CBUS NAC Control Freak® eDIDIO Library

Firmware Version – 1.1.0

Date – 2/9/24

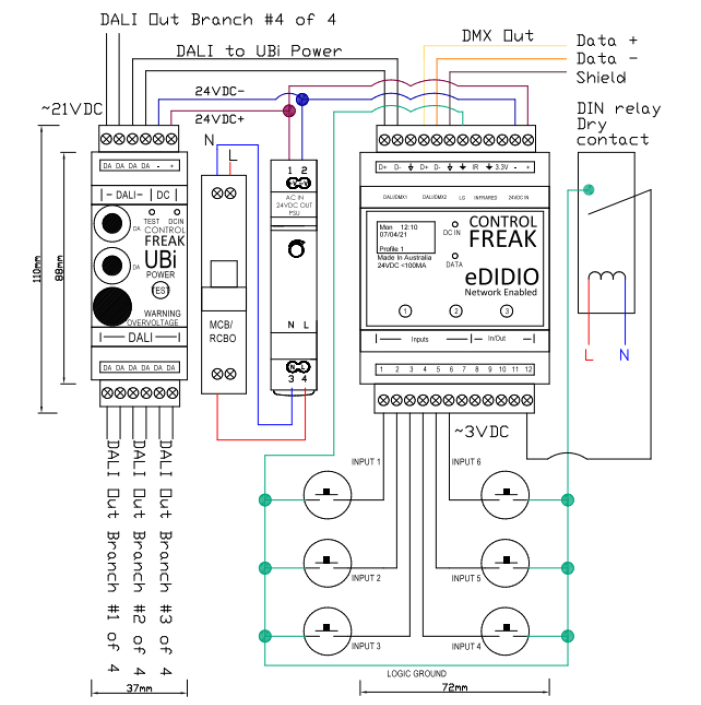
**Introduction**

This document outlines the CBUS NAC Control Freak® eDIDIO Lua library. This guide shows how to use the library to control DALI and DMX interfaces via TCP/IP.

**Hardware Considerations**

The eDIDIO controller must be connected to a 24V power supply. It must be on the same network as the CBUS NAC. Appropriate network settings must be configured to allow a TCP connection between the NAC device and the eDIDIO controller.

If the eDIDIO controller has DALI, it must have a suitable DALI PSU to control the lines. The DALI line(s) should be addressed and grouped as necessary. We suggest the Control Freak UBi DALI PSU. An example 1D1X is shown below.

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The eDIDIO can be ordered in a multiple of configurations. 1D1X refers to DALI | DMX. 2D is DALI | DALI.

A 4-line unit is also available

## 5500NAC Configuration

* Log into the 5500NAC Configuration. This can be done by entering the units IP address into a browser.
* Click on Configurator
* Navigate to Scripting -> Tools and press Restore Scripts
* Open the eDIDIO Scripting Library provided.

## Lua Functions

The library includes several functions for DALI and DMX commands, as well as enumerations for ease of use.

### Enumeration

* DALI\_0 to DALI\_63
* DALI\_G0 to DALI\_G15
* DALI\_BROADCAST
* DALI Type 8
  + SET\_TEMP\_X\_COORD
  + SET\_TEMP\_Y\_COORD
  + ACTIVATE
  + SET\_TEMP\_COLOUR\_TEMP
  + COLOUR\_TEMP\_COOLER
  + COLOUR\_TEMO\_WARMER
* DALI Fade
  + DALI\_NO\_FADE
  + DALI\_0\_7s\_FADE
  + DALI\_1\_0s\_FADE
  + DALI\_1\_4s\_FADE
  + DALI\_2\_0s\_FADE
  + DALI\_2\_8s\_FADE
  + DALI\_4\_0s\_FADE
  + DALI\_5\_7s\_FADE
  + DALI\_8\_0s\_FADE
  + DALI\_11\_3s\_FADE
  + DALI\_16\_0s\_FADE
  + DALI\_22\_6s\_FADE
  + DALI\_32\_0s\_FADE
  + DALI\_45\_3s\_FADE
  + DALI\_64\_0s\_FADE
  + DALI\_90\_5s\_FADE

