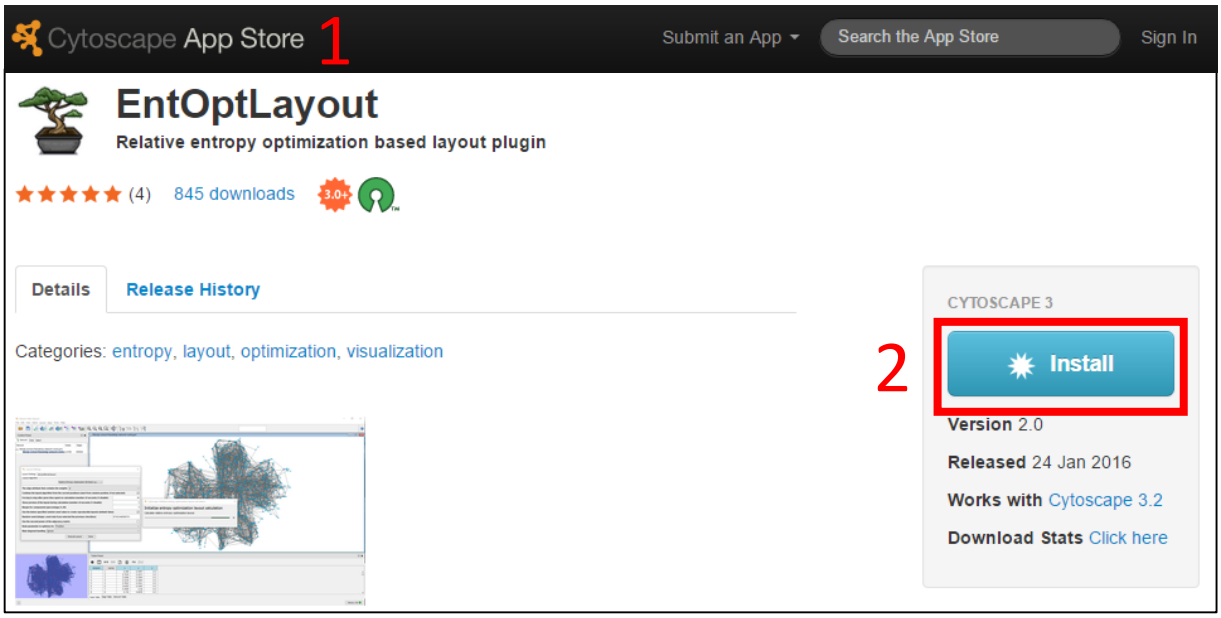
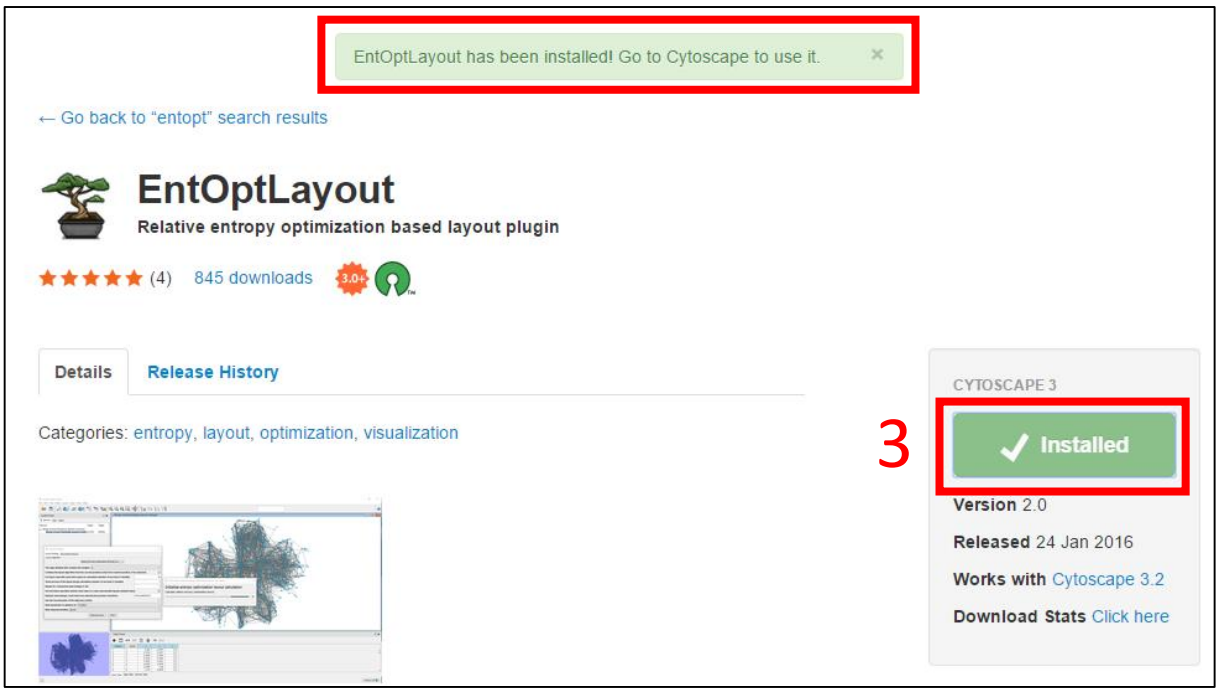
Tutorial

