VMWare Virtual Network Visualizer

User Manual

Version 1.0

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Team
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1. Introduction

The VMWare Virtual Network Visualizer is a software designed to assist in the analysis and maintenance of virtual networks—specifically those operating under VMWare, though it can be used for any network, virtual or real, that can output an appropriately structured xml file containing all nodes on the network and all neighbors of each node.

2. System Requirements

The VMWare Virtual Network Visualizer can be run on any system with Java 7 or higher installed. However, the visualization of large graphs can take up a lot of system resources, so it is recommended that, for better performance, this product be run on a system with at least 4 Gigabytes of RAM and a 2 GigaHertz processor. Performance may vary from system to system.

3. Features

3.1 Installation

To Install the VMWare Virtual Network Visualizer, the user needs to simply unzip the packaged folder in a desired directory, open this directory and double-click the application's jar file (VMWare Virtual Network Visualizer.jar).

3.2 Running Program

Upon opening the program, the user should be prompted to select an input xml file from a file dialogue. If the user presses the cancel button, the program attempts to open a default file (named nodes.xml) in the directory that the program resides in. If the user chooses an invalid file (or the default file is invalid/ not present), the program will show the logger window with an indication of the file error and the user will be prompted to exit the program.

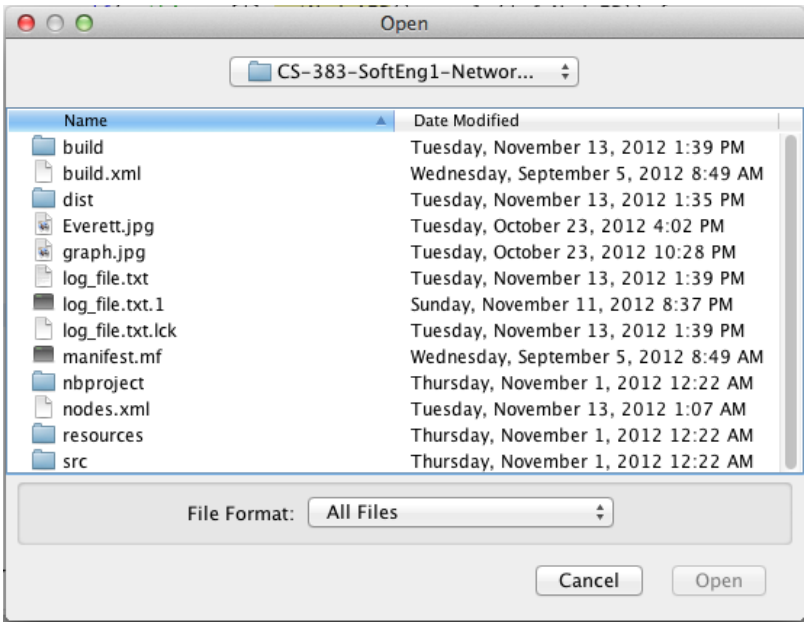

Figure 1 - File Open Dialogue at Startup

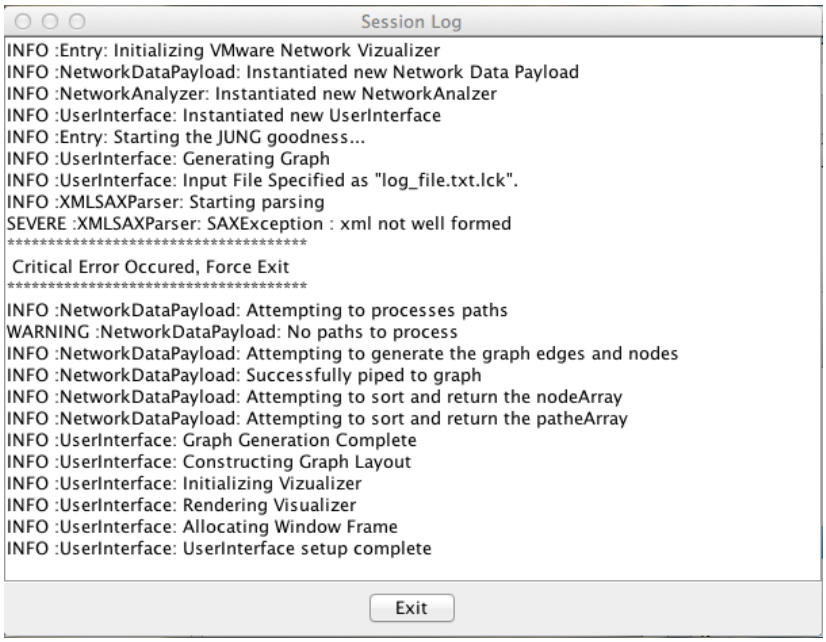

Figure 2 - Log Window Showing File Error and Prompting for Exit

Once an input file has been chosen, a window displaying the log file of the current program should be displayed to indicate that the program is processing the file and getting ready to display the graph.

