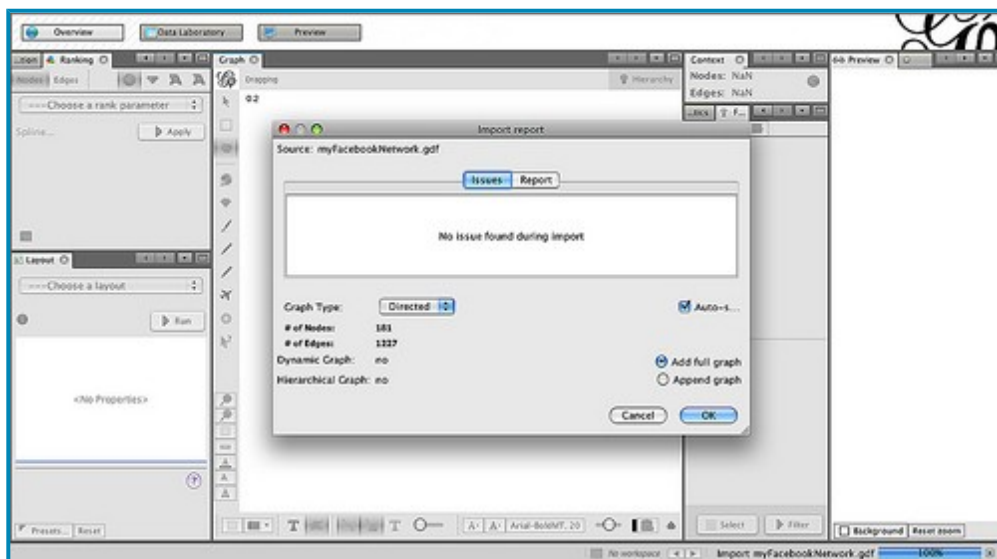


Getting Started With The Gephi Network Visualisation App – My Facebook Network

First up, we need to get some graph data – [netvizz – facebook to gephi](#) suggests that the [netvizz facebook app](#) can be used to grab a copy of your Facebook network in a format that Gephi understands, so I installed the app, downloaded my network file, and then uninstalled the app... (can't be too careful ;-)

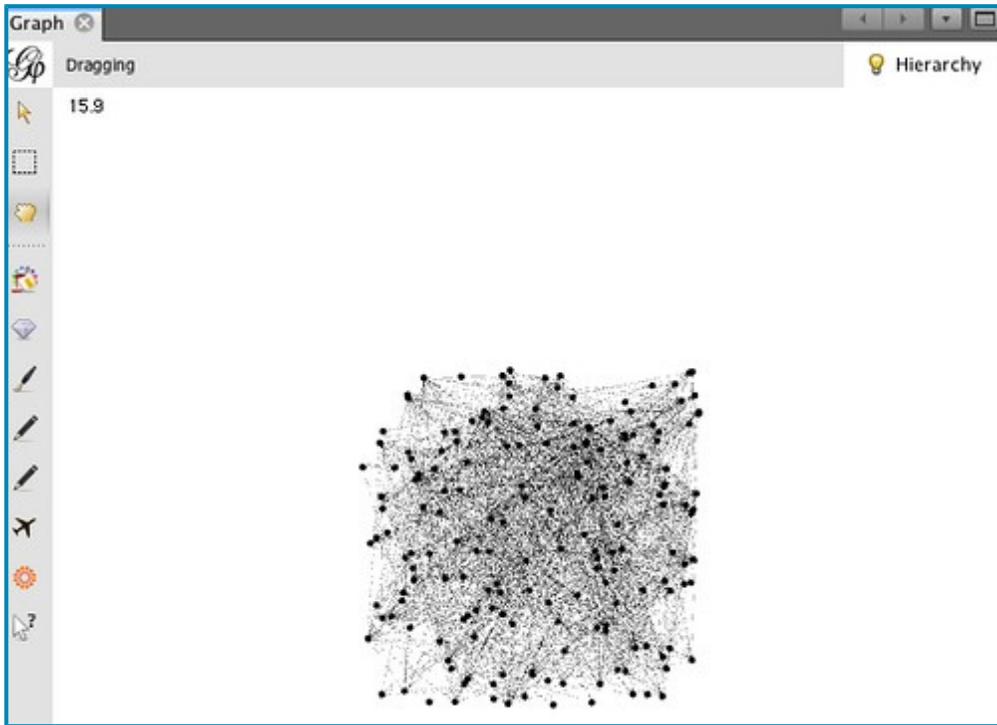
Once Gephi is launched (and updated, if it's a new download – you'll see an updates prompt in the status bar along the bottom of the Gephi window, right hand side) Open... the network file you downloaded.



NB I think the graph should probably be loaded as an undirected graph... That is, if A connects to B, B connects to A. But I'm committed to the directed version in this case, so we'll stick with it... (The directed version would make sense for a Twitter network (which has an asymmetric friending model), where A may follow B, but B might choose not to follow A. In Facebook, friending is symmetric – A can only friend B if B friends A.

(Btw, I've come across a few gotchas using Gephi so far, including losing the window layout shown above. Playing with the Reset Windows from the Windows menu sometimes helps... There may be an easier way, but I haven't found it yet...)

