NLMODELER MANUAL

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SUMMARY

PICTURES

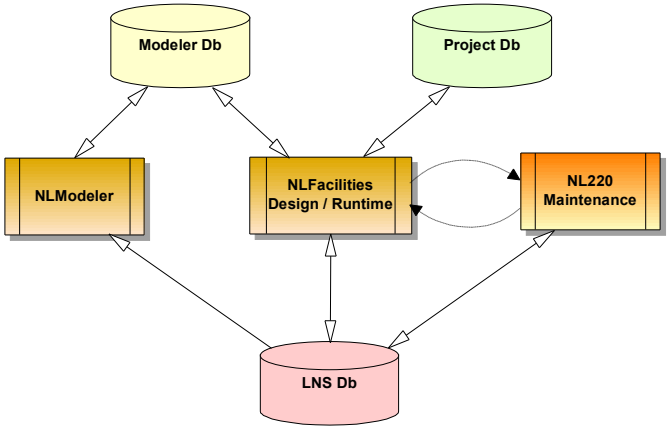
INTRODUCTION

Thank you for choosing ***NLFacilities*** software member of NLSuite.

We are happy to help you in your LonWorks integration job. All softwares of NLSuite are often updated for correcting bugs and improve performances. We propose to you to check version on Web site www.newron-system.com.

General information

In this package you have different tools describe follow.



Picture 1 Software and Database organization

NLModeler is a tool for managing relation between Nodes or LonMark objects in LNS Database. It defines network objects, space template for ***NLFacilities***.

NLFacilities is a tool in two versions for managing map, network object and space template. In designer mode you draw a map and you put network object in it. In Runtime mode you draw zone and other living space and it apply a space template in LNS Database and on Network.

NL220 is a complement for maintaining your LonWorks network.

INSTALLATION OF PROGRAMS

This section explains how to install the ***NLFacilities*** program

Configuration requirements

The table below shows the minimum configuration and the recommended configuration for the installation and correct functioning of the program.

Equipment	Minimum	Recommended
Operating system	Windows NT, 2000, Xp	Windows NT, 2000, Xp
Computer	Pentium III 350 Mhz, 800 x 600 screen	Pentium III 750 Mhz, 1024 x 768 screen
Memory	64 M octets	128 M octets
Hard disk	100 Mo - 50 Mo for program - 0,5 to 8 Mo per project	200 M octets
CD ROM	Required for installation	Required for installation
Software	- **LNS** 3.0 or greater	- **LNS** 3.0 or greater
Interface network	Type NSI or VNI card	Type NSI or VNI card

Table 1 The equipment

Installation

A setup program will guide you through the installation procedure and will ask you for any information necessary.

Installation of program

1. Insert the CDROM in the CD reader
2. If no window appears on the screen open: **D:\MaquetteCD01.exe**
3. Startup page of the setup CD will appear on the screen.
4. Select **NLSuite** on main Menu
5. The NLSuite icon list will appear on the screen.
6. Select  on left of screen.

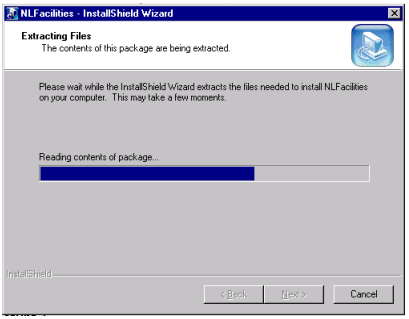
7. ***NLFacilities*** installation page will appear on the screen.
8. Click on ***Install*** button, to start the ***NLFacilities*** setup program.

Picture 2 Install Step 1

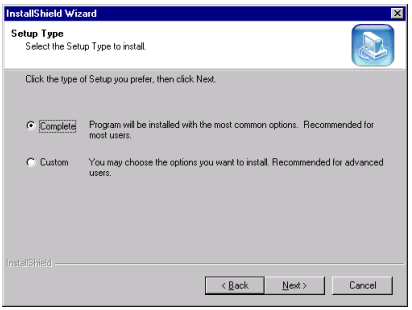
Picture 3 Install Step 2

Picture 4 Install Step 3

The ***NLFacilities*** setup program will now be ready and the progress of setup program will appear on the screen. Follow the instructions until you arrive at type of installation choice.



Picture 5 Install Step 5



Picture 6 Install Step 6

You have the choice between the following installations:

Installation	***Details***
Complete	Complete installation of ***NLFacilities*** and **NLModeler**.
Custom	You can choose the module to be installed

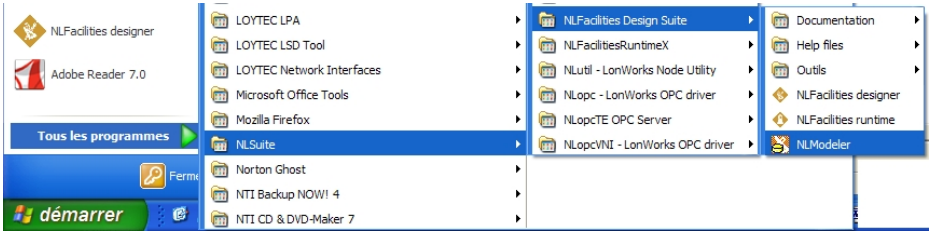
Table 2 Type of installation

You should restart your PC at the end of the installation, according to the instructions.

START WITH NLMODELER

Starting NLModeler

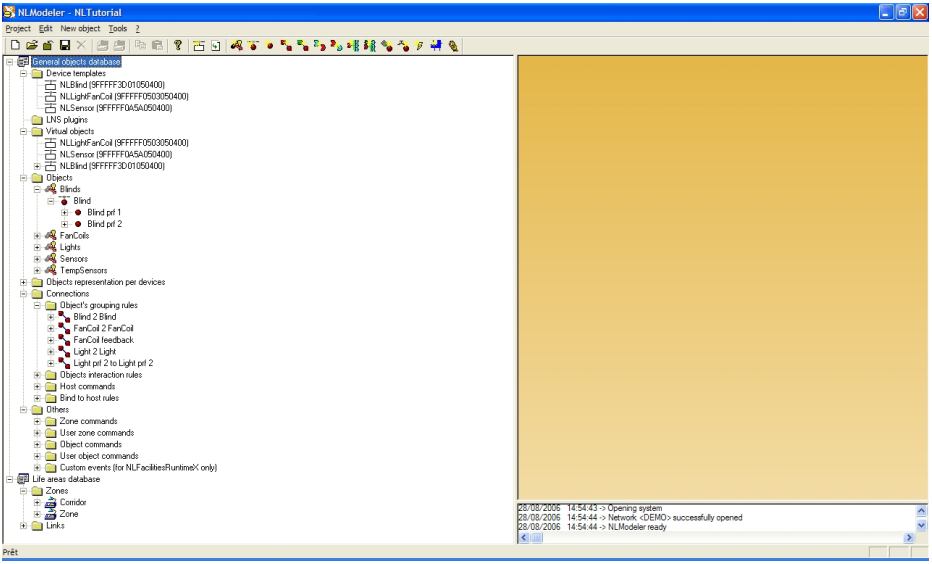
To Start ***NLModeler***, go to the **NLModeler** folder from the Start menu of windows.



Picture 1 Start NLModeler

NLMODELER OVERVIEW

General view



Picture 7 General view of NLModeler

Elements of the General view

NLModeler Menu

Provides all functions of ***NLModeler***.

NLModeler toolbars

Give quick access to some functions.

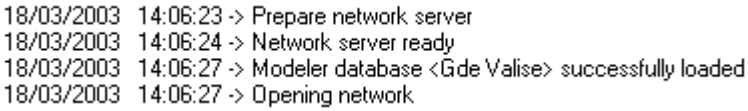
Tree view

Displays in a tree the contents of the database. All the objects are sorted in subfolders, we will see later the description of each subfolders.

Edit view

Displays detail of item showed in tree view. It shows the properties pages of any objects available in ***NLModeler***. To display the property pages of an object, you must edit the object.

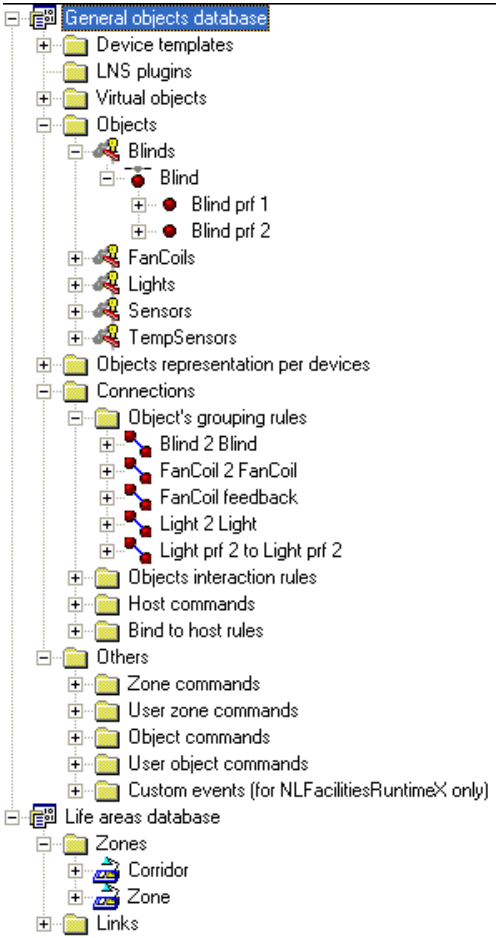
Output traces view



Displays history of commands since the start session.

Tree view

The Tree view displays the contents of the ***NLModeler*** database.



Picture 8 Tree view

Different icons are available in this view.

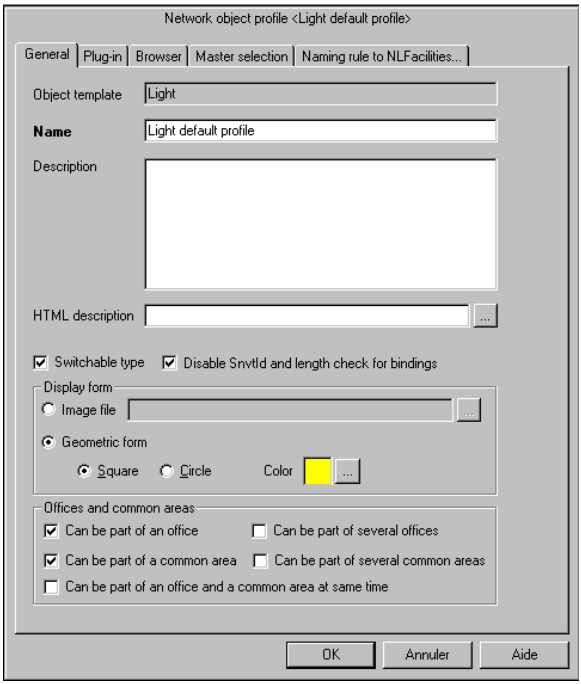
Each icon is followed by the name for explanation of item.

Icons	Representation
	Database
	Folder
	Device templates
	Category of product

	Network object
	Object profile
	Object's grouping rules
	Object interaction rules
	Host commands rules
	Binding to host rules
	Zone command
	User zone command
	Object command
	User object command
	Custom event
	Zone profile
	Links

Edit view

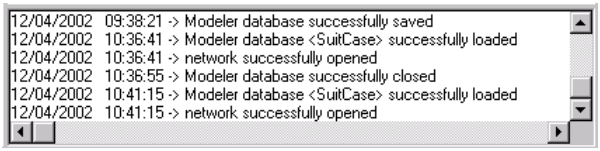
This view depends of contextual item you edit.



Picture 9 Network object profile in Edit view

Output traces view

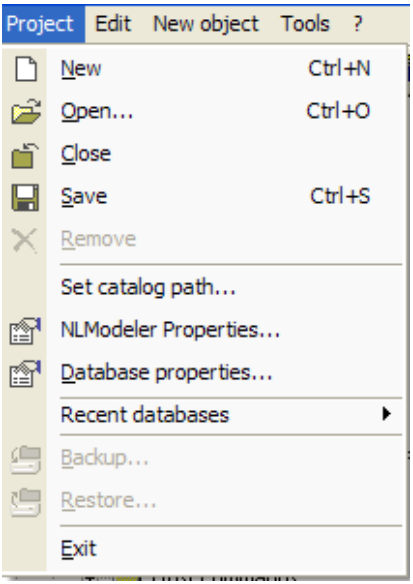
This view displays all the traces generated by ***NLModeler***.



Picture 10 Output trace view

NLModeler menu

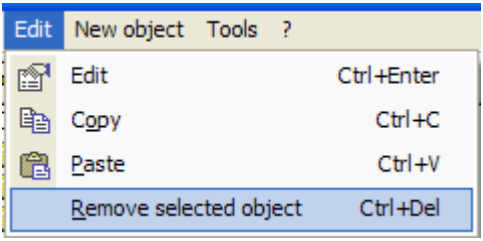
NLModeler Project menu



Picture 11 NLModeler Project menu

Menu option	Icon	Description
New		Create new ***NLModeler*** database.
Open		Open an existing database
Close		Close current database
Save		Save current database
Remove		Remove a Modeler database
Set catalog path		Set SNVT catalog path.
NLModeler properties		Set general properties of ***NLModeler***
Database properties		Set general properties of the ***NLModeler*** database
Recent databases		List of database previously opened
Backup…		Backup database **see the Step by step sample for Backup restore explanation**
Restore…		Restore database previously backuped
Exit		Quit ***NLModeler***

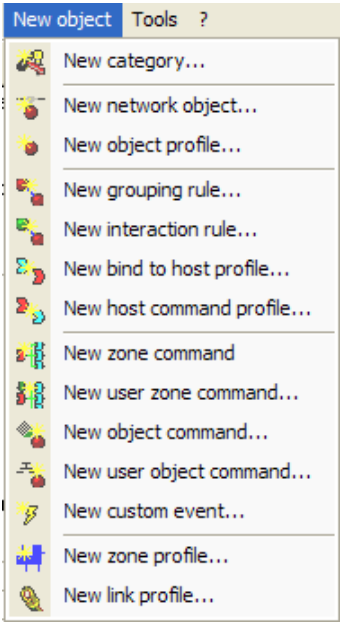
NLModeler Edit menu



Picture 12 NLModeler Edit menu

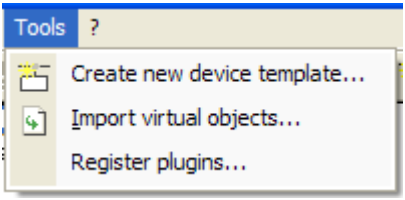
Menu option	Icon	Description
Edit		Edit selected object
Copy		Copy object selected.
Paste		Paste previously copied object
Remove selected object		Remove selected object from database.

NLModeler New object menu



Menu option	Icon	Description
New category…		Add a new **"category"**
New network object …		Add a new **"network object"**
New object profile		Add a new **"object profile"**
New grouping rule…		Add a new **"grouping rule"**
New interaction rule…		Add a new **"interaction rule"**
New bind to host profile…		Add a new **"bind to host profile"**
New host command profile…		Add a new **"host command profile"**
New zone command…		Add a new **"zone command"**
New user zone command…		Add a new **"user zone command"**
New object command…		Add a new **"object command"**
New user object command…		Add a new **"user object command"**
New custom event …		Add a new **"custom event"**
New zone profile…		Add a new **"zone profile"**
New link profile…		Add a new **"link profile"**

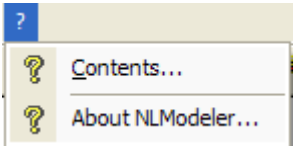
NLModeler Tools menu



Picture 13 NLModeler Tools menu

Menu option	Icon	Description
Create new device template		Add new device template from XIF file into LNS database linked with ***NLModeler*** database.
Import virtual objects		Import from a file the description of virtual objects
Register plugins		Register plugins in the LNS database of the NLModeler database

NLModeler ? (Help) menu



Picture 14 NLModeler Help menu

Menu option	Icon	Description
Contents		General Help about ***NLModeler***
About NLModeler..		Dialog box about.

NLModeler Toolbars

Icon	Short cut	Description
	Ctrl + N	Create a new ***NLModeler*** database.
	Ctrl + O	Open an existing ***NLModeler*** database.
	None	Close the current opened database.
	Ctrl + S	Save current ***NLModeler*** database.
	Ctrl + C	Copy object selected.
	Ctrl + V	Paste previously copied object.
	None	Dialog box about.
	Alt+C	Add a new **"category"**
	Alt+N	Add a new **"network object"**
	Alt+P	Add a new **"object profile"**
	Alt+G	Add a new **"grouping rule"**
	Alt+I	Add a new **"interaction rule"**
	Alt+B	Add a new **"bind to host profile"**
	Alt+H	Add a new **"host command profile"**
	Alt+Shift+O	Add a new **"zone command"**
	Alt+Shift+U	Add a new **"user zone command"**
	Ctrl+Shift+O	Add a new **"object command"**
	Ctrl+Shift+U	Add a new **"user object command"**
	None	Add a new **"custom event"**
	Alt+O	Add a new **"zone profile"**
	Alt+L	Add a new **"link profile"**

This toolbar provides general tools for database.

NLMODELER DATABASE

Folders

Device templates

This folder contains all the device templates that are defined in the LNS database present by the NLModeler database.

LNS plugins

This folder allows you to register plugins for the project and define wether the plugin is automatically registered when a LNS database is created by NLFacilities.

Virtual objects

This folder contains all the device templates, and in device templates, there is virtual objects defined for it.

Objects

This folder contains the network objects of the NLModeler database. That is to say the categories, the object templates and object profiles (See **objects** chapter for more information about these objects)

Objects representation per devices

Object representation is used to define how a type of device must be handled by the zoning tool. The main functionality of this folder is to define and change output numbers in case of multiple LonMark Objects in the Template.

Connections

Object's grouping rules

Contains all the **object's grouping rule** objects defined in the NLModeler database (See **objects** chapter for more informations about these objects)

Objects interactions rule

Contains all the **objects interaction rule** objects defined in the NLModeler database (See **objects** chapter for more informations about these objects)

Host commands

Contains all the **Host command** objects defined in the NLModeler database (See **objects** chapter for more informations about these objects)

Bind to host rules

Contains all the **Bind to host rule** objects defined in the NLModeler database (See **objects** chapter for more informations about these objects)

Others

Zone commands

Contains all the **Zone command** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

User zone commands

Contains all the **User zone command** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

Object commands

Contains all the **Object command** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

User object commands

Contains all the **User object command** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

Custom events

A custom event is only used for the **NLFacilitiesRuntimeX**.

NLFacilitiesRuntimeX is able to send events to its container. The event sends **are** the custom events.

In **NLFacilitiesRuntimeX** to send a custom event, the user must right click on an object or zone and select in the Actions menu the custom event to send. This allows you to define, in the container, a set of actions that could be launched on zones or objects on a map of **NLFacilitiesRuntimeX.**

Life areas database

Zones

Contains all the **Zone** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

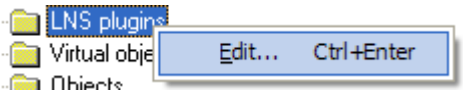
Links

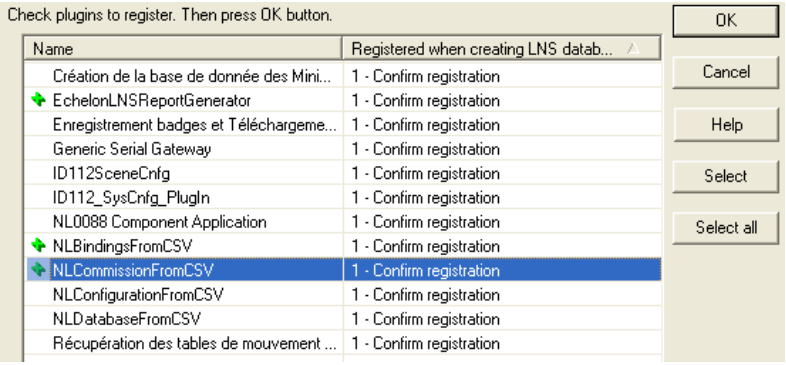
Contains all the **Link** objects defined in the NLModeler database (See **objects** chapter for more information about these objects)

Pre-definitions

LNS Plugins

This functionality allows you to automatically register plugins for a LNS database created with NLFacilities.





Picture 15 LNS Plugins Menu

By double clicking the Plugin, a green cross will be displayed next to it.

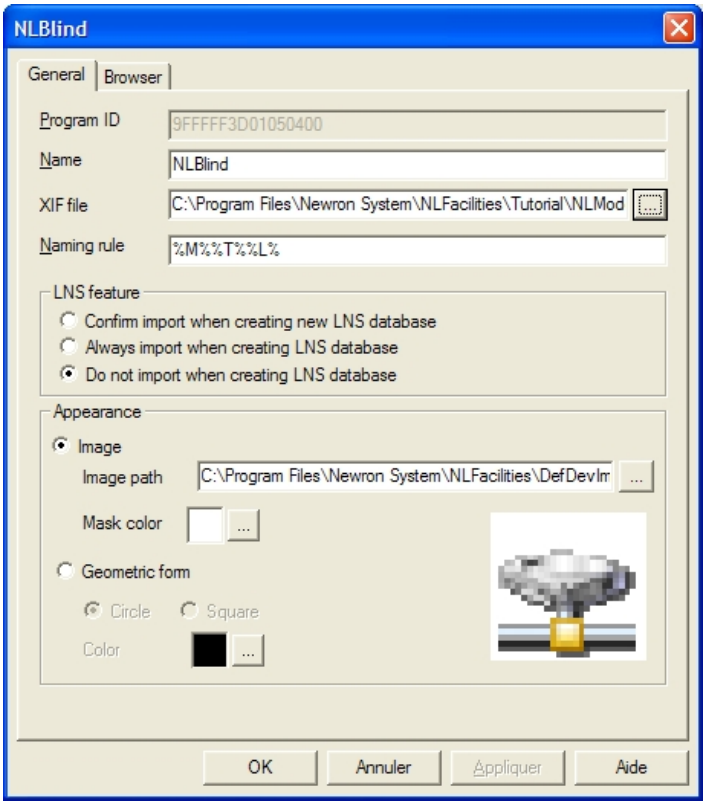
When you click OK, all plugins with a green cross will automatically be added when creating a LNS database with NLFacilities.

There are three rules of registration :

- "**Confirm registration when creating new LNS database**" where a confirmation is awaited before registering the plugin,
- "**Always register when creating LNS database**" where the plugin is always registered when a LNS database is created from NLFacilities,
- "**Do not register when creating LNS database**" where the plugin isn't automatically registered when creating the LNS database ; you can of course register it later manually.

Devices Templates

You can define Device Templates to be added automatically in a LNS database created by NLFacilities.



Picture 16 Device Templates Menu

It is required to fill the "**XIF file**" field to be able to modify the "**LNS feature**" option. This option allows you to define three import rules for your Device Template :

- "**Confirm import when creating new LNS database**" where a confirmation is awaited before importing the device,
- "**Always import when creating LNS database**" where the Device Template is always imported when a LNS database is created from NLFacilities,
- "**Do not import when creating LNS database**" where the device isn't automatically imported when creating the LNS database ; you can of course import it later manually.

Objects

The database of ***NLModeler*** is made of several objects that are quite fully linked between each others.

We will explain here the links between objects and their goals.

Categories

Categories are used to organize **network objects** together.

The categories are made to sort the category of products you have on your network, for example you can have the following categories:

- **FanCoils** : All kind of FanCoil products on your network.
- **Lights** : All kinds of light products on your network.
- **Sensors** : All kinds of sensor products on your network.
- **Blinds** : All kinds of blind products on your network.

In tree view the icon  represents a category.

You must at least create one category to create network objects.

Creation

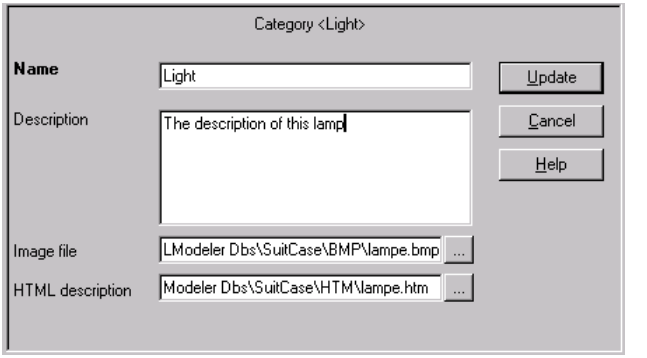
A category can be create from :

- The main menu : select the New category… option in the New object menu.
- The toolbar : click on the  icon.
- The contextual menu of **Objects** folder : Right click on the **Objects** folder and select the **New category…** option.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 17 Category properties window

Name Name of the category

Description Description of the category (for information only).

