QM Lab Course Project

User Manual

(As of March 20, 2016)

Group 3

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I. Introduction

QM Lab is a qualitative modelling tool with collaborative functionality. It was commissioned by Nathaniel Osgood and Geoff MacDonnell back in January, 2016. Our group was tasked to design an application which would serve as a qualitative and collaborative modelling platform for users to create diagrams of various systems.

The purpose of this document specifically is to give the user a guideline of the necessary steps required to interact with QM Lab and its features properly and effectively.

II. Getting Started

Before you can access the QM Lab application, you must be on or have a Google Account. To learn how to set one up, please view this link:
https://support.google.com/accounts/answer/27441?source=gsearch&hl=en

After setting up a Google Account, open any web browser (Google Chrome, Mozilla Fire Fox, Internet Explorer) and input the Following link on the browser's address bar (Figure 1):
http://cmpt371g3.usask.ca/demo/development/src/Main/

ID5: use - http://cmpt371g3.usask.ca/ or http://cmpt371g3.usask.ca/development/src/Main/

(ID5: Previous diagram was removed and updated) Figure 1: Example using Google Chrome

Press the 'Enter Key' and you should be led to main page of the QM Application. You will see a page that has a section which looks like Figure 2. To access the application, you must hit the Sign in button as depicted in Figure 2.

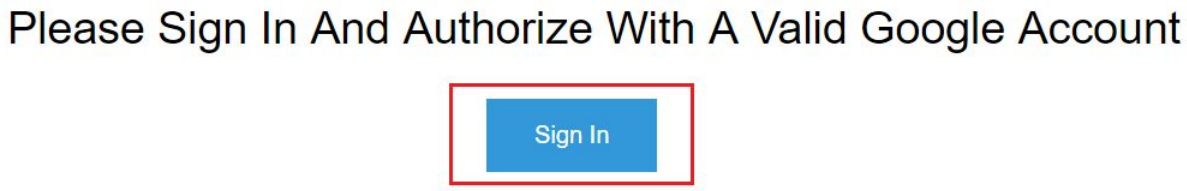


Figure 2: QM Lab webpage authorization

If you aren't already logged into your Google Account, you will be prompted to do so. After logging in, if it is your first time using QM-Lab, you will be given a message which authorizes the use of QM-Lab (Figure 3). Click the 'Allow' button to use the application.

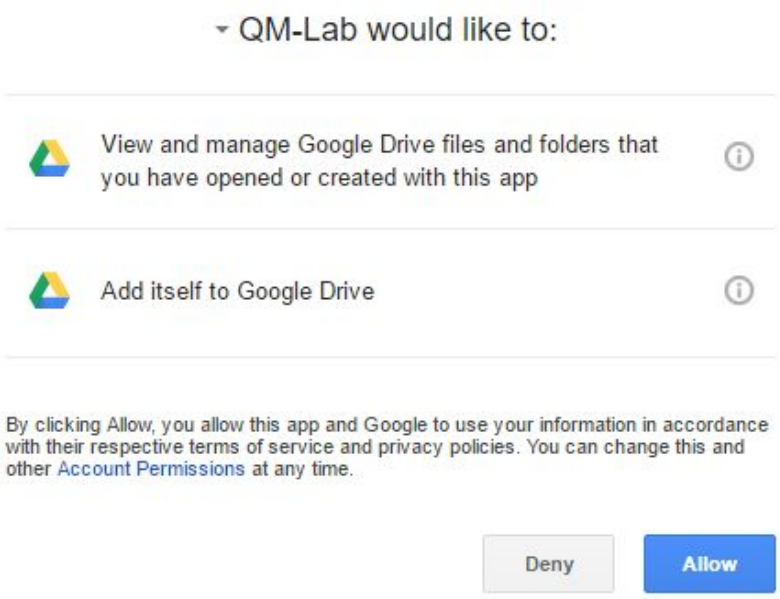


Figure 3: QM-Lab authorization prompt

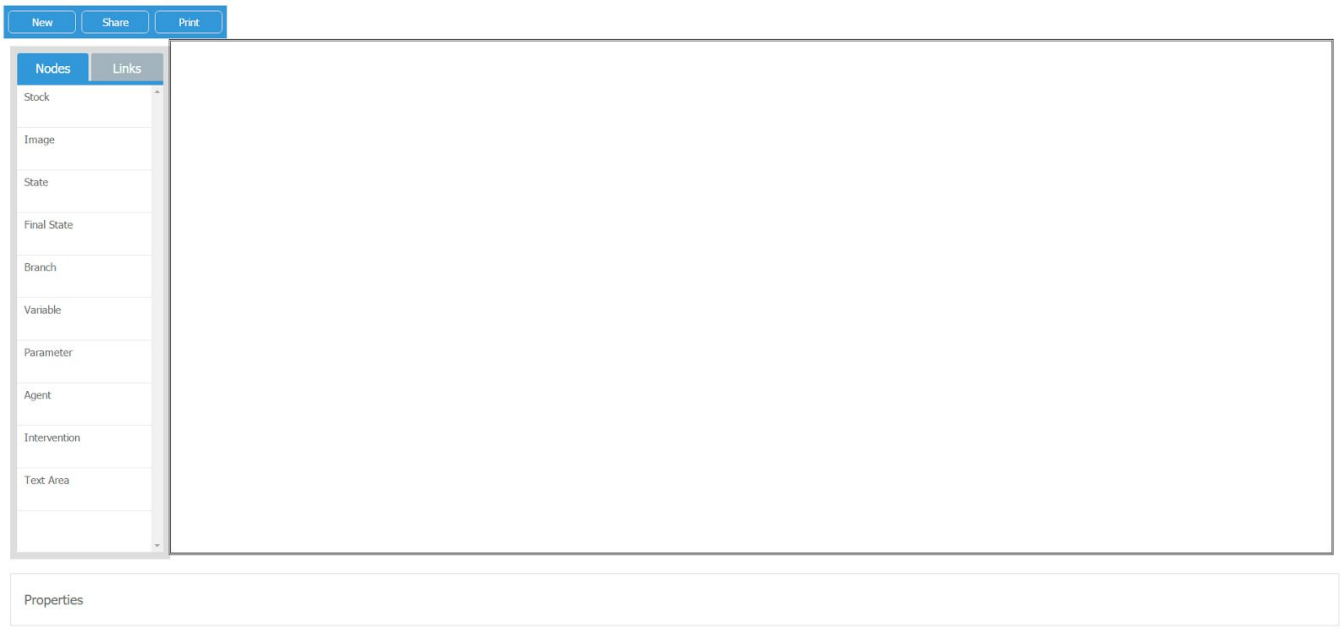
You should now see the main page of the application. If you have already allowed the access of QM-Lab previously, you should already be at the main page.

