Tutorial:Network Analyzer

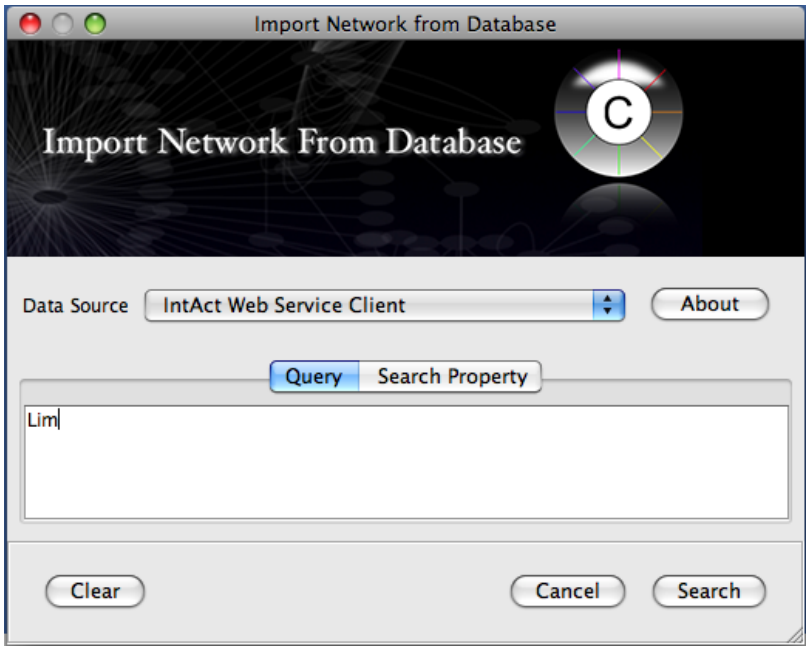
Computation and Visualization of Topological Parameters and Centrality Measures for Biological Networks

Network Analyzer

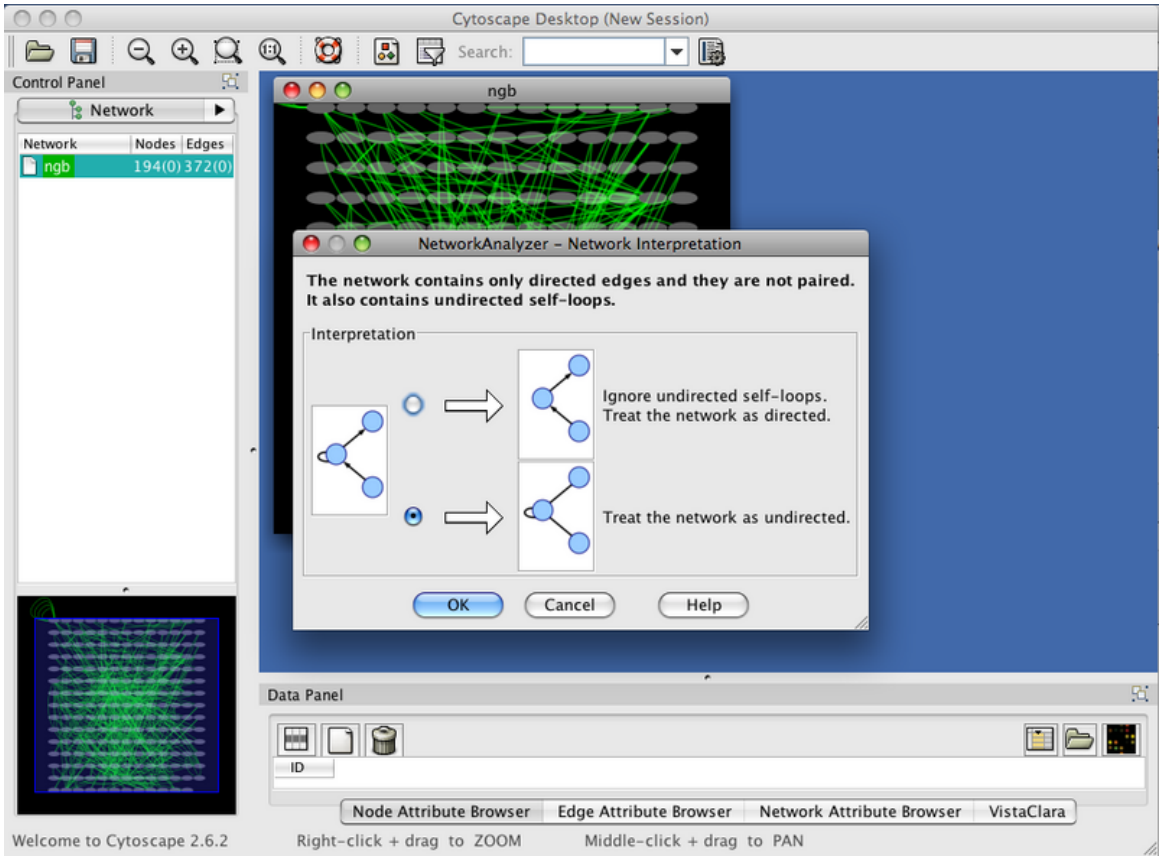
Biological Use Case: Analyze a biological network and discover its topological properties.

