IMPROVEMENT GUIDE

ADVANCED CONTROL PACK

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We are delighted to announce the **upcoming release** of the newest version of **Lightware's Advanced Control Pack**, a software solution designed to bring the **control and integration of Lightware devices** to the next level in any application environment. In this document users can find a detailed overview on what's new in the **3rd edition** of the Advanced Control Pack and about how AV projects could benefit from each of them.

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Advanced Control Pack Gen2 Features

Forced Button Lock

Most Lightware devices contain a feature that the front panel **buttons can be locked**. That can be unlocked over the front panel or in the Lightware Device Controller (LDC) software usually. The *Forced Button Lock* option has an addition: if this is enabled, unlock is not possible by the front panel, only in LDC or by sending an LW3 protocol command. Thus, the device gets **more protection against an unwanted button press**.

Dark Mode

The front/rear panel **LEDs of the device** can be **switched off** to hide the device when mounted at a light-sensitive place.

Infrared (IR) Code Sending

Several Lightware devices contain IR input and/or output ports where the supplied IR emitter/detector can be connected. Using Lightware extenders, you can **increase the range of your remote controller** and use it like in front of the source device. The new IR code sending feature means that **you can send IR codes** (in pronto hex format) from the Lightware device over the IR output port to the desired device. You do not need to have the remote controller, just the code of the command. LW3 commands can handle pronto hex codes up to 765 bytes which covers the majority of IR codes.

Consumer Electronics Control (CEC) Support

CEC is a **bi-directional control communication** channel inside of an HDMI cable. CEC-compatible devices are able to send and/or receive CEC commands to **remotely control a source or a sink device**. For example, a Blu-ray player can turn the display on or off using the CEC commands via the dedicated CEC wire within an HDMI link.

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RS-232 Recognizer

Incoming messages from connected serial devices can be detected and processed. A typical application is when a Lightware device is connected to a **video conference codec** and the login process is performed automatically. When access is attempted, the codec requests the user name and password for login and this can be obtained from the serial communication. Another typical application is to **detect a message from a serial device and trigger actions based on it**.

The combination of the RS-232 Recognizer and the Event Manager gives **numerous opportunities for creating automatic room solutions**.

MiniWeb

The MiniWeb feature **allows access to control Lightware devices via a web browser**. This includes the possibility for remote control from **mobile devices** such as **tablets, smartphones or private notebooks**. Essentially, MiniWeb is a webserver inside the device which is able to store a single HTML file and display it if the <IP_address>/index.html page is opened in a web browser.
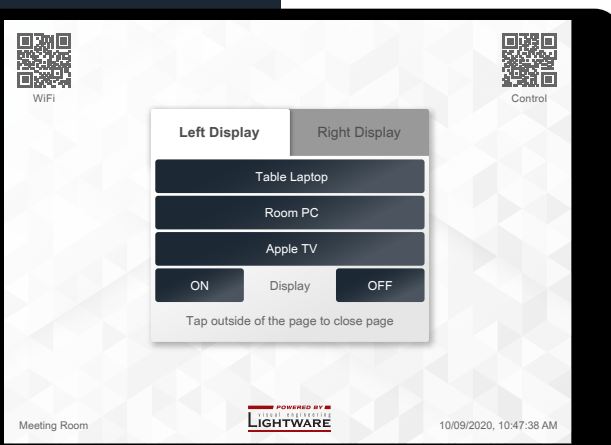
MiniWeb has a default control page that allows the following control functions:

- Source selection: This section can be used to select an input or enable/disable the Autoselect feature remotely

- Action triggering: The action trigger buttons can be used to perform a configured Event Action without waiting for the condition to occur.

Besides the above mentioned default control page **any custom HTML file can be uploaded** to the device to supply various custom control functions remotely.

Custom MiniWeb UI configuration

Lightware supplies an easy and intuitive online **MiniWeb Configurator Tool** to simply create a custom MiniWeb control UI, using the combinations of the most commonly used control function elements. Check out this configurator tool and create your own MiniWeb control UI:

**https://lightware.com/miniweb-room-control-configurator**

Advanced Control Pack Gen3 Features

Event Manager Enhancements

The AND Operator in the Event Manager

Control automation of Event Manager is **based on actions** triggered by **conditions**. A condition can be any change in a parameter that the device can detect. Previously, this feature only allowed actions to be triggerd based of the fullfilment of one single parameter. **The 'AND' operator gives the option to trigger an action when two conditions met at the same time**; one condition exists, and the other is a change that occurs.

This feature can be used in a **divisible room application**, where an external control button triggers different actions if the room is opened or divided, e.g the default screen differs in different room scenarios. In this case, one of our condition is the button press, and the other condition is the state of GPIO pin (the state of divider wall). **The two conditions together determine and trigger** what action to be taken.
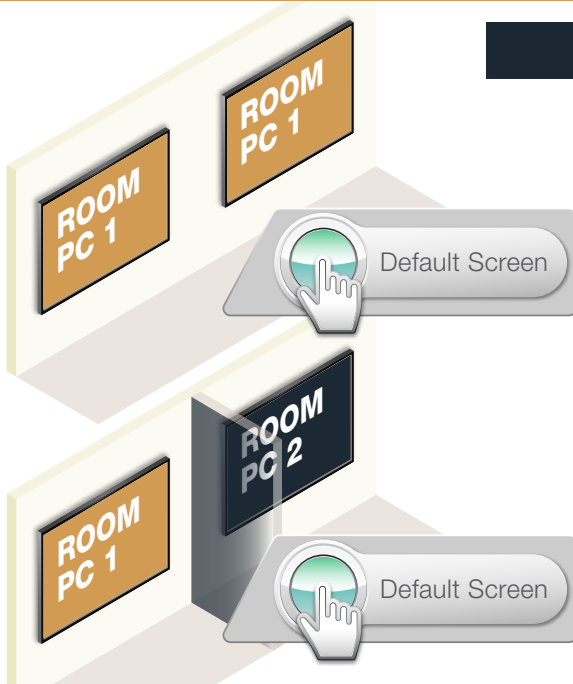
Event Manager Variables

