



i-UG Open Source Education
for IBM i

SETUP

Quick Reference Guide



i-UG

Quick Reference

1. Equipment

a) Supplied for the course

IBM POWER Server running IBM i
Phillips Hue light strip and hub
HIK Camera to monitor light strip
NCD Industrial Temperature and Humidity Sensors

b) Student

Your own laptop running Windows 10 or later or Mac running

This is for accessing the systems to run the course.

c) Optional

An additional laptop running Windows 10 or later or Mac, this one with a browser that can run IE.

This is just for seeing the Light strip in Manchester, so you can see that what you are doing is working.

2. Software

a) Supplied for the course

IBM i Operating System Stack
DB2 for i Database
DrayTek Firewall Management Software
Node JS Open Source software
Node-red Open Source software

b) Student

CMD/Terminal access

Microsoft Terminal (Or Linux/Mac equivalent)

Link for Microsoft Terminal: -

<https://github.com/microsoft/terminal/releases>

Source Code editor (Optional/Advanced)

Visual Studio Code

Link to Visual Code

[Download Visual Studio Code - Mac, Linux, Windows](#)

Student Credentials

Students will all have a User Name in the following format: -

STUDENT_nn

Where nn is a number allocated to the Student between 01 and 99

Student Password will be supplied on request.

3. GitHub Account – Code

The students will have access to the Student code for this course.

The GitHub repository for the Lessons is: -

<https://github.com/JoshRyanEOG/i-UG-Node-Red-Lessons>

The GitHub repository for code is: -

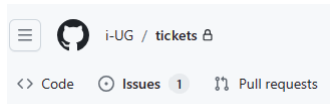
https://github.com/JoshRyanEOG/i-UG_Education_Node-Red

4. GitHub – Tickets

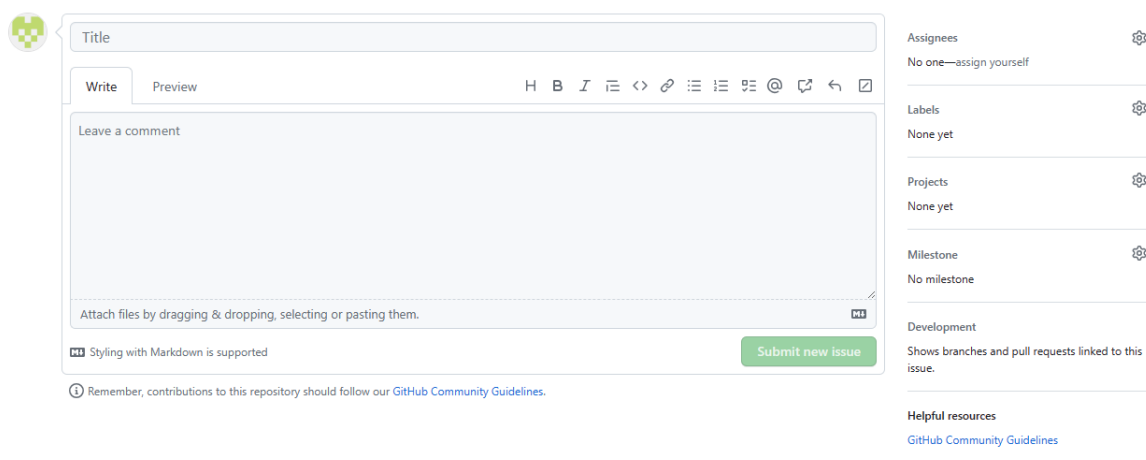
All students will have access to a ticketing system for getting help. If the software is not working as expected and the code retrieved from the GitHub code examples doesn't work, or if the student cannot gain access, the first port of call will be the lecturer.

If you find you are having technical issues or struggling with an element of the course, you can raise a ticket in GitHub for us to see and help you fix the issue or give you additional guidance.

- Simply go to the repository here - <https://github.com/i-UG/tickets> - and go to the issues tab.



- Click the button to raise a new issue
- From here, you'll be presented with a panel like this:



- Give the issue a title in the form of what the issue is about and include the specific lesson you are having problems with if relevant, and in the 'leave a comment' section give a description of the issue you are facing. Be as specific as you can about your issue as it will allow us to help you quicker.
- Once you've done that press the Submit new issue button. We will get back to you with an answer as soon as possible.

5. Getting more information.

The course has a wide range of documents that will help with set-up and with working through the code, The key ones to help at the beginning are: -

a) Education_Node-RED_0_Master

This is the main 'Run-Book' for the course and gives guidance on the general flow as well as links to all of the course documentation and GitHub resources. It will be provided to you as a .PDF file.

b) Education_Node-RED_X_Viewing the Manchester Lightstrip

This document gives guidance for how to get a real-time browser image of a camera which is monitoring the light strip. This is important as it is a visual aid to checking whether the code you are running is actually working.

N.B This may change as we progress...

6. MQTT

We will be using the MQTT transport layer to communicate between devices. MQTT is explained in the course, but in brief, it is a communication link between your code, the Light strip in Manchester and the various sensors.

The MQTT Broker we will be using is the Apache ActiveMQ Open Source software which is running on the IBM POWER system.

a) Broker

The Broker is located at ersc.ddns.net

The ID and credentials to connect, sign in and use the MQTT server are: -

Connection:	
Server:	ersc.ddns.net
Port:	1883
Protocol:	MQTT 3.1.1
i Session:	Use clean session
Security:	
Username:	STUDENT_nn (Where nn is your Student ID)
Password	(your Student password)
Topic:	
Topic Naming:	Make sure that any topic name specifically noted in the course notes are strictly adhered to. For example, the Temperature and Humidity sensor is publishing on a specific

topic name, so as you subscribe to get information from this device, you will need to hit the exact topic name.

If you experiment and set up a Publisher and a Subscriber, you can use your own name but they must match! It is good to use a naming convention such as: `STUDENT_nn:mytopic`.

When in the Lighting lessons, it is vital that you use the Topic Name as 'lightsensor_nn' (where *nn* is your Student Number).

7. Database Access

When accessing the Database, you will need to put in the correct credentials. As we are using the native DB2 database on the IBM POWER Server, we will use the shortcut to the Database which is *LOCAL: -

a) Credentials

User:	STUDENT_nn (Where <i>nn</i> is your Student ID)
Password:	(your Student password)
Database:	*LOCAL
Keepalive:	Check the box.