User's guide

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SUMMARY

1 INTRODUCTION … 4

2 MAIN FEATURES AND SYSTEM REQUIREMENTS 5

3 LICENCES 6

4 NEW FEATURES IN MEDIALON MANAGER 2 7

5 COMPUTER CONFIGURATION 8

5.1 SOFTWARE Installation 8
5.1.1 Installing MEDIALON MANAGER 8
5.1.2 Installing the MXM 9
5.1.3 Organising folders 10
5.2 Hardware Installation 11

6 MENUS 12

6.1 The right mouse button 12
6.2 Ergonomics 12
6.3 Inspectors/Editors 12
6.4 Main menu bar 13
6.4.1 File Menu 14
6.4.2 Edit Menu 22
6.4.3 UserScreens Menu 22
6.4.3.1 Creating "UserScreens" 23
6.4.3.2 The "UserScreen" Toolbox window 25
6.4.3.3 The "Object Inspector" window 25
6.4.4 Devices Menu 30
6.4.4.1 Note concerning "Positrack" 32
6.4.4.2 Device Inspector 33
6.4.4.3 The "Device Inspector" window proposes three display modes: 33
6.4.4.4 Creation of "Devices" 35
6.4.5 Variables Menu 39
6.4.5.1 Organisation of Variables 40
6.4.5.2 Creation of Variables 42
6.4.6 Tasks Menu 46
6.4.6.1 "TimeBased" Tasks: 47
6.4.6.2 "StepBased" Tasks: 47
6.4.6.3 Choosing between "StepBased" and "TimeBased" tasks 48
6.4.6.4 The "Task Inspector" window 49
6.4.6.5 Task Editor 50
6.4.6.6 Editing StepBased Tasks 51
6.4.6.7 Editing TimeBased Tasks 55
6.4.6.8 Tools Menu 62
6.4.7 Windows Menu 62
6.4.8 Help Menu 63
6.4.9 Buttons on the Main Menu Bar 64

7 MEDIALON MANAGER COMMANDS 65

7.1 Manager commands description : 65
7.1.1 The commands associated with StepBased tasks: 65
7.1.2 The commands associated with TimeBased tasks. 65
7.1.3 List of commands: 66
7.1.3.1 Open UserScreen 66
7.1.3.2 Close UserScreen 66
7.1.3.3 Goto Page 66
7.1.3.4 Start Task 66
7.1.3.5 Pause Task 66
7.1.3.6 Abort Task 66
7.1.3.7 Sync Task 66
7.1.3.8 Goto Label 66

7.1.3.9 Goto Line 66
7.1.3.10 The Expression window Ctrl+E 67
7.1.3.11 Load New Data File 67
7.1.3.12 List Control 68
7.1.3.13 Sound Beep 68
7.1.3.14 Quit Manager 68
7.1.3.15 Call Task 69
7.1.3.16 Wait Ctrl+W 69
7.1.3.17 While/EndWhile Ctrl+H 69
7.1.3.18 If/Else/Endif Ctrl+I 69
7.1.3.19 Goto Time 69
7.2 Table of available commands in StepBased Tasks and TimeBased Tasks: 70
8 KEYBOARD SHORTCUTS 71
9 GLOSSARY 74
10 PRACTICAL INFORMATION 76

1 INTRODUCTION …

Medialon Manager V2 is a show & media control software. In addition to regular show control features like devices synchronisation it offers revolutionary features to meet today's requirement in the show control industry.

Manager V2 is the only software offering the control and management of digital media directly in the PC or over network. It is even possible to turn Manager V2 into an HTTP server to enhance control capabilities.

Manager V2 is designed for any show & media control application, from simple stand alone to large networked systems. Several can be connected together and share data over a Ethernet network. It is the industry standard in theme park or museum application with networking of show and presentation elements.

Manager V2 is also the ideal tool for staging applications where multiple Timelines and the ability to play up to 4 video in sync, from the show control PC is a must.

Applications
Museum, Exhibitions, Theme parks, Live event, Theatre, Convention, Point of purchase, Show room, Staging, Multimedia Signage etc ...

Medialon offers a range of standard hardware accessories to help you to build up your show control system exactly to your needs. Dmx in/out cards, Digital Video and audio cards, Timecode reader / generator cards, really in/out boxes etc …. And you can use most of regular hardware available on the market.

A wide range of drivers, called Medialon MxM (Manager X object Modules Drivers) is available to interface your show & media control application with all show elements, from DMX to RS 232 audio visual devices, from video server on network or video cards to any other software application, from simple relay boxes to complex motion control devices. MxM modules are more than simple interfacing drivers. For example, MxM for video servers not only integrate control of play functions but also return list of available clips or execute the file transfer into the server. You can write your own drivers for RS 232, 422, 485 control thanks to the powerful Low level Com port module. It is even possible to write your own drivers for any TCP IP control with the Low level TCP/IP Client module.

All Driver MxMs are available for free download on Medialon web site together with application example and new modules are designed everyday.

Medialon offers actual sub-application called Application MxM to enhance features and capacities of Manager software. They bring new functions in the software and help you to design more complex application. Some are designed to turn your manager application into a web server, or a TV style playlist software. There is even an service MxM to create a log file to track events and sent it via email.

All Application MxMs are available for free download on Medialon web site together with application example and new modules are designed everyday.

Manager V2 consists of three main elements: Configuration module for declaring the devices or software to be controlled, a Timeline metaphor to program actions to be executed in sync and a user interface creation tool to design the final control panel of your show control system. You will discover these modules and how to use them in this Reference Guide. You can also have a look at the tutorial, accessible from the help menu in Manager itself, which will guide you through a step by step learning process.

2 MAIN FEATURES AND SYSTEM REQUIREMENTS

Main Features :

Control Software for Show Control and Media control application

Human interface design tools.
- Unlimited number of User's screen, with unlimited number of Pages
- Button, Sliders, diodes, graphical sliders,
- Bitmap import
- Video Windows, Image Windows
- Built in "draw" like design tool

Software and Hardware devices control through MXM plug'in technology.
- Ethernet
- Serial, internal and External Multi-port supported up to 256 Serial Ports
- PCI and ISA bus supported (Any Circuit board with Win NT/2000 driver)
- Midi and Audio supported

Programming
Task programming approach through Step based Task and Time based Task (Timeline or List View).

Show Control Sequencing Capabilities (Time based Task)
- 1/100s Time based task precision with Position tracking of controlled devices capability.
- 24, 25, 30, 30DP, 100, 1000 fps base time supported.
- User defined or automatic type selected.

Logical and Mathematical treatments:
- Variables (Type : Integer, String, Time, Date, Enum).
- Unlimited number of Variables
- Condition test (If Then Else, While etc...).
- Operator (+ - * / % etc...)

Multitasking kernel.
Multiprocessor optimized (4 processors as ideal).
Possibility of task programming while running (in Debug mode).
Native Network interconnection through TCP/IP.

Minimum System Requirements :

450Mhz PC Pentium II Processor
128 Mb Memory
2 Go Hard Disk
Windows NT4+SP6a / Windows 2000+SP1
TCP/IP (Winsock2) Layer
800x600 16Bits Graphic Card.
Sound Adapter
1 Keyboard.
1 Mouse.

Suggested System Requirements :

800Mhz PC Pentium III Processor
256 Mb Memory
4 Go Hard disk
Windows NT4+SP6a / Windows 2000+SP1
TCP/IP (Winsock2) Layer
1024x768 32Bits Graphic Card & Sound Adapter
1 Keyboard & 1 Mouse.

3 LICENCES

Medialon Medialon Manager V2 is a program protected by a license number. Moreover, Medialon Manager will only run with a dongle inserted in the parallel port of your PC.

Medialon Manager is available in two versions:

Medialon Manager:
Manager V2 is designed for any show & media control application, from simple stand alone to large networked systems. Several can be connected together and share data over an Ethernet network. It is the industry standard in theme park or museum application with networking of show and presentation elements.

Manager V2 offers multiple Time based tasks (or Timelines) and a the control of up to 6144 channels (6 cards) of DMX512 .Manager V2 is also the ideal tool for staging applications where multiple Timelines and the ability to play up to 4 video in sync, from the show control PC is a must.

Medialon Manager Lite :
Manager V2 Lite is specifically designed and priced for small installation, where a limited number of devices are to be controlled for only one show at a time. It can also be used as a satellite to Manager V2 software in larger installation. It is limited to the control of 128 DMX channels and can only see one other Manager on the network, and authorizes the programming of 1 Time based task.

The MXMs: Manager Xobject Modules
The MXMs are the essential device interfaces of equipment to be monitored. They can be assimilated to dedicated "active-X's". The MXMs are part of the Medialon Manager design and are integrated into its environment. The MXMs exploit the capacities and performances of the equipment to a maximum but can also recover all information and states of these pieces of equipment so as to integrate them into the programming of the application.

	MANAGER V2	**MANAGER V2 LITE**
Show Control Features		
Device Synchronization	Yes	Yes
RS 232 Control	Yes	Yes
DMX Control	Yes	Yes
More than 128 DMX Channel	Yes	
Midi Control	Yes	Yes
Hardware independent	Yes	Yes
Unique Show Control Features		
Human Interface		
Timeline Metaphor	Yes	Yes
Position tracking	Yes	Yes
Control of Digital Media	Yes	Yes
Control of TCP/IP devices	Yes	Yes
Learn & Edit DMX functionality	Yes	Yes
Project Import	Yes	Yes
Built in video player	Yes	Yes
Multi-task timeline	Yes	
Revolutionary Digital Media & Network Features		
Event log functionality	Yes	Yes
Email functionality	Yes	Yes
Supervisor / GroupWare features	Yes	
TCP/IP Server	Yes	
Http Remote	Yes	Yes
http Server	Yes	
Data base access	Yes	

4 NEW FEATURES IN MEDIALON MANAGER 2

This manual has been entirely revised and applies only to Medialon Manager 2. Users already familiar with Medialon Manager will find numerous upgrades and improvements described in this manual.

The main changes are:

- Visualisation in a "Time line" (or "Track") of "Time Based" tasks.

- Import Menu allowing a new project to be imported into a current project.

- Simultaneous edition of several objects in the "Object Inspector".

- Management of the creation/deletion of Variables in "Devices" (if MXM compatible).

- A "Windows" Menu enabling you to organise working windows on the screen.

- A "Watch Dog" module enables you to monitor the running of Manager.

- "Find" Menu enables you to search for a "Variable" or a "Task" in the "Variables Inspector" and the "Task Inspector".

- "Enable/Disable" Menu for the "Devices".

- A sub-folder ("Image Folder") is created for each project.

- Deactivation of a "Cue".

- "Cue" comment.

- Indication and deactivation of "Cues" affected by the deletion of a Variable.

- Multi-mode time display in "Time Based Tasks" (Frames, TC25, TC100, etc.).

- Recall of the last parameters used for the creation of a user Variable.

- A "Duplicate" menu allows user Variables to be copied.

- The "Group/Ungroup" command is applicable to "Cues" in "Tasks".

- An "Expand/Compress/Distribute" menu is available for "Cues" in "Time Based Tasks".

- The "Preferences" menu allows you to define the creation of a "UserScreen", a "Time Based Task" or a "Step Based Task" when Manager is opened.

- An "Id" column has been added in the "Variables Inspector" and the "Task Inspector".

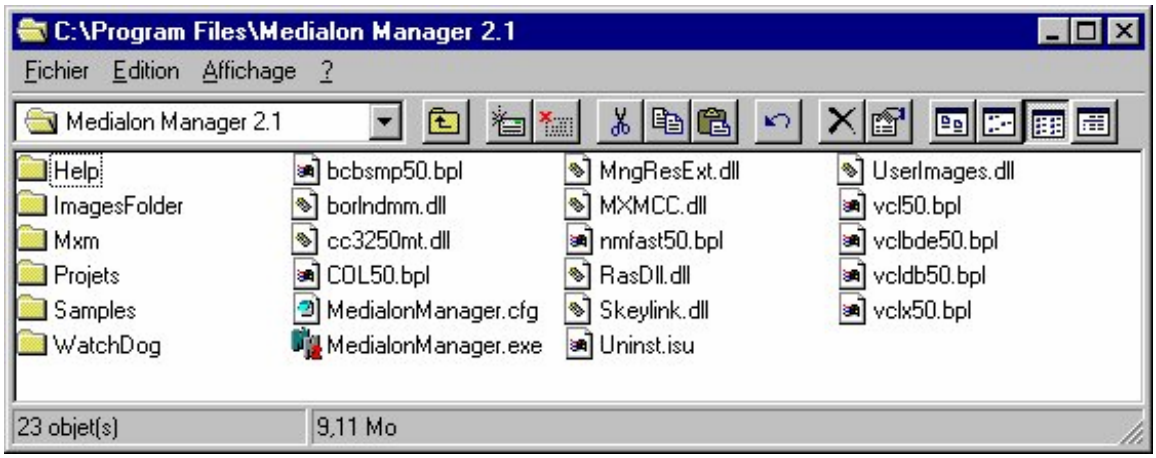
5 COMPUTER CONFIGURATION

Medialon Manager only runs under Windows NT4.0 Service Pack 3 and higher , or Windows 2000. It is recommended that you install it on one unit with a minimum configuration consisting of a Pentium II 300 MHz microprocessor, with 64 Mo of Ram under NT4 and a Pentium III 450 Mhz with 96 Mo of Ram under Windows 2000. In order to display the many windows that may be opened simultaneously, a 17 inch XGA screen (1024 x 768) or more is recommended, particularly when you are in programming mode.

5.1 SOFTWARE INSTALLATION

5.1.1 Installing MEDIALON MANAGER

The installation of Medialon Manager and its MXMs is completed automatically by following the instructions of the installation programme.



The installation folder must display all of the folders and files shown above.

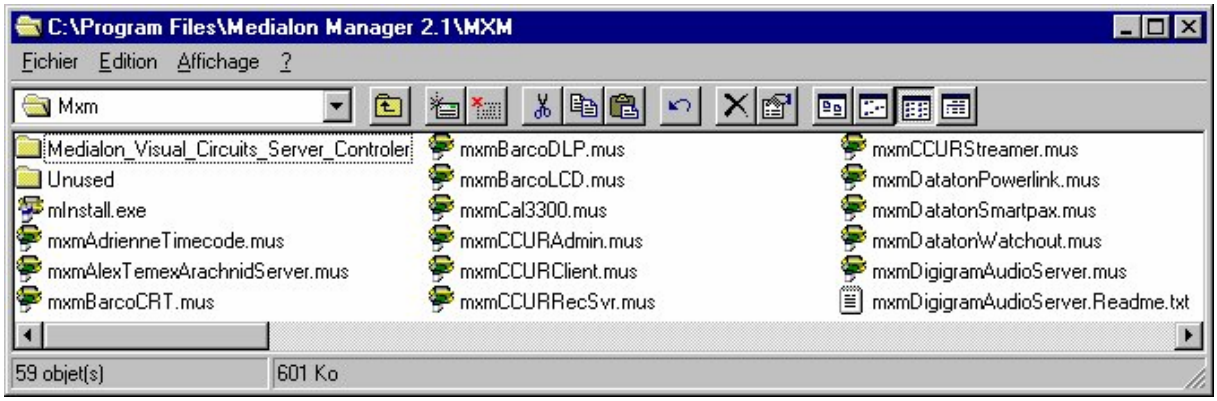
5.1.2 Installing the MXM

When Manager is installed from the CD-ROM, all available MXMs (the number of MXMs depend on the version of Manager you have) are installed, but not activated (marked as unused). MXMs are also provided on CD-ROM and/or on the Medialon website:http://www.medialon.com. This enable you to re-install or update a MXM after Manager was installed.

Before starting programming, you should select (activate) the MXMs you need for your project. This is done with the window 'MXM Setup' from 'File' -> 'MXM Setup' menu.

An MXM installation folder is composed of two or three folders.

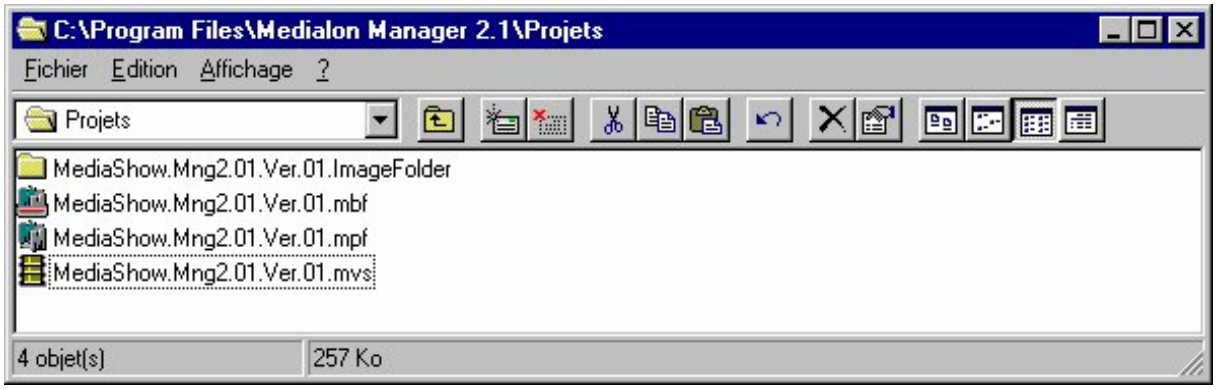
The ".mis" file (Medialon Manager Install Script) enables the installation in the MXM folder where all of the MXMs associated with your Medialon Manager are loaded. A new MXM could be installed double-clicking on the associated '.mis' file. If you download a MXM from Medialon WEB site, you will retrieve a single file which will deal with the complete installation process.



MXMs sometimes require the installation of complementary modules in (or outside) the PC: multiport serial card, DMX 512 card, etc. In some cases, programming cannot be undertaken without the connection of the piece of equipment or software to be manipulated, particularly when it is necessary to repatriate or exploit information in these pieces of equipment or software.]

5.1.3 Organising folders

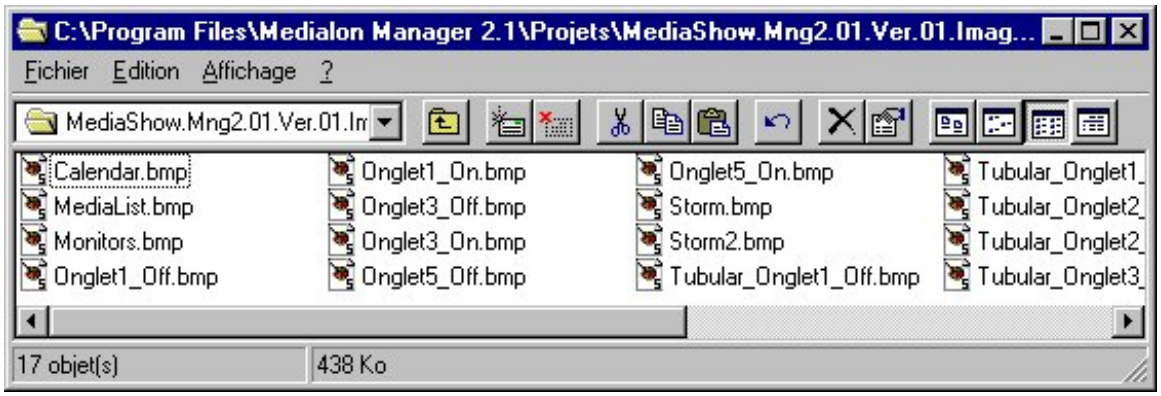
Created projects are saved in the project folder by default.



It is suggested that you keep the folders and files where they have been automatically installed, but you can move them if required.

Several extensions and icons appear:

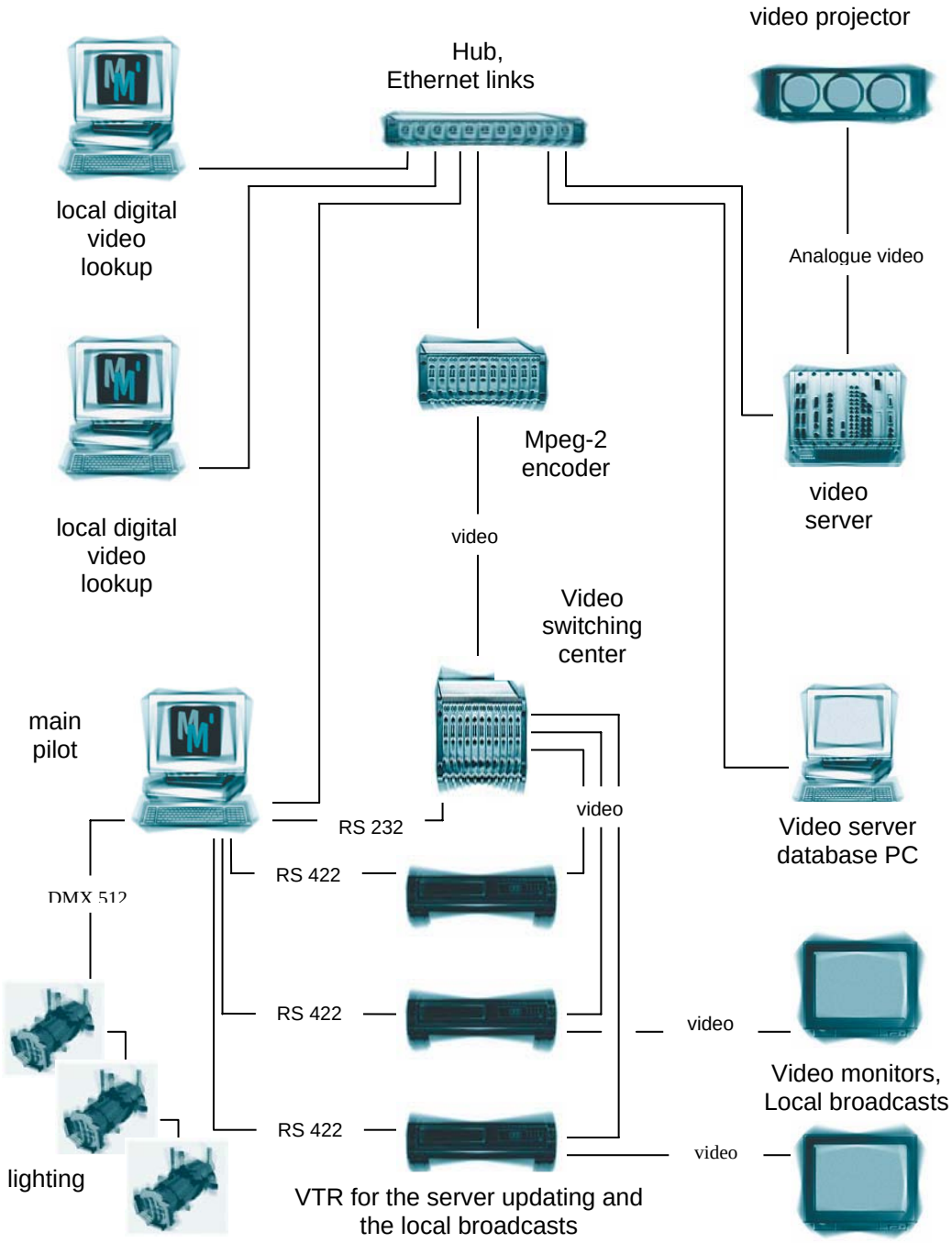
".mpf" : "manager project file", programming backup
".mvs" : "manager variable storage", backup of persistent Variables
".mbf" : "manager backup file", appears following a second backup under the same name, while keeping the previous backup name under the extension ".mbf.".
To be opened, this file must be renamed as an ".mpf" file.
You may come across other extensions specific to certain MXMs, e.g. ".pla" or ".ply" for the "MXM planning and playlist".



The images associated with the "UserScreens" (user interfaces) are stored automatically in an image folder linked to the project and must stay there. This Image folder carries the same name as the project and must not be renamed. For example, if the project is called "Spectacle1.mpf", the folder containing the images for this project will be called "Spectacle1.ImageFolder".

