NL220 Tutorial

Objectives :

- User guide for NL220
- Present an efficient workflow to create your NL220 project

1. Create a new project

New Project

When you launch NL220, the following screen appears :

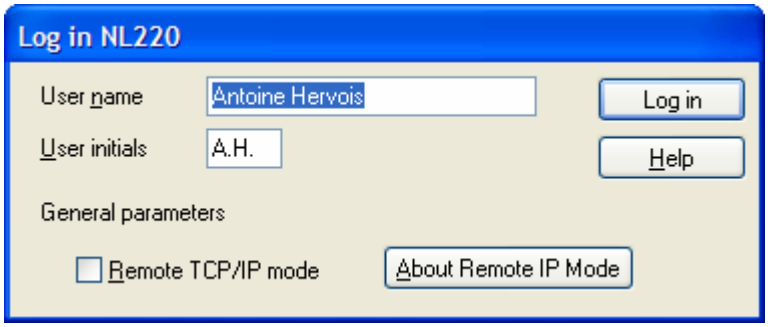


Figure 1 : NL220 Log in window

Enter your name and Log in.

The “Last Opened” project screen appears :

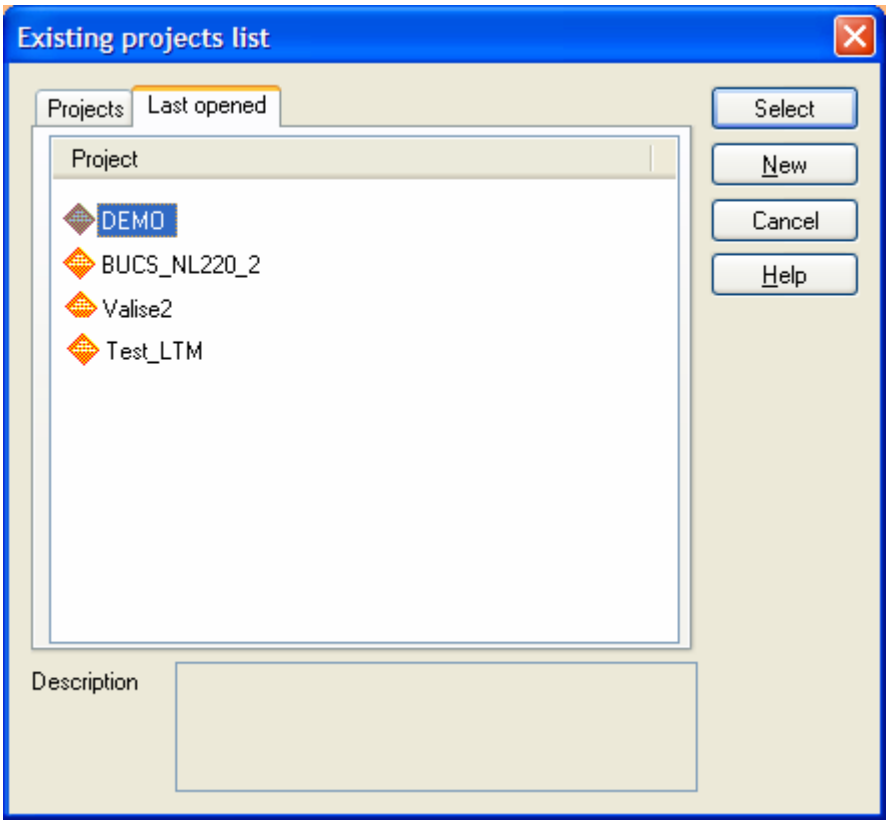


Figure 2 : NL220 Last opened project window

Click on “New” to begin creation of a new project.

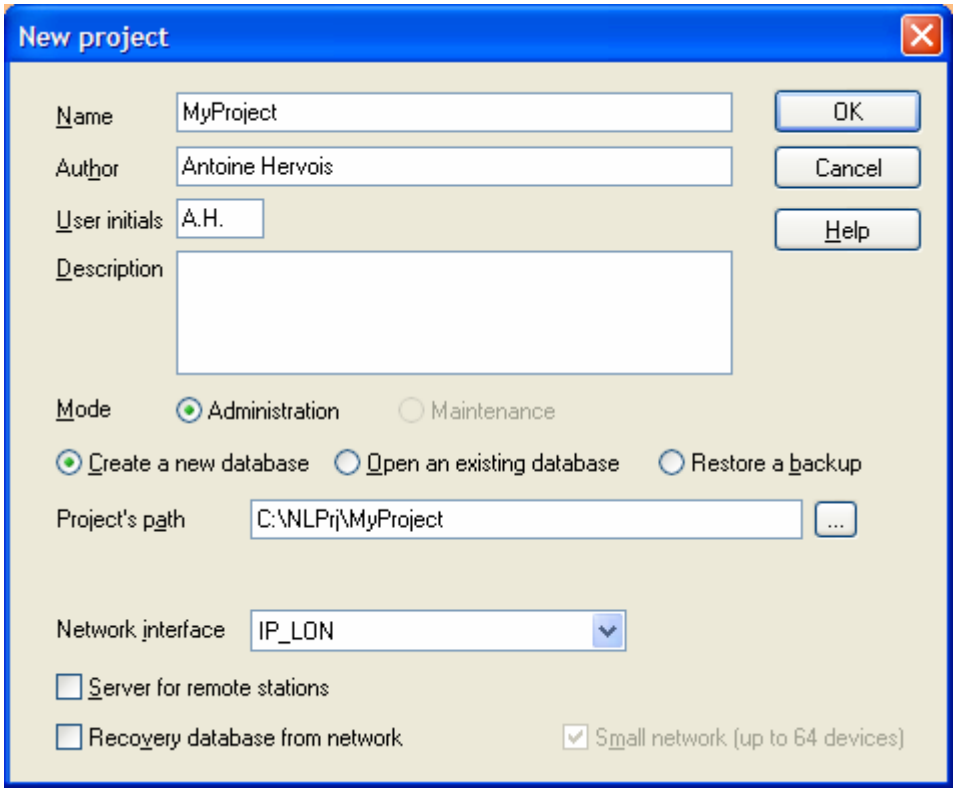


Figure 3 : New project window

Give a name to your project, and set a Network interface using the combo box. Click on "OK".

The "Project Settings" screen shall appear :

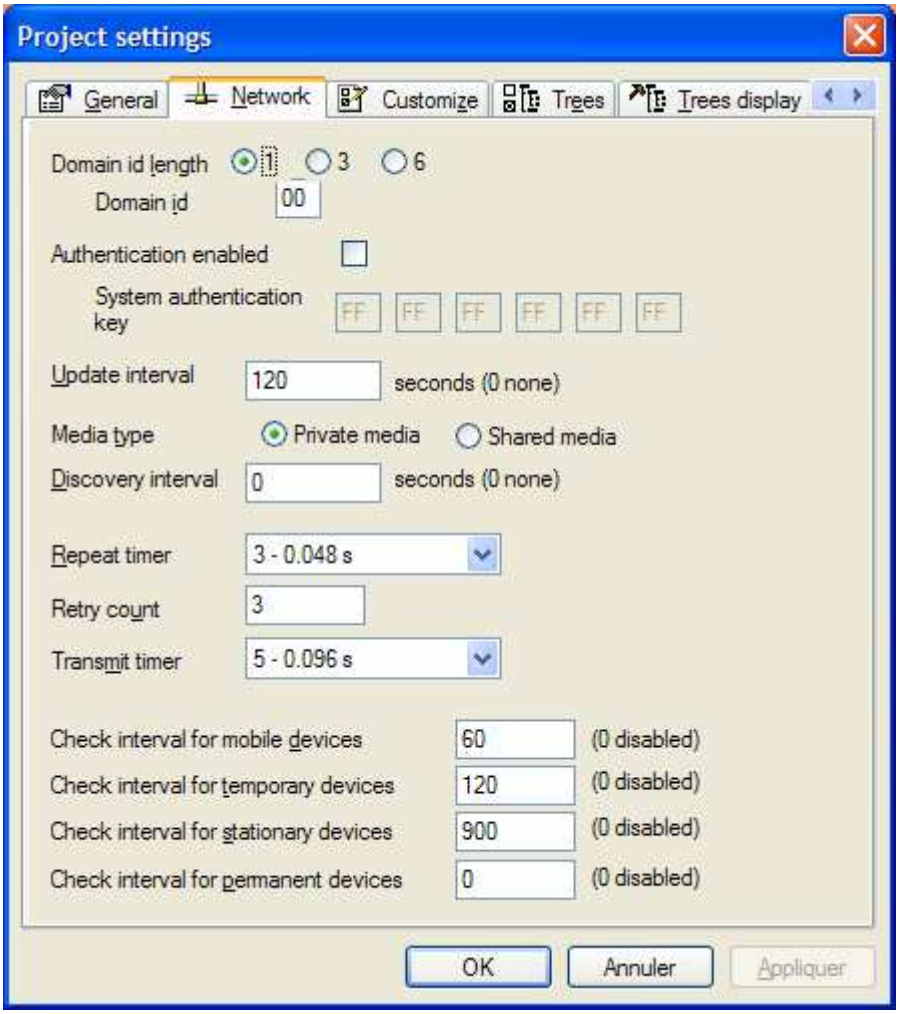


Figure 4 : Project settings window

Let the default values in a first time, you can come back to it later (in “Project” menu, option “Project Settings”).
Now you have created your empty project, and can move on to the second part : **Creating the network infrastructure**.