The logger window should close after the file is done processing, and a window containing the graph, as well as a menu, various options for the graph display, and

a sidebar on the right containing information about the graph, and an option for gathering information about a specific node. This window should be sized to the screen.

3.3 Operating Program Features

3.3.1 Graph Display Options Toolbar

Figure 3 - Graph Display Options Toolbar

The Graph Display Options Toolbar (pictured in Figure 3) contains options for resetting the graph (after nodes have been moved from their original positions), changing between graph manipulation modes (Transforming and Picking, Figure 4), and toggling the node labels on and off (Figures 5 and 6).

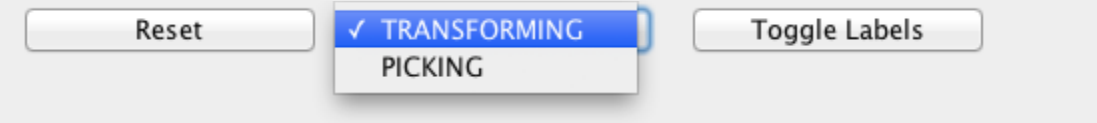

Figure 4 - Transforming/Picking Mode Selection

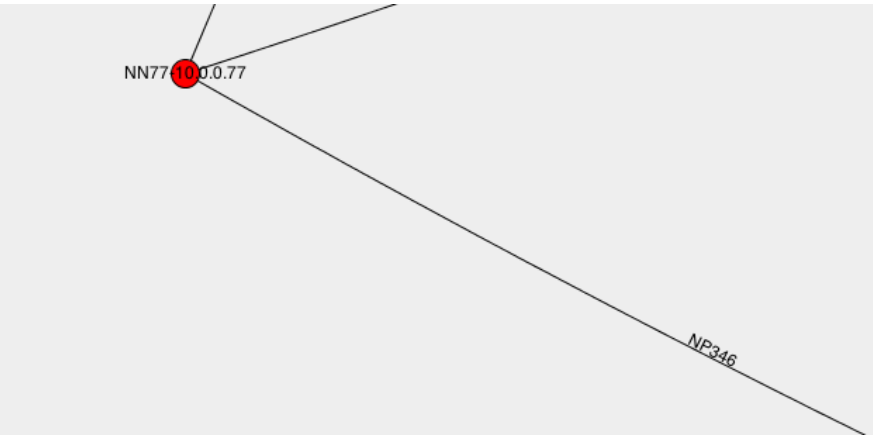

Figure 5 - Node Labels On (Initial State)

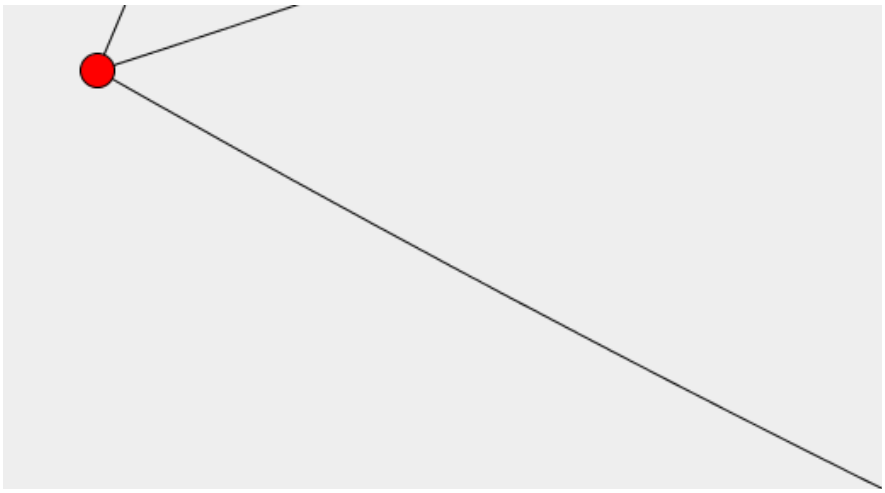

Figure 6 - Node Labels Off (After Toggling)

Transforming Mode allows the user to:

- Move the whole graph around on the screen by clicking in the graph window and dragging
- Zoom in and out of the graph by centering mouse on an area and scrolling in (zoom out) and out (zoom in)
- Rotate the graph by shift-clicking and moving the mouse in a circular fashion
- Skew the graph by control-clicking (or command-clicking on Mac) the graph and moving the mouse side-to-side

Note: Transforming Mode changes to the graph are not reset via the reset button

Picking Mode allows the user to:

- Click on a single node and drag it around the screen
- Select multiple nodes (click and drag the mouse to create a box around multiple nodes, or shift-click multiple nodes) and drag them as a unit
- Select paths (for no purpose other than highlighting them)

Note: Picking Mode changes made to the graph are reset via the reset button

3.3.2 File Menu

The File Menu (located in the upper left corner of the application screen) contains the option for saving the graph in its current configuration as a JPG image. This image includes any highlighted nodes, as well as any changes made to the graph in either transforming or picking modes. This image may be used for future reference to the visualized network. Upon selecting the Save as JPG option, a file system dialogue should pop up (Figure 7). The user must enter a filename for the

program to output the image to (including the .jpg extension) to and navigate to the directory they wish the file to be placed in.

