Contents [hide]

LWR Smart IP Driver For LARA Module

Introduction

Smart IP LARA module is for controlling Genelec Smart IP loudspeakers using REST style communication with a reduced set of HTTP/1.1 protocol. Smart IP API documentation can be downloadad from here: https://www.genelec.com/smart-ip-api

Installation and Configuration

Installation

Minimum equipment requirement for the solution:

- Lightware UCX series Universal Matrix Switcher (FW: v2.12.0b3)
- Smart IP device, in this example: Genelec 4420 loudspeaker (FW: 44×0-1.4.0)
- Ethernet network switch
- Cables
- Before you start, please setup Genelec 4420 as an audio device using Smart IP Manager.
- Further information can be found here: https://www.genelec.com/smart-ip-manager
- Before uploading any LARA module, or configuration, please download the latest Firmware from
- https://lightware.com/. Upgrade your UCX series Universal Matrix Switcher and activate LARA.
- For further information please refer to the user manuals:
    - https://lightware.com/pub/media/lightware/filedownloader/file/UserManual/Taurus_U
    - https://lightware.com/lara/
    - https://lightware.com/pub/media/lightware/filedownloader/file/User-Manual/LARA_Users_Manual.pdf

Configuration

Starting LARA, Uploading Configuration

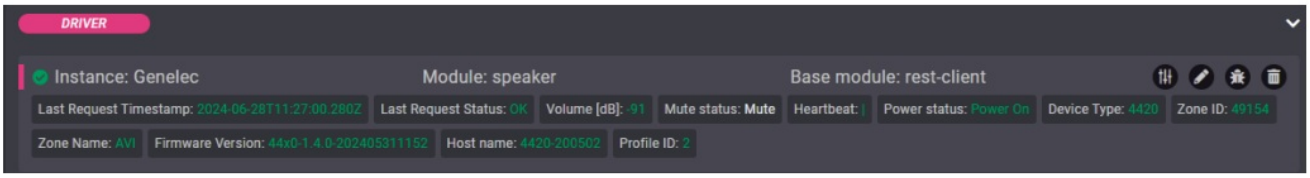
Start a new browser window typing: https://192.168.1.88/lara where the IP address is : UCX series matrix device Choose: UPLOAD CONFIGURATION

For detailed information please find chapter 5.7. Lightware Advanced Room Automation (LARA) in this document: https://lightware.com/pub/media/lightware/filedownloader/file/UserManual/Taurus_UCX_series_Users_Manual.pdf

Dashboard Content

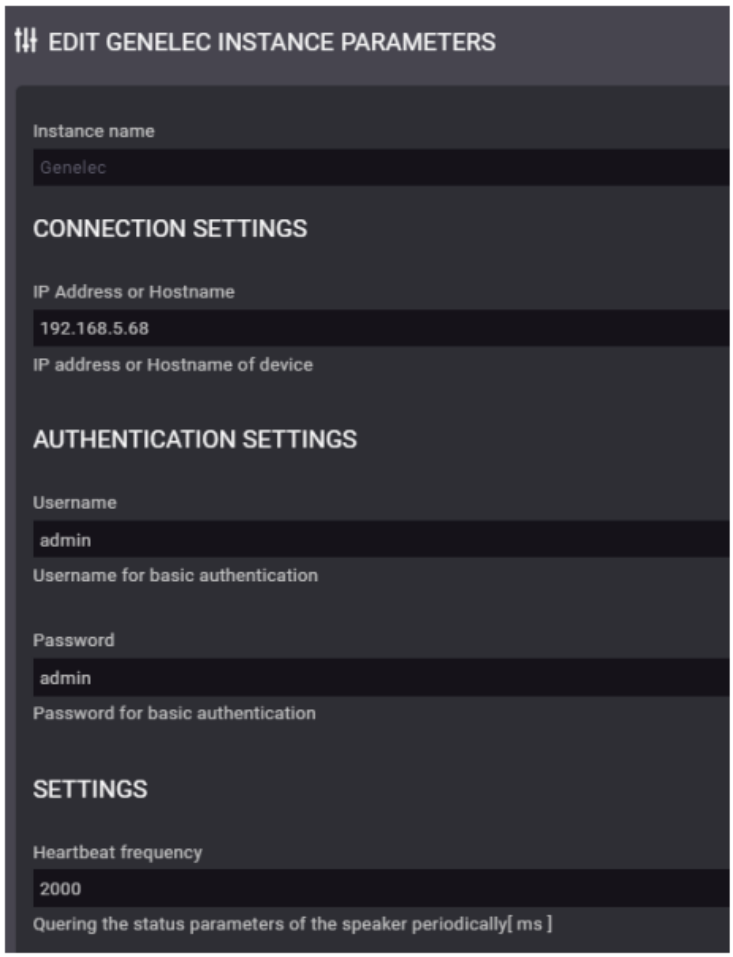
The following status indicator is displayed on the Status board in the row of the instance:

- Connection state of the device
- Product data (Device type, FW version)
- Power status, Mute status, Volume level, Zone information



Defined parameters

- ipAddressOrHost: The IP address or the host name of the Genelec Smart IP device, hereinafter loudspeaker in this example
- Username: defined in Smart IP Manager
- Password: defined in Smart IP Manager
- Heartbeat frequency. The periodic data query from the loudspeaker is defined by this time.



Defined Events

- **Heartbeat:**
  - This event is dispatched, after a “Heartbeat” time defined in the parameter section. e.g. 2000 ms. This means that the dashboard information is refreshed in every two seconds.
- **error:**
  - e.g. Problem in the data transmission, e.g. wrongly set frame delimiter. `errormessage` parameter is defined in this event for the error code.
- **responseReceived:**
  - The received string; `string` parameter is defined in this event. It can be used to analyse the content of the response received from the device.

Defined Status Variables:

- profileList
- networkData
- measurementData

- audioInputData
- danteIPData
- danteIdentity
- versionString
- muteState
- volumeValue
- powerstate

Content of these status variables based on the Genelec Smart IP API interface's description. Please refer to this API manual, and find some examples in the next chapter.

Defined Methods

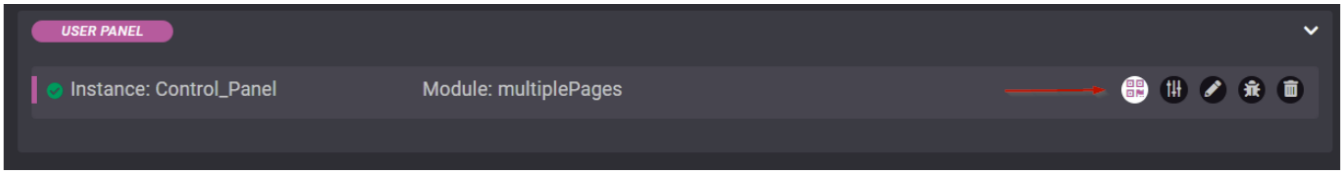
- **put, post, get, del**
  - Common rest api methods
- **heartbeat**
  - Periodically query data for the dashboard of LARA from the loudspeaker.
- **setMute**
  - Sets the Mute State of the loudspeaker. It the parameter is "true" the speaker is muted, in case of "false" the spekaer is unmuted.
- **setVolume**
  - Sets the loudspeaker's volume level via the "level" Parameter, wich can be within this range: -133 .. 0 dB
- **setPowerSate**
  - Sets the Power State of the loudspeaker. It the parameter is "ACTIVE" the device is powered on, in case of "STANDBY" the device is on standby mode.
- **getDeviceInfo**
  - Gets the following device information:
  - Versionstring: {
  - fwId: '44×0-1.4.0-202405311152′,
  - build: '7f915d',
  - baseId: '1.0.0',
  - hwId: '',
  - model: '4420',

    - category: ‘SAM_2WAY’,
    - technology: ‘SAM_IP’,
    - upgradeId: 10,
    - apiVer: ‘v1’ }
- **getAoIPIdent**
    - Gets the AV over IP (Dante) information:
    - Dante information: {
    - id: ‘001dc1fffe829b26’,
    - name: ‘Genelec-829b26’,
    - fname: ‘Genelec-829b26’,
    - mac: ’00:1D:C1:82:9B:26′}
- **getAoIPData**
    - Gets the AV over IP (Dante) network parameters: Dante information: { ip: ‘192.168.5.70’, mask: ‘255.255.252.0’, gw: ‘192.168.7.254’ }
- **getMeasurementData**
    - Gets the measured parameters from the loudspeaker.
    - [2024-06-25 14:12:23.399] – TEST_logic – Measurement data: {
    - uptime: ’23h 44m 6s’,
    - bsLevel: -197.900009,
    - twCoilT: 53,
    - twLevel: -185.5,
    - inLevel: -116.800003,
    - nwInKbps: 76,
    - cpuLoad: 69,
    - cpuT: 53.6000023}
- **getProfileList**
    - Gets list of profiles stored in the loudspeaker.
    - Profile list: { selected: 0, startup: 0, list: [] }
- **setProfileID**
    - Restore profile from flash and set it as an active profile.
- **getNetworkConfig**
    - Gets the network configuration.
    - Network data: {
    - hostname: ‘4420-200502’,