HTML description HTML file used to display information in ***NLFacilities***. Optional information.

Virtual objects

The virtual objects are similar to LonMark objects of a device.

The virtual objects were created to generate LonMark objects for device template that does not support them, or to redefine LonMark objects for devices that have LonMark objects but that does not correspond to the ***NLModeler*** philosophy.

A virtual object groups network variables and configuration properties of a same device in a new entity : a virtual object.

IMPORTANT

When virtual objects have been defined for a device template, when the user creates a new **Network object template** for this device template (see chapter **Network object template** for more informations), he will have the choice to define the object template on the whole device or on a range of virtual objects, but no more on a range of LonMark objects.

For the moment, ***NLModeler*** does not have a virtual objects editor.

The only way to create virtual objects is to import a file that describes the content of the virtual objects.

It will be a little bit complicated to explain without example. So to have more informations about virtual objects see the Step by step example at the end of the document.

Importing virtual objects

To import virtual objects, Right click on the **Virtual objects** folder and select the **Import virtual objects…** option.

Then select the virtual object description file, ***NLModeler*** will compile the file to generate the desired virtual objects.

Virtual object description file format

Here is an example of virtual object description file with each line explained :

```
//General section

[GENERAL]
```

```
//NBOBJECT define the number of objects defined in the file

NBOBJECTS=5

//PID define the Program ID for which the virtual objects are defined

PID=9FFFFF3D00050400


//VIRTUALOBJECTX correspond to the section that describe the Xth virtual object. X

//must be from 1 to NBOBJECTS

[VIRTUALOBJECTX]

//Definition of the name of the virtual object

NAME=VOBJNameX

//Description of the virtual object

DESCRIPTION=VirtualObject representing Blind 1

//HTML description file of the virtual object

HTML=

//Profile file of the virtual object

PROFILEFILE=

//Type of the virtual object (NOT used for the moment)

TYPE=TypeBlind

//NBNVS defines the number of network variable

NBNVS=3

//NVx index of the network variable, X must be from 1 to NBNVS

//Can be find in NL220 in the page Network variables of a device, the column Rank in the

//list

NV1=4

NV2=5

NV3=6

//NVLONx LON index of the network variable, X must be from 1 to NBNVS

//Can be found in NL220 in the page Network variables of device, select the network

//variable concerned, select the Properties page, the LON index is the value in the Index

//text box.

NVLON1=3

NVLON2=4

NVLON3=5
```

```
//NBCPS number of configuration properties defined in the virtual object
NBCPS=1
//CPx definition of the location of the configuration property in the device. X must be from
//1 to NBCPS
//The format of the string to define the CP location is :
//<CP index>;<LonMarkObject index>;<NV index>; <LON index of the NV>
//Example :
//4th CP in the device : 4;-1;-1;-1
//3rd CP of the 2nd LonMarkObject : 3;2;-1;-1
CP1=1;-1;-1;-1
```

Network object template (object template or network object)

The **network object template** is the based item to create from a device template.

In tree view the icon  represents a **Network object template**.

A **network object template** can be a full device template, one or several LonMark objects of a device template.

For a full device template all network variables will be available for binding configurations.

For a singleton LonMark object only the network variables of the object are available for binding configurations.

For a multi LonMark objects then compliant LonMark objects can be selected (same type, same network variables and same configurations). Only the network variables on the first LonMark object are used for bindings configuration. ***NLFacilities*** will use the correct network variable of the correct LonMark object when making bindings.

NOTE : If you have several type of devices that have the same objects, it is possible to define a NLModeler network object that references all the objects.

Simply click on “Add” in the general window to select the Template to add, then select the new tabulation created for this Device Template and check its objects.

Creation

You can create a new **Network object template** from:

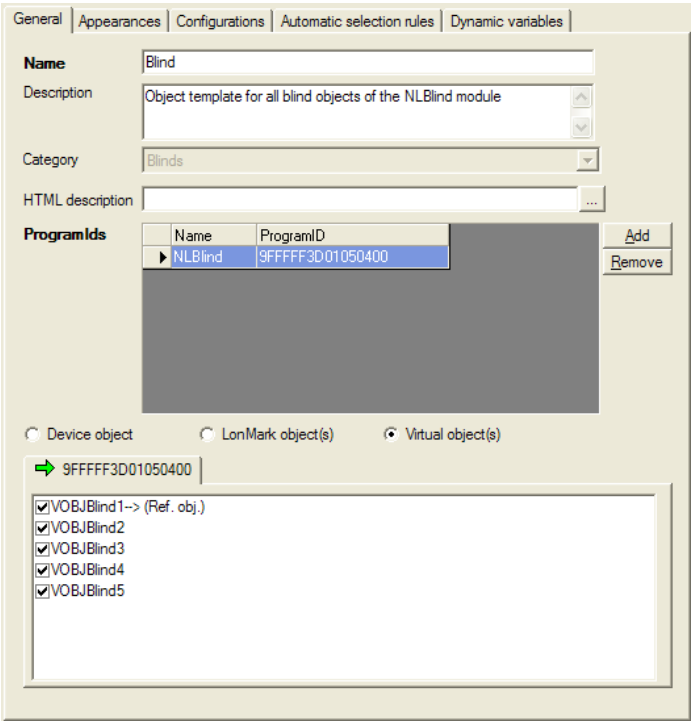
- The main menu : Select the **New network object…** option.
- The toolbar : Click on the  icon.
- The contextual menu of a **category**: Right click on the **Category** parent of the **network object** you want to create and select the **New network object…** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Category** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 18 Network Object properties window

Name	The name of the network object. Must be unique.
ProgramId	ProgramID of the device template of the network object. You cannot change it after creation. **Add** : Add a new ProgramID to the list of available ProgramIDs **Remove** : Remove the selected ProgramID from the list of available ProgramIDs for the network object.
Description	The description of the network object. Optional information.

Category Category the network object belongs to.

HTML description HTML file used to display information in **NLFacilities**. Optional information.

Type

Device object : Select to make the network object to work on the whole device represented by the ProgramIDs

LonMark objects : Select to indicate that the network object is represented by some LonMark objects available for the ProgramIDs

Virtual objects : Select to indicate that the network object is represented by some virtual objects available for the programIDs.

Selection of objects that represents the network object

For each ProgramID available for the network object there is one page available in each page you define what objects will represent the network object.

Reference object

The reference object of the network object is the based object used by NLModeler in the configuration of the object. NLModeler will propose only the network variables and configuration properties of the reference object to configure commands or set configurations that will be written at zone creation.

When a reference object is set and that the network object is in use, you won't be able to change it.

Network object profile

The profile is derived from a **network object template**.

You can define in a profile its bitmap, the way it works with zones, the plug-ins available in NLFacilities, the browser configuration, the Naming rule when objects will be added in ***NLFacilities***.

You can create one or several profiles for each **network object template**.

Network object profile is the based item used for configuring bindings so you need at least one profile for each network object you want to use to define the rest of the NLModeler database.

Note that when creating a network object a default profile is automatically created.

Creation

You can create a new **Network object profile** from:

- The main menu : Select the **New object profile…** option.
- The toolbar : Click on the  icon.
- The contextual menu of a **Network object template**: Right click on the **Network object template** parent of the **object profile** you want to create and select the **New object profile…** option.

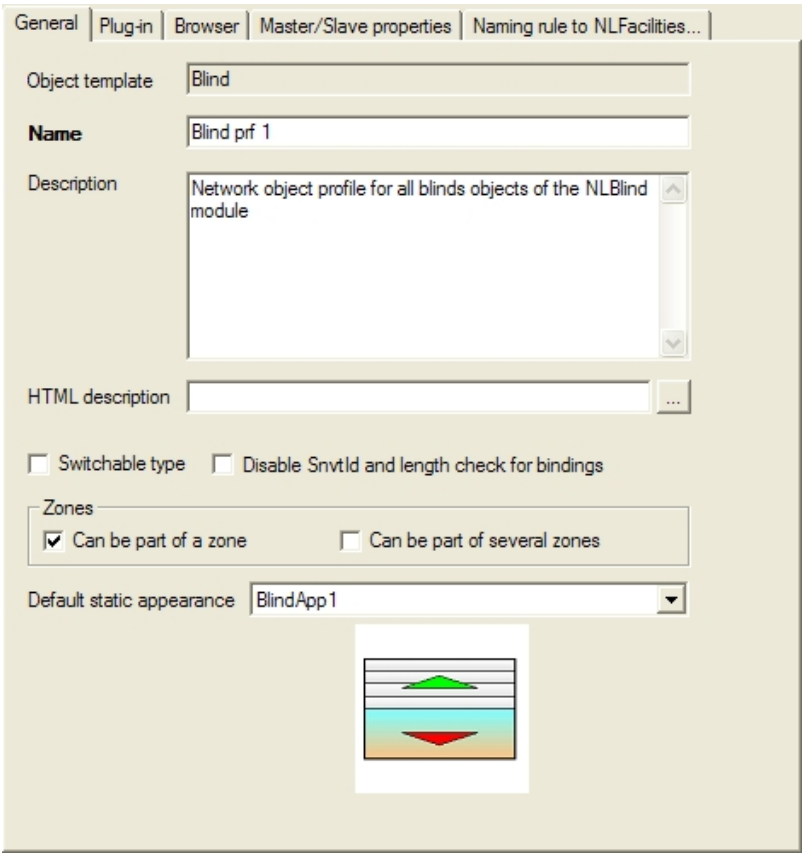
NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Network object template** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.

General folder



Picture 19 Network Object profile properties window general folder

Object template Name of the profile's network object. You can't modify this information.

Name The Name of the profile

Description The description of the profile.

HTML description HTML file used by **NLFacilities** do display information about profile. Optional information.

Switchable type Indicate if in ***NLFacilities*** the user will be able to switch from this profile to another (of the same network object).

Disable SnvtId and length check for bindings

Indicates if ***NLModeler*** authorizes definition of bindings between network variables that have not the same size.

Display form

Type of display when the object is added in a view in ***NLFacilities***. This can be a bitmap path or a form. For a bitmap you must select any compliant bitmap file. For the form you must select square or circle and the color of the form. **Note that geometric forms use less memory than the use of image file**.

Zone

Methods supported by the profile with zones and common areas.

Can be part of a zone

If checked the object profile can be add in a zone.

Can be part of several zones

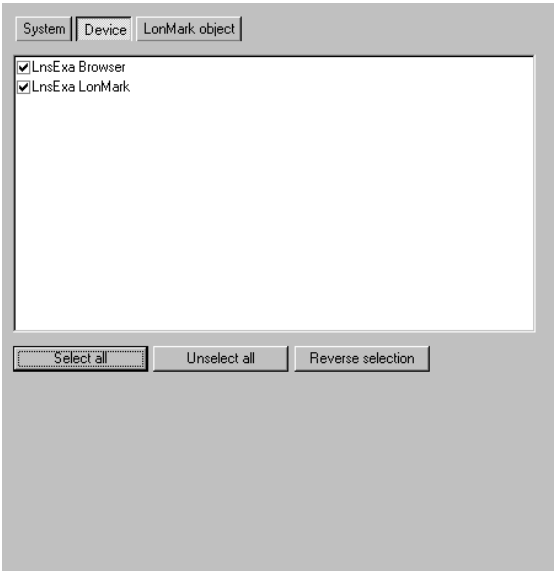
If checked the object profile can be shared by several zones.

Default static appearance

Displays the default static appearance of the network object profile

Plug-in folder

In this part you can select the plug-ins supported and available in ***NLFacilities*** for this profile.



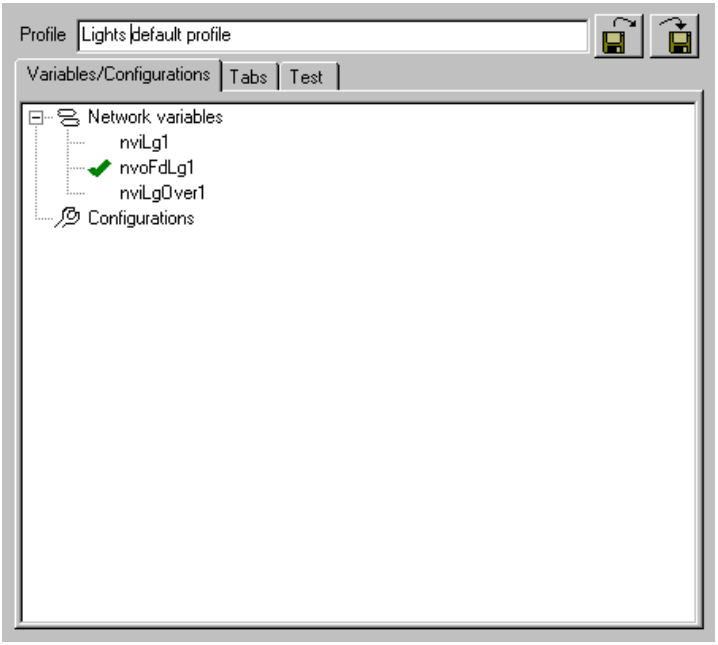
Picture 20 Network Object profile properties window plug-in folder

Each time you select a type ***NLModeler*** display the available plug-ins register in the LNS database used by ***NLModeler***.

To enable a plug-in you must check it in the list.

Browser folder

This part is used to configure the build-in browser of ***NLFacilities*** for this profile.



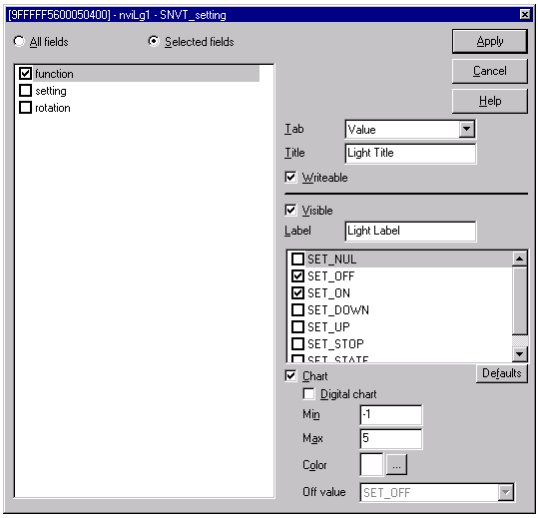
Picture 21 Network Object profile properties window Browser folder

Profile Name of the profile to be saved on disk.

Load Click on this to reload the profile from disk.

Save Click on this to save the profile. This is optional because profile will be automatically saved when you validate the window.

If you double-click on network variable a dialog box appear.

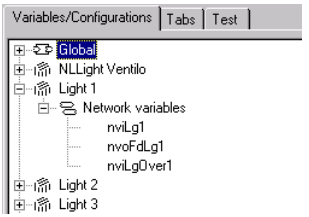


Picture 22 Setting dialog box for network variable browser

All fields	If checked all field of SNVT are show in ***NLFacilities*** browser.
Selected fields	If checked, only field selected are showed in ***NLFacilities*** browser.
Tab	Name of tab where fields selected in left list are visible in ***NLFacilities*** browser
Title	Name of variable in Tab defined above.
Writeable	Allow the modification of the value.
Visible	If checked, this filed is visible in ***NLFacilities*** browser and it is checked in left list.
Label	Name of variable in chart.
Chart	Allow the chart with this field.
Digital chart	Allow the digital chart with this field.
Min	Minimum value for chart
Max	Maximum value for chart
Color	Color of the drawing value in graph.

Variable/Configurations folder

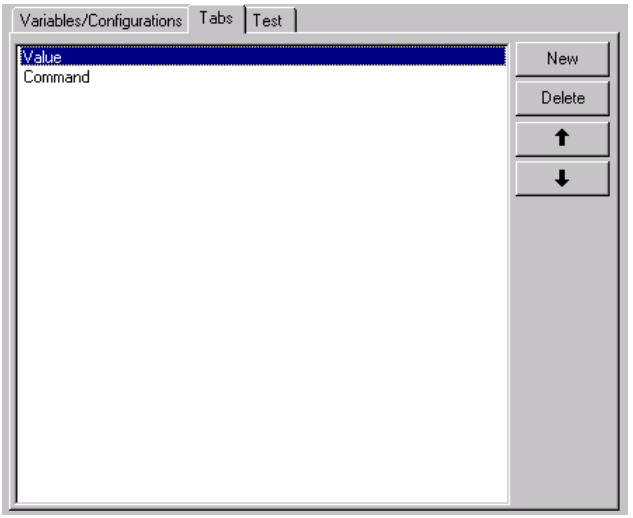
The list displays all available network variables and configurations of the profile. If the profile is a device profile then all network variables and configurations of the device template are available.



If the profile is a (or several) LonMark object then only network variables and configurations of the LonMark object are available in the list. Picture 21

Tabs folder

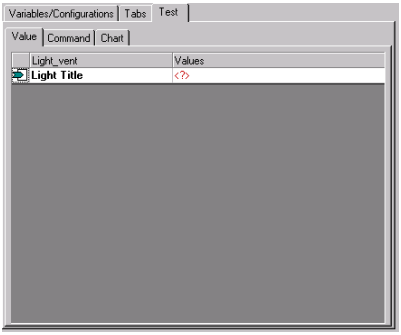
The Tabs folder is the list of tabs created in the browser. Tabs can be used to organize network variables and configurations in browser.



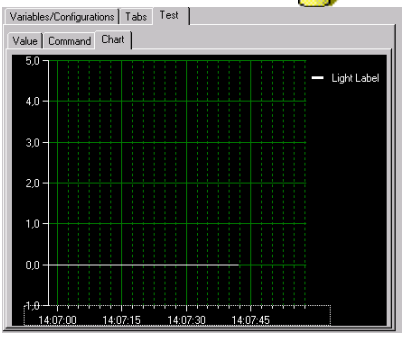
Picture 23 Network Object profile properties window Browser folder

Test folder

Click on test to test the result in a fake browser.



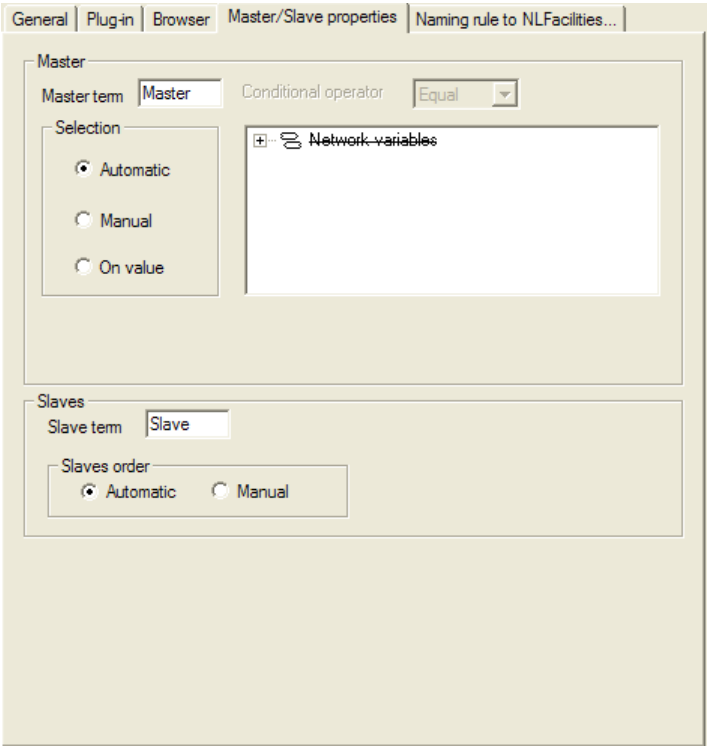
Picture 24 Example 1 of Browser



Picture 25 Example 2 of Browser

Master/Slave properties folder

In this part you can select the way to select the master and the order of the slaves for this profile.



Picture 26 Network Object profile properties window Master selection folder

Slave term Prefix used in **NLFacilities** to display slaves order.

Slaves order Way to define the order of the slaves.

Automatic The order is defined by **NLFacilities** without user interaction.

Manual The order is defined by the user under **NLFacilities** when making an area.

Master term String used in **NLFacilities** to display master selection.

Selection Way to select the master.

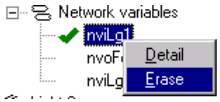
Automatic The master is defined by ***NLFacilities*** without user interaction

Manual The master is defined by user under ***NLFacilities*** when you define an area.

On value The master is defined depending of values of network variables and/or configurations.

Conditional operator The way to verify the value. Can be **equal** or **different**.

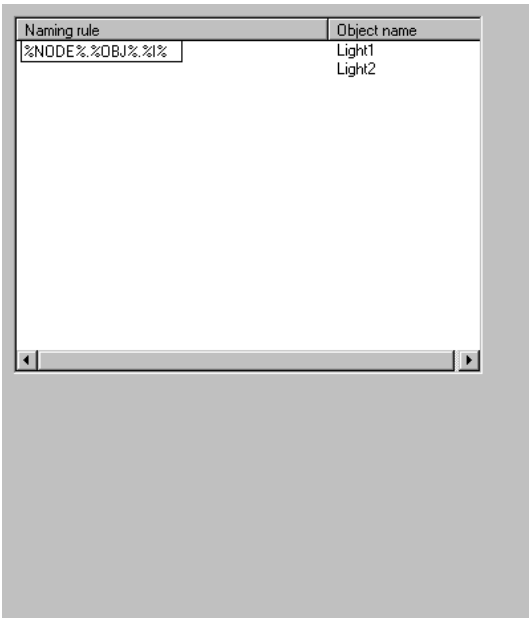
Conditional value The list displays the network variables and configurations of the profile. To define a value of a network variable or a configuration double click on the item in the list. To remove a value of a network variable or a configuration right click on the item in the tree and select option **Erase**.



Naming rule folder

In this part you define a rule to tell ***NLFacilities*** how objects must be named when they are added to a map.

NOTE : When you have define object profiles in ***NLModeler***, then in ***NLFacilities*** you want to add in the map an object, ***NLFacilities*** will process the Naming rule defined at this step to generate the name of the objects on the map.



Picture 27 Network Object profile properties window Naming rule folder

Naming rule The rule that will be used to rename objects in when added in ***NLFacilities*** maps.

Object name Real name of the object (LonMaek or Virtual object)

The Naming rule use flags that will be replaced when the object will be added in ***NLFacilities*** map.

The available flags are:

- **%NODE%** : Replaced by the name of the device of the object.
- **%OBJ%** : Replaced by the real name of the object.
- **%I%** : Replaced by an increment totally managed by ***NLFacilities***.

By default, the naming rule is **%NODE%.%OBJ%**

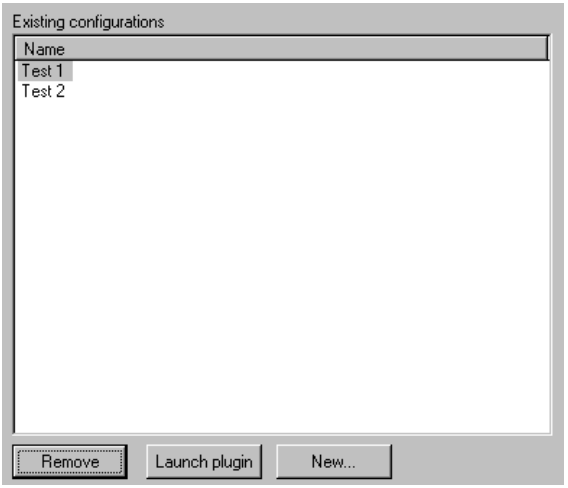
Example: node named **DeviceName**, object named **objName**.

With the Naming rule **%NODE%.%OBJ%** we've got **DeviceName.objName**

Configurations folder

In this part you define a library of configurations for an object. When the library is defined, you can use it to easily set configurations set to objects at the zone profile configuration.

NOTE : The configuration is a set of value of configuration properties. The value of the configurations must be set through plugins.



Picture 28 Network Object profile properties window Configurations

Remove Remove a configuration.

