

RAPIX API

HOW TO INTERFACE TO THE RAPIX SYSTEM

22 OCT 2018



COURSE PURPOSE

The RAPIX API.

This will help you to understand:

- What the RAPIX system is;
- How it operates internally;
- How to interface to it from another system using the RAPIX API.

COURSE PURPOSE

Pre-requisites.

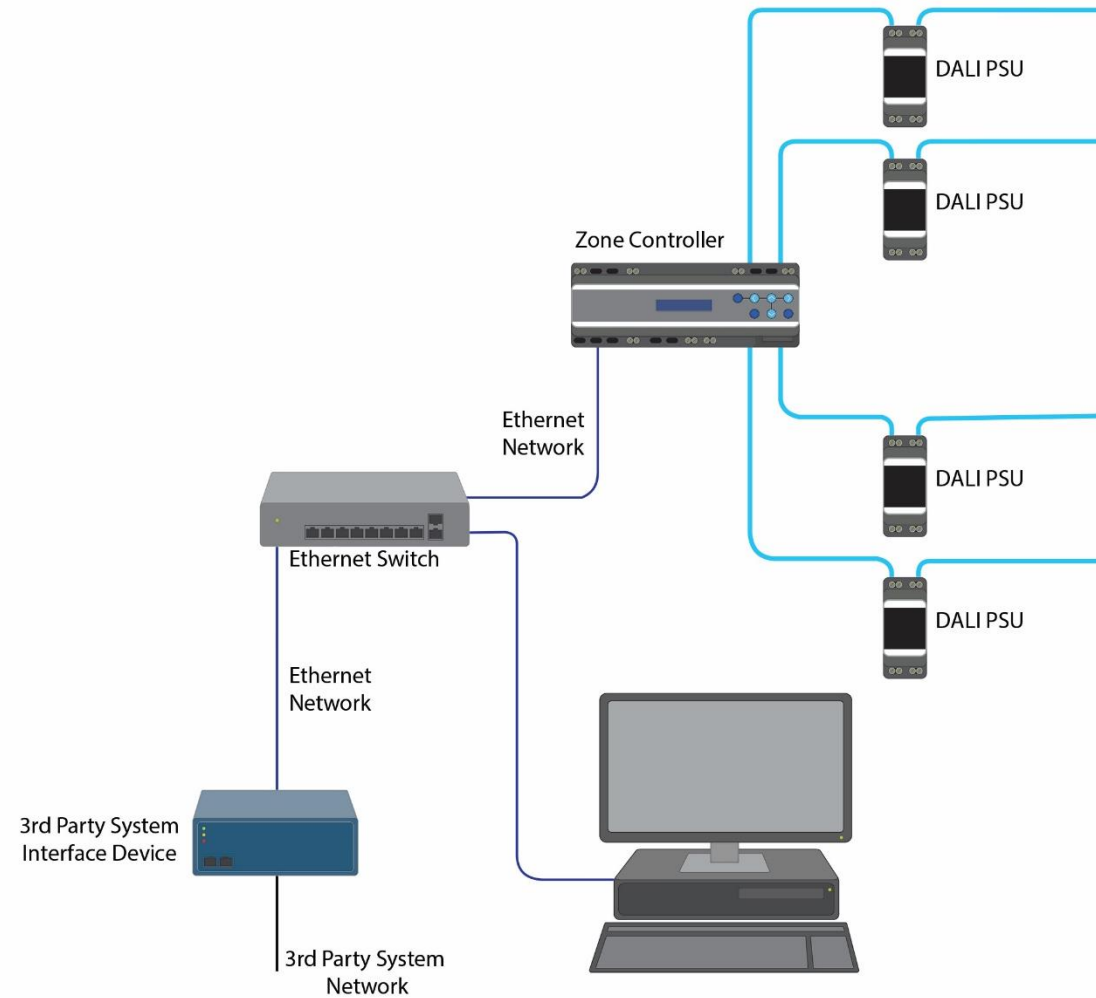
It is recommended that you have already completed:

- DALI Basics;
- RAPIX Introduction.