As of this time, the main simply allows to name and create a file (Selecting and deleting projects are not yet implemented). After entering a name and clicking 'create'. An example of this is shown in Figure 4. **ID5:** Support of selecting and deleting projects is now possible. When you create the file, the copy of it will be saved in at your: https://drive.google.com/drive (Make sure that you are logged in). Please see the details of creating, editing, and deleting a project in Section IV for more info, as they are not fit for this section (they expand upon some tools).

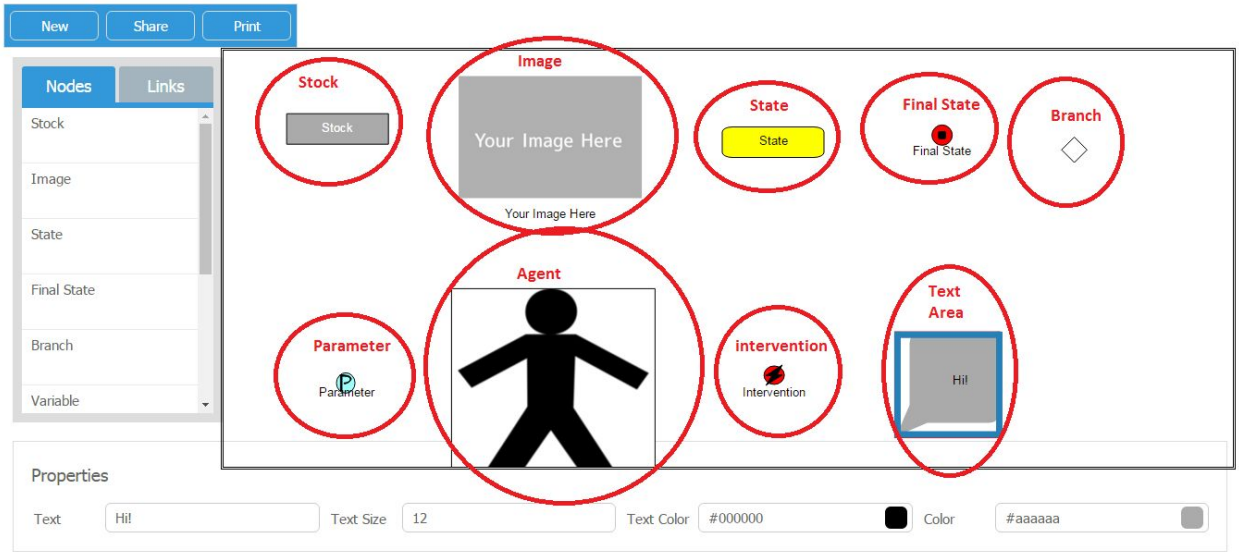
Figure 4: Main page file creation example in QM Lab

After creating an file you will be sent to the editing page of the file. The page consists of four main the sections. The menu bar at the top left corner of the page, the nodes/links toolbar at the left hand side, the properties bar encompassing the bottom of the screen, and the large