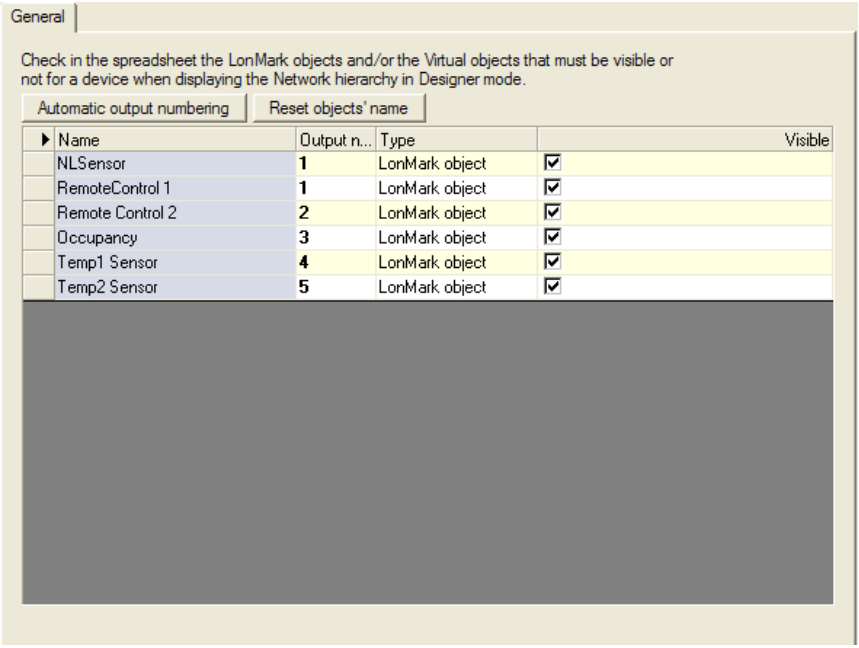
Launch plugin Launch a plugin to set value for a configuration.

New… Create a new configuration.

WARNING: Each configuration in the list correspond to a device in the LNS database used by the NLModeler database, if you change the LNS database used for the NLModeler database, then all the configurations are lost.

Objects representations per devices

Object representation is used to define how a type of device must be handled by the zoning tool.



Column Name R/W

Name of LonMark objects and virtual object displayed in the LNS hierarchy of the zoning tool.

Column Output numbering R/W

Define the text that must be displayed on the top left of the object to indicate their output numbers.

Column Type R

LonMark object if the object is a LonMark object

Virtual object if the object is a Virtual object

Column Visible R/W

Check to ensure that the object will be visible in the Network hierarchy in Designer mode.

Uncheck to make the object invisible in the Network hierarchy.

Connections

Objects grouping rules

Object's grouping rules are used to configure bindings between same network object's profiles.

Object's grouping rules always work on a network object profile.

In tree view  represent the object grouping rules.

An example:

NLModeler have a network object profile Light.

Now under **NLFacilities** you can create an area (zone or common area) including several objects of this profile.

The **object's grouping rules** are used here to make the bindings between objects with same profile.

It exists two types of object's grouping rules.

Chain link These bindings describe the links between objects of same profile in same area. It is used to "group" the objects in order to work together in same area.

Feedback link These bindings are used to make feedback process between objects of same profile in same area.

Note that you not always need the both feature and if fact only **Chain link** is often used.

If you want to have a **Chain link** and a **Feeback link** for the same network object profile you must create TWO **Object's grouping rules** for this profile.

Numbered options are available to correctly configure your bindings between objects.

Creation

You can create a new **Object's grouping rule** from:

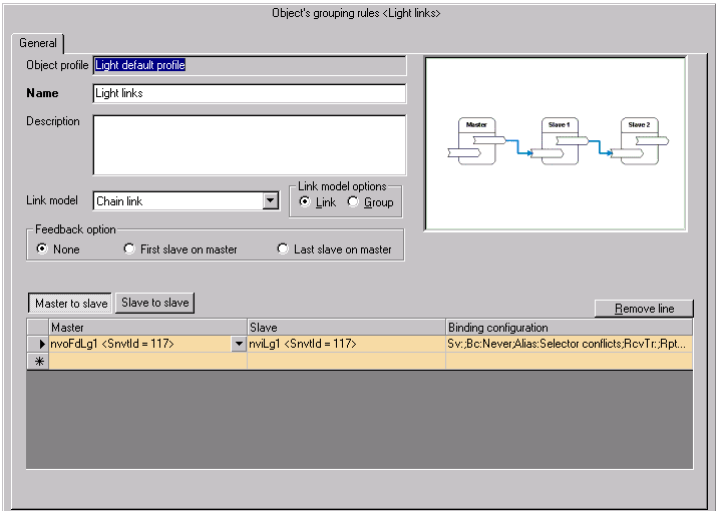
- The main menu : Select the **New object's grouping rule…** option.
- The toolbar : Click on the icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **object's grouping rule** you want to create and select the **New object's grouping rule…** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 29 Object grouping rules properties window

Name Name of the object's grouping rules.

Description Description of the object's grouping rules.

Link model You can do a **Chain link** or a **Feedback link**.

Link model options (only available for **Chain link**)

Link In this mode the first object (**master**) send variables to the first slave.

Group In this mode the first object (master) send variables to all slaves in one shot.

Feedback option (only available for **Chain link**)

None No feedback.

First slave on master First slave send feedback values to master.

Last slave on master Last slave send feedback values to master. Determination of the first and last slaves are determined by the order of the slaves (see **Master selection**).

Options (only available for **Feedback link**)

All to all All objects (master and slaves) send feedback to all others.

Slaves to all All slaves (master excluded) send feedback to all others (master included).

Slaves to slaves All slaves (master excluded) send feedback to all others except the master.

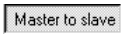
Slaves to master All slaves (master excluded) send feedback to the master only.

Last slave to master Last slave send feedback to the master only.

Turnaround (only available for **Feedback link**)Each checked the network variable(s) are send from device to themselves as a LonWorks turnaround. Not available for a **Slaves to master** or **Last slave to master** mode.

Bindings (grid) In the grid you must select the source output network variable, the source inptu network variable and the binding parameters.

For a **Chain link** you can set the bindings settings for :



Set the bindings settings for the network variables send from master to slaves.

Set the bindings settings for the network variables send from slave to slave. Set the bindings settings for the network variables send from slave to slave.

Feedback

Set the bindings settings for the feeback option (only if you select **First slave on master** or **Last slave on master**).

For a **Feedback link** you have no special options and you have to define the source and destination network variables of the binding.

For any type of binding you must set the source network variable, the destination network variable and the binding settings.

Objects interaction rules

Objects interaction rules are used to configure bindings between two different **network object profile**.

An example

NLModeler have a **network object profile** Light and a network object profile Presence.

The second (Presence) must send the occupancy value to the first (light) when present in same area (zone or common area).

The **objects interaction rules** are used here to make the bindings between the two different profiles.

Creation

You can create a new **Objects interaction rule** from:

- The main menu : Select the **New Objects interaction rule …** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **Objects interaction rule** you want to create and select the **New Objects interaction rule …** option.

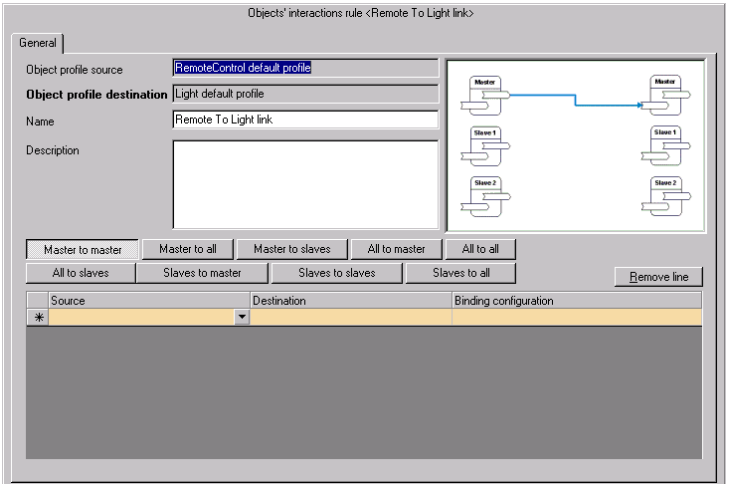
NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.

For each binding you must select the type:



Picture 30 Objects interaction rules properties window

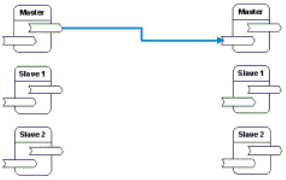
Object profile source The module provider of information.

Object profile desrtination The module receiver of information.

Name The name of the object's interaction rule.

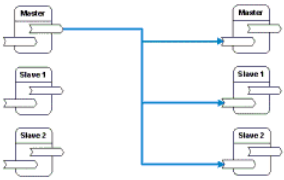
Description The description of the object's interaction rules. Optional information.

Master to master The network variable(s) is(are) send from the source master to the destination master.



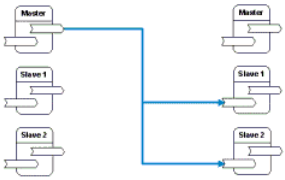
Picture 31 Interactions Master to Master

Master to all The network variable(s) is(are) send from the source master to all destination objects.



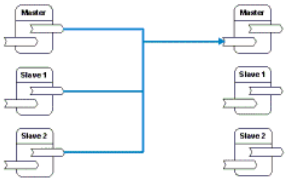
Picture 32 Interactions Master to all

Master to slaves The network variable(s) is(are) send from the source master to the destination slaves (destination master is excluded).



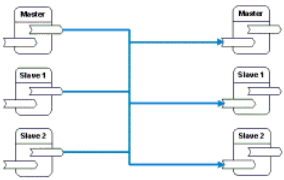
Picture 33 Interactions Master to slaves

All to master The network variable(s) is(are) send from all source objects to the destination master.



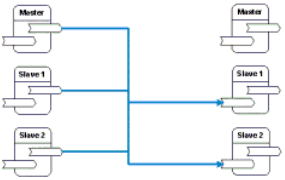
Picture 34 Interactions All to master

All to all The network variable(s) is(are) send from all source objects to the all destination objects.



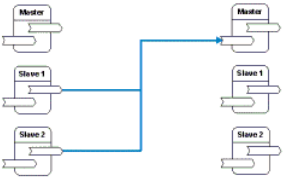
Picture 35 Interactions All to all

All to slaves The network variable(s) is(are) send from all source objects to the destination slaves (destination master is excluded).



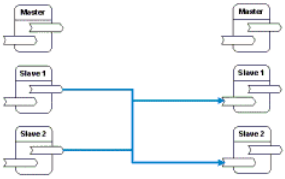
Picture 36 Interactions All to slaves

Slaves to master The network variable(s) is(are) send from all source slaves (source master is excluded) to the destination master.



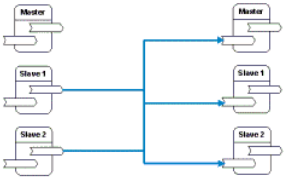
Picture 37 Interactions Slaves to master

Slaves to slaves The network variable(s) is(are) send from all source slaves (source master is excluded) to the destination slaves (destination master is excluded).



Picture 38 Interactions Slaves to slaves

Slaves to all The network variable(s) is(are) send from all source slaves (source master is excluded) to all destination objects.



Picture 39 Interactions Slaves to all

☞ Note that you can combine any settings. You can configure for example a binding in **Slaves to all** mode and another in **Slaves to slaves** mode.

For each type required you must set the source network variable(s), destination network variable(s) and the binding configuration.

To change the Binding configuration select the cell in the Binding configuration column and click on  .

Host command

Host commands are output network variables send from the local host PC to one or several network devices.

These host commands are use as derogate commands.

A host command is always create from a network object profile.

☞ Note that in **NLModeler** user only configure settings of a host command. Under **NLFacilities** it is possible to create several host commands for only one host command created in the modeler.

Creation

You can create a new **Host command** from:

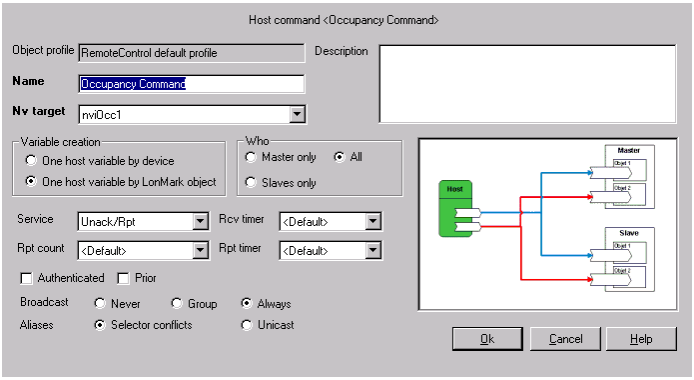
- The main menu : Select the **New Host command profile…** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **Host command** you want to create and select the **New Host command profile…** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 40 Host command properties window

Name The name of the host command.

Nv target The network variable destination for the command.

Variable creation This settings is used for **network object profile** using several LonMark objects. In this case it is possible that a host network variable must be send to several network variables on the same network device. This can cause aliases problem for devices not supporting aliases or without any free aliases.

One host variable by device This option force ***NLFacilities*** to create only ONE output network variable for the command. The destination devices have to support aliases if required.

One host variable by LonMark object This option force ***NLFacilities*** to create ONE output network variable FOR EACH LonMark object in the network object profile.

Who Objects which will receive the command.

Master only Only the master will receive the command.

Slaves only Only the slaves will receive the command.

All Master and slaves will receive the command.

Binding properties Service, Rcv timer and so one are information set by expert for each binding.

Binding to host

Binding to host can be used to automatically bind output network variables of network devices to the local host PC.

A binding to host is always created from a network object profile.

Creation

You can create a new **Bind to host** from:

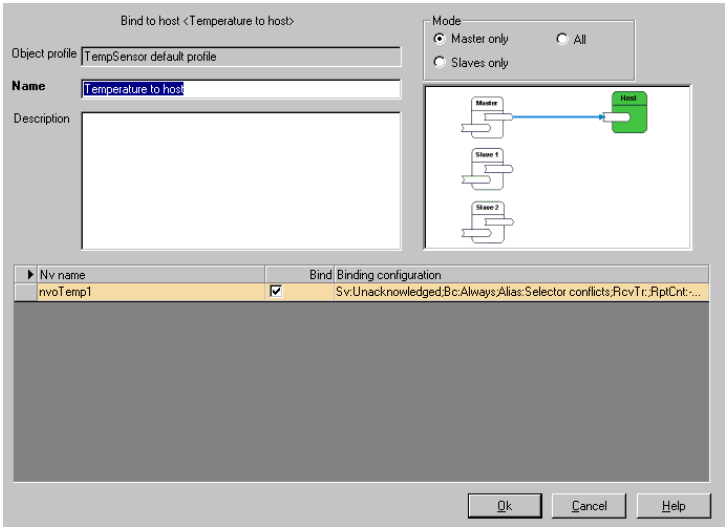
- The main menu : Select the **New Bind to host profile…** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **Bind to host** you want to create and select the **New Bind to host profile…** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



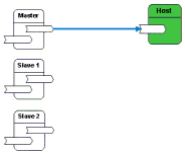
Picture 41 Bind to host properties window

Name The name of binding.

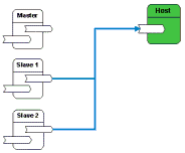
Description The description of the binding to host. Optional information.

Mode You can define here which objects will be bound to the host.

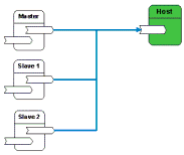
Master only Only the network variables of the master are bound.



Slave only Only the network variables of the slaves are bound.



All The network variables of master and slaves are bound.



In the grid are displayed all output network variables you can bind.

Simply check the network variable (Bind column) you want to bind to the host and enter the bindings settings.

Commands

This part describes the different kinds of commands you can create. The available commands are :

For zones:

- **Zone command** : fully designed commands that can be launched on ***NLFacilities*** zones.
- **User zone command** : commands that can be launched on zones in ***NLFacilities***, but that needs user entry to define values that must be written on the network.

For objects:

- **Object command** : fully designed commands that can be launched on objects of same type in ***NLFacilities***.
- **User object command** : commands that can be launched on objects of same type in ***NLFacilities***, but that needs user entry to indicate which value must be written on the network.

Zone commands

The **zone commands** define a set of values that will be written on the network for a zone. This command is fully designed and does not required the user to set values in ***NLFacilities***. Contrary to **User zone commands**.

In treeview  represents the **zone commands**

Creation

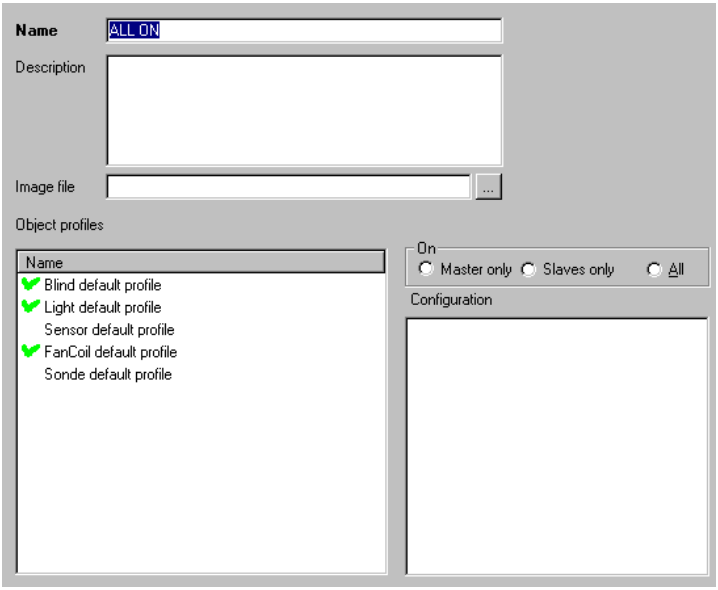
The **zone command** can be created from:

- The main menu : selects the **New zone command…** option in the **New object** menu.
- The toolbar : click on the  icon.
- Contextual menu of **Zone commands** folder : Right click on the **Zone commands** folder and select the **New zone command**… option.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 42 Zone command properties window

Name Name of the zone command

Description Description of the zone command. The description is displayed as tooltip in the Zone commands window of ***NLFacilities***.

Image file Image file displayed in ***NLFacilities***, to make difference between all zone commands.

Object profiles List of profiles defined in the Modeler database. You can define for each object profile the value that must be written.

On Define for each object profile, on which element of the zone the command must be send.

Master only : The value is written exclusively on the master of the zone (useful if you write on a value that is chain to the slaves)

Slaves only : The value is written is written only on the slaves of the zone.

All : The value is written on all objects of the zone.

Configuration Display the content of the object profile selected in the “Object profiles” list.

User zone commands

The **user zone command** defines command that can be launched on a zone, but that needs the user to set the data that will be launched on the network.

The command is defined for a family of objects (object profile) of the zone.

The user zone command must be created from an object profile, to define the family of objects on which the command will be launched in the zone.

In treeview  represents the **user zone commands**.

Creation

You can create a new **User zone command** from:

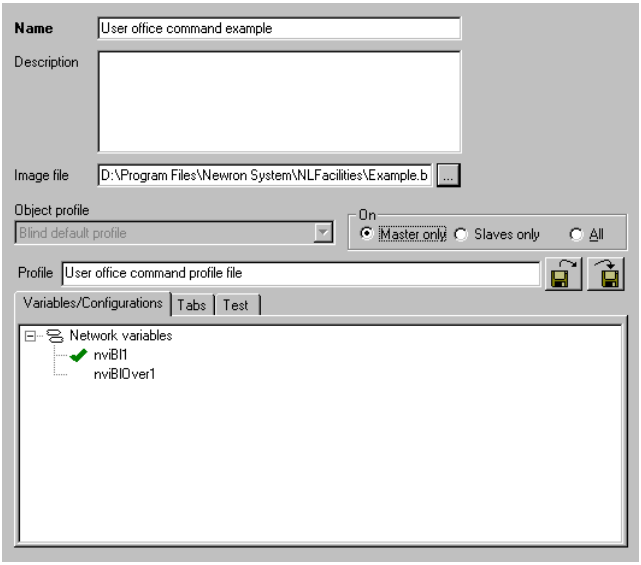
- The main menu : Select the **New User zone command …** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **User zone command** you want to create and select the **New User zone command …** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 43 User zone command properties window

Name Name of the user command

Description Description of the user command. The description appears as tooltip in the zone command window of ***NLFacilities***.

Image file Image file used to make difference between different user zone command

Object profile Object profile on which the command is available.

On Indicate, for all the objects of type object profile, on which objects the command will be launched.

Master only The command will be launched only on the master of the zone.

Slaves only The command will be launched only on the slaves of the zone.

All The command will be launched on all objects.

Profile View where you configure the browser that will be visible in ***NLFacilities***.

Object command

The object command defines a command that can be launched on the network on one or several object of the same type.

The difference between object command an user object command is that for an object command the user does not set in ***NLFacilities*** the value to write on the network.

So in the ***NLModeler*** the object command is fully designed, that is to say that it is at this step that you define the value that will be written on the network.

Creation

You can create a new **Object command** from:

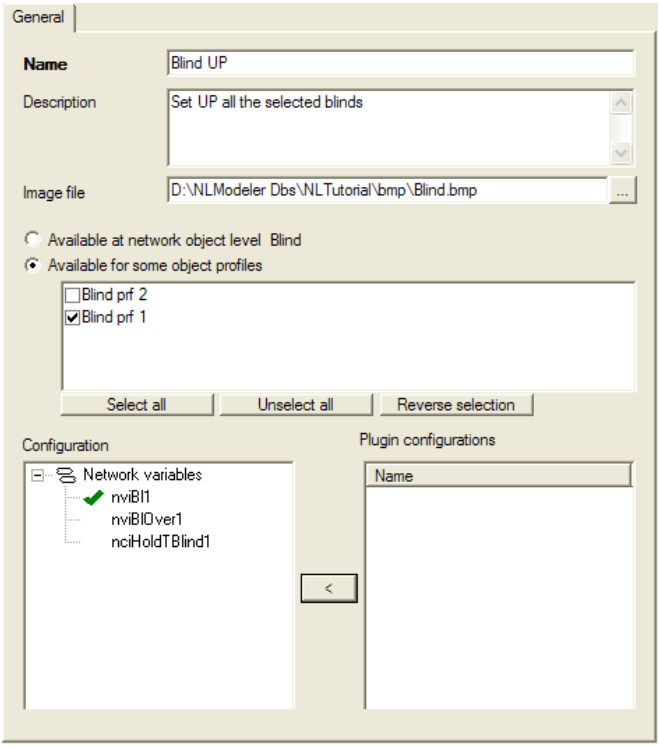
- The main menu : Select the **New Object command …** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **Object command** you want to create and select the **New Object command …** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 44 Object command properties window

Name Name of the user command

Description Description of the user command. The description appears as tooltip in the zone command window of ***NLFacilities***.

Image file Image file used to make difference between different user zone command

Object profile Object profile on which the command is available.

Configuration The configuration tree is where you define the value that must be written. See chapter set configuration.

User object commands

The user object command defines a command that will be available for a type of object (**object profile**).

The command can be launched in ***NLFacilities*** on one or several objects of same type (**object profile**).

The user object command must be created from an **object profile**, to define the family of objects on which the command can be launched.

When the user launches the command in ***NLFacilities***, ***NLFacilities*** will ask the user to set the value that must be written on the network.

In treeview  represents the user object commands.