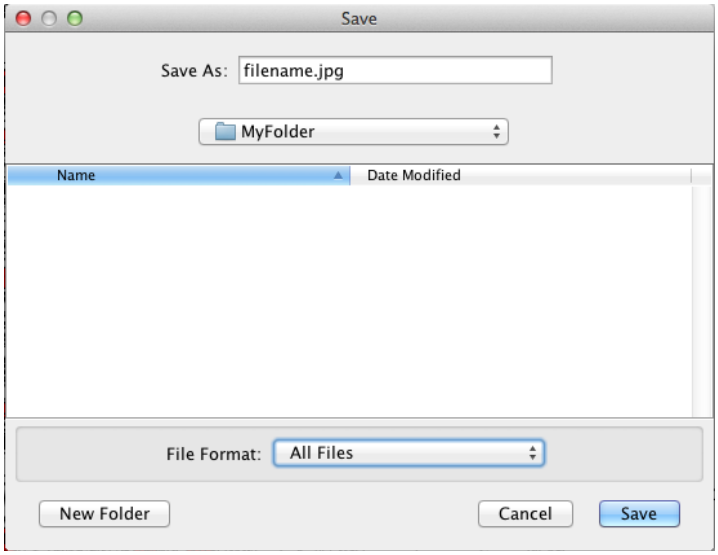

Figure 7 - Save as JPG File Dialogue

The File Menu also contains an option for viewing the current session log. This contains various information that is output by the program to the log file in the program directory, and can be used to diagnose unexpected program behavior. The user may hide this session log by clicking the "hide" button at the bottom of the pop-up window.

3.3.3 Algorithms Menu

The Algorithms Menu (located in the upper left corner next to the File Menu) contains options for calculating the shortest unweighted or weighted path between two nodes. Clicking on either of these options in the menu should cause a window to pop up containing the interface for the selected algorithm. From here the user may enter two node ID's (within the range of nodes) and calculate the path between them (Figure 8).

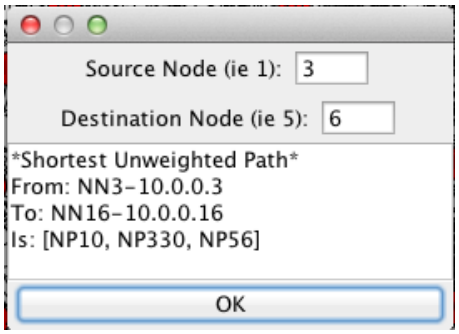

Figure 8 - Algorithm Dialogue Sample

3.3.4 Node Information Sidebar

There is a sidebar on the right side of the screen that provides the ability to gather information about a specific node. At the top of this sidebar, there is a text field for entering a node ID (i.e. 1, 2, 3, etc.). Once the user enters the node ID and presses "Get Node Info," the text area below should display a variety of information about the desired node, such as its ID, IP Address, and a list of its neighbors and their respective ID's, IP's and the weight and capacity of the edge that connects them (Figure 9).

The bottom of this sidebar also contains the total number of nodes in the graph, as well as the total number of edges in the graph (Figure 10).

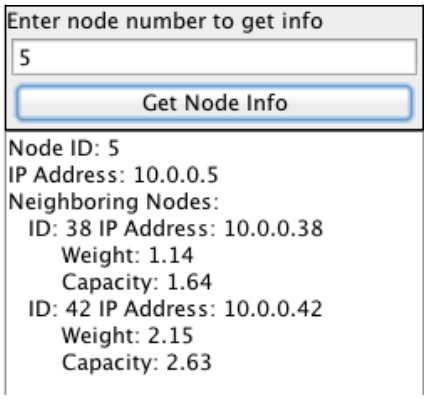

Figure 9 - Top of Node Information Sidebar

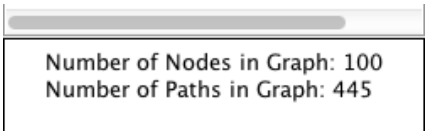

Figure 10 - Bottom of Node Information Sidebar

3.3.5 Exiting the Program

To exit the program, the user may simply click on the close icon in the upper right-hand corner of the window (Windows) or on the upper left-hand corner (Mac/Linux) as they would any other program.

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