VISUAL PRODUCTIONS

RDMNODE MANUAL

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Revision History

Revision	Date	Author(s)	Description
1	19.02.2025	JL	Initial version

Contents

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VISUAL PRODUCTIONS

CE

EU Declaration of Conformity

We, **Visual Productions BV**, as the manufacturer, hereby declare under our sole responsibility that the following device:

Product Name: RdmNode
Product Type: Lighting Controller

complies with the requirements of the following directives and standards:

Applicable Directives:
- 2014/30/EU – Electromagnetic Compatibility (EMC)
- 2011/65/EU (as amended by 2015/863) – Restriction of Hazardous Substances (RoHS)

Applied Harmonised Standards:
- EN 61000-6-1:2019 – Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial, and light-industrial environments
- EN 63000:2018 – Technical documentation for the assessment of electrical and electronic products concerning the restriction of hazardous substances

This declaration is issued under the sole responsibility of the manufacturer, confirming that the object of the declaration complies with the relevant Union harmonisation legislation.

Authorised Representative:
Full name and identification of the person responsible for product quality and compliance with standards on behalf of the manufacturer:

Date: March 28, 2025
Place: Haarlem, The Netherlands

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Chapter 1

Introduction

Thank you for choosing the *RdmNode*. The RdmNode is a versatile node that will achieve data conversion between Art-Net, sACN and DMX protocols.

An internal web-server provides the web-interface through which you can setup the *RdmNode*. A modern browser is required to access this web-interface during set-up. A browser or computer is not required for stand-alone use after the initial set-up. The web-interface also includes a powerful drag-and-drop routing interface, including merging and priority blocks, for highly customizable route design. Additionally the *RdmNode* includes a 4 Universe extension license for the Visual Productions CueCore3.

At the time of writing this manual the *RdmNode* firmware was at version 1.00.

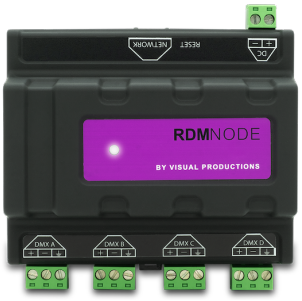


Figure 1.1: RdmNode

1.1 Compliance

This device is in compliance with the following regulations:

- CE
- UKCA

1.2 Features

The feature set of the RdmNode includes:

- 4 x DMX-512 (ANSI E1.11) optically isolated port (bi-directional)
- 10/100 Mbs ethernet port
- Art-Net V.4 IN and OUT
- sACN E1.31 IN and OUT
- Din-Rail format
- Web-based user-interface for programming
- HTP, LTP and "Priority" merging blocks
- 4 universes extension license for CueCore3
- Power consumption 9-24V DC 500mA
- Power Supply: POE class I or DC input
- Operating temperature -20°C to +50°C (-4°F to 122°F)
- Operating relative humidity 10% to 80% non-condensing

1.3 What's in the box?

The RdmNode packaging contains the following items (see figure 1.2):

- RdmNode
- Info card
- 1m network cable

Figure 1.2: RdmNode box contents

1.4 Saving data to memory

This manual will describe how to configure the *RdmNode* and set its internal routing. The unit's web-interface is used for editing these kinds of elements.

When changes are made, these changes are automatically stored into the memory of the *RdmNode* This memory copy process is conducted automatically every 10 seconds by the *RdmNode*. Take into account to not disconnect the power from the device within 10 seconds from making a programming change.

1.5 Further Help

If, after reading this manual, you have further questions then please consult the online forum at `https://forum.visualproductions.nl` for more technical support.