Creation

You can create a new **User object command** from:

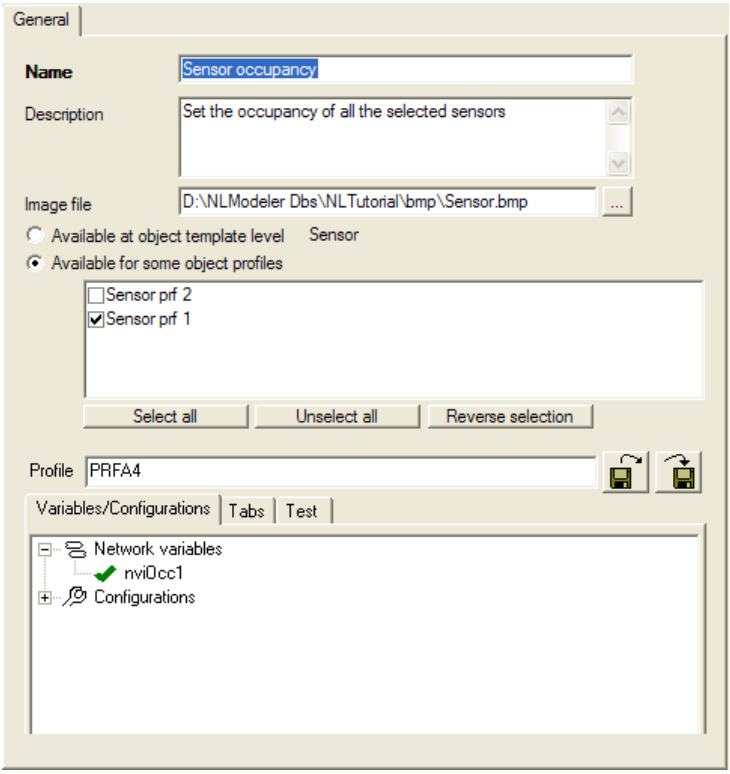
- The main menu : Select the **New User object command …** option.
- The toolbar : Click on the  icon.
- The contextual menu of an **object profile**: Right click on the **object profile** parent of the **User object command** you want to create and select the **New User object command …** option.

NOTE: when you create the object from the main menu or the toolbar, ***NLModeler*** will ask you to define the **Object profile** for which the object will be created.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 45 User object command properties window

Name Name of the user command

Description Description of the user command. The description appears as tooltip in the zone command window of ***NLFacilities***.

Image file Image file used to make difference between different user zone command

Object profile Object profile on which the command is available.

On Indicate, for all the objects of type object profile, on which objects the command will be launched.

Master only The command will be launched only on the master of the zone.

Slaves only The command will be launched only on the slaves of the zone.

All The command will be launched on all objects.

Custom events

The custom events are events that are provided by ***NLFacilitiesRuntimeX*** to its container.

A custom event can be launched from NLFacilitiesRuntimeX through the sub menu Actions in the popup menu of objects or zones.

The custom events are created from the  icon in the toolbar.

In treeview  represents the user object commands.

Creation

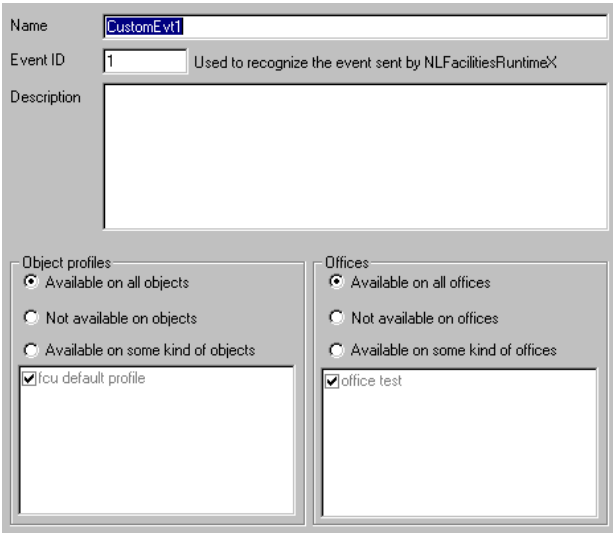
You can create a new **User object command** from:

- The main menu : Select the **New custom event …** option.
- The toolbar : Click on the  icon.
- The contextual menu of the custom events root item.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 46 Custom event properties window

Name Name of the custom event

Event ID ID of the event when received from NLFacilitiesRuntimeX

Object profiles Define on which object profiles the custom event will be available.

Zone profiles Define on which zone profile the custom event will be available.

Life areas

Zone

The zone is the final unit used by **NLFacilities** to configure area.

When you set a zone profile you will define what the zone supports and uses.

This includes:

- The network object profiles
- The object's grouping rules
- The objects interaction rules
- The configurations
- The host commands
- The bindings to host

Creation

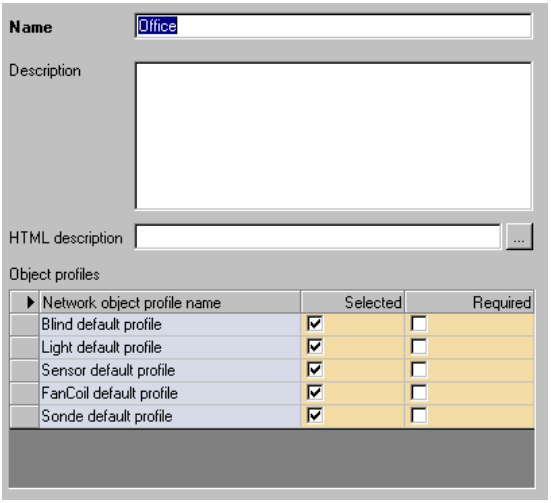
You can create a new **Zone** from:

- The main menu : Select the **New Zone profile …** option.
- The toolbar : Click on the  icon.
- The contextual menu of the **"Life areas"** folder: Right click on the **"Life areas" folder** and select the **New Zone profile…** option.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.



Picture 47 Zone profile properties windows general folder

General folder

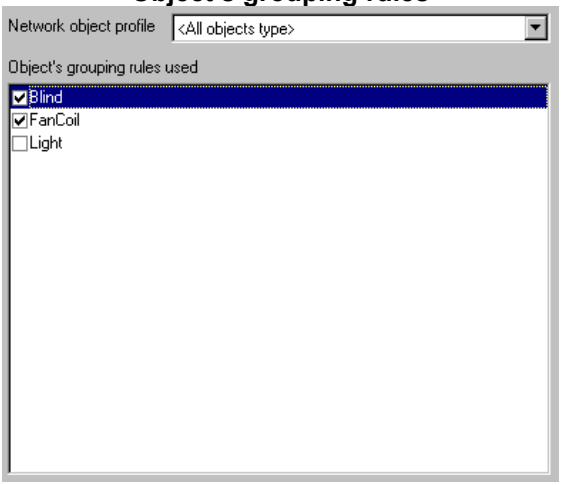
Name The name of profile.

Description The description of profile. Optional information.

HTML description HTML file used by ***NLFacilities*** to display information.

Object profiles Here are selected the network object profiles supported by the zone. After creation you cannot change the **Selected** column. Check the column **Required** if the zone couldn't be create with at least one object of this profile.

Object's grouping rules

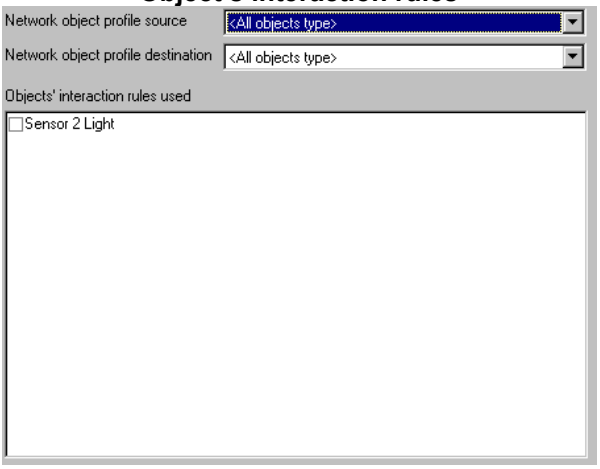


Picture 48 Zone profile properties windows Objects grouping rules folder

You can select here the **Object's grouping rules** used by the zone profile for each **network object profile**.

If in the list **Network object profile** you select the item <All object's type> then the list **Object's grouping rules** used will display all the objects grouping rules that are available in the database. Else if you select a specific object profile then the list will display only the **object's grouping rules** of the selected object profile.

Object's interaction rules



Picture 49 Zone profile properties windows Objects interaction rules folder

You can select here the **Objects interaction rules** used by the zone for each couple of network object profile.

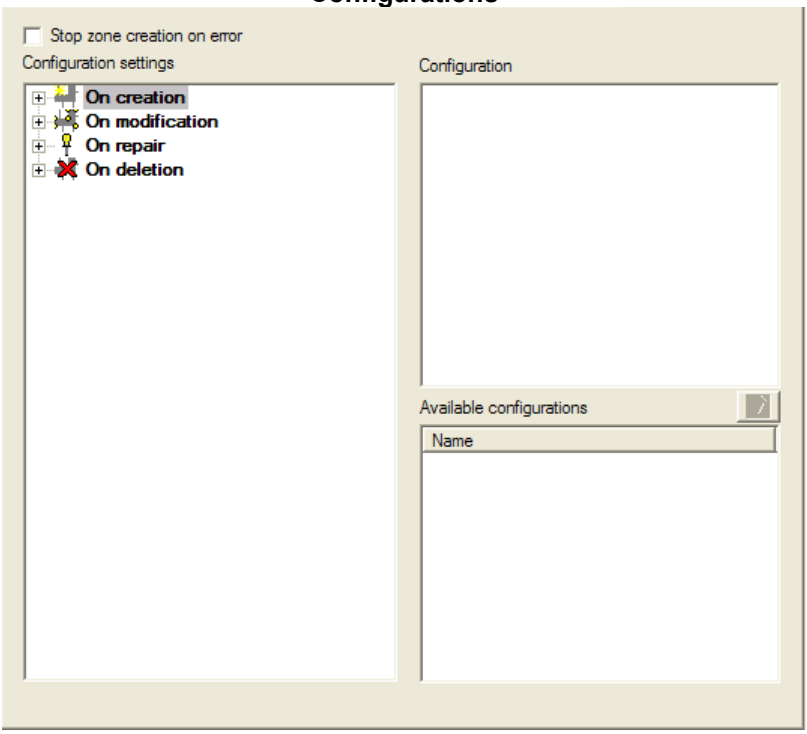
If in the controls **Network object profile source** and **Network object profile destination** you select the item **<All objects type>** then the list will display all the interaction's rule objects available.

If you select a specific item in one of these controls, then the list will display the interaction's rule that contains the specific item.

For example:

If you select in Network object profile source the item Blind, then the list will contain only the interaction's rule objects that have Blind as source.

Configurations



Picture 50 Zone profile properties windows Configurations folder

In this page you can define input network variables and/or configurations to write on network devices.

Stop zone creation on error

Check if you want to abort the creation of the zone if there is at least one error when writing the configurations on the network.

Configurations settings hierarchy

The hierarchy **Configurations settings** gives you the ability to define configurations :

- On creation of a zone
- On repair of a zone
- On deletion of a zone

below the items **On creation, On repair, On deletion** you have the ability to select if you want to define the configurations **before** or **after** the action is done.

below the items **before, after** you have the list of all the **object profiles** available in the zone.

below the **object profiles** items you have the ability to select if you want to write the configuration:

- **On the master** of the zone only
- **On the slaves** of the zone only
- **On all objects** of the zone

that are using the object profile parent.

Configurations

Displays the list of available network variables and configurations properties available for the selected object profile in the **Configurations settings** hierarchy.

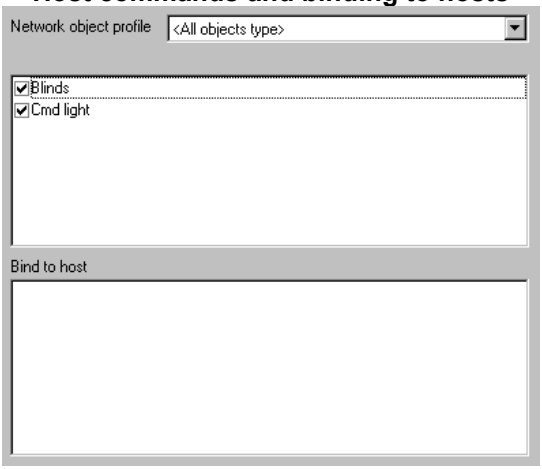
Available configurations

The **Available configurations** list displays the list of configurations available for the object profile selected in the Configurations hierarchy.

The list of configurations has been provided from the Configurations page of the network object editing window.

Select a configuration in the right list and press  to set the values of the configuration properties present in the configuration in the left tree.

Host commands and binding to hosts

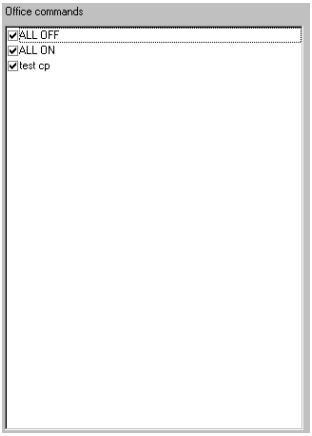


Picture 51 Zone profile properties windows Host commands folder

You can select here the host commands and bindings to host used by the zone for each network object profile.

First select the Network object profile then check the bindings used by the zone.

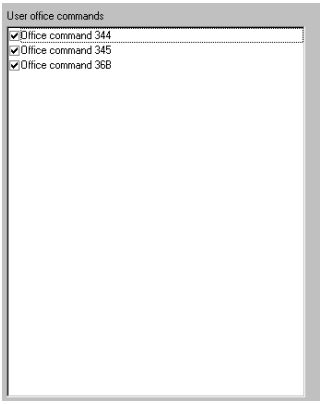
Zone commands



Picture 52 Zone profile properties windows Zone commands folder

You can select here the Zone commands that will be available for the zone profile.

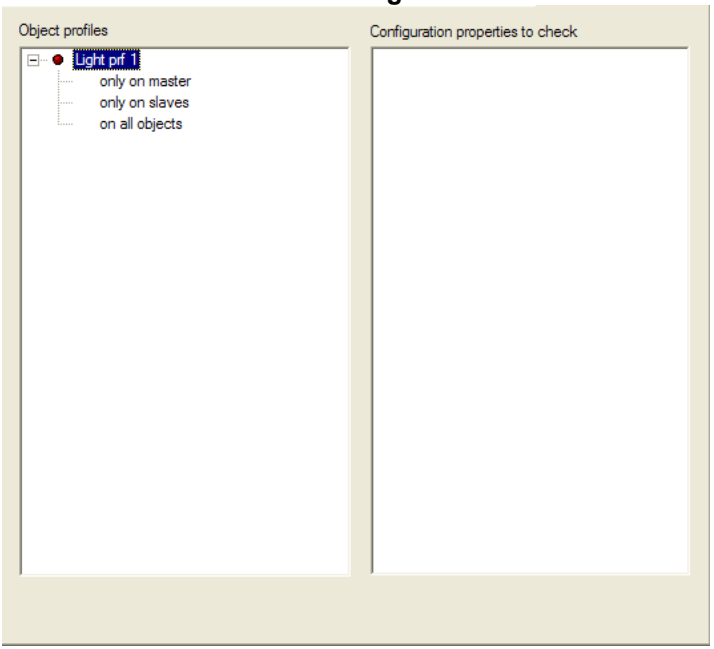
User zone commands



Picture 53 Zone profile properties windows Zone commands folder

You can select here the User zone commands that will be available for the zone profile.

Check of configurations



Picture 54 Zone profile properties windows Zone commands folder

Use to define what are the configurations that must be checked, when performing a **Check zone consistencies** in runtime.

You indicate there what are the configurations that must be checked, for who, and on who.

Links

Under **NLFacilities** you can link any zone to a common area.

In this case **NLFacilities** will use the bindings configuration sets as the links between the zone and the common area.

The bindings configuration for this type link is based on a **Objects interaction rules**.

First create the **Objects interaction rules** you want to use and then create a link between the zone and the common area using these rules.

Creation

You can create a new **Link** from:

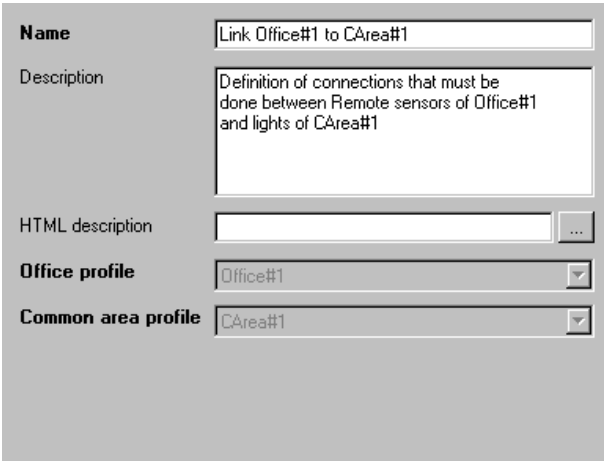
- The main menu : Select the **New link profile …** option.
- The toolbar : Click on the  icon.
- The contextual menu of the **"Life areas"** folder: Right click on the **Life areas** folder and select the **New link profile…** option.

Edition

To edit the object you can either :

- Drag and drop the object in the Properties view.
- Right click on the object and select the **Edit** option.

General folder



Picture 55 Zone link profile properties windows General folder

Name The name of link.

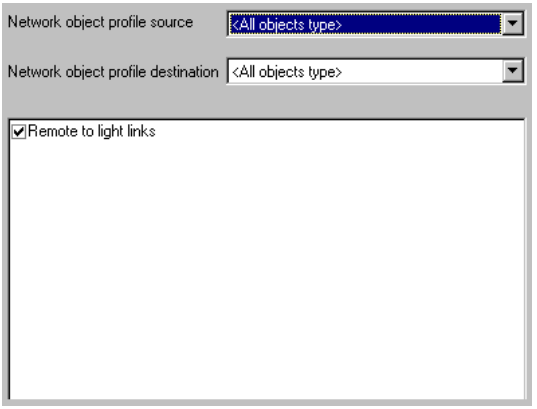
Description The description of link. Optional information.

HTML description HTML file used by **NLFacilities** to display information

Owner profile Zone used by the link.

Target profile Common area used by the link.

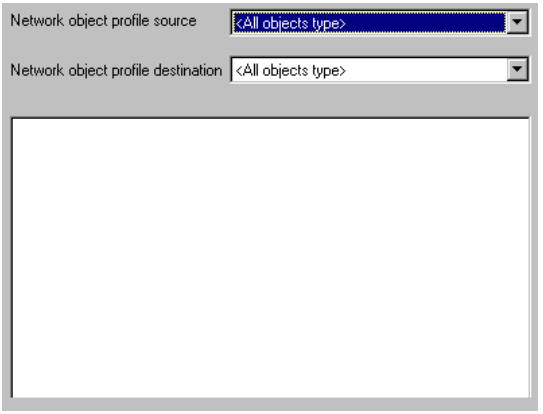
Zone 2 CArea



Picture 56 Interaction from zone to common area

You can select here the objects interaction rules used to link a zone to a common area.

CArea 2 Zone



Picture 57 Interaction from common area to zone

You can select here the objects interaction rules used to link the common area to the zone.

CREATE FIRST NLMODELER DATABASE

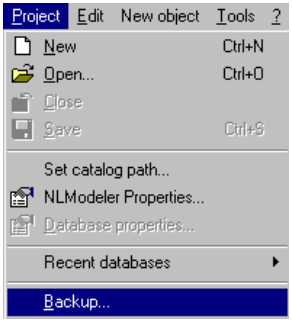
Backup restore

Before the step by step presentation, we will here explain how to use the backup restore feature of NLModeler.

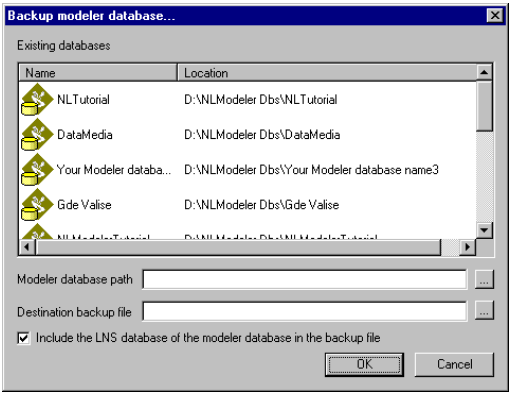
Backup

To backup a database, no database must be opened in NLModeler.

Then go to **Project** menu and select the **Backup…** option.



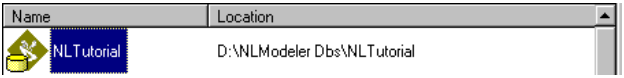
The backup window appears.



Picture 58 Backup window

Existing databases	List of databases that are present on the computer.
Modeler database path	Path of the modeler database that must be backuped, this text is also modified when you select the database to backup in the Existing databases list.
Destination backup file	Full path of the backup file to create.
Include LNS…	Check if you want that the backup file include also a backup of the LNS database used by the modeler database.

In this window, select in the **Existing databases** list the database that you want to backup.



Once you have selected the database, the Modeler database path and Destination backup file are automatically filled.

If you want to change the path of the destination backup file just click on ... and with the Microsoft explorer select the backup file to create.

Check the option ☑ Include the LNS database of the modeler database in the backup file if you want that the LNS database is included in the backup file.

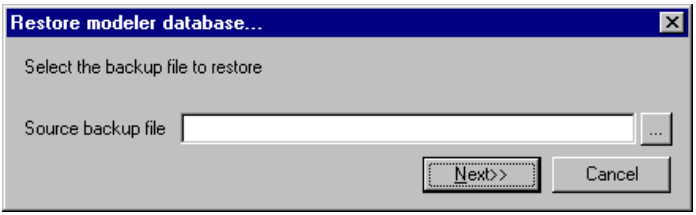
Click on OK to create the backup file.

Restore

If you can create a backup you must be able to restore it.

So in the **Project** menu select the **Restore…** option.

The restore window appears.

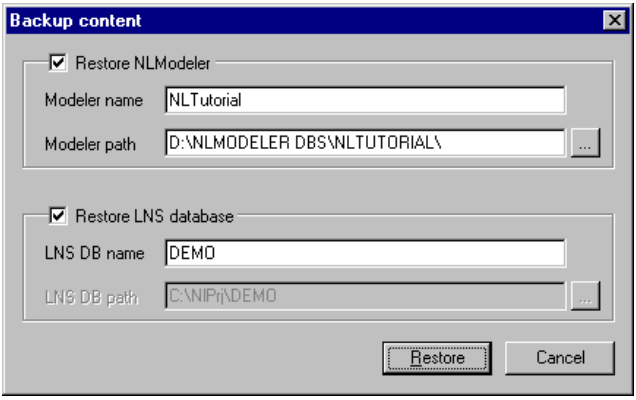


Picture 59 Restore window

Source backup file Full path of the backup file to restore.

Once you have selected the backup file, click on Next>>.

The advanced **Restore** window will appear.



Picture 60 Advanced restore window

Restore NLModeler	Check if you want to restore the NLModeler database present in the backup file.
Modeler name	Name of the NLModeler database that will be restored.
Modeler path	Path where the NLModeler database present in the backup file will be restored.
Restore LNS database	Check if you want to restore the LNS database present in the backup file.
LNS DB name	Name of the LNS database that will be restored. If you change the name, the NLModeler database restored will use the new LNS database created.
LNS DB path	Path where the LNS database will be restored.

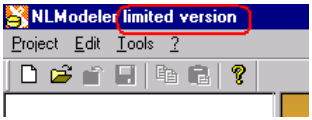
Click on Restore to launch the restore process.

Before start

Limited version

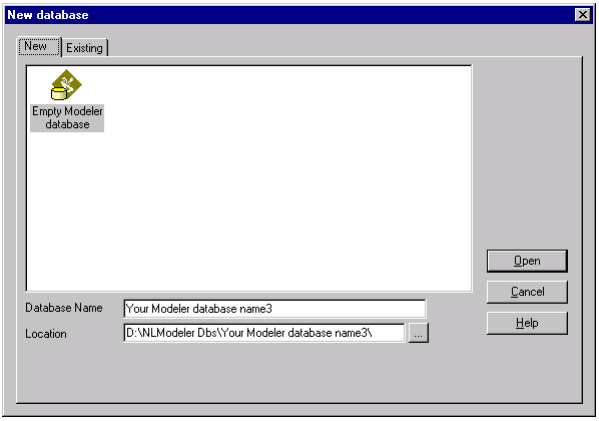
Before you start, check if you have a LNS Turbo Edition manager tool installed on your PC.

☞ If you start ***NLModeler*** in demonstration mode for the first time, you can create and work **ONLY** on "**DEMO**" Database.



Picture 61 NLModeler in limited version

In complete version you can set the name of your ***NLModeler*** database see Picture 62.



Picture 62 Dialog box in complete version

LNS Database

For designing your database, you need products and definition of these products.