The graph window gives a preview of the network – in this case, the nodes are people and the edges show that one person is following another. (Remember, I should have loaded this as an undirected graph. The directed edges are just an artefact of the way the edge list that states who is connected to whom was generated by netvizz.)

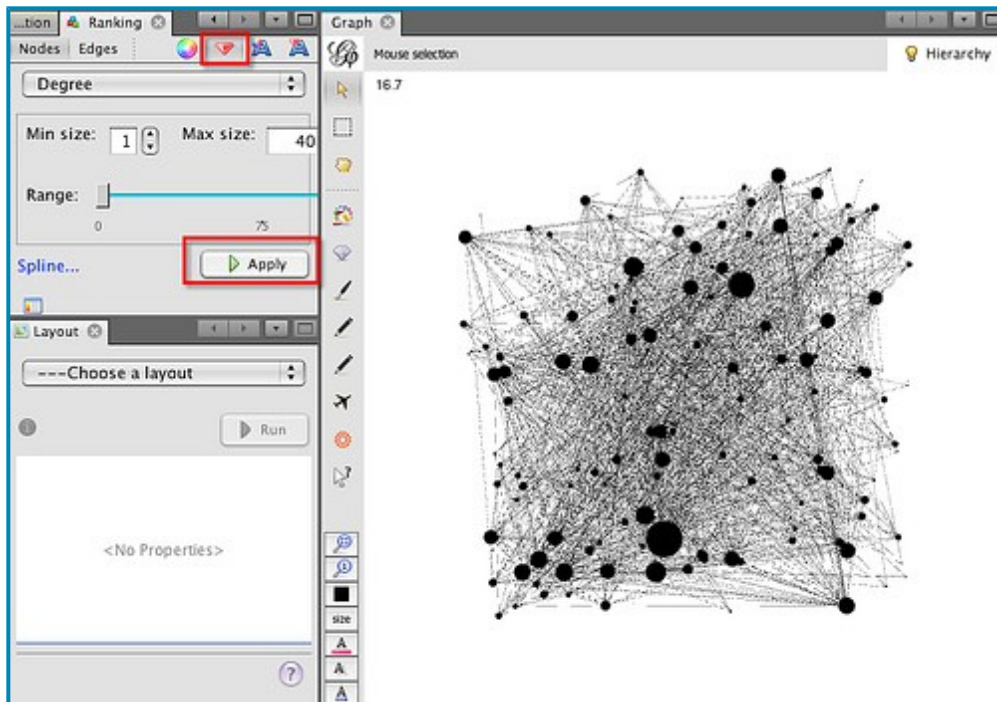


Using the scroll wheel on a mouse (or two finger push on my Mac mousepad), you can zoom in and out of the network in the graph view. You can also move nodes around, view the labels, switch the edges on and off off, and recenter the view.

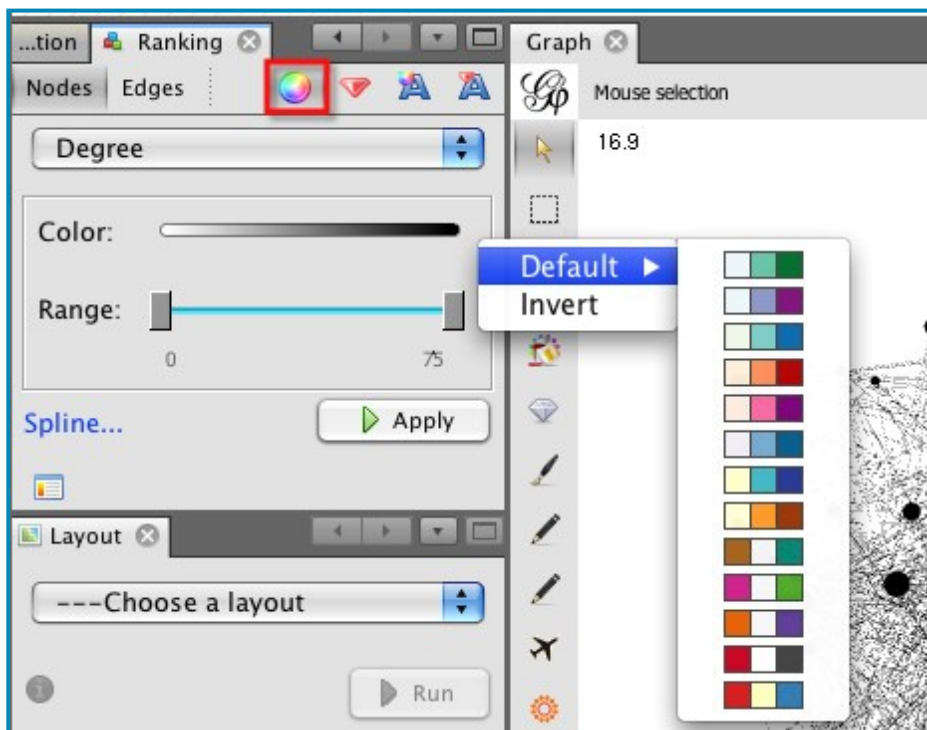


Not shown - but possible - is deleting nodes from the graph, as well as editing their properties.