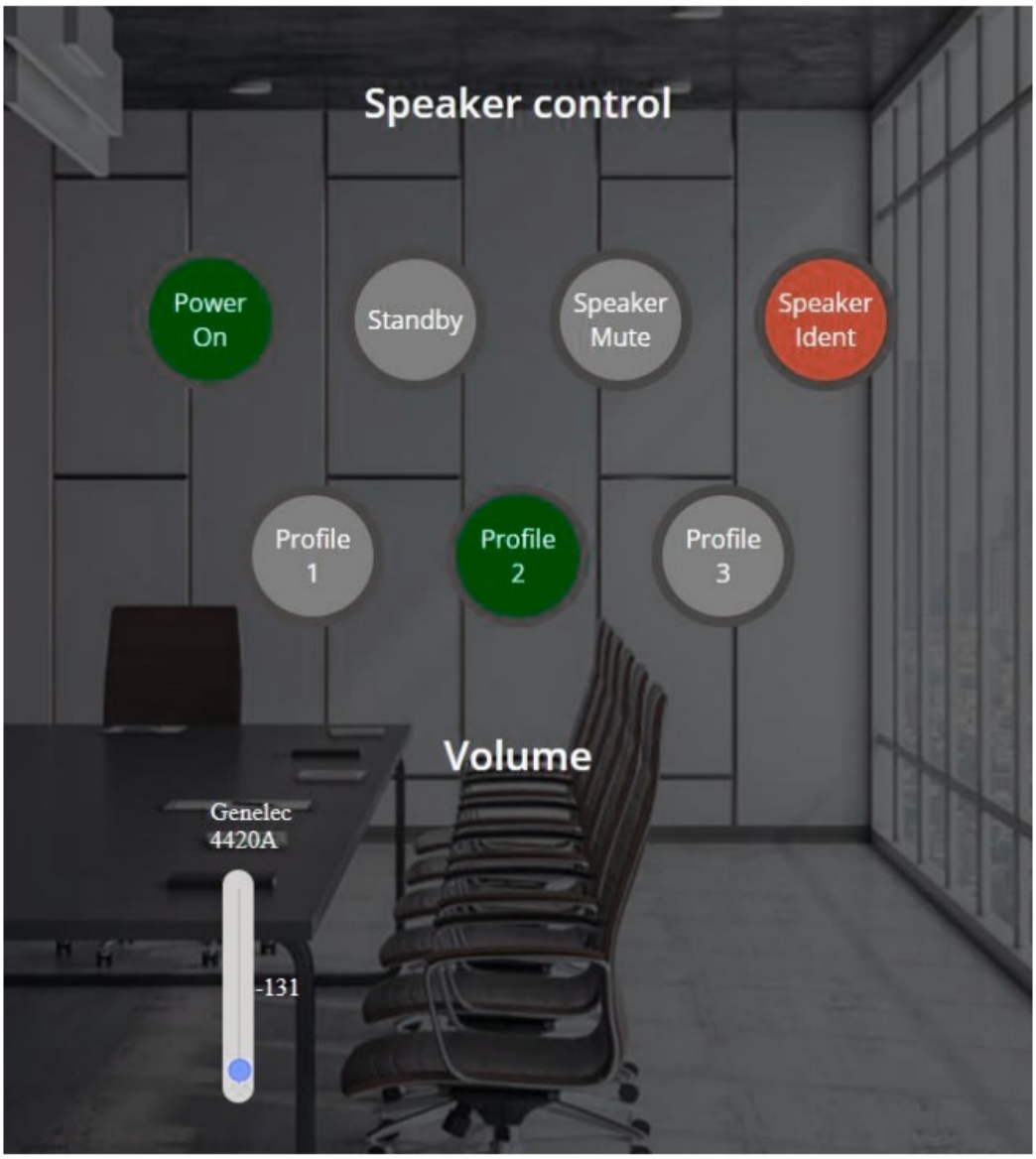
    - mode: ‘auto’,
    - ip: ‘192.168.5.68’,
    - mask: ‘255.255.252.0’,
    - gw: ‘192.168.7.254’,
    - volIp: ‘0.0.0.0’,
    - volPort: 0,
    - auth: ‘admin:admin’ }
- **getAudioInputData**
    - Gets the list of selected inputs.
    - Audio input information: { input: [‘A’, ‘AoIP01’, ‘AoIP02’] }
- **identification**
    - Identify the spekaer by flashing front LED

