



Using Evolution Configurations on the NPU: “Hybrid Systems”

Document History:

Date	Author	Notes
28/07/11	SJW	Information collated from other other apps notes/training and released

The eDIN Network Processor can be configured in two ways:

1. Using the web based configuration editor (part of the “web-app”).
 This is suitable for configurations where a relatively small number of modules are required (typically upto around 50 channels), and functionality is within the limits of the eDIN web-based configuration software: e.g. no sequences, one-level of conditional logic, LCD plates with single-page menus only, and no scene-by-scene control over buttons colours.
 The web-browser used to create the configuration also imposes certain size limitations on the scale and complexity of the system behaviour. The browser limit is approximately 2000 cells on the screen (e.g. 2000 intersections between scene columns and input/output-device rows).

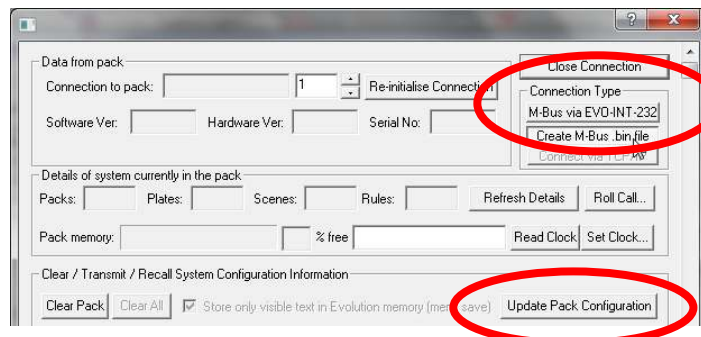


2. Using the Evolution PC software.
 This can be used to create very large systems, or systems that require complex conditional logic, nested-scenes, sequences and other hallmarks of an Evolution configuration’s capabilities.

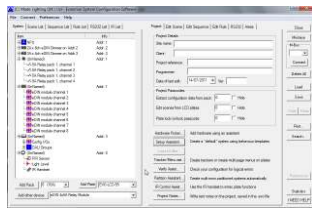


The system behaviour is defined for use on an NPU by adding an additional “Pack” to the system, and naming it “NPU”.

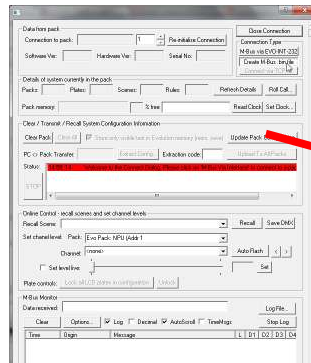
Once the configuration has been defined, access the *Connect* dialogue as usual, but rather than selecting *M-Bus via INT-232* select the *Create M-Bus .bin file* instead. When you then click *Update Pack Configuration* you will be presented with a *Save As* dialogue, from which to export the file.



An eDIN Network Processor Unit (NPU), set on address 1 so that it takes control of the configuration, is able to process the whole Evolution configuration file, and control all of the Evolution / eDIN peripherals contained within it (and it does that faster than an Evolution pack can do it!).



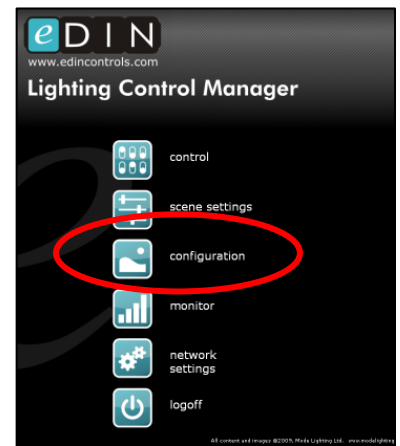
.evo file



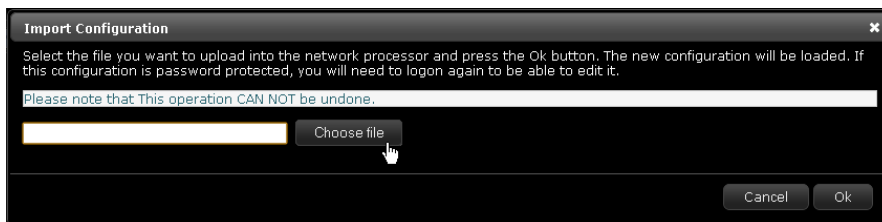
.bin file



Network Processor



To import the .bin file, select the *Configuration* option from the front page.