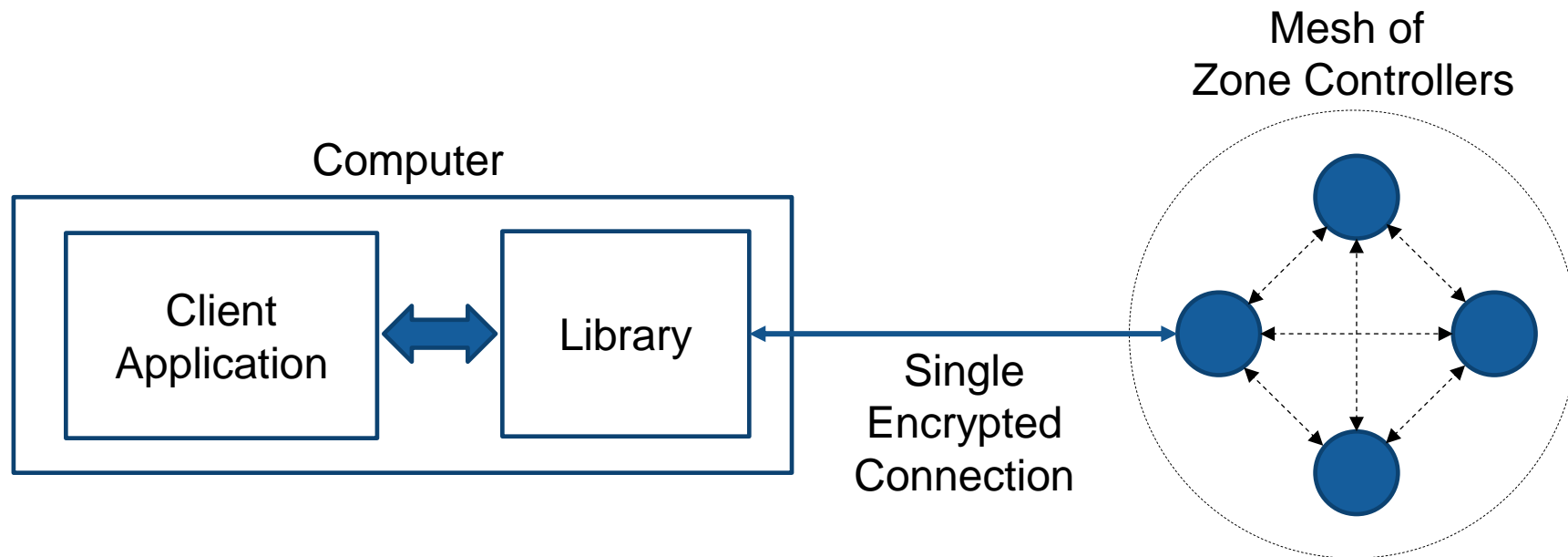
INTRODUCTION



INTRODUCTION



INTRODUCTION



INTRODUCTION

Use library for interface

- Windows DLL
- Can use C source code

Connection Management functions

- Open connection to Zone Controller
- Close connection

INTRODUCTION

Commissioning functions

- Get project details
 - Name etc.
 - List of Controllers
- Get details of RAPIX Zones
 - Name
 - Members
- Get details of RAPIX Scenes
 - Name
 - Members
- Get Xi details
 - Operating properties
 - Flags

INTRODUCTION

Real-time operation

- RAPIX Zone commands (control)
 - Set Zone on, off, level, min, up, down
 - Set Zone fade time
 - Get Zone levels
- RAPIX Zone events
 - Level changed
 - Device & communication failures

INTRODUCTION

Real-time operation

- RAPIX Scene commands (control)
 - Set Scene
 - Set Scene off
 - “Nudge” scene up or down
- RAPIX Scene events
 - State changed (set/not set)