5.2 HARDWARE INSTALLATION

The following example demonstrates some of the communication possibilities of Medialon Manager.
Two Medialon Manager stations can lookup a video server.
Thanks to Medialon Manager Pro, the third station manages the updates of the server and the audiovisual environment of this mini media-library.



6 MENUS

6.1 THE RIGHT MOUSE BUTTON

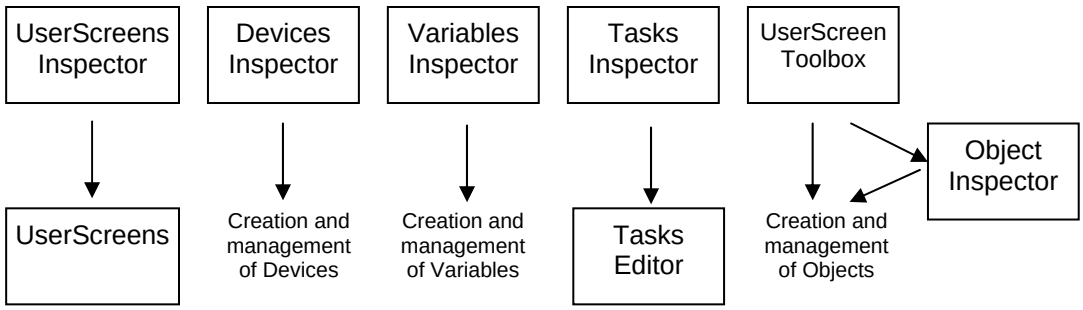
As you will discover, the Right mouse button is used heavily in Medialon Manager, enabling direct access to controls, dialogue boxes, etc. The use of this button is very important when learning this software.

6.2 ERGONOMICS

Medialon Manager works on the principle of windows of adjustable sizes that can be positioned as you like. You can open as many as you like simultaneously, the only limit being how much free space you require on the computer screen. Different categories of window have their own sizing functions, which are associated with automatic page-layout commands, enabling you to optimise the display according to the various stages of programming.
When Medialon Manager opens, it displays the windows that are essential to the first configurations, along with the Main Menu Bar. The drop-down menus include the usual functions of any software (File, Edit, etc.) and menus specific to Medialon Manager. The Main Menu Bar enables you to open work windows and presents the traditional shortcuts as well as those specific to Medialon Manager. When you reopen a particular project that you have already created, the window layout will be the same as when you last closed it.

6.3 INSPECTORS/EDITORS

There are two kinds of windows for programming:
"Inspectors" which supervise an ensemble of elements: "UserScreens", "Devices", "Variables" and "Tasks".
"Editors" which enable the actual creation and programming.
e.g. the "Object Inspector" is the parameter-creation utility for "Objects" chosen on the "UserScreen Toolbox."



Let's proceed with a detailed description of these menus and windows.

6.4 MAIN MENU BAR

It consists of the following drop-down menus:

File/Edit/User screens/Devices/Variables/Tasks/Tools/Windows/Help

The menus may be accessed using the mouse or else by typing **Alt** followed by the underlined letter of the corresponding menu (e.g., for **File.,** type **Alt** followed by **F)**

The bottom half of the Main Menu Bar consists of buttons enabling direct access to the following tasks:

- **Project**: Open, Save As

- **Modes**: Programming, "Debug", "Run".

- **Edit**: Cut, Copy, Paste

- **Opening of Manager screens**: "UserScreen Inspector", "Devices Inspector" , "Variables Inspector", "Tasks Inspector", "Task Editor", "Toolbox", "Object Inspector"

These buttons are activated just by clicking the mouse.
In the drop-down menus, the underlined commands are accessible using the mouse or else via the underlined letter.

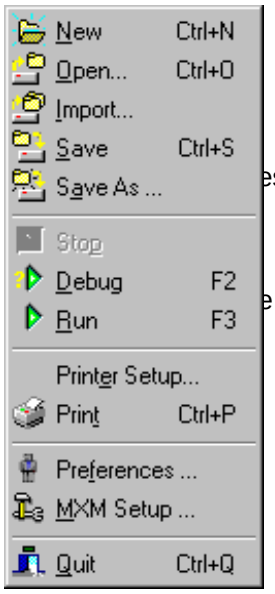
The **Ctrl+F12** shortcut brings the Main Menu Bar straight back into view, an extremely useful function when a number of windows has been opened.

6.4.1 File Menu

Contains the following commands and their shortcuts:

New Ctrl+N Creates a new project

Open… Ctrl+O Opens a saved project



Import… To merge a current project with all or part of another project. You can thus include "UserScreens", Variables and tasks already created in previous projects.
In the case of multiple imports, or if you import a project including already used in the current project, ("Device", Variable, tasks), Manager rename the elements concerned by adding a number to them.

Save Ctrl+S Saves the current project under the current and in the current directory.

Save as…
Saves the current project under another name and/or in another directory.

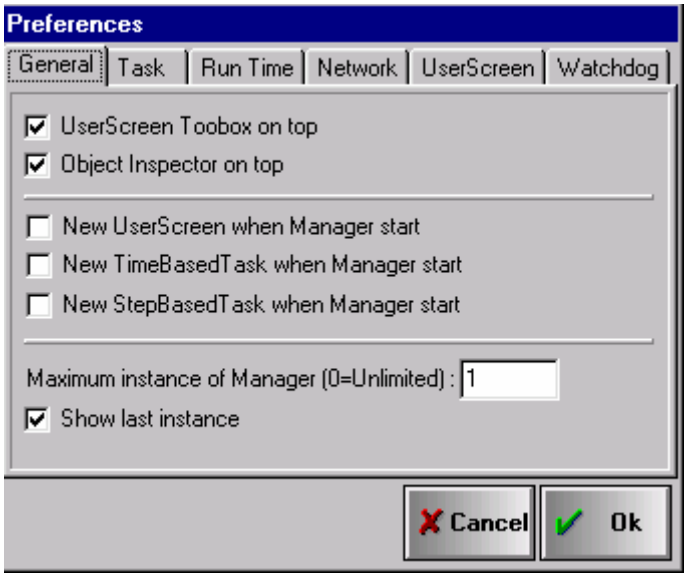
Debug F2
Runs a project with the work windows still open. This enables you to visualise and test the project, whilst still being able to adjust certain Variables and tasks.

Run F3
Runs the programme in its user format (i.e. no interventions possible).

Printer Setup
To configure the printer.

Print Ctrl+P
Launches the printing of Variables or a "Task editor", after having activated the window to be printed, in programming mode.

Preferences…



Launches the "Preferences" window for the configuration of Medialon Manager; contains 6 tabs:

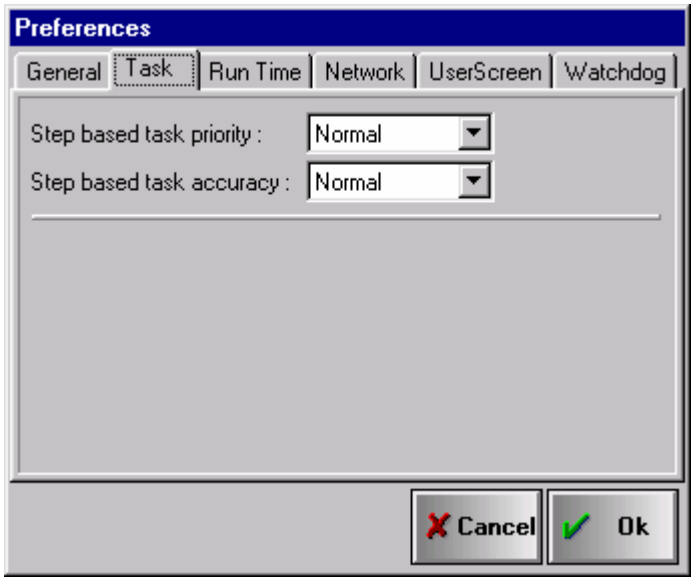
- General
Enables you to choose whether to keep the "UserScreens" and "Object Inspector" windows always displayed in front of any other windows that may be open

Enables you to set which window you wish to be created automatically when you create a new project ("UserScreen", "Step Based Task", "Time Based Task" or none).

Maximum instance of Manager
Enables you to determine the number of times the Medialon Manager applications can be opened (started) simultaneously on the same machine.

Show last Instance:
Enables you to call up the last Medialon Manager application opened, in the event that an attempt to open another Medialon Manager application has been made.
Setting this option for 1 "Maximum instance of Manager" authorises only one Medialon Manager application to be open at any one time; this will be displayed on the foreground each time that a fresh attempt to open another instance is made.

- Task



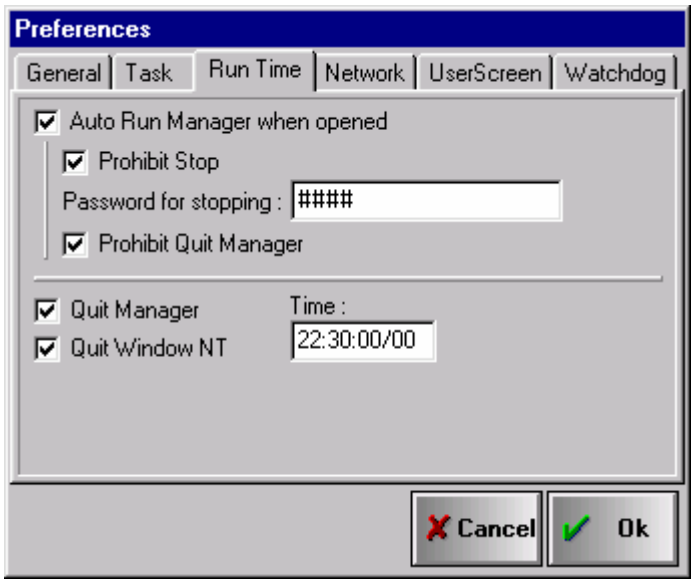
Serves to configure the operating mode of the "Step Based Tasks" by defining level of priority and execution precision:

"Stepbased task accuracy" determines the execution precision of all of the Manager Step Based Tasks. The precision has an effect on the rapidity of execution of the commands present in the tasks. The higher the precision, the more precisely and quickly the tasks will be executed. But increasing the precision also increases the load on the machine's processor and so must be adjusted according to the overall use of the processor by other applications.

"StepBased task priority" determines the priority of execution of all of the "Step Based" tasks in relation to the other Manager modules and any other applications. Execution priority stands for the extent to which the choice of precision for "Step Based" tasks is to be respected. The higher the priority, the more the selected precision will be respected.

"Time Based" tasks are not concerned by these parameters since they are based on a very precise time reference that is independent of the "Step Based" tasks.

- Run Time



Organises the automation of the opening of Manager, of its automatic start-up and, of the end of its operation and even its exit from Windows.
The halting of the execution of a project may also be inhibited or protected by a password.

- "Auto Run Manager when Opened" determines if Manager should be launched in Run mode when a project is opened. This option only applies when Manager is opened via a project, by double-clicking on a Project File icon, for example.

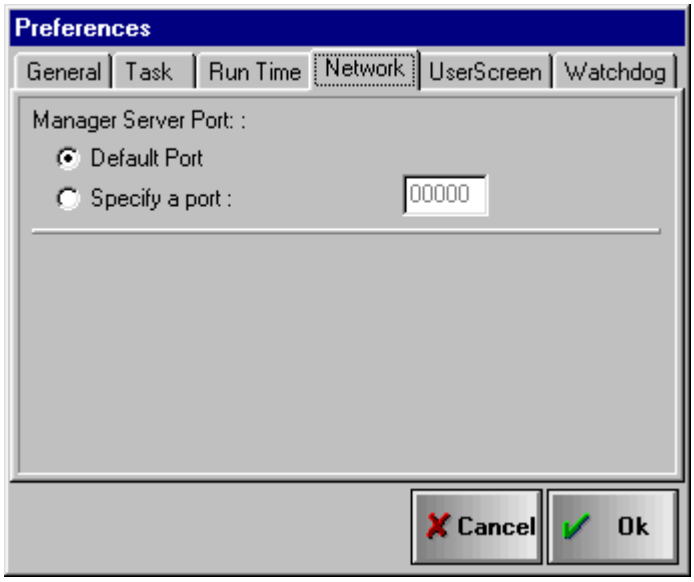
- "Prohibit Stop" conditions the switching of Manager from Run mode to Stop mode by a password.

- "Prohibits Quit Manager" makes it impossible to quit Manager using standard commands, "**Alt F4**", for example.

- "Quit Manager" defines a time at which Manager will automatically quit. This option takes priority over "Prohibit Quit Manager".

- "Quit Windows NT" defines a time at which Manager will automatically quit. This option takes priority over "Prohibit Quit Manager".

- Network



When Medialon Manager is connected to a network it acts as a server.
It handles the Variables which are published on the network. It can send internal commands across the network to another Manager, seen as a client (e.g. "Open UserScreen").

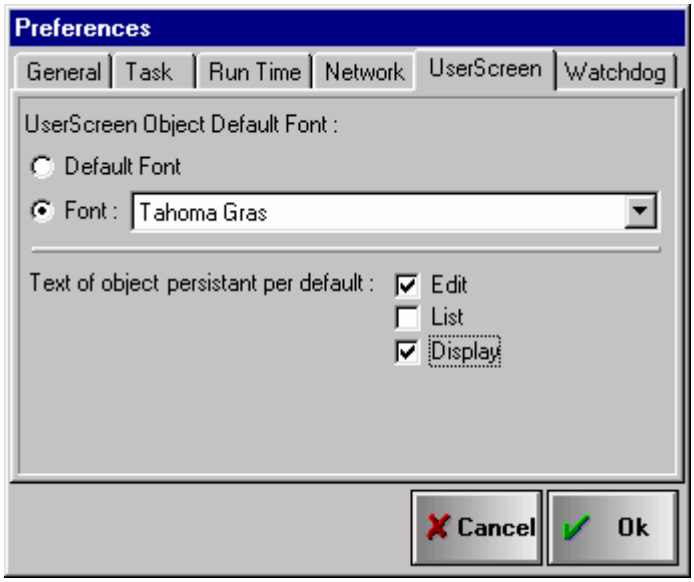
A "Manager on Network" must be created in the "Device" menu, so that another Medialon Manager station may benefit from this client service. This station then acts as client of the server station, benefiting from the Variables published by the server station and may respond to internal commands of this station.

- "Manager Server Port": defines the IP port used by Manager to "listen" to the connections of the Manager client stations.

- "Default Port" selects a default port; in this case the clients must also have the "Default port" option selected in "Manager On Network" ("Device" menu).

- "Specify a port" enables you to choose an IP port number.

- UserScreen

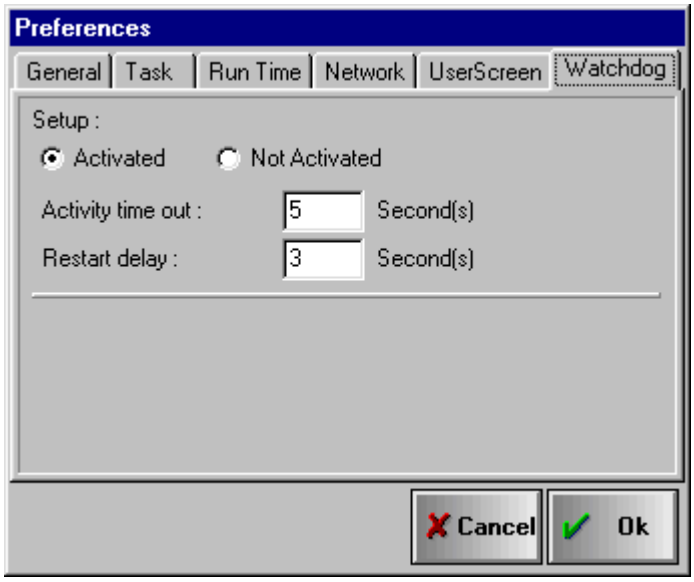


This tab manages 2 kinds of options concerning the text in the "UserScreens":

- "UserScreen Object Default Font" allows you to select a default font, or else specify a particular font to be used when creating an object in a UserScreen that requires text.

- "Text of object persistent per default": Makes persistent by default the contents of text Variables associated with "Edit", "List" or "Display" objects.

- Watchdog



Cyclically controls the proper running of Manager and can reboot it if it freezes up:

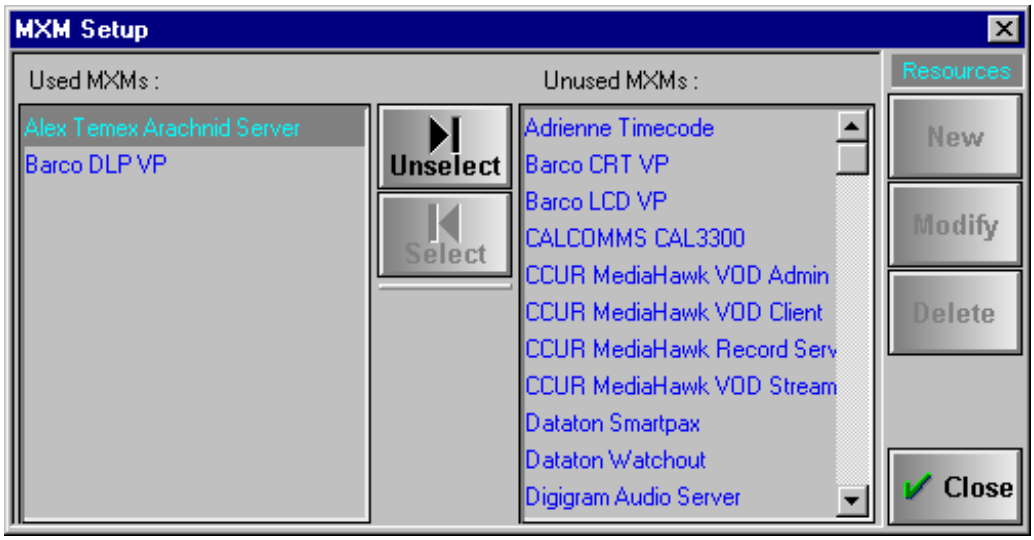
The operating principle of "Watchdog" is as follows:
Medialon Manager "announces" its presence to "Watchdog" and how often it will report its activity to it.
According to the frequency of these reports, Manager sends a signal to "Watchdog" indicating its proper operation.
If a problem occurs in Manager, "Watchdog", which will have ceased to receive these signals, proceeds with a reboot according to the option chosen:

- "Activated/Not Activated" defines whether Manager uses the services of "Watchdog" or not.

- "Activity time out" defines the frequency (in seconds) of Manager's sending of the proper operation signal.

- "Restart delay" defines the time (in seconds) that "Watchdog" must wait before proceeding with the reboot. The value will depend on the size of the Manager project.

MXM Setup
Opens a box consisting of two lists, which enables you to select or deselect the MXMs necessary to the project, from those available on the PC.



The "Used MXMs" list show the MXMs present in the MXM folder and currently loaded in Medialon Manager. The "Unused MXMs" list shows the MXM's present in the "MXM\Unused" folder and which have not been loaded in Medialon Manager.

- "Unselect" enables you to unload an MXM from Medialon Manager and transfer its file to the "MXM\Unused" folder.

- "Select" enables you to transfer an MXM from the "MXM\Unused" folder to the MXM folder and load it in Medialon Manager.

- "Unregister" enables you to unload, unregister and transfer its file to the "MXM\Unused" folder.

- "From File" enables you to unregister an MXM from its file, in the event that the MXM has not been loaded in Medialon Manager.

All the MXMs use one or several resources.
The resources are divided into two categories: standard resources and "custom" resources.

Standard resources are those that are either present in a PC or else connected to it via a serial port, the TCP/IP network, the MIDI interface sound card, etc.

"Custom" resources are those specifically provided by the MXMs, a DMX or Time code card or the software of the Planning MXM, etc.

The "New", "Modify" and "Delete " buttons of the "Resources" column enable you to manage the "custom" resources provided by the MXMs. If the MXM selected in the "Used MXMs" list does include any specific resources, then these buttons are grey.

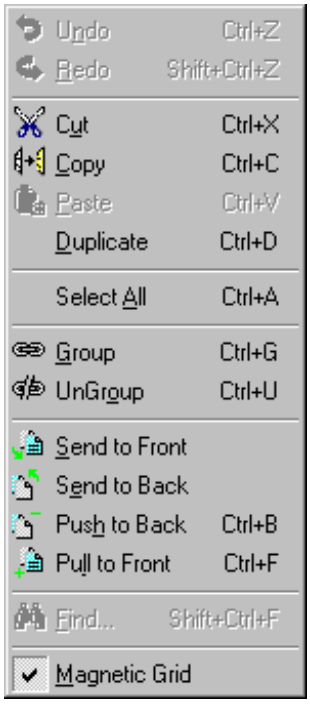
When an MXM is loaded for the first time then its licence n° is requested.

Quit Ctrl+Q

Quits Medialon Manager after a Save request if that has not already been done.

6.4.2 Edit Menu

This menu combines traditional edit functions with those handling graphic objects. These functions are active only when an element is selected.



Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Duplicate Ctrl+D
Select All Ctrl+A

The commands hereunder apply to graphics in elements of the "UserScreens" selected as well as to "cues" in tasks and Variables.

Group Ctrl+G
UnGroup Ctrl+U
Send to front
Brings up an object (or group of objects) into foreground.
Send to back
Returns an object (or group of objects) to the background.
Push to back Ctrl+B
Pushes an object (or group of objects) one level towards background.

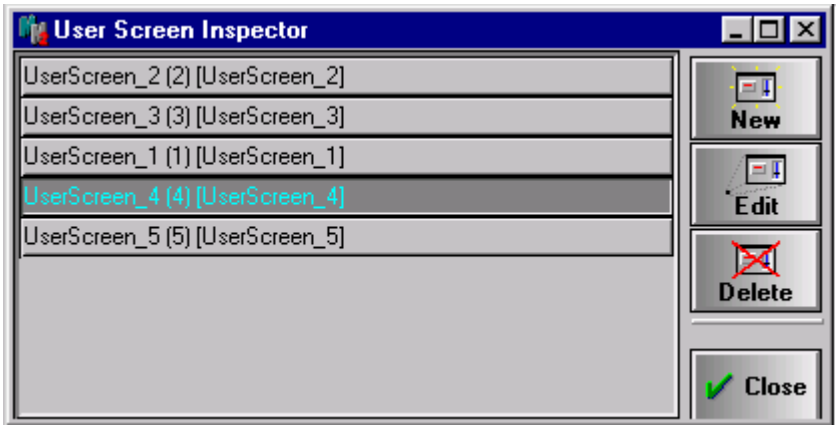
Pull to front Ctrl+F
Pulls an object (or group of objects) one level towards foreground.
Find… Shift+Ctrl+F
Searches for a Variable or a task after having opened the Variable Inspector window or the Tasks Inspector window.

Magnetic grid
In the "UserScreens", the Magnetic Grid enables you to position objects in relation to each other at distances defined by the virtual grid. This grid is shown by points on the "UserScreens".

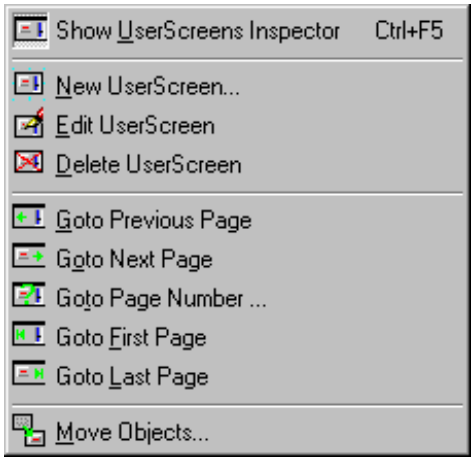
6.4.3 UserScreens Menu

The "UserScreens" are graphic interfaces which enable you to dialogue and interact with the application. The "UserScreens" are the visible parts of the programming. They handle user requests and send them to the task motors. There is a large graphic capacity available to modify the ergonomics and aesthetics of these man-machine interfaces.