When an Evolution configuration has been imported into the NPU the web-based facilities for editing configuration behaviour will be inaccessible. However you will be able to use the *Control* and *Scene Setting* pages for making changes to lighting levels in pre-defined scenes.



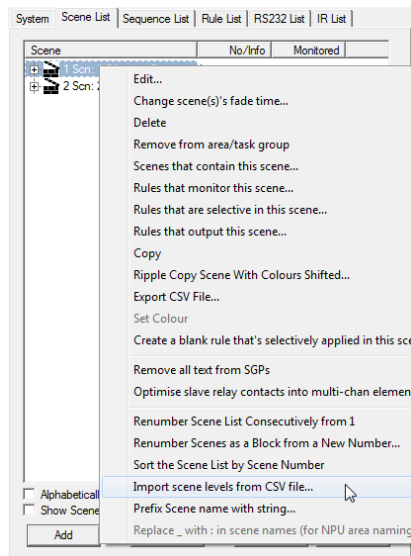
Re-Importing Changes Made to Light Levels

Changes to the light levels made using the web-based features of the NPU can be re-imported into the Evolution PC software, so that next time the configuration is exported from the PC software the new levels will be included.

Export the levels from the NPU using the *Export* button from the *Configuration* page.



In the Evolution PC software, right-click in the *Scene List* and select the *Import scene levels from CSV file...*

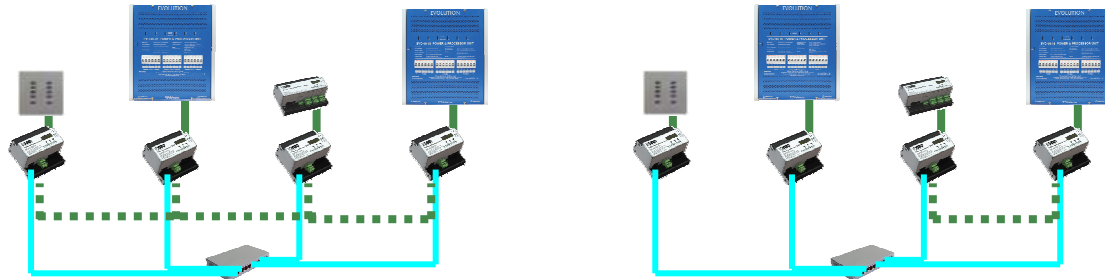


NB: Do not make changes to the Evolution .evo configuration file between the time you initially export it as a .bin file to use on the NPU, and the re-importing of modified lighting levels in the .csv file.

Creating Large-Scale Systems using Evolution / eDIN Hybrids

Hybrid systems bring many advantages for large-scale systems.

There are two options for creating physically large systems:



- a) One large configuration containing all modules, with a single virtual M-Bus joining them together.

The virtual M-Bus's length can be very large if fibre-optics, or even the internet, are used.

The scale limitation with this technique is the bandwidth of using a single M-Bus (real or virtual) for the one configuration, which is approx 400 messages/sec.

It is important to consider the M-Bus bandwidth, and the effects of a very busy bus on system speed, when you have a lot of 2-way traffic, e.g. many sensors with a high sample-rate, or many DALI devices. We recommend a maximum of 10 UBCs per M-Bus configuration and sensors sample rates such that a worst-case of all sensors triggering together will not generate more than 200 messages/second. For larger system requirements, use the technique shown below.