New Project from an existing directory

It is also possible to create a new project in NL220 from an existing LNS database created with another LNS manager tool.

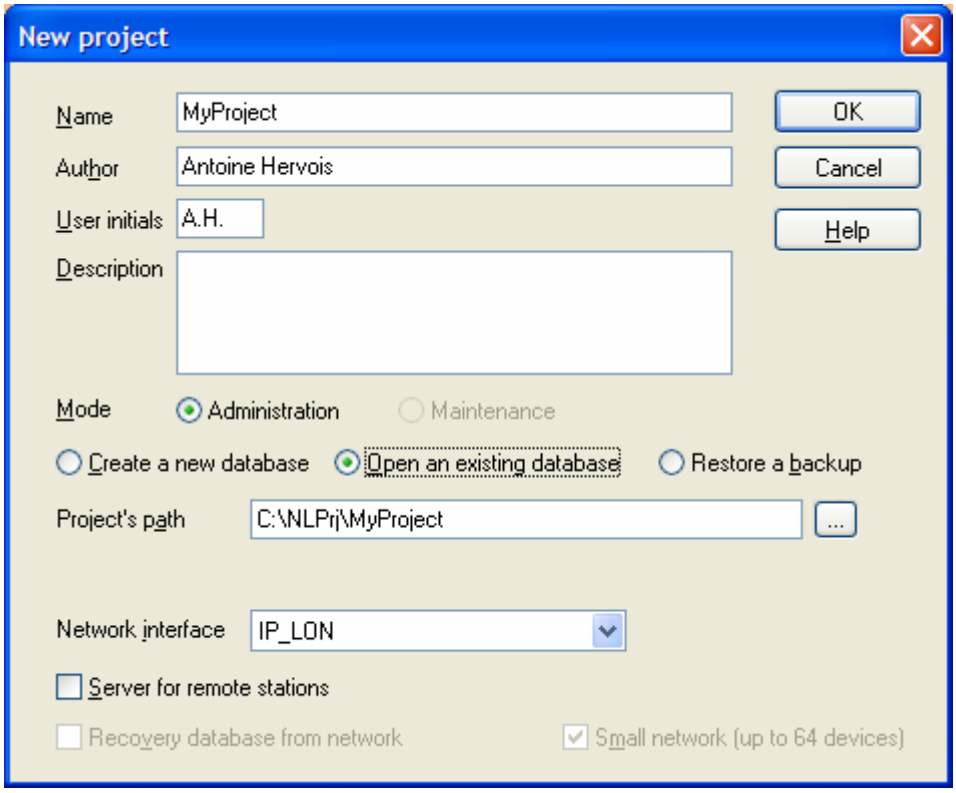


Figure 5 : New project from an existing directory

Set in “Project’s path” the path of your existing LNS database.
Click on “OK” and validate default project settings.
You will then be able to see your whole LNS database in NL220 trees.

New Project from a backup file

In the “New Project” window, select “Restore a backup” option, and set the directory of the backup file.

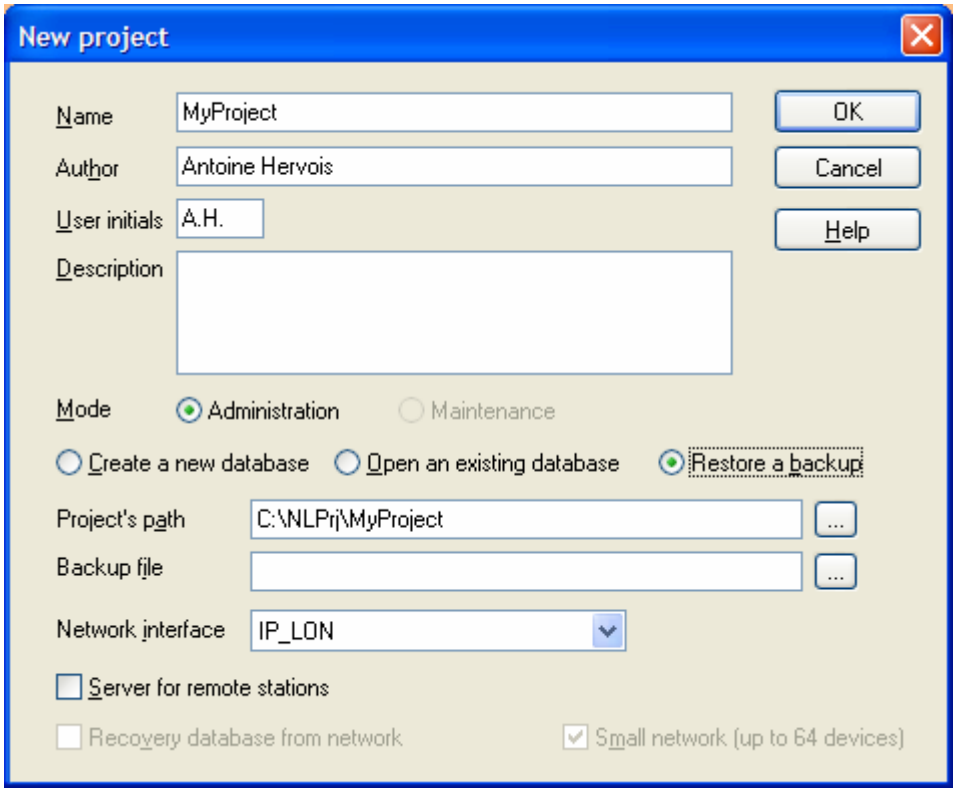


Figure 6 : New project from a backup file

If your backup file is valid, the database will be restored. Click on “OK”, validate the default settings of your project, and your new project is now created.

2. Create network infrastructure

Switches and routers

If you have created an empty projet, NLSmartChannel should launch just after project creation. If you have created a project from an existing LNS database or from a backup file, you can launch it from this icon  .

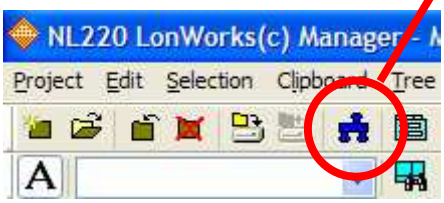


Figure 7 : NLSmartChannel icon

With an empty project, your network architecture is empty as follows :

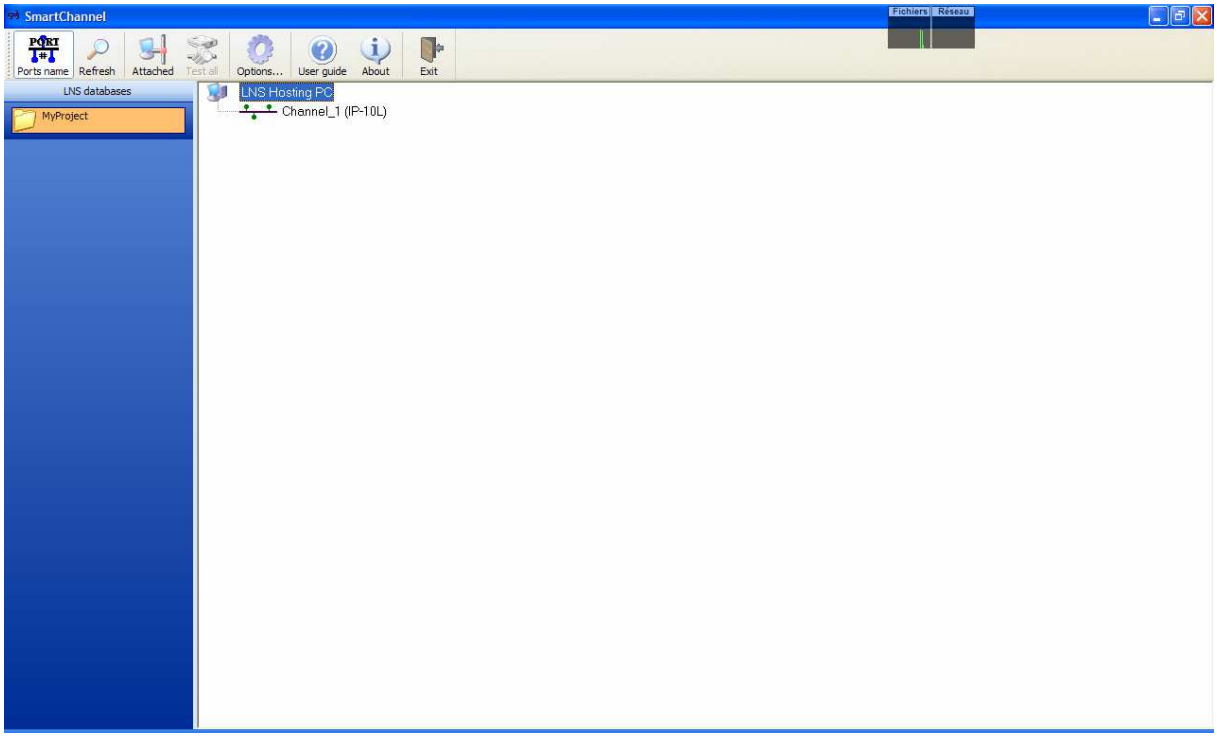


Figure 8 : NLSmartChannel main window

To edit the channel media or name, left click on it and choose “Edit”.