EntOptLayout - Cytoscpae 3.0 plugin

I. How to install the plugin?

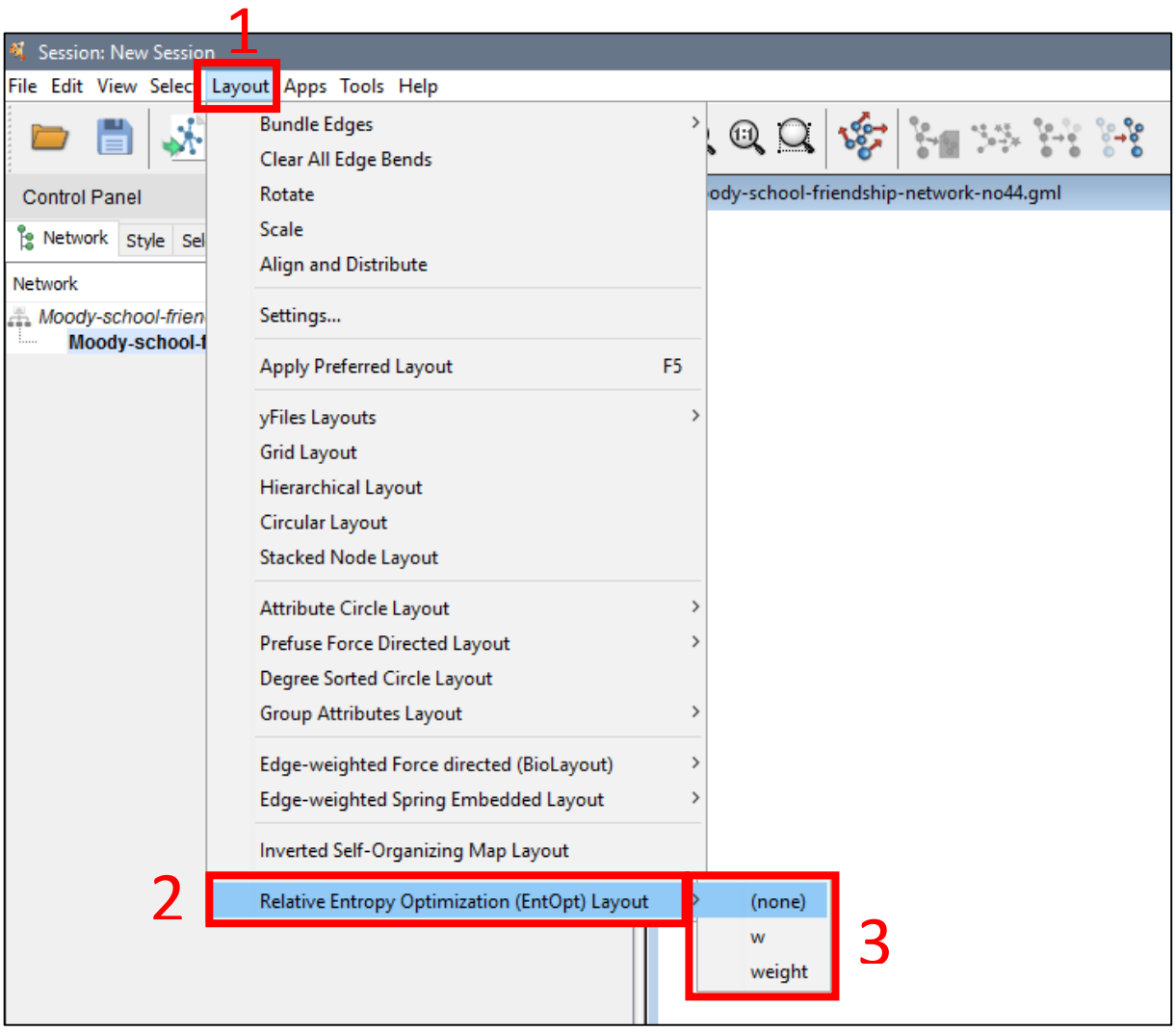
1. Visit the **Cytoscape App Store** at http://apps.cytoscape.org/apps/entoptlayout.
2. Install the EntOptLayout plugin by clicking on the **Install** button.
3. If the **Installed** button appears the installation was succesfull.





