Usability Review Report of GANMVL prototype 2.1

L. Chittaro, S. Gabrielli, R. Ranon
HCI Lab, University of Udine

February 26, 2007

Abstract

This document reports the outcome of a usability review regarding GANMVL software, version 2.1. The review has been conducted by using the heuristic evaluation method, in which usability experts take the role of less experienced users and describe the potential problems they see arising in a system or interface for those users. In particular, the report describes in detail the adopted method, summarizes the main issues found by the five experts involved in the evaluation, and provides the full individual reports in the appendix.
1 Introduction

The aim of usability evaluation is to assess if people can use a system easily and efficiently to accomplish their own tasks and activities.

The main characteristics of a usable system are that: a) it is easy to learn, b) efficient to use, c) it provides quick recovery from errors, d) it is easy to remember, e) enjoyable to use and f) aesthetically pleasing.

There are important benefits that can be gained by applying usability evaluation methods, starting from cost, system quality, and user satisfaction. Design problems can be detected earlier in the development process, saving both time and money. Moreover, a usable system means more satisfied users and a better reputation for the system and the organization or teams that developed it.

Usability is an iterative process that can be supported by many different evaluation techniques. Among the ones most often applied in early phases of a prototype design and testing, there are expert-based methods, such as Heuristic evaluation, that we found particularly appropriate to use for testing GANMVL release 2.1.

2 Heuristic Evaluation

Heuristic evaluation is a diagnostic method that has been widely applied and investigated, most likely due to its efficiency in detecting most of usability flaws (75-80%) at front of a rather limited investment of time and human resources in the evaluation (typically, 3-5 experts are needed) [Nielsen, 1994]. In this method, experts take the role of less experienced users and describe the potential problems they see arising in a system or interface for those users. The review is based on compliance with a set of principles (usability heuristics).

The ten heuristics that have been proposed and then refined in [Nielsen, 1994] for Heuristic Evaluation are the following:

1. Visibility of system status: The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

2. Match between system and the real world: The system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

3. User control and freedom: Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

4. Consistency and standards: Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

5. Error prevention: Even better than good error messages is a careful design which prevents a problem from occurring in the first place.

6. Recognition rather than recall: Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7. **Flexibility and efficiency of use:** Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

8. **Aesthetic and minimalist design:** Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

9. **Help users recognize, diagnose, and recover from errors:** Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

10. **Help and documentation:** Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

### 2.1 Heuristic Evaluation of GANMVL 2.1

Five Usability experts from University of Udine and University of Mannheim applied the Heuristic Evaluation method to analyse GANMVL 2.1 usability, upon completing a series of individual and collaborative tasks within the virtual environment, including a system walkthrough based on the following scenario:

#### Scenario 1a: Access to GANMVL as a User

**Tasks performed**

1. Registration as a new user
2. Activation of an account and change of password
3. Browsing of the Knowledge Management area, of the Help system to find and read the User Guide
4. In the GAN Portal, Skype contact of the GANMVL Administrator to get support and access to the Function Generator instrument
5. Download and installation of the High resolution viewer, from the download area
6. Remote check of the value of the signal generated by the Function Generator instrument.
7. Request (to the Administrator ) to change current account from user to administrator.
8. Book of an event in the calendar

#### Scenario 1.b: Use of GANMVL as Administrator

**Tasks performed**

1. Download and installation of LabView Runtime Engine software for remote control of the Function Generator instrument
2. Modification of the value of signal generated by the instrument
3. Editing of a message in the Logbook about the operation previously performed
4. Use of the HTTP Wizard to add a new instrument to the Control Room toolbar
5. Access (from the GAN node) to the Tunnel Monitor to control (and eventually drop) the connections currently active, as in the case of an emergency (security) operation.
6. Logout
The usability experts received the same instructions and document template to complete their individual evaluation report, which included the request to provide a brief description for each usability flaw (issue) detected, a set of recommendations for overcoming the flaw and an assessment of the level of severity (for each flaw) according to the following three-point rating scale:

**Low**
- cosmetic or minor, causes minimal difficulty

**Medium**
- causes some problems to doing work or causes the user to stumble, but recovery is possible.

**High**
- effectively prevents the user from doing work, the user will fail or have extreme difficulty in completing the task.

A main outcome of the evaluation was that the 5 experts were able to complete the whole list of tasks involved in the scenario above, deriving a clear picture of the core functionalities of GANMVL. In particular, experts could base their evaluation on a quite advanced and developed prototype, including basic access to desktop audio-video communication tools, as well as high resolution video and support for remote monitoring and control of a virtual instrument.

The prototype tested represents a first milestone in designers’ effort toward developing and implementing effective mechanisms to access accelerator controls safely within a usable and transparent environment. However, the usability of GANMVL can be further improved by addressing more specifically the potential difficulties that the target users could meet in getting acquainted with the system and carrying out their work activities.

The rest of this document presents a synthesis of the main usability issues found by the 5 experts together with their recommendations for improvements, followed by an appendix where each individual assessment is reported for reference.
## Visibility of system status

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve visual feedback when icons or capabilities are selected</td>
<td>When the user selects an icon on the toolbar there is no feedback showing which selection is currently active, so that good orientation and user navigation could be prevented.</td>
<td>Throughout the system (e.g., when clicking on the toolbar icons on the Control Room area, corresponding to the different operations the user can perform).</td>
<td>2</td>
<td>High</td>
<td>Improve the visual feedback, for example by highlighting the icon selected and also visualizing its name as the title of the new page/window opened. Make the relation of each section with the currently selected node explicit (e.g. when selecting the “eletra” node the title of the “toolbar” could be something like “eletra toolbar”). Highlight the currently selected capability (e.g. with a different background). Provide a header or title describing its content and its relation with the selected capability.</td>
</tr>
<tr>
<td>Improve feedback to user actions</td>
<td>There is no clear feedback once the user has completed critical operations, such as the change of password in the user profile.</td>
<td>Throughout the system (e.g., when saving changes to the user profile, when clicking on a capability).</td>
<td>3</td>
<td>High</td>
<td>Provide more explicit and clear feedback, for example by adding notification messages such as ‘Your password has been changed’, provide visual (and possibly audio) feedback.</td>
</tr>
<tr>
<td>Provide peripheral awareness in text-based communication</td>
<td>When communicating via text messages in the chat space it is not possible to see if/when the other user is writing a message. This could make more difficult the turn taking during text based conversations.</td>
<td>Chat tool/space.</td>
<td>1</td>
<td>Medium</td>
<td>Take inspiration from the solution provided by Messenger’s chat for example, which informs the user if the other participant to the conversation is writing a message.</td>
</tr>
</tbody>
</table>
## Visibility of system status

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flickering of parts of the interface</td>
<td>In Mozilla Firefox the page loading progress indicator of the browser flashes intermittently at regular time intervals. The NB Chat applet flickers at regular time intervals.</td>
<td>In all pages, for the page loading progress indicator, and in the NB Chat capability (only in Mozilla Firefox 1.5.0.9).</td>
<td>1</td>
<td>Medium</td>
<td>Avoid flickering problems which distract and disturb the user.</td>
</tr>
<tr>
<td>Visibility and characteristics of user profiles/status</td>
<td>The visibility of the user profiles on GAN Portal is limited. It is not clear what is enabled by the guest status</td>
<td>GAN Portal, guest status</td>
<td>1</td>
<td>Medium/High</td>
<td>Provide clear feedback about what a guest can and cannot do. Better highlight the user profiles on GAN Portal</td>
</tr>
<tr>
<td>Inconsistent use of text decoration</td>
<td>Since the tools currently displayed depend (and act) on the currently selected resource, it is crucial for the user to quickly understand which resource has been selected. However, sometimes an “underline” decoration is used to visualise that, sometimes no decoration at all.</td>
<td>Resources Browser</td>
<td>1</td>
<td>High</td>
<td>Use a consistent solution for displaying the currently selected resource. Also, indicating in the toolbar to which resource the tools apply could help the user in being aware about this aspect of the system status.</td>
</tr>
<tr>
<td>System status messages</td>
<td>When a specific task is performed (e.g. access to an instrument) no status messages are provided. The only hint for the user is browser feedback like the progress bar, cursor status, or error messages provided by the plug-ins.</td>
<td>Access to VI</td>
<td>1</td>
<td>High</td>
<td>Messages should inform about the system status (e.g. “… is loaded”).</td>
</tr>
</tbody>
</table>
## Match between system and the real world