Chapter 2

Overview

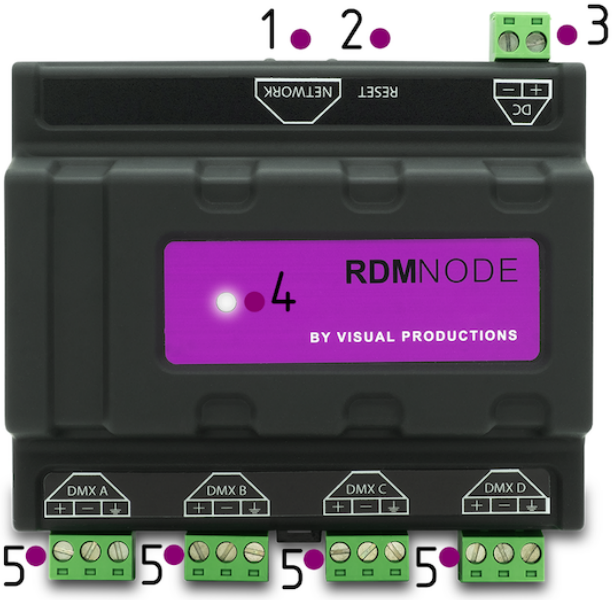


Figure 2.1: RdmNode overview

1. **RJ45 Network Port**
   - 10/100 Mbit/s
   - PoE Class I

   Connection to your local network via standard network switch, directly to your computer or via an eDMX controller.
   Can be used to power up the RdmNode using a PoE Class I compatible PoE switch or PoE injector.
   - Green LED: PoE Power
   - Orange LED: Network Activity

2. **Reset Button**

   - Short press on the reset button will switch the IP address mode of the RdmNode between static IP and DHCP.
   - Do a long press (wait until the LED flashes white) to reset the IP address of the RdmNode to its default value 192.168.1.10.
   - Holding down the reset button while turning on the RdmNode will do a factory default of the unit (release the button when the purple led stops flashing). All user data and programming will be erased and set to their default values, including IP settings.

3. **Power Input**

   - If the RdmNode is not powered via PoE it can be powered via a DC power supply: Minimum 9V, maximum 24V DC. The input is protected for inverted polarity.

   the DC power input can be used together with the PoE power. In this case the RdmNode will be powered via PoE, and the DC power supply will be used in case of PoE failure.

4. **Status LED**

   When the RdmNode is in a normal state the LED will slowly pulse. The color of the LED will indicate the device status:

   - Red: Normal operating mode, DHCP
   - White: normal operating mode, Static IP
   - Purple: Hardware factory default. See 2.
   - Cyan: Installation of new firmware
   - Yellow/Orange: Error. Please contact your distributor

5. DMX Ports

DMX terminal connections

The 4 optically isolated DMX ports can be use as inputs or iutputs depending on your routing needs.

Chapter 3

Web-Interface

3.1 Access

There are 2 ways to access the RdmNode web interface:

- Type directly the IP address of the RdmNode in the address bar of your usual web-browser.
- Use the "browse" function of the vManager application (See 4)

Recommended web browsers:

- Mozilla Firefox (v54 or higher)
- Google Chrome (v102 or higher)
- Apple Safari (v15 or higher)

3.2 Home Page

The "home" page provides global information about the RdmNode in a read only mode. This, and the "about" page, are the only pages available when the password protection is activated. See figure 3.1

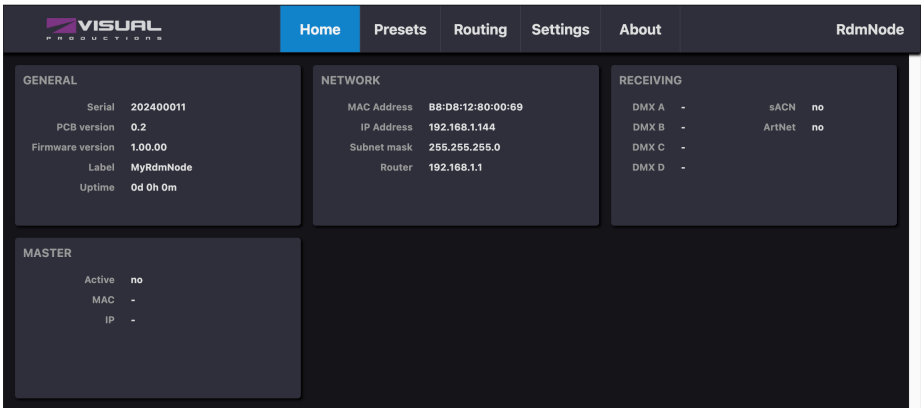


Figure 3.1: RdmNode's 'Home' webpage.

3.2.1 General

Shows general information about the RdmNode, like its serial number, the PCB version, the firmware version, the label associated with it and the uptime (time since the last reboot) of the unit.

3.2.2 Network

Shows the network settings of the RdmNode. Those settings, except for the MAC address, can be changed from the "Settings" page or via "vManager".

3.2.3 Receiving

Shows which protocols are currently received by the RdmNode. DMX port will indicate "-" if it is not used as an input. All protocols will indicate "yes" when the RdmNode is currently receiving the indicated protocol and "no" when the protocol is not being received.