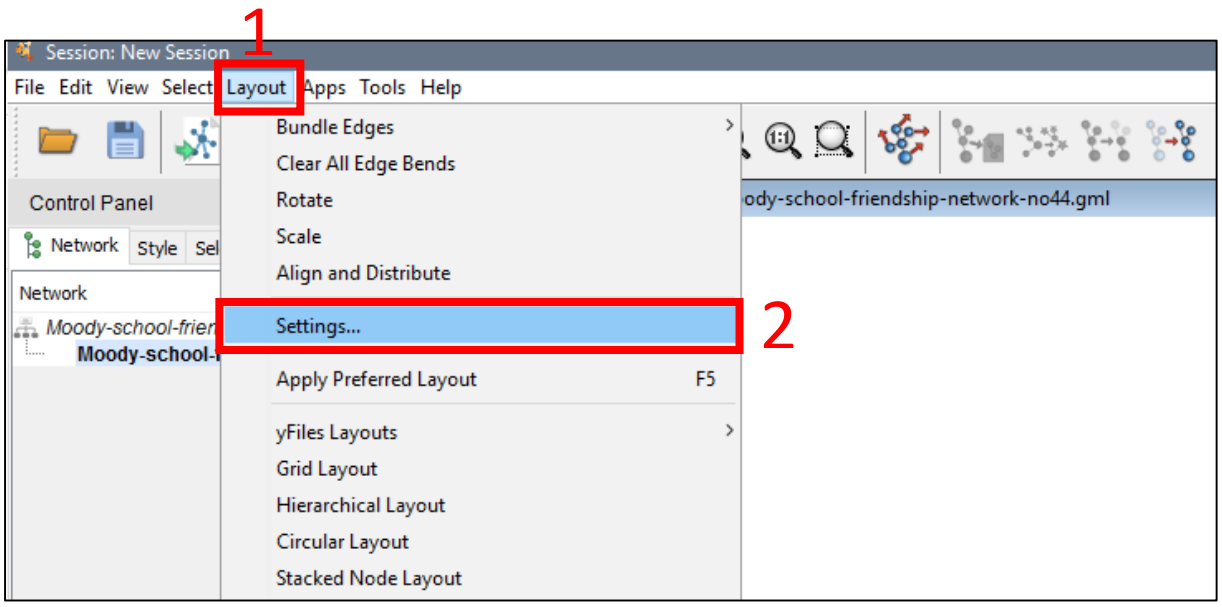
II. How to perform a quick EntOpt layout with default settings?

