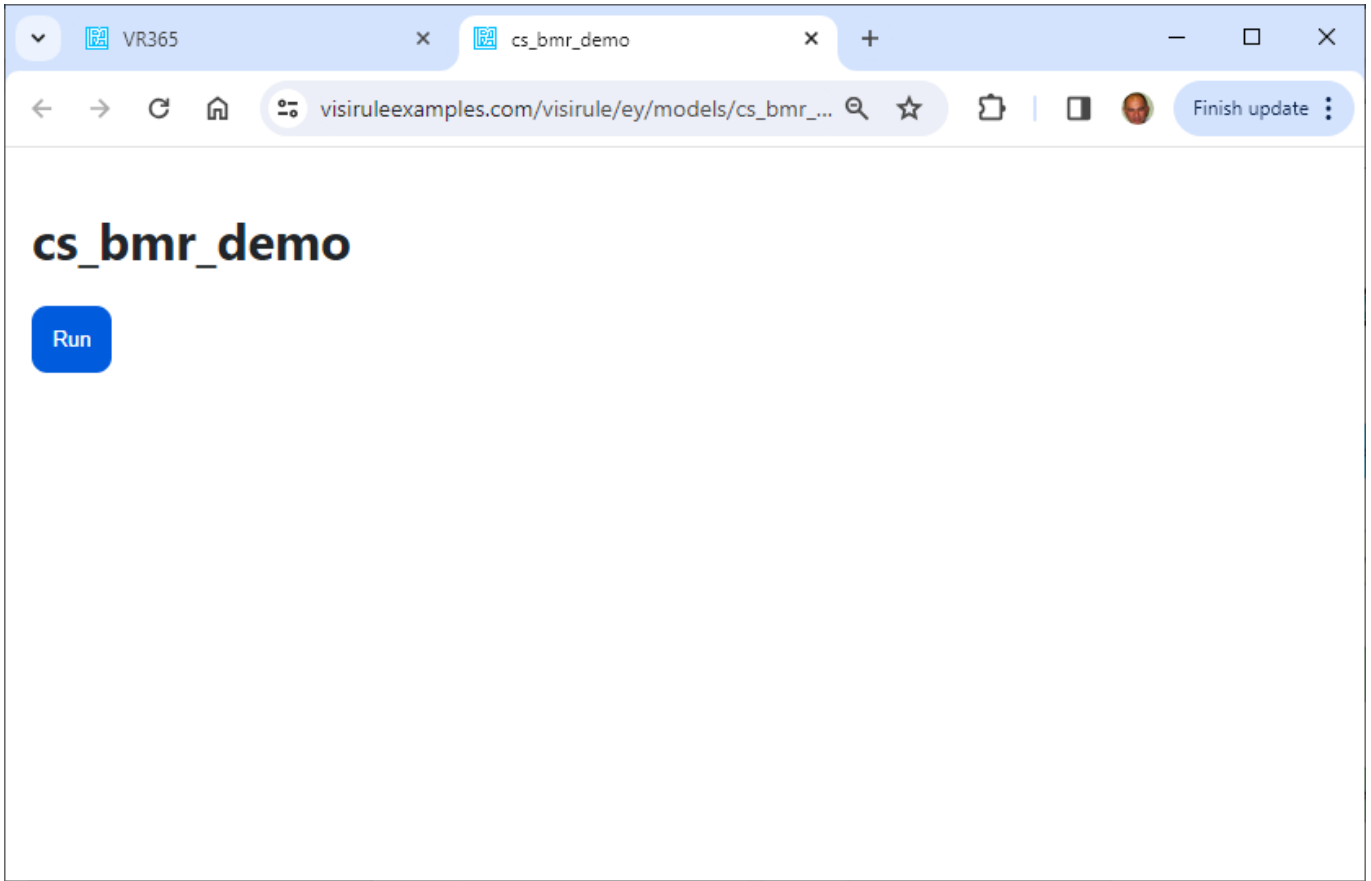


Figure 77 Initial HTML page

OK to proceed?

OK STOP

### Basal metabolic rate (BMR)

*BMR is the rate of energy expenditure per unit time by endothermic animals at rest. It is reported in energy units per unit time ranging from watt (joule/second) to ml O<sub>2</sub>/min or joule per hour per kg body mass J/(h kg). Proper measurement requires a strict set of criteria be met. These criteria include being in a physically and psychologically undisturbed state, in a thermally neutral environment, while in the post-absorptive state (i.e., not actively digesting food).*

*Metabolism comprises the processes that the body needs to function. Basal metabolic rate is the amount of energy per unit time that a person needs to keep the body functioning at rest. Some of those processes are breathing, blood circulation, controlling body temperature, cell growth, brain and nerve function, and contraction of muscles. BMR affects the rate that a person burns calories and ultimately whether that individual maintains, gains, or loses weight. The basal metabolic rate accounts for about 60 to 75% of the daily calorie expenditure by individuals. It is influenced by several factors. BMR typically declines by 1-2% per decade after age 20, mostly due to loss of fat-free mass.*

### BMR estimation formulas

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Women	$BMR = (10 \times \text{weight in kg}) + (6.25 \times \text{height in cm}) - (5 \times \text{age in years}) - 161$

Figure 78 First question asked

## Useful Tips

### Multiple Choice (i.e. multi-answer) vs Single Choice Questions

Multiple choice questions can invariably be decomposed and then asked as a series of single choice questions. But sometimes, you want ask about lots of possible options all at the same time.

### Naming Questions

Use MeaningfulNames wherever possible. Each name can only be used once. So, if asking for phone number twice have:

Q1 = HomePhoneNumber or home\_phone\_number

Q2 = WorkPhoneNumber or work\_phone\_number

### 3 Fields in a Question

Field 1]

#### PLEASE NOTE: Questions have to have UNIQUE names

The Internal Name for the box ... normally not used nor required UNLESS the question is referenced explicitly by name within an expression (or statement box) later in the chart;

The Internal Name is mainly visible from a Chart Developers' viewpoint; it is not visible at run-time (other than for debugging and/or reporting purposes)

It is used in the question trail which records and reports on the user's session.

Try NOT to use spaces (or even a CapitalInitialLetter), as this means quotes will be needed in any future expression.

Field 2]

'The text which is to be presented at run-time as the question prompt'

Field 3]

An optional piece of text which serves as an explanation .... could be a URL which will act as a link ... could be a hook into a bespoke explanation system

If interlocutors are supported, such as HOW, WHY, What, then follow the instructions for how to organize them.

## The 3 Fields in a Statement Box

### Numerical Questions

It is always good to have at least 2 expressions coming out of a numerical question.

a) tests for = 0 and b) tests for some value > 0

This is generally true too for Statement boxes, especially where they are doing some sort of calculation.

### End Boxes i.e. conclusions

The node before an end box CAN be (and often is) an expression

If you want to 'continue' your process after the end box has been reached, you can do that but you will need drop down a layer into Flex OR run the chart using a meta-chart.

### Incorporating HTML

You can use HTML to enhance the presentation of text on the web simply by using the correct HTML tags.

You can do this for explanations, question prompts and conclusions and within the body of any write or flash statement.

There is an example available which shows how to incorporate text, images, video within VisiRule charts.

### Debugging

A very useful ploy is to include (code boxes with) flash/1 or write/1 calls; i.e.

```
flash( 'CurrentValue' )  
write( 'We have reached here' )
```

or you can define your own routine which combines both (flash and write)