In demonstration case you have three nodes. In NL220 Database DEMO you have also three devices templates.

Presentation

The sample will explain step by step the creation of a modeler database for devices type fully designed by Newron System.

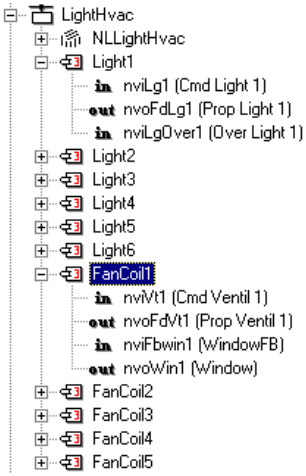
This sample will look at each type of objects you can create in ***NLModeler*** and the most possibility you can use to design your database.

Devices used in sample

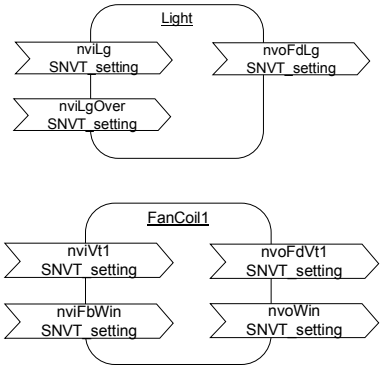
Light and Hvac module

The Light and Hvac module contains LonMark objects designed for Lights and FanCoils.

The six first objects are Light objects, and the five last are FanCoil objects.



Picture 63 Light and Fan Coil module



Picture 64 LonMark objects about Light and Fan coil module

nviLg Main input where module receives order for switch on or off the light.

nvoFdLg Output sends for feed back or next light the current state of light received in main input.

nviLgOver Secondary input for locally changes the state of light.

nviVt Main input where module receives order for define speed of fan.

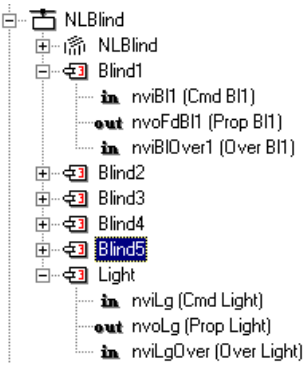
nvoFdVt Output sends for feed back or next fan the current speed of fan received in main input.

nviFbWin Input network variable, used to describe feedback functionality with ***NLModeler***.

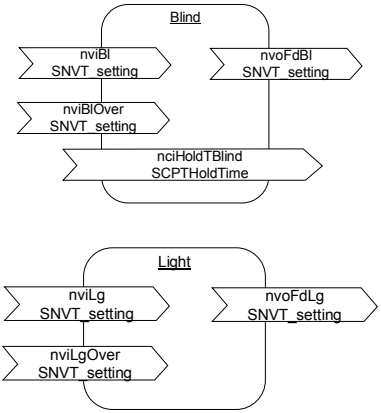
nvoFbWin Output network variable, used to describe feedback functionality with ***NLModeler***.

Blind module

The second module handles sunblind and one Light.



Picture 65 Blind module



Picture 66 LonMark objects about blind and light module

nviBl Main input where module receives order up or down for sunblind.

nvoFdBl Output sends for feed back or next sunblind the current action of sunblind received in main input.

nviBlOver Secondary input for locally action on sunblind.

nciHoldTBlind Configuration property used to define the up and down time for each Blind object.

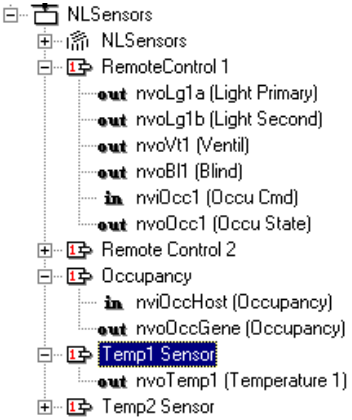
nviLg Main input where module receives order for switch on or off the light.

nvoFdLg Output sends for feed back or next light the current state of light received in main input.

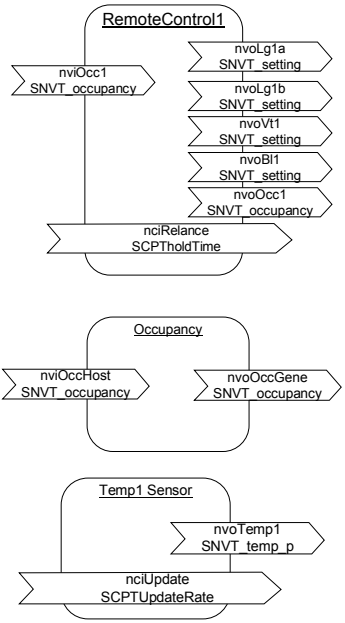
nviLgOver Secondary input for locally changes the state of light.

Sensor module

The third module handles remote control module and temperature sensor.



Picture 67 Sensor module



Picture 68 LonMark objects about sensor module

nvoLg1a Main output to control zone light.

nvoLg1b Secondary output to change light state in accordance with occupancy.

nvoVt1 Main output to control zone fan speed.

nvoBl1 Main output to control zone sunblind.

nviOcc1 Input for controlling occupation of building and it manages the state of all main output control in zone.

nvoOcc1 Output to define real state of the remote control occupancy.

nciRelance Define the time before occupation is relaunched

nviOccHost Input from host for general control about occupancy.

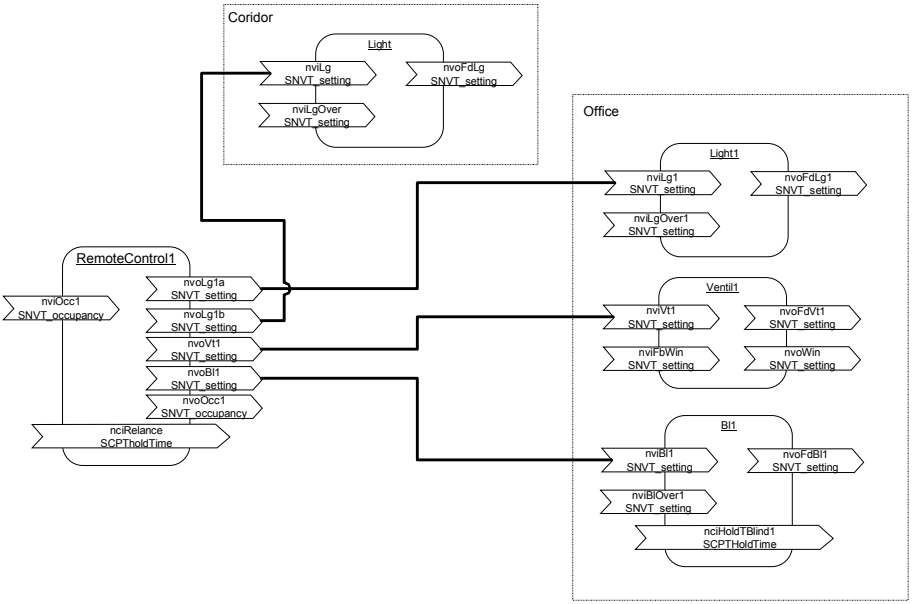
nvoOccGene Output to define occupancy.

nvoTemp1 Output to simulate the temperature variation.

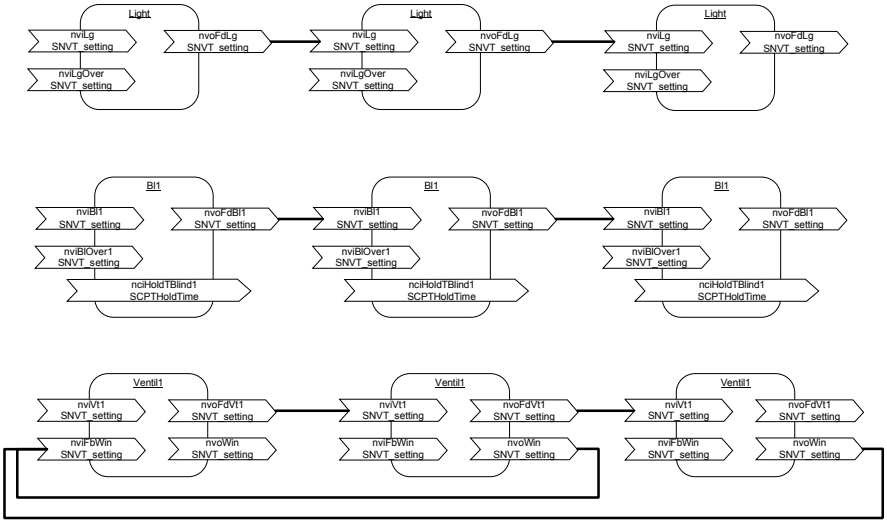
nciUpdate Define the refresh time of the nvoTemp value.

Relation between LonMark object

In Picture 69 and Picture 57 we represent the bindings we will configure with ***NLModeler***.



Picture 69 Relation between LonMark objects



Picture 70 Relation between objects of same type (chain link)

We propose to design an ***NLModeler*** database for this project.

The project will allow to :

- Configure the bindings define as below.
- Host binding for temperature monitoring (nvoTemp1 in Temp Sensor)
- Host command for senor occupancy (connection of nviOcc to the host)
- Zone command to Switch on or off a zone.
- User zone command to select the Hold time for blinds of a zone
- Object command to switch on a light.
- User object command to set the value UP/DOWN of a Blind.

Steps and backups

For each step described in this sample, there is a corresponding backup file included in the installation.

The backup files are all Located in the path **Tutorial\NLMOdeler\Backups** of the installation directory of ***NLFacilities***.

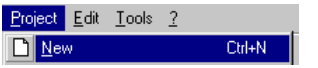
Steps	Associated backup file
Step 1 start database creation	NLTutorial_step1.gz
Step 2 create device templates	NLTutorial_step2.gz
Step 3 create virtual objects	NLTutorial_step3.gz
Step 4 create categories	NLTutorial_step4.gz
Step 5 create network objects	NLTutorial_step5.gz
Step 6 Configuring grouping rules	NLTutorial_step6.gz
Step 7 Configuring interaction rules	NLTutorial_step7.gz
Step 8 Configuration of the bindings with the host	NLTutorial_step8.gz
Step 9 Configuration of commands	NLTutorial_step9.gz
Step 10 Configuration of a zone	NLTutorial_step10.gz
Step 11 Create a link between zones	NLTutorial_step11.gz
Step 12 Objects appearances	NLTutorial_step12.gz
Step 13 Objects Monitoring	

Step 1 start database creation

Create project

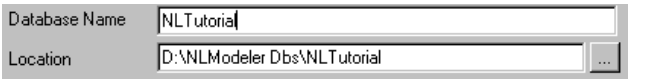
We will first create the project.

Select option **New** of menu **Project**.



Set database name

Enter the name of the project and the path of the project database.



And then click on 

Now **NLModeler** asks to select a LNS database.

NLModeler needs LNS database to work on device templates.

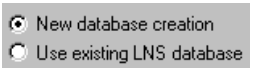
Remember here that **NO** devices are required in the LNS database, only device templates are used.

You can either select an existing database or create a new one.

Let's say that we create a new LNS database.

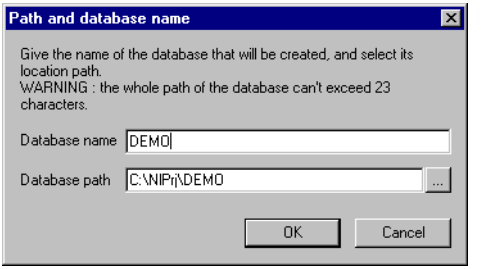
Create an LNS database

Select the option **New database creation.**



And then click on 
.

The window for creation of the database is then opened.



Picture 71 LNS database creation window

Enter DEMO as database name click on 

, the LNS database will be created by NLModeler.

IMPORTANT: be sure that no LNS database called DEMO already exists on the computer. If it exists, first remove this database. You can also enter another LNS database name, but if you want to use NL220 and that you have no NL220 key, then you couldn't opened the LNS database.

The project is now ready to be configured.

Step 2 create the device templates to use

We will now create the device templates that we will use in the sample.

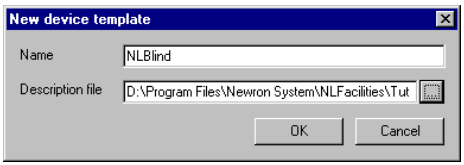
The device templates are the ones showed previously :

- Blind module
- Sensor module
- Light and FanCoil module

To create these device templates, we must import their XIF files.

So, right click on the **Device templates** folder and select the option **New device template…**

You must select the xif file you want to import. Click on the  button in the New device template window and go to folder **Tutorial** of the ***NLFacilities*** installation folder. Select the NLBlind.xif file and click on Open.

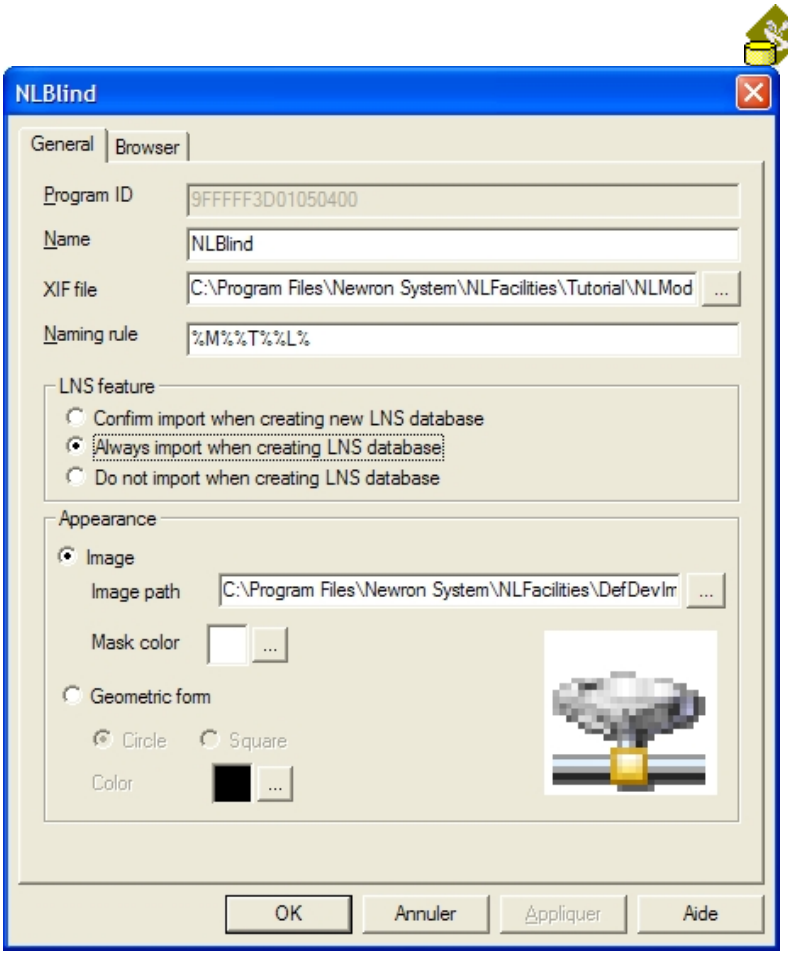


Picture 72 New device template window

Then you must select a name for the Device template to be created.

By default ***NLModeler*** will set the name of the file as name of the device template.

We will in the sample call the device template NLBlind.



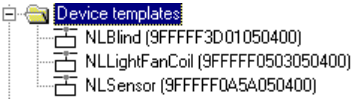
The device template's configuration page appears as on the previous image.

In this page you can :

- Define a naming rule, used to define the name of devices on maps
- Define LNS feature, used to indicate wether the XIF file must be imported automatically in a LNS database created by NLFacilities
- Define Appearance, used to customize the appearances of devices

Now repeat the Step for the NLLightFanCoil.xif and NLSensor.xif files with respectively the names NLLightFanCoil and NLSensor as device templates name.

Now under Device templates folder we have :



Step 3 create virtual objects

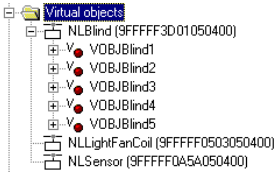
For this sample we will create virtual objects to overcast the LonMark objects of the NLBlind module.

Right click on the Virtual objects folder and select the option Import virtual objects…

Select the file NLBlindVObj.ini and click open.

NLModeler will now import the virtual objects of the NLBlind module.

After the object are imported you have the virtual objects in the tree as follows.



Step 4 create categories

We will now create the object profiles for Light, Fan Coil, Blind, Temperature and Remote Control devices.

Create categories

We must first create categories.

Categories are used to group objects and object profiles. Using categories is optional but it is required to create at least one.

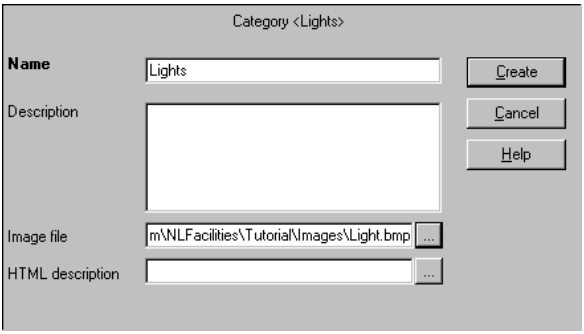
We will create three categories: **Light**, **FanCoil, Blind, TempSensor** and **RemoteControl.**

Right click on **Objects** branch and select **New category ...** option.

Or select the  icon on the toolbar.

Enter **Lights** in Name field.

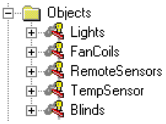
For the Image file click on  and go to the **"Tutorial/Images"** of the ***NLFacilities*** installation directory. Select the correct image file for the category. For the **Lights** category select the **Light.bmp** file.



Picture 73 Setting category properties

Do the same for others categories.

You have now your five categories present under the **Objects** folder in the tree.

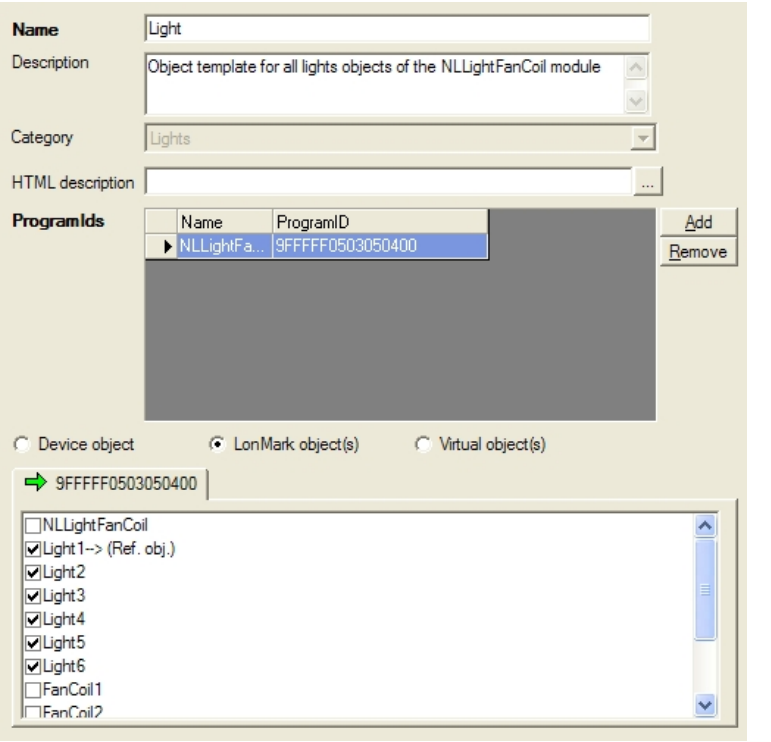


Step 5 create network objects

We are now able to create the first object. It will be the light object.

Right click on category **Lights** and select option **New network object ...**

A dialog box appear on right window like Picture 74.



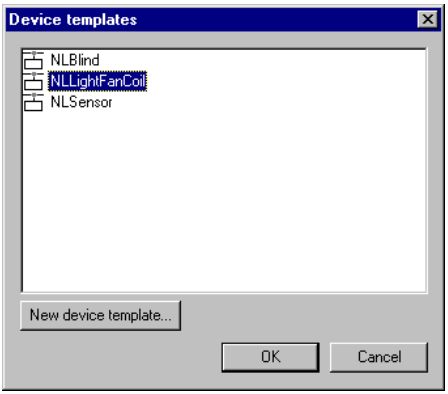
Picture 74 Dialog box for network object definition

Set name of object

In **Name** field enter **Light**.

Click on the Add button on the right side of the **ProgramID** field.

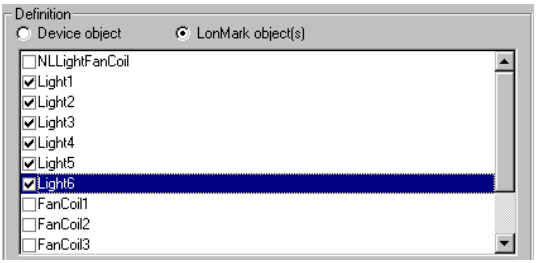
Select the device template **NLLightFanCoil** and click on OK.



Picture 75 Device template selection

We must now select the LonMark objects supported by this object.

NLModeler supports the device itself (all network variables) or any LonMark objects to use as a network object. Select “LonMark object(s)” option and check the “Light#” object in the list.



Picture 76 LonMark object selection

Now click on OK to create the new object.

NOTE : If you have several type of devices that have the same objects, it is possible to define a NLModeler network object that references all the objects.

Simply click on “Add” in the general window to select the Template to add, then select the new tabulation created for this Device Template and check its objects.

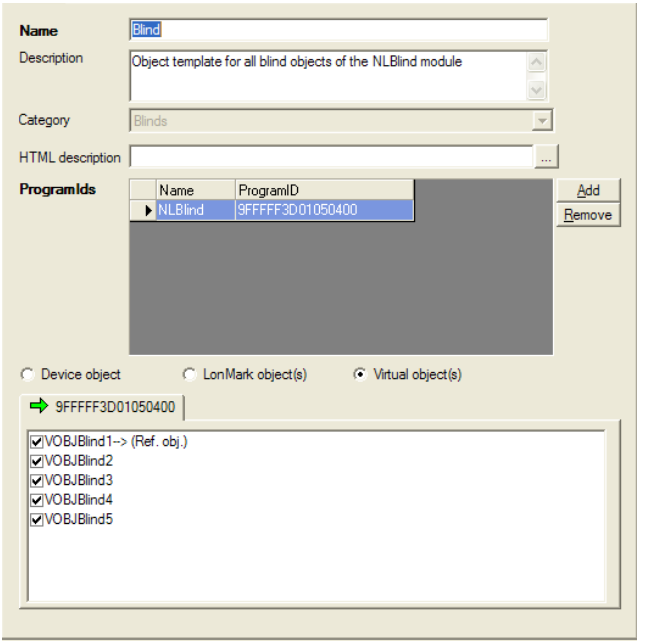
Now do the same for the FanCoil, Temperature sensor and Remote control device.

Click on to save your project here.

Creating network object Blind with Virtual objects

Right click on category **Blinds** and select option **New network object ...**

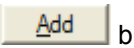
A dialog box appear on right window like Picture 74.



Picture 77 Dialog box for network object definition

Set name of object

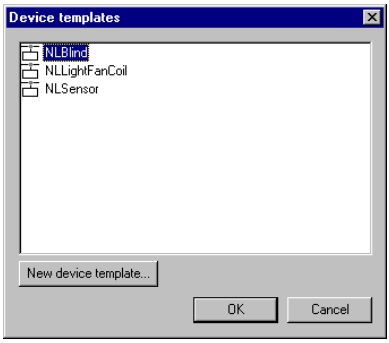
In **Name** field enter **Blind**.

Click on the 

button on the right side of the **ProgramID** field.

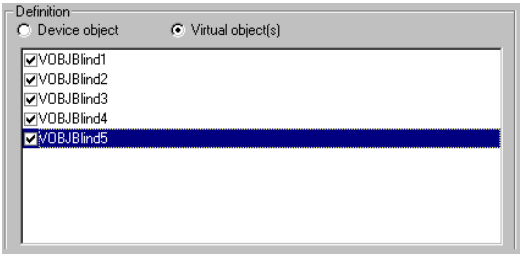
Select the device template **NLBlind** and click on 

.