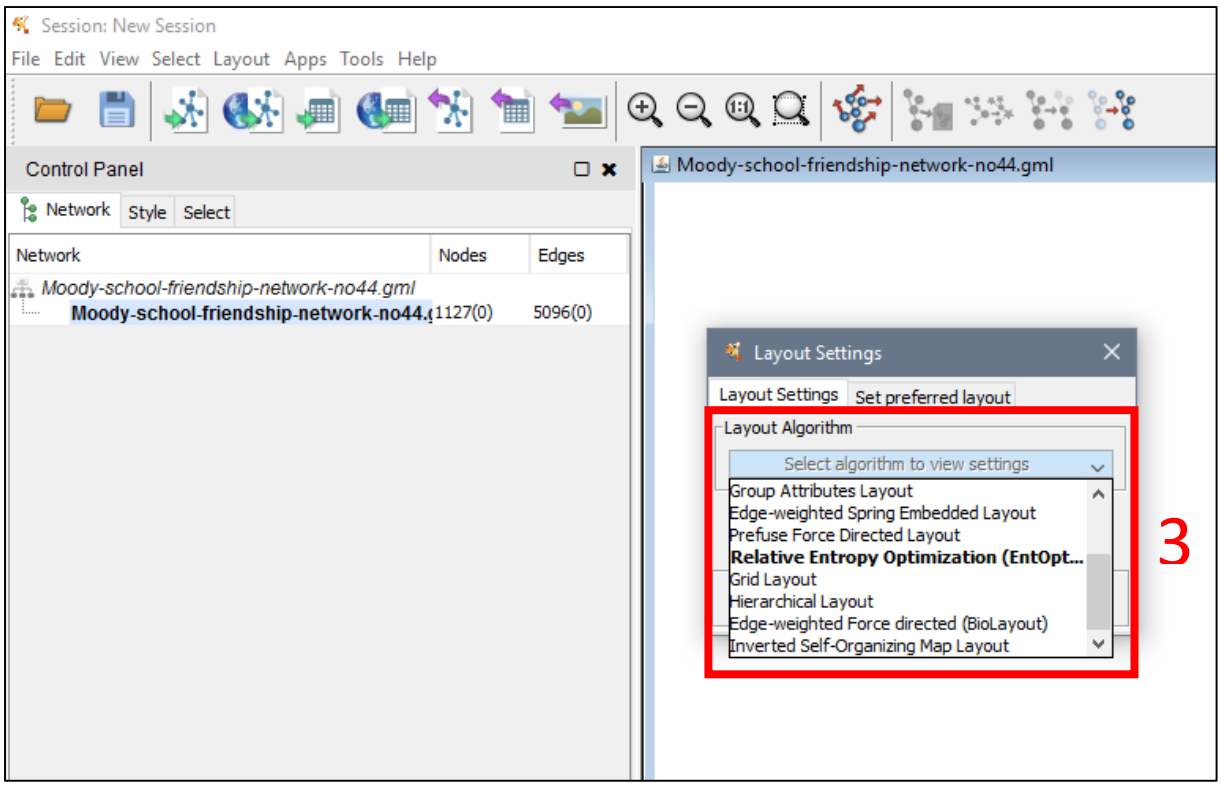
1. Click on the **Layout** button in the **Menu** bar.
2. Choose the **Relative Entropy Optimization (EntOpt) Layout** option.
3. If you would like to visualize a **weighted network** you can choose from the listed options which edge attribute to use as the weight during the layout. The **(none)** option means edge weights are not taken into account during the layout.



III. Where to change the settings of the plugin?

1. Click on the **Layout** button in the **Menu** bar.
2. Choose the **Settings…** option.
3. In the **Layout Settings** submenu select the **Relative Entopy Optimization (EntOpt) Layout** option.





IV. How to change the settings of the plugin?

1. **The edge attribute that contains the weights**
   If you would like to visualize a **weighted network** you can choose from the listed options which edge attribute to use as the weight during the layout. The **(none)** option means edge weights are not taken into account during the layout.

2. **Continue the layout algorithm from the current positions (start from random position, if not selected)**
   It's important to check this option, if you are planning to optimize for multiple node parameters in an alternating fashion, otherwise every optimization step would result in a scrambled layout because of the random initialization of node positions.

3. **Forcing to stop after given time spent on calculation (number of seconds; 0: disable)**
   This option allows you to run the network layout optimization for a limited amount of time. By default the plugin will only optimize for 60 seconds, but for bigger networks more time needed. If you would like to disable this limit simply write 0 to the box.

4. **Show preview of the layout during calculation (number of seconds; 0: disable)**
   The optimization is continous, but the resulted layout can be showed only as a preview during the calculation before tha final layout is ready. Use this option to change the frequeny of the preview update. By default the preview will be updated after 5 seconds. If you would like to disable this option simply write 0 to the box.

5. **Margin of components (percentage; 0..49)**
   Using this option the dimensions of the space used for the layout can be optimized, which helps the better visibility adjusted to the size of the visualized network.

6. **Use the below specified random seed value to create reproducible layouts (default: true)**
   In order to create reproducible layouts you can define an integer in the **Random seed** box, where the optimization starts from. Using this option the layouts for the a network will be the same after every independent run. By default this option is enabled, uncheck the box to disable.