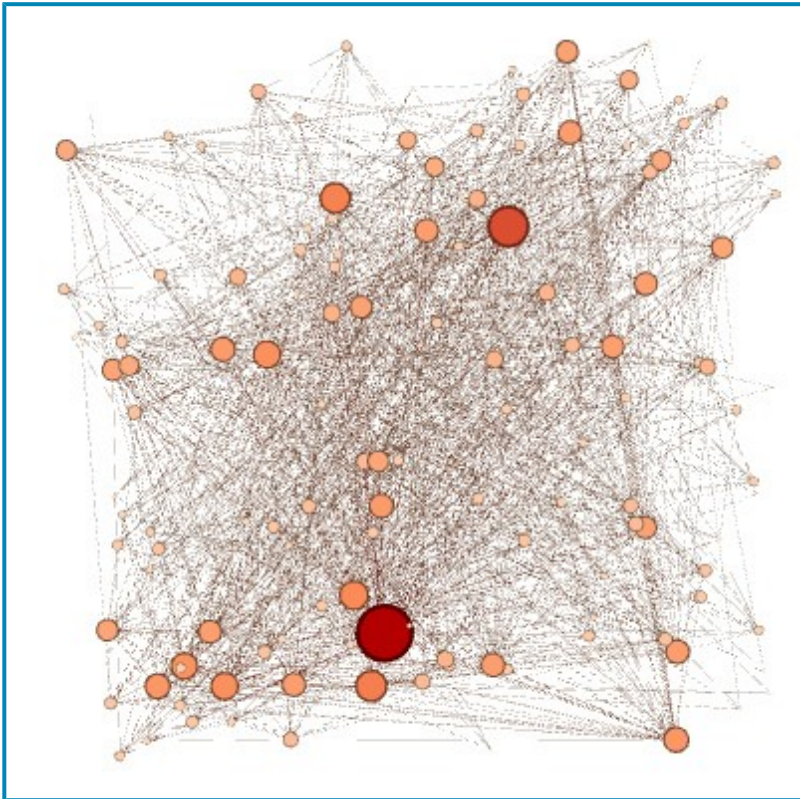
You can also generate views of the graph that show information about the network. In the Ranking panel, if you select the Nodes tab, set the option to Degree (the number of edges/connections attached to a node) and then choose the node size button (the jewel), you can set the size of the node to be proportional to the number of connections. Tune the min and max sizes as required, then hit apply:



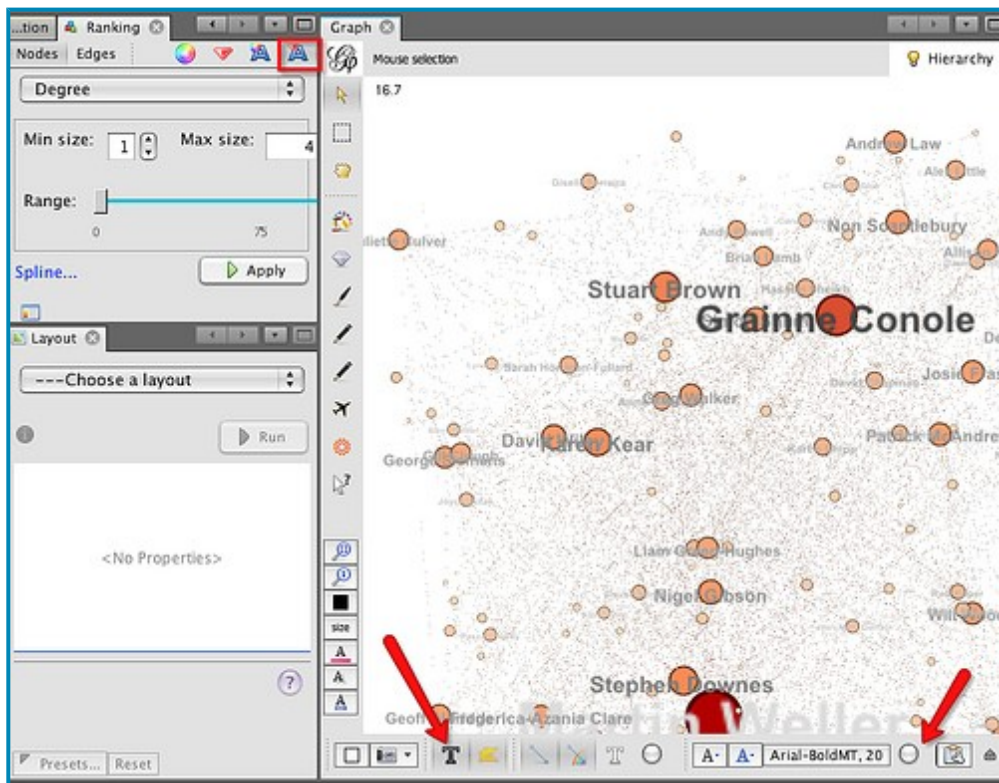
You can also colour the nodes according to properties:



So for example, we might get something like this:

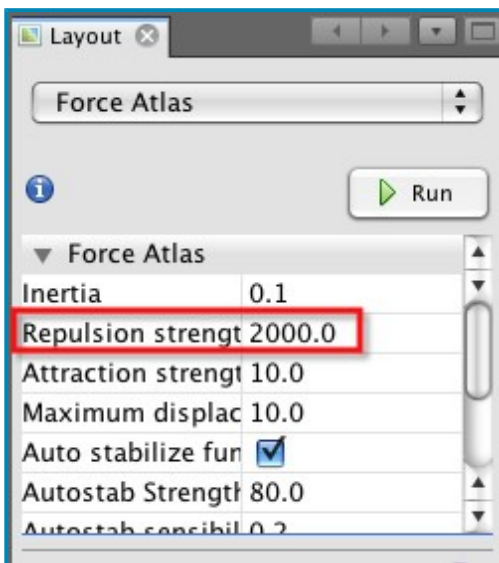


Label size and colour can also be proportional to node attributes:



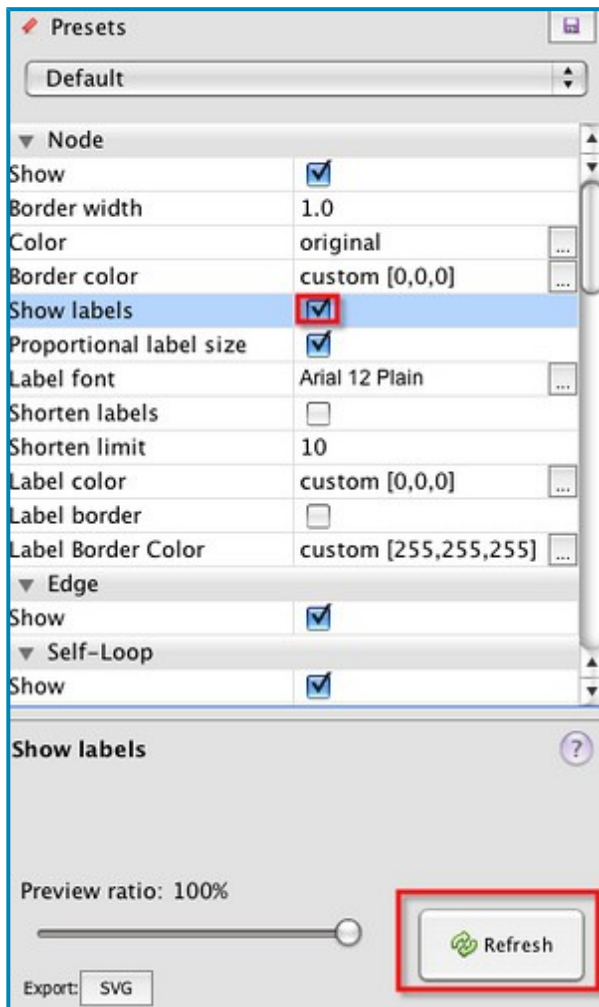
To view the labels, make sure you click on the Text labels option at the bottom of the graph panel. You may also need to tweak the label size slider that's also on the bottom of the panel.

If you want to generate a pretty version of the graph, you need to do a couple of things. Firstly, in the layout panel, select a layout algorithm. Force Atlas is the one that the original tutorial recommends. The repulsion strength determines how dispersed the final graph will be (i.e. it sets the “repulsive force” between nodes); I set a value of 2000, but feel free to play:

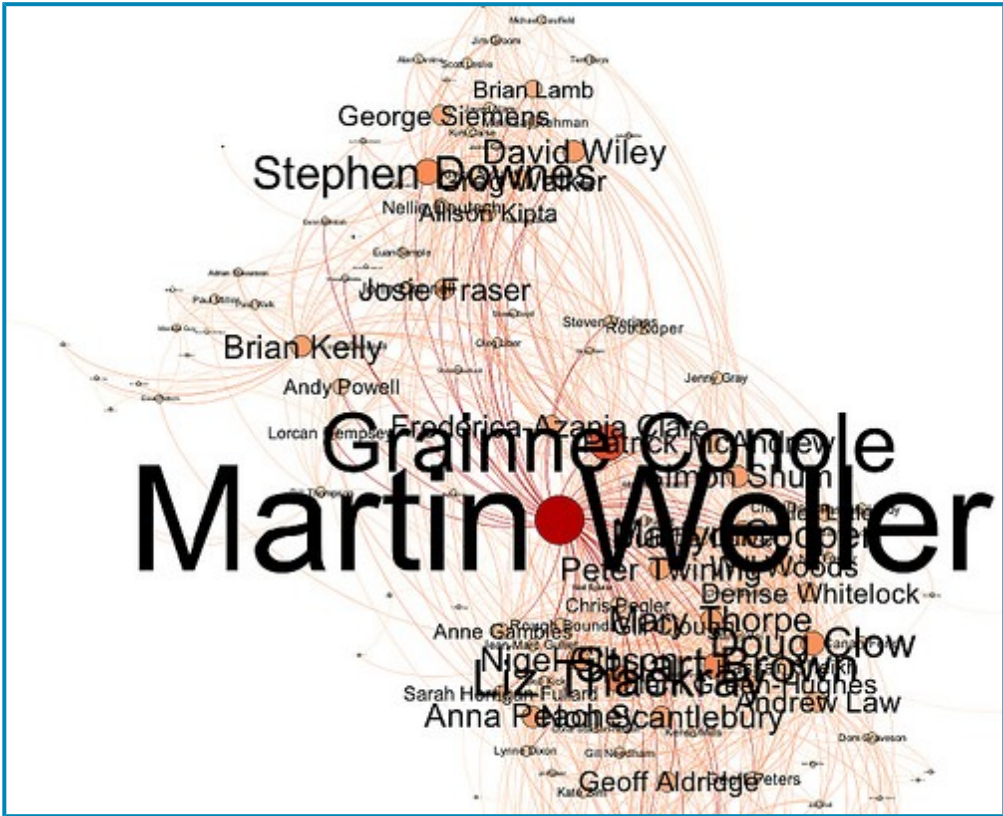


When you hit Run, the button label will change to Stop and the graph should start to move and reorganise itself. Hit Stop when the graph looks a little better laid out. Remember, you can also move nodes around in the graph as show in the video above.