TriggerType

DALI\_ARC = 0 -- For controlling DALI Arc Levels (0 to 254) and 255 for MASK

DALI\_COMMAND = 1

DMX\_CHANNELS\_SPLIT\_LOW = 2 -- NOTE: Expects the channel number (not zero-based)

DMX\_CHANNELS\_SPLIT\_HIGH = 3 -- NOTE: Expects the channel number (not zero-based)

DMX\_MULTICAST\_CHANNELS\_SPLIT\_LOW = 4 -- NOTE: Expects the channel INDEX to start from, as it takes into account the start address set from Spektra

DMX\_MULTICAST\_CHANNELS\_SPLIT\_HIGH = 5 -- NOTE: Expects the channel INDEX to start from, as it takes into account the start address set from Spektra

DMX\_BROADCAST = 6 -- Affects all DMX lights as per the Spektra Settings (number of lights and channels per light)

DIDIO = 7 -- DEPRECATED

FADE\_UP\_WITH\_MIN = 8 -- DALI Fade Up Command - Query level and set Minimum if Off

LIST\_START = 9 -- Start a List action once

LIST\_START\_CONTINUOUS = 10 -- Start a List action with repeat

LIST\_STOP = 11 -- Stop a List

SPEKTRA\_START\_SEQ = 12 -- Start a Spektra Sequence

SPEKTRA\_STOP\_SEQ = 13 -- Stop a playing Spektra Sequence

SPEKTRA\_THEME = 14 -- Apply a Spektra Theme

SPEKTRA\_STATIC = 15 -- DEPRECATED

SPEKTRA\_SCHEDULE = 16 -- Start the scheduled Spektra item

LINK\_START = 17 -- Enables the UDP Link State - If Configured

LINK\_STOP = 18 -- Temporarily disables the UDP Link State

DISABLE\_BURN = 19 -- Disable Burn-In

ENABLE\_BURN = 20 -- Enable Burn-In

ON\_OFF\_TOG = 21 -- Turn a Group/Addres On/Off based on query level. If DALI\_GROUP\_ALL, toggle based on flag

MIN\_MAX\_TOG = 22 -- On/Off Toggle replaced by Min/Max

ENABLE\_INPUT = 23 -- Enable Input - If latching, Input will trigger immediatly

DISABLE\_INPUT = 24 -- Disable Input

ENABLE\_TOG\_INPUT = 25 -- Toggle Enable/Disable Input

OUTPUT\_TOG = 26 -- Toggle Output State between High (~22Vdc) and Low (0Vdc)

OUTPUT\_HIGH = 27 -- Set Output HIGH

OUTPUT\_LOW = 28 -- Set Output LOW

OUTPUT\_TRIG = 29 -- Set Output to trigger momentarily based on configuration

PROFILE\_CHANGE = 30 -- Change Profile - This action will reset sensor state

FADE\_LONG\_PRESS = 31 -- Long Press Fade based on Toggle Flag

SYNCRO = 32 -- Command sets clock to 11:59PM. Used for hardware time update by external Timeclock

PRESET\_CODE = 33 -- Preset Code - See Configurator Description

CUSTOM\_CODE = 34 -- Project Specific Custom Code - Talk to Creative Lighting for support

SPEKTRA\_SLEEP = 35 -- Pause Spektra sequence

SPEKTRA\_RESUME = 36 -- Resume Spektra sequence

DEVICE\_RESET = 37 -- Admin Command for Hardware Reset

DEVICE\_SAVE = 38 -- Admin Command for manual device memory save

USER\_LEVEL\_STORE\_NEW = 39 -- Store Current Level to Variable

USER\_LEVEL\_SET\_DEFAULT = 40 -- Reset User Level Variable

USER\_LEVEL\_RECALL = 41 -- Recall User Level Variable

ROOM\_JOIN = 43 -- DEPRECATED

ROOM\_UNJOIN = 44 -- DEPRECATED

TYPE8\_TC\_WARMER = 45 -- DALI Type 8 Warmer Command. 1 Mirek increments

TYPE8\_TC\_COOLER = 46 -- DALI Type 8 Cooler Command. 1 Mirek increments

TYPE8\_TC\_ACTUAL = 47 -- DALI Type 8 Set Colour to Mirek value

LOGIC\_OPERATION = 48 -- Not Implemented

ALARM\_ENABLE = 49 -- Enable Alarm at Index

ALARM\_DISABLE = 50 -- Disable Alarm at Index

DALI\_CONTROL\_SENSOR\_OVERRIDE = 51 -- Puts the DALI Sensor in 'override mode', which means it will no longer control the lighting until occupancy has timed-out or control is manually resumed