If you want to create an infrastructure device, left click on the channel and choose “New infrastructure device”. Choose the product within the list. It will automatically create the corresponding channels. For instance if you create an IP router with two FTT10 ports, the router will be created and the two FTT10 ports are created with the router.

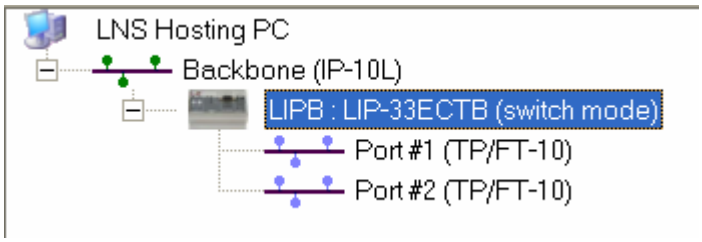


Figure 9 : NLSmartChannel new IP router

Configure infrastructure products

To configure an infrastructure product, left click on it and select “Change type”. You can change the product’s mode (or class) between “Switch” and “Router”. If you choose “Router” or “Configured”, you must commission the device (see next paragraph).

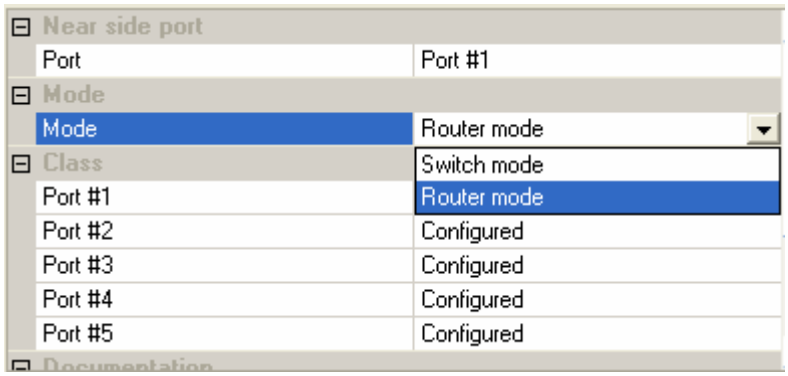


Figure 10 : NLSmartChannel configure router type

Commission infrastructure products

To commission your router, left click on it, go to “Network” menu and select “Commission”.

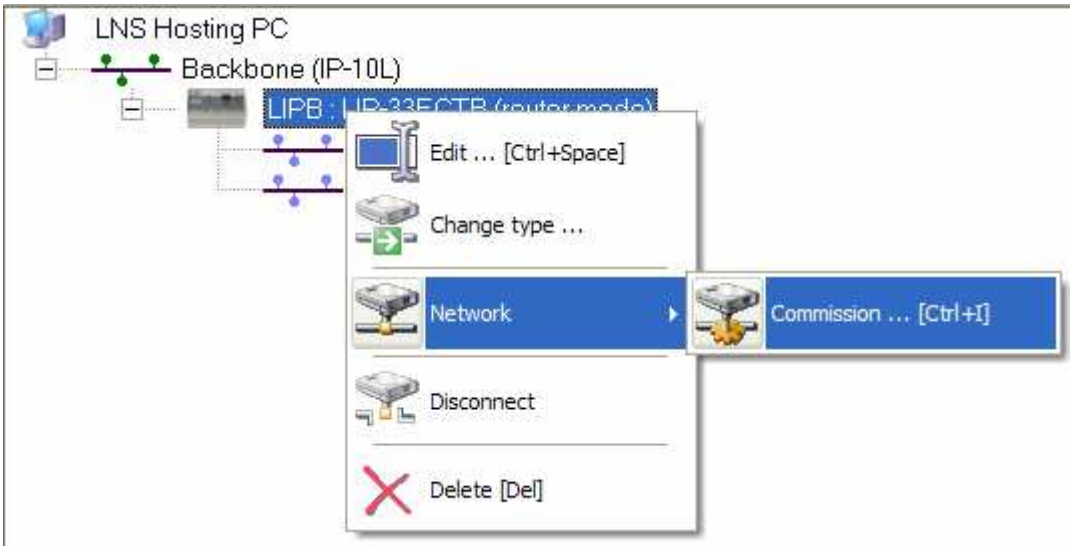


Figure 11 : NLSmartChannel router commissioning

To complete installation of your router, enter the Neuron Ids of the corresponding ports (or press the service pin button to send the Neuron ID).

Note : Switches are NEVER commissioned.

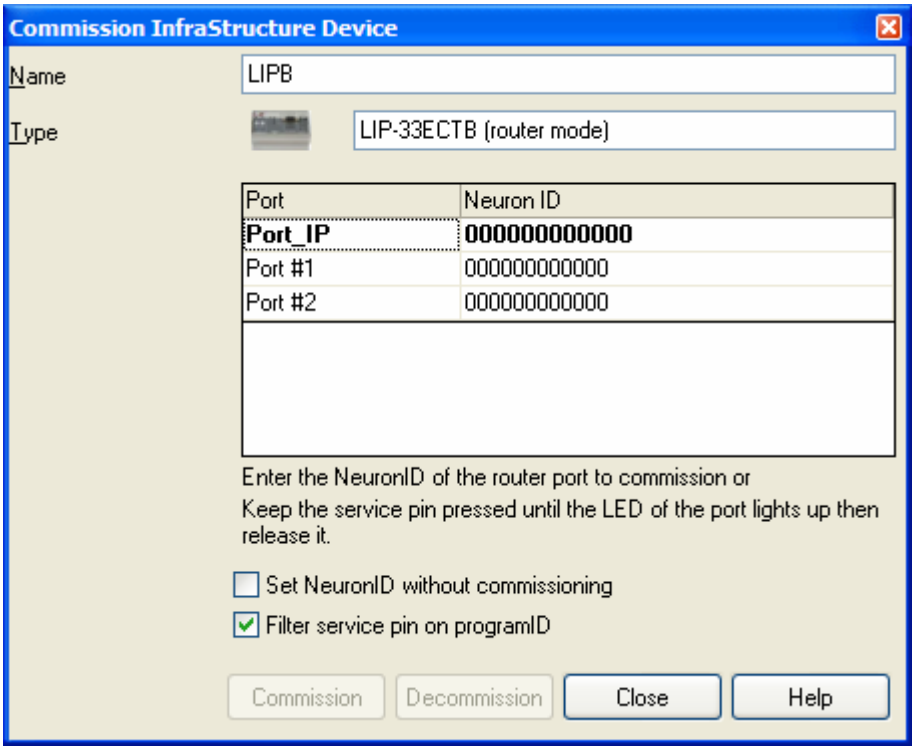
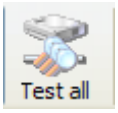


Figure 12 : NLSmartChannel router Neuron IDs

Use the "Test all" button 

to check that your router is correctly installed.

