rcl by luminii

RCL Control Network Requirements

Accommodating the RCL Control System

Network Requirements

Introduction

This document is intended for larger organisations who require a degree of planning in their IT infrastructure.

IP Requirements

RCL Control uses devices called Mediators to act as a gateway between the network or RCL control light fixtures and the Building Management System and IP network. For the system to function communications must be allowed between the mobile devices and the Mediators. To facilitate this the following is required;

- A DHCP service
- IPv4 routing for udp and tcp
- Open multicast and unicast between the wired network (Mediators) and the Wi-Fi (iPads)
- Network level security (WPA2)

Ethernet (Wired Network) Requirements

The Mediators have a 1000Base-T Ethernet interface, which supports Power over Ethernet (POE) 802.3af. The maximum POE power consumption is 15.40W.

We recommend the use of CAT6 cabling when wiring the Mediator(s) to the network switches, a maximum cable distance of 100m is supported.

The Mediator is powered over the Ethernet cable, either from a switch supporting POE or by a supplied injector which can add power to an existing Ethernet connection.

A 100Base-T connection is adequate to support the equipment.

Mediators should always be installed within the same space as the light fixtures, we cannot guarantee performance through any walls. Mediators should be installed at least 3m away from any other wireless access equipment.

Wi-Fi (Wireless Network) Requirements

Wi-Fi Deployment

RCL Control will work wherever there is Wi-Fi coverage, we recommend that saturation coverage is provided within the event spaces that RCL Control will be used.

Wi-Fi Configuration

We recommend that RCL Control is integrated into your existing premises Wi-Fi system.

RCL Control uses the 2.4GHz band to communicate with the light fixtures, the 2.4GHz band can be very busy and offers a somewhat restricted bandwidth, we recommend, as is good practice, that excellent coverage is provided across your premises on the available 5GHz bands within your region, these bands do not compete with RCL Control, and other systems such as Bluetooth and allow better performance.

However, if Wi-Fi coverage on 2.4GHz is desired then to minimise the possibility of cross-interference we recommend that channels 1, 6 and 11 only are used for Wi-Fi with the bandwidth set to 20 MHz. In regions where available channel 12, 13 or 14 can be used instead of channel 11.

These requirements are in accordance with best practices for deployment of 2.4GHz Wi-Fi. We also recommend that “bandwidth fairness” or similar features are enabled on the Wi-Fi access equipment to ensure that when the Wi-Fi network is busy all devices continue to be able to communicate efficiently.

Security

Good practices should be followed and the Wi-Fi networks secured with strong WPA2 passwords. If an internet service is to be provided to the network then this should include a NAT/firewall. Under no circumstance should the Mediator be installed with a connection to the public internet.

Technical Details

These details are intended for network engineers.

RCL Control App discovers Meditator(s) using the Avahi (zeroconf) protocol, once discovered the RCL Control App communicates with the Mediator(s) using an https connection. RCL Control communicates using both udp and tcp messages to ports 5353, 8002 and 49463.

FAQ

Is there a risk of RCL Control interfering with other systems and/or our Wi-Fi?
The RCL Control network is effectively idle when no interaction is taking place, secondly it uses very short messages to communicate so its ability to interfere with other systems is very limited in comparison to other technologies like Bluetooth.

Does RCL Control require an internet connection?
No, an internet connection is not required, the system is hosted and managed locally to ensure reliable service.

Can I put the Mediator onto a public network?
While RCL has taken measures to secure the Mediator from malicious activity it is not good practice to put any system onto a public network that is not designed specifically with this in mind, we recommend that the Mediator(s) are only used on a private network to which only staff members have access.

How can I run RCL Control alongside my existing Wi-Fi services?
Commercial Wi-Fi systems include a feature which allows them to act as many different access points (SSIDS), we recommend that a separate VLAN and SSID are setup for RCL Control (and possibly other third-party management systems). This is good practice as it maintains isolation between services.

Is it possible to hide the RCL Control network from other Wi-Fi users?
Yes, most Wi-Fi access points will let you setup a hidden identifier (SSID), users can then manually join this network as long as they know the name and password.

Can I just run a dedicated Wi-Fi network for RCL Control?
You can, however we would recommend that where possible you integrate into your standard Wi-Fi.

If you have any difficulty installing this product please contact:

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