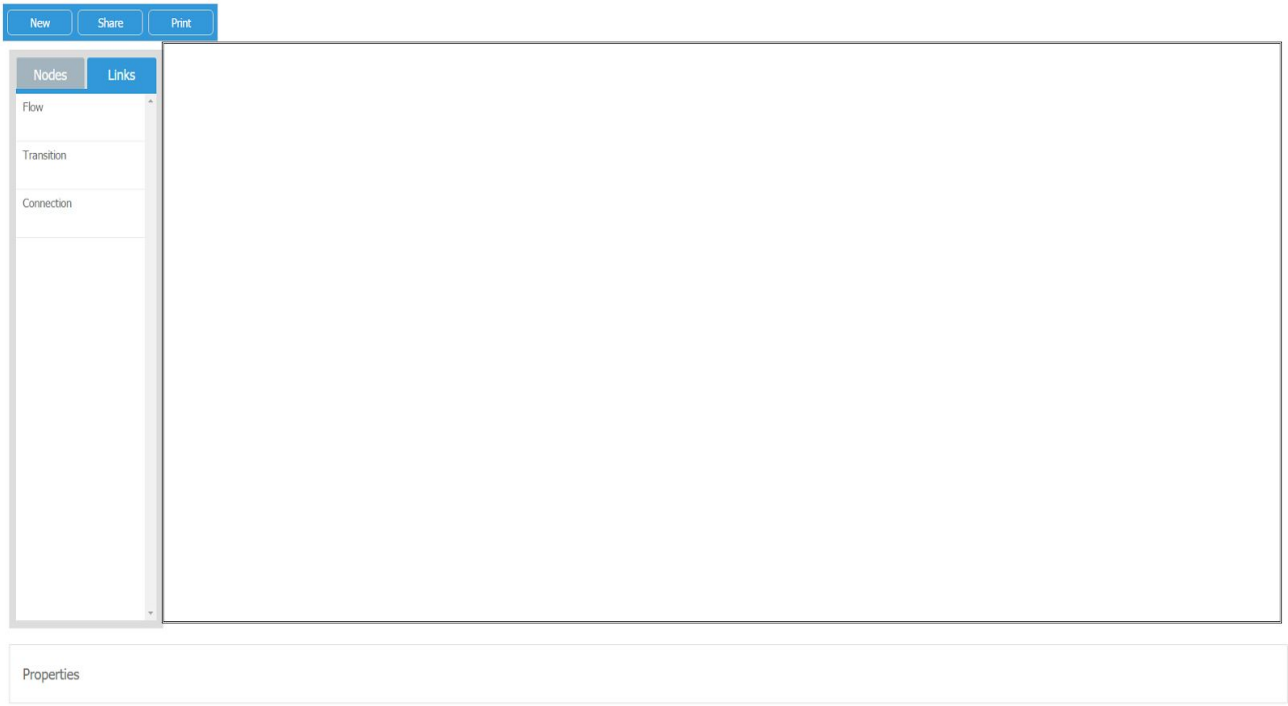
Canvas, in the border, and encompassing most of the screen. Figure 5 &6 display the page and both the options that the nodes and links have.



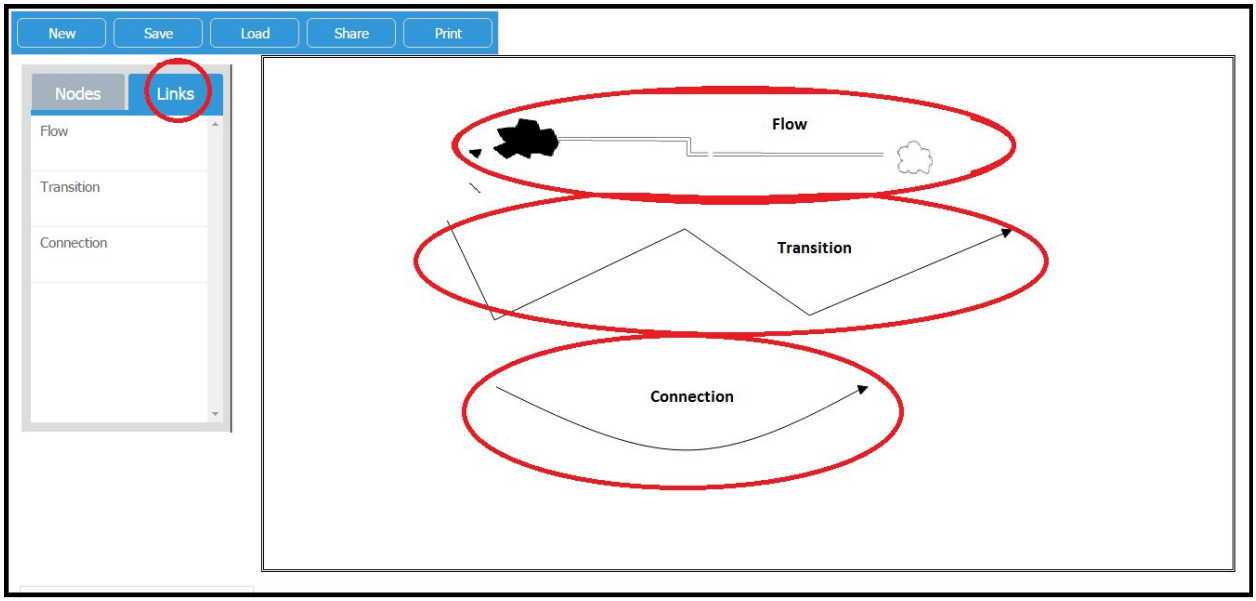
(ID5 previous diagram was removed and updated)Figure 5.1: QM Lab Collaborative Application (Nodes side)



(ID5)Figure 5.2: QM Lab Collaborative Application (Nodes side)



(ID5 previous diagram was removed and updated)Figure 6.1: QM Lab Collaborative Application (Links side)



(ID5)Figure 6.2: QM Lab Collaborative Application (Links side)

III. Tool Explanation

This section provides a detailed explanation of each of the sections in Figures 5/6 and their features. It will also expand upon other elements of the application (such as the home page when implemented fully). This section has not yet been expanded upon.

ID5 (everything below in this section): As mentioned previously, the application page of the program is divided into four sections. Each section will be expanded upon below of the tools that encompass the section as well as what they do.

Collaborative Canvas:

The large black bordered sections of figure 5 & 6. The collaborative canvas is where the magic happens. Anything that occurs within it happens collaboratively, meaning that anyone that has access to edit (expanded in 'Sharing a Project' in Section IV) the current project within the program will all be able to edit it simultaneously. The order of it is currently that the one with the faster internet will have priority if two or more members are editing the same object in the canvas at the same time.

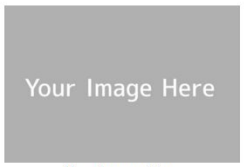
Node/Link Toolbar:

The Node and Link serve to create the main application of the program, that is, creating diagrams through the use of nodes and links. Nodes are used as objects that support a series of tools from shapes, to images, to items (which in collaboration with links, create/fulfill specific diagrams). They are connected by Links that bind the Nodes, creating a connection (physically and symbolically).