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
</table>
| Ambiguity of terms                       | Terms such as ‘Knowledge Management’ are ambiguous and not self-explaining.          | e.g. Knowledge Management section | 3                          | Medium/High | Choose self-explaining and less generic terms. Revise the information architecture, if the new terms affect it.  
Check terminology. There should be a 1-to-1 correspondence between the terms used in the interface and the underlying concepts |
| Unclear access to Skype connection       | After invoking a Skype connection the user is presented with a window showing the OK – Cancel buttons. Connection to more than 1 person is not supported | Skype connection | 1                          | High            | Specify which is the question to which the user is supposed to answer. Inform about the limitation on the number of connections available |
| Better explain the logic followed in grouping capabilities icons and in the Resource Browser | The logical grouping of icons in the capabilities toolbar or the sequence of categories followed by the Resource browser might not be intuitive to understand. | Toolbar Resource browser | 2                          | High            | Use a coherent logical grouping of capabilities (e.g. put all the related capabilities – those with the same icon – one next to the other) and keep these groups clearly distinguished (e.g. by using visual separators or surrounding each group with a different box).  
Provide a brief and schematic explanation (e.g., in the User Guide) of the logic followed in the Resource Browser. |
| Mixed use of English and Italian (German, French, ...) Language | When choosing other languages than English (in the home page), text is presented using a mixture of English and the chosen language | Almost in every page | 1                          | Low            | Provide full translation for text in the system, or remove not fully supported languages from the possible user choices |
# User control and freedom

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better displace the system sections/features and the capabilities on the toolbar</td>
<td>To avoid unnecessary navigation by the user, the system interface could present the 4 main features (Logbook, Help, Download, GAN Portal) as directly available from the top toolbar. Horizontal scrolling of toolbars should be reduced.</td>
<td>Throughout the system</td>
<td>1</td>
<td>High</td>
<td>Improve the spatial arrangement of the features available. Organize the toolbar so that horizontal scrolling is not necessary (e.g., create logical groups of capabilities and display each group in a separate tab).</td>
</tr>
<tr>
<td>Personalization of the interface settings is not supported</td>
<td>The users have little room for setting up their own preferences/defaults when using the system.</td>
<td>User Profile</td>
<td>1</td>
<td>Medium</td>
<td>Consider the opportunity of providing more support for personalization (in future system release(s)).</td>
</tr>
<tr>
<td>Effects of the browser back button</td>
<td>From the “architecture overview”, pressing the Back button made the system enter a state where it was not possible to see the main help page anymore.</td>
<td>Help</td>
<td>1</td>
<td>High</td>
<td>The back button should have a behaviour consistent with its name and should not lead the user into unexpected states as the one reported.</td>
</tr>
<tr>
<td>Size of pop-up windows</td>
<td>When applications are loaded in a pop-up window, it is not possible to resize the window. In Firefox, the window is quite big hiding everything else from GAN portal behind it. In IE it is smaller but still not resizable.</td>
<td>Pop-up Windows</td>
<td>1</td>
<td>Medium</td>
<td>Pop-up windows should be resizable and their “look and feel” should be the same in different browsers.</td>
</tr>
</tbody>
</table>
# Consistency and standards

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconsistent cursor</td>
<td>Cursor that appears on some text filling fields has unconventional shape (a small horizontal line added on top of the vertical line).</td>
<td>Text filling fields such as those for registering as a new user (Mozilla FireFox browser only)</td>
<td>2</td>
<td>Low</td>
<td>Always use the same standard cursor.</td>
</tr>
<tr>
<td>Registration partially inconsistent with typical web sites</td>
<td>In traditional web sites, the “register as a new user” option is typically placed close to the text fields for the login. Here, it is placed very far from it. Use of links instead of buttons</td>
<td>Screen with option for registering as a new user. Registration page</td>
<td>1</td>
<td>Medium</td>
<td>Follow the typical web convention.</td>
</tr>
<tr>
<td>Improper use of the red colour</td>
<td>The use of the red colour to display the “(popup)” label under some capabilities is not appropriate since the action associated to clicking the label cannot have dangerous consequences.</td>
<td>Capabilities labels.</td>
<td>1</td>
<td>Medium</td>
<td>Do not improperly use the red colour, since it is commonly associated with warning/error messages or potentially dangerous actions.</td>
</tr>
<tr>
<td>Inconsistent feedback on mouse over</td>
<td>For each capability, there are up to three items which can be clicked to obtain the same effect of selecting/activating the capability. Also, only when pointing the mouse over the capability label, the label changes colour. This behaviour is misleading.</td>
<td>Capability items.</td>
<td>1</td>
<td>Medium</td>
<td>Provide the same feedback (mouse pointer and highlighting) when pointing the mouse over any part of a capability item.</td>
</tr>
<tr>
<td>Inconsistent highlighting of root node</td>
<td>The root node does not become underlined when selected.</td>
<td>The root node of the resource browser.</td>
<td>1</td>
<td>Low</td>
<td>Highlight the root node in the same way as the other nodes of the tree.</td>
</tr>
<tr>
<td>Issue title</td>
<td>Description of Issue</td>
<td>Where it occurs</td>
<td>Notified by N. of experts</td>
<td>Severity ranking</td>
<td>Recommendation provided</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Inconsistent presentation of information</td>
<td>There is inconsistency from one screen to the other in presenting information (e.g., sometimes tables, sometimes web links only are provided).</td>
<td>e.g. Skype page</td>
<td>2</td>
<td>High</td>
<td>Check all system pages to provide a consistent layout and presentation style for each information field.</td>
</tr>
<tr>
<td>Ambiguous Visualization of Users /Resources</td>
<td>In the resources browser, there is no clear visual distinction between resources (users, virtual organizations, such as Eletra, and others, such as “XRD1” and “Control Room”).</td>
<td>In the “GAN Portal page</td>
<td>1</td>
<td>Medium</td>
<td>Use icons or separators to make it easy for the user to distinguish between the different kinds of resources</td>
</tr>
<tr>
<td>The same information is displayed multiple times or with no clear differentiation</td>
<td>Users are shown both at the second level of the hierarchy, and under other resources (e.g. “Control Room”). It is not clear which is the difference, and if clicking on one user in one place is a different action than clicking the user in another place.</td>
<td>Resources browser</td>
<td>1</td>
<td>High</td>
<td>Display each user once or make sure that the user can understand why the same user is displayed multiple times, and which is the difference between clicking on the same user name in different places.</td>
</tr>
<tr>
<td>Incorrect use of contextual menus in VI visualization</td>
<td>In the VI visualization, a right-click is used to pop-up a menu (which should be contextual, but is not) with commands to request control of the instrument. This is completely non-intuitive, as right-click menus are typically used only for contextual actions, and not for main commands.</td>
<td>VI visualization</td>
<td>1</td>
<td>Medium</td>
<td>If this tool is not directly developed by MVL-GAN, we suggest to help the user with instructions on the same web page. Moreover, the issue could be notified to the VI developer.</td>
</tr>
</tbody>
</table>
## Error prevention

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of confirm actions and messages</td>
<td>The “User Manager” capability seems to allow system administrators to enable/disable user accounts, but no confirm/save button is provided, so that an admin user could quite easily enable/disable a user account by mistake without being aware of what s/he has done.</td>
<td>“User Manager” capability. Tunnel Monitor</td>
<td>2</td>
<td>Medium / High</td>
<td>A potentially dangerous action like enabling/disabling a user account should require some form of confirmation (e.g. the admin user should be required to press a confirm/save button after making changes or a confirmation dialog should be displayed when the admin clicks any of the check buttons, or both). The same applies when dropping connections from the Tunnel Monitor</td>
</tr>
<tr>
<td>Error prevention not fully supported</td>
<td>The current prototype release does not fully / properly support error prevention.</td>
<td>Throughout the system</td>
<td>1</td>
<td>High</td>
<td>Make sure that adequate warms are issued to the user in the case s/he is about to make a potentially serious error (e.g., remote instrument control operations).</td>
</tr>
<tr>
<td>Too much jargon in error messages</td>
<td>Error messages are expressed in technical jargon and often do not provide clear indications or way out from errors to users.</td>
<td>Throughout the system</td>
<td>1</td>
<td>High</td>
<td>Provide text messages that more clearly describe the error(s) occurred and possible ways of recovering from it. Whenever possible, avoid use of jargon.</td>
</tr>
<tr>
<td>Computer jargon is used instead of user language</td>
<td>In some parts of the interface, the terms adopted (such as NBChat) are developer’s jargon, and thus not easy for the user to understand.</td>
<td>Toolbar (NBChat, VNCDesktop, HTTPDesktop)</td>
<td>1</td>
<td>Medium</td>
<td>Avoid computer or developer jargon and use terms that are as familiar and meaningful for the user as possible.</td>
</tr>
</tbody>
</table>
## Recognition rather than recall