3.2.4 Master

the RdmNode can be claimed by a CueCore3 to enable 4 additional universes for this specific CueCore3 unit. The "Master" section indicates if the RdmNode is currently claimed by a CueCore3, and if so it will indicate the MAC and IP addresses of the claiming CueCore3. The RdmNode can be claimed by only one CueCore3 unit at a time. A CueCore3 cannot extend its number of universes beyond 32.

3.3 Presets Page

The "presets" page gives you access to 6 routing presets that can be easily loaded by simply clicking on the desired one. Loading a preset from the "Presets" page will erase the current routing design after receiving confirmation. The 6 presets available are:

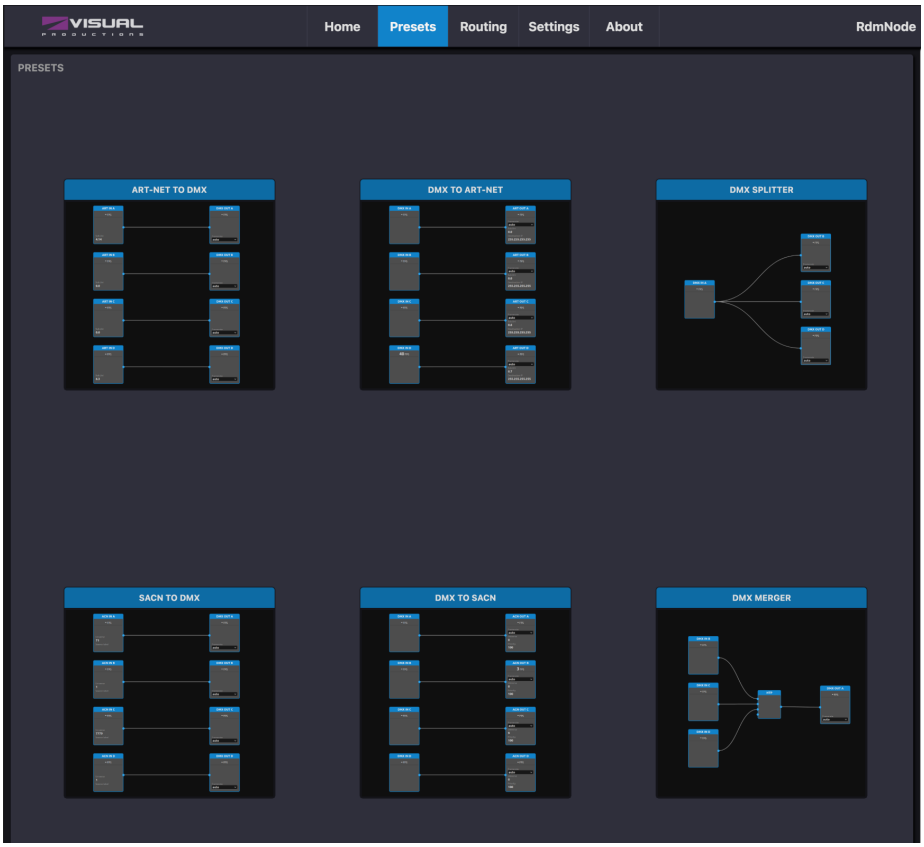


Figure 3.2: RdmNode's 'Presets' webpage.

- ART-NET TO DMX: Art-Net inputs A through D are linked to the DMX output ports A through D.
- DMX TO ART-NET: DMX inputs A through D are linked to the ART-NET outputs A through D.
- DMX SPLITTER: DMX input on port A will be outputted on DMX ports B through D
- SACN TO DMX: sACN inputs A through D are linked to the DMX output ports A through D.
- DMX TO SACN: DMX inputs A through D are linked to the sACN outputs A through D.
- DMX MERGER: DMX inputs B, C and D are merged with HTP precedence (Highest Takes Precedence) and output on DMX port A.