Show UserScreens Inspector Ctrl+F5
Opens or brings to foreground the window listing all of the "UserScreens" already created. The "UserScreen Inspector" window enables you to create, edit or delete the "UserScreens".



The "New ", "Edit ", and "Delete " buttons enable you to create, edit and delete a "UserScreen".
These three commands are also accessible via the "UserScreens" drop-down menu and concern the "UserScreen" currently being edited.



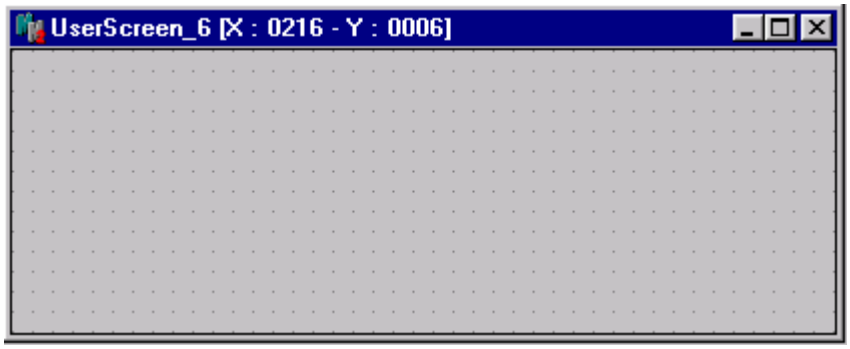
"Goto Previous Page", "Goto Next Page", "Goto Page Number", "Goto First Page" and "Goto Last Page", enable you to move through the various pages of the "UserScreen" selected.

"Move Objects" enables you to move one or several objects selected from one page to another. This command works not only in the current "UserScreen" but also between various "UserScreens" already created.

You can create an unlimited number of "UserScreens" each one consisting of between 1 and 999 pages.

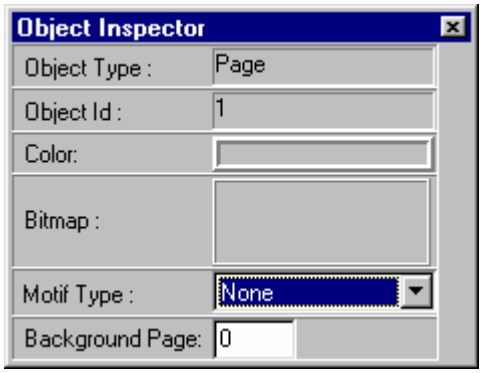
6.4.3.1 Creating "UserScreens"

When the "New UserScreen" command is activated, the 640 x 480 pixel window opens (its size can be changed).



The points represent magnetic anchor points, which assist in the layout of objects. Using the right mouse button will set you free.
The X and Y values indicate the exact position of the point selected.

A double click on the surface of the "UserScreen" opens the "Object Inspector" dialogue box:

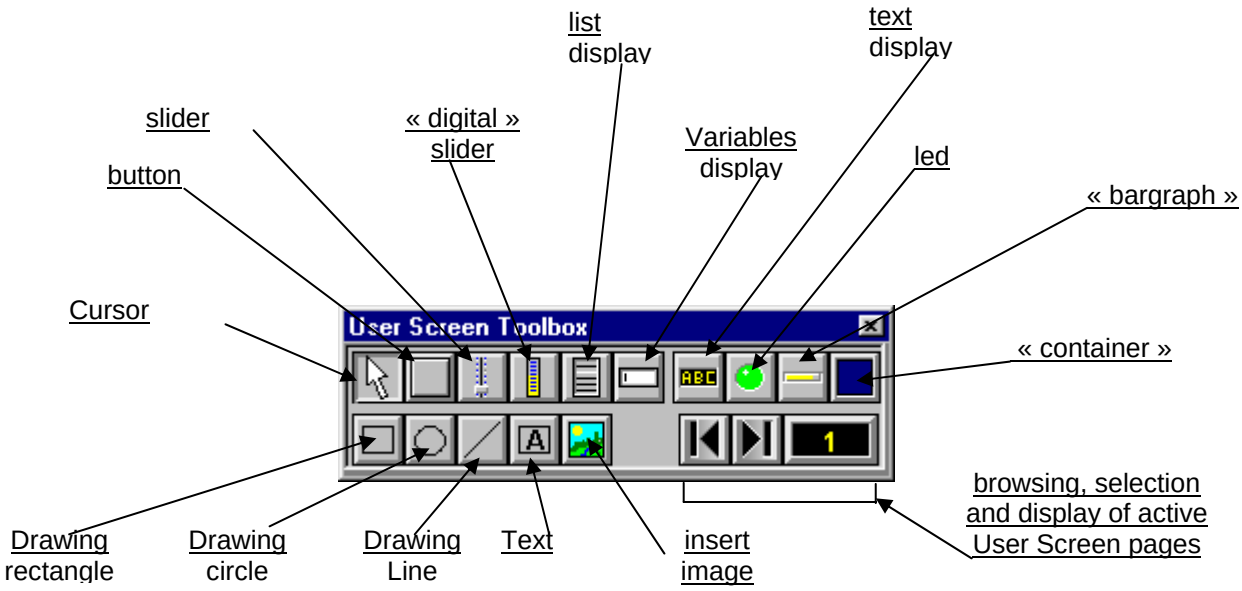


This box enables you to choose a background for this page, either a colour or a "Bitmap" image, which may be repeated as a motif.

The "Object Inspector" is thus focalised on the background of the current "UserScreen" page.
We will see later on that the "Object Inspector" displays only the fields relating to the object selected.

6.4.3.2 The "UserScreen" Toolbox window

By selecting UserScreen Toolbox (Ctrl+F9) in the Tools drop-down menu you can reach the available tools via the window shown below:

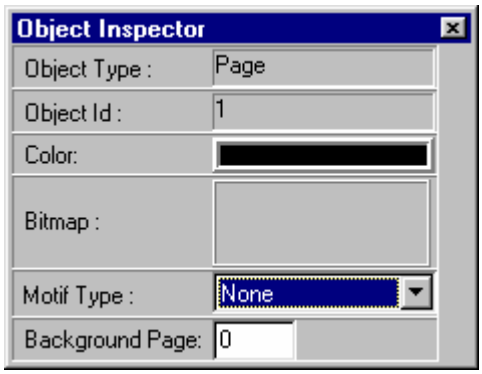


The tools are grouped into three categories on this palette:
The top line contains the "active" tools associated with Variables and/or possessing a dynamic display.
Bottom left are the "passive" tools, just for drawing and writing.
Bottom right are the commands for browsing UserScreen pages.

In the above example a number of the tools proposed by the Toolbox have been used:
buttons, a list display, a container displaying video, and graphic elements (rectangles, an oval and text).

6.4.3.3 The "Object Inspector" window

The "Object Inspector" is accessed from the "Tools" menu by double-clicking on an object placed on a "UserScreen". The "Object Inspector" has various functional and aesthetic configurations, related to the object selected.

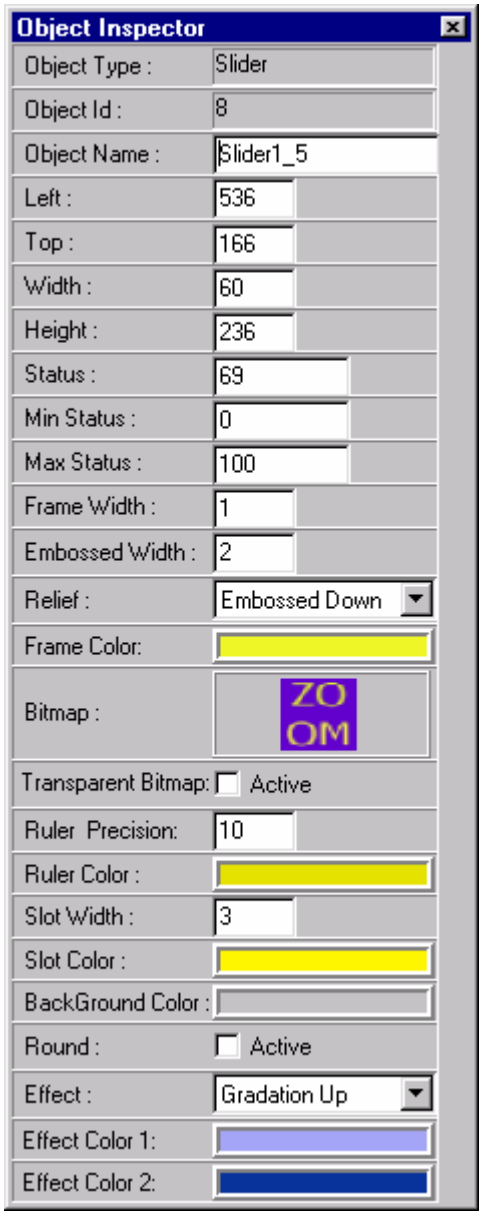


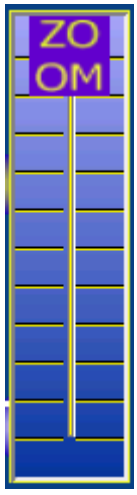
The Object Inspector adapts itself to the object selected and refers to the object whose parameters it defines. But since active objects are more complex, they are identified by a number (I.D.) that is incremented automatically when new UserScreen pages are created. They can also be named.

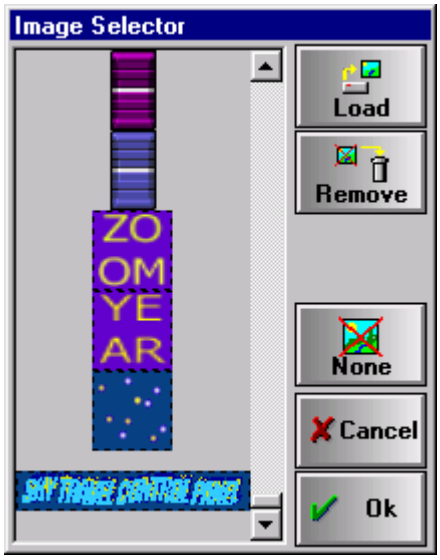
To illustrate some of the windows associated with the Object Inspector, let's have a look at the UserScreen below.

It consists of one page, three Variable-displays (which will be chains of text in this project), three "sliders", three buttons, and blocks of text.
The windows which follow show some of the diversity of parameter-settings that are accessible according to the nature of the objects.

For the background we have chosen a pattern (.bmp - bitmap), which could have been reproduced as such or else fitted to the size of the page (stretch). Here it has been reproduced as a pattern (motif), using the "Motif Type" command.
One of the "sliders" is circular: it has been entirely created using Manager tools.
The two others have been personalised by importing buttons drawn in "Bitmap" format.

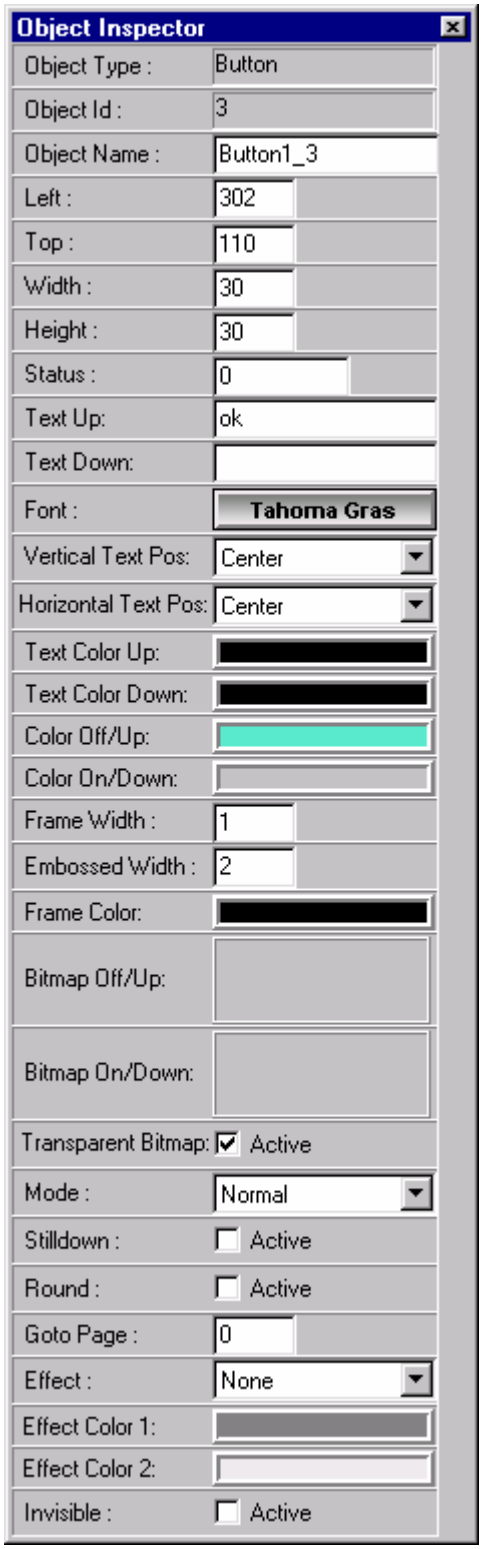






The "Object inspector" box above is that of the "ZOOM" Slider.

Click in the "Bitmap" field and the "Image selector" opens, proposing a large quantity of icons provided by Manager.
You can add symbols to personalise the "UserScreens", like the background image, the title and the buttons of the "ZOOM" and "YEAR" sliders in this example.

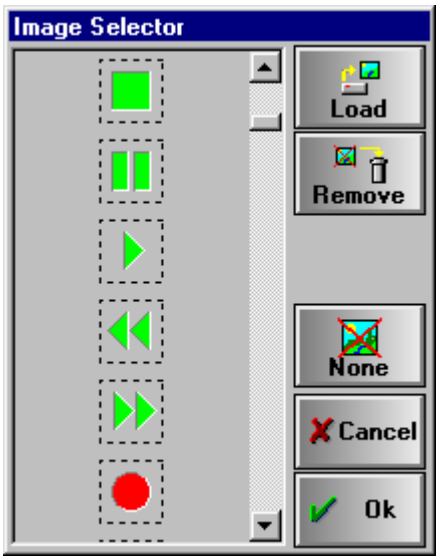


In our example the "ok" button is very simple but the numerous parameters accessible via the button's "Object Inspector" can turn it into an extremely sophisticated element.

Apart from its graphic appearance, the operating mode of the button will be determined when it is created:
- "Normal": push-button with systematic return to the "Out" position,
- "Toggle": it remains engaged after one push, and disengages on the second push,
- "One time": for single use; once the button has been pushed in, it can only be disengaged by being programmed.

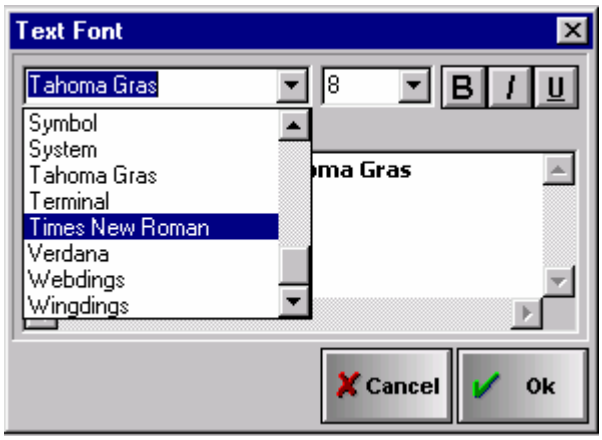
A button can also be rendered invisible, to serve as a sensitive area on a graphic element, for example.

Finally, the "Image Selector" proposes numerous symbols for buttons.

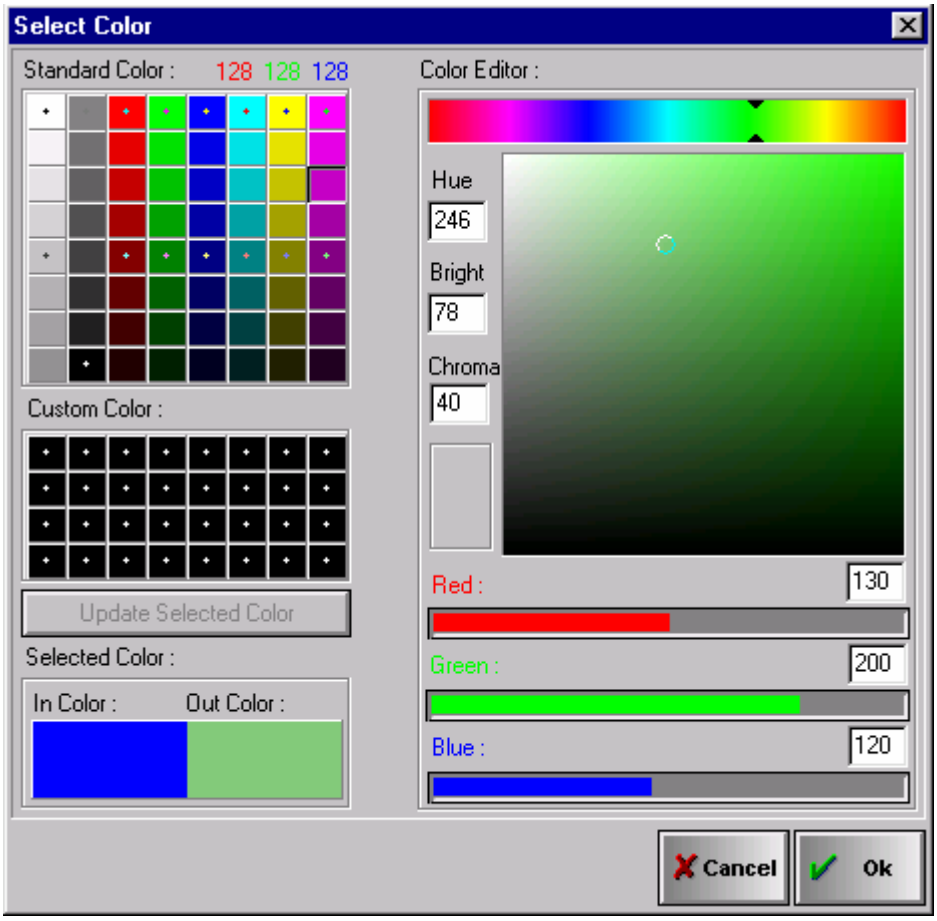


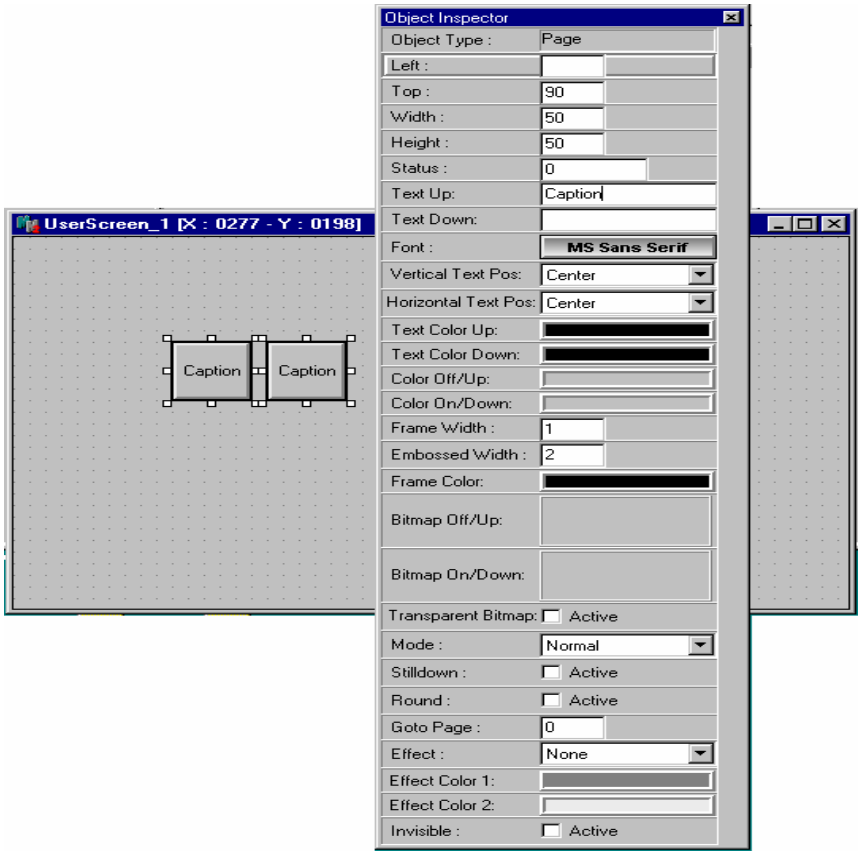
When "Object Inspectors" are concerned by text or colour parameter settings, they open the following boxes, enabling a wide personalisation of objects.

- Selection of a font and its attributes:



- Selection of a colour



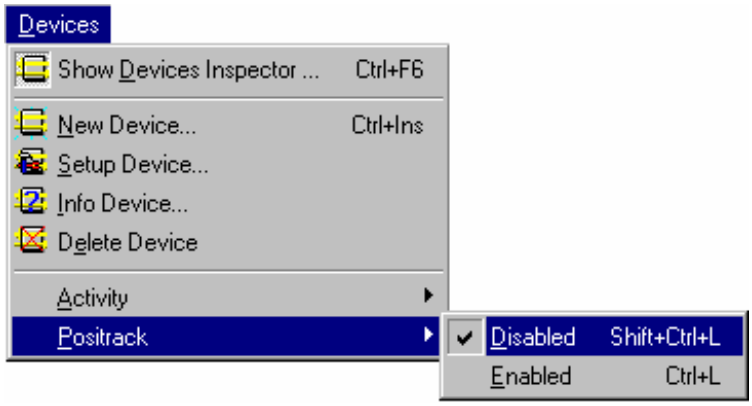


If more than one object is selected, the object inspector allows to change the common objects properties at the same time. If the selected objects are similar (2 buttons in our case), the object inspector allows to configure all the objects properties. If the selected objects are different, the object inspector only displays the common properties.

6.4.4 Devices Menu

The "Devices" are the machines or services that Medialon Manager will control, via the MXMs and the hardware interfaces connected to it. They appear as icons in the "Devices" window.

Show Device Inspector Ctrl+F6
Opens the window listing all of the "Devices" already created. The Device Inspector window enables you to create, edit or delete the "Devices" as well as to select "Devices" during programming.



New Device… **Ctrl+Ins**
Setup Device…

Info Device…
Delete Device…

These last three commands are also accessible via the Device Inspector window.

Activity… Activates or deactivates the "Device" selected. The commands associated with the deactivated "Devices" will not be executed, although even when deactivated the Variables of the "Device" will continue to reflect the state of this "Device", so that when it is reactivated it will still be in the state it was in when it was deactivated.

Positrack… Activates or deactivates "Positrack" .
"Positrack" is a function which enslaves the selected "Devices" to a TimeBased task, as long as these "Devices" are capable of functioning in this way (see ch. 6.4.4.1).

The activation and deactivation of "Positrack" can also be accessed by clicking on the "Device" in the "Device Inspector" with the right mouse button.

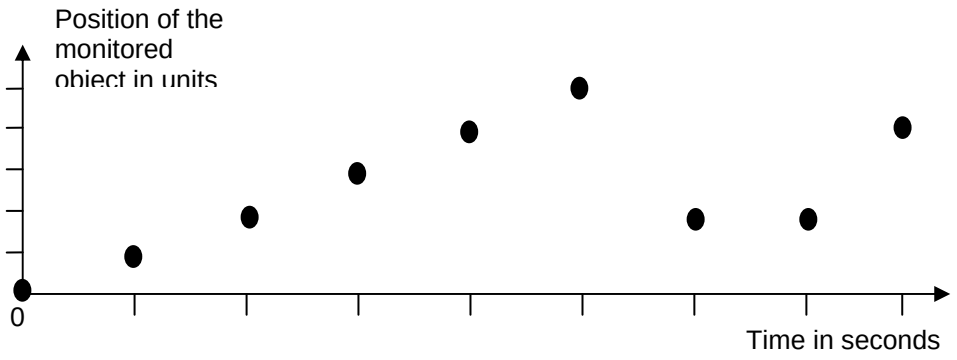
The "Device" Manager itself is affected neither by its deactivation nor by its enslavement to "Positrack".