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility of text and icons is improvable</td>
<td>In some windows text areas have too little ‘breathing space’ around them (e.g., Skype connection window), in others there is too much space unexploited (e.g., chat window). The same issue concerns the space around icons on the toolbar.</td>
<td>Skype page, chat tool</td>
<td>2</td>
<td>Medium</td>
<td>Use white space properly to help recognition processes, create symmetry and lead the eye in the appropriate direction.</td>
</tr>
<tr>
<td>Background vs text contrast is improvable</td>
<td>Sometimes the background vs text contrast is not appropriate for an easy reading (e.g., box headers in the user profile window use white characters on a clear background colour).</td>
<td>User Profile Commands at bottom of ‘Knowledge Management’ tab</td>
<td>3</td>
<td>Medium</td>
<td>Improve colour contrast between background and text.</td>
</tr>
<tr>
<td>Information about registration step</td>
<td>After completing the first step in the new user registration process, the system moves to a second screen which is very similar to the first one and gives no indication that we are at the second step. A novice user could find it hard to recognize this.</td>
<td>Registration of new user.</td>
<td>1</td>
<td>Medium</td>
<td>Explicitly highlight the number of steps that the user should go through and which step the user is currently in.</td>
</tr>
<tr>
<td>Issue title</td>
<td>Description of Issue</td>
<td>Where it occurs</td>
<td>Notified by N. of experts</td>
<td>Severity ranking</td>
<td>Recommendation provided</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Wrong /Inconsistent usage of icons to indicate commands</td>
<td>In most cases, toolbar icons do not indicate clearly which action will be performed, or allow to distinguish among different actions / tools. E.g., the “Tunnel Monitor” icon does not indicate a connection monitor but it is the same one used for the chat and remote desktop, two very different actions</td>
<td>Toolbar</td>
<td>1</td>
<td>Medium</td>
<td>Design and use icons that allow the user to guess which action will be performed by clicking on them, and that at least allow the user to distinguish among different actions.</td>
</tr>
<tr>
<td>Indication of which page is currently visible</td>
<td>It is not sufficiently clear which secondary-level tab item is currently being shown (all items, e.g. home and registration, are presented using the same font / style / size / colour).</td>
<td>In every page, at the secondary-level tab line.</td>
<td>1</td>
<td>Medium</td>
<td>Make it clear, by using text styles and colours, which is the currently selected tab item.</td>
</tr>
</tbody>
</table>
### Flexibility and efficiency of use

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system does not provide accelerators for expert users</td>
<td>The current release of the prototype does not support experts (or advanced) users (e.g., with accelerators or short cuts for frequent actions).</td>
<td>Throughout the system</td>
<td>2</td>
<td>Medium</td>
<td>Provide the possibility for expert users and administrators to bypass long operations with type-ahead, user-defined macros or keyboard shortcuts.</td>
</tr>
<tr>
<td>Rules regarding the management of user accounts and privileges</td>
<td>It is not clear which regulation is currently followed (or will be followed) in the assignment of user accounts to guests, users, administrators, etc.. A description of the privileges assigned to each category of user is required.</td>
<td>Help section (User Guide, Station Administration Guide), User Profile</td>
<td>1</td>
<td>High</td>
<td>Provide a clear description (in the Help section) about the rules governing the assignment of privileges to the different types of accounts and user roles.</td>
</tr>
</tbody>
</table>
## Aesthetic and minimalist design

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check all text for errors</td>
<td>There are some misspellings (typos) and grammar errors in the information and dialogue presented to the user that need to be corrected.</td>
<td>Throughout the system</td>
<td>1</td>
<td>High</td>
<td>Correct all errors in the text.</td>
</tr>
<tr>
<td>Avoid excessive length of toolbars</td>
<td>There are toolbars (e.g., GAN Portal, Control room) that are too much extended horizontally (they contain many icons, so the last ones in the line have low visibility for the user).</td>
<td>GAN Portal (toolbars)</td>
<td>1</td>
<td>Medium</td>
<td>Avoid toolbars that are too long horizontally, whenever possible.</td>
</tr>
<tr>
<td>Maximization of calendar</td>
<td>Maximising a calendar causes graphical changes that are not limited to maximization and can be confusing.</td>
<td>Calendar</td>
<td>1</td>
<td>Medium</td>
<td>Implement maximization as in most physical and electronic calendars</td>
</tr>
<tr>
<td>Complexity of displayed icons and nodes</td>
<td>It is unclear, which icons and nodes are important for the specific task. Because of the complexity, the user is irritated by the variety of unclear options.</td>
<td>Icons and nodes</td>
<td>1</td>
<td>High</td>
<td>Develop new ordering/grouping system to prevent too many options being displayed. Icons and menus should be task oriented, not function oriented.</td>
</tr>
</tbody>
</table>


### Help and Documentation

<table>
<thead>
<tr>
<th>Issue title</th>
<th>Description of Issue</th>
<th>Where it occurs</th>
<th>Notified by N. of experts</th>
<th>Severity ranking</th>
<th>Recommendation provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of contextual help</td>
<td>Some windows display a question mark which should display contextual help information, but clicking it does not make any help appear.</td>
<td>Throughout the system</td>
<td>4</td>
<td>Medium</td>
<td>Provide complete and accurate contextual help and documentation, possibly without hiding the window content.</td>
</tr>
<tr>
<td>Help contents</td>
<td>Help text is too concise, not always sufficient to explain the features and is not organized around user tasks.</td>
<td>Help text</td>
<td>4</td>
<td>High</td>
<td>Give more information in the help, explain how to carry out typical tasks, provide usage examples.</td>
</tr>
<tr>
<td>Instructions on how to access the system need to be provided</td>
<td>Essential information on how to access the system need to be provided from the login page: e.g., how can the user request an account, which are the software/hardware requirements to access the system, etc.</td>
<td>Login page</td>
<td>3</td>
<td>High</td>
<td>Provide the user with detailed instructions about system accessibility.</td>
</tr>
<tr>
<td>Provide help where and when help is needed</td>
<td>All help for the user is provided in a separate help section (accessible only after login) instead of providing proper help during task execution. For example, the help provides instructions on how to access the system for the first time, but users can see it only once they are logged into the system.</td>
<td>Almost everywhere in the system</td>
<td>1</td>
<td>High</td>
<td>Provide access to relevant help and documentation when and where the user will need them.</td>
</tr>
</tbody>
</table>
Acknowledgement
This work is supported by the Commission of the European Communities under the 6\textsuperscript{th} Framework Programme “Structuring the European Research Area”, contract number RIDS-011899.

References
Appendix: Detailed Reports

Luca Chittaro
The following pages present the findings of a Usability Review of GANMVL 2.1 conducted by Luca Chittaro on 11-01-2007.

The reviewer used a Internet Explorer browser on a Windows XP platform. Screen resolution was 1280*1024 pixels. Internet connection type was high-speed.

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Issue 1: Feedback on password change
Severity: [High]
There is no feedback after a user changes her password.

Where this issue occurs:
Password change.

Recommendation:
Provide clear feedback about the success/failure of the password change action.

Issue 2: Guest status
Severity: [High]
The system does not clearly highlight which are the limitations of the “guest” status.

Where this issue occurs:
Guest status.

Recommendation:
Provide clear feedback about what a Guest can and cannot do. Also provide more help to define the Guest status.

Issue 3: Visibility of which user profiles are on GAN Portal
Severity: [Medium]
The visibility of which user profiles are on GAN Portal is limited.

Where this issue occurs:
Listing of user profiles on GAN Portal.

Recommendation:
Better highlight which user profiles are on GAN Portal.
Match between system and the real world
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Issue 4: Ambiguity of some terms
Severity: [High]
The terms “knowledge management” and “GAN Portal” used by the interface are ambiguous and not self-explaining. As a result, the organization into the two separate areas corresponding to the two terms in the information architecture of the system is not easy to grasp.

Where this issue occurs:
Different screens.

Recommendation:
Choose self-explaining and less generic terms. Revise the information architecture, if the new terms affect it.

Issue 5: Correctness of English
Severity: [High]
There are English errors in the second step of the registration process.

Where this issue occurs:
Registration of new user.

Recommendation:
Use correct English to prevent misunderstandings.