Having run the Layout routine, we can now generate a pretty view of the graph. In the Preview Settings panel on the left-hand side of the Gephi environment, select “Show Labels” and then hit “Refresh”:



In the Preview panel, (next tab along from Preview Settings), you should see a the prettified, 3D layout view:



Note that in this case I haven't made much attempt at generating a nice layout, for example by moving nodes around in the graph window to better position them, but you can do... (just remember to Refresh the Preview view in the Preview Settings... (There must be a shortcut way of doing that, but I haven't found it...!:-)

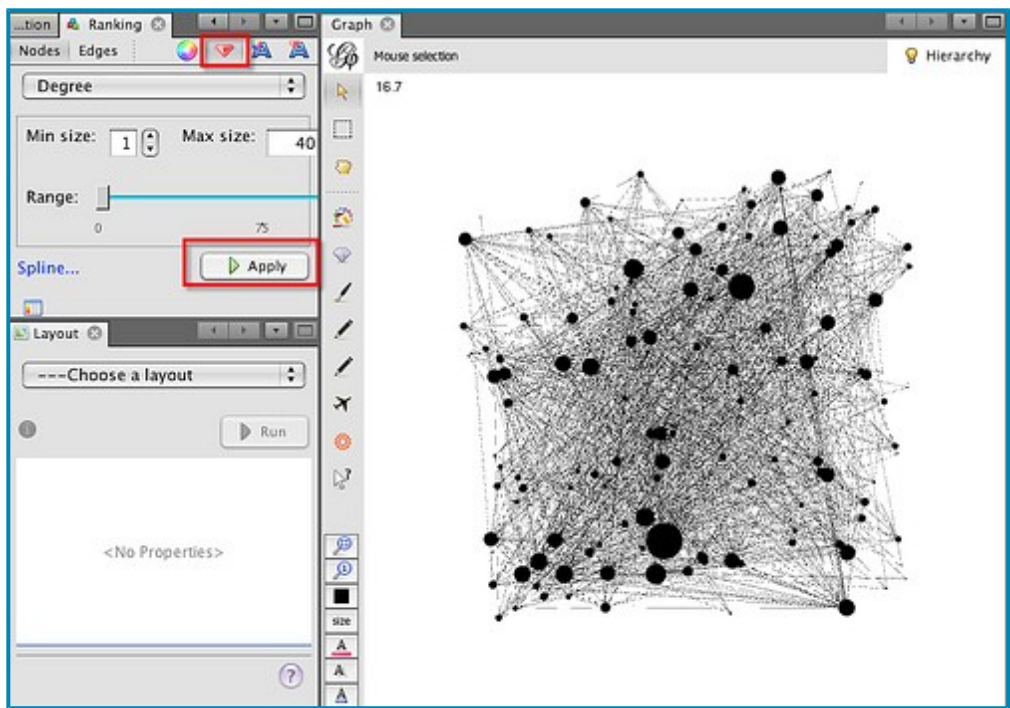
If you want to look at who any particular individual is connected to, you can go to the Data Table panel (again in the set of panels on the right hand side, just along from the Preview tab panel) and search for people by name. Here, I'm searching the edges to see who of my Facebook friends a certain Martin W is also connected to on Facebook;

| Source | Target | Id | Label |
|---------------------|-----------------------|----|-------|
| 227 - Martin Weller | 228 - Stephen Downes | | |
| 227 - Martin Weller | 230 - Juliette Culver | | |
| 227 - Martin Weller | 231 - Brian Lamb | | |
| 227 - Martin Weller | 233 - Anne Gambles | | |
| 227 - Martin Weller | 235 - Lynne Dixon | | |
| 227 - Martin Weller | 239 - Gill Clough | | |
| 227 - Martin Weller | 242 - Adrian Hopgood | | |
| 227 - Martin Weller | 244 - Hassan Sheikh | | |
| 227 - Martin Weller | 251 - Martyn Cooper | | |
| 227 - Martin Weller | 253 - Nigel Gibson | | |

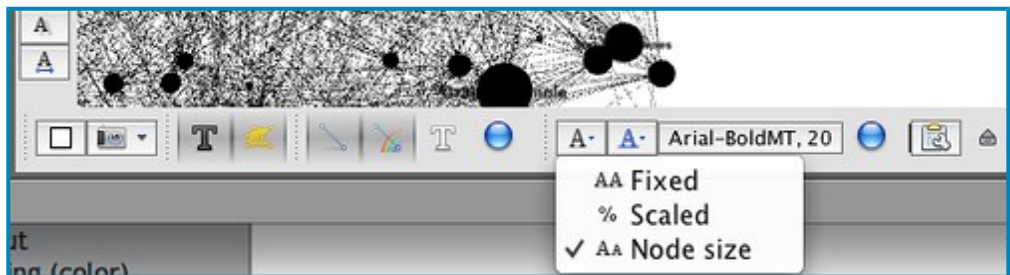
It's easy enough to highlight/select and copy these cells and then post them into a spreadsheet if required.