3. Create organization (subsystems)

Logical organization

If you started a project from nothing, this is how your subsystems tree should look like now :

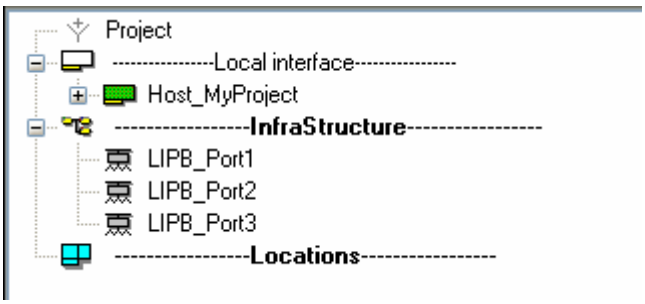


Figure 13 : Subsystems tree

You can now create a hierarchical organization with your subsystems ; for instance, a geographical organization like this :

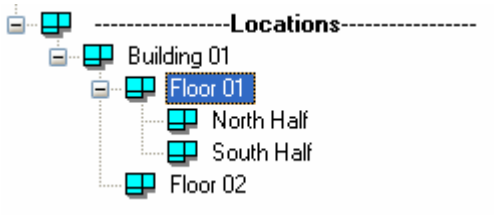


Figure 14 : Subsystem organization 01

Or if you prefer, manufacturer organization :

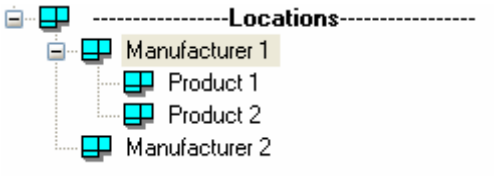


Figure 15 : Subsystem organization 02

To create a subsystem, right click on an existing subsystems and choose “New subsystem in <subsystem’s name>…”
You can also have several organizations in a same project, as we will see in the next paragraph.

Create several organizations

You can create several organizations within the same project. For instance if you have already a geographical organization, you can create a manufacturer, or product, … organization.
For this, you have to create a new root subsystem by right clicking on Project in the tree and choosing “New root subsystem”.

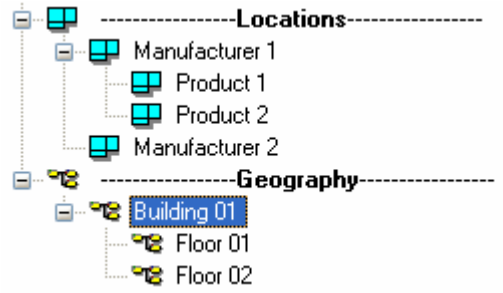


Figure 16 : Several subsystems organization

To create clones of your devices from one organization to another, maintain CTRL+SHIFT pressed and drag and drop your device from the source subsystem to the destination subsystem.

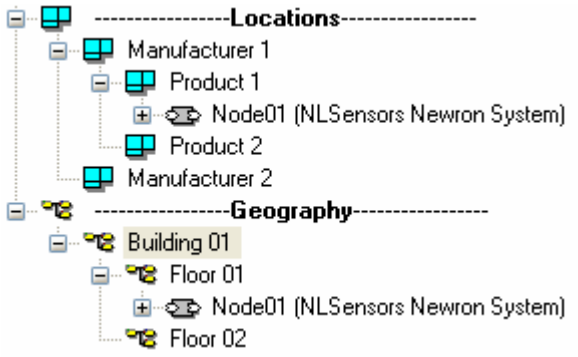


Figure 17 : Clone node in different root subsystem

Every action sent to the first node (changing a configuration, deleting the node , etc …) is automatically done on its clone also.

4. Create templates

With a plugin

First check that your plugin is registered ; go to the "PlugIns" menu, and select "Register plugins". If your plugin is registered, a green mark should be displayed next to it. If you need to register a plugin, double click on it (or on several plugins if you need to register several) and click on "Register".
Once your plugin is registered, verify that the registration has automatically created your device templates. Go to the "Template" tree, and verify the corresponding template is in the list.

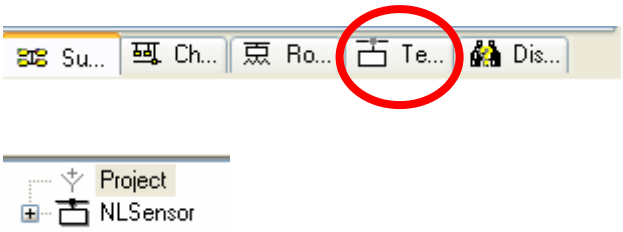


Figure 18 : Device template tree

With a XIF file

Go to the "Template" tree (see previous paragraph), ; right click on Project, and choose "New device template". Then choose an XIF file to load, and click on "OK".

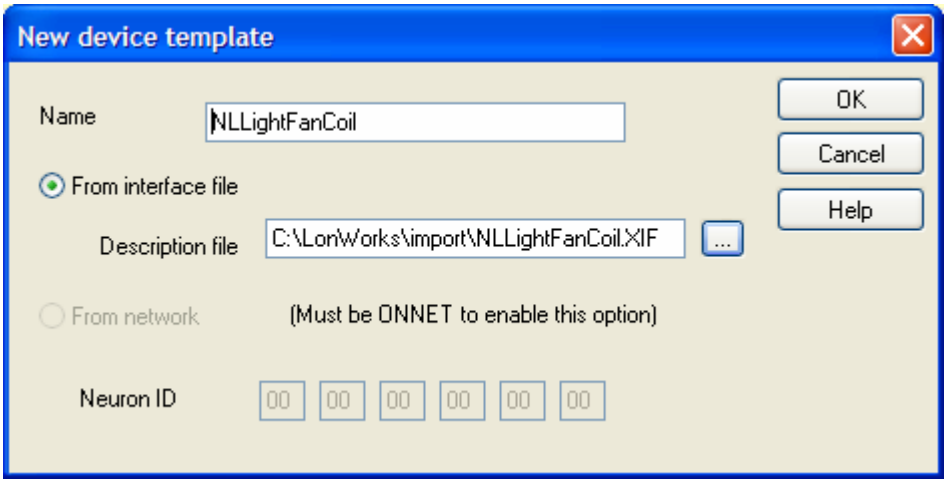


Figure 19 : New device template window

5. Create nodes

Create a node from the template

In the “Template” tree, right click on the device template and choose “New node from <template’s name>”.

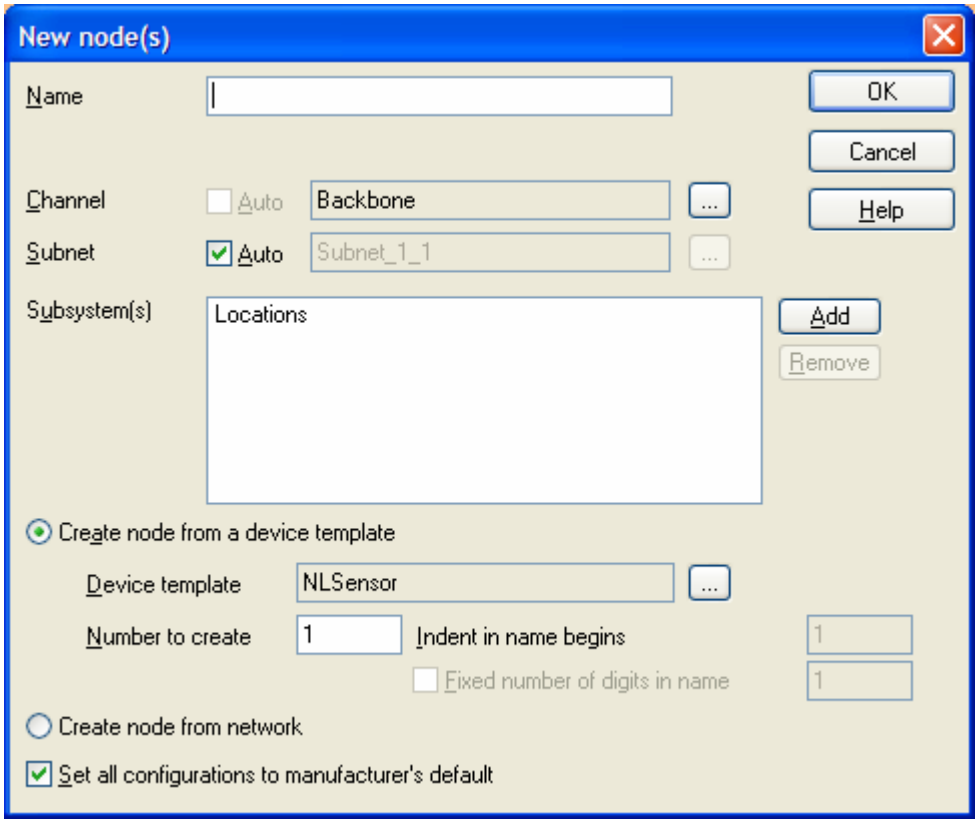


Figure 20 : New node from a device template

Define a name for the node, browse the channels to create it on the good channel. If you want to create the node in a subsystem that is not listed, click on “Add” to add the subsystem to the list.

Create several nodes in one operation

You can create a complete set of nodes in no more effort than creating just one. When you select “New node from <template’s name>”, you can see the option “Number to create” under “Create node from a device template”. Set here the number of nodes you want to create, and define the classification of the nodes and the number of displayed digits for the index.