3.4 Routing Page

The "Routing" page is the place where you will design your own routing to link the various inputs of the RdmNode with its outputs. From this page you will

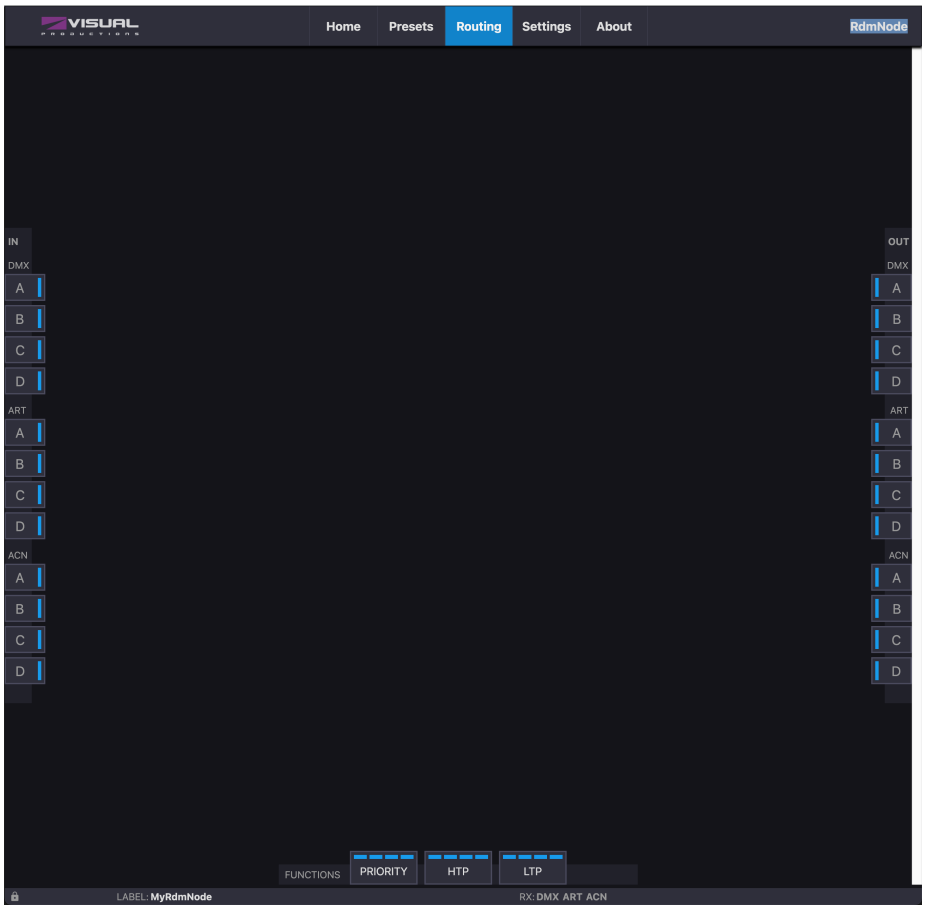


Figure 3.3: RdmNode's 'Routing' webpage.

be able to access:

- 12 input blocks:
  - 4 DMX (Available only if not used as outputs)
  - 4 Art-Net
  - 4 sACN
- 12 output blocks:
  - 4 DMX (Available only if not used as outputs)
  - 4 Art-Net
  - 4 sACN
- 12 merging blocks:
  - 4 Priority
  - 4 HTP "Highest Takes Precedence"

– 4 LTP ”Latest Takes Precedence”

In the routing space you will be able to drag-and-drop the blocks and easily connect them to create your personal routing designs.

To connect 2 blocks, link the connection dot of a block to the connection dot of an other block.

Dots on the right of the block are outputs, dots on the left of the block are inputs. See figure: 3.4.

Figure 3.4: Output connected to input

- An output dot can be connected to multiple input dots. See figure: 3.5.
- An input dot can only be connected to one output dot.