A "Device" can be both deactivated and relieved enslavement to a TimeBased task. Little icons attached to the "Devices" concerned, in the "Device Inspector", remind you of their state of activation/deactivation.

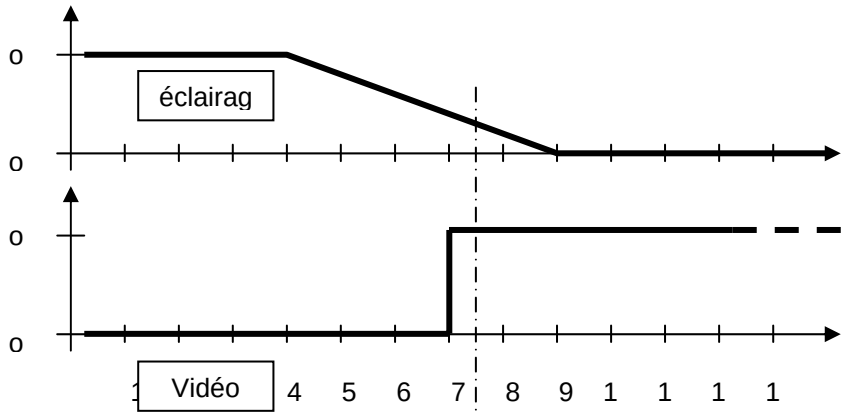
6.4.4.1 Note concerning "Positrack"

"Positrack" is a mechanism that enables an event sequencer to recalculate the state that the objects monitored had at any moment in the sequence .

If the time pointer is repositioned at another point in the sequence, the "Positrack" mechanism enables Manager to reposition the objects monitored in the state that they should be in at this precise time.



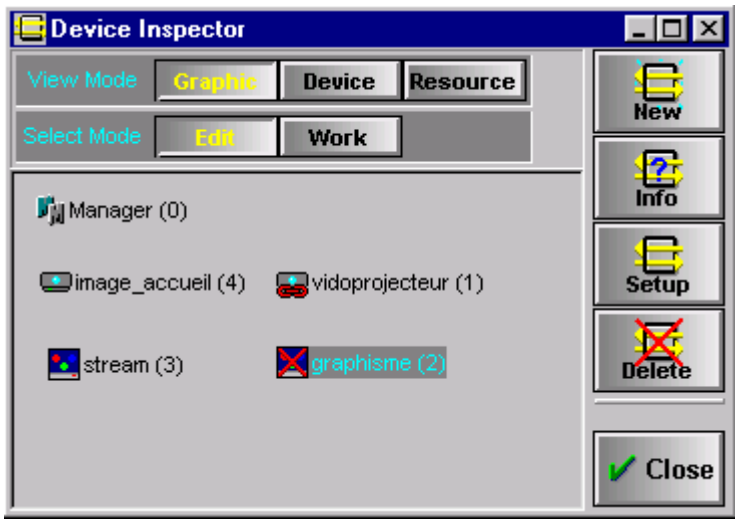
At time 0, the object is at position 0, at time 1 at position 1, etc. Then at time 5 it is at position 5, at time 6 and 7 it is at position 2, and at time 8 in position 4.
If the sequence reaches time 6 (position of object 2) and the sequence is repositioned to time 2, the "Positrack", mechanism will reposition the object in position 2, that is to say the position that the object was in when the sequence was 2 seconds from the start.
Now, if the sequence is at time 3 (position of object 3) and the sequence is repositioned to time 7, the "Positrack" mechanism will reposition the object in position 6, that is to say the position that the object would be in if the sequence was 7 seconds from the start.
This "Positrack" mechanism enables you to reduce the programming time of a sequence of events when it is necessary to run this sequence several times so as to adjust each event (here the position of the object) whilst enabling you to restart the sequence at any time point.



In the above illustration, "Positrack" is engaged, following a return to time T, enabling the lighting to be reset to 30% and the video player to be repositioned at 0.5 seconds from the start of its sequence. Manager recalculates the states at a given time, but the speed at which the return to these states is made depends on the type of machine monitored.

6.4.4.2 Device Inspector

By default, the "Device Inspector" window always displays at least one "Device", that of the Medialon Manager station on which you are working. It bears the creation n° (0)



In "Graphic" mode, the "Device Inspector" above indicates that one of the video projectors is not enslaved to "Positrack" and that one of the graphic cards is deactivated.

6.4.4.3 The "Device Inspector" window proposes three display modes:

- **Graphic**
- **Device**
- **Resource**

"Graphic" mode is the default display mode, and that which is illustrated above.
It displays the "Devices" created, with the identification n° (the figure in brackets) they were assigned upon creation, which is incremental and cannot be changed.

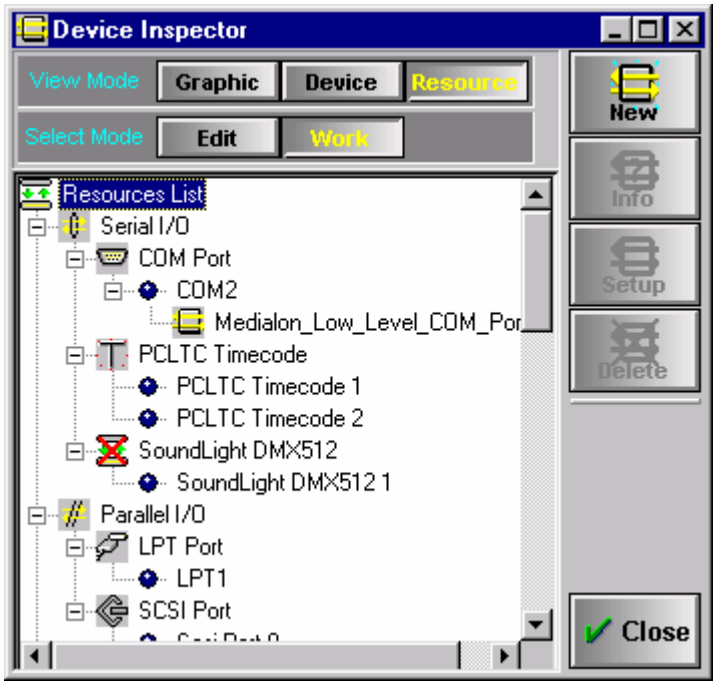
In the event that a "Device" is deleted, the numbering of the remaining "Devices" does not change; the incrementing of the numbering of any new fixtures will continue after the system has reused the numbers made available by the deleted "Devices".

Be careful not to confuse the Medialon Manager "Device" n° (the figure in brackets) with the number suffixed to the name of a "Device", in the event of a default creation of a "Device" name by the MXM.
Remember that the "Medialon Manager Device" installed on the workstation always carries the "Device" n° (0) and that no change is possible to the Manager "Devices".

In "Device" mode, the "Device Inspector" window (as seen on the previous page) looks as follows:

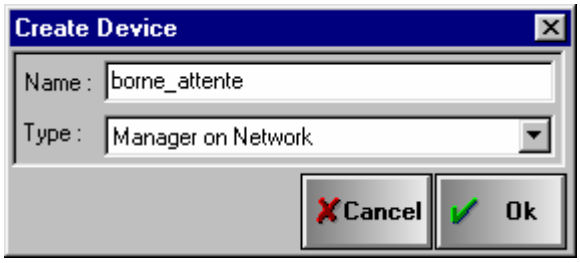
For each "Device" the Hardware or Software configuration linked to each MXM is displayed.

When "Resource" is displayed, the window looks as below (partial view) and shows all of the computer's communication capacities.



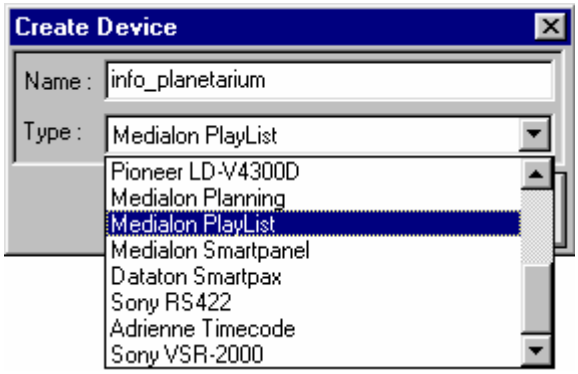
6.4.4.4 Creation of "Devices"

The "New Device" command is accessible either via the "Devices" drop-down menu, or else via the "Devices Inspector" window.
The creation window is the following:



The second field enables you to choose from the various types of "Devices" installed on the computer that have been saved.

You choose the "Device" and can name it:

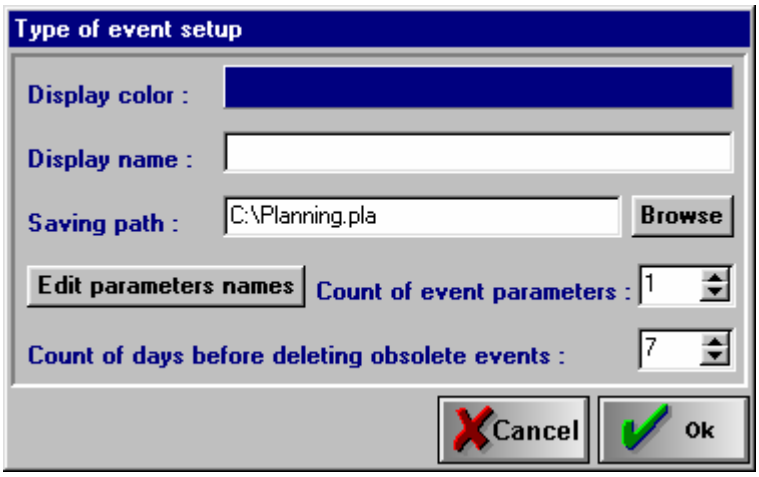


Validating the above window opens another configuration window, specific to each "Device". It must be filled in so as to create the Variables and to enable the individual configuration of each "Device".

Changes to these parameters are possible via the "Setup" button of the "Device Inspector" window. However, it may be necessary, according to the changes, to update the programming lines concerning this modified "Device".

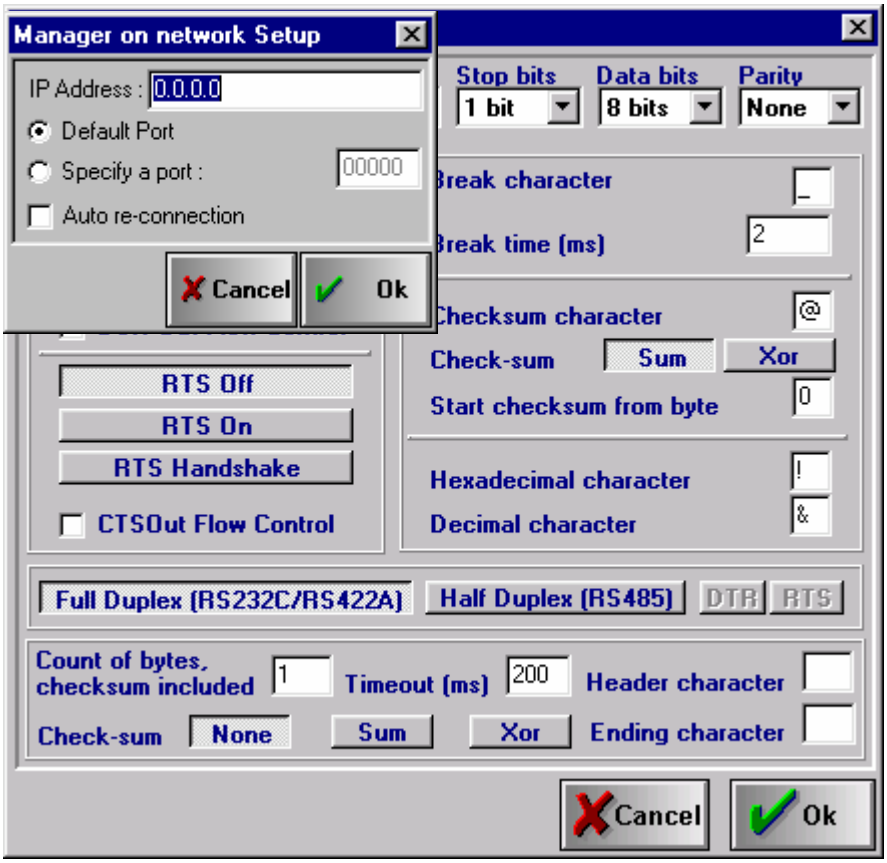
- Examples of "Devices" parameter inputs windows:

MXM Planning configuration window for a "Device":

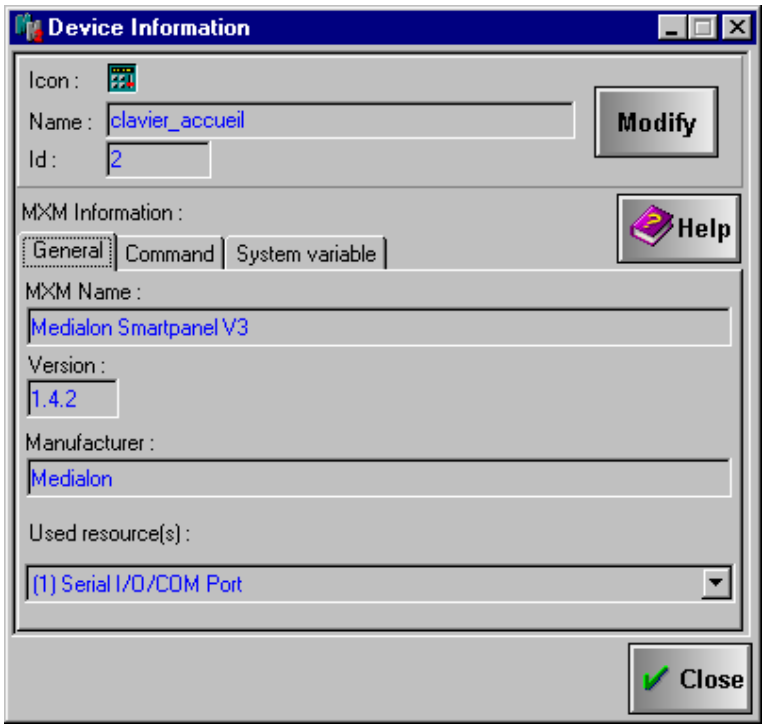


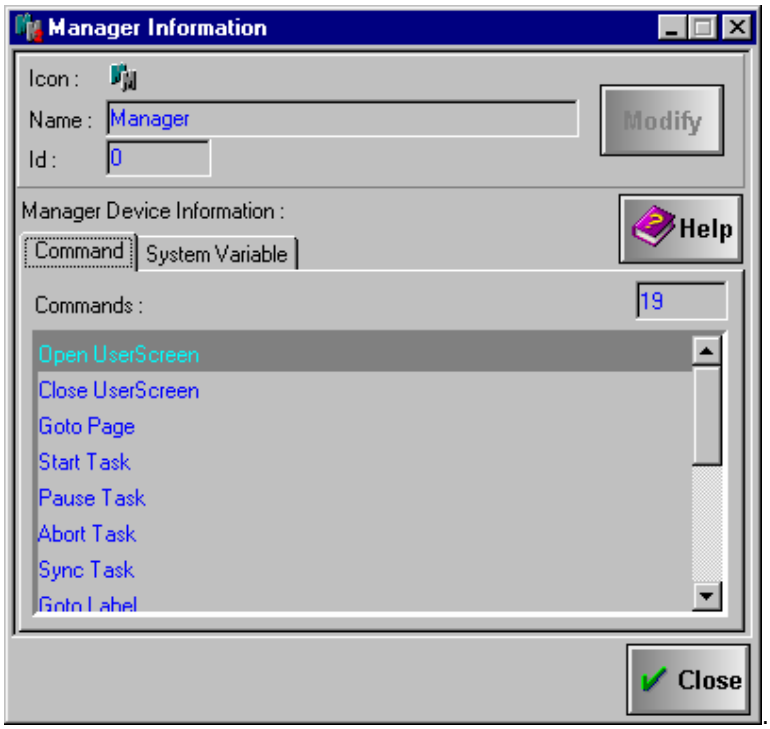
"Manager on network" configuration window for a device:

MXM "Low Level Com Port" configuration window for a "Device":



"Device Inspector" (continued)
The "Device" drop-down menu, just like the "Device Inspector" window, enables you to access information concerning the "Device" selected.

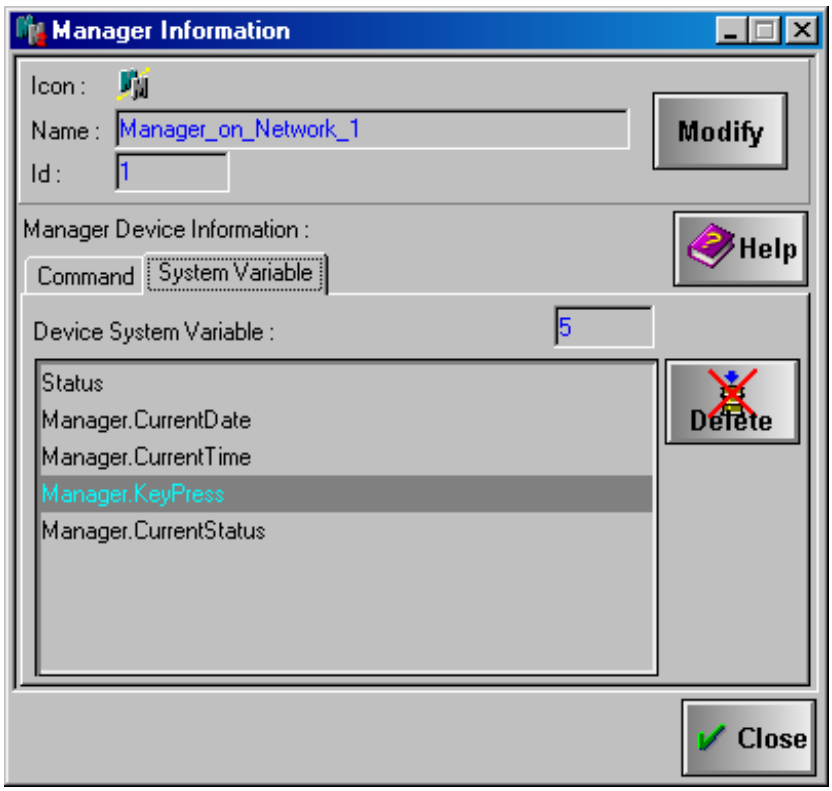




The information window of a "Device" consists of 4 tabs providing general information (MXM name, version, name of MXM manufacturer, list of resources used by the MXM), list of available commands, list of Variables for this "Device" and a Help section.
(MXM Help is available in "html" format and is supplied with the MXM).
The information window of the "Medialon Manager Device" contains only the commands list and the system variables tab.

The "Modify" key, when displayed, enables you to rename the "Device".

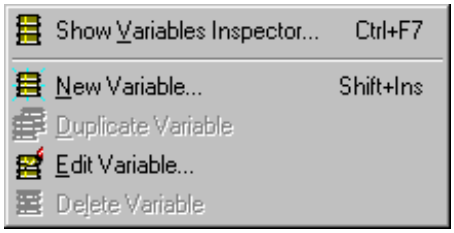
This does not cause any modification to the programming, since the updating of the Variables and of the tasks is automatic.



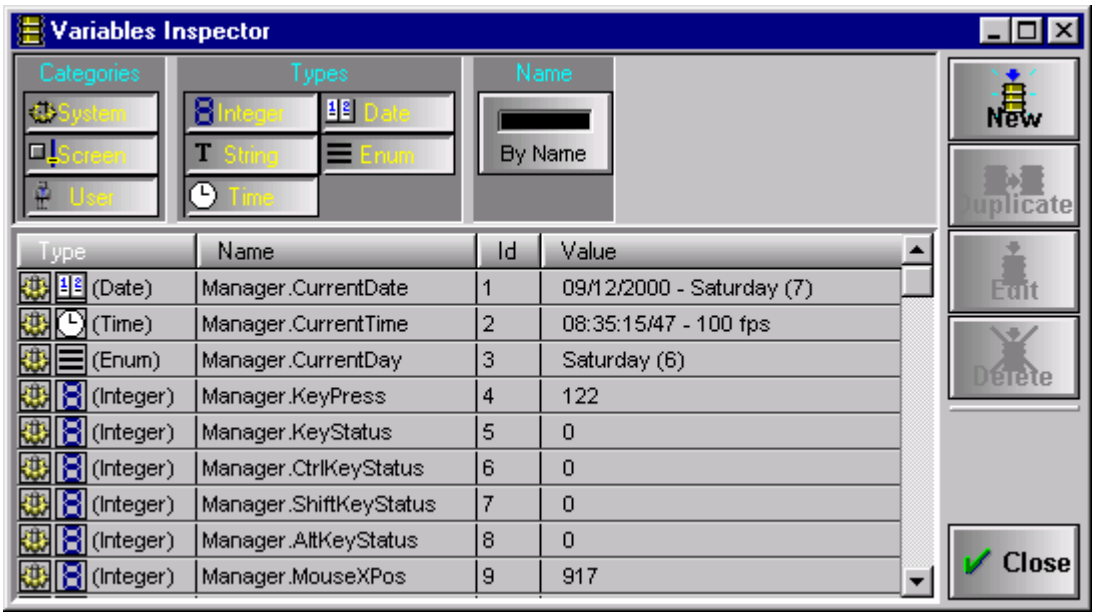
The Manager Information dialogue box of the device "Manager On Network" allows you to check the system variable. What's more, you can delete one or several system variables of this device, by selecting the variables and pressing the "delete" key.

6.4.5 Variables Menu

The Variables are containers of value. They are expressed as alphanumeric values which will be used for the calculation and execution of tasks.
The Variables may characterise the states or actions of "Devices" and objects present in the "User Screen". Independently of the Variables associated with the "Devices" and "User Screens", "user" Variables may be created according to programming necessities.



Show Variable Inspector Ctrl+F7



Opens or brings into view the window listing the Variables associated with the "Devices" already created.
The "Variables Inspector" window enables you to create, edit or delete the Variables.
The "Variables Inspector" window enables the Variables to be displayed by category and type (see following page). Here is where some of the Variables associated with the "Medialon Manager Device" are displayed. The Variables below are those presented by default.

New Variable … Shift+Ins

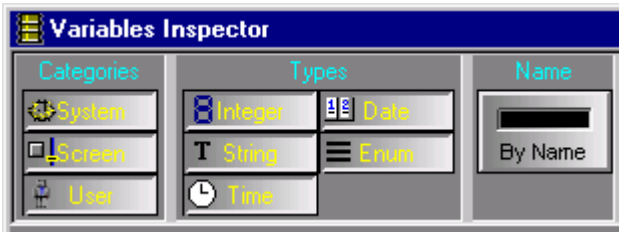
Duplicate Variable
Edit Variable …

Delete Variable …
This command only applies to "user" Variables, that is to say those created by the programmer. The other Variables are automatically generated by the creation of objects or "Devices", and are deleted when the object or "Device" to which they refer are deleted, except those concerning Manager which cannot be deleted. Note that only manager on Network's variables system can be deleted in the information dialogue box (See below).

6.4.5.1 Organisation of Variables

After having chosen "Devices" and created "User Screens", you may find yourself with a large number of Variables, in addition to those that you have created for your own use ("Users" Variables).
So as to facilitate the reading of the "Variables Inspector" window and of the one displaying the Variables available for programming, you may select display-filtration criteria.
The criteria are the following:

-Categories
-Types
- Name



- Categories

There are three of them:

- "System": these are the Variables proper to Manager (0) and to other "Devices".
They cannot be deleted. (Except Manager On Network) There are 16 Variables per Manager station.
They are present if the stations are connected, declared and "visible" on the network.
The Manager Variables concern the date, hour, states and actions of the keyboard and the mouse.