A brand new possibility is opened by implementing the variables in the Event Manager. Different values of the **variables can function as Conditions for Actions**. You can create custom variables in number or text format. Variables can have the following properties/methods:

- Numeric (integer) type with min/max value setting
- Toggle or increment the value
- Value-dependent case operations
- Reading and storing the values of other LW3 properties into string or numeric variables

⚠ **WARNING**

TEMPERATURE IS HIGHER THAN 60°C

The defined variables are stored in a non-volatile memory and the value is kept in case of a reboot. The new opportunities allow **creating a monitoring/controlling system** without connecting an additional control processor.
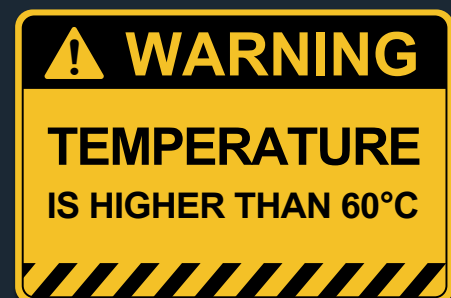
External Condition Triggering

This improvement in the Event Manager creates an option to emulate that a condition is detected. This **emulated condition** triggers the same actions that are assigned to the condition. When a complex control system is built, a Condition may trigger numerous Actions.

For example, an input source plugging sets the room in 'ready to use' state by turning on the display, selecting the active source, turning off the lights etc. When using external 3rd party control, triggering multiple actions by pushing one button could become complicated to implement. That's where External Condition Triggering comes in, as it **allows to execute a single command that externally triggers the condition**.

Basic IT Security

Clear Text Login

The **Clear Text Login** tool allows setting a password for login, thus, the device will not accept any command coming from an interface (RS-232, Ethernet, etc). Only the device type and the serial number can be accessed without login. All affected TCP/IP ports can be individually set to be either enabled or disabled.

IP Port Block

The **IP Port Block** feature is an additional protection for the Clear Text Login. There are TCP/IP ports in Lightware devices which are not protected by the login, so you can disable them if necessary.

Example: due to the working method of the LW2 communication, the Clear Text Login does not provide protection when an LW2 command is sent to the device, therefore TCP port no.10001 needs to be blocked manually.

MAC Filtering

Another level of the security is the **MAC Filtering** tool. You can create a list of network devices based on the MAC address which are allowed to:

- Control the device (Send option)
- Query parameters (Receive option)

to/from the Lightware device.

Layers of protection provided by the various network security features:

IP Port	Function	MAC Filter	Plain Text Login	IP Port Block
80	Http Post&Get	✔	✘	✔
81	LW3 Control (Miniweb)	✔	✔	✘
6107	LW3 Protocol	✔	✔	✘
800x	Command Injection (RS-232)	✔	✘	✔
900x	Command Injection (IR)	✔	✘	✔
10001	LW2 Protocol	✔	✘	✔

External Control Improvements

TCP Recognizer & Client

Incoming TCP/IP messages can be processed which may trigger Event Manager Actions. The combination of the TCP Recognizer and the Event Manager provides numerous possibilities for creating automatic room configurations.

A typical application is when the **Room Automation Panel (RAP-B511)** is integrated with Lightware matrices and/or extenders. The RAP can send control commands and its feedback messages can be processed by the TCP Recognizer. This, for instance, allows the LED status of the RAP buttons to be in **perfect sync with the result of the executed command**. Another option is when the RAP is set to subscribe to certain external device parameters, thus, an action in the RAP can be triggered by a change made in another Lightware or 3rd party device. With this function we can also report some important **system parameters** or send useful notifications for users such as the projector is ready to use. What's more, from now on a **Cisco integration can be built up** through Ethernet connection replacing the RS-232 / USB connection.

LW3 over HTTP (Cmd Salvo)

This feature allows the Lightware device to be **controlled over HTTP**.
In this case, a batch of commands is sent over HTTP to the Lightware device for processing.

Running Macros

Macros are command sequences stored in the Lightware device. Users can **create custom Macros** in a file, upload them to the device and run at any time. The number of storable Macros depends on the memory size that is specifically allocated for Macros, and the size of the uploaded Macros themselves. Please note that this memory size can vary across different Lightware devices.

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Further Improvements

Wake on LAN

Wake on LAN means that a computer **can be powered on remotely** over LAN. E.g. when the A/V system is switched on, the PC is also powered on automatically.

Connected Source Property

Connected Source is a new property under each output's LW3 node, showing the connected input port.

Http Post&Put messaging

Http Post and Put messages can be sent (instead of TCP commands) for a better integration with third-party devices. The command is available in the LW3 tree, in LDC and in the Event Manager wizard as well.