MonALISA Client User Guide

September 7, 2005

Chapter 1

General Features

The global monitoring service client allows to discover all the active services, and display real-time global views for connectivity and traffic as well as the usage and load of the monitored entities.

It allows to access the configuration of any site and display real-time or historical values for any monitored parameter in the system.

Using the WebStart technology, it can be started from anywhere, with just a single click in a browser window.

1.1 Requirements

In order to run the MonALISA Client, the following program tools must be installed:

- Java 2 Runtime Environment, version 1.4.2 or later. You can download it from http://java.sun.com/j2se/ <http://java.sun.com/j2se/>. It includes the Java Web Start technology. In case Java Web Start is missing or misbehaving, you can get the latest version from http://java.sun.com/products/javawebstart/ <http://java.sun.com/products/javawebstart/>.

1.2 Main Window

The main menu of the application has the following items:

File Contains only the Exit command.

View This menu can be used to customize the GUI interface.

- Small icons option sets the dimension of left vertical menus' icons to normal or small size of the main window.
- 3D Map Options provides a set of settings only for the 3D Map panel.

    Map options Shows a window that can set the path to repositories of maps, the path to where local cache should be stored and the starting resolution that should be used for the map.

    show cities Renders on the map the locations of at least one major city from all around the world, and also, at least one city for each US state.

    update shadow Updates or not the shadow on map, as the sun moves around it.

    show rotation bar This option shows small bars on edges of the 3D map, that allow vertical or horizontal rotation of the globe.

show rotation bar tooltip Attaches to the rotation bar a small tooltip to indicate how the bar can be used.

download new images Should new images, for higher level of detail, be loaded on the map, or use only the ones in local cache.

show night shadow Show or hide the shadow made by sun on earth.

show night lights Show or hide the night cities lights on the world map.

show country borders Show or hide political borders of all coutries on the world, and the US states borders.

show moon Show or hide the moon that revolves around the globe.

Rotation Bars Size Through a drop down menu allows to choose the width of the rotation bars.

Discovery This menu can be used to change the discovery process of the monitored entities. There are two parts regarding this process:

- the Lookup Services hosts - used in the Jini discovery of the Proxy Services. These are fixed for each type of client and should not be changed.
- the available Groups - used in the Jini discovery of the groups to which the monitored entities are subscribed. Usually, the MonALISA Client already comes with all available groups added so adding a new one is necessary only in special situations.

Groups This menu can be used to switch on/off the currently active groups. Usually, different types of monitored entities are grouped in separate groups. You can use this menu to add/eliminate (un)necessary entities from the client views.

The first two options allow easy selection and deselection of all groups.

If there are many groups the application uses, they are shown in succesive menus, introduced by the "More..." menu option.

Position Positions the nodes on the map according to each node's custom latitude and longitude, or, automatic, meaning that each node is put on map based on coordinates found from ip queryies.

Security This can be used to specify a keystore and a password that allows controlling the entities. More on this in the [Node Properties Window] section.

**Help** This brings a window with some nice screenshots.

On the left side of the main window, there is a list of labelled icons with the active panels. These can operate in two modes:

- single view - each panel is displayed in the main window. When other icon is clicked, the current panel is replaced by the new one.
- multi view - the current panel remains in the main window. Clicking other icon opens the respective panel in a new window. Clicking the icon again closes that window. Clicking the "Multi-view" icon closes all opened windows.
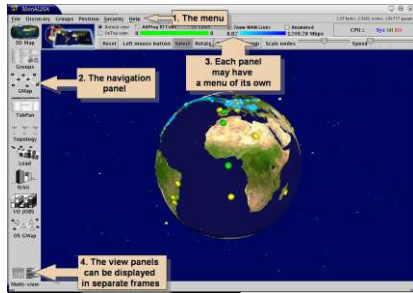
1.2.1   3D Map Panel

The monitored entities are displayed on a 3D Globe that can be manipulated with the mouse. You can left-click on an entity to open the corresponding property window (See [Node Properties Window] section for more details.) You can zoom in/out using the mouse wheel. Right-clicking and dragging rotates the globe. Left-clicking and dragging moves the globe. The options bar allows also to zoom or rotate the globe using the slider.
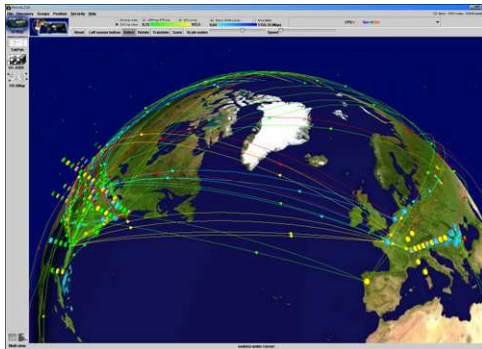
If the mouse is moved over a node or arrow of a link, a short text is displayed, showing status information. The information shown on the nodes and links can be changed using other buttons above the panel.