INTRODUCTION

Overview of RAPIX API usage

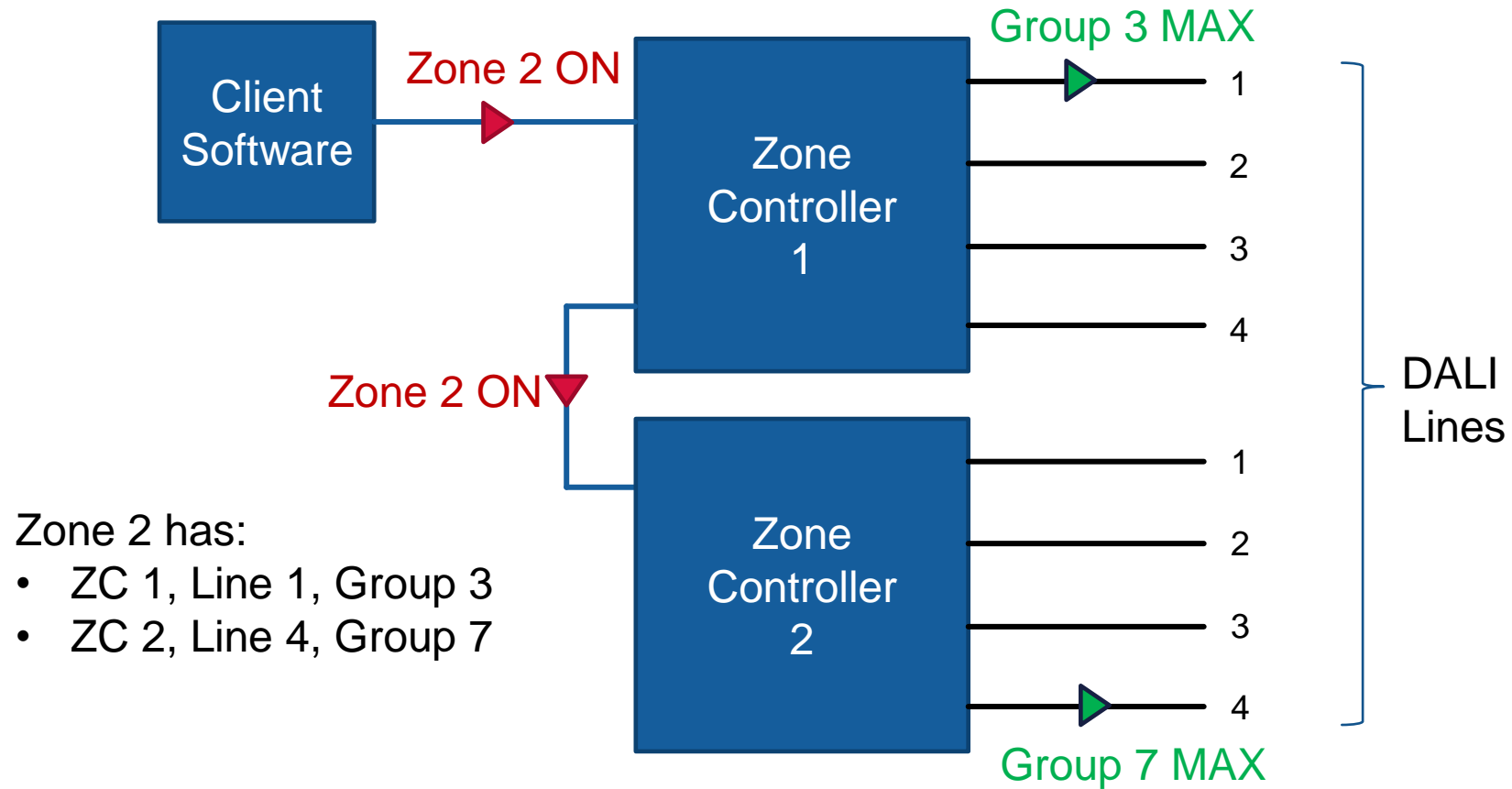
1. Open connection to a Zone Controller
2. Initialise settings
3. Get Zone Levels & Scene states
4. Send Zone & Scene commands as needed
5. Wait for Zone & Scene events
 - Do not poll !