Defined Rules in the Test Logic Module

There are two kinds of Rules defined in the TEST logic module. To test the system please find the QR code link button in the Control Panel section:



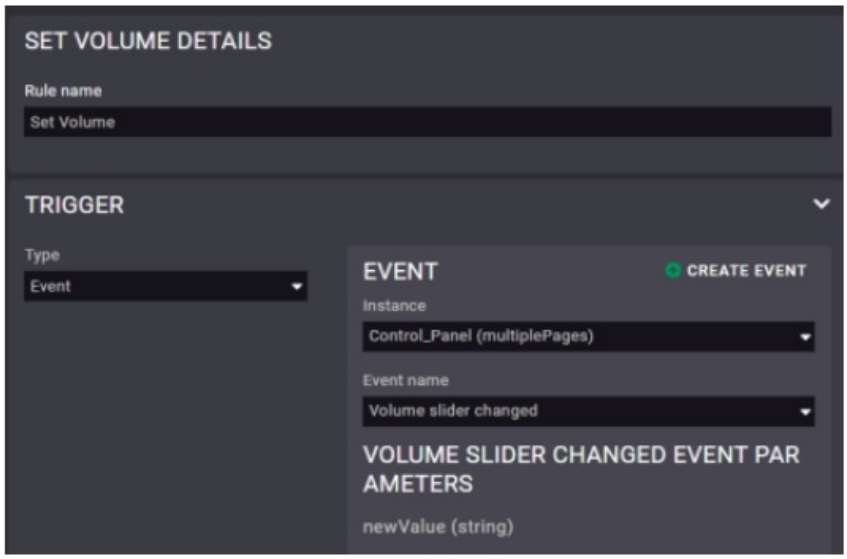
After pushing it the new browser window will open with a simple menu bar. In this menu bar Speaker Control submenu opens the operational panel:

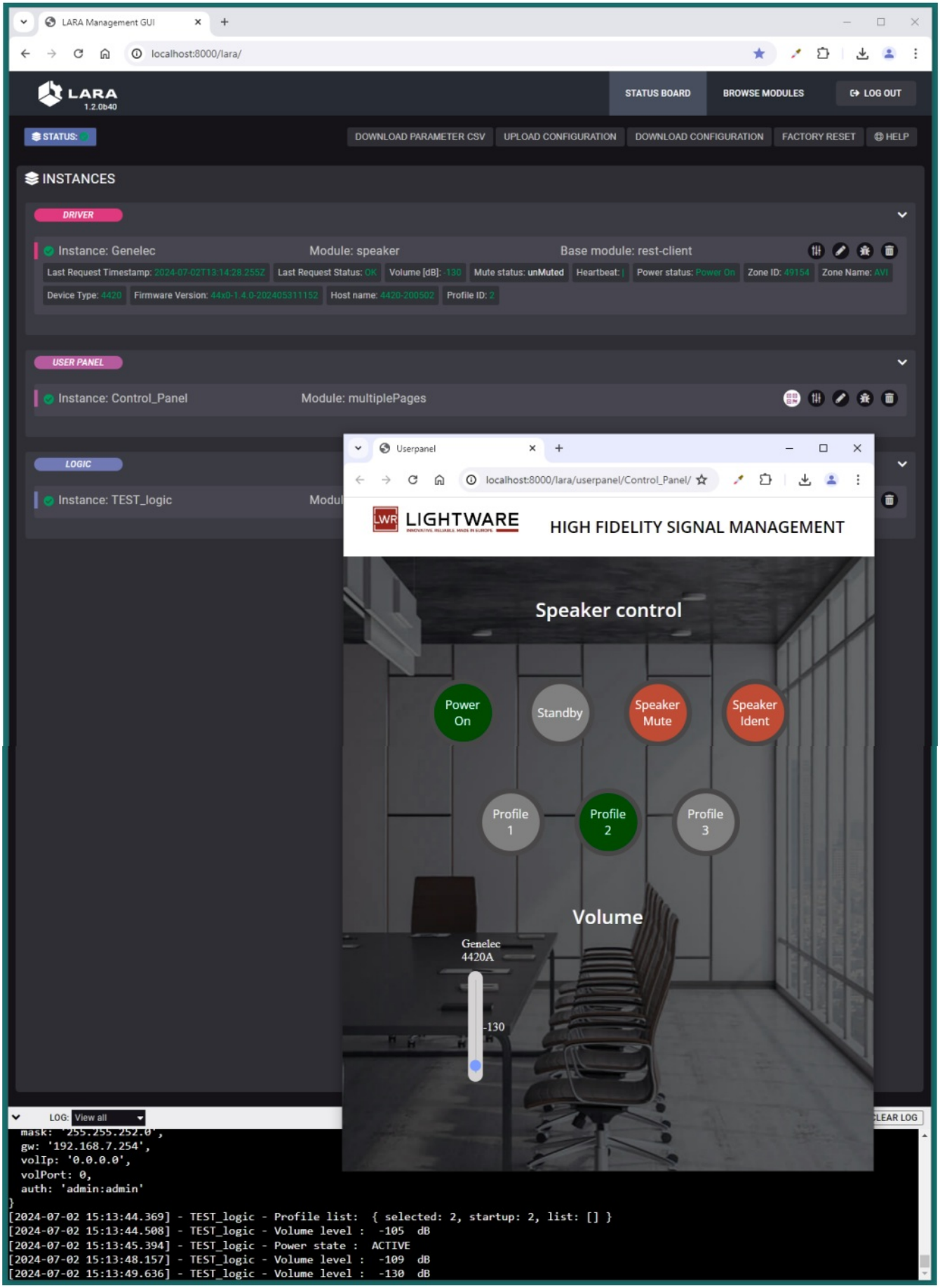


Rules for setting parameters of the loudspeaker:

- setVolume,
- Power On,
- Standby,
- speaker Mute pressed

These Rules are triggered by events emitted by the Control panel (button press, slider move)


SET VOLUME DETAILS
Rule name
Set Volume
TRIGGER
Type
Event
EVENT
CREATE EVENT
Instance
Control_Panel (multiplePages)
Event name
Volume slider changed
VOLUME SLIDER CHANGED EVENT PAR AMETERS
newValue (string)



Rules for getting data from the loudspeaker

Rules are triggered by changes of the corresponding Status Variables of Speaker

Module e.g. gives feedback for changing the volume value for the speaker. The actions made in these Rules are very simple just they log out the content of the given Status Variable if the logging is enabled in the parameter section.

Rev.	Release date	Changes	Editor
v1.0	02-07-2028	Initial version	Péter Szabó 3

FAQs

Q: What are the defined parameters for the Genelec Smart IP device?

A: ipAddressOrHost: The IP address or host name of the loudspeaker

- Username: Defined in Smart IP Manager
- Password: Defined in Smart IP Manager
- Heartbeat frequency: Determines the periodic data query interval from the loudspeaker

Q: What are the defined events for the Genelec Smart IP device?

- **A:** Heartbeat: Refreshes dashboard information at a defined interval
  - Error: Indicates problems in data transmission with error codes
  - responseReceived: Contains the response string from the device for analysis
- **Defined Status Variables:**
  - profileList
  - networkData
  - measurementData
  - audioInputData
  - danteIPData
  - danteIdentity
  - versionString
  - muteState
  - volumeValue
  - powerstate

Documents / Resources

	LWR Smart IP Driver For LARA Module [pdf] User Guide Smart IP Driver For LARA Module, Driver For LARA Module, LARA Module

References

- Home | Lightware Visual Engineering
- User Manual

Driver For LARA Module, LARA Module, LWR, Smart IP Driver For LARA Module

LWR

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