There are a wide selection of nodes/links which all serve a different purpose (some are entirely looks) and should be used to create a diagram/different types of diagrams of what the user desires. The following is an expansion of what each node/link are used for and represent.

Nodes

Stock: A stock is the representation of the 'Stock' in a 'Stock and Flow' diagram. It is the outcome of a 'Flow' of something (from the Flow link).



Your Image Here

Image (URL): A node that can be transformed into any image that is provided by a web URL.

State: A node that can be placed on the map to show the user that a certain is present at the location. It can be connected to.

Final State: A node which represent the ending of a series of connections and nodes.

Branch: A node which represents the branching of connections in multiple directions based on certain parameters or variables.

Variable: A node used to represent a variable on the document.

Parameter: A node used to represent a parameter on the document.

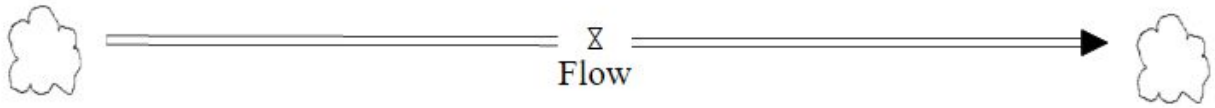
Agent: An agent is a special type of Node that allows the user to place other nodes inside of it.

Intervention: A node that represent an intervention on the document.

Text Box: A single box with labels that can allows the user to include comments

Links

Flow: A flow is a specific link used for ‘Stock & Flow Diagrams’. The uniqueness of this link is from that a given end of a flow must be connected with a stock, or if nothing, the end will be a cloud (it can connect to other nodes, unfortunately).

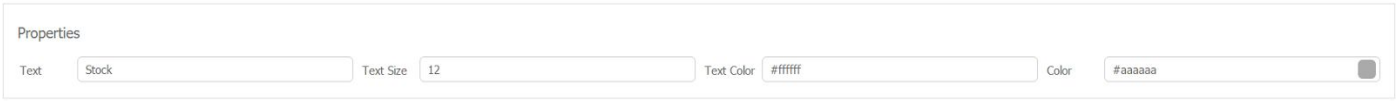


Transition:

Connection:

Properties Toolbar:

The properties toolbar is used to change the contents of the Nodes/Links. The properties bar appears blank, unless you click and select a Node/Link on the canvas. Then, for each Node/Link, except for Image, and Connection, you will be presented with a bar such as this:



Editing these bar options will change the object as specified by the user. More is expanded on this in section IV.

Menu Toolbar:

The menu bar is there to handle all options you can do outside of creating/editing diagrams. A diagram of the menu bar and an explanation of the buttons are as follows:

- **New -** The new button simply prompts you to the creation page as seen in the getting started section, where it will allow you to create a new project, given that you name it. The newly created file will be stored in your google docs drive under your file name.

- **Share -** The share button prompts a google sharing window allowing you to either create a link for users to view, comment, or edit upon, or email them access to the file. To read more about google sharing and its other options, please see: http://www.gcflearnfree.org/googledriveanddocs/6

- **Print -** The print button opens up a print window. The print window will contain the edited portions (wherever on the canvas there were objects (links/nodes)) and provide a preview PDF for them to be printed on. For more info on how to print please see "Print the Canvas" in section IV.

IV. Using The System

This section provides a description of the various functions of the system and how to use them. Expanding on the Tools explanation and how to use them with one another.

Adding a Node (ID5: Just node now, as Link is different):

The following steps can be taken for adding a Node and a link to a project:

- Select Node or Link in the toolbar they are in (depending on which one you want)
- Click on type of Node or Link
- Click on the canvas section of the project you want to add the object to