For a description of the values shown for each node and link please see the client specific details in [Farm Client] and [VRVS Client] sections.

1.2.2   Globe Panel

The monitored entities are displayed on a 3D Globe that can be manipulated with the mouse. You can left-click on an entity to open the corresponding property window (See [Node Properties Window] section for more details.) You can zoom in/out using the mouse wheel. Right-clicking and dragging rotates the globe. Middle-clicking and dragging moves the globe. These operations can also be performed with the left button by selecting one of the buttons above the panel (Translate, Rotate, Zoom).
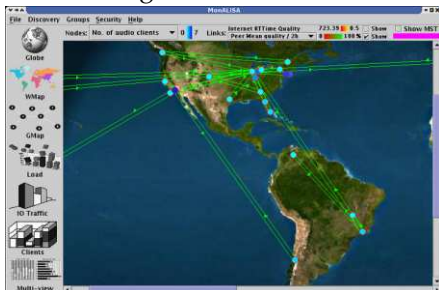

If the mouse is moved over a node or arrow of a link, a short text is displayed, showing status information. The information shown on the nodes and links can be changed using other buttons above the panel.

For a description of the values shown for each node and link please see the client specific details in [Farm Client] and [VRVS Client] sections.

1.2.3 Wold Map Panel

The monitored entities are displayed on a flat world map. Left-clicking a node brings the corresponding property window. Using mouse wheel you can incrementally zoom in/out the respective area of the map. You can also zoom in by selecting a region with the right mouse button. Right-clicking the map restores the original zoom state.


If the mouse is moved over a node, after one second a tooltip will be displayed, showing information about the node. The information in the node can be changed by the buttons and combo boxes on top of the panel.

For a description of the values shown for each node and link please see the client specific details in [Farm Client] and [VRVS Client] sections.

1.2.4 Graph Panel

This view represents the entities in a graph-like form. The nodes can be moved with the middle mouse button. Left-clicking a node brings up the corresponding property window. Right-clicking a node makes the selected node a "source" node. Starting from that point the client will compute a path towards the other reachable nodes. There are several layout modes for the nodes, modes that can be changed selecting one of the buttons above the graph panel. If a tree can be computed, the "Tree layout" modes will be available.
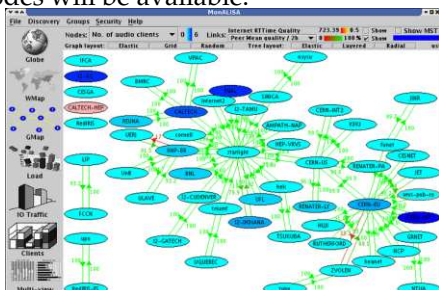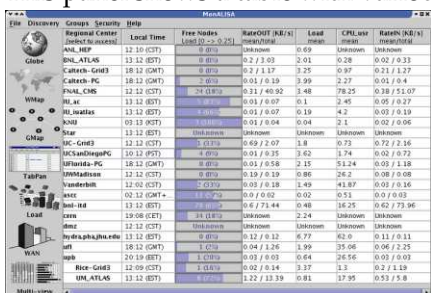

The information shown for each node can be changed with the combo-boxes above the graphical area of the panel.

For a description of the values shown for each node and link please see the client specific details in [Farm Client] and [VRVS Client] sections.
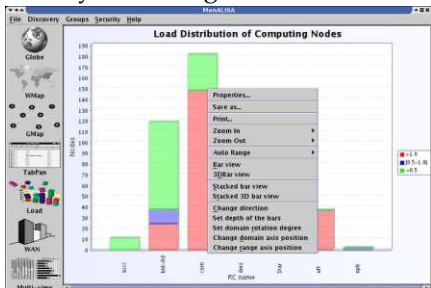
1.2.5 Table Panel

This panel shows a table with various details for each entity.