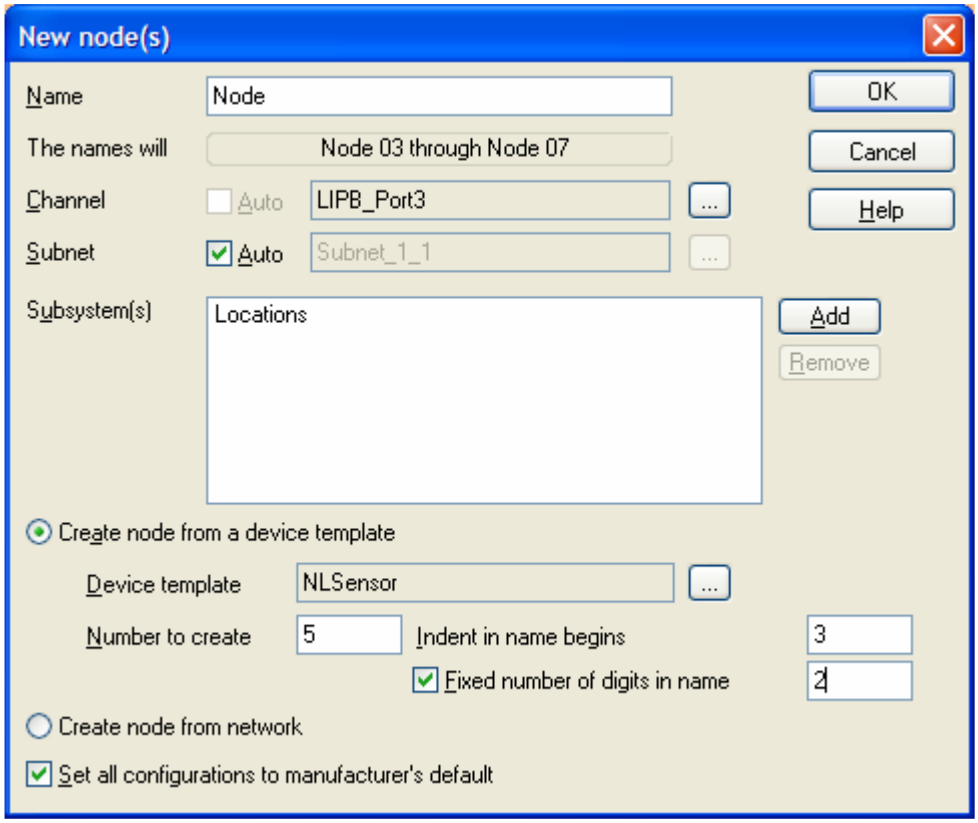


Figure 21 : Create several nodes in one operation

Here this will create the nodes Node 03 , Node 04, …, Node 07 on the channel LIPB_Port3, in the Locations subsystem.

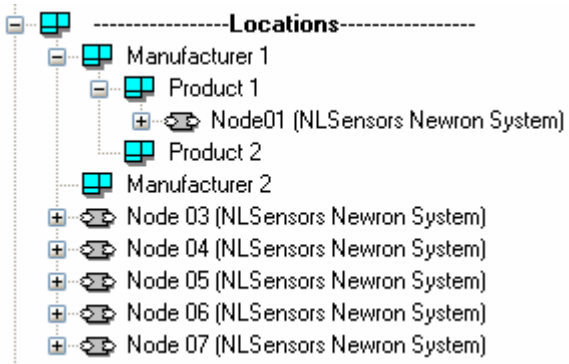


Figure 22 : Subsystem tree after several nodes created

Create a node from the network

To create a node from the network, the project must be assigned a network interface (at project's creation or opening). Then NL220 must be set "ONNET"  .

6. Apply configurations

From the plugin

First thing to check is that your device plugin is registered (see chapter 4 paragraph 1). Then right click on the node, go to PlugIns menu, and launch the corresponding plugin. You can then configure your device through plugin interface.

Using direct node edition

To reach the devices configuration properties, right click on the node and choose "Edit". The node menu will appear on the right. Go to the "Configurations" tab to browse the different configuration properties.
If you select a configuration property, its database value will appear in the "Value" field. You can "Upload" the value (get the value from the device on the field) and "Download" (send the database value to the device).

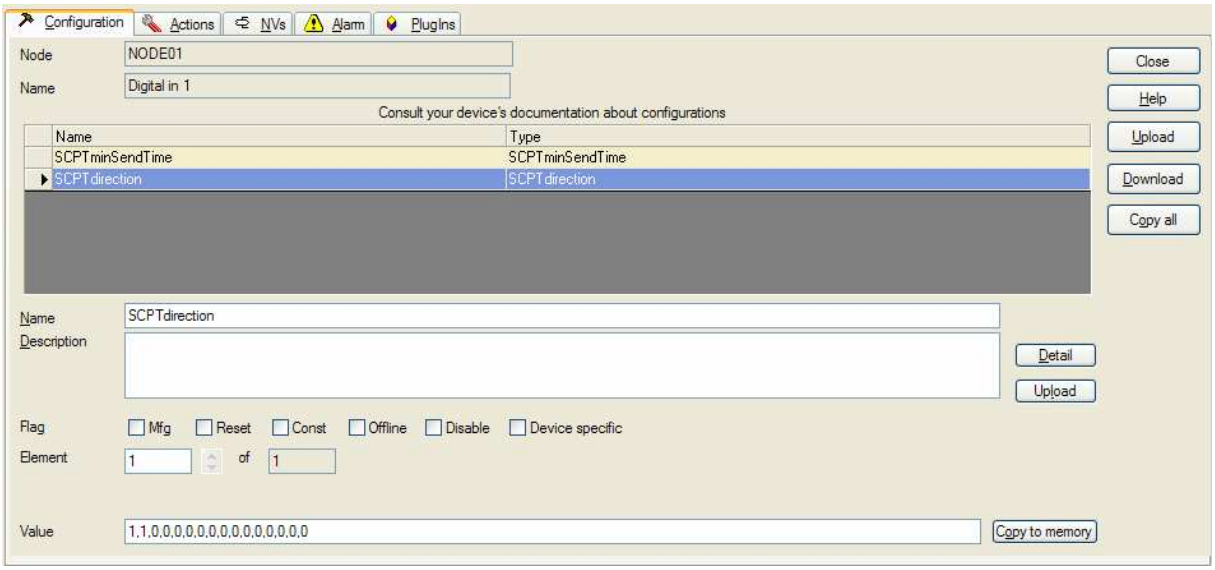


Figure 23 : Edit device or functional block configuration properties

In most cases the configuration properties are available at Functional block level and not at device level. In such case, expand the node in the tree and edit the functional block to access its configuration properties.

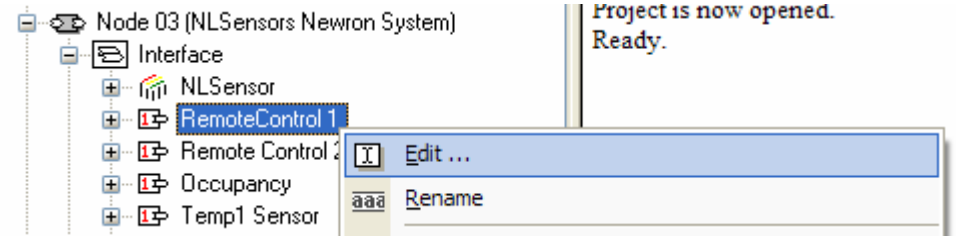


Figure 24 : Edit a functional block

Copy / paste configuration values

Once you have configured one node, you can copy its configuration properties values and paste same on other nodes using the same template. To copy only one selected configuration property, edit the node / the functional block, go to the "Configuration" tab, select the configuration property and click on "Copy to memory". To copy all values of a node, right click on the node, and select "Copy configuration values in memory".
To paste this value, right click on a node, and choose "Paste configurations values from memory". You can also paste the values recursively to a subsystem ; right click on the subsystem, go to "Nodes", check that "Recursive commands on subsystem" is enabled (if not click on it), and then click on "Paste configuration values from memory to nodes".