Procedure

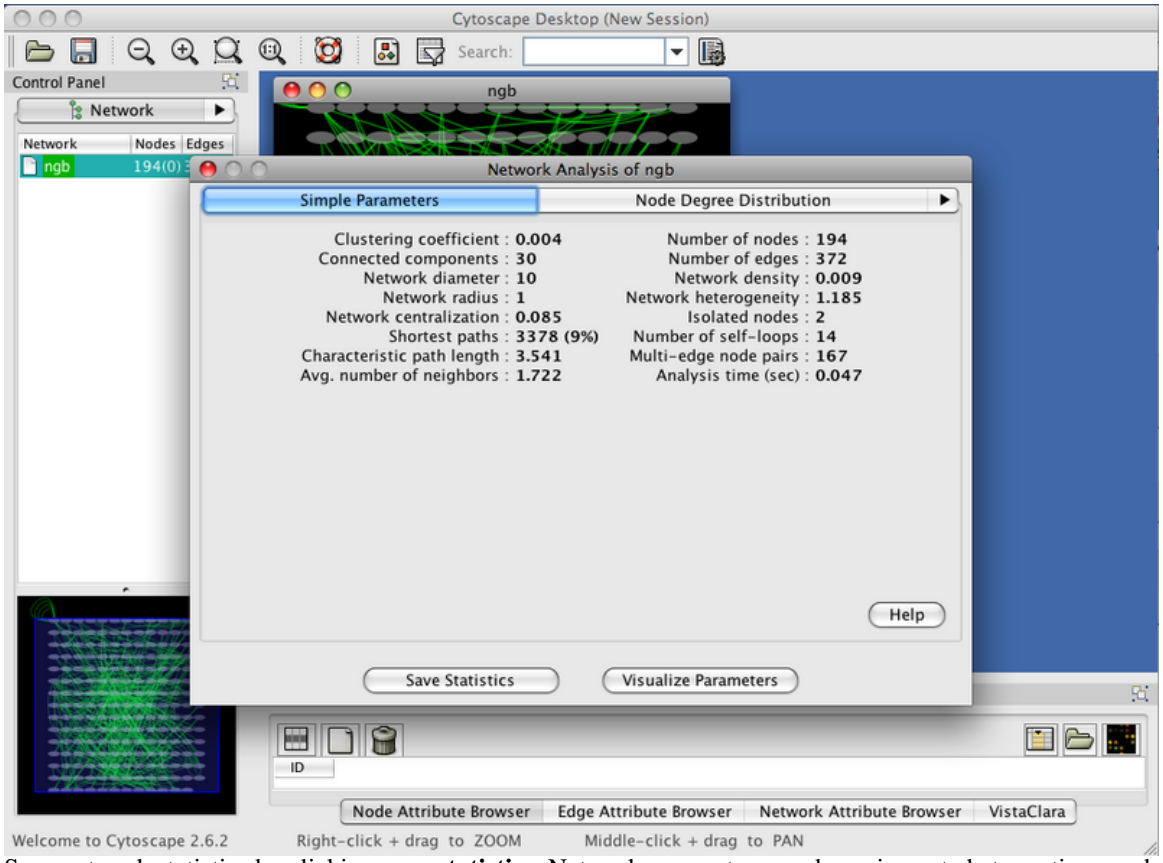
- Download the NetworkAnalyzer plugin from http://med.bioinf.mpi-inf.mpg.de/netanalyzer/download.php.
- Install the plugin by unzipping the downloaded zip file and moving all contents to the plugins folder of Cytoscape (for example C:\Program Files\Cytoscape_v2.6.2\plugins).
- Install the IntActWSClient plugin via Plugins>Manage Plugins.
- Go to **File>Import>Network from web services** and select IntAct Web Service Client under Data Source.
- Search for *Lim*. When prompted with the results of the search, click Yes to create a network. Enter a name for the network.