Okay, so where do we begin? As before, I'm going to start with a fresh worksheet, and load my Facebook network data, downloaded via the netvizz app, into Gephi, but as an undirected graph this time! So far, so

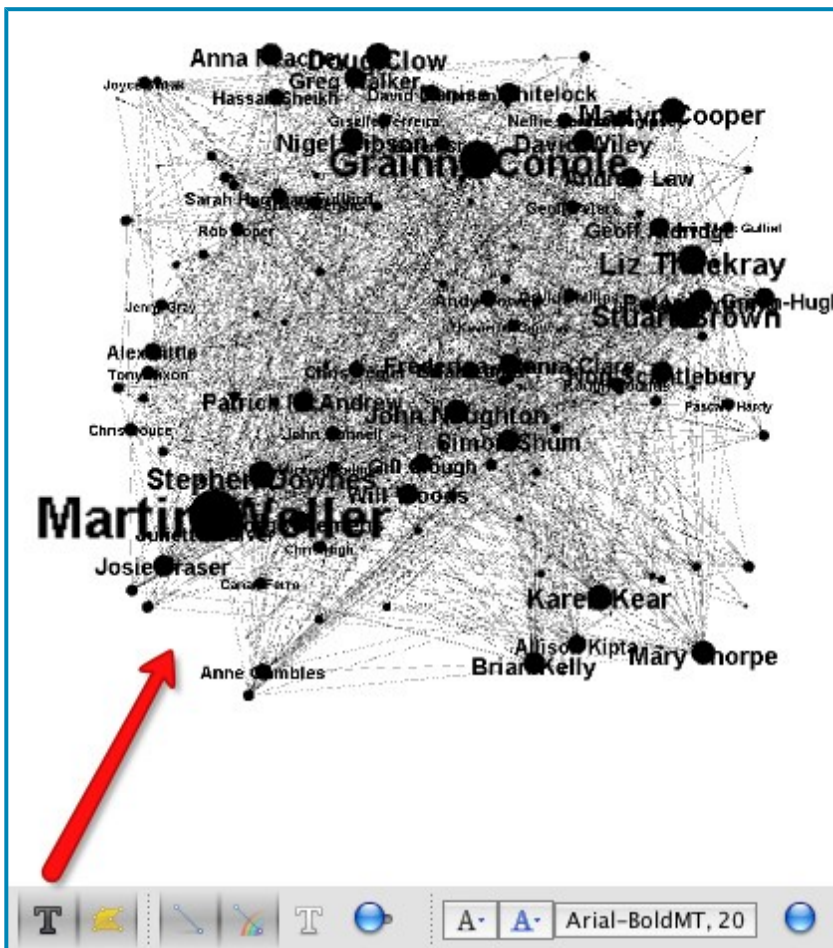
exactly the same as last time. Just to give me some pointers over the graph, I'm going to set the node size to be proportional to the degree of each node (that is, the number of people each person is connected to).



I can activate text labels for the nodes that are proportional to the node sizes from the toolbar along the bottom of the Graph panel:



...remembering to turn on the text labels, of course!



So – how can we explore the data visually using Gephi? One way is to use filters. The notion of filtering is incredibly powerful one, and one that I think is both often assumed and underestimated, so let’s just have a quick recap on what filtering is all about.

This maybe?



[“green beans” by [House Of Sims](#)]

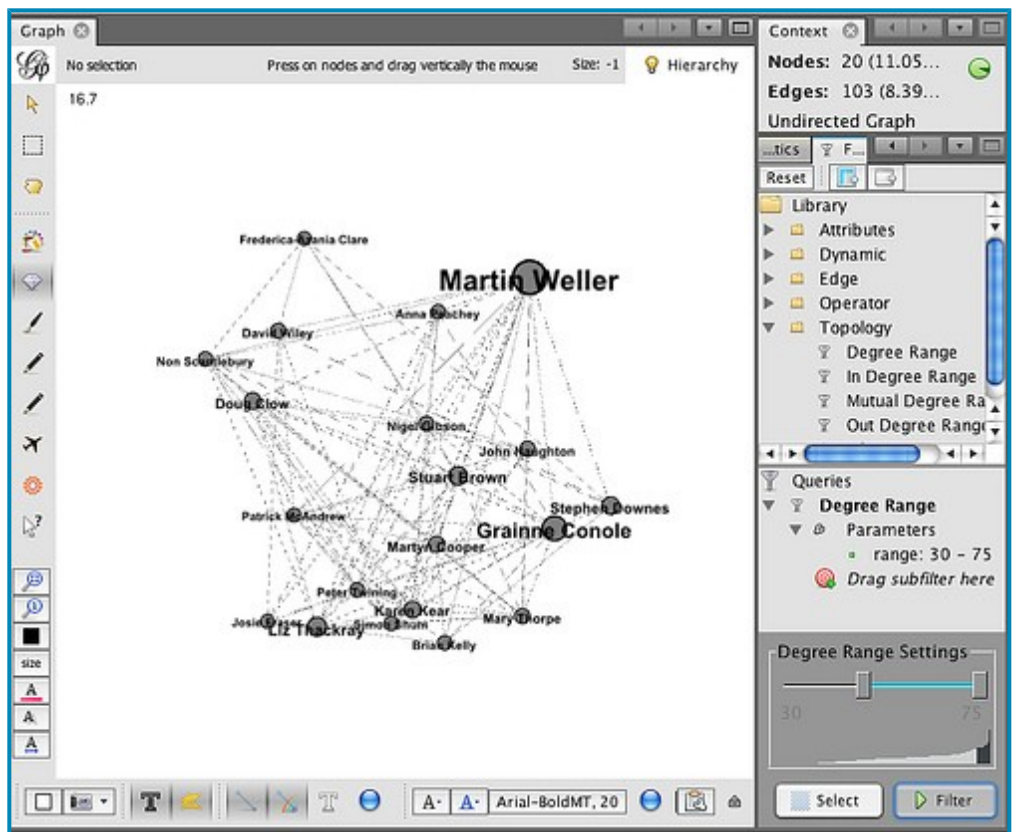
Filters – such as sieves, or colanders, but also like EQ settings and graphic, bass or treble equalisers on music players, colour filters on cameras and so on – are things that can be used to separate one thing from another based on their different properties. So for example, a colander can be used to separate green beans from the water it was boiled in, and a bass filter can be used to filter out the low frequency pounding of the bass on an audio music track. In Gephi, we can use filters to separate out parts of a network that have particular properties from other parts of the network.