DALI\_CONTROL\_SENSOR\_TEMP\_DISABLE = 52 -- Sets the occupancy timer to zero and puts the DALI Sensor in a temporary 'disable mode' (duration depends on Sensor configuration: 'Disable Period')

DALI\_CONTROL\_SENSOR\_RESUME = 53 -- Takes the DALI Sensor out of 'override mode'

DALI\_ARC\_OVERRIDE = 54 -- For controlling DALI Arc Levels (0 to 254) and 255 for MASK - Sets associated group to override mode

DALI\_COMMAND\_OVERRIDE = 55 -- For sending DALI commands - Sets associated group to override mode

FADE\_UP\_WITH\_MIN\_OVERRIDE = 56 -- Non-native DALI command override (sets associated group to override mode)

ON\_OFF\_TOG\_OVERRIDE = 57 -- Non-native DALI command override (sets associated group to override mode)

MIN\_MAX\_TOG\_OVERRIDE = 58 -- Non-native DALI command override (sets associated group to override mode)

MAX\_OFF\_TOG = 59 -- Not Implemented

MAX\_OFF\_TOG\_OVERRIDE = 60 -- Not Implemented

FADE\_LONG\_PRESS\_OVERRIDE = 61 -- Non-native DALI command override (sets associated group to override mode)

USER\_LEVEL\_RECALL\_OVERRIDE = 62 -- Non-native DALI command override (sets associated group to override mode)

DMX\_ZONE\_FADE\_UP = 63 -- DMX Spektra Zone Fade UP

DMX\_ZONE\_FADE\_DOWN = 64 -- DMX Spektra Zone Fade DOWN

LOGGING\_LEVEL = 65 -- Enable Logging to EEPROM to be read by configurator

SPEKTRA\_SHOW\_CONTROL = 66 -- DEPRECATED

CIRCADIAN\_TEMPERATURE = 67 -- Selects Colour Temperature based on clock

DALI\_CONTROL\_SENSOR\_MUTE = 68 -- Mute Sensor at Index (or all with Index 255)

DALI\_CONTROL\_SENSOR\_UNMUTE = 69 -- Unmute to Sensor at Index (or all with Index 255)

SPEKTRA\_INTENSITY = 70 -- Allow you to specify the maximum Spektra Sequence or Theme output intensity (10 to 100)%

ENABLE\_INPUT\_NO\_ACTION = 71 -- Allow you to enable an input (Latching), but not trigger the action.

SET\_DALI\_FADE\_TIME = 72 -- Sets the DALI Fade Time

NO\_COMMAND = 254 -- This TriggerType should always be at the bottom of the list. Add any new TriggerTypes above it (up to 253).

### Functions

|  |  |
| --- | --- |
| **Function** | **Command** |
| Sends 3 DALI Levels to an RGB fixture | sendDALIRGBMessage(line, address, red, green, blue) |
| Converts RGB to XY Coordinates for DALI DT8 | sendDALIRGBDT8Message(line, address, red, green, blue, brightness) |
| Converts Kelvin to Mirek and outputs DALI CCT DT8 | sendDALICCTDT8Message(line, address, kelvin, brightness) |
| Send a DALI Level (0-254) | flag = sendDALIArcLevel(line, address, level) |
| Set the DALI fixtures to a specific fade (See Enums) | flag = sendDALIFadeMessage(line, address, fadetime) |
| Sends a specific DT8 Command | flag = sendDT8Cmd(line, address, cmd, arg) |
| Get DALI Level (0 to 254) | flag, level = getDALILevel(line, address) |
| Sends a singular DMX Level. Fade = fadetime \* 10ms. Repeat for block commands | sendDMXLevel(line, channel, level, fadetime, repeat) |
| Sends a DMX RGB command. Repeat for consecutive addresses | sendDMXRGB(line, channel, red, green, blue, fadetime, repeat) |
| Sends a DMX RGBW command. Repeat for consecutive addresses | flag = sendDMXRGBW(line, channel, red, green, blue, white, fadetime, repeat) |
| Send a trigger, specified by TriggerType | flag = sendTrigger(line, zone, TriggerType, target, value, query) |