Issue 6: Information about Skype connection
Severity: [High]
After invoking a Skype connection, an empty dialog window with two buttons (OK, Cancel) appeared. Moreover, one can connect with only one user while Skype users expect also multiple connections.

Where this issue occurs:
After invoking a Skype connection.

Recommendation:
Specify what is the question to which the user is supposed to answer. Inform about the limitation on the number of connections.


**Issue 7: Capability and resources**

*Severity: [High]*
The toolbar contains the terms “capability” and “resource” which does not seem to be used elsewhere.

*Where this issue occurs:*
Toolbar.

*Recommendation:*
Check terminology. There should be a 1-to-1 correspondence between the terms used in the interface and the underlying concepts.

**User control and freedom**

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

**Issue 8: Effects of the browser back button**

*Severity: [High]*
After entering “architecture overview”, I wanted to go back and I pressed the Back button two times: the system entered a state where it was not possible anymore to see the main help page.

*Where this issue occurs:*
Help.

*Recommendation:*
The back button should have a behaviour consistent with its name and should not lead the user into unexpected states as the one reported above.

**Consistency and standards**

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

**Issue 9: Inconsistent cursor**

*Severity: [Low]*
Cursor that appears on some text filling fields has unconventional shape (a small horizontal line added on top of the usual vertical line).

*Where this issue occurs:*
Some text filling fields such as those for registering as a new user.

*Recommendation:*
use always the same standard cursor.
**Issue 10: Registration partially inconsistent with typical web sites**

*Severity:* [Medium]
In traditional web sites, the “register as a new user” option (more often called “sign up”) is typically placed close to the text fields for the login. In this system, it is placed very far from it.

*Where this issue occurs:*
Screen with option for registering as a new user.

*Recommendation:*
Follow the typical web convention.

**Recognition rather than recall**
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

**Issue 11: Information about registration step**

*Severity:* [Medium]
After completing the first step in the new user registration process, the system moves to a second screen which is very similar to the first one and gives no indication that we are at the second step.
The user has recognize this, but since she is a new user, it is very hard to do.

*Where this issue occurs:*
Registration of new user.

*Recommendation:*
Explicitly highlight the number of steps that the user should go through and which step the user is currently in.

**Aesthetic and minimalist design**
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

**Issue 12: Typographic choices for windows**

*Severity:* [medium]
The different windows that open while using the system do not follow the same typographic conventions and colour coding and this can confuse the user.

*Where this issue occurs:*
Different places.

*Recommendation:*
Identify a uniform set of typographic choices and colour coding and apply them consistently to all windows.
Issue 13: Maximization of calendar
Severity: [Medium]
Maximizing a calendar causes graphical changes that are not limited to maximization and can be confusing

Where this issue occurs:
Calendar

Recommendation:
Implement maximization as in most physical and electronic calendars.

Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Issue 14: Help about unfamiliar terms
Severity: [Medium]
Help text is not always sufficient to explain the features and sometimes is completely absent, for example a new user registration asks about a “virtual organization” which can be an unfamiliar term to a new user and no definition can be retrieved there, in other screen words such as “e-logbook” are used without the possibility to retrieve a definition.

Where this issue occurs:
Different places.

Recommendation:
Give the user the possibility to click on uncommon terms (or maybe a question mark near them) to retrieve help about them, pay attention to precisely define terms in the help, explain functionalities and their effects, provide examples of usage.

Issue 15: Help contents
Severity: [High]
Help text is too concise, not always sufficient to explain the features and is not organized around user tasks.

Where this issue occurs:
Help text.

Recommendation:
Give more information in the help, explain how to carry out typical tasks, provide examples of usage.
Checklist
The following checklist was used when completing the review.

## Navigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear indication of current location</td>
<td>Sometimes.</td>
<td></td>
</tr>
<tr>
<td>Clear and constant link to homepage</td>
<td>Partially.</td>
<td></td>
</tr>
<tr>
<td>Access from homepage to major parts of system</td>
<td>Yes.</td>
<td></td>
</tr>
<tr>
<td>System map is provided</td>
<td>Seems not.</td>
<td></td>
</tr>
<tr>
<td>System structure is simple</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td>Search is available</td>
<td>No.</td>
<td></td>
</tr>
</tbody>
</table>

## Functionality

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality is clearly labeled</td>
<td>In most cases</td>
<td></td>
</tr>
<tr>
<td>No unnecessary plug-ins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can cancel interactions</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Clear Exit point from interaction pages</td>
<td>Not always</td>
<td></td>
</tr>
<tr>
<td>All appropriate browsers supported</td>
<td>No</td>
<td>I initially tried the system with the latest version of Mozilla 2.x and the visualization windows did not work.</td>
</tr>
</tbody>
</table>

## Help and Support

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online help is available</td>
<td>Partially</td>
<td>The help is very limited.</td>
</tr>
</tbody>
</table>

## Language

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language is simple</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td>Jargon is avoided</td>
<td>Partially</td>
<td></td>
</tr>
</tbody>
</table>
## Feedback

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is always clear what is happening</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Feedback is prompt</td>
<td>Not always.</td>
<td></td>
</tr>
<tr>
<td>Users can give feedback</td>
<td>Seems not</td>
<td>There seems to be no “contact” or “feedback” link inside the pages.</td>
</tr>
</tbody>
</table>

## Consistency

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one word or term used to describe an item.</td>
<td>Possibly not.</td>
<td>See detailed report.</td>
</tr>
<tr>
<td>Terminology consistent with system</td>
<td>Possibly not.</td>
<td>See detailed report</td>
</tr>
</tbody>
</table>

## Error Handling

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors do not occur unnecessarily</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>Error messages are in plain language</td>
<td>Yes.</td>
<td></td>
</tr>
<tr>
<td>On error, further assistance is available</td>
<td>No.</td>
<td></td>
</tr>
</tbody>
</table>

## Visual Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout is clear</td>
<td>Not always</td>
<td>See detailed report</td>
</tr>
<tr>
<td>Sufficient 'white space'</td>
<td>Yes.</td>
<td>At times too much</td>
</tr>
<tr>
<td>Images have 'Alt' text</td>
<td>Not checked</td>
<td></td>
</tr>
<tr>
<td>No unnecessary animation</td>
<td>Yes.</td>
<td></td>
</tr>
</tbody>
</table>

## Window management

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple browser instances avoided</td>
<td>Not checked.</td>
<td></td>
</tr>
</tbody>
</table>
**Luca De Marco**

The following pages present the findings of a Usability Review of GANMVL 2.1 conducted by Luca De Marco on 15-01-2007.

The review was conducted between 12-15 January 2007. The reviewer used Internet Explorer 6.0 and Mozilla Firefox 1.5.0.9 browsers on a Windows XP platform. Screen resolution was 1280x1024 pixels. Internet connection type was LAN [100 Mbps].

**Visibility of system status**

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

**Issue 1: Need for improved feedback**

*Severity: High*

Feedback to user’s actions should be more evident, to better notify the user that commands have been issued and have been (or are being) processed by the system.

*Where this issue occurs*

When saving changes to the User Profile settings. When clicking on a capability icon.

*Recommendation*

Make the notification of changes more evident (e.g. by displaying a notification message to inform the user that changes have been successfully saved). Provide visual (and possibly audio, e.g. with a “click” sound) feedback when the user clicks on a capability (e.g. by highlighting the icon or its background).

**Issue 2: No feedback when pointing the mouse over a capability**

*Severity: Medium*

In Internet Explorer 6.0, no feedback is provided (the cursor shape does not change) when pointing the mouse over a capability, so that the user may not understand that the item can be clicked to select it. Moreover, when pointing the mouse over the capability label, the wrong type of cursor (the one for text input) is displayed.

*Where this issue occurs*

When pointing the mouse over a capability or its label (only in Internet Explorer 6.0).

*Recommendation*

Provide the same feedback provided in Mozilla Firefox, both when pointing the mouse over the capability or its label.

**Issue 3: Flickering of parts of the interface**

*Severity: Medium*

In Mozilla Firefox 1.5.0.9, the page loading progress indicator of the browser flashes intermittently at regular time intervals. The NB Chat applet flickers at regular time intervals.
Where this issue occurs
In all pages, for the page loading progress indicator, and in the NB Chat capability (only in Mozilla Firefox 1.5.0.9).

Recommendation
Avoid flickering problems which distract and disturb the user.

Issue 4: Lack of visibility of system status
Severity: High
There is no clear indication about where the user is in. The only cue about the currently selected node is the fact that the node is underlined in the tree. When a capability is selected, no visual cue is provided about the fact that it is the currently active one. No header or title is displayed in the toolbar nor in the section below it when a capability is selected.