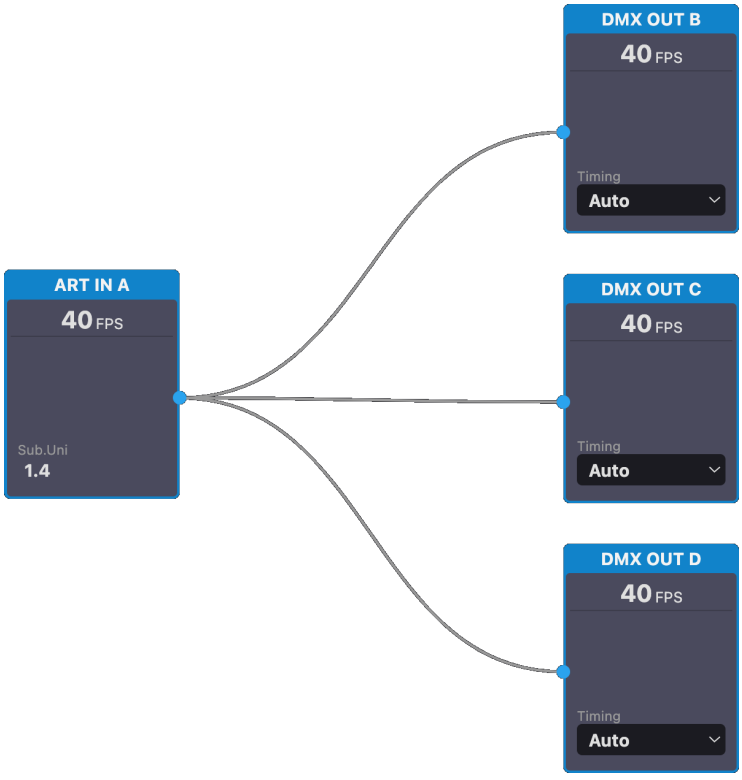


Figure 3.5: Output connected to multiple input

If you need to connect multiple outputs to one input, use one of the merging blocks. See figure: 3.6.

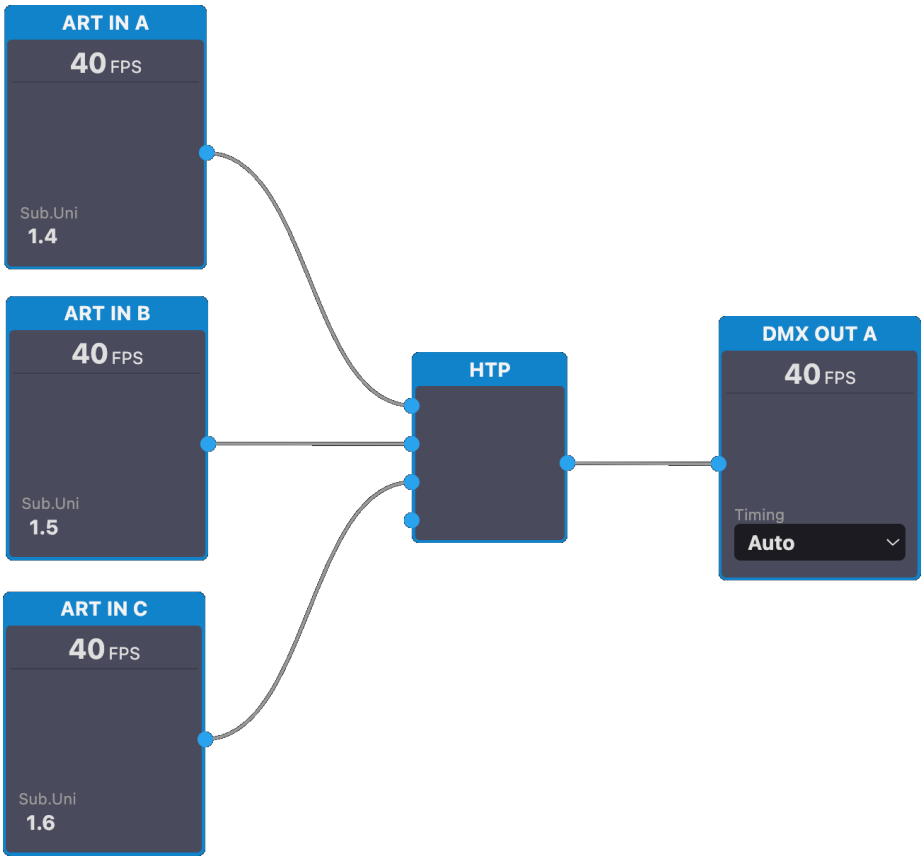
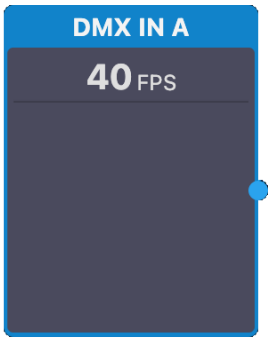
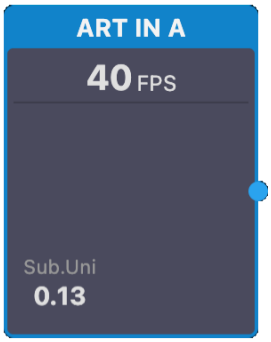


Figure 3.6: Multiple outputs merged to connect to one input

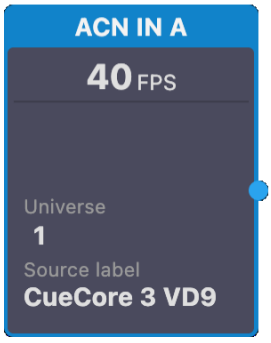
3.4.1 Input Blocks



DMX
The block indicates the frame rate of the received DMX universe.