EXAMPLES

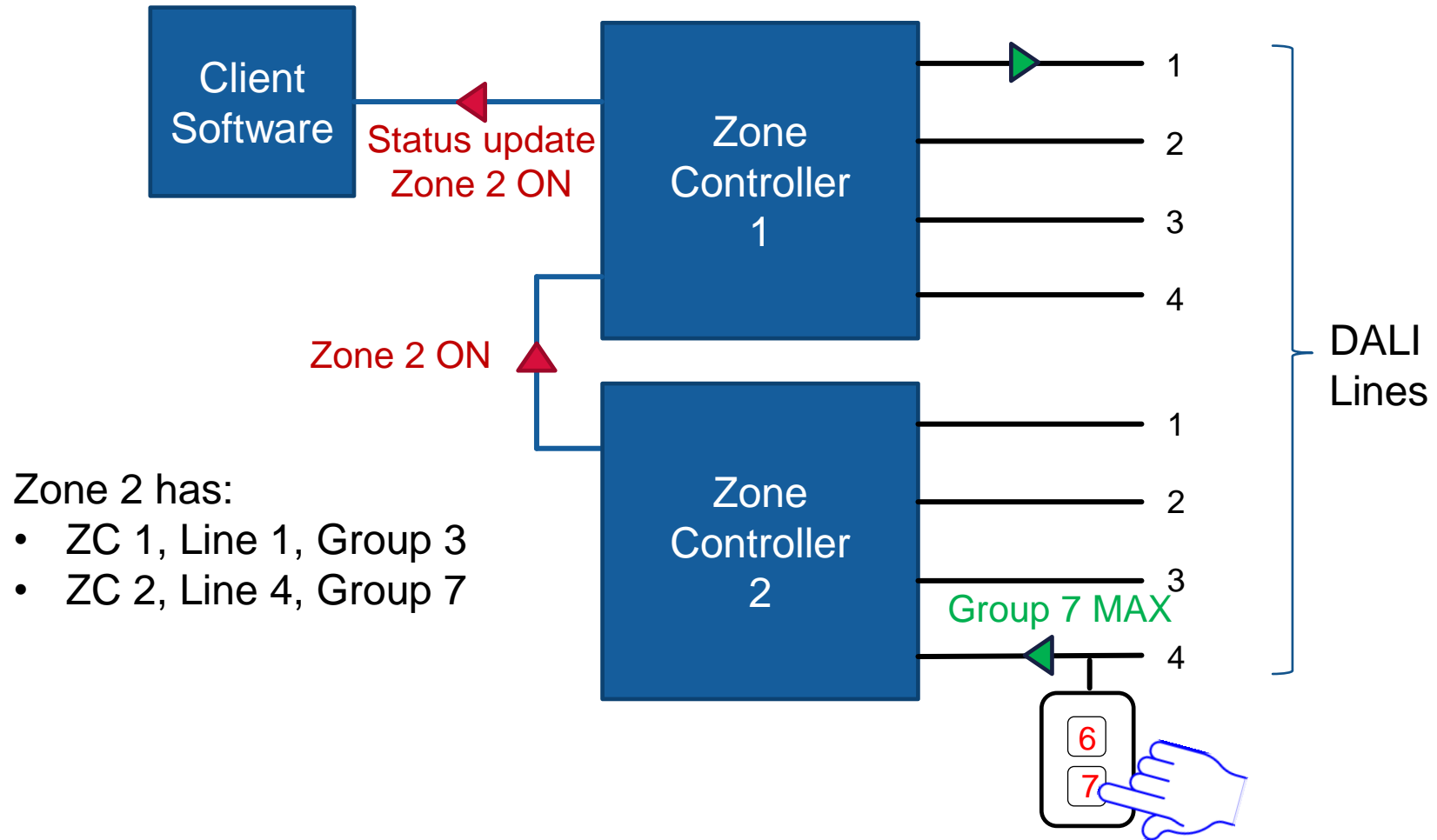
HOW IT WORKS



EXAMPLES



EXAMPLES