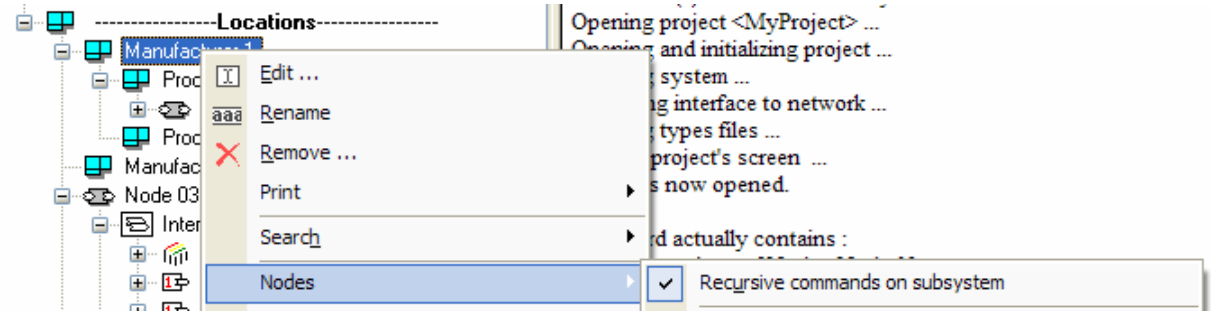


Figure 25 : Recursive commands active

7. Create bindings

Right click on the variable

Expand the node and its functional block to display the available network variables. Then right click on the variable you want to bind, and click on "Variable's connection". It will open the connection window in the right, as follows :

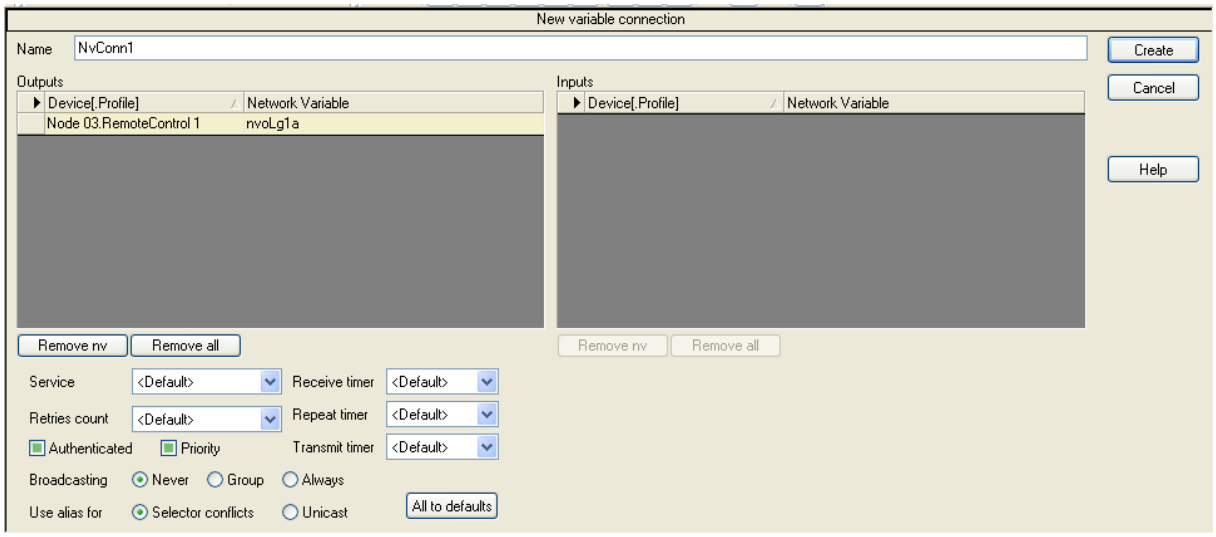


Figure 26 : New connection

You can then drag and drop variables to the inputs or outputs fields to add variables to the connection. Define the binding settings, or let the default values. Click on “Create” to validate the connection’s creation. After the variable is bound, it will appear light blue instead of white in the tree.

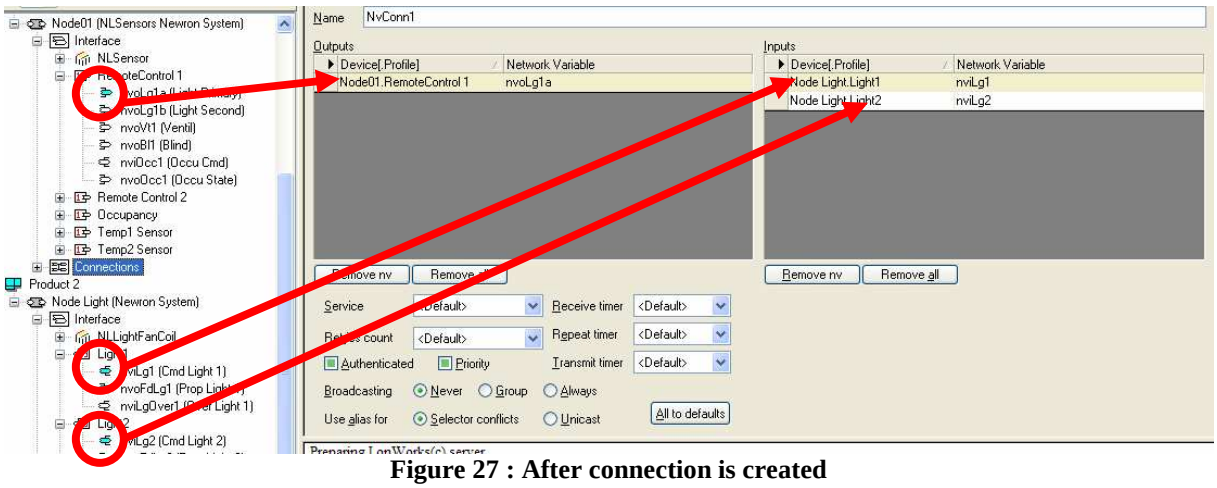


Figure 27 : After connection is created

Drag and Drop

Another way to create a connection is to drag on variable on the tree onto another, and then it will automatically display the connection window with the Inputs and Outputs fields fed with the corresponding variables.

Automatic Host binding

It is possible to create an automatic connection to the host in the device template. In this case all the nodes created from this template will automatically be bound to the host.
Go to the “Template” tree ; edit your device template, and go to the “NVs” tab. Select the variable to be bound ; display the “Connection” menu, and check “Automatically connected to the host”. You can then define the settings of the connection.

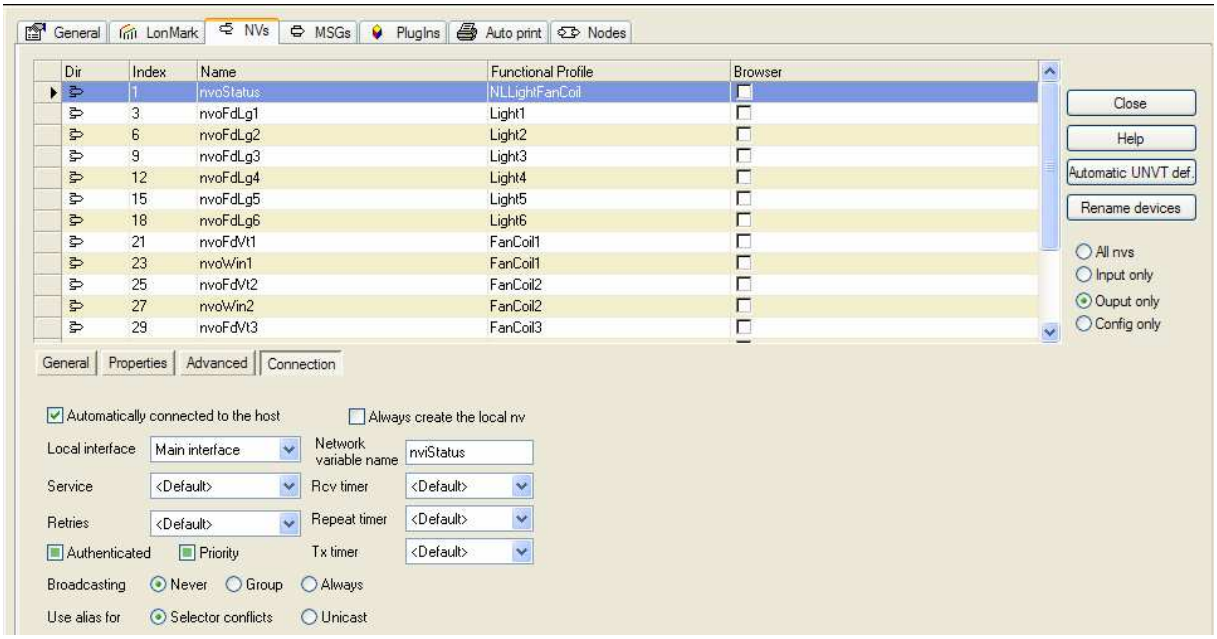


Figure 28 : Automatic host binding from template

8. Copy / paste

Subsystems with nodes and bindings

It is possible to copy and paste a subsystem from the subsystem view ; by copying the subsystem, you can copy also the nodes and the bindings inside of this subsystem.
To copy the subsystem, right click on it and choose “Copy to memory”. To paste it, right click on the destination subsystem, and choose “Paste”. In paste options, you can see the different settings you can choose to copy (nodes, bindings, …).