Note: for details of creating virtual M-Bus networks, see the online training course "Ethernet Training: Part B", or the NPU manual in the section titled M-Bus over IP.

- b) Multiple "small" configurations that communicate with each other by telnet commands.

This overcomes the limitations of the M-Bus/virtual-M-Bus bandwidth, and allows for an unlimited system size but with the benefit of a rapid response by local peripherals. Using multiple small systems also has the added advantage of breaking down the project into many small systems, each of which can be commissioned separately if your project is more suited to a phased-implementation plan.

Key:

M-Bus (cable, e.g. Belden 1502R or Mode M-Bus cable):



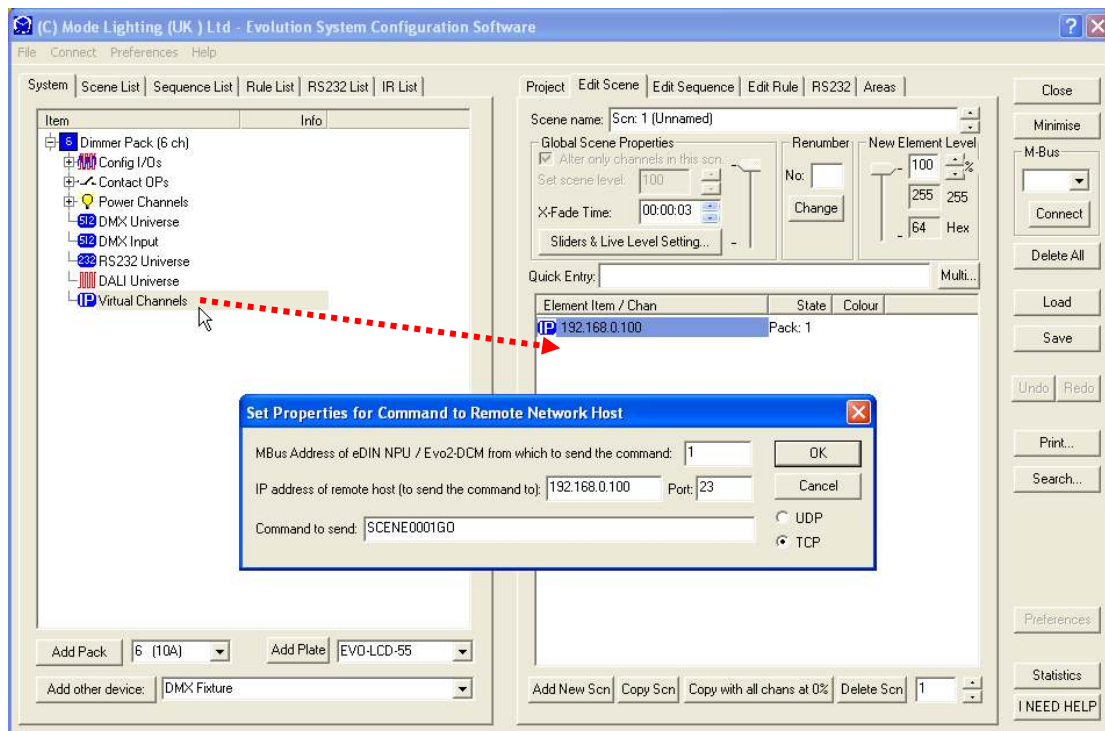
Virtual M-Bus (i.e. M-Bus over Ethernet):



Ethernet connection (cable to NPUs, cable or fibre between switches):



Using Telnet Commands in Evolution Configurations



From a pack, drag the *Virtual Channels* icon into the *Scene Editor*.

A new scene element will be created, representing a command to send.

Double-click on the scene element to set its' properties:

- The MBus address of the NPU from which to transmit the command.
- The IP address of the remote host (i.e. the device to which the command is being sent). This should be entered as a text string, in the format `nnn.nnn.nnn.nnn`
- The port number of the port on the remote host to send the command to.
- The command to send, entered as a text string