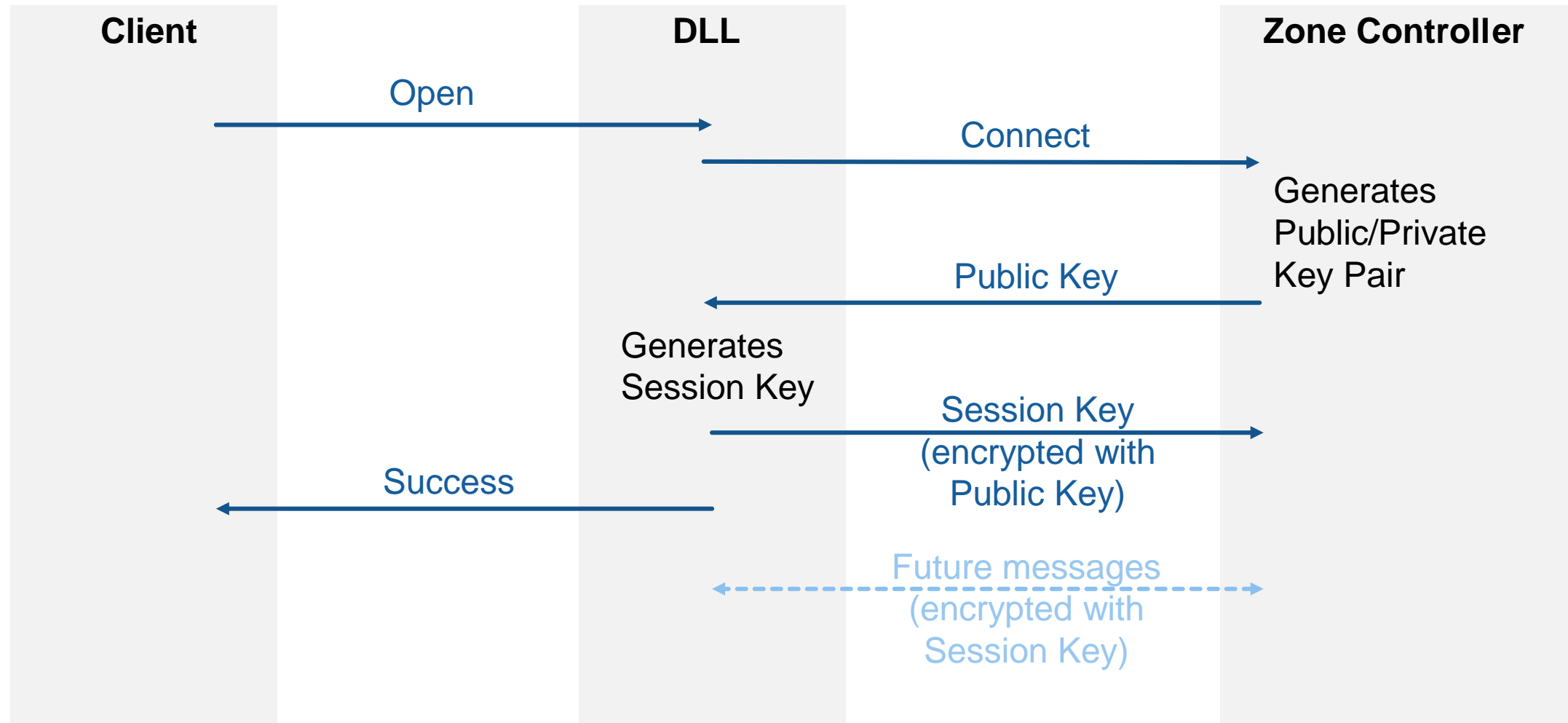


INITIALISATION

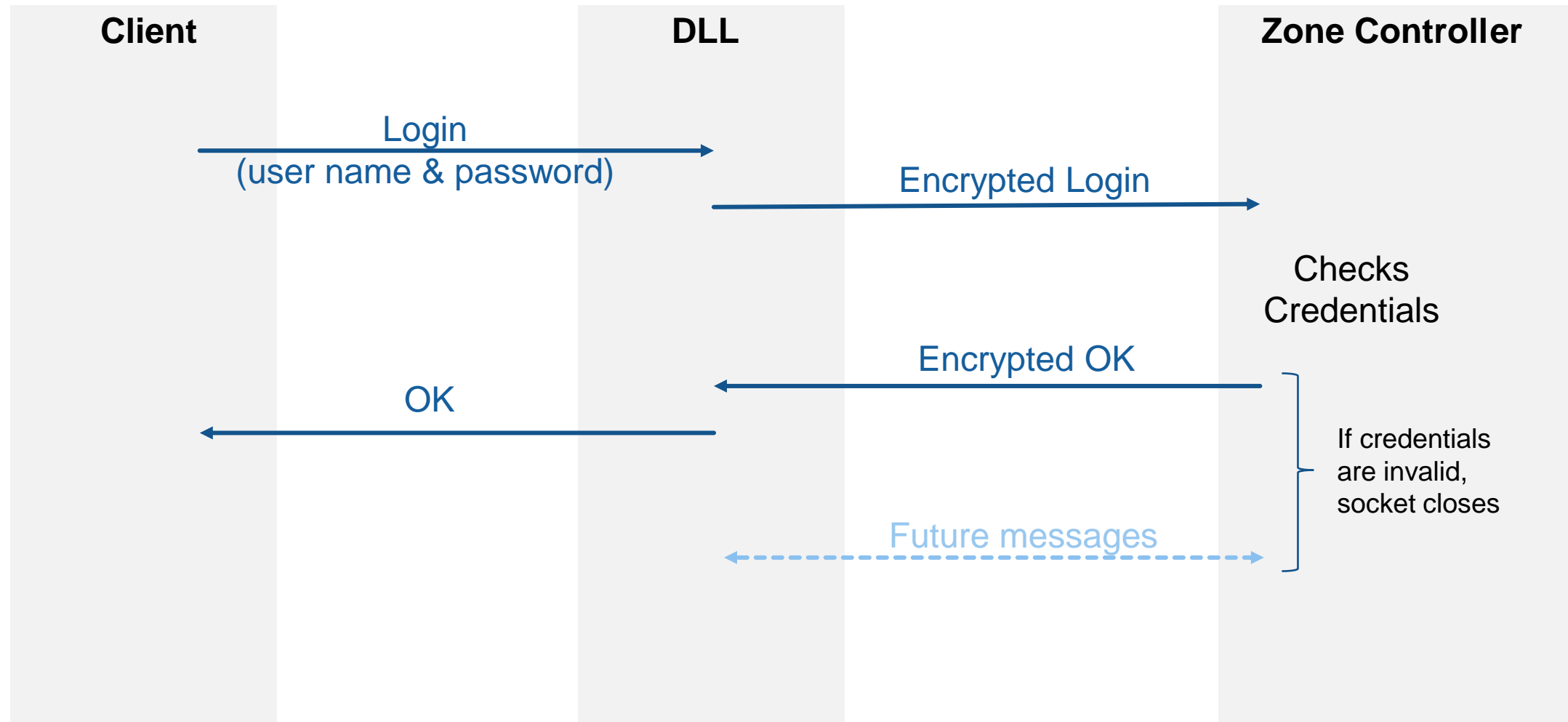