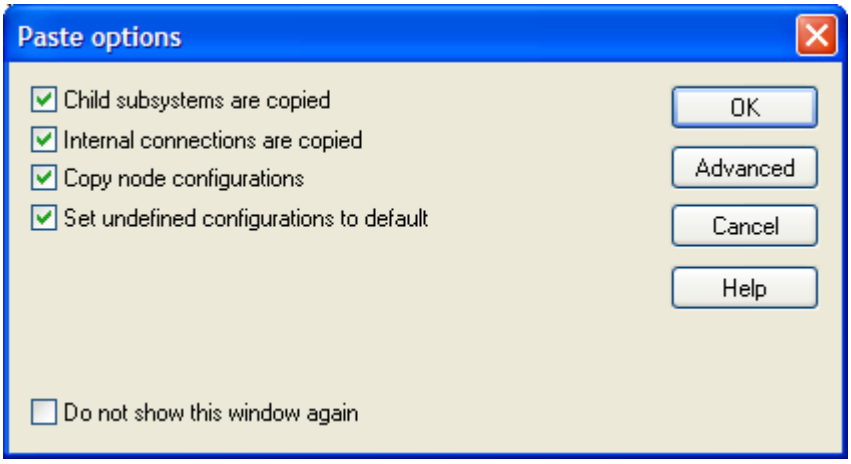


Figure 29 : Paste subsystem options

As a result, the subsystem is copied with all nodes, internal bindings and configuration properties copied.

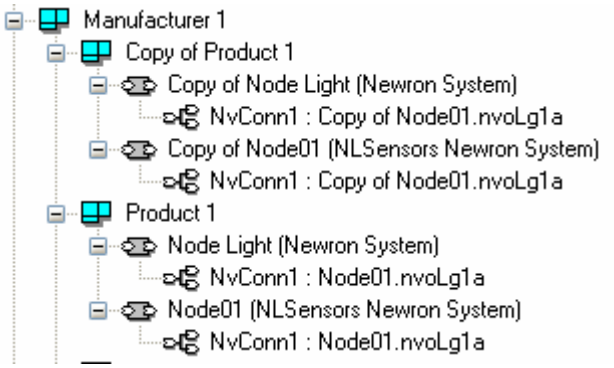


Figure 30 : After subsystem is pasted

9. Install a node

To install the node, you must open your project with a valid network interface, and be sure the project is ONNET (see chapter 5 paragraph 3).
Then select the node and hit CTRL+I (or right click, “Install”) ; the following window will appear :

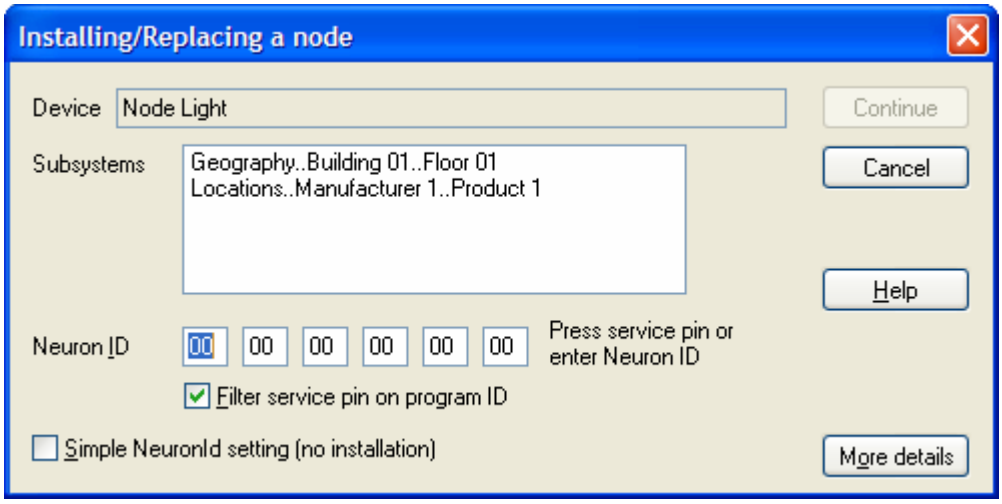


Figure 31 : Install a node

You can manually enter the Neuron ID, or press the service pin of the device to fill the Neuron ID field.
An uninstalled device will appear in grey in the tree ; an installed device will appear in green (or in red).

10. Browser

You can in NL220 browse the value of your variables. To add a variable to the browser, right click on it and click on “Add to browser”.

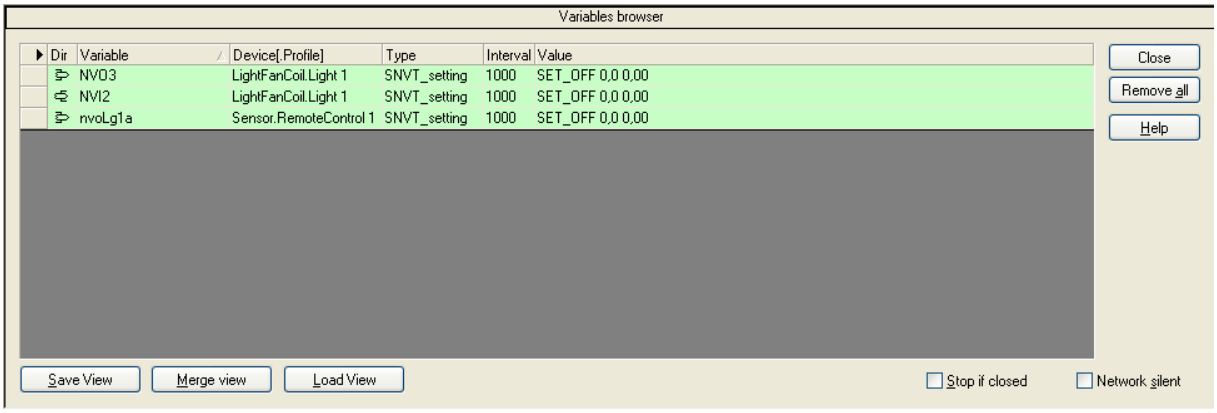


Figure 32 : Variables browser

By right clicking on a variable in the browser, you can access its details, and poll or write a value to the variable.
NL220 has also an automatic browser function ; you must first define in the device template which variables you want to browse.

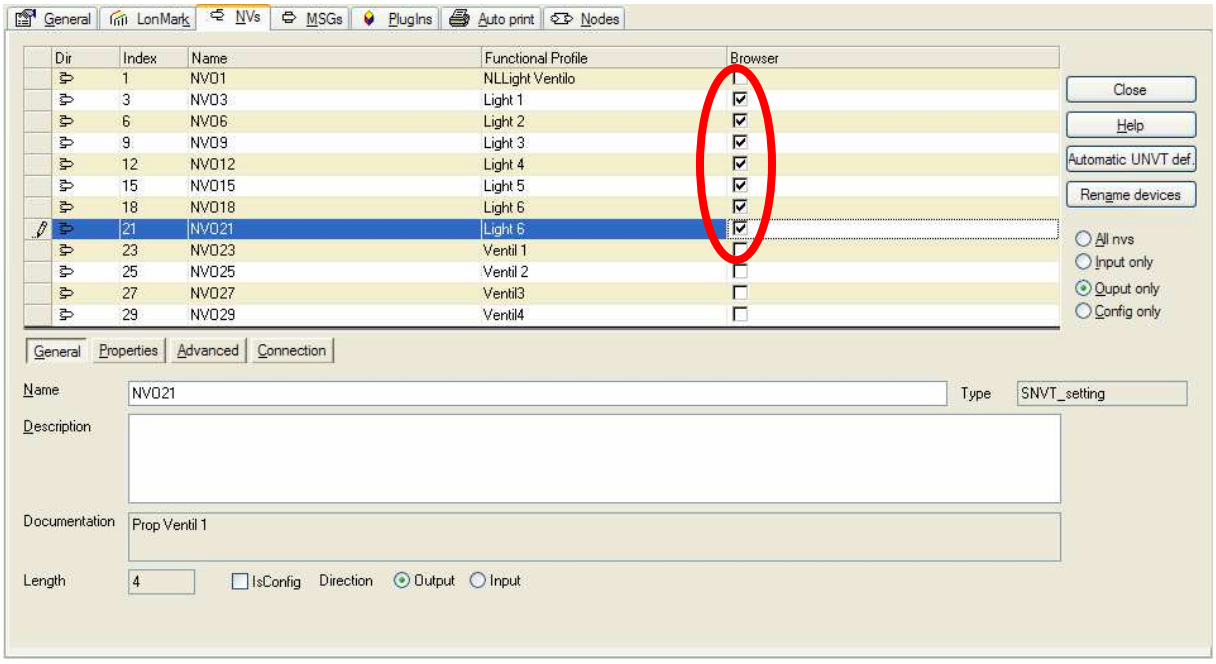


Figure 33 : Device template browser definition

Then enable the automatic browser by clicking this icon  . If you then select a node using this template in the subsystems tree, all the variables defined in the device template will automatically be added to the browser.