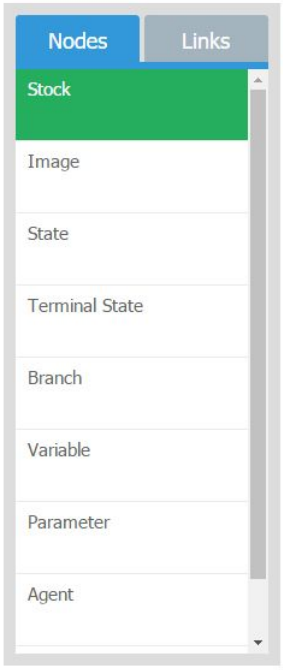


Figure 7: Selecting a Node example

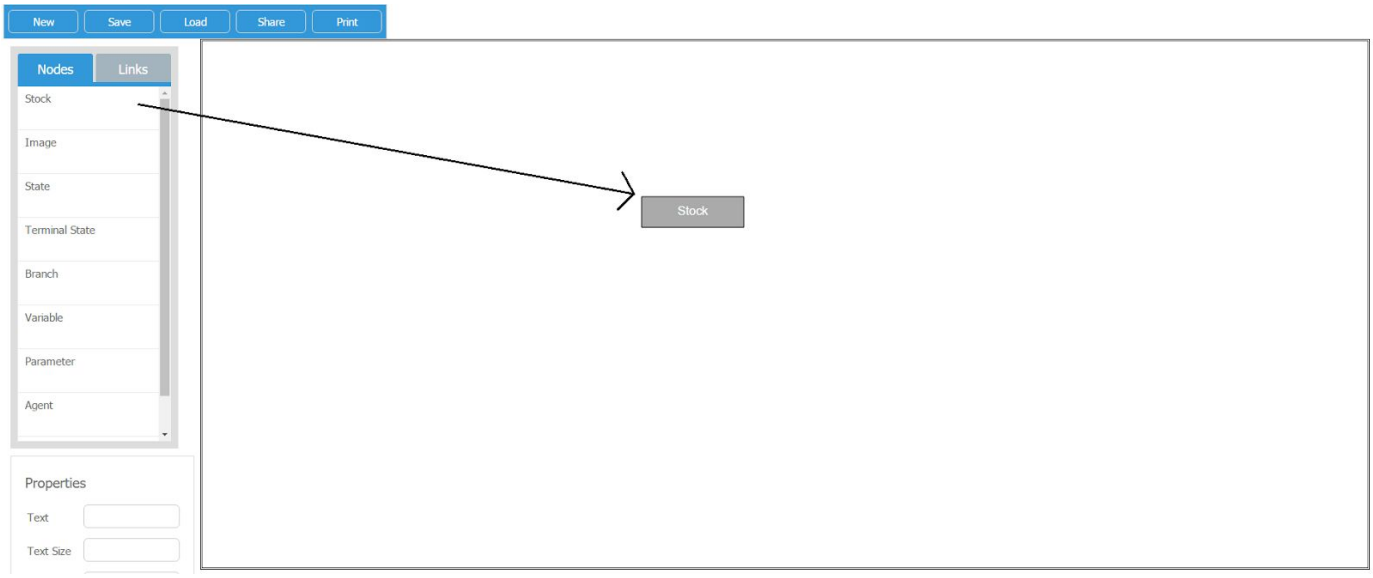


Figure 8: Example of clicking an area of the canvas to add the Node selected

Deleting a Node/Link:

The following steps can be taken for deleting a Node or a Link from the project:

- Click on a Node or a Link

- Press the ‘Delete’ key on your keyboard (For Links one may also hit the red x when selecting hovering over the Link)

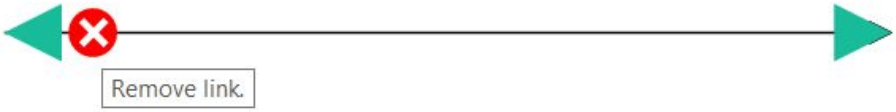


Figure 9: The Red x for deleting a Link

Linking a Node with a created Link (**ID5**: This is now valid only for a already created Link)**:**
The following steps can be taken for linking a Node

- Select a Link object on the canvas
- Left-Click one end of the Link and hold+drag it on top of a Node object so that the Link end over the Node.
- Let go of your Left-Click and they should connect

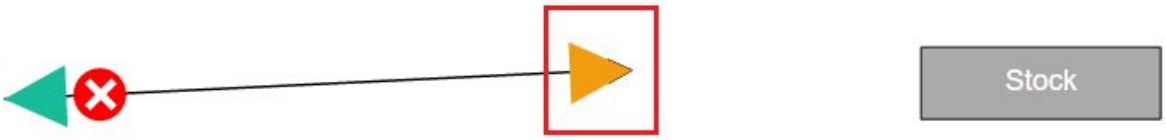


Figure 10: Selecting a End of a created Link

Figure 11: Dragging the end of a Link into a Node

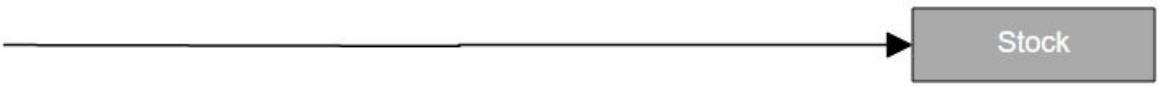


Figure 12: Sample of a finished connection

Changing/Adding text to a Node/Link:

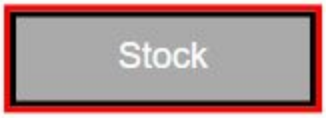
The following steps can be taken for editing the text of a node/link:

- Click on an existing Node/Link or create one
- Go to the properties section of the webpage and find the text section
- Click inside of the field and edit the text
- Press the ‘Enter’ Key to save

Changing the size of a Node:

The following steps can be taken for changing the size of a node (**ID5**: now click and drag):

- Left-Click on an existing Node or create one (and Left-Click it)
- Left-Click and hold+drag the red border of the Node to the direction that you wish to expand or minimize the Node
- Let go of Left-Click when satisfied



(ID5) Figure 13: Example of a Node that has been selected

Changing the color of the text/skin of a Node/Link:

The following steps can be taken for changing the color of a node/Link:

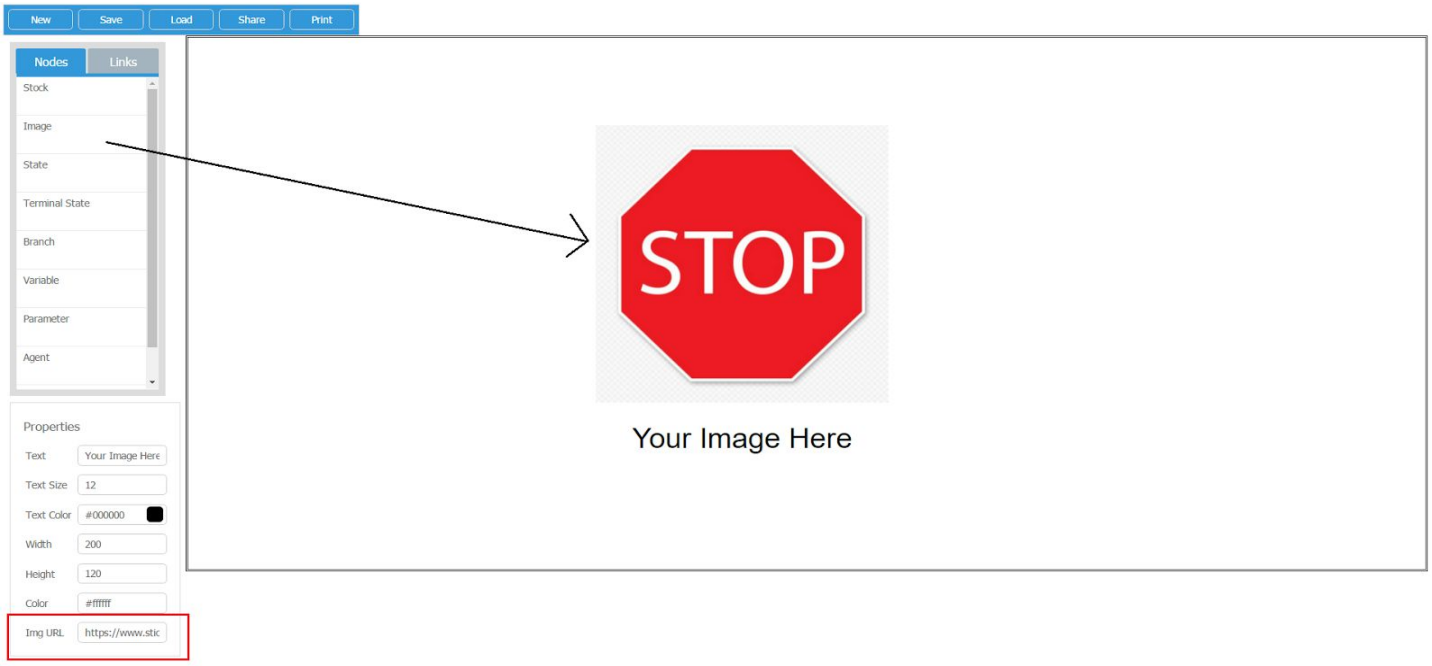
- Click on an existing Node/Link or create one
- Go to the properties section of the webpage and find text color or color
- Click inside the field and you should be given an array box of colors
- Click on the color you wish

(ID5: picture has been removed and updated) Figure 14: Example of changing the color of a Node

Adding an Image (Through URL):

The following steps can be for adding an image to the project:

- Click on an select and add the Node with the tag “Image” in the toolbar
- Go to the properties section of the webpage and find the URL section
- Click inside of the field of choice and proper URL of the image you wish to add
- Press the ‘Enter’ Key to save



(ID5: Same idea, different Properties Location) Figure 15: Example of adding an Image to QM-Lab

Editing and changing the form of a Link:

The following steps can be taken for morphing a Link:

- Click on an existing Link
- Hover over the Link, it contains circles and two arrows at each end
    - The circles allow you to bend the Link in the direction you drag and hold the circle towards.
    - You may add more joints (The kind of bend depends on your selected Link type) if you click on any area of a Link
    - The joint may also be deleted if you hover over the point and click the white x in the black word cloud
- Click on the arrows and drag them to change the length of the Links or click on the circles and drag them to bend the Link

Figure 16: Hovering over a Link

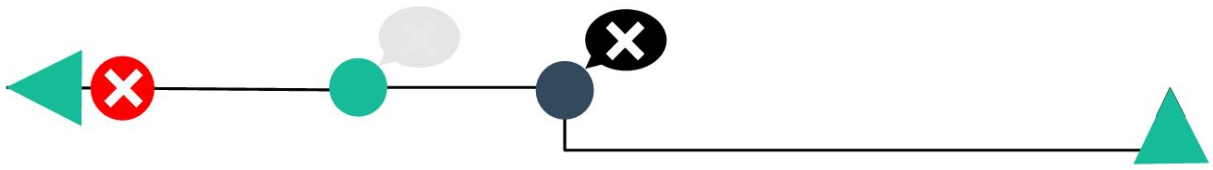


Figure 17: Example of joints added, a bent link, and selecting a joint

Zooming in and out and moving within the Canvas:

The following steps can be taken for zooming and moving the canvas:

- To move the canvas to around, simply left-click on an area of the canvas that does not have an object currently on it and drag your mouse to the opposite direction of where you want to move to.
- To zoom in and out of a section of the canvas, you currently must have to have a touchpad. Since touchpads are different, please find out how yours zooms and out. Then pick an area that you wish to zoom in/out and perform the action.

ID5: Adding a Node inside of an Actor Node:

The following steps can be taken adding a node inside of an Actor Node:

- Create a Node or select one
- Left-Click the Node and drag+hold it until it's inside of the Actor you wish to place it in
- Let go of the Left-Click
- They are now connected and will move as one Node

ID5: Removing a Node inside of an Actor Node:

The following steps can be taken removing a Node inside of an Actor Node:

- Find the Actor Node with a Node already inside and attached to it
- Left-Click and select the Node inside the Actor
- Left-Click on it again and drag+hold it until it's out of the Actor
- Let go of the Left-Click
- They should now be separated