Picture 78 Device template selection

We must now select the Virtual objects supported by this object. Click on “Virtual object(s)” option and check in the objects “VOBJBlind#” in the list.



Picture 79 Virtual object selection

Now click on OK to create the new object.

Click on to save your project here.

At this step all the objects that will be present on the ***NLFacilities*** map are defined.

The rest of the sample, will now tell ***NLFacilities*** how to use the objects.

Configuring the profiles

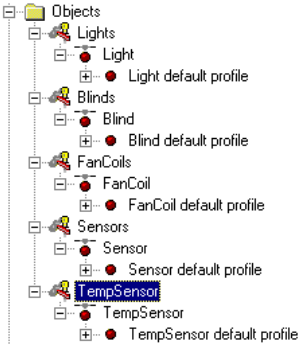
For each created object we need now to configure a profile.

NLModeler allows to create several profiles for each object.

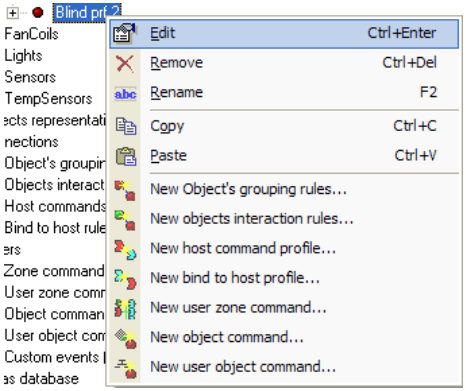
In our example we need only one profile by object and we will use the profiles automatically generated by ***NLModeler***.

Open in the tree each category and then each object in the categories.

You can see that three profiles are available named **Light default profile**, **FanCoil default profile** and so on.



Right click on the light profile (**Light default profile**) and click on **Edit** option.



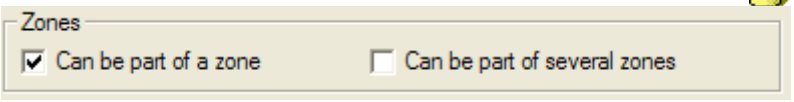
We must select the display form. This display settings are used by **NLFacilities** to display the object in a view.

For the Display form property, we will let the default bitmap selected, it corresponds to the bitmap selected for the categories we have previously defined.

You can also define to use either a square or circle to represent the object in ***NLFacilities***.

NOTE: You must note that using image files can need lot of memory usage to display them on the ***NLFacilities*** map. So it is recommended (for a large amount of objects) to use a geometric form at least for some of the objects.

Now verify that **Can be part of a zone** is checked.



Picture 80 Setting membership kind of areas

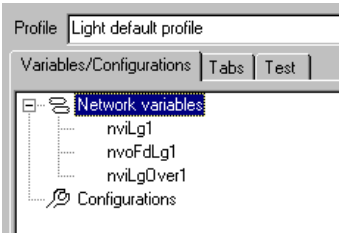
Click on OK to validate the profile.

☞ You have other tabs available in profile window:

Plug-in	Configure the plug-ins available under ***NLFacilities*** for the profile
Browser	Configure the build in browser of ***NLFacilities*** for the profile
Master selection	Configure the mode to select the master and slaves order for the profile
Naming rule to NLFacilities	Configure the naming rule that ***NLFacilities*** will use when the objects will be added on a plan.

Configuring the browser

To configure the browser of the **Light** object, open the Browser page of the object. You will have the following window.



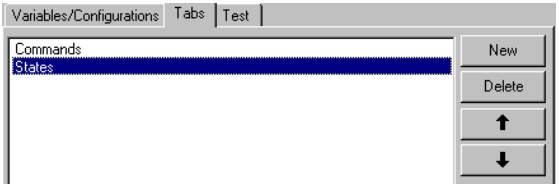
Picture 81 Browser configuration page

Now we will configure the browser to have :

- The command of the light.
- The state of the light.

Adding the Tabs available in the browser

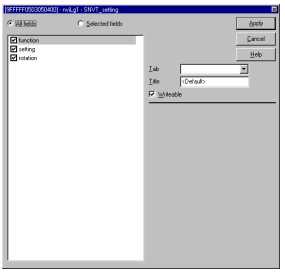
Go in the Tabs page and add 2 items to get :



Picture 82 Page for browser tabs definition

Configure Browser items

The command is in the nviLg1 network variable. Double click on the nviLg1 variable. The configuration window will be displayed.



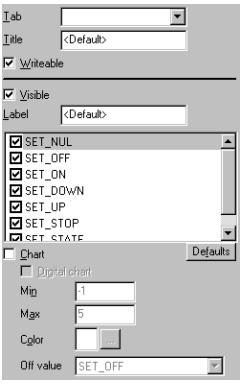
Picture 83 Variable appearance configuration window

Follow the configuration steps:

1 - Check **selected fields** radio: it indicates to display in the browser only the fields selected in the check list (Selected fields)

2 Check the **function** field (function).

3 Once this step is reached, you have new controls that have appears at the right of the window:

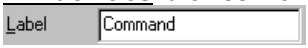


Picture 84 Advanced variable appearance controls

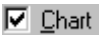
4 In the Tab control select the **Commands** item : It indicates that this field will be displayed in the **Commands** page.

5 Let Writeable and visible checked.  and 

6 In the Label control we must enter the name that will appear in the ***NLFacilities*** browser for this field.We will enter here “Command”.

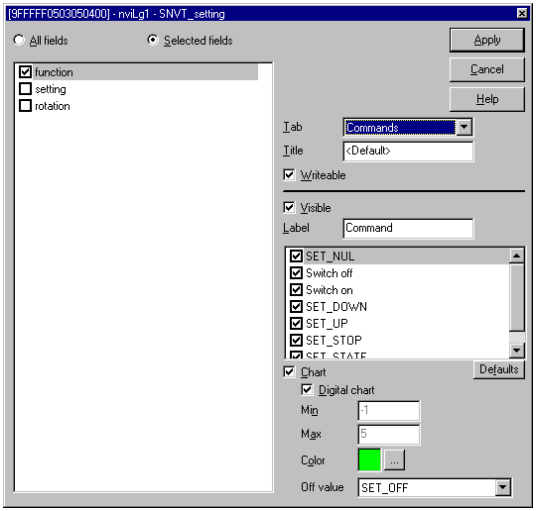


7 Then, the list indicate all the possible values for the selected fields, in our sample the only states valid for a **Light** are SET_ON and SET_OFF. So in the list uncheck all items expect SET_ON and SET_OFF. We can also set the names that will appear in the browser for these values. For instance, Click on the SET_ON item and press F2, Set the text you want for this value for example “Switch on”, same thing for the SET_OFF value. 

8 Configure the item to be in the chart, check the chart box. 

9 Configure the chart to be a digital chart for this item by checking the Digital chart box. 

At the end of the configuration you will have something like that:



Picture 85 Variable appearance window

You can go to the **Test** page to see what will be the result of your settings in ***NLFacilities***.

At this step you can configure the rest of the browser to suit what you want.

Click on to save your project here.

Step 6 Configuring grouping rules

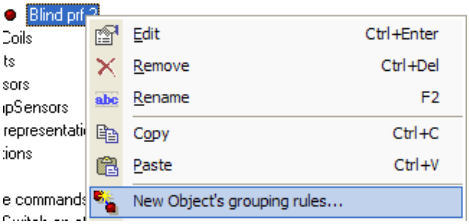
We have now create the five objects profiles **Light default profile**, **FanCoil default profile, TempSensor default profile, RemoteControl default profile** and **SunBlind default profile**.

Light, FanCoil and SunBlind profiles have bindings between themselves when belonging to an area. These kinds of bindings are called **Object's grouping rules**.

Configuring Object's grouping rules for Light objects

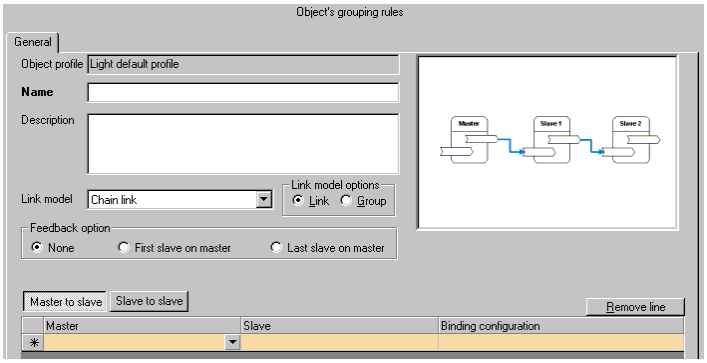
When light objects are added in an area they must be linked one to each other.

Right click on the **Light default profile** item and select **New Object's grouping rules** option.



Picture 86 Contextual menu for grouping rule definition

The start edition of grouping rule show you a windows to the right. Picture 87

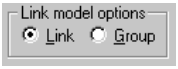


Picture 87 Object's grouping rules window

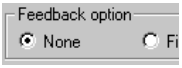
We will name these rules **Light 2 Light**.

As showed in the binding image at the start of this sample, The lights must be chained. To create this kind of connection in ***NLModeler***, The Link Model must be **Chain link**.

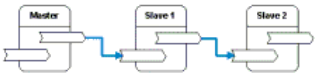
The **Link model options** will be selected as **Link** (the other option is **Group** but our lighting objects use master to slave scheme).



In **Feeback option** select **None** because we do not need any feedback.



The result bitmap of our link is

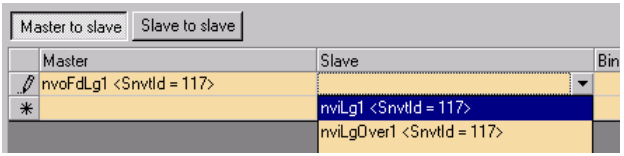


Now we must select the network variables to be bound.

Click on 

.

In **Master** column select **nvoFdLg1** network variable and in **Slave** column select **nviLg1** network variable like this:

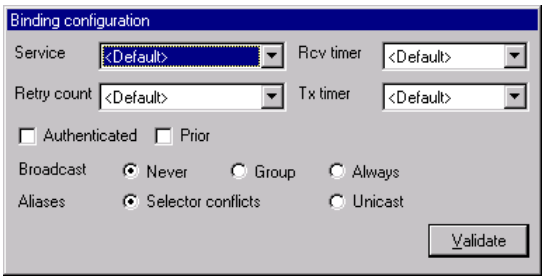


Picture 88 Network variable selection about binding master to slave

☞ The SNVT type must be the same for this binding. The <SnvtId = xx > is showed for more convenience.

Keep the binding configuration as the default.

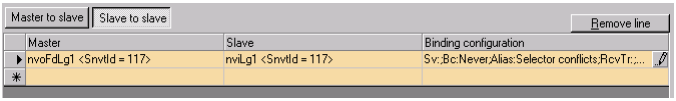
You can change the binding configuration by selecting the column Binding configuration and clicking on button  .



Picture 89 dialog box Binding settings

Now click on Slave to slave.

Select the same network variables as for Master to slave, it means **nvoFdLg1** for the first column (Slave source) and **nviLg1** for second column (Slave destination).



Picture 90 Network variable selection about binding slave to slave

Click on OK to validate the **Object's grouping rules.**

Picture 91 Light links in Object grouping rules tree

Click on to save your project here.

Configuring Object's grouping rules for FanCoil objects

The links between FanCoil objects are a little more complicated.

the FanCoil objects follow the Master Slave scheme, but it added a feedback need, Like shown in the FanCoil link image at the start of the sample.

The chain used for the FanCoil is similar to the chain defined for the Lights. Only the connected network variables are different.

So First create the chain rule For FanCoil with the variable **nvoFdVt1** and **nviVt1**, like it has been designed for the **Light** object.

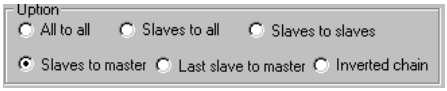
For the feedback connection, we must define a new object's grouping rule for the FanCoil.

So Right click on the FanCoil object and select the **New object's grouping rule…** option.

Set the name to be FanCoil Feedback.

In the Link model, select the Feedback link option.

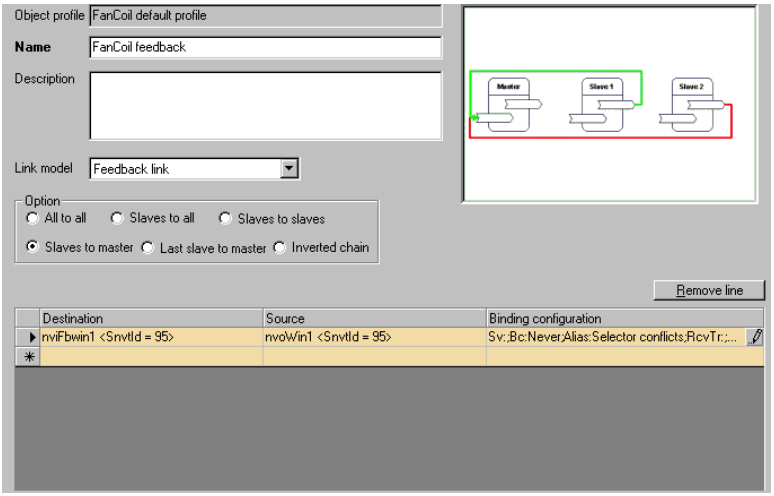
Then other controls appear.



We need to define a binding from all the slaves to the master. So select the Slaves to master option.

Then in the grid, select nviFbWin1 as **Destination** and nvoWin1 as **Source**.

The result of the settings is :



Click on  to save the connection.

So you have defined connections af FanCoils and connections of Lights.

We will let you defined on your own the connection for the blind. For this you can refer to the image that shows the connections that must exists between Blinds.

Click on  to save your project here.

Step 7 Configuring interaction rules

In step 3 we saw rules between object profiles of same type.

Now we will see binding rules between two objects profiles of different types.

This is the case for the RemoteControl and some other network objects.

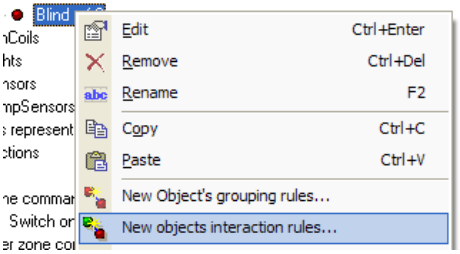
RemoteControl object must be link to light object, FanCoil object and SunBlind object when belonging to same area.

This type of bindings are called **Objects interactions rules**.

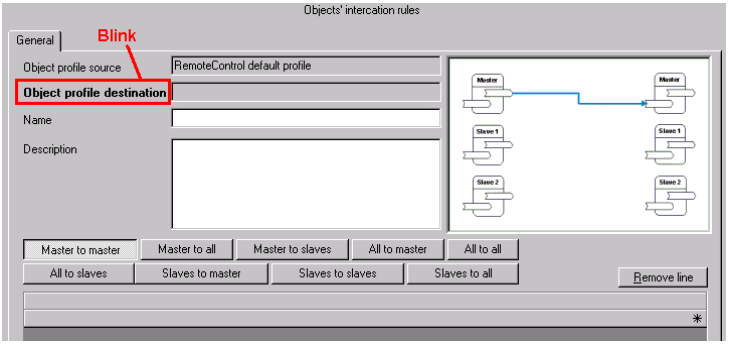
Object's interaction rules between RemoteControl and Light

When RemoteControl objects and light objects are in same area then RemoteControl objects must send their **nvoLg1a** network variables to the **nviLg1** of the light object.

Right click on the **RemoteControl default profile** item and select **New Objects interaction rules ...** option.



To start edition of grouping rule show you a windows to the right.



Picture 92 Object's interaction rules window

Object profile destination is blinking because we do not set the other object's profile required for the interaction rules.

Drag the item **Light default profile** from the tree to the right window.

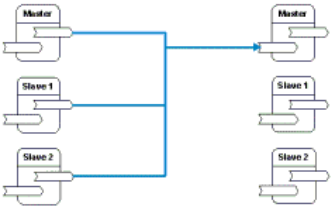
When you drop the item in the window **Object profile destination** stops to blink and **Light default profile** is now displayed.

We will name theses rules as **Remote to light links**.

Now we have to define the bindings, and first the type of the binding.

We need to have all RemoteControl objects in an area to send order but only to the master of the lights object in area (because master will send lighting command using the **Grouping object's rules** we see in step 3).

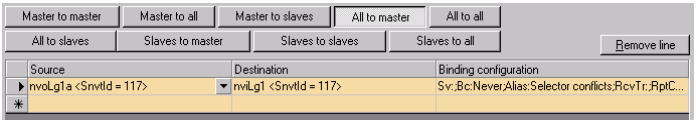
In this case we must click on **All to master** button.



Picture 93 Schema of binding All to Master

We now have to select the network variables to bound.

We will send **nvoFdLg1a** of the RemoteControl object to **nviLg1** of the light object.



Picture 94 Network variable selection about binding All to master

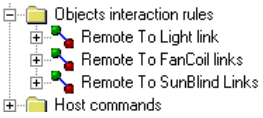
Click on 

to validate the **Objects interactions rules**.

Click on to save your project here.

Object's interaction rules between RemoteControl and all other

You made the same operations for each other objects profiles that need interaction rules.



Picture 95 Object's interaction rules tree

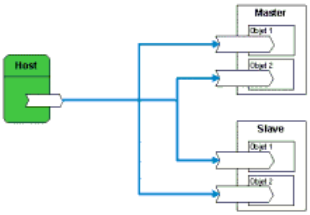
Step 8 Configuration of the bindings with the host

In this step we will see how to configure bindings with the host.

The host is the local PC.

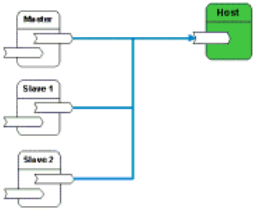
It exists two types of bindings with the host: **Host command** and **bind to host** rule.

The first binding is used to send command from host to devices.



Picture 96 Schema of Host command

The second binding is used to bound network variables of remote devices to the host.

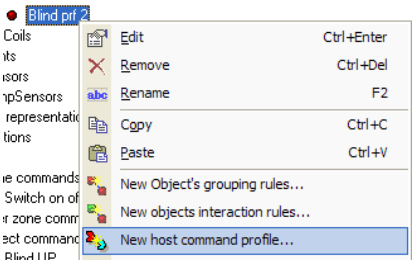


Picture 97 Schema of Bound to Host

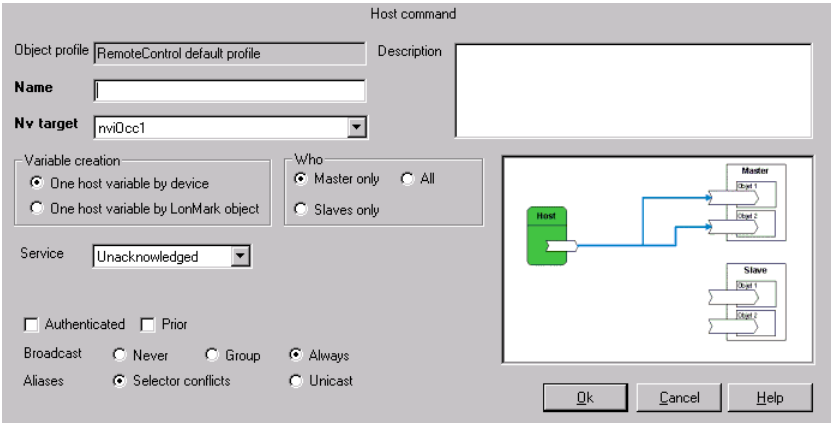
Host commands

We will make here a host command for the input occupancy network variable (nviOcc1) of the RemoteControl devices.

Right click on **RemoteControl default profile** item in tree and select option **New host command profile ...**



To start edition of Host command profile show you a windows to the right.



Picture 98 Host command window

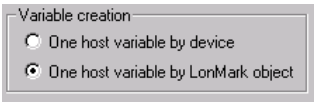
Set **Occupancy command** in Name field.

The **Nv Target** is **nviOcc1**.

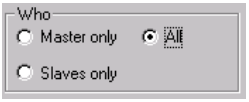
The **variable creation** is used to avoid aliases problem.

It configures the number of network variable on host when destination device have several objects and cannot support aliases.

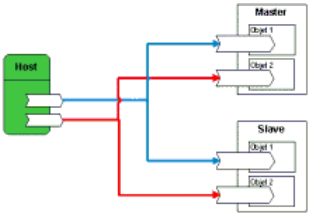
The RemoteControl device has two objects RemoteControl and to avoid aliases problem we will check the option **One host variable by LonMark object**.



In the **Who** field we will select **All** in order to have all presence devices to get the command.



The result bitmap for our command must be



Now we just have to configure the properties of the binding to have it as a broadcast command.

In **Service** select **Unack/Rpt**.

In **Broadcast** select **Always**.

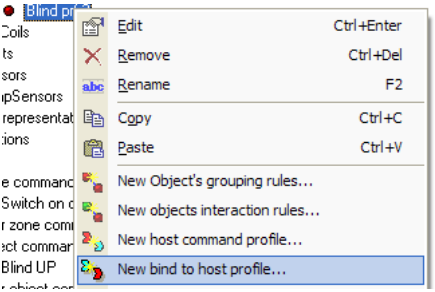
Click on  to validate the changes.

Click on to save your project here.

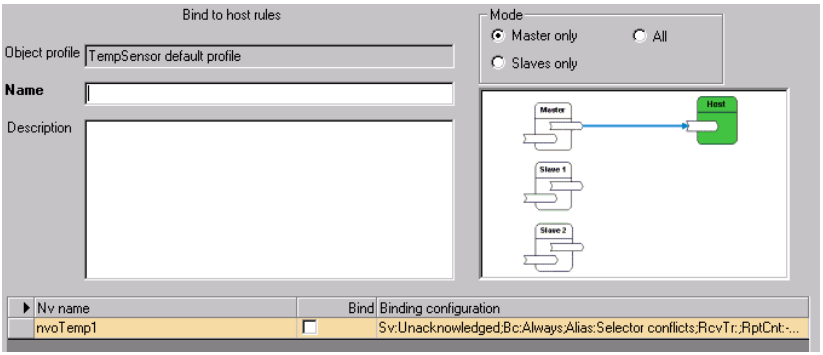
Binding to host

We will configure the network variable **nvoTemp1** of the TempSensor object to be bound to the host.

Right click on HVAC default profile item in tree and select option **New bind to host profile ...**



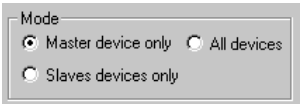
To start edition of grouping rule show you a windows to the right.



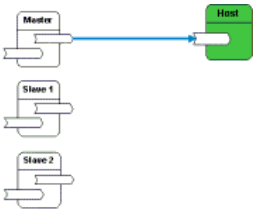
Picture 99 Bind to host window

Set **Temperature to host** in **name** field.

In **mode** select **Master device only** because in our example only the master HVAC object has a temperature sensor.



The result bitmap for the binding must be



In the grid check the network variable **nvoTemp1**.

Click on 

to validate the changes.

Click on to save your project here.

Step 9 Configuration of commands

In this database will we create some commands available on objects and zones.

Creation of a zone command

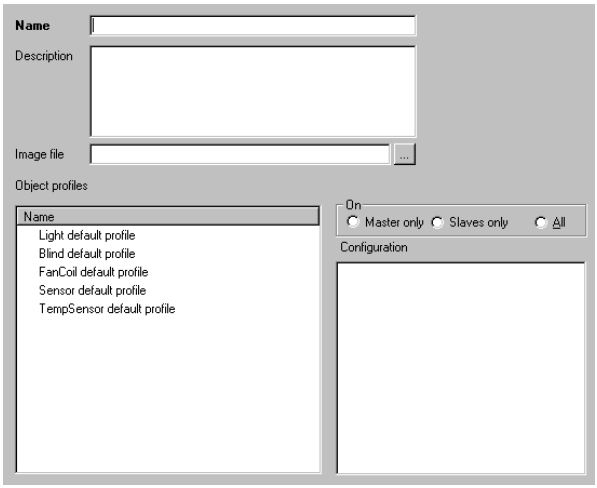
The zone command allows to design a command to write data on the network for a whole zone.

The command is fully designed and will not need user entry when it will launched in ***NLFacilities***.

Here we will create a zone command that will activate Lights, Blinds, FanCoils, of a zone.

To create the zone command, Right click on **Zone commands** folder and select the **New zone command…** option.