The graph of Facebook friends that we’re looking at shows people I know as nodes; a line connecting two nodes (generally known as an edge) shows that that the two people represented by the corresponding nodes are also friends with each other. The size of the node depicts its degree, that is, the number of edges that are connected to it. We might interpret this as the popularity (or at least, the connectedness) of a particular person in my Facebook network, as determined by the number of my friends that they are also a friend of. (In an undirected network like Facebook, where if A is a friend of B, B is also a friend of A, the edges are

simple lines. In a directed network, such as the social graph provided by Twitter, the edges have a direction, and are typically represented by arrows. The arrow shows the direction of the relationship defined by the edge, so in Twitter an arrow going from A to B might represent that A is a follower of B; but if there is no second arrow going from B to A, then B is not following A.)

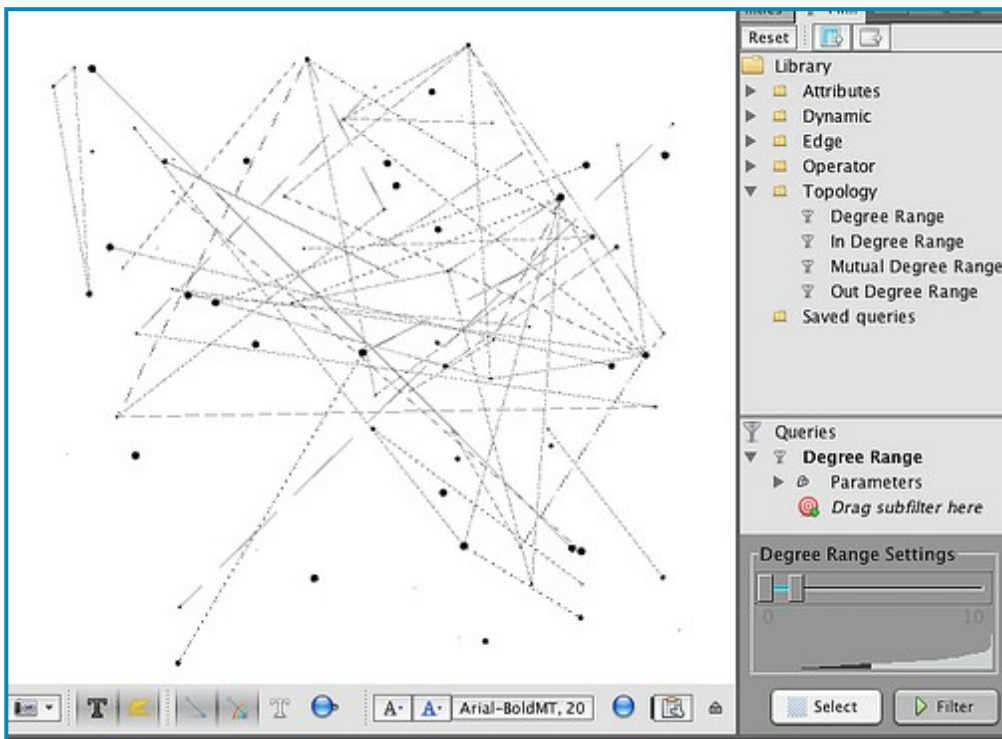
We've already used degree property of the nodes to scale the size of the nodes as depicted in the network graph window. But we can also use this property to filter the graph, and see just who the most (or least) connected members of my Facebook friends are. That is, we can see which people are friends of lots of the people am I friends of.