MAKING THE CONNECTION



INITIALISATION - CONNECTION



INITIALISATION - AUTHENTICATION



INITIALISATION

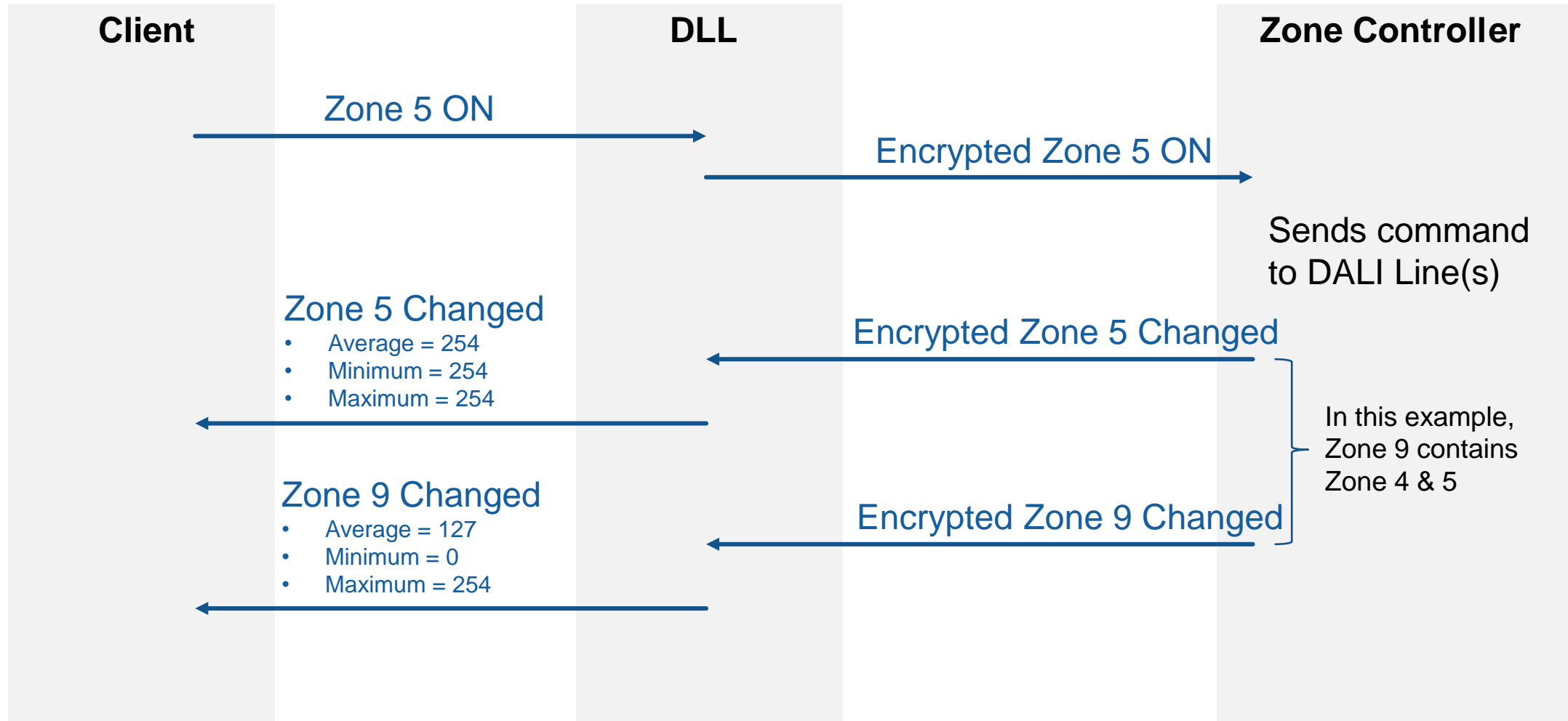
Once the log-in is complete, select options as required

