M015 Uf1 IoT

MQTT per QT - Pràctica Panell (versio1)

Curs: 2019-20

CFGS: DAM2

Alumne : Arnau Subirós Puigarnau

Data : 11-02-2020

Nom i Cognoms **Data**

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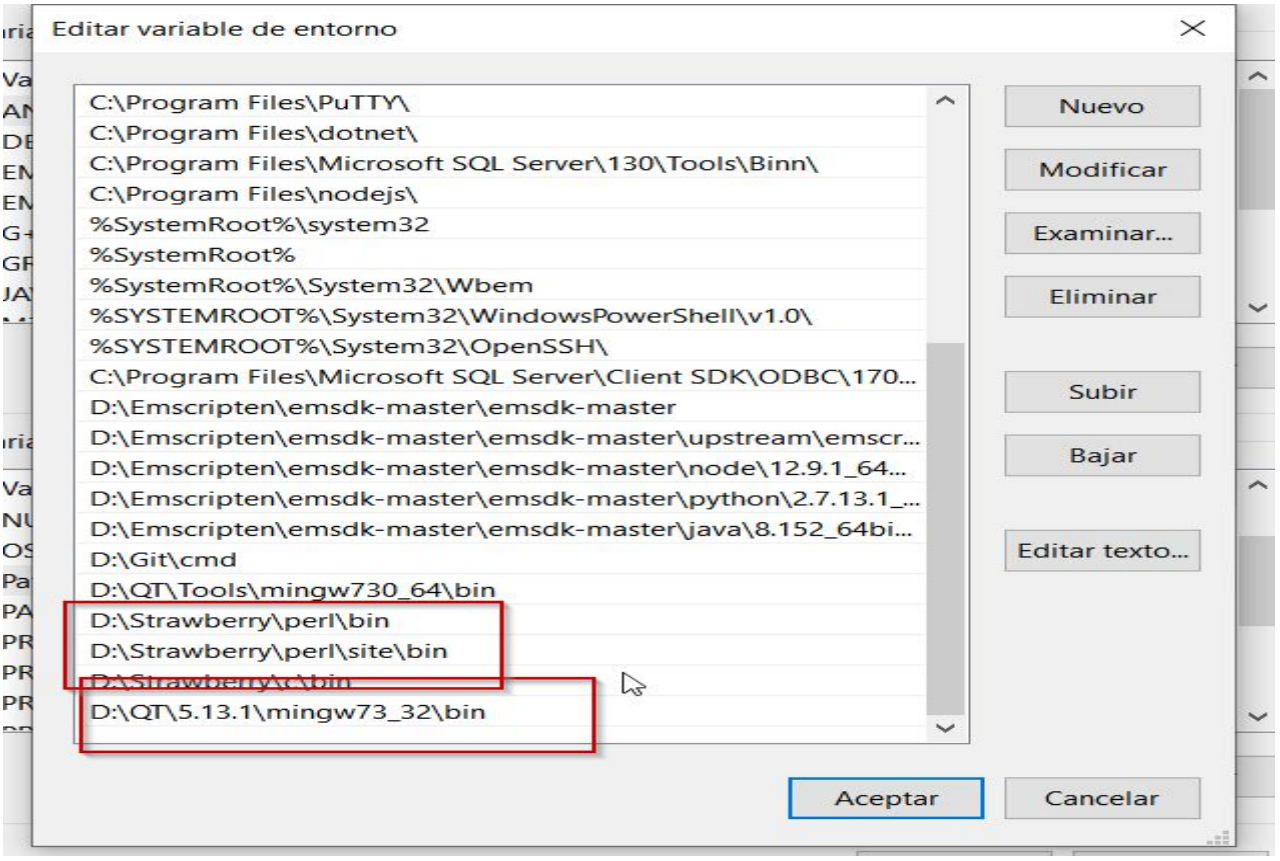
Configuració MQTT per QT (per Windows)

NOTA: per Windows: necessitarem instal·lar Strawberry Perl

- http://strawberryperl.com/
- *I afegim la ruta de l'executable en les variables d'entorn del sistema.*