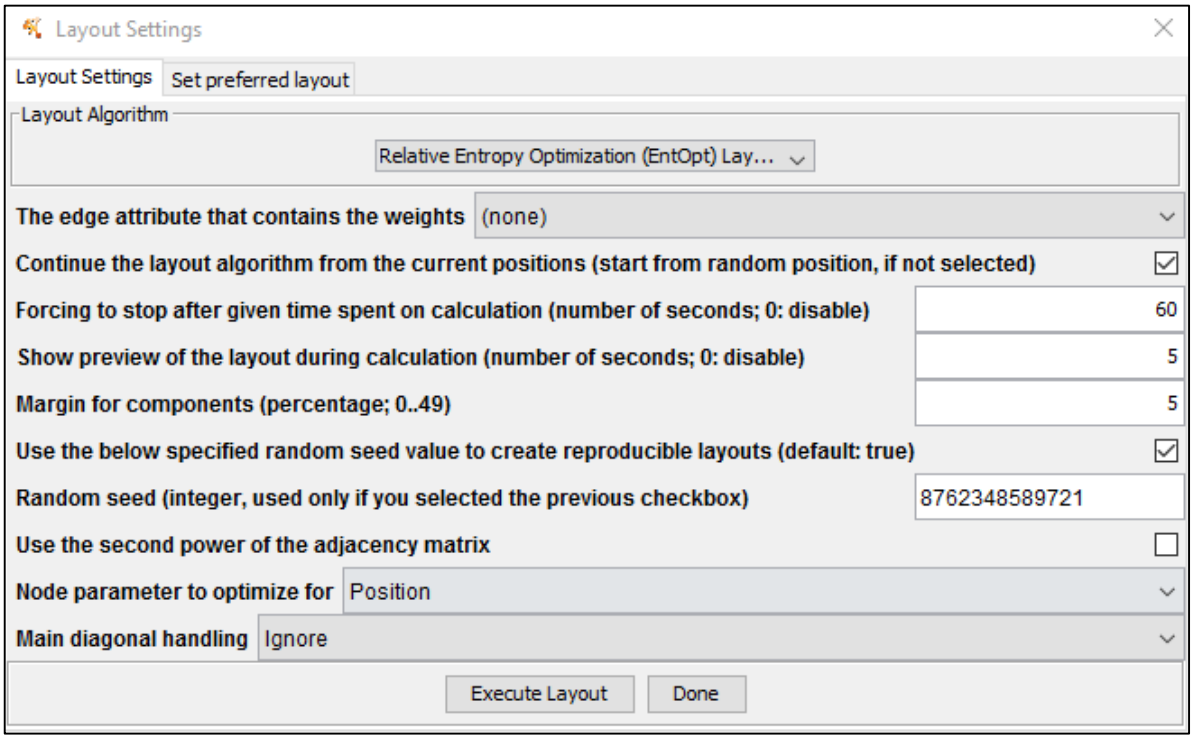
7. **Random seed (integer, used only if you selected the previous checkbox)**
   Set an integer used as a random seed to perform reproducible layouts.

8. **Use the second power of the adjacency matrix**
   If checked, this advanced setting forces the layout algorithm to raise the adjacency matrix to the second power, and to use this squared matrix instead of the original adjacency matrix. This method helps to achieve a layout that emphasizes the features of the network related to mutual neighbours of the nodes.

9. **Node parameter to optimize for**
   Alternating optimization for the listed node parameters, especially **position** and **width**, offers a network visualization with higher quality compared to the case when only optimization for position is applied. Although in some cases intermittent optimization for **normalization** may also improve the layout, it is generally not recommended.

Optimization for **order** does not have an effect on the actual network layout, but it generates a table with nodes in the correct order, which appears under the unassigned tables tab marked by the name of the network. This table can be exported as a spreadsheet (eg. CSV).

10. **Main diagonal handling**
    This setting determines the way entries in the main diagonal of the adjacency and overlap matrix are considered during calculations:
    Ignore - optimal if self-links are impossible or irrelevant in the network
    Single - kept only for compatibility purposes
    Double - optimal if self-links (being already doubled in the symmetric adjacency matrix, below and above the diagonal) are as relevant as the rest of the links in the network



V. How to get detailed information about the node and network properties?

1. At the **Table Panel – Node Table** data panel you can find the coordinates of the nodes for 2 spatial dimensions (***relEntX*** and ***relEntY***) and for the widths (***relEntW***), and ***relEntH*** normalizations of the distribution.

2. At the **Table Panel – Network Table** you can find the summarized information loss (***SumInformationLoss***) and the normalized information loss (***NormalizedSumInformationLoss***) of the network, where the normalized summarized information loss is the relative entropy (D). The highest quality representation is achieved, when the relative entropy approaches 0.