- "Screen": Each "UserScreen" is associated with a Variable (its page numbers).
Each active object also generates one or several Variables.
The Variables linked to the "User screens" cannot be deleted.
They disappear only when the object or "User Screen" that created them is deleted.

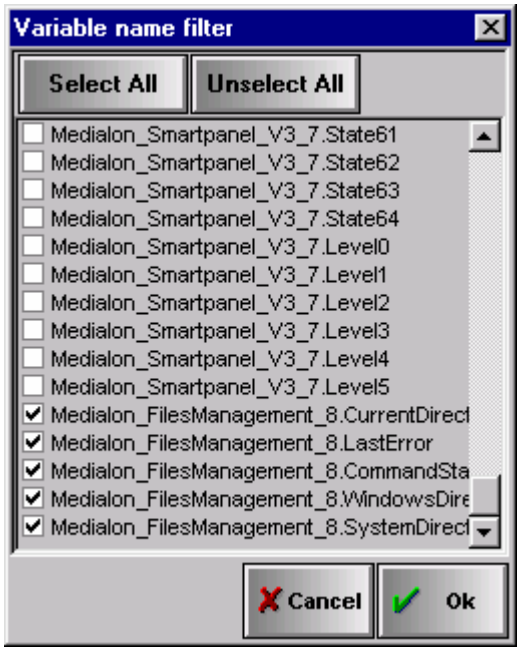
- "User": These are the Variables created by the programmer.
They can be easily modified or deleted.

- Types

There are five of them:

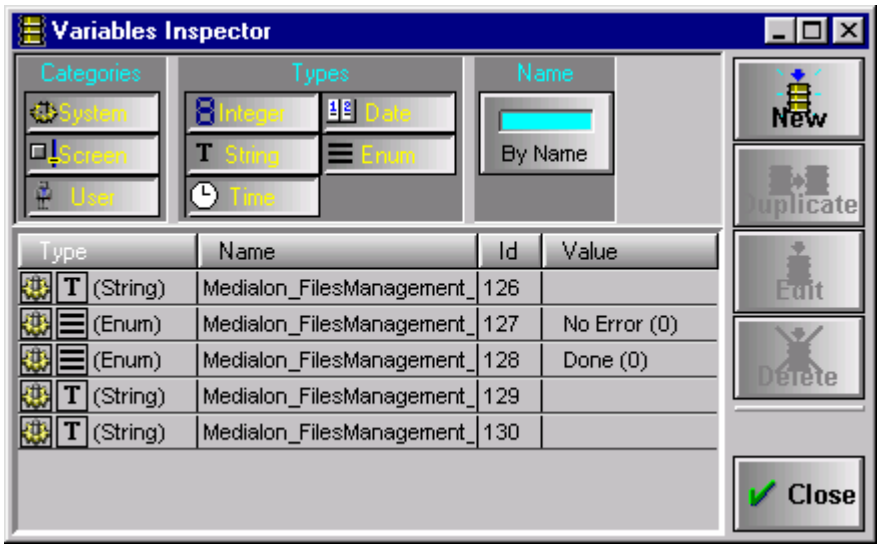
- Integer : Contains whole numbers
- String :Contains chains of alphanumeric characters
- Time : Contains time information (Time Code, time, etc.)
- Date :Contains dates
- Enum :Contains lists

Organisation of Variables (continued)
Name



This selection criterion operates on the basis of "Device" and objects names.
The Variables are sorted by "Device" or the object to which they refer.
You can thus select, for better visibility, only the Variable that you truly require, during a test session for example.
When deselecting by name, the "By Name" button in the "Variable Inspector" menu changes from black to blue. This button opens the "Variable Name Filter" window.
Keeping the "**Ctrl**" key pressed down you can select (or deselect) all the Variables for a single "Device".
The Variables that have been deselected can only be redisplayed in the open window by pressing the "By Name" button.

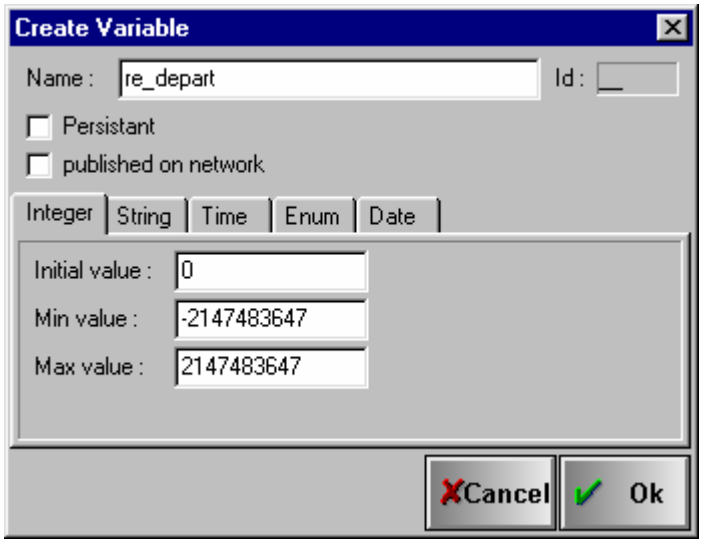
Filtering by name may be complemented by a filtering by category or type.



The above display is a result of the selection illustrated previously. This enables you to momentarily limit the display to the Variables that you need to access. By pressing the CTRL_key and selecting one type, buttons become exclusive. (Only one type is selected)

6.4.5.2 Creation of Variables

You can create a Variable either by using the "New" button of the "Variables Inspector", or the drop-down "Variables" menu, or else the keyboard shortcut "Shift+Ins". The following window is then opened:



The Variable must be given a name, which has not already been used, and which does not include characters used for operations, for example: / +: -, etc.
A free space will be systematically filled by an underline character.
For example: it is not possible to name a Variable "on/off", but "on_off".

The Variable number (case Id) is allocated by automatic incrementing when the "Create Variable" window is closed: this number will be found in the "Variables Inspector".
This Variable number is used by the tasks and cannot be modified; it will only disappear when the Variable itself is deleted.

When Variables are created, Manager proposes, by default, the values of the Variable created previously. In the same way, when a Variable is duplicated, the Variables thus created take the name of the Variable copied, and are allocated an automatically incremented number.

If a Variable is deleted, the remaining Variables keep their original number.
A new Variable will automatically take a free number, following a deletion.

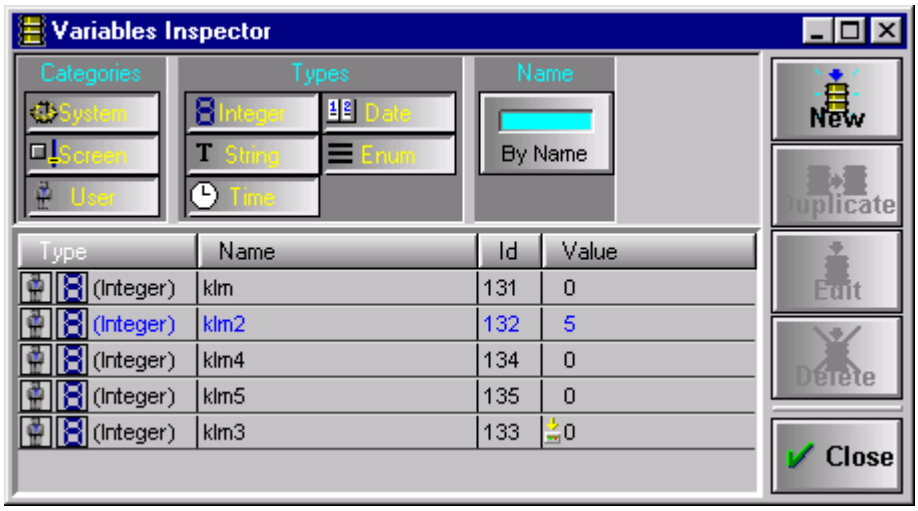
- "Persistent" and "Published on the network":

A persistent Variable will have its value memorised when Medialon Manager is switched off or even after an unforeseen power cut, and re-established the next time that Medialon Manager is opened.

A Variable published on the network will be available to the other Medialon Manager stations (client stations). It can be used by any remote station, as a local Variable.

The tabs of the "Create Variable" window include fields to be filled in according to the five available types of Variables.

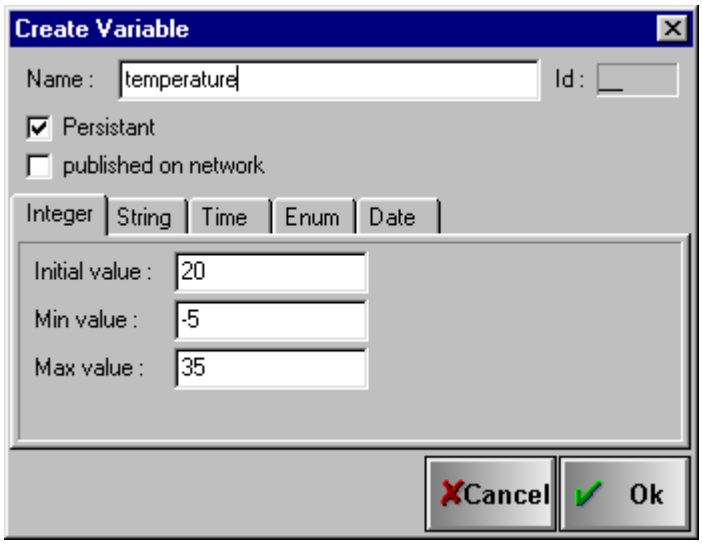
The text of the Variables "published" on the network appears in blue, whilst the persistent Variables area given an icon in the values column, reminding you that they are saved.



In the above illustration, the Variables appear in the chronological order of their creation.
The ID n°'s are non-consecutive since Variable 133 results from the reuse of a previously used Variable n°.

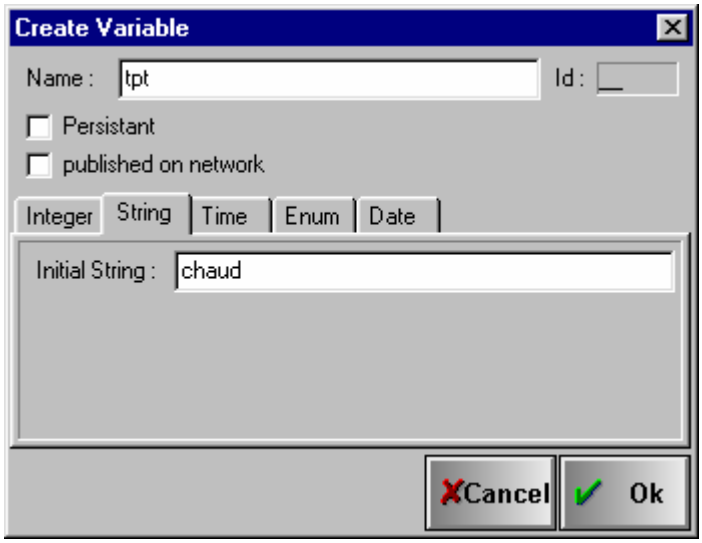
Types of Variables
A Variable is a value composed of alphanumerical characters. This value changes according to the state of an object, the result of a calculation, a user's action, etc.
Let's have a look at the five types of Variables.

Integer:



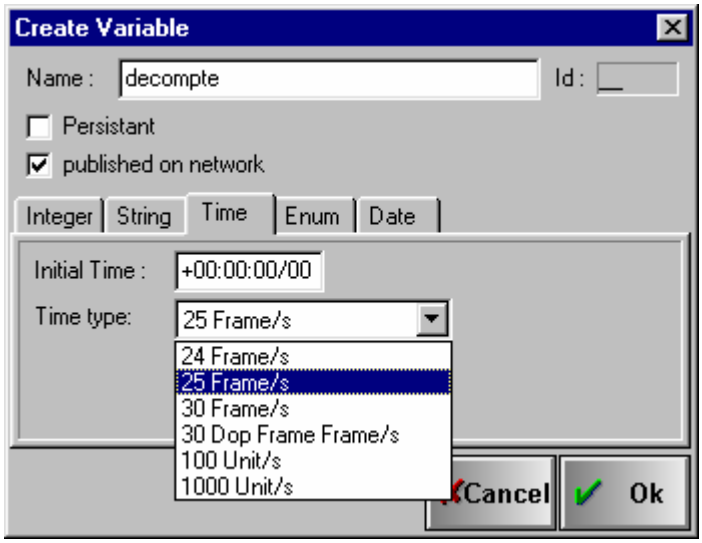
This Variable expresses a whole number, characterising the state of an object, the X/Y position of the mouse pointer, the value of a slider, or a visitor count, for example. The initial value must be indicated. The default value is zero. The "Min value" and "Max value" fields indicate, by default, the maximum values that they can take. The values of these fields will be used for programming, calculations and displays.

String



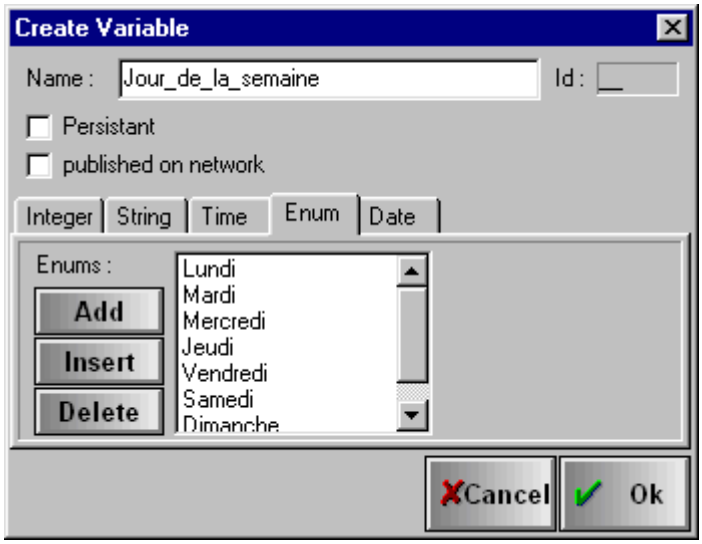
The String Variable is a chain of characters that can be displayed as such or else integrated into a sentence. Such a chain of characters will be displayed with the typographical choices attributed to its display system.

Time



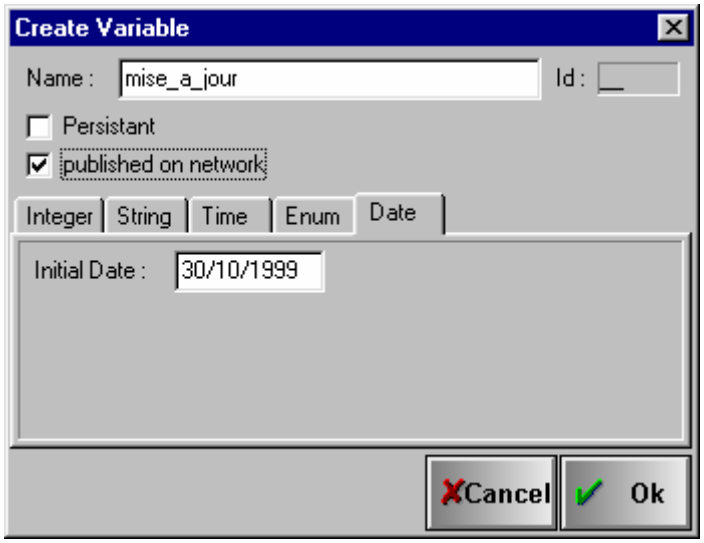
Various modes for dividing and displaying time are possible, on the basis of the time code standard (24, 25 or 30 images per second) and a decimal time-splitting of seconds (1/100 and 1/1000 second).

- Enum :
"Enum" is a Variable listing pre-determined values: periodical information or days of the week for example.



.

Date

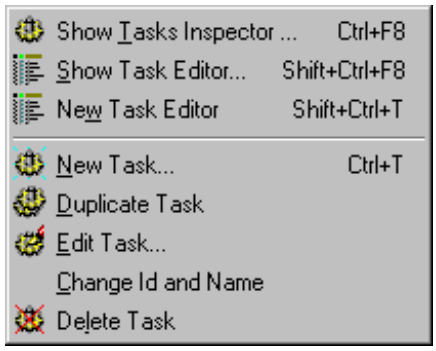


A Variable to which may be allocated a different date than the one set on the PC. This may serve for calculations, comparisons, establishing the end of projects or programming periodical, exceptional or random events.

6.4.6 Tasks Menu

Tasks are actions which will be applied to or requested of "Devices", including Manager itself. The tasks send commands to the "Devices" and undertake calculations of Variables.

This menu contains the commands for creation and editing of tasks.



- Show Task Inspector… **Ctrl+F8**
Opens the window listing all of the tasks created.

- Show Task Editor… **Ctrl+F9**
Opens the window which enables you to programme the tasks.

New Task Editor

- New Task **Ctrl+T**

- Duplicate Task

- Edit Task…

- Change Id and Name
Enables you to edit the name and n° of the task. Care should be taken when using these commands since these elements are used in the management of the programme.

- Delete Task
Deletes the task selected.

Two elements must be indicated to create a task:

- The condition of execution which appears in the column of the "Task Inspector" window.

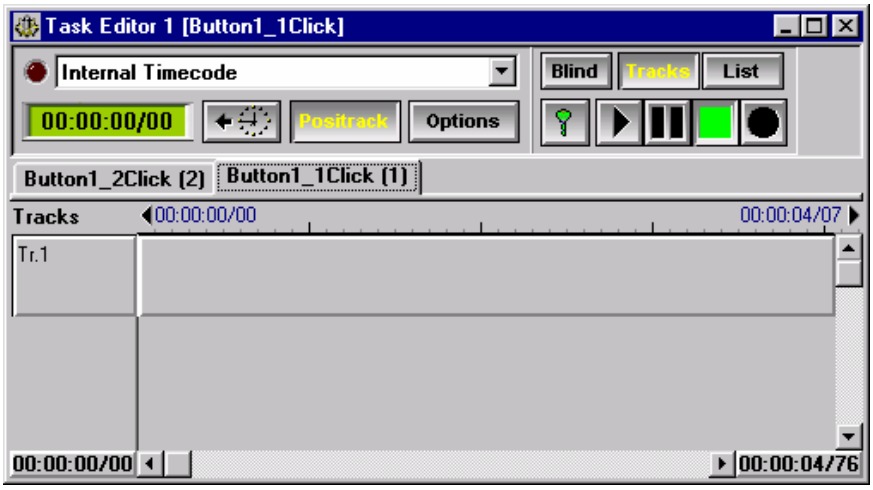
- The task itself, whose command lines (cues) are displayed in the "Task Editor" window".

It is important to note the difference between the two kinds of task:

6.4.6.1 "TimeBased" Tasks:

TimeBased tasks appear in the form of a window containing various controls and one or several horizontal tracks, or "Timelines", called "Tracks" in Manager. They serve to manage precise sequences of events executed in a linear fashion. They are capable of using "Positrack"
Time runs from left to right. The events (or "Cues") are symbolised by rectangular icons.

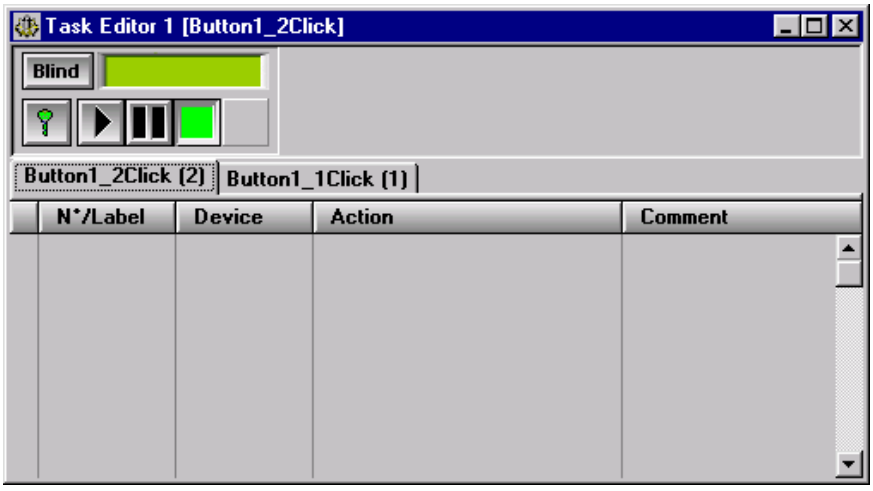
A TimeBased task is represented by a clock symbol in the "Tasks Inspector" window.



6.4.6.2 "StepBased" Tasks:

Step Based tasks are a succession of command lines which are executed consecutively. An adjustable delay time, "Wait", can be introduced, however, between the execution of two command lines. These command lines can take the form of logical commands or loops: "If/then/Else" or "While/EndWhile".

A StepBased task is represented by a step symbol in the "Tasks Inspector" window.



6.4.6.3 Choosing between "StepBased" and "TimeBased" tasks

Since the execution of tasks is often associated with actions on "User Screen" objects, an automated creation function enables you to create them from the "User Screen".

You must first have selected one of the following active objects:

- Button
- Slider
- Digital slider
- List display
- Variable display.

By then clicking on the right mouse button, the choice of "StepBased" or "TimeBased" is then proposed for the object selected. If you wish to execute a sequence of events which simply follow each other, then use a "TimeBased Task". If you wish to be able to manage information in a conditional way (If/Then or Else), then use a "StepBased Task".

Once the choice has been made, the "Task Inspector" and "Task editor" windows will open.

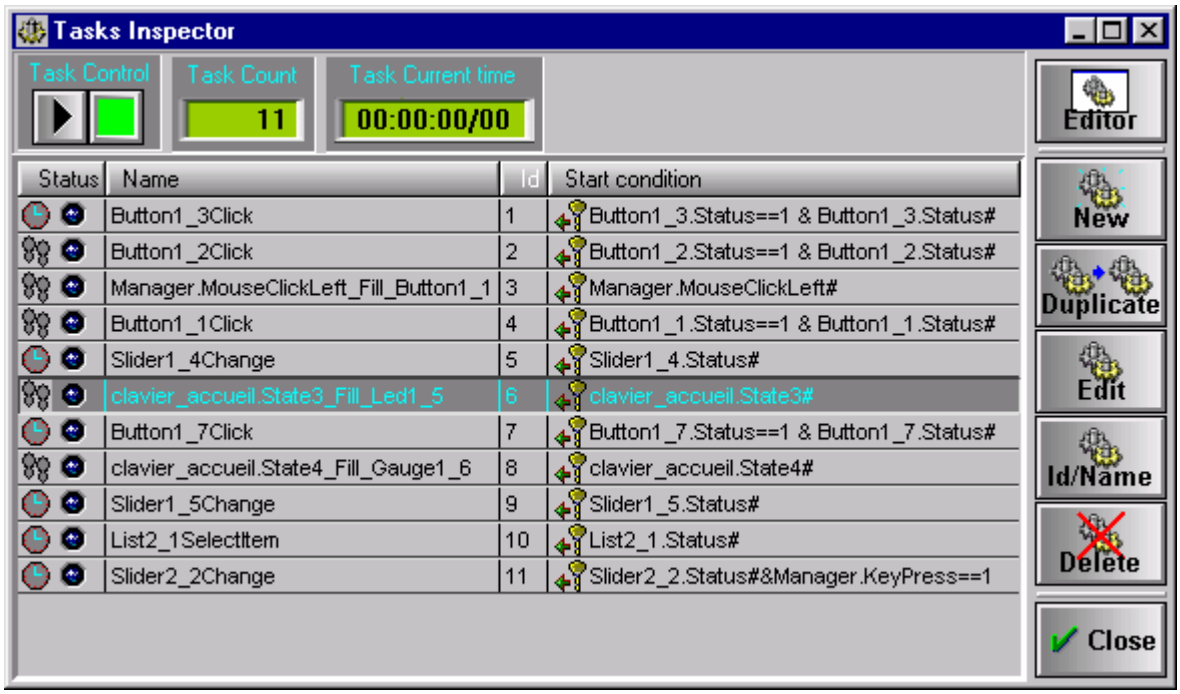
The "Tasks Inspector" window displays the new task with its default trigger condition (which may be modified).