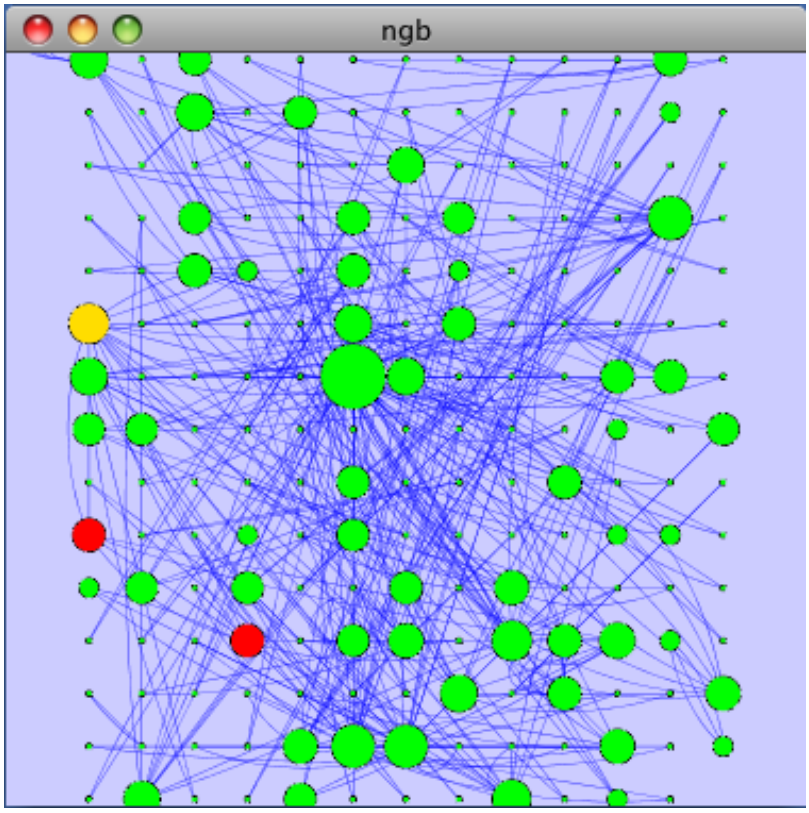
- Go to **Plugins->Network Analysis->Analyze Network**. Decide whether your network should be treated as directed or undirected. In the *Lim* example, treat the network as **undirected**.



- Explore the network topology:
  - Click on the tabs to see the parameters and their distributions. Parameters are stored as nodes and edge attributes.
  - Change the charts (scatter plot/histogram, axes, log scale, colors, zoom...) by clicking **chart settings**, **chart range**.
  - Fit the function to chart by clicking **fit line** or **fit power law**.
  - Export the diagrams as graphics by clicking **export chart**.
  - Export data for a spread sheet by clicking **export data**.
- To visualize topological parameters, click **Visualize Parameters**. Select **Degree** for mapping node size, and **ClusteringCoefficient** for mapping node color.



- Save network statistics by clicking **save statistics**. Network parameters can be re-imported at any time, and network analysis has to be done only once.
- To make network modifications, click **Plugins->Network Modifications->Remove Duplicated Edges** or **Plugins->Network Modifications->Remove Self-Loops**.
- To extract connected components of your network, click **Plugins->Network Modifications->Connected Components**. Select a connected component of interest to be displayed as a separate network.



Article Sources and Contributors

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