Where this issue occurs
In all pages.

Recommendation
Make the highlighting of the currently selected node more evident (e.g. with a different background). Make the relation of each section with the currently selected node explicit (e.g. when selecting the “elettra” node the title of the “toolbar” could be something like “elettra toolbar”). Highlight the currently selected capability (e.g. with a different background). Provide a header or title describing its content and its relation with the selected capability.

Match between system and the real world
The system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Issue 5: Capability icons are not logically grouped
Severity: High
There is no logical grouping of icons in the toolbar displaying the capabilities. This makes it more difficult for a user to find the searched capability.

Where this issue occurs
Toolbar

Recommendation
Use a coherent logical grouping of capabilities (e.g. put all the related capabilities – those with the same icon – one near to the other) and keep these groups clearly distinguished (e.g. by using visual separators or surrounding each group with a different box).
**Issue 6: Inappropriate labelling of some capabilities**

**Severity:** Medium

The labels of some capabilities do not clearly suggest their purpose. The use of acronyms for labelling some capabilities assumes that all the users are aware of their meaning.

*Where this issue occurs*

Http Desktop (some name), VNC Desktop (some name): the functionality is not clear. HRC Wizard, VNC Wizard: acronyms are not explained.

*Recommendation*

Make the labelling more clear and expressive.

**Issue 7: Inappropriate labelling of tabs**

**Severity:** Medium

The label “Knowledge Management” does not suggest the contents of the section.

*Where this issue occurs*

“Knowledge Management” tab.

*Recommendation*

The tab should be split in three different tabs, one for each of the very different functionalities that it erroneously groups together.

**Issue 8: Http Wizard not working properly**

**Severity:** Medium

The “Http Wizard” does not work properly or at least as expected. After, creating a new entry (e.g. [http://www.elettra.trieste.it](http://www.elettra.trieste.it)), when selecting the new capability from the toolbar an error page is displayed.

*Where this issue occurs*

“Http Wizard” capability.

*Recommendation*

Fix the behaviour of the “Http Wizard”.

**User control and freedom**

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

**Issue 9: Windows size**

**Severity:** Medium

To view all the content displayed on screen, some horizontal scrolling is required by the user, making it more difficult to find the capability which the user is searching for.
Where this issue occurs
Toolbar.

Recommendation
Organize the toolbar so that horizontal scrolling is not necessary (e.g. create logical groups of capabilities and display each group in a separate tab).

Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Issue 10: Improper use of the red colour
Severity: Medium
The use of the red colour to display the “(popup)” label under some capabilities does not seem appropriate since the action associated to clicking the label cannot have dangerous consequences.

Where this issue occurs
Capabilities labels.

Recommendation
Do not improperly use the red colour, since it is commonly associated with warning/error messages or potentially dangerous actions.

Issue 11: Inconsistent feedback on mouse over
Severity: Medium
For each capability, there are up to three items which can be clicked to obtain the same effect of selecting/activating the capability. Also, only when pointing the mouse over the capability label, the label changes colour. This behaviour is misleading, since the user may think that the outcome of clicking on different items could be different.

Where this issue occurs
Capability items.

Recommendation
Provide the same feedback (mouse pointer and highlighting) when pointing the mouse over any part of a capability item.

Issue 12: Inconsistent highlighting of root node
Severity: Low
The root node does not become underlined when selected.

Where this issue occurs
The root node of the resource browser.
EUROTeV-Report-2007-005

Recommendation
Highlight the root node in the same way as the other nodes of the tree.

Issue 13: Color scheme
Severity: Medium
The commands at the bottom of the pages under the “Knowledge Management” tab are in blue characters over blue background.

Where this issue occurs:
“Knowledge Management” tab.

Recommendation:
Always use proper background-text color contrast.

Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Issue 14: Lack of confirm actions and messages
Severity: Medium
The “User Manager” capability seems to allow system administrators to enable/disable user accounts, but no confirm/save button is provided, so that an admin user could quite easily enable/disable a user account by mistake without being aware of what s/he has done.

Where this issue occurs:
“User Manager” capability.

Recommendation:
A potentially dangerous action like enabling/disabling a user account should require some form of confirmation (e.g. the admin user should be required to press a confirm/save button after making changes or a confirmation dialog should be displayed when the admin clicks any of the check buttons, or both)

Issue 15: Calendar not working
Severity: Medium
The “Calendar” tool does not work properly. After adding/removing entries a page refresh is needed to see the effect of changes. This could lead the user to repeatedly add the same event or to delete it more than once.

Where this issue occurs:
“Calendar” tool.

Recommendation:
Automatically refresh the calendar when the user makes some action
Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Issue 16: Absence of contextual help
Severity: Medium
Some windows display a question mark which should display contextual help information, but clicking it does not make any help appear.

Where this issue occurs
Throughout the system

Recommendation
Provide complete and accurate contextual help and documentation, possibly without hiding the window content.

Issue 17: Help contents
Severity: [High]
The documentation provided in the User’s Guide is quite poor for the following reasons:
- It does not explain all the features but only the contents of “GAN Portal” tab and the basic actions which can be performed.
- It contains several syntax and spelling errors.
- The text is not justified, making it more difficult to read.
- No styling convention is used to highlight keywords nor system parts (e.g., hyphens, bold or italic style).
- No spacing is provided between the explanation of different features, thus making it difficult to find the information needed at a glance.
- A “Welcome” tab is referred to, which is not present.

Where this issue occurs:
User’s Guide.

Recommendation:
Pay attention to all the mentioned aspects to favour user’s understanding and learning.

Issue 18: Instructions on how to access the system need to be provided
Severity: High
Essential information on how to access the system need to be provided from Elettra VCR login page: e.g., how can the user request an account, what procedure s/he needs to follow to obtain a certificate, which are the software/hardware requirements to access the system, etc.

Where this issue occurs
Login page.
**Recommendation**

Provide the user with detailed instructions about system accessibility.

**Checklist**

The following checklist was used when completing the review.

### Navigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear indication of current location</td>
<td>No</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Clear and constant link to homepage</td>
<td>Yes</td>
<td>To go to the home, one has to click on a “Welcome” tab</td>
</tr>
<tr>
<td>Access from home page to major parts of system</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>System map is provided</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>System structure is simple</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Search is available</td>
<td>Partially</td>
<td>Only in the “Help” and “Logbook”</td>
</tr>
</tbody>
</table>

### Functionality

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality is clearly labeled</td>
<td>Not always</td>
<td></td>
</tr>
<tr>
<td>No unnecessary plug-ins</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can cancel interactions</td>
<td>Not checked</td>
<td></td>
</tr>
<tr>
<td>Clear Exit point from interaction pages</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>All appropriate browsers supported</td>
<td>In most cases</td>
<td>See detailed issues raised in the report for exceptions</td>
</tr>
</tbody>
</table>

### Help and Support

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online help is available</td>
<td>Partially</td>
<td>The help is limited.</td>
</tr>
</tbody>
</table>
## Language

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language is simple</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td>Jargon is avoided</td>
<td>Partially</td>
<td></td>
</tr>
</tbody>
</table>

## Feedback

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is always clear what is happening</td>
<td>No</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Feedback is prompt</td>
<td>No</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Users can give feedback</td>
<td>No</td>
<td>There seems to be no “contact” or “feedback” link inside the pages</td>
</tr>
</tbody>
</table>

## Consistency

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one word or term used to describe an item.</td>
<td>Mostly</td>
<td></td>
</tr>
<tr>
<td>Terminology consistent with system</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

## Error Handling

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors do not occur unnecessarily</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Error messages are in plain language</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>On error, further assistance is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Visual Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout is clear</td>
<td>No</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Sufficient 'white space'</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Images have 'Alt' text</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No unnecessary animation</td>
<td>OK</td>
<td></td>
</tr>
</tbody>
</table>

## Window management

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple browser instances avoided</td>
<td>No</td>
<td>Several capabilities open a popup</td>
</tr>
</tbody>
</table>
Silvia Gabrielli

The following pages present the findings of a Usability Review of GAN-MVL 2.1 conducted by Silvia Gabrielli on 08-01-2007.

The review was conducted between 2-8 January 2007. The reviewer used Mozilla Firefox 1.5.0.9 browser on a Windows XP platform. Screen resolution was 1152x864 pixels. Internet connection type was LAN [100 Mbps].