### Parameters

* Line – This depends on the installed hardware. I.e. eDIDIO 1D 1X = DALI | DMX
  + Physical Line 1 = 0x01
  + Physical Line 2 = 0x02
  + Physical Line 3 = 0x04
  + Physical Line 4 = 0x08
  + Multiple Lines (Line 1 + Line 2) = 0x01 + 0x02 = 0x03
* Address – See Enum. DALI\_0 to DALI\_63 + DALI\_G0 to DALI\_G15 + DALI\_BROADCAST
* Red, Green, Blue, White, Brightness
  + For DALI, values range from 0 to 254
  + For DMX, values range from 0 to 255
* Fadetime
  + For DALI, seen Enum, DALI\_0\_7s\_FADE = 0.7s fade
  + For DMX, total fade time = fadetime \* 10ms.
* Repeat
  + Value can be 0 to Max DMX.
    - For Standard DMX, value can be 512 – channel
    - For RGB, value can be 512/3 – channel
    - For RGBW, value can be 512/4 – channel
* Flag – Success or Failed

## Library Configuration

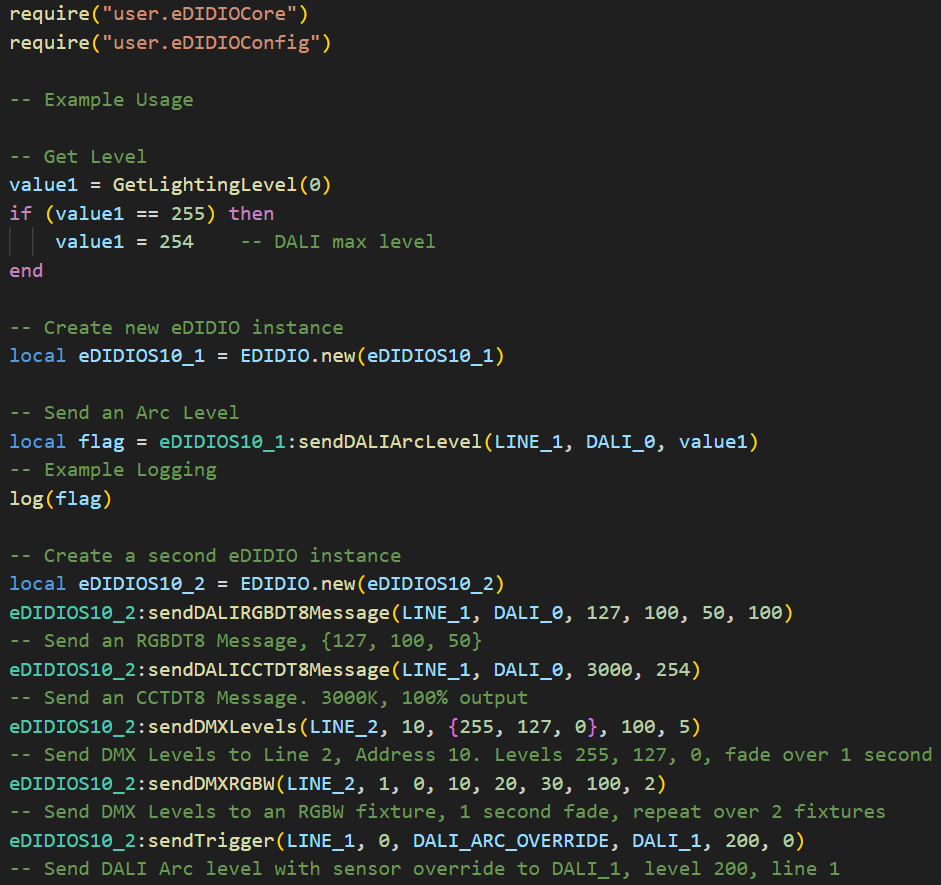
Library Configuration is through the eDIDIOConfig script. Enter the IP of the eDIDIO.

The IP can be found through the DIDIO Configuration software, or via the keypad on the unit.