The "Task Editor" window adds the new task to the banner list above the columns: You then have to write the command lines.

After having selected a task, the "Enter" button in the "Tasks Inspector" window enables you to access the Task Editor window of the task selected.

6.4.6.4 The "Task Inspector" window

The "Tasks Inspector", accessible via the drop-down "Tasks" window or the keyboard shortcut **Ctrl+F8**, displays the status, name, order number and execution condition of each task created.



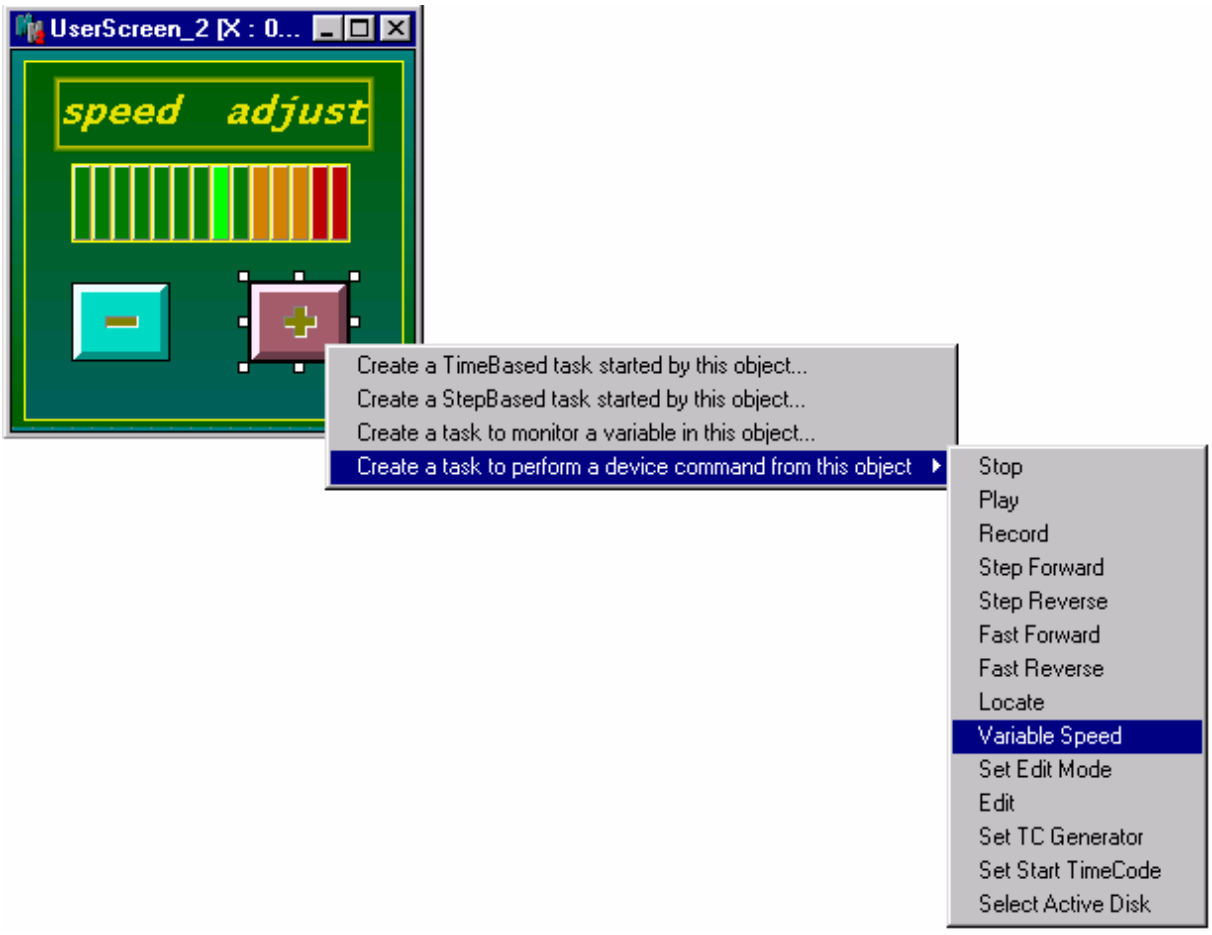
The buttons in the "Tasks Inspector" window enable you to create, edit, rename, renumber and delete a task, as long as you are in programming mode.
In "Debug" mode, you can visualise and test all of the tasks but only edit those that are in Stop mode (the editing of the task is locked when it is being executed).

The "Status" column indicates the nature of the task, "StepBased" or "TimeBased", and its activity. When the LED is extinguished then the task is in Stop mode; the green LED indicates that it is being executed (Run).
The LED may light up red when the computer's resources are insufficient to execute a "Timebased" task according to the programming requested. The task is thus in "Overrun" and cannot execute the cues at the programmed times.

The execution condition of a task is indicated by the key which precedes its programme line: it is either grey (key off), yellow (key on) or red (key blocked).
The decision to stop the execution of a task, even if its execution condition is fulfilled, is made in the Task Editor. This option enables the editing of a task that is frequently triggered (execution condition fulfilled).
The visualisation of a task during execution exists only in "Debug" mode.

6.4.6.5 Task Editor

The command lines of the task are written and displayed in the Task Editor window. This window opens when a task is created, using either the New button in the Task Inspector, the drop-down Tasks menu, the keyboard shortcut **Ctrl+T** or a click of the right mouse button on an object, as illustrated below.

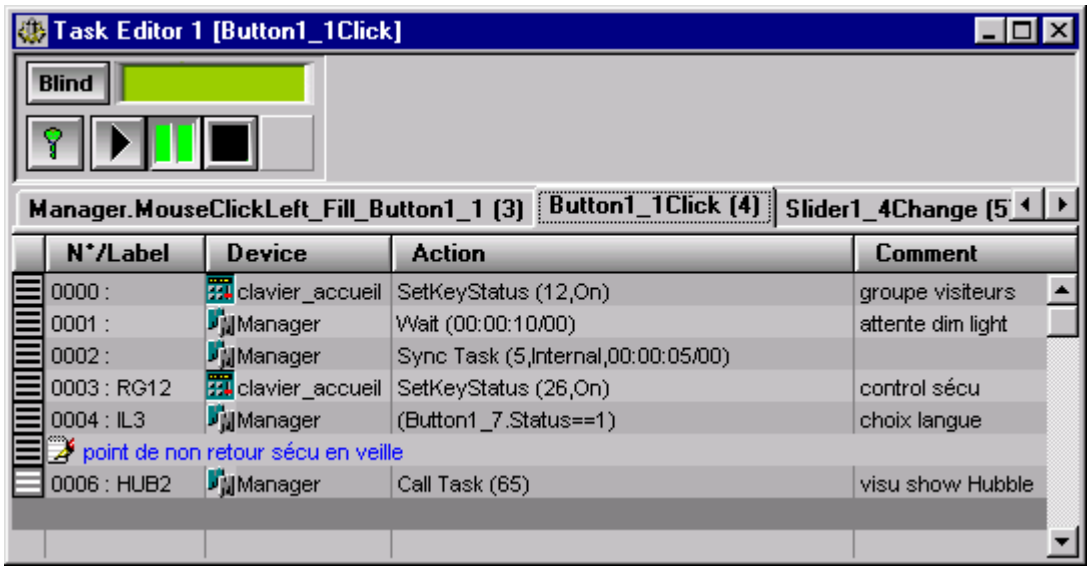


This way of proceeding is a form of "Wizard", a kind of shortcut which enables one to gain time in writing "Tasks", whilst being sure of a perfect syntax.
It is always possible later on to edit the programming line already created.

The "Task editor" will be displayed differently according to the kind of Task chosen, but has common properties like Task menu.

6.4.6.6 Editing StepBased Tasks

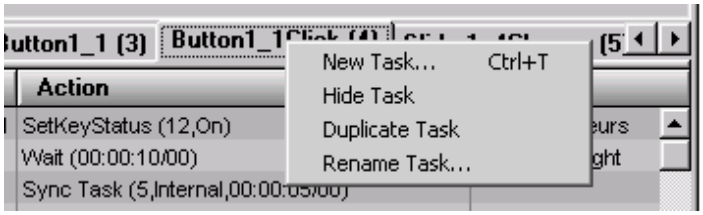
The command lines are displayed as a list, with the only notion of time being the delay time ("Wait") between two lines (tasks). Otherwise there is no time basis associated with these tasks.



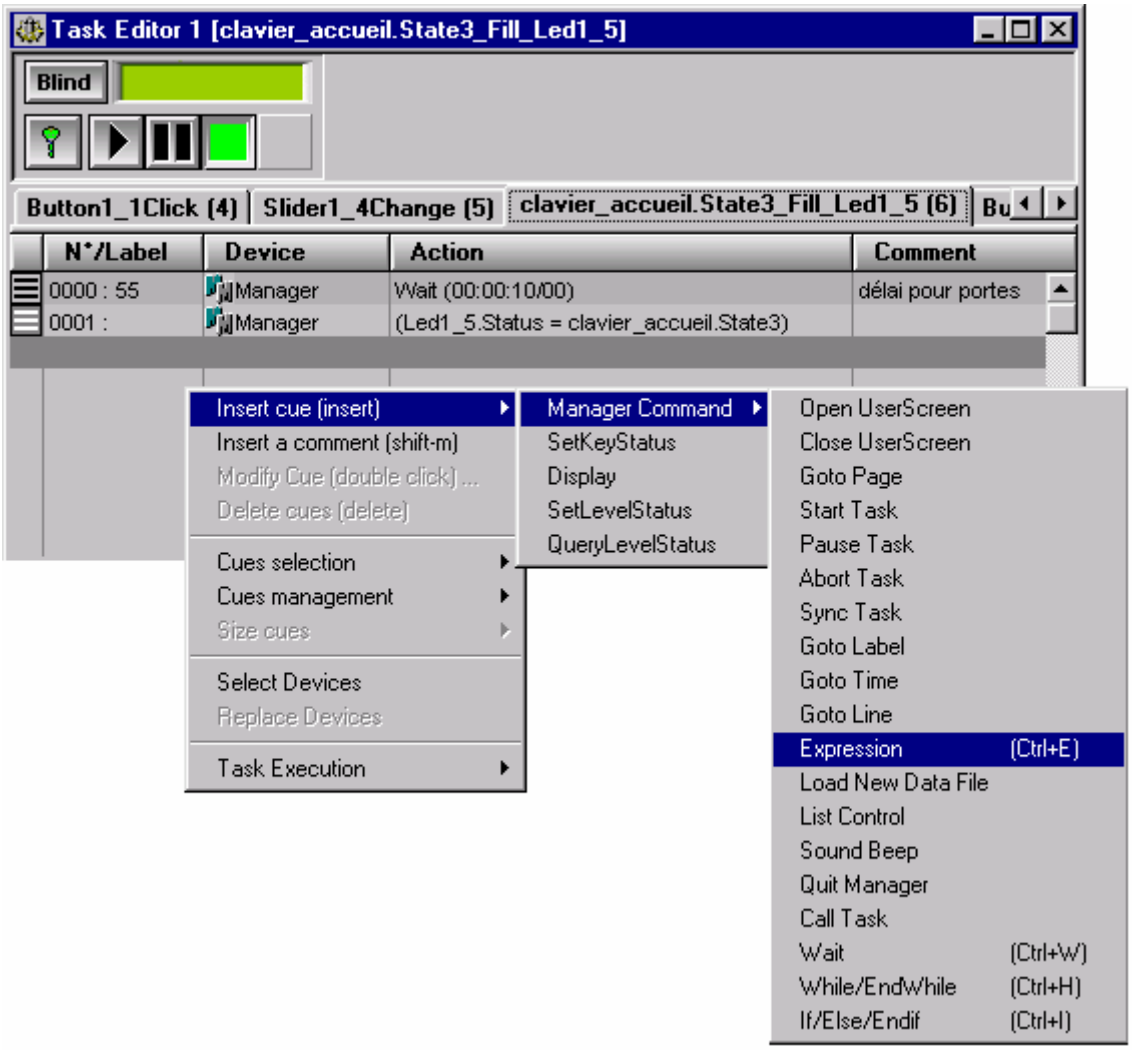
A new Task Editor window may be opened for as long as it takes to programme a new task.

When this provisional window is closed, the contents of the task will be transferred to the Task editor 1 window and become accessible for editing.

Common Task menu



This menu is used to manage Tasks inside the TaskEditor. Ex : Hide Task "Close" the edited Task from the TaskEditor.

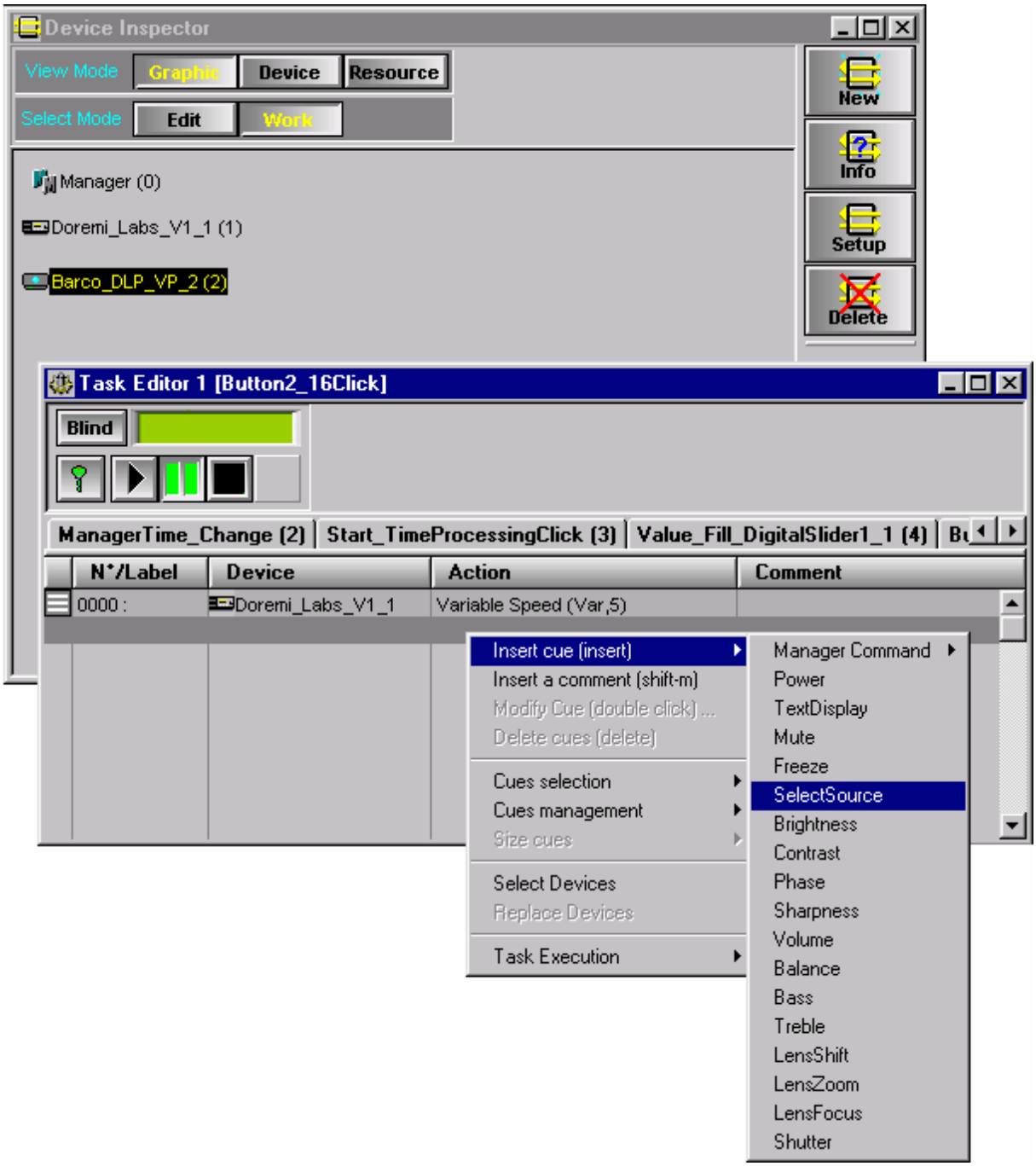


In the Task editor 1 window the tasks are listed in the order of their creation, in the form of tabs.

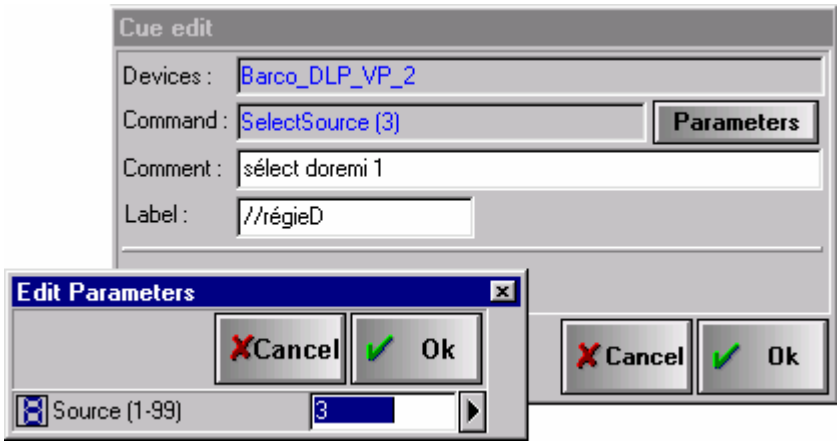
If there is a large number of tasks, then this line ends with arrows < > enabling you to find a task, select it and display its command lines.

Having thus been selected, a task may be executed in "Debug" mode, independently of its execution condition, using the play/pause/stop buttons in the "Task editor" window.

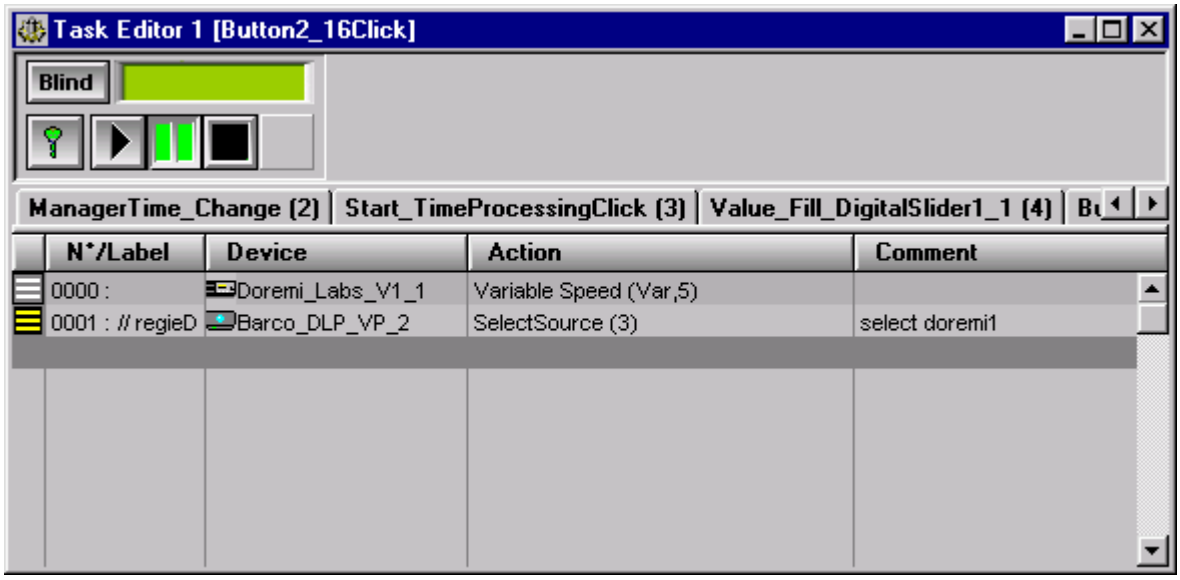
When editing programme lines, click on the right mouse button and Manager will display a list of all the existing commands for the "Device" selected in the "Device inspector".



Above: having selected the video-projector from the "Device inspector" you can click on the right mouse button in the "Task Editor" and choose only the commands specific to the Barco video-projector.



By filling in the fields as above, you create the second programming line in the "Task editor" window below.



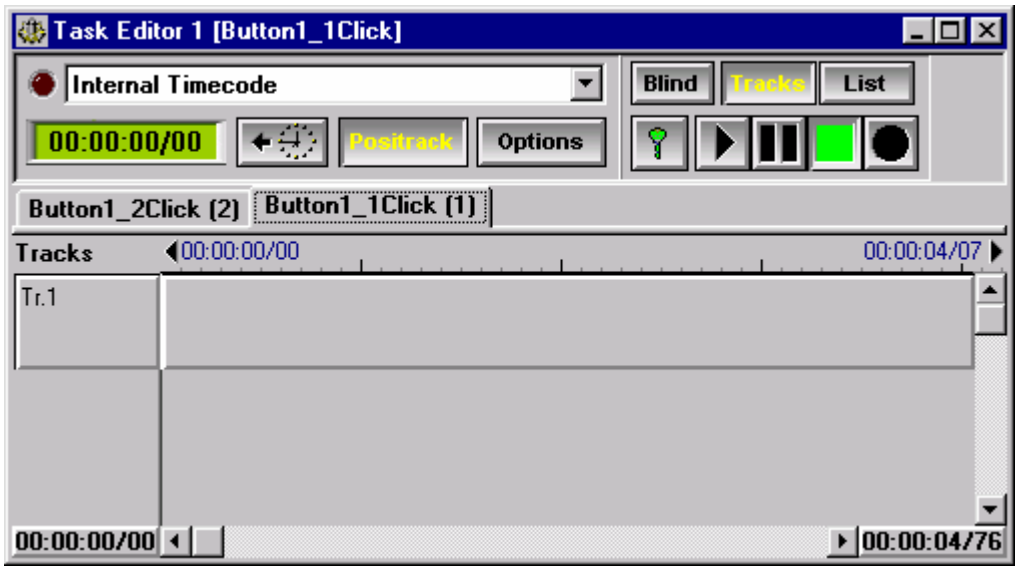
By clicking in the action column of the "Task Editor" you select the lines with the left mouse button. The traditional edit functions (cut/copy/paste) are accessible, but by using the right mouse button you can access the functions specific to Manager, via cascade menus.

- Blind:
By selecting this button in the "Task editor" window, you can "run" tasks without them actually being executed (for adjustment or monitoring purposes). The scrolling of the commands will still be displayed as normal, but the task itself will not be executed. This is referred to as a "Blind" execution of a task.

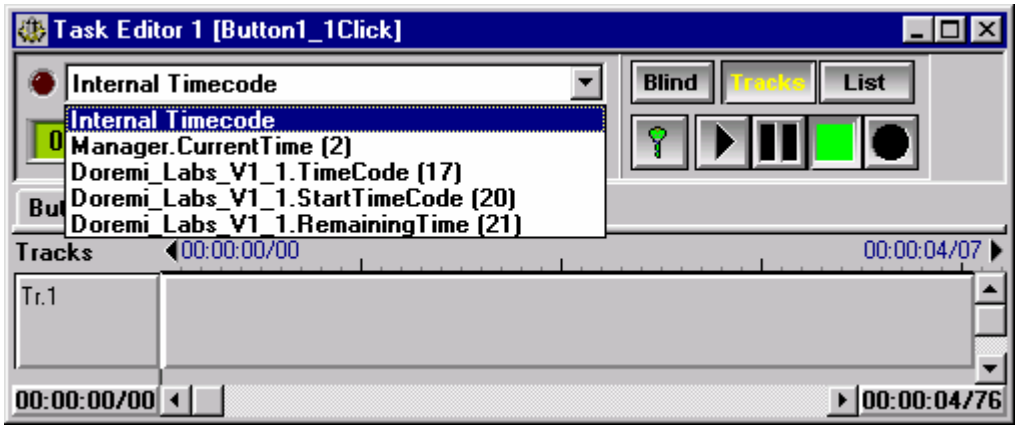
6.4.6.7 Editing TimeBased Tasks

The previous examples of tasks were all "Stepbased", tasks carried out as one step after another.
The choice of a "Timebased" task might be more appropriate for certain events projects and for controlling certain machines which have a time code.