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Issue 1: Improve visual feedback when icons are selected

Severity: High

When the user selects an icon on the toolbar there is no feedback showing which selection is currently active, so that good orientation and user navigation could be prevented.

Where this issue occurs

Throughout the system (e.g., when clicking on the toolbar icons on the Control Room area, corresponding to the different operations the user can perform).

Recommendation

Improve the visual feedback, for example by highlighting the icon selected and also visualizing its name as the title of the new page/window opened.

Issue 2. Improve feedback to user actions

Severity: High

There is no clear feedback once the user has completed critical operations, such as the change of password in the user profile.

Where this issue occurs

Throughout the system (in particular, the user profile and when adding/deleting events on the Calendar).

Recommendation

Provide more explicit and clear feedback, for example by adding notification messages such as ‘Your password has been changed’.
Issue 3. Provide peripheral awareness in text-based communication

Severity: Medium
When communicating via text messages in the chat space it is not possible to see if/when the other user is writing a message. This could make more difficult the turn taking during text based conversations.

Where this issue occurs
Chat tool/space.

Recommendation
Take inspiration from the solution provided by Messenger’s chat for example, which informs the user if the other participant to the conversation is writing a message.

Match between system and the real world
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Issue 4. Better explain the logic followed by the Resource Browser

Severity: Low
To a novice user the logic sequence of categories followed by the Resource browser might not be intuitive to understand.

Where this issue occurs
Resource browser

Recommendation
Provide a brief and schematic explanation (possibly in the User Guide) of the logic followed in the Resource Browser.

Issue 5. Rename or modify the ‘Knowledge Management’ section

Severity: Medium
It is not familiar or conventional to find resources such as the Help and Download area under a section named ‘Knowledge Management’.

Where this issue occurs
Knowledge Management section

Recommendation
Either rename this section with a more appropriate title (e.g., Help & Documentation) or ungroup the three functionalities there contained (Logbook, Help, Download area).
ISSUE 6. CHECK THE CURSOR SHAPE ON THE LOGIN PAGE

Severity: Medium
The cursor shape on the login page is not the conventional one (when using Mozilla Firefox browser only).

Where this issue occurs
Login page

Recommendation
Replace it with the conventional symbol.

USER CONTROL AND FREEDOM

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

ISSUE 7. BETTER DISPLACE THE SYSTEM SECTIONS/FEATURES

Severity: High
When entering the system the user can only see two sections available (Knowledge Management, GAN Portal). To avoid unnecessary navigation by the user, the system interface could present the 4 main features (Logbook, Help, Download, GAN Portal) as directly available from the top toolbar.

Where this issue occurs
Throughout the system

Recommendation
Improve the spatial arrangement of the features available.

ISSUE 8. PERSONALIZATION OF THE INTERFACE SETTINGS IS NOT SUPPORTED

Severity: Medium
The users have little room for setting up their own preferences/defaults when using the system.

Where this issue occurs
User Profile.

Recommendation
Consider the opportunity of providing more support for personalization (in future system release(s)).

CONSISTENCY AND STANDARDS

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
Issue 9. Contextual help/instructions not always provided

Severity: High
The ‘?’ character on the toolbar(s) sometimes leads to brief instructions about the functionality selected, sometimes it doesn’t provide any information, thus it is ambiguous for the user.

Where this issue occurs
Throughout the system

Recommendation
Either associate each ‘?’ to relative instructions/information or eliminate it from the toolbar.

Issue 10. Fields & field labels should be better located in the space available

Severity: Medium
Sometimes fields and their labels are not adequately distributed in the space available for an easy scanning/reading by the user.

Where this issue occurs
Throughout the system (see for instance, Skype access page, chat…)

Recommendation
Solve this problem by properly exploiting the space available.

Issue 11. Inconsistent presentation of information

Severity: High
There is some inconsistency from one screen to the other in the presentation of information (e.g., sometimes the information or data provided are organized and presented within tables, sometimes web links only are provided).

Where this issue occurs
e.g. Skype page

Recommendation
Check all system pages to provide a consistent layout and style of presentation for each information field.

Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.
Issue 12. Error prevention not fully supported
Severity: High
The current prototype release does not fully / properly support error prevention.

Where this issue occurs
Throughout the system

Recommendation
Make sure that adequate warns are issued to the user in the case s/he is about to make a potentially serious error (e.g., remote instrument control operations).

Issue 13. Too much jargon in error messages
Severity: High
Error messages are expressed in technical jargon and often do not provide clear indications or way out from errors to users.

Where this issue occurs
Throughout the system

Recommendation
Provide text messages that more clearly describe the error(s) occurred and possible ways of recovering from it. Whenever possible, avoid use of jargon.

Recognition rather than recall
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Issue 14. Visibility of text and icons is improvable
Severity: Medium
In some windows text areas have too little ‘breathing space’ around them (e.g., Skype connection window), in others there is too much space unexploited (e.g., chat window). The same issue concerns the space around icons on the toolbar.

Where this issue occurs
Skype page, chat tool

Recommendation
Use white space properly to help recognition processes, create symmetry and lead the eye in the appropriate direction.

Issue 15. Background vs text contrast is improvable
Severity: Medium
Sometimes the background vs text contrast is not appropriate for an easy reading (e.g., box headers in the user profile window use white characters on a clear background colour).
Where this issue occurs
User Profile

Recommendation
Improve colour contrast between background and text.

Flexibility and efficiency of use
Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Issue 16. The system does not provide accelerators for expert users
Severity: Medium
The current release of the prototype does not support experts (or advanced) users (e.g., with accelerators or short cuts for frequent actions).

Where this issue occurs
Throughout the system

Recommendation
Provide the possibility for expert users and administrators to bypass long operations with type-ahead, user-defined macros or keyboard shortcuts.

Issue 17. Rules regarding the management of user accounts and privileges
Severity: High
It is not clear which regulation is currently followed (or will be followed) in the assignment of user accounts to guests, users, administrators, etc.. A description of the privileges assigned to each category of user is required.

Where this issue occurs
Help section (User Guide, Station Administration Guide), User Profile

Recommendation
Provide a clear description (in the Help section) about the rules governing the assignment of privileges to the different types of accounts and user roles.

Aesthetic and minimalist design
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
**Issue 18. Check all text for errors**

*Severity:* High  
There are some misspellings (typos) and grammar errors in the information and dialogue presented to the user that need to be corrected.

*Where this issue occurs*  
Throughout the system

*Recommendation*  
Correct all errors in the text.

**Issue 19. Avoid excessive length of toolbars**

*Severity:* Medium  
There are toolbars (e.g., GAN Portal, Control room) that are too much extended horizontally (they contain many icons, so the last ones in the line have low visibility for the user).

*Where this issue occurs*  
GAN Portal (toolbars)

*Recommendation*  
Avoid toolbars that are too long horizontally, whenever possible.

**Help and documentation**

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

**Issue 20. Help system interface not consistent with the overall interface**

*Severity:* Medium  
Currently the Help system interface (navigation, presentation) is not consistent with the system interface.

*Where this issue occurs*  
Help feature.

*Recommendation*  
Provide a more consistent and easy to navigate presentation of the help and documentation.

**Issue 21. Contextual help is improvable**

*Severity:* Medium  
The quality of contextual help currently provided is rather poor and incomplete.
Where this issue occurs
Throughout the system

Recommendation
Provide brief, clear, relevant context-sensitive help (e.g., on toolbars) to speed up learning of the system.

Checklist
The following checklist was used when completing the review.

### Navigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear indication of current location</td>
<td>Partially</td>
<td>While in general the tabs on top provide an idea of the page where one is, windows on the page can sometimes contain further location information (e.g. the Resource Browser) that do not follow the same conventions for location indication</td>
</tr>
<tr>
<td>Clear and constant link to homepage</td>
<td>Partially</td>
<td>It is not clear if the ‘Welcome to GAN’ page is the homepage</td>
</tr>
<tr>
<td>Access from home page to major parts of system</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>System map is provided</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>System structure is simple</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Search is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Functionality

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality is clearly labeled</td>
<td>Mostly</td>
<td>Sometimes jargon and acronyms are used</td>
</tr>
<tr>
<td>No unnecessary plug-ins</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can cancel interactions</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Clear Exit point from interaction pages</td>
<td>Not always</td>
<td></td>
</tr>
<tr>
<td>All appropriate browsers supported</td>
<td>No</td>
<td>Internet Explorer is less supported than Mozilla Firefox, according to designers</td>
</tr>
</tbody>
</table>
## Help and Support

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online help is available</td>
<td>Partially</td>
<td>The help is limited.</td>
</tr>
</tbody>
</table>

## Language

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language is simple</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Jargon is avoided</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Feedback

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is always clear what is happening</td>
<td>Sometimes</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Feedback is prompt</td>
<td>Sometimes</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Users can give feedback</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

## Consistency

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one word or term used to describe an item.</td>
<td>Mostly</td>
<td></td>
</tr>
<tr>
<td>Terminology consistent with system</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

## Error Handling

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors do not occur unnecessarily</td>
<td>Sometimes</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Error messages are in plain language</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>On error, further assistance is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
### Visual Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout is clear</td>
<td>Sometimes</td>
<td>See detailed issues raised in the report</td>
</tr>
<tr>
<td>Sufficient 'white space'</td>
<td>No</td>
<td>See detailed issues raised in the report Actually at times is too much (chat).</td>
</tr>
<tr>
<td>Images have 'Alt' text</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>No unnecessary animation</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Window management

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple browser instances avoided</td>
<td>Mostly</td>
<td></td>
</tr>
</tbody>
</table>
Markus Hodapp
The following pages present the findings of a Usability Review of GANMVL conducted by Markus Hodapp on 26.01.2007.

The review was conducted between 27.01.2007 and 02.02.2007. The reviewer used Mozilla Firefox 1.5.0.9 and Internet Explorer 7 browser on a Windows XP platform. Screen resolution was 1280 x 1024 pixels. Internet connection type was fast University network [100 Mbps].

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Issue 1: System status messages
Severity: High

Where this issue occurs:
When a specific task is performed (e.g. access to an instrument) no status messages are provided. The only hint for the user is browser feedback like the progress bar, cursor status, or error messages provided by the plug-ins.

Recommendation
Messages should inform about the system status (e.g. “… is loaded”).

Issue 2: Selection of Icons
Severity: High

Where this issue occurs:
In the GAN Portal, the text underneath the icons is highlighted in blue when the mouse is on it. When an icon is selected, a pop-up window opens or something is loaded on the GAN Portal page but the icon itself is not highlighted as selected.

Recommendation
Clear indication which icon is selected at the moment and which task is started by it. This would ensure the orientation within the system.

Match between system and the real world
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Issue 3: Icons
Severity: High
Where this issue occurs:
The icons used in GAN MVL Portal are not indicating their functionalities. In the Elettra – Control Room toolbar, only 2 icon variations are used for more than 10 different applications.

Recommendation
A pool of icons should be developed that indicate clearly the functionality that’s behind it.

Issue 4: Node structure
Severity: Medium

Where this issue occurs:
The resource browser uses a node structure for navigation. This structure is not intuitive and it is unclear what functionalities hide behind it.

Recommendation
Use a clear structure where the single entries are self explanatory.

Issue 5: Use of the “?” Links
Severity: High

Where this issue occurs:
In some parts of the portal, a question mark is indicated where the users assumes a help functionality. When you click on that symbol, in most of the cases nothing happens.

Recommendation
Use the “?” symbol only when help pages are offered.

User control and freedom
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Issue 6: Size of pop-up windows
Severity: Medium

Where this issue occurs:
When applications are loaded in a pop-up window, it is not possible to resize the window. In Firefox, the window is quite big hiding everything else from GAN portal behind it. In IE it is smaller but still not resizeable.

Recommendation
Pop-up windows should be resizable and the “look and feel” should be the same in different browsers.
Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Issue 7: Order of Icons and space usage
Severity: Medium

Where this issue occurs:
When something is added to the toolbar (e.g. an instrument) vertical scrolling is necessary in Firefox. There is no specific ordering system that matches tasks in the icon bar.

Recommendation
Grouping of icons that belong to one or similar tasks and prevent scrolling!

Aesthetic and minimalist design
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Issue 8: Complexity of displayed icons and nodes
Severity: High

Where this issue occurs:
It is unclear, which icons and nodes are important for the specific task. Because of the complexity, the user is irritated by the variety of unclear options.

Recommendation
Develop new ordering/grouping system to prevent too many options being displayed. Icons and menus should be task oriented not function oriented.

Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Issue 9: Accessibility of the help function
Severity: Medium

Where this issue occurs:
The help function is located on the entry page. There are only two options on the entry page – help and the portal itself. To use the help system, the users has to leave the portal to find necessary information.
**Recommendation**
The entry page should only be the GAN portal with a link to the help system that opens in a different window. Maybe an active help system that is context oriented would help new users with hints on the different functions.

**Checklist**
The following checklist was used when completing the review.

### Navigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear indication of current location</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Clear and constant link to homepage</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Access from homepage to major parts of system</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>System map is provided</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>System structure is simple</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Search is available</td>
<td>No</td>
<td>(not found if available)</td>
</tr>
</tbody>
</table>

### Functionality

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality is clearly labeled</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No unnecessary plug-ins</td>
<td>Not sure</td>
<td></td>
</tr>
</tbody>
</table>

### Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can cancel interactions</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Clear Exit point from interaction pages</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>All appropriate browsers supported</td>
<td>Sometimes</td>
<td>Portal “Look and feel” differs between browsers</td>
</tr>
</tbody>
</table>
**Help and Support**

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online help is available</td>
<td>Sometimes</td>
<td></td>
</tr>
</tbody>
</table>

**Language**

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language is simple</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Jargon is avoided</td>
<td>No</td>
<td>Labeling of icons</td>
</tr>
</tbody>
</table>

**Feedback**

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is always clear what is happening</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Feedback is prompt</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Users can give feedback</td>
<td>Not checked</td>
<td></td>
</tr>
</tbody>
</table>

**Consistency**

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one word or term used to describe an item.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Terminology consistent with system</td>
<td>Sometimes</td>
<td></td>
</tr>
</tbody>
</table>

**Error Handling**

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors do not occur unnecessarily</td>
<td>Not sure</td>
<td>Problems with installing plugins, only plugin specific error messages were provided</td>
</tr>
<tr>
<td>Error messages are in plain language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On error, further assistance is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
## Visual Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout is clear</td>
<td>No</td>
<td>Node and icon structure unclear</td>
</tr>
<tr>
<td>Sufficient 'white space'</td>
<td>Not sure</td>
<td></td>
</tr>
<tr>
<td>Images have 'Alt' text</td>
<td>Not sure</td>
<td></td>
</tr>
<tr>
<td>No unnecessary animation</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

## Window management

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple browser instances avoided</td>
<td>No</td>
<td>Popups are used but not consistently</td>
</tr>
</tbody>
</table>
Roberto Ranon
The following pages present the findings of a Usability Review of GANMVL 2.1 conducted by Roberto Ranon on 29-01-2007.

The review was conducted between 15-01-2007 and 29-01-2007. The reviewer used the Internet Explorer 7 and Firefox 1.5 browsers on a Windows XP platform. Screen resolution was 1280x1024 pixels. Internet connection type was broadband.

Note 1: as present help and documentation are clearly unfinished, I provided only a few of the existing issues about them.

Note 2: as aesthetics has clearly yet to be taken into account in this prototype, no issue has been included in this category.

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Issue 1: Inconsistent use of text decoration
Severity: [High]
Since the tools currently displayed depend (and act) on the currently selected resource, it is crucial for the user to quickly understand which resource has been selected. However, sometimes an “underline” decoration is used to visualise that, sometimes no decoration at all.

Where this issue occurs:
Resources Browser

Recommendation
Use a consistent solution for displaying the currently selected resource. Also, indicating in the toolbar to which resource the tools apply could help the user in being aware about this aspect of the system status.

Issue 2: Text cannot be properly read at most common screen resolutions
Severity: [Low]
Depending on the width of the window, a sentence is broken into parts which are not displayed together.

Where this issue occurs:
Calendar portlet (at least with Internet Explorer)

Recommendation
Make sure that text is displayed correctly at most common screen resolution
**Issue 3: it is not clear which tool is being used**

*Severity*: [High]
When a user clicks on a tool in a toolbar, content appears in the bottom-right part of the page, but nothing explicitly indicates which tool is currently being shown

*Where this issue occurs:*
Gan Portal page

*Recommendation*
Explicitly indicate which tool has been clicked, e.g. by marking its icon on the toolbar

**Issue 4: The tunnel monitor does not explicitly show that there are no connections**

*Severity*: [Low]
When a user clicks on the tunnel monitor, if there are no active connections a table with headings and no rows is shown. This seems a page problem, rather than a good indication that there are no active connections.

*Where this issue occurs:*
Tunnel Monitor

*Recommendation*
Explicitly indicate, with proper text, that there are no connections.