A black screen with numbers and symbols

Description automatically generated

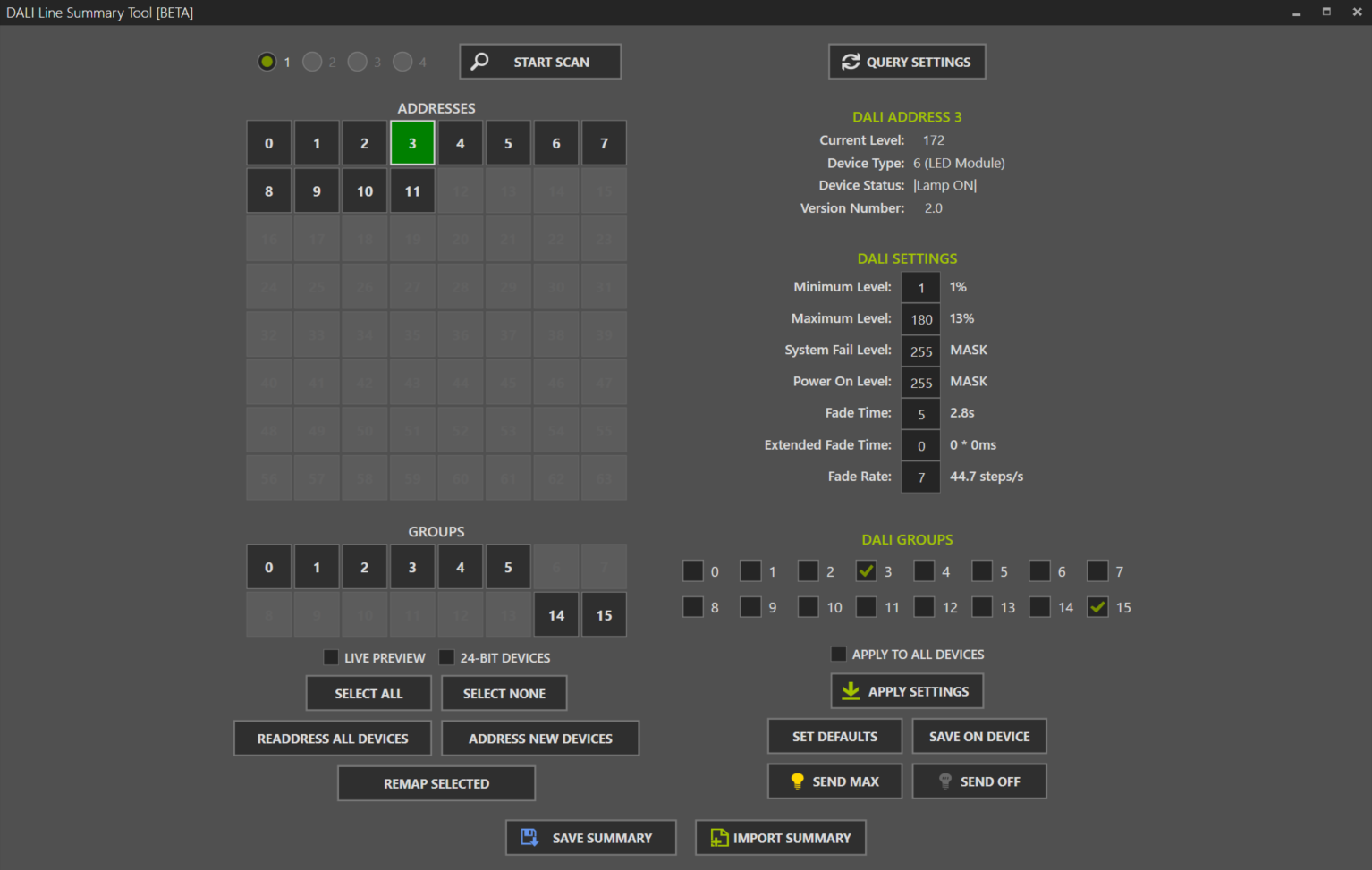
## Examples



**DALI Installation**

The DALI fixtures should be configured into controllable groups. This can be done using the Control Freak DIDIO Configurator software.

<https://github.com/CreativeLightingAdmin/DIDIO-Configurator-Releases>



**DALI Speed**

DALI DT8 commands are slow. Please note that to change colour via DT8 can take around 11 DALI messages.