We will see further on that the window of a "Timebased" task may also take the form of a list. In both cases, we will consider that we are in "Timebased" mode, which contains "Tracks", also called "Time lines", in the sequencers.
Before programming in "Time line" mode, you should be able to define certain parameters which are specifically linked to the notion of time and its display.

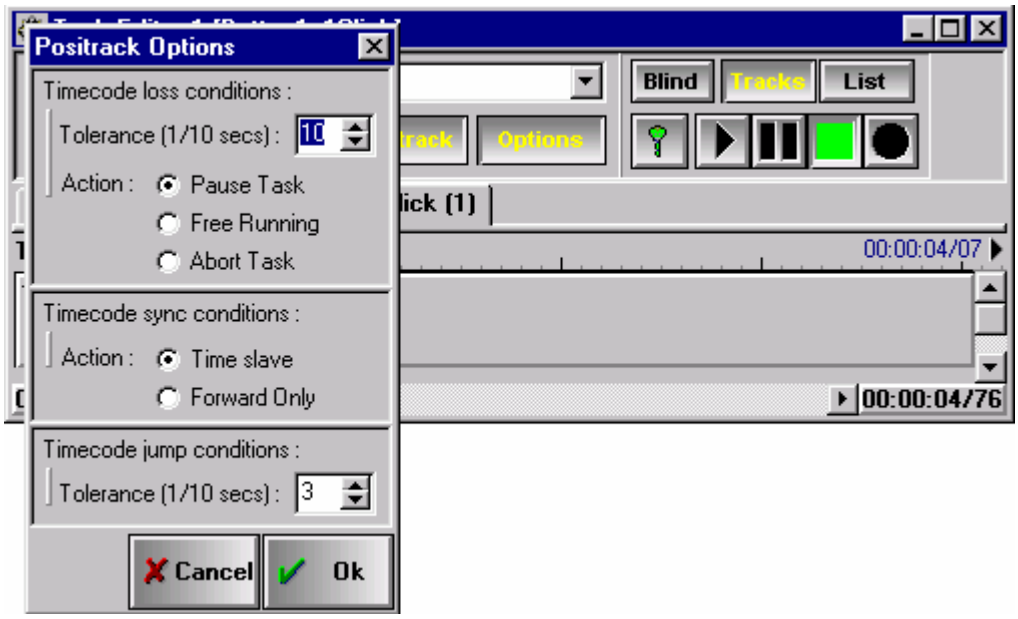


- Choosing the time basis.
By default, Manager proposes two time references, the internal clock of the PC (Internal Timecode) and the internal clock of Manager (current time). But it is also possible to use all of the time Variables associated with the "Devices" which have already been created.



In the above example, apart from the two basic clocks, there are three time references linked to the creation of a Doremi Labs V1 "Device".

- Positrack Options.
Refer to "Positrack" Ch. 6.4.4.1



These options concern the behaviour of "Positrack" and the enslavement of the task in relation to a break or skip in the reference time code signal.

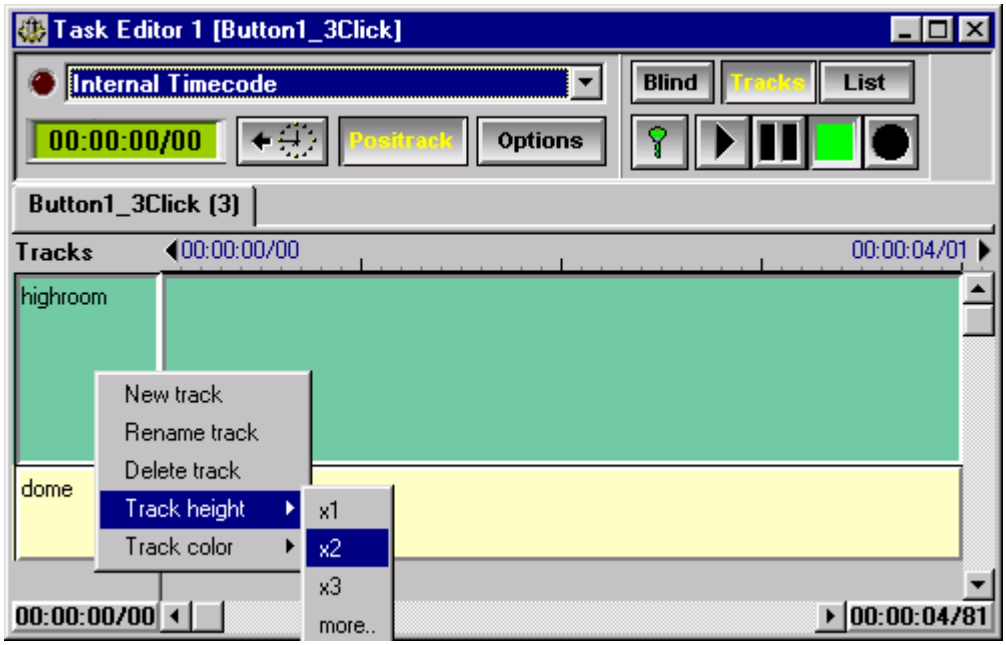
- "Timecode loss conditions": defines the behaviour of the task when the Timecode is lost (Timecode stops). The tolerance is the time (in tenths of a second) between the expected position of the Timecode and its true position. A value of 10 signifies that the task will consider the Timecode to have been lost if the gap between the reference Timecode and the expected Timecode is greater than 1 second.
- "Action" defines what the task must do if the Timecode is lost: Pause, continue (Free Running) or stop (Abort).

- "Timecode sync conditions": defines how the task is enslaved to the reference Timecode.

- "Timeslave" allows continuous enslavement (follows the incoming Timecode).
- "Forward Only" enables you to enslave the Timecode only if it is greater than or equal to the current position of the task. For example, if you wish that the "Devices" controlled don't reposition themselves each time the reference Timecode goes back, then choose this option, in which case the task will wait for the reference Timecode to reach the value of its position before going to "Run".

- "Timecode jump condition": defines the time tolerance (1/10 second) that the task will use before considering that the reference Timecode has skipped forward.

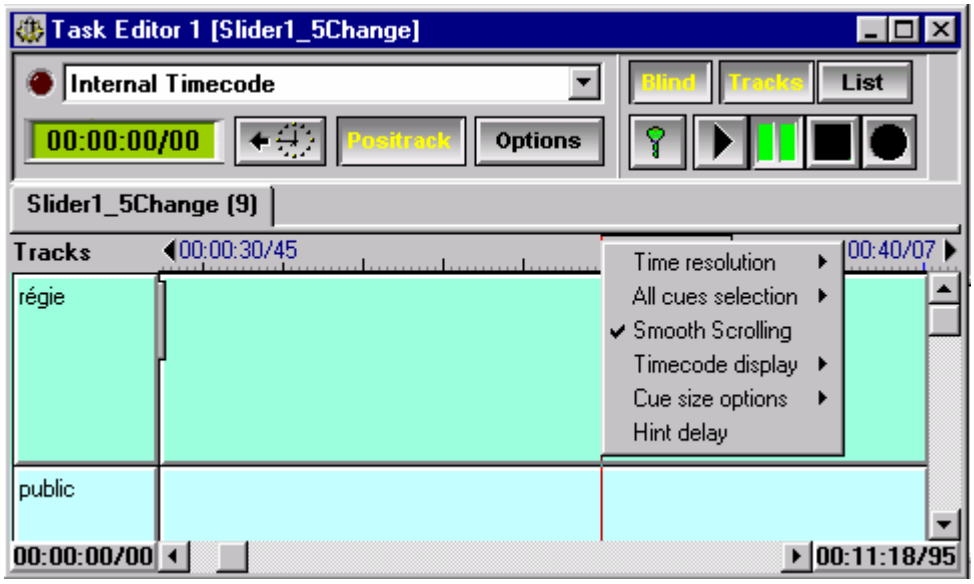
- Defining the parameters of the tracks
You can create an unlimited number of tracks in a "Timebased" task. The sole function of these tracks is to facilitate programming and its visualisation. They may also serve to group together the cues referring to a single "Device", a specific area or any other practical grouping criteria.



Each track may be named, its size adjusted and coloured in. These graphics choices have no effect on the execution of the cues.

"New track": creation of a new track; follows the existing one by default.
"Rename track": to change the name of a track.
"Delete track": to delete a track. This command is only accessible if the track does not have any cues.
"Track height": defines the height of a track: 1 to 3 times the basic height.
"Track color": to choose a colour for a track, from a selection of predetermined colours.

With the mouse cursor on the time scale of the "Time line", the right mouse button enables you to adjust the parameters of the time display: scale, time code format, size of display of commands, etc.



- "Time resolution": defines the resolution of the scale of the task's time bar.

- "All cues selection": enables you to select all of the cues for a given task, or all of the cues for a given task from the cursor position to the start or the end. The title of this menu item will change to "Tracks cues selection" if one or several tracks are selected. In this case, the selection concerns only the tracks selected.

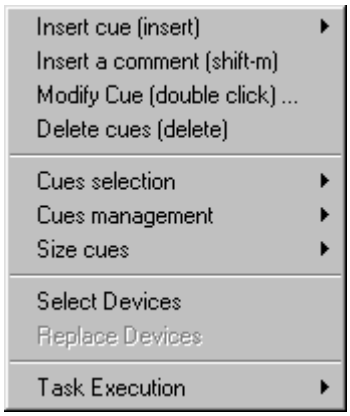
- "Smooth Scrolling": is an option, selected by default, that defines in which way the task will scrolls by. When selected, the task scrolls by in sync with the time, otherwise it is displayed 'page by page'.

- "Timecode display": defines the format, the type of display and the way in which the time values are entered for the task. The "Comply with TC" option is selected by default, as well as the format and type corresponding to the time Variables serving as the time reference for the task.
The format can display various time values (1/100 second, 30, 30DP, 24 or 25 images/second). The type can be either "Frames" (frame number) or "TC" (time).

- "Cue size options": enables you to define the size of the cues: from 1 to 5 (or more) times the basic size, or else automatic sizing.

- "Hint delay": Manager will provide you with all information concerning a "Cue" if you place the mouse cursor above the "Cue". This menu item enables you to define how long the mouse cursor must remain immobilised above a "Cue" before this information appears (in a "floating" window). This "floating" window disappears automatically when the mouse cursor is moved.

The contextual cues-menu:

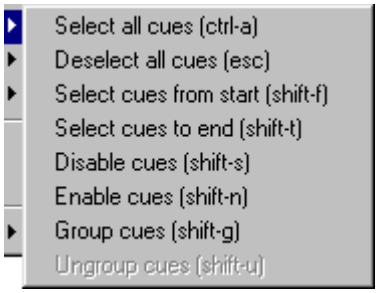


- "Insert cue" is the most important item of the menu. It enables you to create cues in the tasks. It also provides access to the Manager internal commands sub-menu, as well as the "Device"(s) commands sub-menu if the "Device" (s) is(are) selected.

- "Insert a comment": enables you to create a cue comment. This comment has no effect on the execution of the task.

- "Modify cue": enables you to edit the cue selected.

- "Cue selection": enables you to manage the selection of cues regarding the selected track.



"Select/Deselect all cues": to select or deselect all cues for the current track.

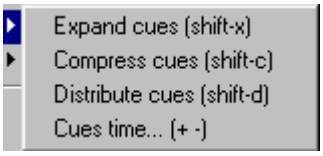
"Select cues from start": selects all of the cues from the start of the current track up to the cursor.

"Select cues to end": selects all of the cues from the cursor up to the end of the current track.

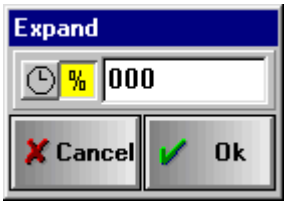
"Disable/Enable cues": enables you to activate/deactivate (make it a comment) one or several cues. When deactivated, a cue will not be executed by the task.

"Group/Ungroup cues": enables you to group cues together, which makes it easier to select and move cues which have a relative time value defined between them. This is also a means of securing the time locking of various cues between each other.

- "Cues management": enables you to manage the relative or absolute position of one or several cues.



Expand/Compress cues: enables you to modify the relative gap between several selected cues, in time or percentage.



"Distribute cues": enables you to evenly spread a group of cues over a certain time period, from the time of the first one to the time of the last one.

"Cues time…": enables you to modify, relatively or absolutely, the time of several cues by increasing or decreasing the time.

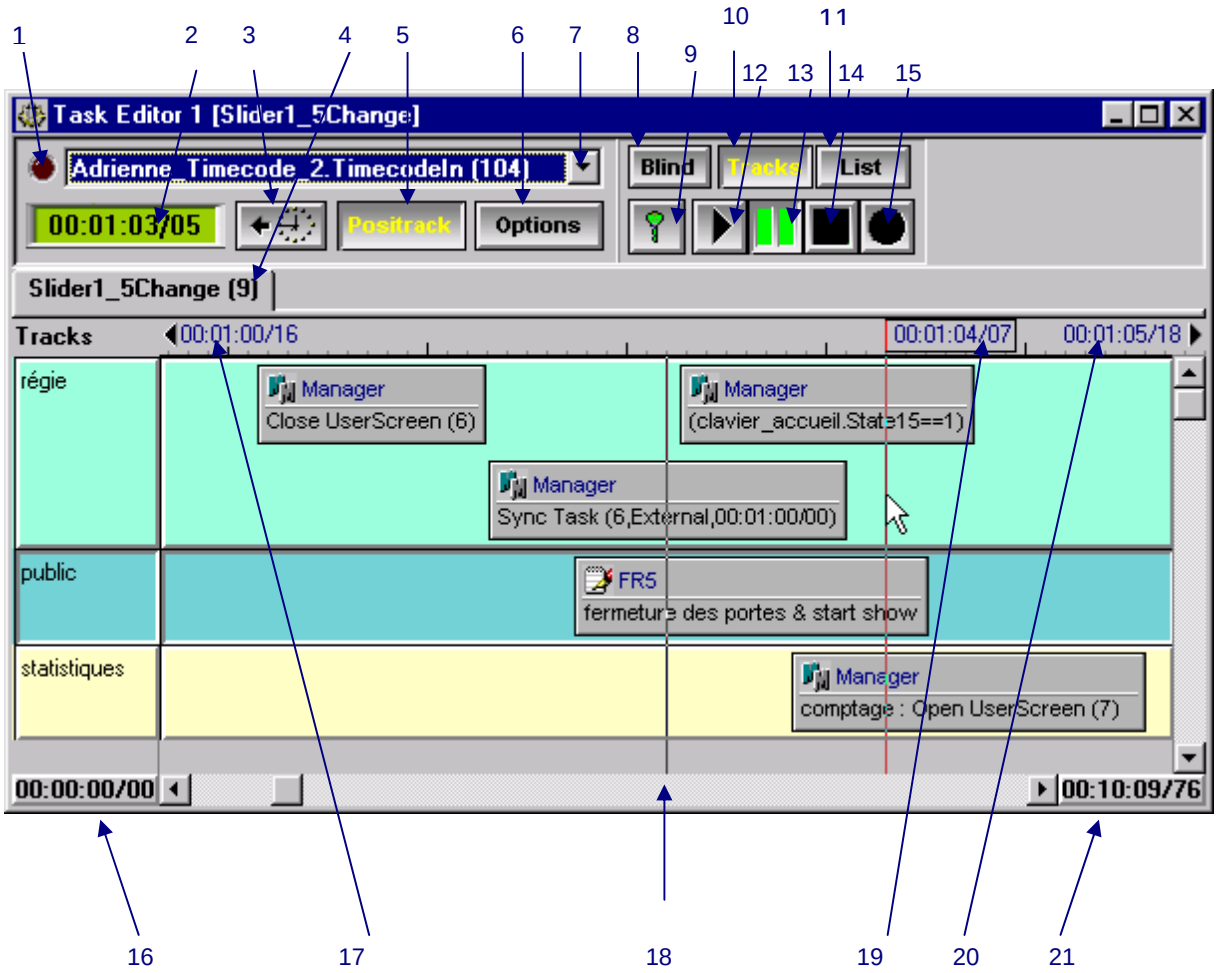
- "Size cue": enables you to change the size of a cue to its default size or to the size required for all the text it contains to be displayed in its entirety.

- "Select Device": is a shortcut which enables you to select one or several "Devices", so as to create a cue referring to it.

- "Replace Device": enables you to change the allocation of one or several cues for one or several "Devices" to one or several other "Devices".

- "Task execution": enables you to control the task itself (play, pause, stop) as well as executing a "cue" unitarily.

Using the example below, let us have a look at the various elements which make up a "Time Line".



1 – The Led is an indicator which specifies the state of synchronisation of the task with the reference Timecode. If the reference Timecode has stopped, then the Led flashes.

2 – Indicates the time which the black vertical line (18) has reached. This time may be reached either by entering the time in this window (2) or else by positioning the cursor in the "Time Line" using the scroll bar situated between (16) and (21), then clicking the mouse pointer on the time required between (17) and (20). The value indicated is that of the last access.

3 – This button provides access to the window (2) in which the time to be reached on the "Time Line" must be entered. The keyboard shortcut for this function is the '**G**' key.

4 – Name of the task.

5 – Activate or deactivate "Positrack".

6 – Access the "Positrack" options menu.

7 - Access the choices proposed for the time reference (Adrienne Time Code in this example).

8 – Pressing this button in the Task editor window will neutralise the execution of commands whilst still displaying them as they "run" ("Blind" execution of tasks, for adjustment or monitoring purposes).

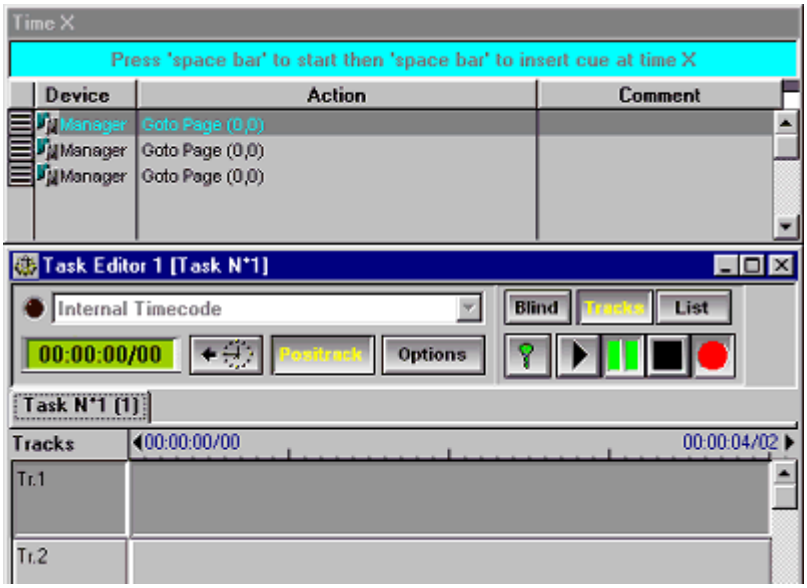
9 – Prevents the triggering of the execution of a task when its trigger condition has been fulfilled. This function enables you to edit it.

10 - and 11 enables you to switch to a visualisation of the cues in a list display.

12 – Launches the execution of the task and thus the scrolling of the "Time Line". The keyboard shortcut for this function is the **Space-bar**.

13- Pauses the "Time Line". The keyboard shortcut is also the **Space-bar**. After being paused, the "Time Line" will restart from the time in (2)

14 - Stops the "Time Line". After being stopped, the "Time Line" restarts from zero, or the time that has been defined as the start of the "Time Line".



15 -"Time-X": Enables selected cues to be placed across a given time at defined points; e.g. when listening to a musical rhythm or whilst watching a video.
This function works in the following way. Select the required cues either by passing the mouse pointer over them with the right mouse button pressed down, or by selecting them one by one with the mouse pointer and keeping the "**Shift**" button on the keyboard pressed down. Click on (15) and the window will ask for the start time of the distribution. When the field has been filled in, press Play (12) to start the "Time Line" scrolling. Each time you press the **Space-bar**, the cues will be "placed" in the order they were in on the "Time Line" before their selection. The button (15) lights up in red until all of the cues have been placed.

16- Determines the lowest point of the task visualisation. The value remains displayed permanently and lights up in red in the event of an incompatibility, e.g. the presence of a command anterior to the time fixed.

17 – The lowest time, corresponding to the "Time Line" display which is currently previewed.-

18 – Current Time Line of the task, which determines the restarting point of the Play function (12) after being Paused (13). See also (2).

19 – Positioning cursor, it goes from red to black after being activated by the pointer and left mouse button, in the time scale. The new value of the Time Line (18) is displayed in (2)

20 – The highest time, corresponding to the end of the "Time Line" display which is currently previewed.
21 – Determines the highest point of the task visualisation. The value remains displayed permanently and lights up in red in the event of an incompatibility, e.g. the presence of a command posterior to the time fixed. The gap between the high and low points determines the scroll-rate of the scroll bar.

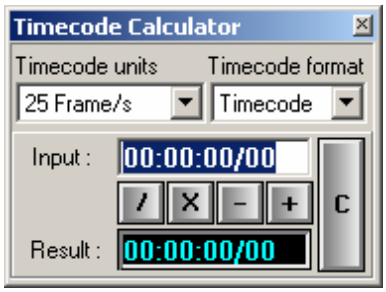
6.4.6.8 Tools Menu

The "Tools" menu enables you to open two windows:

- "UserScreen Toolbox" **Ctrl+F9** (see function Ch. 6.4.3.2)

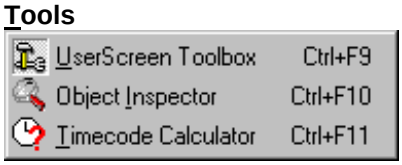
- "Object Inspector" **Ctrl+F10** (see function Ch. 6.4.3.3)

- "Timecode Calculator" **Ctrl+F11**



Timecode calculator provide basic operators like **+** (add), **-** (subtract), / (divide), ***** (multiply). It also provide timecode units selector (24 SMPTE fps, 25 EBU fps, 30 & 30DP NTSC fps, 100 fps, 1000 fps) and timecode format selector (timecode or frames). Changing this settings will automatically convert the content of fields 'Input' and 'Result' according to selection.
This tool works as a stack, input a value and then click on the desired operator will give the result.

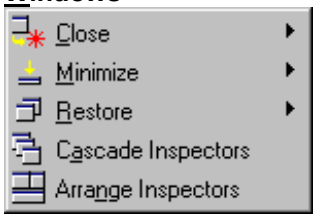
Tools



Concerning both of these windows, already described in the "UserScreen" menu section, remember that you can choose for them to be systematically displayed in the foreground or not, during the creation stages of the "UserScreens".
This choice is made in the menu: "File/Preference/General "

6.4.7 Windows Menu

Windows

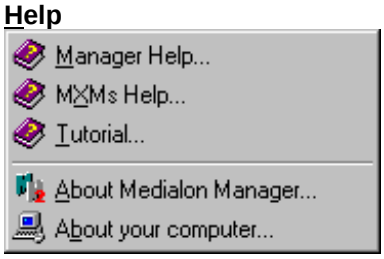


This menu provides a complete organisation of the display of the numerous windows that you may have to open during programming.

The closing, minimising and reopening of windows can apply to all active windows, or just to "Inspectors" or "UserScreens".
The "Arrange Inspectors" function optimises the display of all of the "Inspectors" by optimising the use of the screen's surface and resolution.