So for example - of my Facebook friends, which of them are friends of at least 35 people I am friends with? In the Filter panel, click on the Degree Range element in the Topology folder in the Filter panel Library and drag and drop it on to the Drag Filter Here

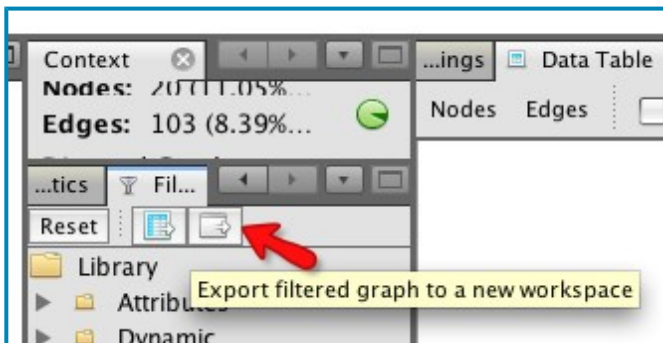


Adjust the Degree Range settings slider and hit the Filter button. The changes to allow us to see different views over the network corresponding to number of connections. So for example, in the view shown above, we can see members of my Facebook network who are friends with at least 30 other friends in my network. In my case, the best connected are work colleagues.

Going the other way, we can see who is not well connected:

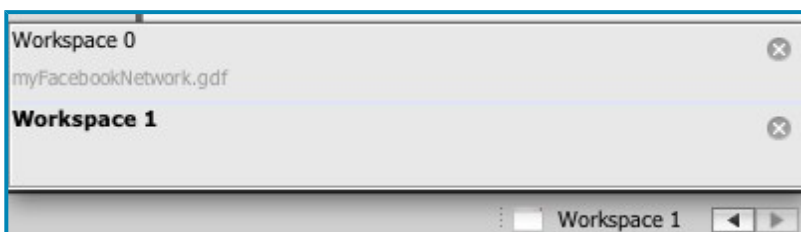


One of the nice things we can do with Gephi is use the filters to create new graphs to work with, using the notion of workspaces.



If I export the graph of people in my network with more than 35 connections, it is placed into a new workspace, where I can work on it separately from the complete graph.

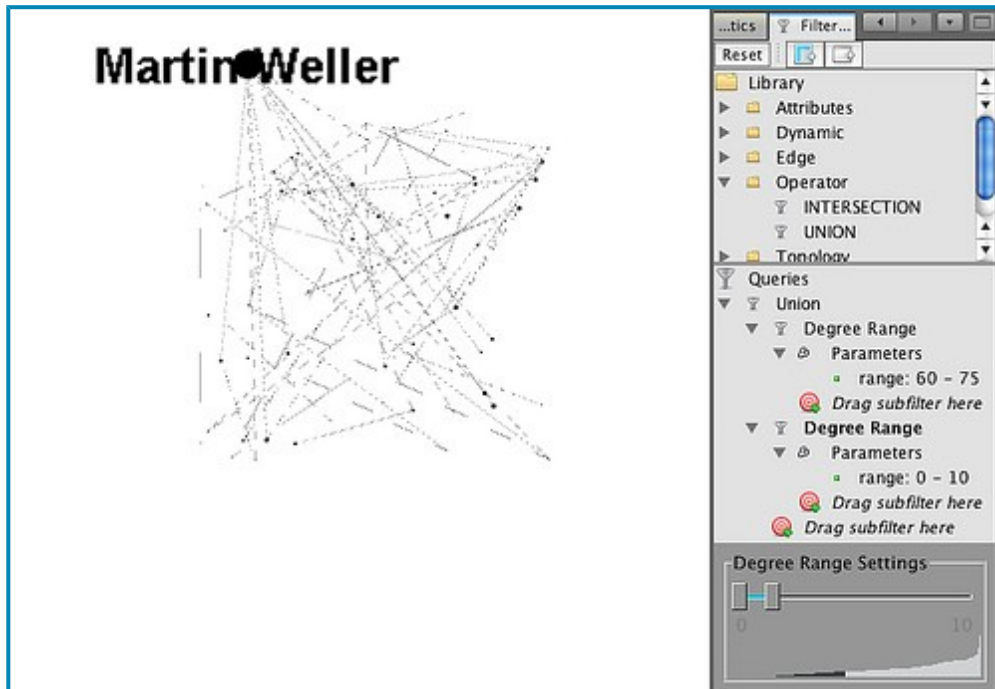
Navigating between workspaces is achieved via a controller in the status bar at the bottom right of the Gephi environment:



The new workspace contains just the nodes that had 35 or more connections in the original graph. (I'm not sure if we can rename, or add description information, to the workspace? If you know how to do this, please add a comment to the post saying how:-)

If we go back to the original graph, we can now delete the filter (right click, delete) and see the whole network again.

One very powerful filter rule that it's worth getting to grips with is the Union filter. This allows you to view nodes (and the connections between them) of different filtered views of the graph that might otherwise be disjoint. So for example, if I want to look at members of my network with ten or less connections, but also see how they connect to each other to Martin Weller, who has over 60 connections, the Union filter is the way to do it:



That is, the Union filter will display all nodes, and the connections between them, that either have 10 or less connections, or 60 or more connections.

As before, I can save just the members of this subnetwork to a new workspace, and save the whole project from the File menu in the normal way.

Okay, that's enough for now... have a play with some of the other filter options, and paste a comment back here about any that look like they might be interesting. For example, can you find a way of displaying just the people who are connected to Martin Weller?