This table can be sorted by clicking the caption of table's columns.

1.2.6 Histogram Panels

In these panels a bar chart with different values is drawn for all entities. If there are more values for each entity, the histogram can be drawn as a stacked bar.

Right-clicking on the panel brings up a menu from where you can change the colors, the type of the chart (simple, stacked), appearance (plain or 3D), orientation etc. You can also save the chart in a `.png` file.

1.2.7 VO Properties Window

When the monitored entities (farms) are involved in different VO (Virtual Organtionzations) experiments the monitored behaviour of those entities with respect to their involvment in the experiments is represented in this panel.
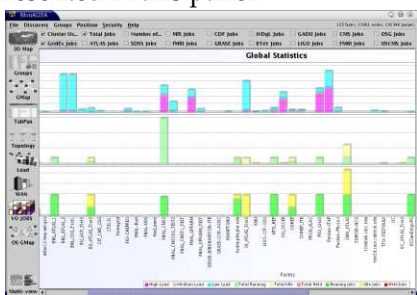
1.2.8 WAN Properties Window

This panel offers a global status view of the the monitored physical links existing between the monitored farms.
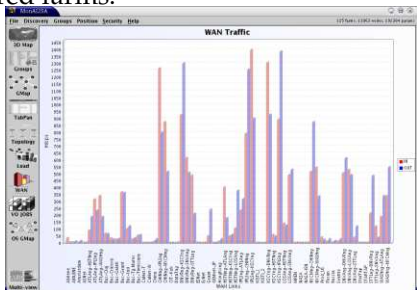

1.2.9 Groups Panel Window

This panel offers a global view of all monitored farms. The farms are listed according to their groups. Each visible group (the groups that are selected from the menu of the Client) are represented here in a hierarchical view, each farm beeing one of the node of each group from which it belongs. Each farm has an associate icon that represent the administration right of that specific farm. By selecting any number

of farms (or by selecting a group - which is equivalent to selecting every farms in that group) in the second panel the clusters and nodes representative for the selection will be represented. There are two modes in which the selection can be made, by using an and operation (show every clusters and nodes) or by using an or operation (show every cluster or every node belonging to each of the farms).

This panel can be used for instance to plot together parameters beloning to different farms all together. Available in this plot also are buttons that can be used to plot the parameters in realtime of a history of the parameters. Also there are filters available that can be used to represent the average values, a sum of the values, the minimum and the maximum values of the parameters for a period of time, the density of the monitored values or the integral of the parameters.
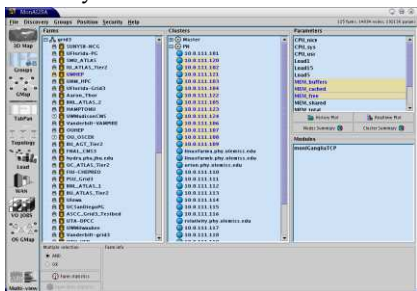

1.2.10 Topology Panel Window

This panel is used displays monitoring information regarding the underlying network topology. For more details regarding the functionality of this panel please see The WAN Topology Section. <>
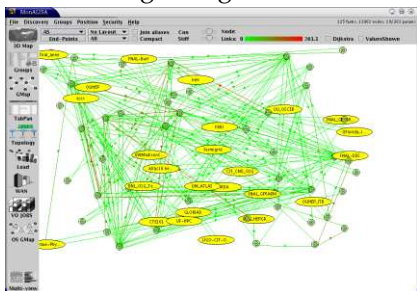

1.2.11 Optical Switches Panel Window

In the MonALISA framework we developed dedicated modules and agents to monitor and control Optical Switches. These modules are used now for the CALIENT switch at CALTECH and the GLIMMERGLASS switch at CERN. For more details regarding the functionality of this panel see also The Optical Control Planes section. <>
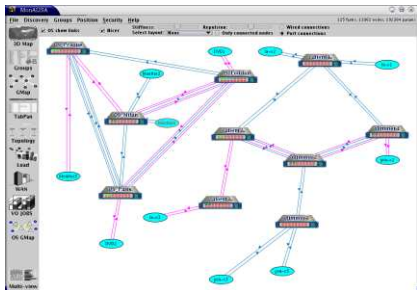