The following window appears:



Set the name to **Switch on zone**.

Configuration for Light objects

In the **Object profiles** list, select the **Light default profile** item.

The **Configuration** tree is then filled with variables available for the Lights objects.

Double click on the **nviLg1** variable select the field **function** select the SET_ON value and click on 

.

In the **On** controls select the option **Master only**, we select this option because writing the value on the master will write, thanks to the chain of the zone, the value on each Light object of the zone.

Configuration for FanCoil objects

In the **Object profiles** list, select the **FanCoil default profile** item.

The **Configuration** tree is then filled with variables available for the FanCoil objects.

Double click on the **nviVt1** variable select the field **setting** set the value to 100 value and click on Apply.

In the **On** controls select the option **Master only**, we select this option because writing the value on the master will write, thanks to the chain of the zone, the value on each FanCoil object of the zone.

Configuration for Blind objects

In the **Object profiles** list, select the **Blind default profile** item.

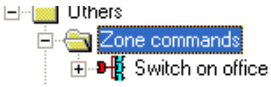
The **Configuration** tree is then filled with variables available for the Blind objects.

Double click on the **nviBl1** variable select the field **function** and set the value to SET_UP and click on Apply.

In the **On** controls select the option **Master only**, we select this option because writing the value on the master will write, thanks to the chain of the zone, the value on each Blind object of the zone.

Then click on OK to create the Zone command in the database.

The zone command appear under the **Zone commands** folder.



Creation of a user zone command

The user zone command allows to design a command to write data on the network for a whole zone.

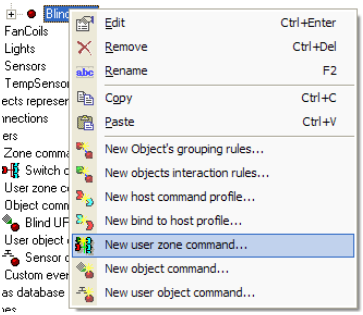
The command in the modeler will allow to design which variable can be written and select which value can be written in the variable.

When the user zone command is launched in ***NLFacilities***, then a window appears to let the user set the value that must be written on the network.

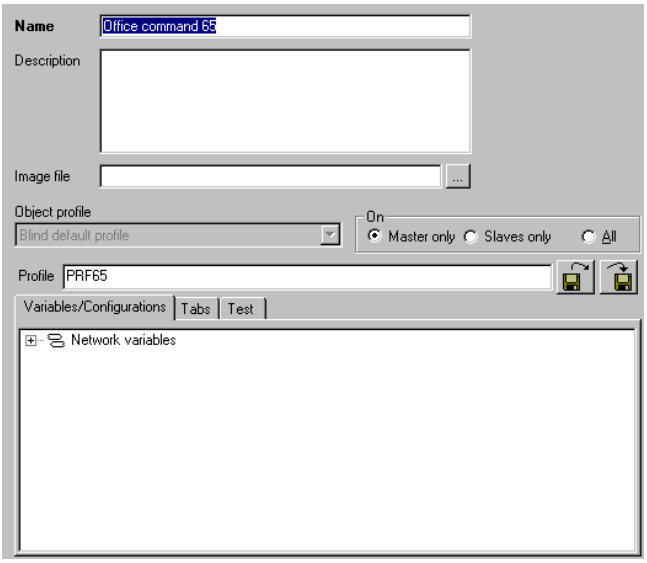
A user zone command, is linked to an object.

Here we will create a user zone command that will change the time the Blind takes to go up and down, it is associated to the nciHoldTime variable of the Blind.

To create the user zone command, Right click on **Blind default profile** object and select the **New user zone command…** option.



The property window of the user zone command appears:

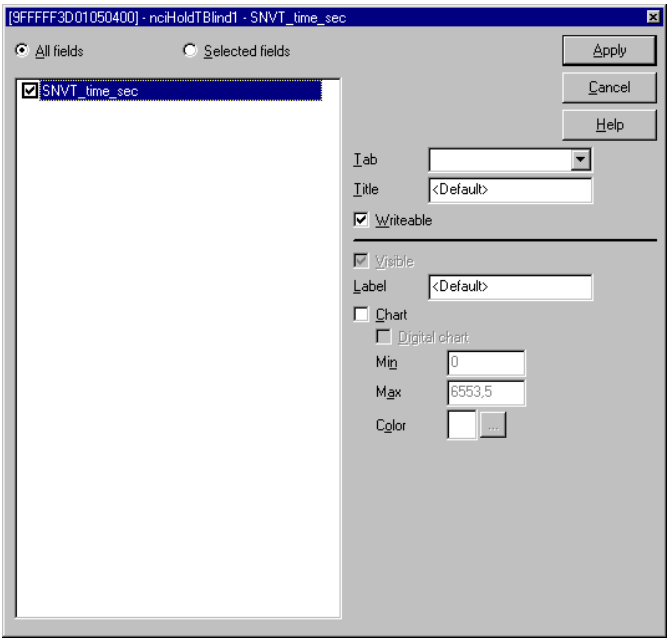


Set the Name to **Blind HoldTime setting**.

In the On controls select **All**. Here we configure a command to configure in one ***NLFacilities*** click for all the Blind objects of a zone.

In the tree, open the Network variables item and double click on nciHoldTBlind1.

The usual network variable configuration window appears.

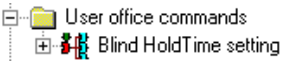


Select the **SNVT_time_sec** item.

In the Label text box enter the text “Hold time” and click on Apply.

Click on OK to create the user zone command in the database.

The user zone command appears under the User zone commands folder.



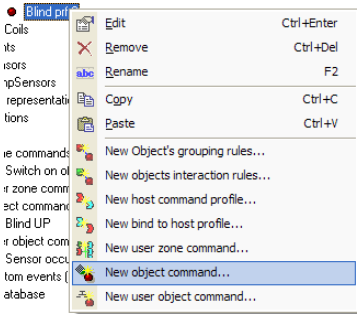
Creation of an object command

The object command allows to design a command to write data on one or several objects of same type, that are member or not of a zone.

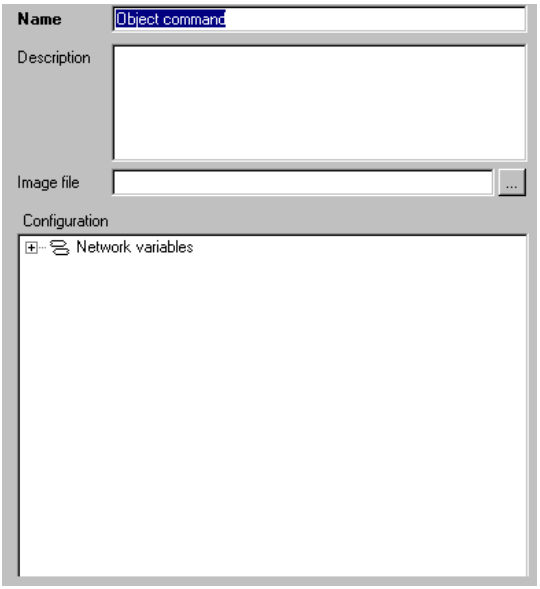
The command is fully designed and will not need user entry when it will launched in ***NLFacilities***.

Here we will create an object command that will set blinds UP.

To create the object command, Right click on **Blind default profile** object and select the **New object command…** option.



The property window of the object command appears:



Set the name to **Blind UP.**

In the tree open the Network variables item and select the nviBl1 network variable. The usual network variable configuration window appear.

Select the function field in this window and set the value to SET_UP.

Click on Apply.

And then click on OK to create the object command in the database.

The object command appears in the tree under the **Object commands** folder.

Creation of a user object command

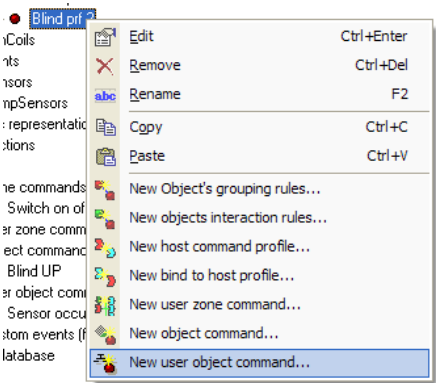
The user object command allows to design a command to write data on one or several objects of same type, that are member or not of a zone.

The command allows to define on which field or network variables the command will be active, but also what are the values that can be written.

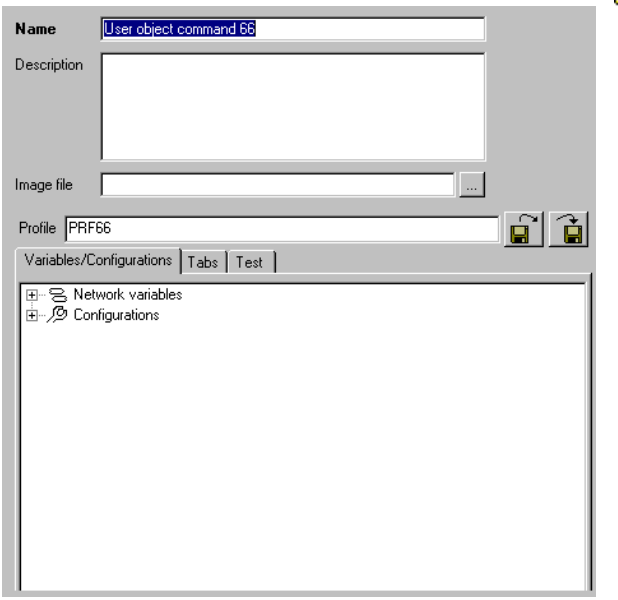
When you launch this command in ***NLFacilities***, it will open a window that will show the value that can be entered and let the user selected what values must be written on the network.

Here we will create an object command that will let the user select the occupancy of the sensors.

To create the object command, Right click on **Sensor default profile** object and select the **New user object command…** option.



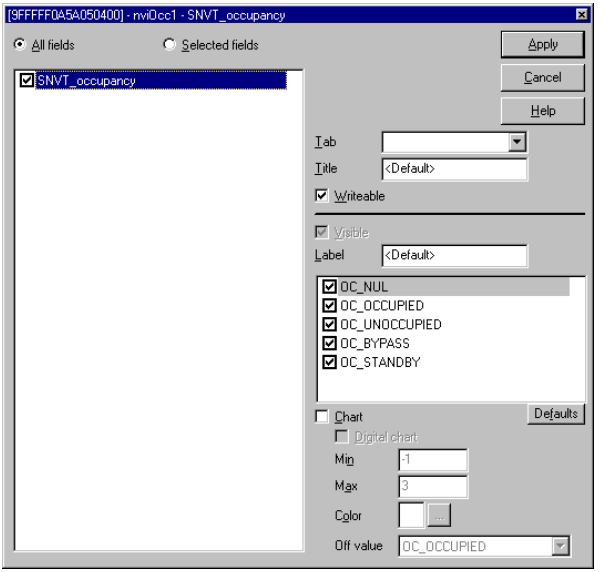
The properties window of the user object command appears.



Set the name to **Sensor occupancy**.

In the tree, open the Network variables item. Double click on the nviOcc1 item.

The usual network variable configuration window appears.



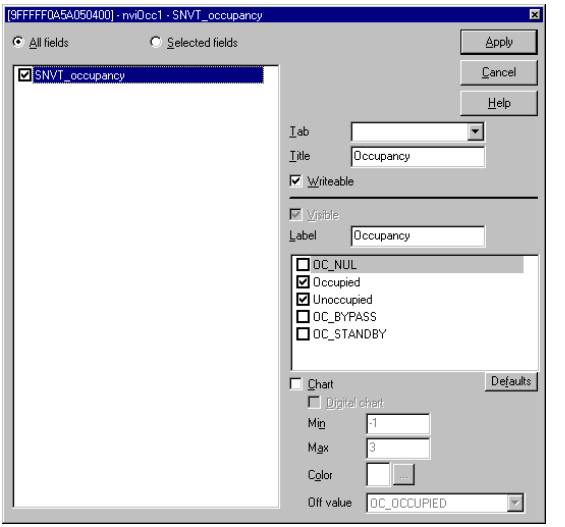
Now we will configure as follows:

Set the Label text to **Occupancy**.

In the available values select only the OC_OCCUPIED and OC_UNOCCUPIED.

Set their names respectively to **occupied** and **unoccupied**.

You must have the following window.



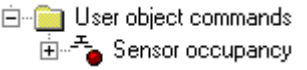
Click on 

.

And then click on 

to create the object in the database.

The object appears under the **User object commands** folder.

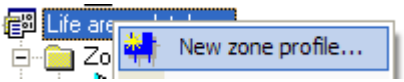


Step 10 Configuration of a zone

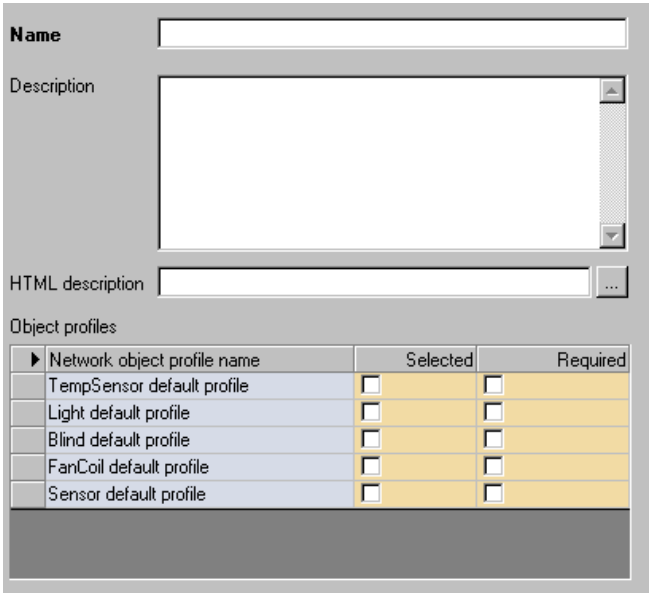
In this step we will create a zone profile.

Create zone

Right click on **Life areas** and select option **New zone profile ...**



To start create zone profile show you a windows to the right.

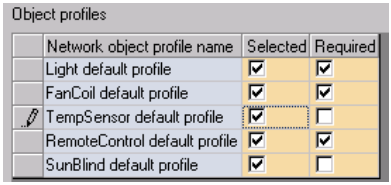


Picture 100 Zone profile setting window

Set **Zone#1** in **name** field.

In this zone we want to use **Lights, FanCoil, SunBlind, TempSensor** and **RemoteControl** objects. We will set too **Lights** , **FanCoil** and **RemoteControl** as required.

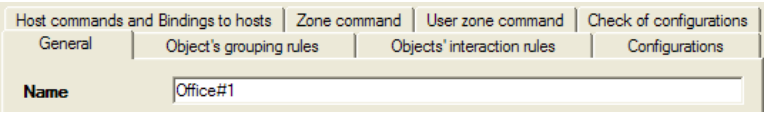
The grid selection must look as this:



Click on OK to zone profile.

Now new tabs are available.

Tabs are show on follow.



Set Object's grouping rules for zone

Click on **Object's grouping rules** tab

In this screen we must select the **Object's grouping rules** used by the zone.

The list displays all the connections available in the database. In our case, we need all the connections so check them all.

Set Object's interaction rules for zone

Now click on **Object's interaction rules** tab.

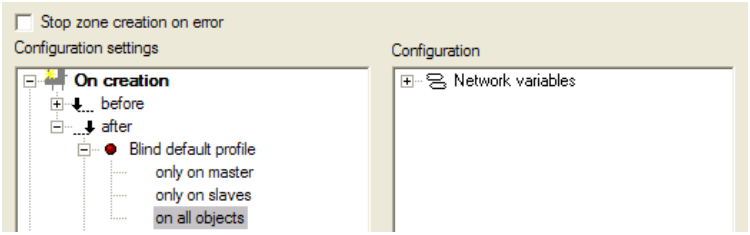
In this screen we must select the **Objects interaction rules** used by the zone.

The list displays all the connections available in the database. In our case, we need all the connections so check them all.

Set Configuration for zone

The tab **Configurations** is used to write network variables and configurations on object when zone is created , modified, repaired or deleted.

Select in the tree the item “On creation/ After / Blind default profile / on all objects”. In the list open Network variables. You see SCPTHoldTime. This network configuration properties set the time to action is maintained (light green and red are ON in demonstration suit case).



NOTE: You can directly use the configurations previously defined in the Configurations page of object profiles to set the value.

NOTE :

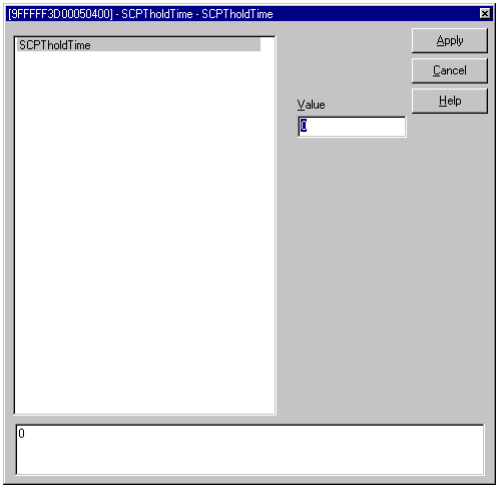
On creation is used to write configurations on objects when a zone is created, or, after a modification, on the objects added to the zone.

On modification is used to write configurations on objects when a zone is modified.

On repair is used to write configurations on objects when a zone is repaired.

On deletion is used to write configurations on objects when a zone is deleted.

Double click on **SCPTHoldTime** variable. A dialog box will appear.



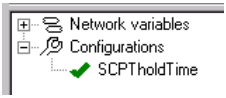
Picture 101 dialog box of setting network configuration value

Select the variable **SCPTHoldTime** in list set **0,5** in value field.

Click on 

to apply configuration.

In the previous windows the **SCPTHoldTime** is checked for remember information.



Set Host command and binding to hosts for zone

Now in **Host commands and Binding to hosts** we must select the host binding to use for the zone.

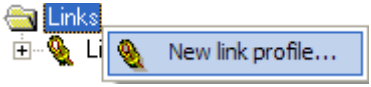
Here checks all the item in the list.

Click on 🖫 to save your project here.

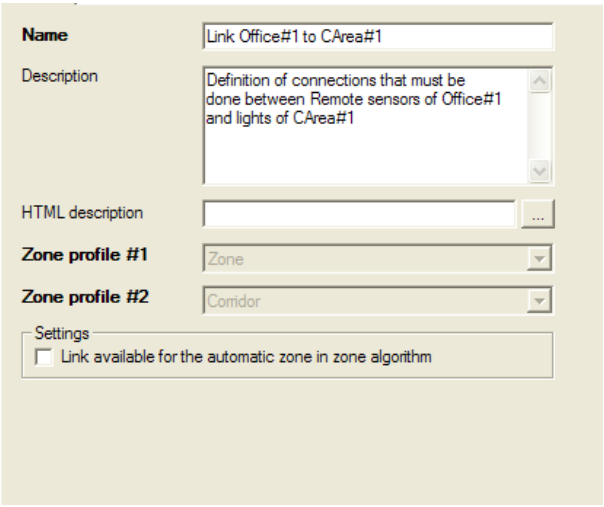
That's done, you have now a modeler database fully designed and that can be used by ***NLFacilities***.

Step 11 Create a link between two zones

To create a link between two zones, right click on the Links folder and select the **New link profile…** option.



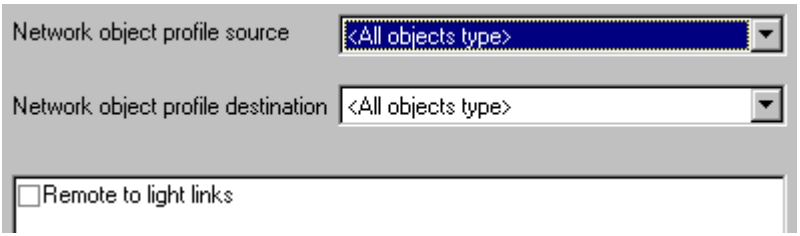
The Link profile property page appears.



Picture 102 New link property page

Fills it like shown above.

Then click “Profile#1 to Profile#2” to select the binding law we must established between the **Remote control** of the zone and the **Lights** of the common area.



Picture 103 Interaction between zone and common area

Check the **Remote to light links** item in the list, and click on OK.

It’s done our Modeler database is fully designed. We can now launch ***NLFacilities*** to configure our network.

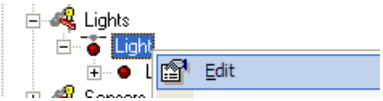
See the ***NLFacilities*** user guide to find a Step by step sample using the ***NLModeler*** database we have just created.

Step 12 Objects appearances

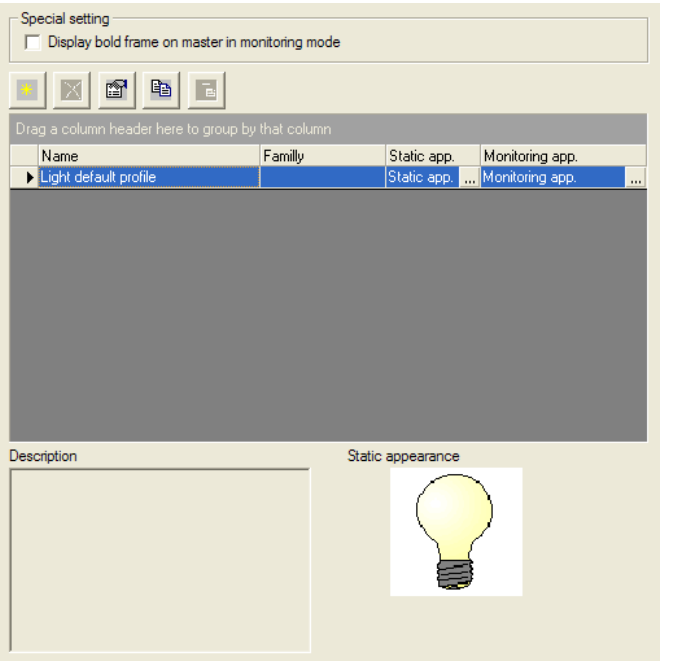
Update existing appearances

For any network object of the Modeler database, it is possible to define several appearances and also several monitoring appearances.

Edit the “Light” network object

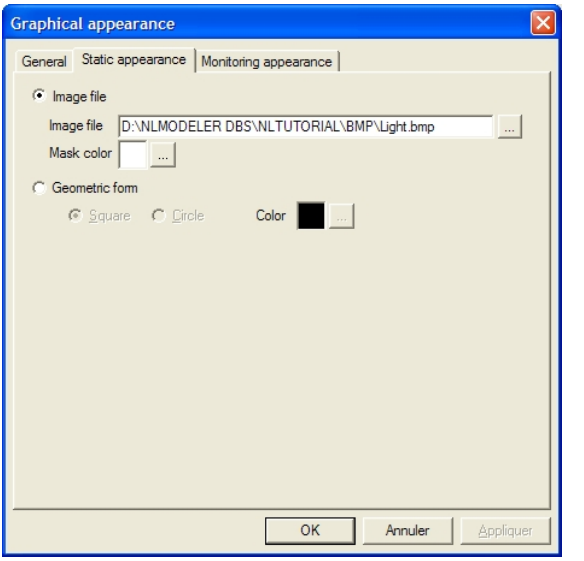


Go in the **Appearances** tab.



Picture 104 Object Appearances page

To modify the appearance, select the line “Light default profile” in the list and click on ... of the “Static app” column to edit the existing appearance.