6.4.8 Help Menu

Help



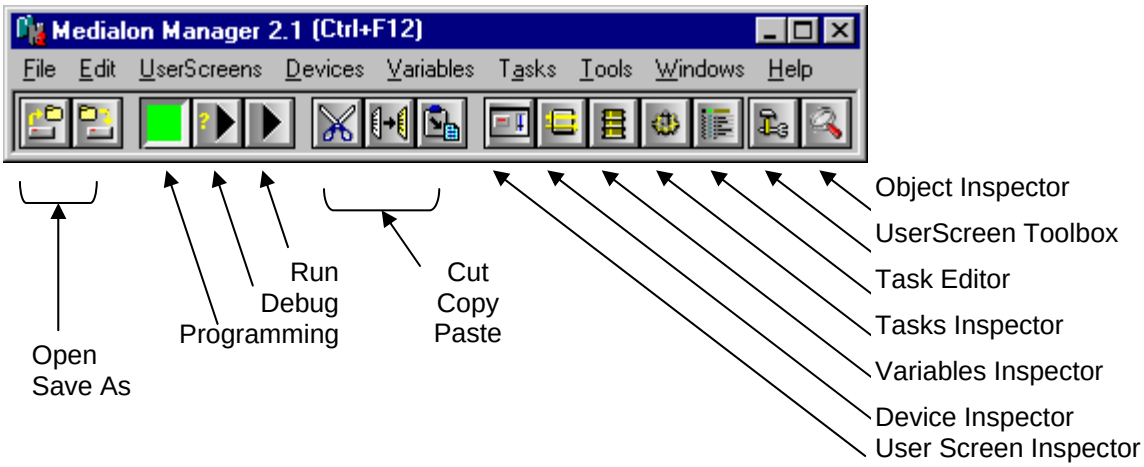
- Manager Help
This is the reference guide of Manager (this document content).

- MXM Help
This window content the list of installed MXMs and associated help. Tutorial link access is also accessible if a tutorial is provided with a MXM.
- Tutorial
This window content a Manager tutorial which provide step by step programming lessons.

- About Medialon Manager
This is the cover page of Medialon Manager. Here you will find the number of the version on which you are working, as well as the licence number.

- Your Computer
This window contains the main available information concerning your computer (system, memories, display graphic capabilities, etc.) and informs you of your work in Manager, as well as the number of Manager applications opened and the number of Manager applications connected to the network.

6.4.9 Buttons on the Main Menu Bar



These buttons provide shortcuts for the following functions:
Open, Save As,
Programming, Debug, Run,
Cut, Copy, Paste,
User Screen, Device, Variables and Tasks Inspectors

Programming Mode
This mode provides access to all the programming functions of Medialon Manager:
Creation of "UserScreens" and objects
Creation of "Devices" and defining of their parameters
Creation of Variables and defining of their parameters
Creation and programming of Tasks

In programming mode you can neither test the actions of objects nor test the execution times of cues. Only some Variables proper to Manager are available.

Debug Mode
The Debug Mode enables you to completely simulate the program created: the "UserScreens" take on their final appearance and react to the commands programmed for the users: mouse, keyboard, touch screen, etc.
But the other windows do not close, thus allowing you to preview the execution of the tasks and values taken by the Variables.
You can also write in the Variable Inspector window to impose values on certain Variables.
In "Debug" mode, you can neither create nor edit pages or objects, but it is possible to create and edit the execution conditions of a task in the Tasks Inspector window. It is also possible to edit the "cues" in the "Task Editor" window.

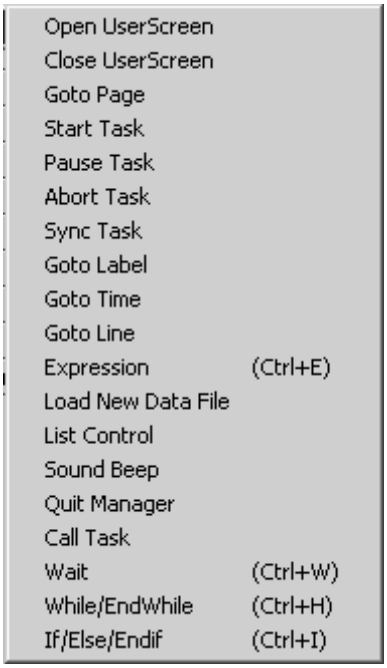
Execution Mode
This mode corresponds to the finished format of the programming work, when the system is manipulated by the end user. Only the "UserScreens" are visible and accessible.
You can only access execution mode from programming mode and not directly from "Debug" mode.
You will exit the Execution mode by using the **Esc** key on the keyboard.

7 MEDIALON MANAGER COMMANDS

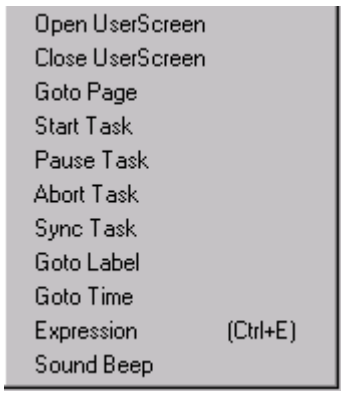
In the description of the "Task Editor" window, we saw how the drop-down menus provide you with a quick access to the tasks which constitute the essentials of programming in Medialon Manager.
These commands, which are proper to Medialon Manager can be divided into two categories:

7.1 MANAGER COMMANDS DESCRIPTION :

7.1.1 The commands associated with StepBased tasks:



7.1.2 The commands associated with TimeBased tasks.



All cues allocated to a TimeBased task must be given an execution time.

7.1.3 List of commands:

7.1.3.1 Open UserScreen

From a user's point of view, the constituent parts of a programme may be several "UserScreens". The appearance of these screens, linked to the user's request (choice; various consultations), the requirements of the creator (organisation of a game, of a dispatching, etc.), or practical necessities (information, warnings, etc.), is controlled by the "Open UserScreen" command.
To execute this command, a dialogue box requests the n° of the "UserScreen" to be opened.
There is no limit to the number of screens that can be opened simultaneously, except for the screen surface and thus the legibility of all of the displayed elements required by the user.

7.1.3.2 Close UserScreen

The opposite of the previous action; the closing of a "UserScreen" is carried out by the "Close UserScreen" command.

7.1.3.3 Goto Page

You can display several "UserScreens" simultaneously, but only one out of the 999 pages that a given "UserScreen" can contain. The Goto Page command serves to select the desired page. This choice may be selected by the user or be provided by the programming.

7.1.3.4 Start Task

The execution of a task may be conditioned by the state of an object, a condition which appears in the "Task Inspector" window. But a task may itself launch another, via the "Start Task" command. When programming the "Start Task" command, you will define the parameters of the task n° to be launched.

7.1.3.5 Pause Task

A task may be suspended momentarily and then continued again from where it was paused. Restart using the "Start Task" command.

7.1.3.6 Abort Task

This command serves not only to stop a task, but to take it back to the start (its line 1), so that the next "Start Task" command will make it restart from the beginning.
It is important to understand the difference between "Pause Task" and "Abort Task".

7.1.3.7 Sync Task

Launches a "Timebased" task by attributing a time-reference Variable to it (reference Timecode). This time can be taken from any point on the "Time Line". This command may be used where the clock of the "Time Line" concerned is already in execution.

7.1.3.8 Goto Label

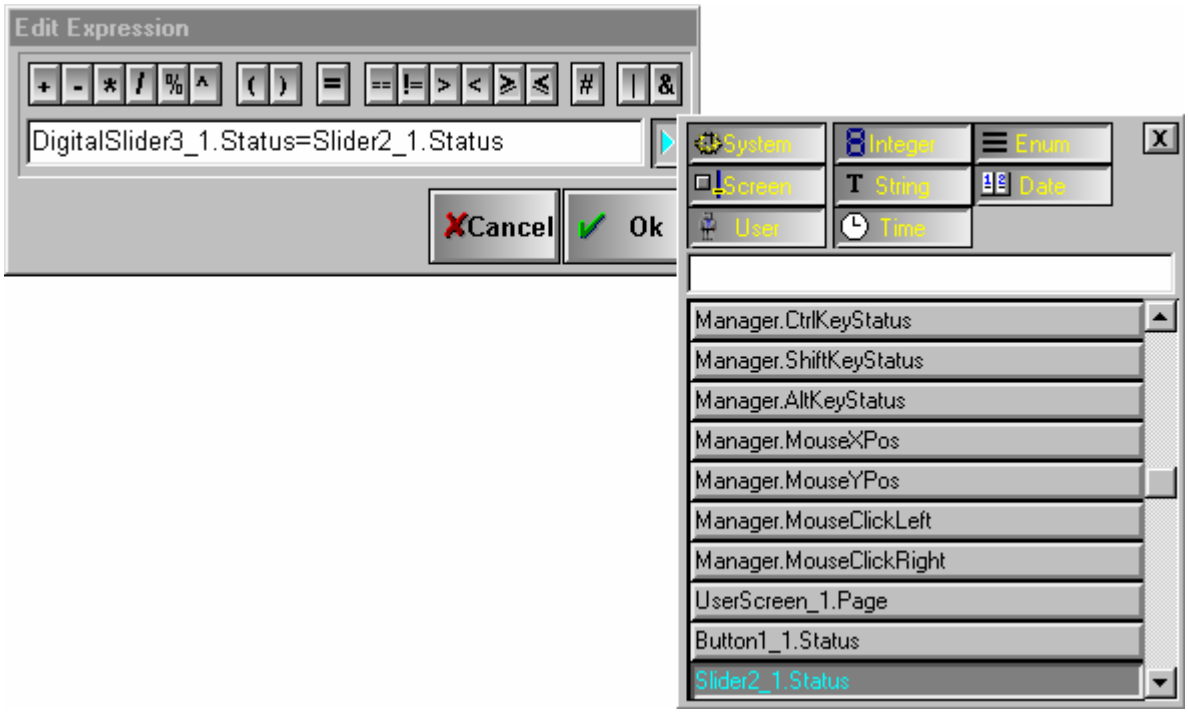
A "cue" is identified by a n° (StepBased task) or a time (TimeBased task).
But a "Label" may be added to it. The advantage of a "Label" is that it is associated with the "cue" and thus cannot be changed as a "cue" n° can do in the event of an insertion, or as the time can shift in the event of a time-lag.
The purpose of the "Goto Label" command is to reach the cue associated with the Label and to launch the execution of the task from this Label. The same Label may be used in several different tasks.

7.1.3.9 Goto Line

This enables you to access a "cue" n° in a task and to launch the execution from this "cue".
To programme this command, you have to set the parameters of the n° of the task and the n° of the "cue" in the task

7.1.3.10 The Expression window Ctrl+E

This provides the normal functions of computer programming, with its Boolean operators. The writing of expressions is accelerated by the provision of dialogue boxes and drop-down menus, reducing direct writing of code to a minimum.



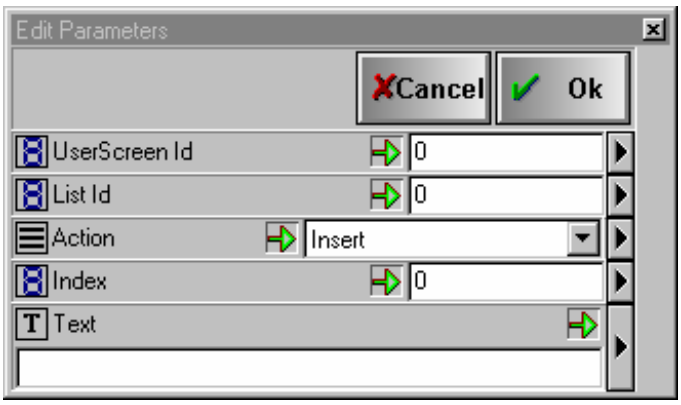
By clicking on the arrow to the right of the Edit field, you can access all of the available Variables (the operands) which may be selected and filtered according to the same criteria as the "Variable Inspector" window.
Select the operators by clicking once on their icon; they then appear automatically in the Edit window.
The command lines can also be entered on the keyboard as long as the programming syntax is scrupulously respected.
In the event of an error, a highlighted message is displayed where the error is.

7.1.3.11 Load New Data File

When persistent Variables are created, a file saving their values is created (.mvs).
This function can be used to create user profiles, for example, according to certain criteria (centres of interest, rights of access, etc.).
The "Load New Data File" command enables you to change this storage file, updating the Variables concerned, adapting them to a user or reopening a query aborted some time before.

7.1.3.12 List Control

This command generates all of the actions necessary to the management of a list displaying clips from a video server, for example: display, update, select/deselect, delete.



Dialogue box for the List Control command.
5 parameters are required:

The userscreen ID: is the ID number of the userscreen where the list object is.
The List ID:
The Action: 4 actions are available in the drop down menu

- Insert (Add one new item to the list)
- Delete (Delete one item from the list)
- Get Item (Retrieve the text content of one item)
- Set Item (Replace the text content of one item)

The Index: Is the number item on which you make the action
The Text: is a bi-directional parameter, according to the action. Either is the text value you give to the item, or the result from the get Item action.

Note 1: If you want to add one new item to the top of the list, the index parameter must be "0". If you want to add one new item to the bottom of the list, the index parameter must be set to "-1". This is available if the "Sorted" property of the list object is not selected.

Note 2: Arrows indicate the direction of parameters. It could be Output, Input or Both. Input (right arrow) indicate that the parameter is given to the command (used by the command during execution), Output (left arrow) indicate that the parameter is updated by the command (after the command was executed).

7.1.3.13 Sound Beep

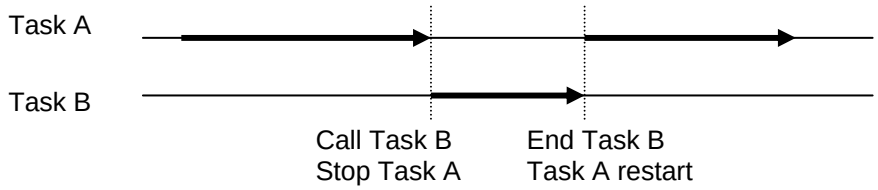
This command opens a window inviting you to set the parameters (frequency and duration) of the Sound Beep, in increments of 1/100 second.

7.1.3.14 Quit Manager

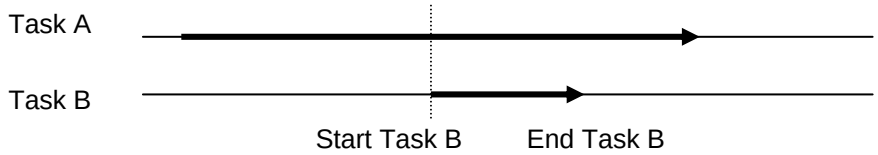
When you are programming this command, a dialogue box will be opened proposing to quit Manager and also Windows. Remember to save any work before testing this command. This command is only executed in RUN mode.

7.1.3.15 Call Task

It is important to remember the difference between "Call Task" and "Start Task". "Call Task" is a command in a given task (A) which launches the execution of another given task (B) but which interrupts the running of task A during the running of task B.
Call Task can be illustrated thus:



Start Task can be illustrated as follows:



7.1.3.16 Wait Ctrl+W

Enables you to introduce a delay time between two command lines, from 1/100 second to 99 hours, 59 minutes, 59 seconds and 99 hundredths of a second.

7.1.3.17 While/EndWhile Ctrl+H

This function enables you to create a loop: as long as the specified condition is fulfilled, then the "cues" between the "While" cue and the "EndWhile" cue will be executed. This loop stops when this condition is no longer fulfilled.

7.1.3.18 If/Else/Endif Ctrl+I

Triggers a command only if the required condition is confirmed. Otherwise, another command may be activated. The "Else" function is optional.

7.1.3.19 Goto Time

This command is exclusive to the "TimeBased" tasks and enables you to reach a given time in a "TimeBased" task and then to launch its execution starting at this time.

7.2 TABLE OF AVAILABLE COMMANDS IN STEPBASED TASKS AND TIMEBASED TASKS:

Command	StepBased Task	TimeBased Task
Open UserScreen	Yes	Yes
Close Userscreen	Yes	Yes
Goto Page	Yes	Yes
Start Task	Yes	Yes
Stop Task	Yes	Yes
Abort Task	Yes	Yes
Goto Label	Yes	Yes
Goto Line	Yes	No
Goto Time	No	Yes
Expression Ctrl+E	Yes	Yes
Load New Data File	Yes	No
List Control	Yes	No
Call Task	Yes	No
Wait Ctrl+W	Yes	No
While/EndWhile Ctrl+H	Yes	No
If/Else/Endif Ctrl+I	Yes	No

8 KEYBOARD SHORTCUTS

- File

Undo	Ctrl+Z
Redo	Shift+Ctrl+Z
New	Ctrl+N
Open	Ctrl+O
Save	Ctrl+S
Print	Ctrl+P
Quit	Ctrl+Q

- Edition

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Duplicate	Ctrl+D
Select All	Ctrl+A
Group	Ctrl+G
UnGroup	Ctrl+U
Push to Back	Ctrl+B
Pull to Front	Ctrl+F
Find…	Shift+Ctrl+F

- Windows and new elements

Show UserScreens Inspector	Ctrl+F5
Show "Devices" Inspector	Ctrl+F6
Show Variables Inspector	Ctrl+F7
Show Tasks Inspector	Ctrl+F8
Show Task Editor	Shift+Ctrl+F8
UserScreen Toolbox	Ctrl+F9
Object Inspector	Ctrl+F10
Timecode Calculator	Ctrl+F11

New Device	Ctrl+Ins
New Variable	Shift+Ins
New Task	Ctrl+T
New Task Editor	Shift+Ctrl+T

Programming

Bring the Main Menu Bar into view

The main Menu bar	Ctrl+F12
Debug	F2
Run	F3
Stop	ESC

When the Task Editor window is opened:

prepare to insert commands	Ins
open the Expression edit window	Ctrl+E
open the Wait edit window	Ctrl+W
open the While/Endwhile edit window	Ctrl+H
open the If/Else/Endif edit window	Ctrl+I

"Timebased" and "StepBased" Tasks

Right and **Left** arrows: navigation between "cues".
Up and **Down** arrows: selection of tracks.
ALT + Right/Left arrows: move the selected cues in the Time Line (1/10 second).
ALT + CTRL + Right/Left arrows: move the selected cues in the Time Line (1/100 second).
ALT + Up/Down arrows: Move the selected cues from one track to another.
+ and **-**: offset the time of the selected cues.
Insert: Insert.
CTRL + E: insert an expression.
Delete: Delete.
Space-bar: Stop - Start, insert cues in "TimeX".
Esc: End of "TimeX".
G: Go to a time.
Shift + m: Insert a comment.
Shift + s: Deactivate a cue.
Shift+ n: Activate a cue.
Shift+ g: Group cues together.
Shift+ u: Withdraw from the group.
Shift+ x: Expand cues.
Shift+ c: Compress cues.
Shift+ d: Distribute cues.

Left click in a cue: Select this cue.
Left click outside cues: Deselect the "cues"; select the track.
Left click + CTRL in a cue: Add to the selection.
Left click in the selection of cues + move: Move the selected "cues" around on the same track and between tracks.
Left click in the selection of cues + ALT + move: Move the selected "cues" but without changing their time.
Left click outside the selection of cues + Lasso: Select the "cues" caught in the lasso.
Left click + SHIFT in the time bar + move: Select all of the "cues" in the time bar.
Left click on the track title: Select the track.
Left click on the track title + lateral move: Select/Deselect all of the cues on the track.
Left click + CTRL on the track title: Add the track to the selection.
Left click on the track title + vertical move: Move the selected tracks.
Left click on the time bar: Position the cursor on the time bar (locate-pause).
Right click on the time bar: "Popup" time resolution selection menu.
Right click on the track title: "Popup" track configuration menu (new, rename, delete, size).
Right click in the body of the "Timeline": "Timeline" and "Cues" "Popup" edit menu.
Left click in a low/high time stop: Edit the low/high time stop.
Left click + CTRL in the low/high time stop: Put the current time in the low/high stop.
Right click on a low/high stop: Reset the stops for the duration of the "Timeline" + a creation area.

9 GLOSSARY

"Device" : Element
The set of a multimedia installation is composed of elements that are active, passive or both. These elements are the players in the multimedia ensemble. Each Medialon Manager programme installed on a PC is one of the constituent elements of the ensemble, like a video server, a lighting unit, a video switching centre or a serial port.

"Resource": Hardware or software resources
This term designates the hardware or software capacities of the PC on which Medialon Manager is installed. These resources may be serial ports, MIDI ports, an Ethernet/IP network, or a software layer like "Direct Show" or "ODBC". All of the "Devices" created in Manager depend from one or several resources.

"MXM": "Manager XObject Module"
"Plug-in" or software element (file) that one adds to Medialon Manager so as to increase its interconnection capabilities. These modules provide Medialon Manager with all the necessary resources to create, manage and control the "Devices". They also provide, in certain cases, the declaration and installation of new or "Custom" resources.

"Variable"
This is an information container (value) composed of alphanumeric characters. This value changes according to the status of an object, the result of a calculation, the action of a user, etc.
A Variable may also be processed, subjected to calculations, serve as the trigger condition for a task, etc.
There are 3 classes of Variable: "System"; "Screen", "User".
Each class consists of five types of Variable: "Integer"; "String"; "Time"; "Date"; "Enum".
"System" Variables are created by Medialon Manager or by the "Devices" created in Medialon Manager.
"Screen" Variables are created and managed by the Objects present in the "UserScreens", and they reflect their status.
"User" Variables are created by users for their own requirements.
Variables are used in the parameters of "Devices" commands as information vectors of the status state of the "Device" and as communication vectors between a "Device" and Medialon Manager.
The Variables used as parameters of a command of a "Device" may be of an "Out" type (supplies outgoing information) or "In" type (retrieves incoming information), or "In/Out" (both operations).

"Task"
This is a succession of commands or computerised instructions culminating in the sending of a command to a machine or object, or else permitting the execution of a piece of work.
A task is composed of one or several command lines (called "cues"), constituting a "mini-programme".
These "cues" command lines appear in the "Task editor" window.
A task is only executed when its trigger condition, as indicated in the "Tasks Inspector" window, is fulfilled.
A task may be conditioned by the state of Variables.

"StepBased Task": Task that is completed step-by-step
This type of task is based on the step-by-step execution of the instructions which compose it. These tasks allow logical processing of the "If-Then-Else", or "While-End-While" type, etc.

"TimeBased Task": Tasked based on time
This type of task manages the precise sequential execution of a series of instructions at precise times. These tasks can also be enslaved to an external time reference.

"Timeline": Time reference line or "Track"
This is the graphical representation of a "TimeBased Task" in proportional time.
That is to say that 1 second is represented by 24 pixels on the screen; 10 seconds will thus be represented by 240 pixels on this screen. This representation also enables the display of tracks, on which the commands may be organised.

"Object"
This term is fundamental for a programmer. An "object" is a constitutive element of the "UserScreen".
An object may be active, like a button, a "slider", a "digital slider", a list, a dynamic display, a text display, a "Led", a "bargraph" or a "Container".
An object may also be passive, like drawing tools: rectangle, circle, line, text and imported images.

"User"
In Medialon Manager, this term applies to Variables created by the programmer in addition to the Variables associated with the "Devices" and objects. This term should be understood as an "internal" parameter specifically desired by the author of the programme and not an element intended for the end user.
There is thus no direct link between the user who programmes and the "UserScreen".

"UserScreen"
This is the application of the man-machine interface, the fundamental concept of the Medialon Manager software.
The "UserScreen" will be manipulated by the end user of the created application.
Via the "UserScreen" the user will choose, make decisions, get information, play, and act on everything that will have been programmed behind this interface.
A terminal, a touch screen or a video projection can all be "UserScreens".
That is why the "UserScreens" and the "Objects" are designed with very comprehensive graphic capabilities.
A "UserScreen" can have as many as 999 pages, whilst the number of "UserScreens" is unlimited.

"UserScreen Toolbox"
Or, more precisely, the "Objectbox" since this window contains all of the various graphic objects that can be installed on the "UserScreens".
Some are purely graphical objects, just for drawing, whilst others are interactive, to control or inform in a dynamic way. You can also import external images in bitmap format ".bmp".

10 PRACTICAL INFORMATION

This programme was designed and developed by

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