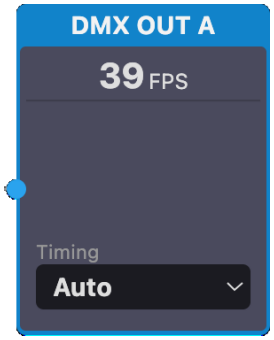


Art-Net
The block indicates the frame rate of the received Art-net universe. Subnet and Universe are indicated at the bottom of the block. They can be edited by double clicking on the value. Subnet and Universe values can be from 0 to 15. An integer value from 0 to 254 can also be set, and will automatically be converted into "Subnet.Universe" notation.



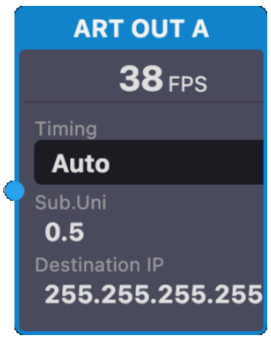
sACN
The block indicates the frame rate of the received sACN universe. The received universe number is indicated in the universe input. It can be edited by double clicking on the value. Universe can be from 1 to 63999. The "Source label" indicates the label of the source sending the received sACN universe.

3.4.2 Output Blocks



DMX
The block indicates the frame rate that will be outputted on the universe. The frame rate and timing settings can be changed using the "Timing" drop down menu.

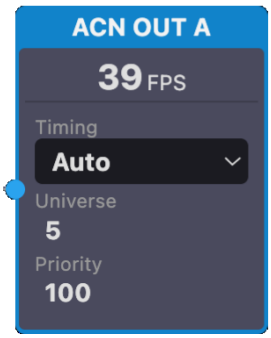
- Auto: Use frame rate from the source
- Max: 40 fps
- Medium: 30fps
- Slow: 20 fps



Art-Net
The block indicates the frame rates that will be outputted on the universe. The frame rate and "Timing" settings can be changed using the time drop-down menu.

- Auto: Use frame rate from the source
- Max: 40 fps
- Medium: 30fps
- Slow: 20 fps

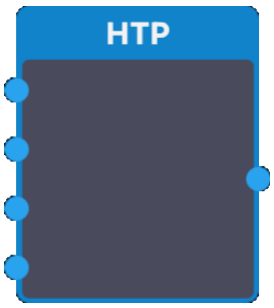
"Sub.Uni" indicates the outputted universe number. It can be edited by double clicking on the value. Subnet and Universe values can be from 0 to 15. An integer value from 0 to 255 can also be set, and will automatically be converted into "Subnet.Universe" notation.



sACN
The block indicates the frame rate of the outputted sACN universe. The frame rate and timing settings can be changed using the "Timing" drop-down menu.

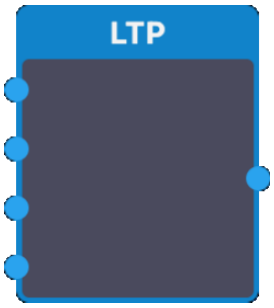
- Auto: Use frame rate from the source
- Max: 40 fps
- Medium: 30fps
- Slow: 20 fps

3.4.3 Merge Blocks



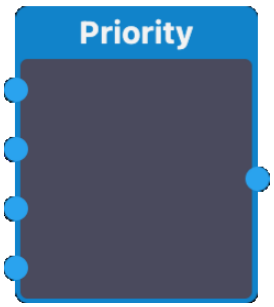
HTP
Connected inputs will be merged using HTP (Highest Takes Precedence) rule. For each of the 512 channels, the value on the 4 inputs will be compared and the highest value will applied to the output.
An example of HTP merging:

Channels	1	2	3	4	...
Input 1	25%	10%	45%	55%	...
Input 2	50%	25%	20%	55%	...
Input 3	75%	0%	10%	65%	...
Output	**75%**	**25%**	**45%**	**65%**	...



LTP
Connected inputs will be merged using LTP (Latest Takes Precedence) rule. The signal with latest value modification on one channel will be outputted.

Note: If you have 2 inputs with dynamic content the output will continuously switch between the 2 signals at each frame.



Priority
The signal connected to the priority block will be outputted depending on the input they are connected to. The signal connected to the highest dot will be outputted in priority. If this signal is absent or stops for more than 1 second the signal connected on the second highest dot will be outputted etc.