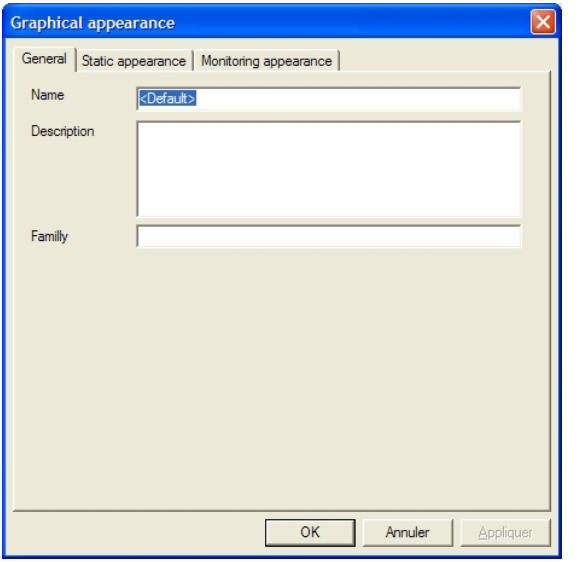
Picture 105 Graphical appearance properties

Select "**Image file**" option and select the BMP file :

C:\Program Files\Newron System\ NLFacilities\ Tutorial\ NLModeler \Images\ Light.bmp

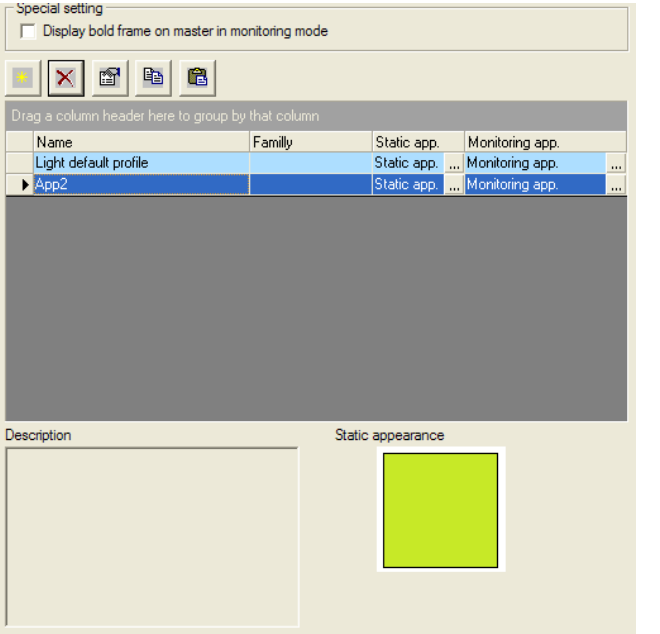
Create new appearance

To create a new appearance, click on  .



Picture 106 New graphical appearance

Give the name **App2** ; go in **Static appearance** page, select "**Geometric form**" option with the color you want. Click on "**Ok**", the appearance is created in the list.



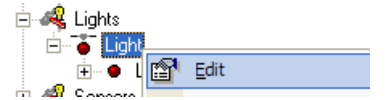
Picture 107 Network object Appearances page

Step 13 Objects Monitoring

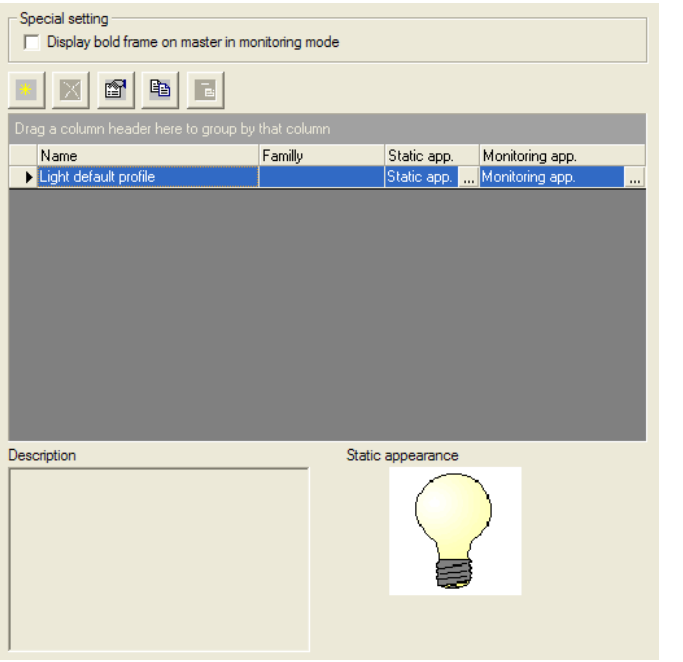
Dynamic appearance

To define dynamic appearance for the network object “Light” :

Edit the “Light” network object

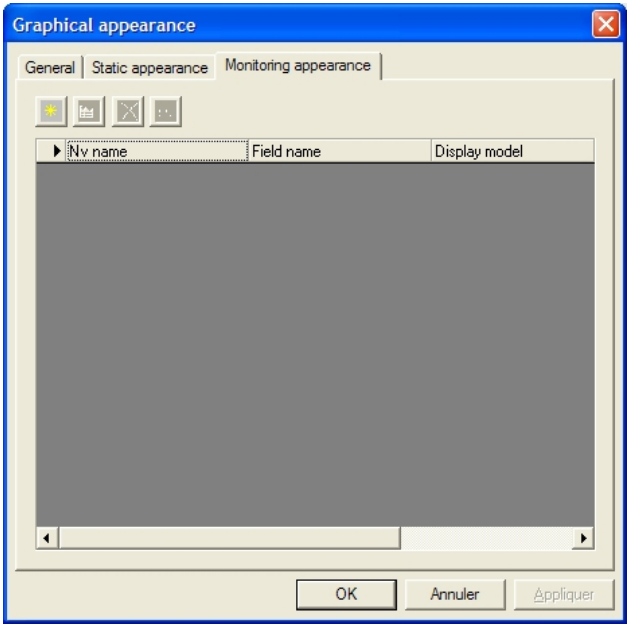


Go in the **Appearances** tab.



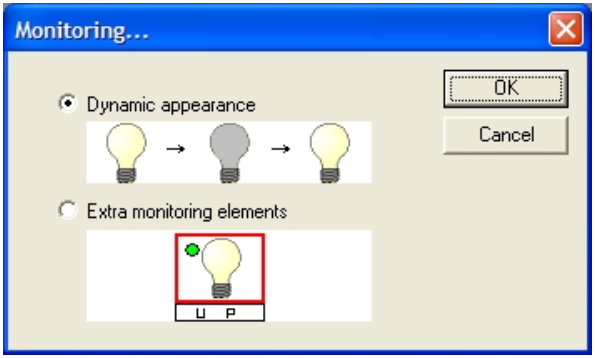
Picture 108 Network object Appearances page

To add a monitoring appearance, select the line “Light default profile” in the list and click on ... of the “Monitoring app”.



Picture 109 Monitoring appearance page

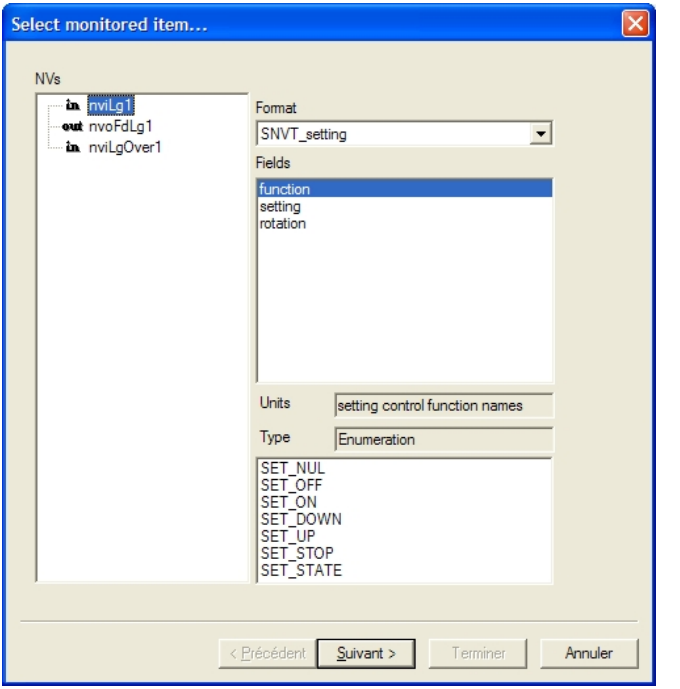
Click on  to start creation of a new monitoring appearance.



Picture 110 Type of new monitoring appearance

Select the option “Dynamic appearance” and click on “**OK**”

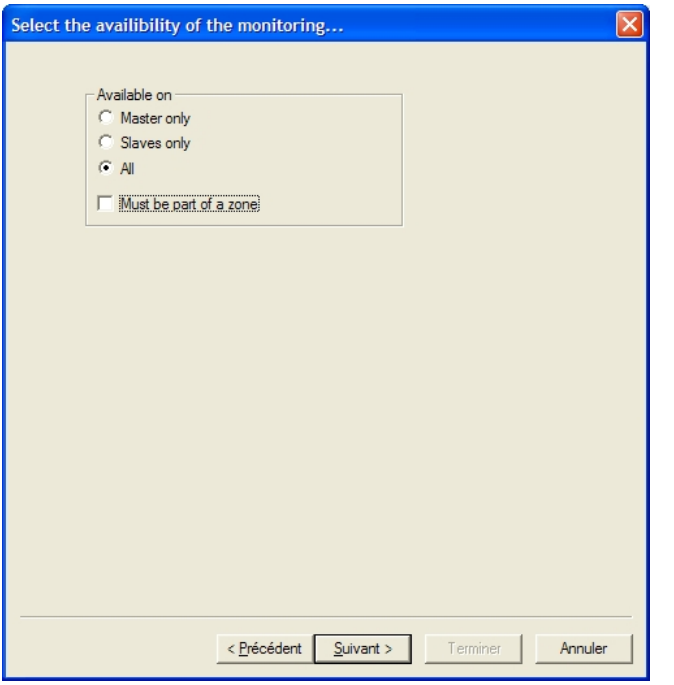
Dynamic appearance : defines the appearance of the object depending on network value. **Extra monitoring elements** : defines extra items around the object that will change on network values.



Picture 111 Selection of monitored network variable

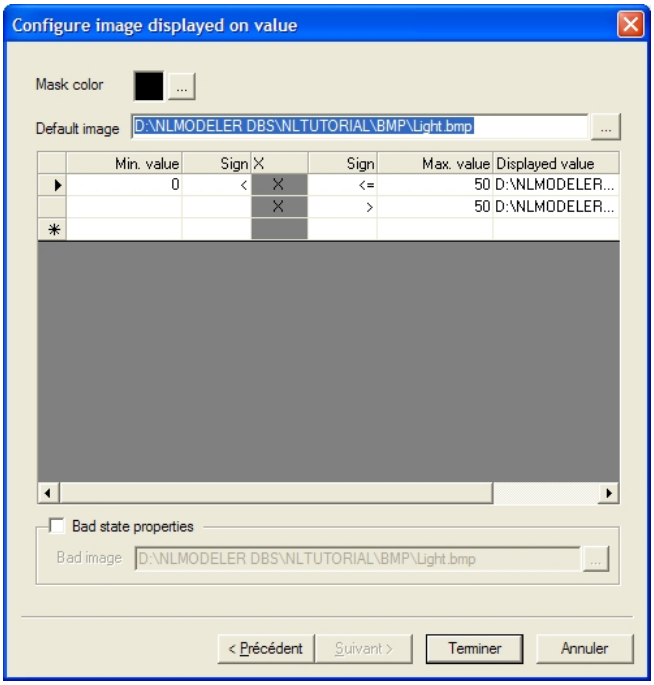
Select the variable “nviLg1” in the left list.

Select the field “setting” in the “Fields” list and click on “**Next**”.



Picture 112 Selection of scope of monitoring appearance

Select the option “**All**” to ensure that the monitoring will be available on all “**Light**” objects present on the map. Click on “**Next”.**



Picture 113 Definition of monitoring appearance behavior

You will here define the image that must be displayed for the object depending on network values.

For our example, we will define an appearance where an image “Light off” is displayed while the nv af the field is less than 50, and a “Light on” image when the nv is over 50.

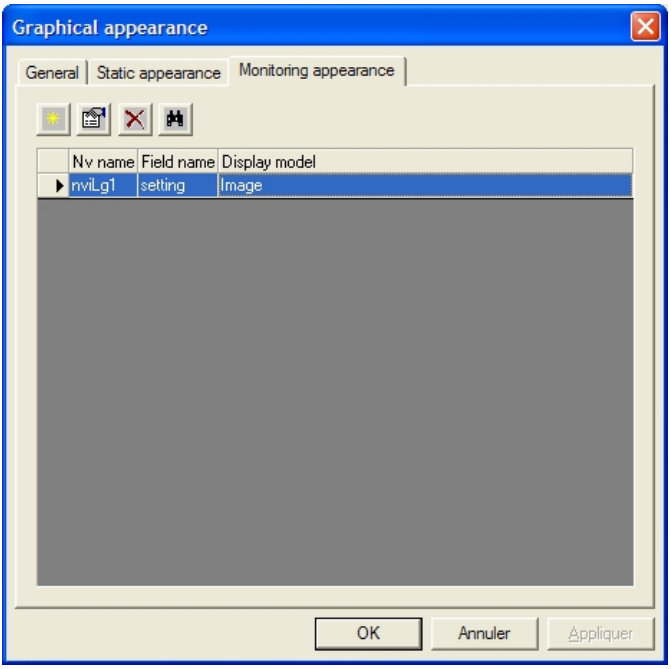
Create a first line with :

0 < Value ≤ 50 display of image “Light off”

and a second line with :

Value > 50 display of image “Light on”

Click on “Finish” to validate the monitoring appearance.



Picture 114 List of monitoring appearance

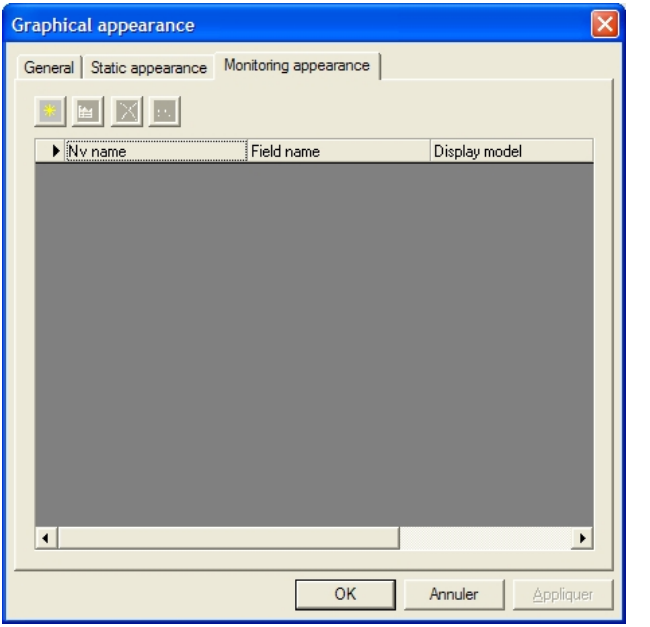
A new line is added in the list of existing monitoring appearances.

NOTE :

For enumeration values, you will have to define an image for each enumeration value.

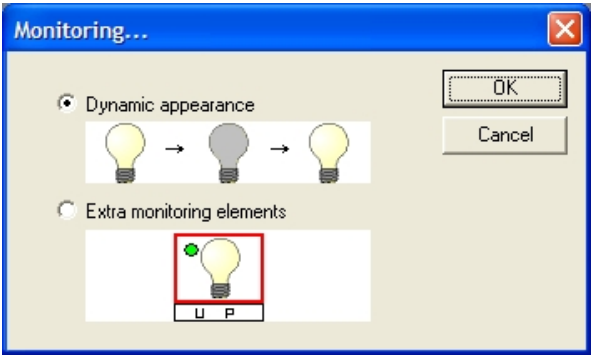
Extra monitoring elements

We will create here a monitoring text below "**Light**" objects to display On / Off depending on network values.



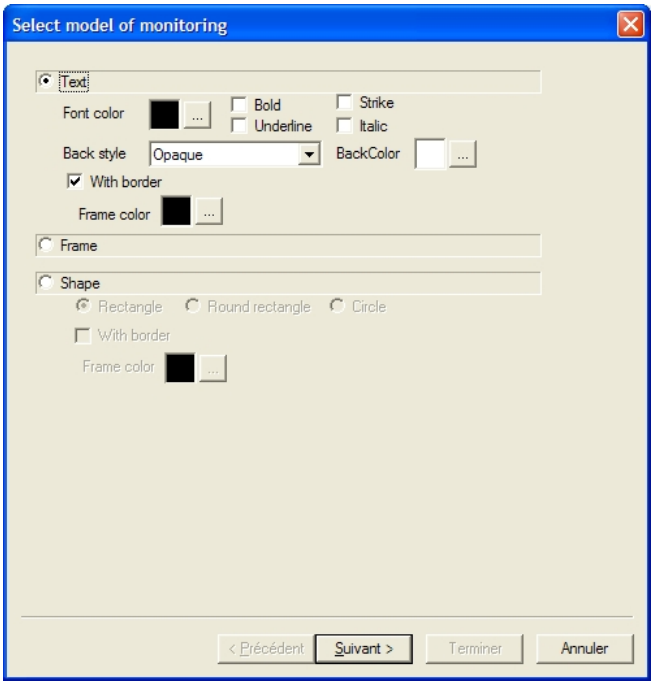
Picture 115 List of monitoring appearance

In the configuration page of the appearance, click on  to start creation of a new monitoring appearance.



Picture 116 Type of new monitoring appearance

Select the option “Extra monitoring elements” and click on “**OK**”



Picture 117 Selection of the model of extra monitoring element

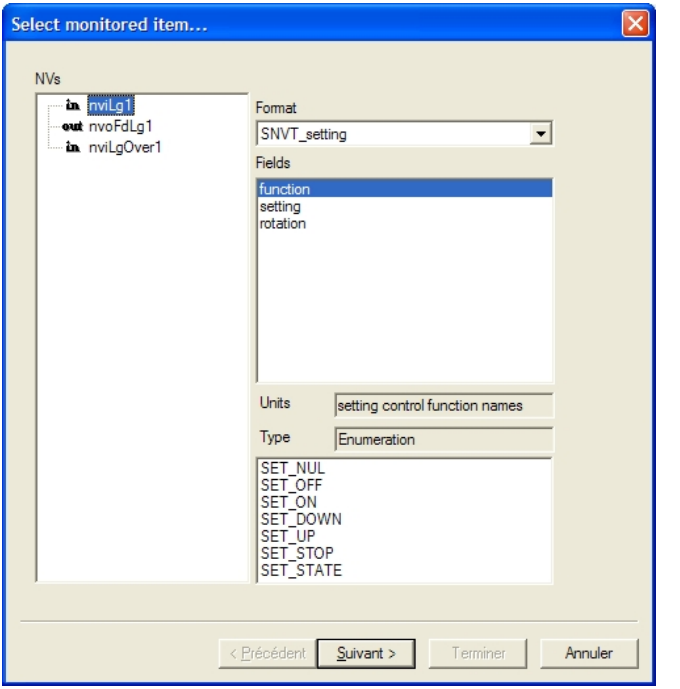
Select the option "**Text**" and define the properties of the font you want to use. Click on "**Next**".

NOTE :

Text : displays a text to the monitored object. The text changes on network values.

Frame : displays a frame around the monitored object. The color of the frame changes on network values.

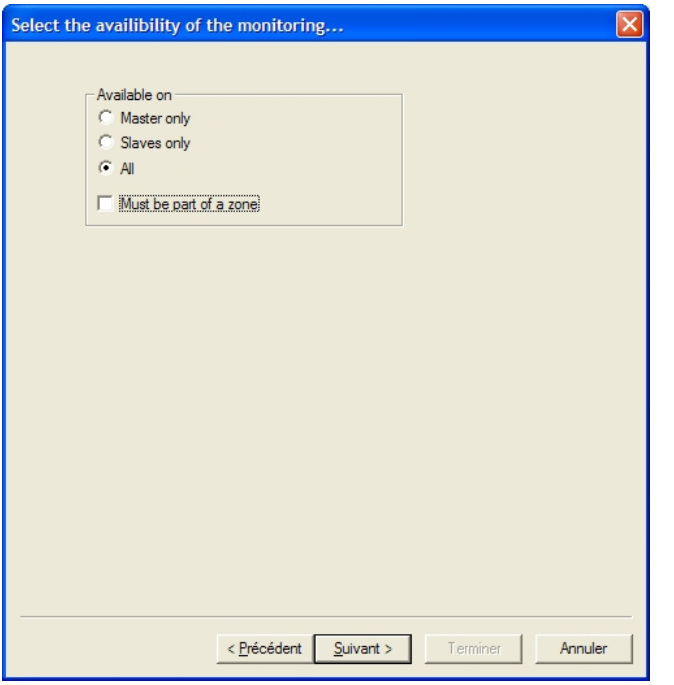
Shape : display shapes around the monitored object (circle, rectangle …). The color of the shape changes on network values.



Picture 118 Selection of monitored network variable

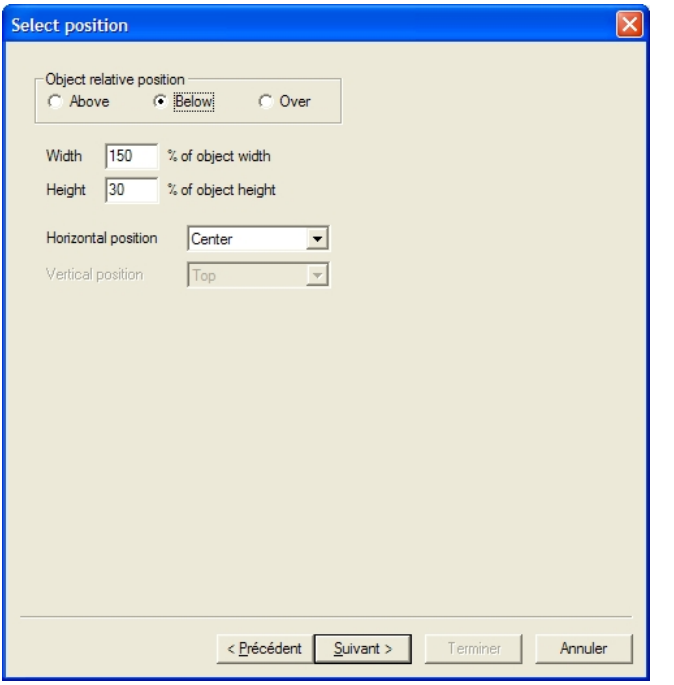
Select the variable “nviLg1” in the left list.

Select the field “function” in the “Fields” list and click on “**Next**”.



Picture 119 Selection of the scope of the monitoring appearance

Select the option “**All**” to ensure that the monitoring will be available on all “**Light**” objects present on the map. Click on “**Next”.**

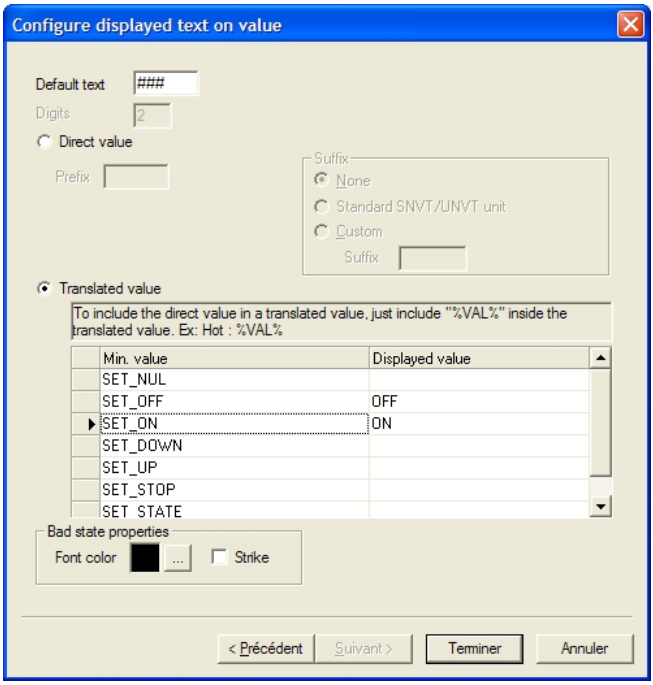


Picture 120 Settings for the position of the extra monitoring element

Give the following options :

- Object relative position : below
- Width : 150 %
- Height : 30 %
- Horizontal position : Center

Click on “**Next”**



Picture 121 Settings of monitoring text

Select the option “**Translated value**”.

Give the value “OFF” to “ST_OFF” enumeration value.

Give the value “ON” to “ST_ON” enumeration value.

Leave blank any other enumeration value.

Click on “**Finish**” to validate your monitoring appearance.

NOTE :

You have two types of text that can be displayed.

Direct value : displays the real value of the monitored network variable.

Translated value : used to define a customized text depending on network values.