- Zone Scaling, for example:
 - 0 – 254 (DALI default)
 - 0 – 255 (byte)
 - 0 – 100%
 - 0.0 – 1.0
- Zone Events
- Scene Events

API USAGE



API USAGE - EXAMPLE



RPIX API



RPIX API

All messages use DGCM format:

- Uses JSON standard format
- General structure
 - Header (message type and version)
 - Id
 - Optional Reply Id (to match reply with command)
 - Category
 - Command
 - Optional Data
- White space is ignored

RAPIX API

Messages are detailed in the RAPIX API document (ICD-ADL-13-013-03)

Example

- Set Zone 5 On

```
{  
  "type": "dgcm",  
  "ver": 1,  
  "id": 123,  
  "cat": "zone",  
  "cmd": "on",  
  "data": ["5"]  
}
```

RAPIX API

Device Monitoring

- Client may also require status of individual devices
- Useful for highly detailed floor plan display
- Useful if devices within a zone have different states
- Cannot control individual devices – need to use Zones

RPIX API

- Device Monitoring
 - Connect to each Zone Controller
 - TCP/IP connection
 - Zone Controller sends updates
 - For each device on the Line
 - Device type
 - Current level (in requested scaling)
 - Error status

RPIX API

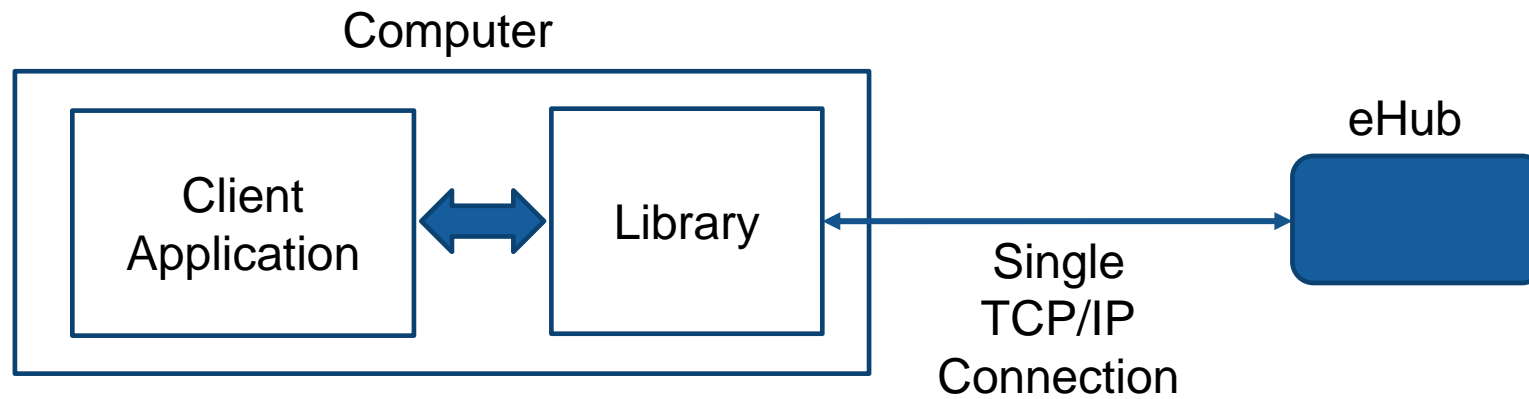
Device Monitoring

- Message packets
 - Sent whenever something changes
 - If a device is fading, regular updates will be sent
 - Limited rate of messages
- Data is blank if device not present

EHUB API



EHUB API



EHUB ENCRYPTED API

- Intended for small scale control
- eHub will only accept connection from a single IP Address
- Communication is encrypted using similar methods to Zone Controller
- JSON Message format is the same
- Only a subset of messages is supported
- Driver/library is required for encrypted API

EHUB SIMPLE API

eHub also allows “remote” operation

- Designed for use by very basic systems
- Can send the eHub a command to apply a virtual “press” on a button
- Can send a command to set the level of the Zone associated with a button