3.5 Settings Page

The "Settings" page allows you to modify various parameters and behaviors of the RdmNode.

3.5.1 General

- Label: Custom name you can give to your RdmNode for an easy identification. The label will be displayed in the home page, in the Webpage title

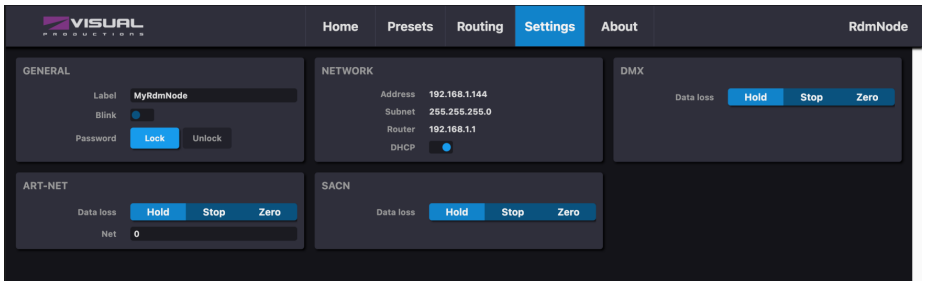


Figure 3.7: RdmNode's Settings page.

of the web-interface and in vManager. The length of a label is limited to 32 characters

- Blink: Will activate blinking on the status LED of the RdmNode for identifying the particular unit amongst multiple devices.
- Password: You can activate or deactivate a password protection to protect the data/programming of the RdmNode. When password protection is activated it is not possible to modify any settings of the RdmNode but the pages are still accessible and visible. To remove the password protection in case of a lost password do a long press on the "Reset" button until the status LED blinks white. This will also set the RdmNode to its default IP settings. (See "Reset Button" section 2)

3.5.2 Network

Indicates the IP settings of the RdmNode: IP address, subnet mask, and router/gateway IP address. The RdmNode can be set in Static IP mode or in DHCP depending on the position of the DHCP switch button. By changing the position of the DHCP switch you will automatically change the IP address of the RdmNode and lose the connection to it. When going from DHCP mode to static IP mode, you will be requested to provide the new IP settings. If you activate the DHCP mode without a DHCP server in your local network, the RdmNode will automatically set itself with a IP address in the range 169.254.xx.xx after a timeout.

3.5.3 DMX

Select the behavior of the DMX outputs in case of data loss.

- Hold: keep the last values
- Stop: stop sending DMX frames
- Zero: set all channels to 0

3.5.4 Art-Net

Select the behavior of the Art-Net outputs in case of data loss.

- Hold: keep the last values

- Stop: stop sending Art-Net frames
- Zero: set all channels to 0

The “Net” parameter allows you to change the net number the node will be using to receive and send Art-Net messages. The “Net” can be set between 0 and 127.

3.5.5 sACN

Select the behavior of the sACN outputs in case of data loss.

- Hold: keep the last values
- Stop: stop sending sACN frames
- Zero: set all channels to 0

3.6 About Page

And, last but not least, the “About” page gives various information about the RdmNode itself, but also about official Visual Productions support channels, development credits and legal protection.

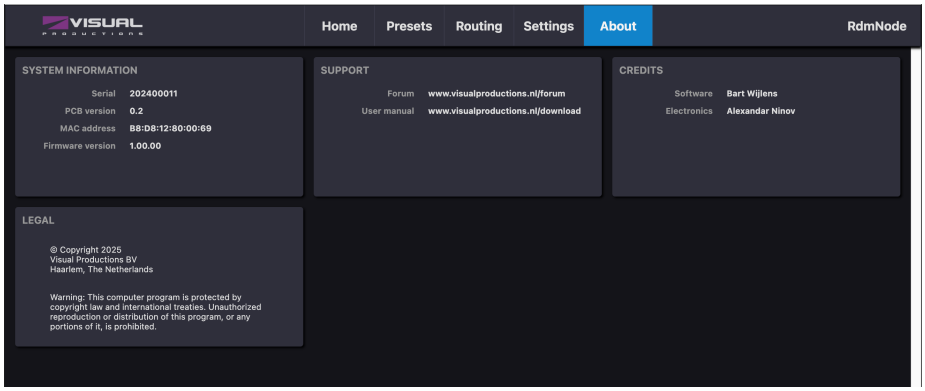


Figure 3.8: RdmNode’s About page.