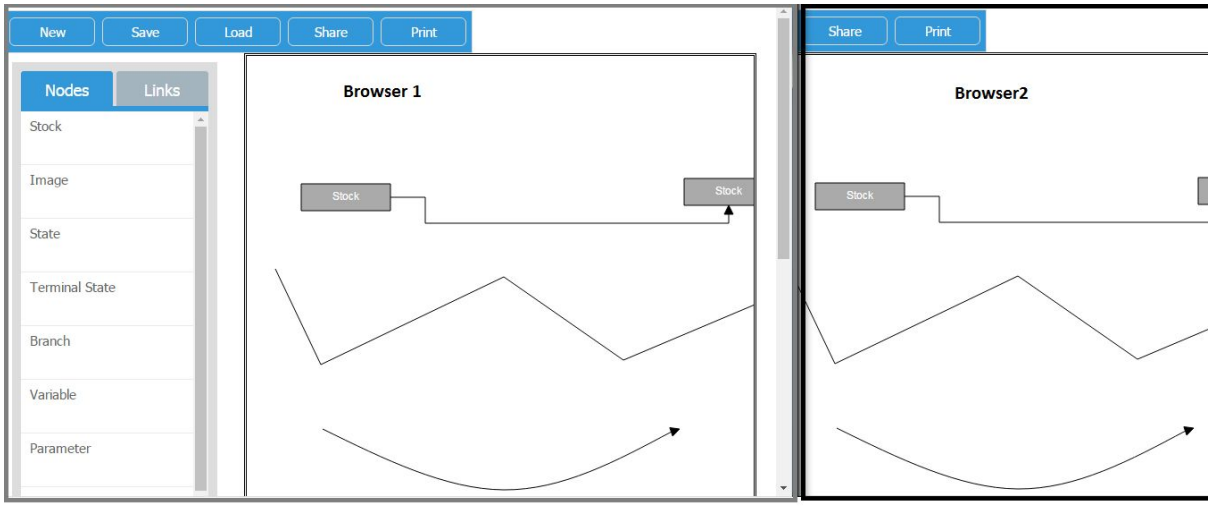
ID5: Sharing a Project:

The following steps can be taken for Sharing a Project:

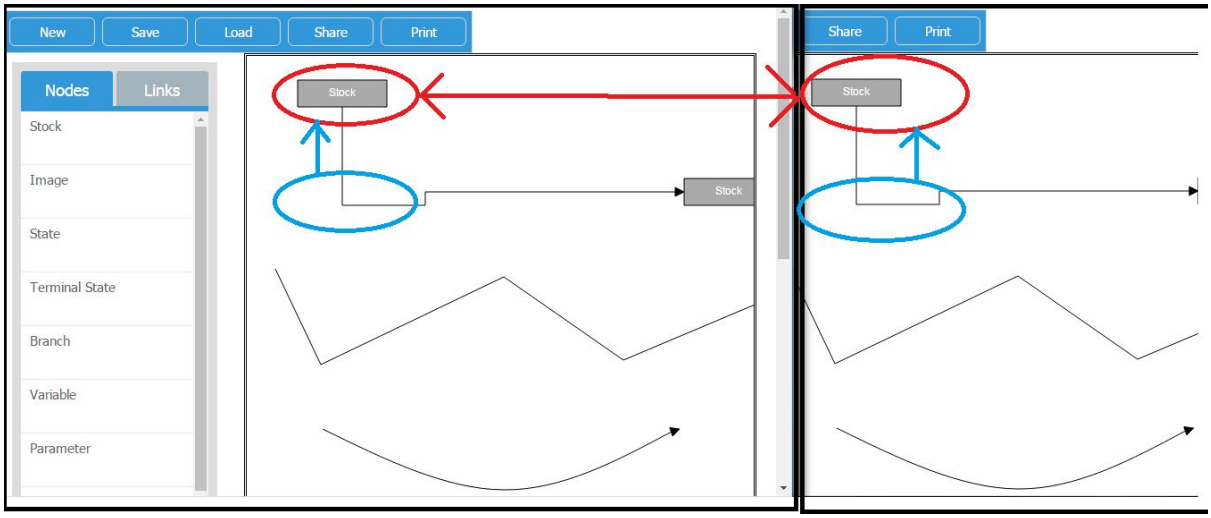
- **Option 1:** Go to your google drive at: https://drive.google.com/drive
    - This is the default for all created projects, if you moved a project to some branch of the drive, then locate it
    - Right-Click on the project and find 'share' and follow this manual or directly follow this manual http://www.gcflearnfree.org/googledriveanddocs/6
- **Option 2:** If currently on a project page, press the 'Share' button
    - Follow the manual above
- If you made a shareable link - then simply give it out to whom you want to share it with

- If you made sent them by email, then the person who received it should go to the email and follow through with it.
- For both options: Make sure that they have a google docs account (they will be prompted to login. Then the file will be directly stored in their https://drive.google.com/drive (most likely under ‘shared with me’)
- If there are problems with opening the file (And the user sent the option hasn’t used the program), then please go to the websites main site and allow access to the application (Similar to Section I: ‘Getting Started’)

The following is if the user has been allowed to edit the project, exemplifying real-time collab:



(ID5)Figure 18: show two different user view (before change)



(ID5)Figure 19: show two different user view (after change)

ID5: Creating a new Project:

The following steps can be taken for creating a new project:

- If you currently are working on a project or have the a project open, then click the ‘New’ button on the menu bar, otherwise enter http://cmpt371g3.usask.ca/ or http://cmpt371g3.usask.ca/development/src/Main/ in your web browser and hit the ‘Enter’ key as in instructed in section II: ‘Getting Started’.
- Enter the name of the project in the textarea/textbox provided
- Press the ‘Create’ Button and finish

Loading a Project:

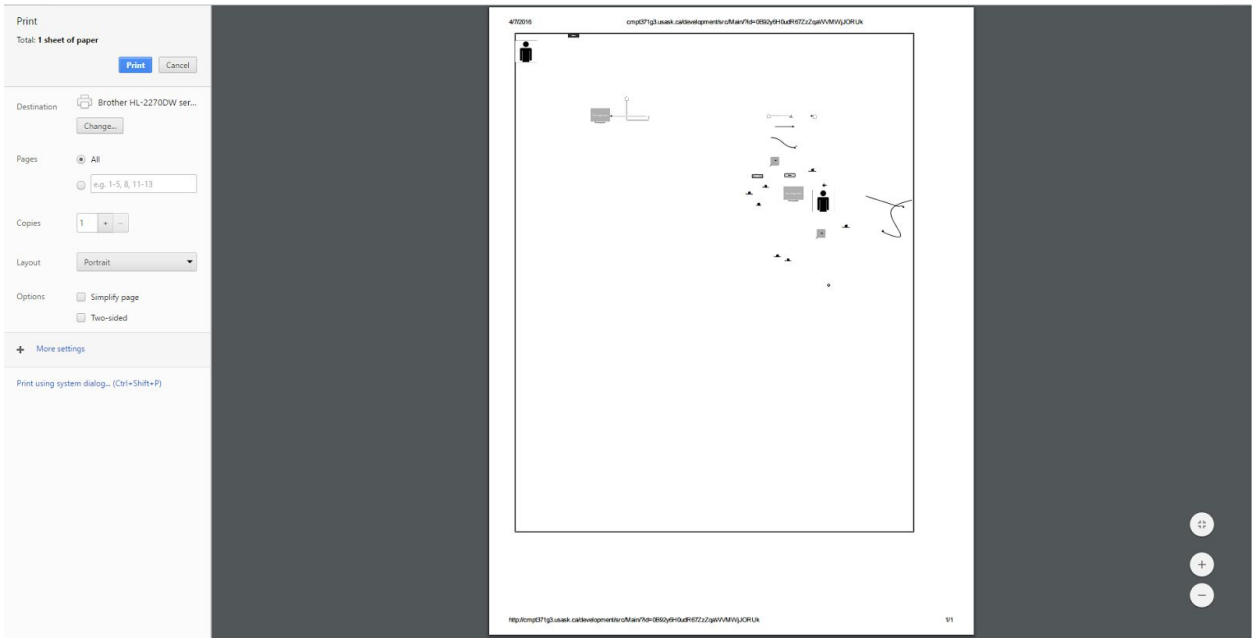
The following steps can be taken for Loading a project project:

- Go to your https://drive.google.com/drive and locate your shared or created project
- Double Left-Click on the project or Right-Click and select ‘Open’
- If this doesn’t work, make sure you allow access to the application

ID5: Print The Canvas:

The following steps can be taken for printing the canvas/project:

- Press the ‘Print’ button located in the menu toolbar
- A print page will appear with the preview of the canvas
- Choose which options you would like and a printer under ‘Destination’
- Press the ‘Print button located in the top lefthand corner



(ID5) Figure 20: An example of the print page and preview of a project

ID5:Saving a project:
There is no save button/function in the program. Instead, every action that occurs in the project saves immediately to your file located in your google drive.

ID5 Undo option:
There is no undo. Each change that is made is Final.

V. Known Issues (ID5)

This section covers issues that are known with the current system. This includes the issues, known causes, and possible workarounds. Issues will use the following template:

Issue Number: Issue Title
Description
    This is the description of the issue.
Known Causes
    This is a list of the known causes.
    This is apart of the list of known causes.
Workarounds
    These are some workarounds.
    This is another workaround.

1: Properties toolbar cutting through Canvas
Description
- A issue that causes your properties toolbar to cut through the canvas (as in, it will lay on top of the canvas)

Known Causes
- An odd screen size or resolution when creating/loading a project
- Zooming in and out of your window

Workarounds
- Try changing your window size using ‘Ctrl & +’ or ‘Ctrl & -’
- Refresh the page (it will auto resize)

2: Complete destruction of a Link
Description
- An issue that causes a Link to be permanently attached to a node and rendered useless (it can no longer be hovered or edited - only moved with the node as one object when the area around it is click - Not the Node itself)

Known Causes

- Dragging one end of a Link on top of a Node and then ‘Right-Click’ on the Node

Workarounds

- Do not ‘Right-Click’ at all (a general statement for our project)

Other known issues

Below are remaining issues which have yet to be documented.

- Right clicking issue (just don’t do it)
- Flow does not appear over other links/nodes if if you click a node that it is attached to, but the others do.
    - If you want it to be shown then click the link after to position it how you want to
- Zoom with properties - don’t zoom the window after creation - if you want it to be smaller then create a new at that window size or start it as such
- There is no undo, be careful
- Save is automatic and immediate

Issues Discovered through Manual Testing (some of these have changed):

- If you select a link and then hold and click on the node, then the link’s hit box will be shown
- You have to be extremely fast at double clicking for a link not to create another joint when you link it to a node
- you can select things while still initializing the link
- Hard to link small objects
- right click still breaks things
- blue border shows immediately when you click an object and drag it
- red only shows when you let go of the object
- text is never part of the blue box (text) intended
- final state with any link is a bad time
- red hitbox expands when you write longer texts than the current hitbox, the blue expansion box will not get larger - something odd is that the object can only be selected by the text if it expands outside the blue box, even though the red hitbox takes up the area
- priorities are which ever object was last selected will take the highest layer, however, flow will not, only the clouds appear in front, not the link
- screen issues, making the window smaller will put the properties bar inside of the canvas field
- share still doesn’t work
- Flows do not only connect to stocks

ID5 Changes that were not documented directly in the document prior due to clutter, being a small changes, or awkwardness.

- Naming conventions of the Figures.
- Undocumented changes in the steps of the project
- A lot of small adding/deleting of words

Tons of more undocumented changes, for best comparison to ID4 User Manual, please see the old user manual.