1.2.12 Node Properties Window

Left-click on a node in Globe, Graph or World Map views, brings up a window that shows Node's local time, IP address, MonALISA version that runs there and various site information. However, the most important information is a tree view containing the monitored clusters and nodes. For each node

and cluster on the right side is an available parameters view. On the lower-right part the modules list that gather that information is shown.
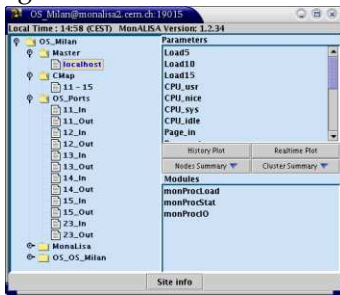
You can select a node, or a cluster from the tree view and some parameters from the right panel and click on History or Realtime Plot buttons. A plot window will pop-up and soon the requested data will be drawn.
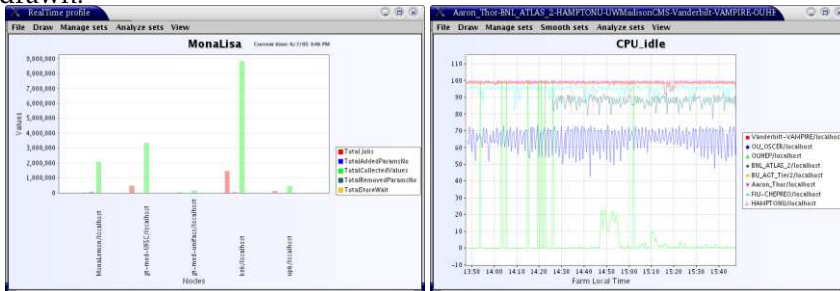
Besides the actual monitored parameter values this panel offers the possibility of filtering plotting.

You can right-click on the graphs to change different properties (line width, graph background, axis labels etc.), print or save the graph in a file. Using the options in the window's menu, you can change the appearance (3d/2d, stacked/simple, direction), manage the displayed graph sets (add, remove, change colors) and analyze sets (integrate, compute median value etc.).

Chapter 2

Farm Client

We will present here only the particular features of the MonALISA Farm Client. For a larger view, please see the [Main Window] section.

Each node represents a computing farm and is drawn as a pie chart. The values to be shown in the chart can be selected from the combo-box that appears above the graphical part of the panels.

There are two types of links in this client:

- ping links - ranging from red to yellow, represent the quality of the links as computed by the ABPing module (taking into account the round trip time, packet loss, and jitter) for each peer of a node.

- wan links - ranging from light blue to dark blue, represent the traffic on the WAN links.

Based on the ping links values, in the Graph panel you can right-click a farm to compute a path from that node to all reachable nodes. The client will use the Dijkstra algorithm and the selected links will be drawn in blue. Note that this will form a tree and the tree layout modes will be available.

Chapter 3

VRVS Client

We will present here only the particular features of the MonALISA Farm Client. For a larger view, please see the [Main Window] section.

Each node is drawn in a specific color, representing the selected value in the combo-box on top of the graphic panel. For example, if in the combo-box the selected value is that of the Total Traffic, the application will compute a minimum and maximum value for all VRVS reflectors. Beside the combo box, a color scale will be drawn, representing lower traffic with a light blue and higher traffic with a darker blue. All the nodes on the Globe, World Map and Graph Panels will be coloured with a blue nuance according to their own traffic.

When there is no data coming from the reflector for the currently selected item in the combo box, the node will be drawn in pink in the panels. If there is no data from a reflector (no information about ping or peer links, no data about the number of clients, virtual rooms, traffic or load), the node will be painted in red. However, this doesn't mean that the node is down - you may be able to open node's properties window and plot different parameters from other clusters.

There are two types of links between the reflectors:

- peer links - ranging from red to green - represent the quality of the links between the reflectors, as it is measured by the reflector software. You can choose from the Peer links combo-box the value to be displayed (mediated for 2, 12 or 24 hours).

- ping links - ranging from red to yellow, represent the quality of the links as computed by the ABPing module (taking into account the round trip time, packet loss, and jitter) for each peer of a node.

- mst links - represent the links that should be used as peer links for the reflectors. These are dynamically computed by the client based on the values of the ping links and the status of the reflectors.

You can hide or show the links using the checkboxes above the graphical area of the panels.

Note that both peer links and mst links connect the nodes in a tree structure. You can use each of those in the Graph Panel to generate various tree layouts.