Chapter 4

vManager

A free-of-charge software tool called vManager has been developed to manage the devices. vManager allows for:

- Setup the IP address, subnet mask, router and DHCP
- Backup and restore the device's internal data and settings
- Perform firmware upgrades
- Identify a specific device (in a multi device set-up) by blinking its LED
- Revert to factory defaults

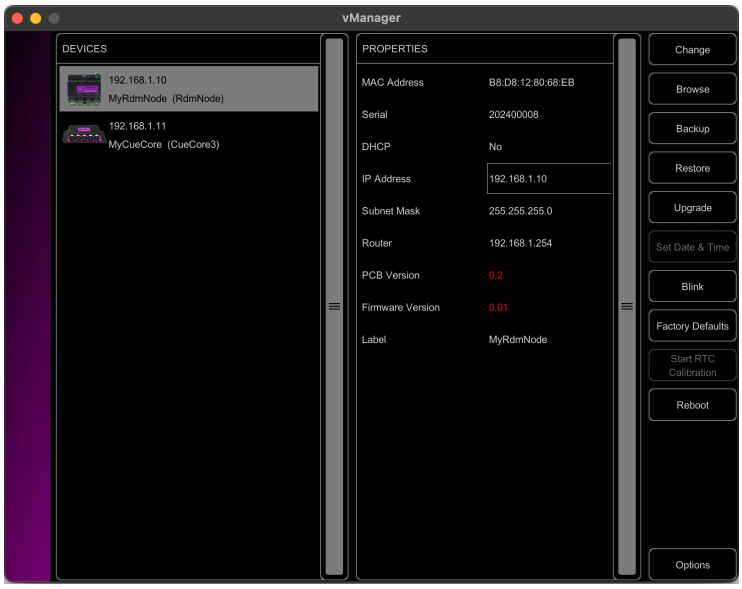


Figure 4.1: vManager

The following section explain the buttons in the vManager, as seen in figure 4.1.

4.1 Backup

Backups of all the programming data inside the device can be made. This backup file (an XML) is saved on the computer's hard-disk and can be easily transferred via e-mail or USB stick. The data of the backup can be restored via the *Restore* button.

Figure 4.2: Creating a backup

Apps distributed by app stores are not allowed to access files outside this designated location. It is important to know where vManager is storing its files, in case you wish to transfer a backup file to a memory stick or dropbox.

The designated file location differs per operating system and is likely to be a long and obscure path. For this reason, vManager provides you with a shortcut to the correct file location. A *Folder* button can be found in the file related dialogs. Clicking this button will open a file browser at appropriate folder.

4.2 Upgrade Firmware

To upgrade the firmware, first select the device and press the *Upgrade* Firmware button. The dialogue allows for selecting from the list of firmware versions available.

Figure 4.3: Firmware upgrade

Warning: Make sure the power to the device is not interrupted during the upgrade process.

4.3 Set Date & Time

The computer's date and time can be quickly copied to the unit by selecting a device and clicking the *Set Date & Time* button. Not all Visual Productions devices feature an internal real-time clock. The RdmNode does not have such a RTC.

4.4 Blink

The device's LED can be set to *Blink* fast for identifying the particular unit amongst multiple devices. The blinking is enabled by double-clicking on a device in the Devices list or by selecting a device and then clicking the Blink button.

4.5 Factory Defaults

All the user data like cues, tracks and actions are stored in the on-board flash memory. They will be completely erased and all settings will reverted to their defaults by pressing the *Factory Defaults* button. This action does not affect the device's IP settings.

4.6 Reboot

The *Reboot* button allows you to remotely restart the device. This is useful for testing the unit's behaviour after a power-cycle.

4.7 Installing vManager

The vManager app is available on the most common range of operating systems.

The software is distributed through app-stores to make receiving future software updates automatically very easy.

4.7.1 Windows

Visit the Microsoft store at `https://www.microsoft.com/en-us/p/vmanager/9nblggh4s758`.

Windows 10 is required.

4.7.2 macOS

Visit the Apple macOS app store at `https://apps.apple.com/us/app/vmanager/id1074004019`.

macOS 11.3 is recommended.

4.7.3 Ubuntu

You can acquire the vManager from Snapcraft at `https://snapcraft.io/vmanager`.

Alternatively, it can be installed by using the command-line:
`snap find vmanager`
`snap install vmanager`

To update the apps later on via the command-line type:
`snap refresh vmanager`

Ubuntu 22.04 LTS is recommended. The software is only available for the amd64 architecture.