**Match between system and the real world**
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

**Issue 5: Mixed use of English and Italian (German, French, …) Language**

*Severity*: [Low]
When choosing other languages than English (in the home page), text in the interface is presented using a mixture of English and the chosen language

*Where this issue occurs:*
almost in every page

*Recommendation:*
Provide full translation for text in the system, or remove not fully supported languages from the possible user choices
**Issue 6: Computer jargon is used instead of user jargon**

*Severity:* [Medium]
In some parts of the interface, adopted terms (such as NBChat) are developer’s jargon, and thus not easy for the user to understand

*Where this issue occurs:*
Toolbar (NBChat, VNCDesktop, HTTPDesktop)

*Recommendation:*
Avoid computer or developer jargon and use terms that are as familiar and meaningful for the user as possible.

**Consistency and standards**

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

**Issue 7: Links instead of buttons in forms**

*Severity:* [Low]
Some forms (e.g., the registration page) use links instead of buttons for submit and cancel commands. The common convention on the Web is to use buttons for these two actions.

*Where this issue occurs:*
in the registration page

*Recommendation*
If there is no particular reason for using links, substitute them with buttons.

**Issue 8: Ambiguous Visualization of Users/Resources**

*Severity:* [Medium]
In the resources browser, there is no clear visual distinction between resources (users, virtual organizations, such as Elettra, and others, such as “XRD1” and “Control Room”).

*Where this issue occurs:*
In the “GAN Portal page”

*Recommendation*
Use icons or separators to make it easy for the user to distinguish between the different kind of resources

**Issue 9: The same information is displayed multiple times or with no clear differentiation**

*Severity:* [High]
In the resources browser, users are shown both at the second level of the hierarchy, and under other resources (e.g. “Control Room”). It is not clear which is the difference, and if clicking on one user in one place is a different action than clicking the user in another place.
Issue 10: Inconsistent usage of mouse pointer icons

Severity: [Medium]
The possibility of clicking on an item should be indicated to the user by following well-established conventions, such as buttons or a proper mouse pointer icon (i.e. the one used by the browser for links). In the toolbar, placing the mouse over the icons does not indicate the possibility of clicking the icon; also placing the mouse over the icon text does not use the “link” mouse pointer.

Where this issue occurs:
In the toolbar

Recommendation
Consistently follow commonly used conventions for indicating items that can be clicked, e.g. changing the mouse pointer, using underline for text, using text styles and color when the mouse is over the item.

Issue 11: Unconventional link labels are used instead of common ones

Severity: [Low]
The “Welcome to MVL GAN” link text does not indicate where the link points.

Where this issue occurs:
in the GAN Portal page

Recommendation:
Use conventional link labels (or at least informative labels) when they are available. In this case, a choice such “home” would probably be more appropriate.

Issue 12: Incorrect formatting of tabular data

Severity: [Low]
Tabular data should be presented using a table-like format (e.g. clearly indicating the column heading for items in the table).

Where this issue occurs:
Once the skype tool is clicked with users selected

Recommendation:
Choose a table formatting layout for tabular data.
Issue 13: Incorrect use of contextual menus in VI visualization

Severity: [Medium]
In the VI visualization, a right-click is used to pop-up a menu (which should be contextual, but is not) with commands to request control of the instrument. This is completely non-intuitive, as right-click menus are typically used only for contextual actions, and not for main commands.

Where this issue occurs:
VI visualization

Recommendation:
If this tool is not directly developed by MVL-GAN, we suggest to help the user with instructions on the same web page. Moreover, the issue could be notified to the VI developer.

Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Issue 14: Required fields in forms

Severity: [Low]
The registration form visualizes an asterisk near some fields, but it is not specified what does that mean (probably, required fields)

Where this issue occurs:
In the registration page

Recommendation:
Add a properly visible note to explain the meaning of the asterisks.

Issue 15: Critical operations have no confirmation dialogs

Severity: [High]
The tunnel monitor allows an administrator to drop connections. This operation seems critical and potentially dangerous for users, yet the application does not allow the administrator to retract if the command is issued by mistake

Where this issue occurs:
Tunnel Monitor

Recommendation:
Show a confirmation dialog before dropping connections.
**Issue 16: Warning dialogs are shown improperly or inconsistently**

*Severity:* [Low]

When the VI window is popped up, a warning dialog appears to notice the user that a window is being loaded and shown. This does not happen for other pop-up windows, and is not a typical situation where you want to warn the user about what will happen.

*Where this issue occurs:*
Clicking on "HTTP instrument" tools

*Recommendation:*
Remove the warning dialog or use it consistently in the system.

**Recognition rather than recall**

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

**Issue 17: Secondary-level Tab Items are not well-separated**

*Severity:* Medium

Secondary-level tab items are places too close one to the other, which makes it hard to distinguish them with a quick scanning

*Where this issue occurs*
In every page

*Recommendation*
Increase the space between items to make it easier to visually distinguish them

**Issue 18: Indicating which page is currently visible**

*Severity:* [Medium]

It is not sufficiently clear which secondary-level tab item is currently being shown (all items, e.g. home and registration, are presented using the same font / style / size / color).

*Where this issue occurs:*
In every page, at the secondary-level tab line.

*Recommendation:*
Make it clear, by using text styles and colors, which is the currently selected tab item.
**Issue 19: Usage of background/foreground colors**

*Severity: [Medium]*

Using two similar colors for text and background reduces readability and makes the text more difficult to notice.

*Where this issue occurs:*
In the secondary-level tab line; in the last row of the log book (“search” and “add new post” links)

*Recommendation:*
Maximize the color contrast between text and background.

**Issue 20: Wrong/Inconsistent usage of icons to indicate commands**

*Severity: [Medium]*

In most cases, toolbar icons do not indicate clearly which action will be performed, or allow to distinguish among different actions / tools. For example, the “Tunnel Monitor” icon do not convey the idea of a connection monitor; the icons for starting a chat and a remote desktop connection are identical, while the two actions are very different.

*Where this issue occurs:*
Toolbar

*Recommendation:*
Design and use icons that allow the user to guess which action will be performed by clicking on them, and that at least allow the user to distinguish among different actions.

**Flexibility and efficiency of use**

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

**Issue 21: No possibility for expert users to customize the application**

*Severity: [Medium]*

Expert users have no possibility to customize the application (e.g., add shortcuts) to their own tastes and needs.

*Where this issue occurs:*
Throughout the system

*Recommendation:*
Investigate and add possible customizations that might help expert users in improving the usability and effectiveness of the system.
Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Issue 22: Help function is not always visible
Severity: High
Help for the user is provided in a separate help section which is not always visible (e.g., when selecting the “GAN Portal” tab item, no help link is accessible).

Where this issue occurs:
Any page in the system where no “help” link is visible

Recommendation
Make the help link visible from any page in the system

Issue 23: Provide help where and when help is needed
Severity: High
All help for the user is provided in a separate help section (accessible only after login) instead of providing proper help during task execution. For example, the help provides instructions on how to access the system for the first time, but users can see it only after having accessed.

Where this issue occurs:
Almost everywhere in the system

Recommendation
Provide relevant help and documentation access when and where the user will need them.

Checklist
The following checklist was used when completing the review. For more detailed comments, see the issues in previous pages

Navigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear indication of current location</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Clear and constant link to homepage</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Access from home page to major parts of system</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>System map is provided</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>System structure is simple</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Search is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
### Functionality

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality is clearly labeled</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>No unnecessary plug-ins</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can cancel interactions</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Clear Exit point from interaction pages</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>All appropriate browsers supported</td>
<td>No</td>
<td>This needs to be addressed in future versions</td>
</tr>
</tbody>
</table>

### Help and Support

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online help is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Language

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language is simple</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Jargon is avoided</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Feedback

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is always clear what is happening</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Feedback is prompt</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Users can give feedback</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
### Consistency

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one word or term used to describe an item.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Terminology consistent with system</td>
<td>Sometimes</td>
<td></td>
</tr>
</tbody>
</table>

### Error Handling

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors do not occur unnecessarily</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Error messages are in plain language</td>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>On error, further assistance is available</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Visual Clarity

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout is clear</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sufficient 'white space'</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Images have 'Alt' text</td>
<td>Did not check</td>
<td></td>
</tr>
<tr>
<td>No unnecessary animation</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Window management

<table>
<thead>
<tr>
<th>Item</th>
<th>Compliance</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple browser instances avoided</td>
<td>Did not check</td>
<td></td>
</tr>
</tbody>
</table>