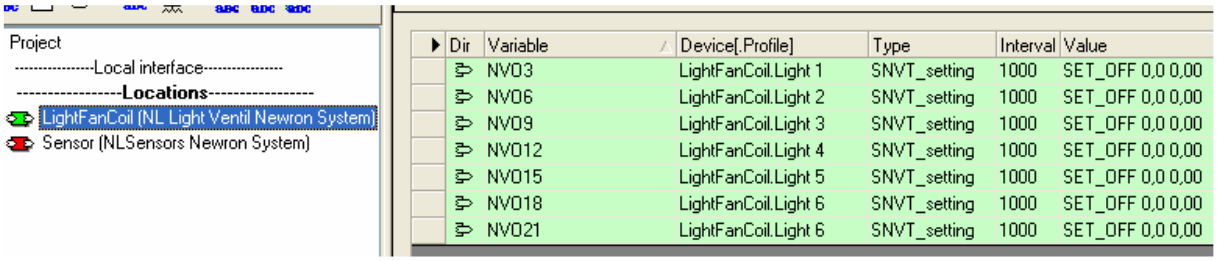


Figure 34 : Automatic browser

11. Maintenance functions

You can chose to open your project in maintenance mode, or maybe your license restricts you to using NL220 in maintenance mode.

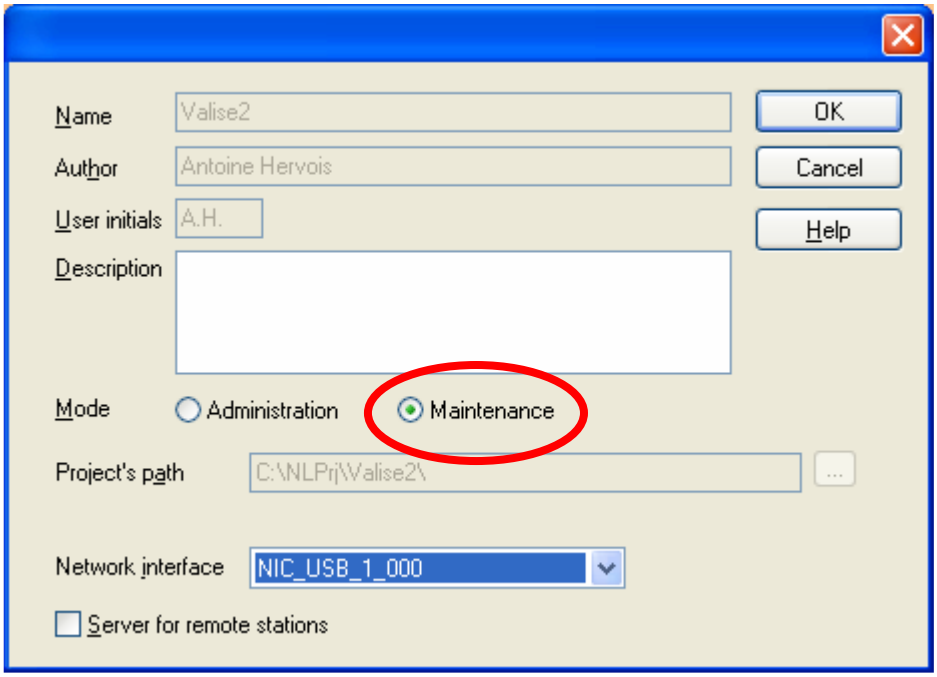


Figure 35 : Maintenance mode

In this case, as you can see in the following pictures, the functionalities are restricted : you cannot add, delete, install or uninstall a node.

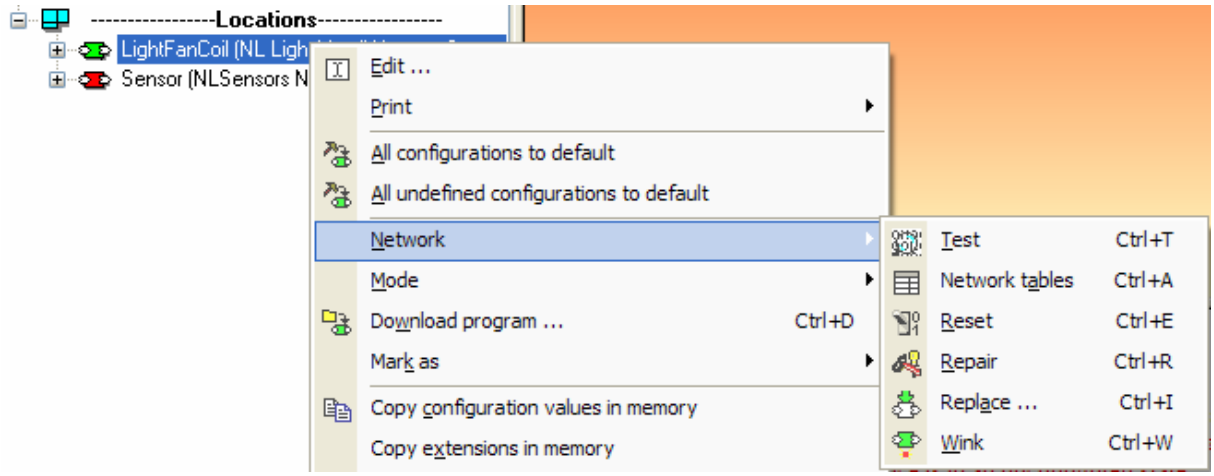


Figure 36 : Maintenance mode functionalities

Still, you can apply all these maintenance functionalities as recursive commands on a subsystem, to win time instead of testing the nodes one by one.

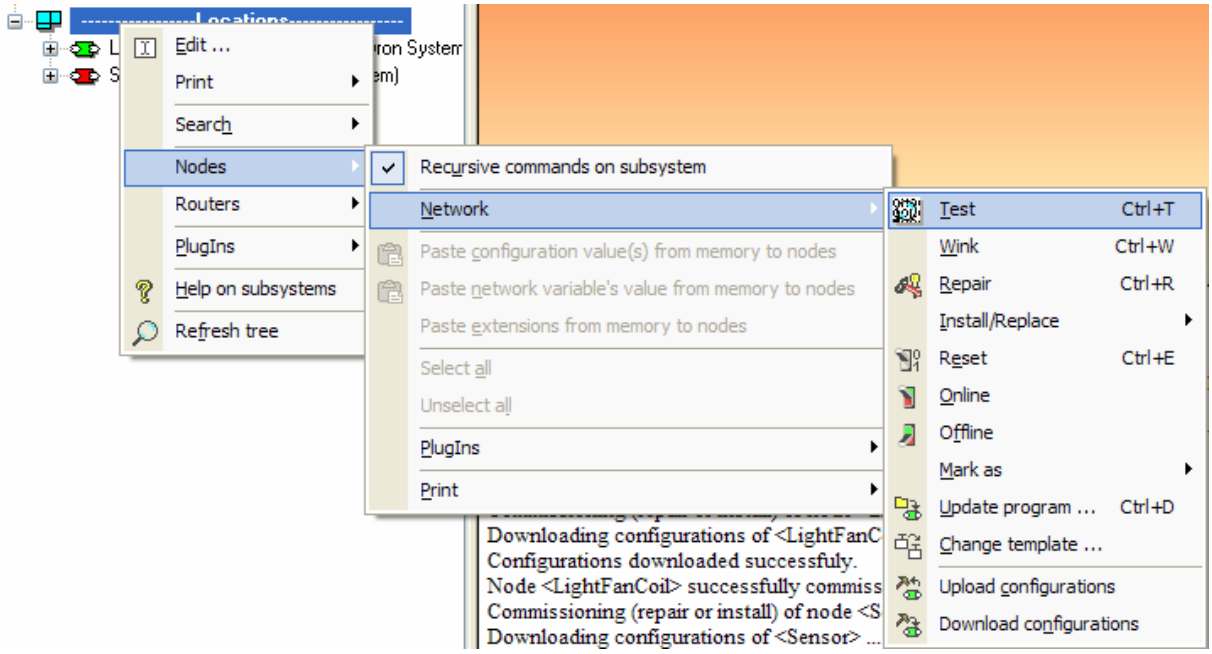


Figure 37 : Recursive commands in maintenance mode

12. Order credits

To order credits, launch NLCreditsGenerator from the icon  . Enter then the number of credits to add, and then click on “Send email” or “Copy to clipboard” to copy the key and paste it in an email or a text file. Send us the key, we will send you back a deprotection key to validate the new credits.

13. Conclusion

This was a tutorial for NL220. If you need more explanation on certain functionalities, or information on unexplained functionalities, an online help manual is provided within the tool.

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