- *Utilitzarem el terminal de QT (MinGW 7.3.0 de 32 bits) ja que 64 bits ens va dona errors.*

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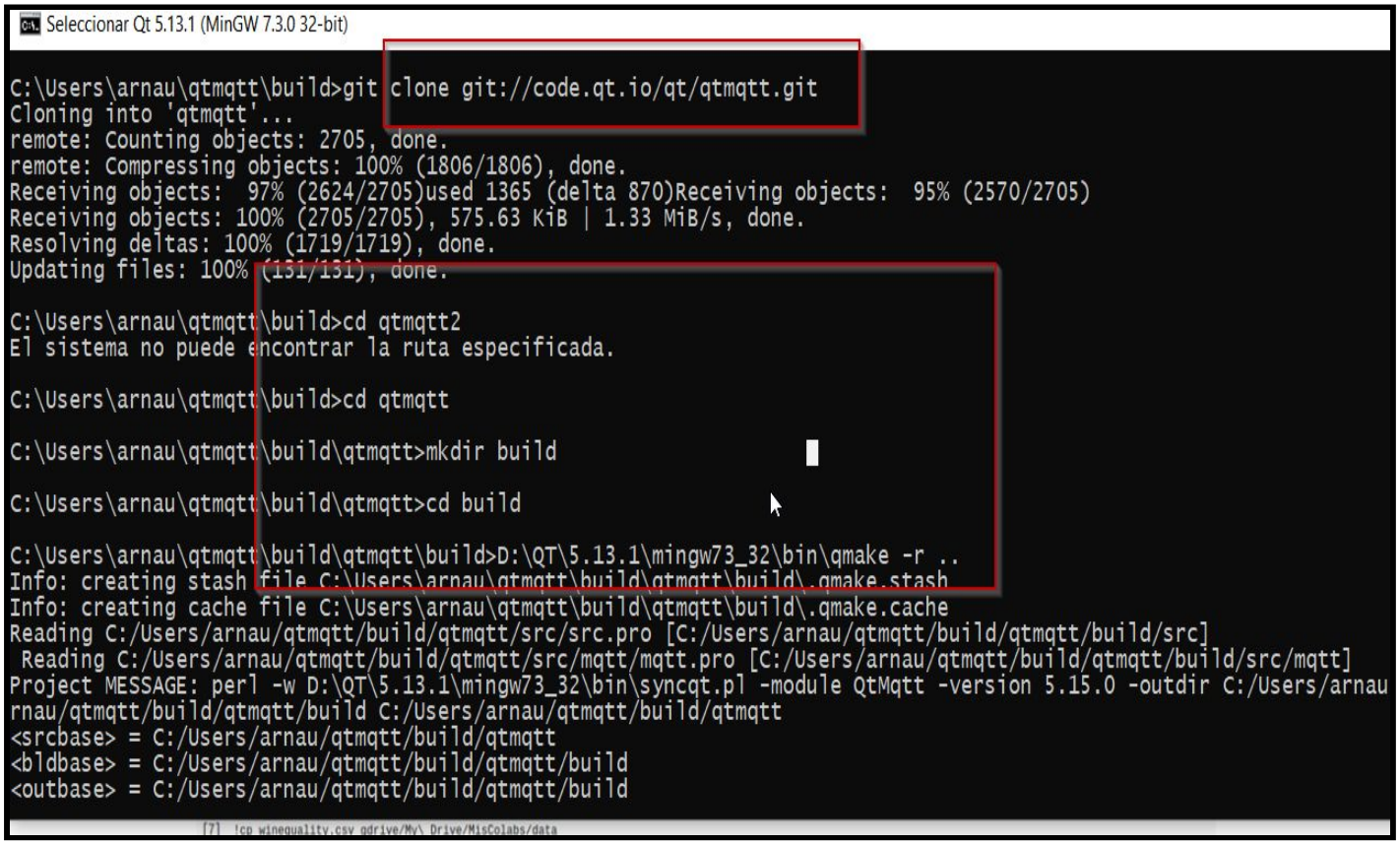
- Clonem el repositori qtmqtt.git



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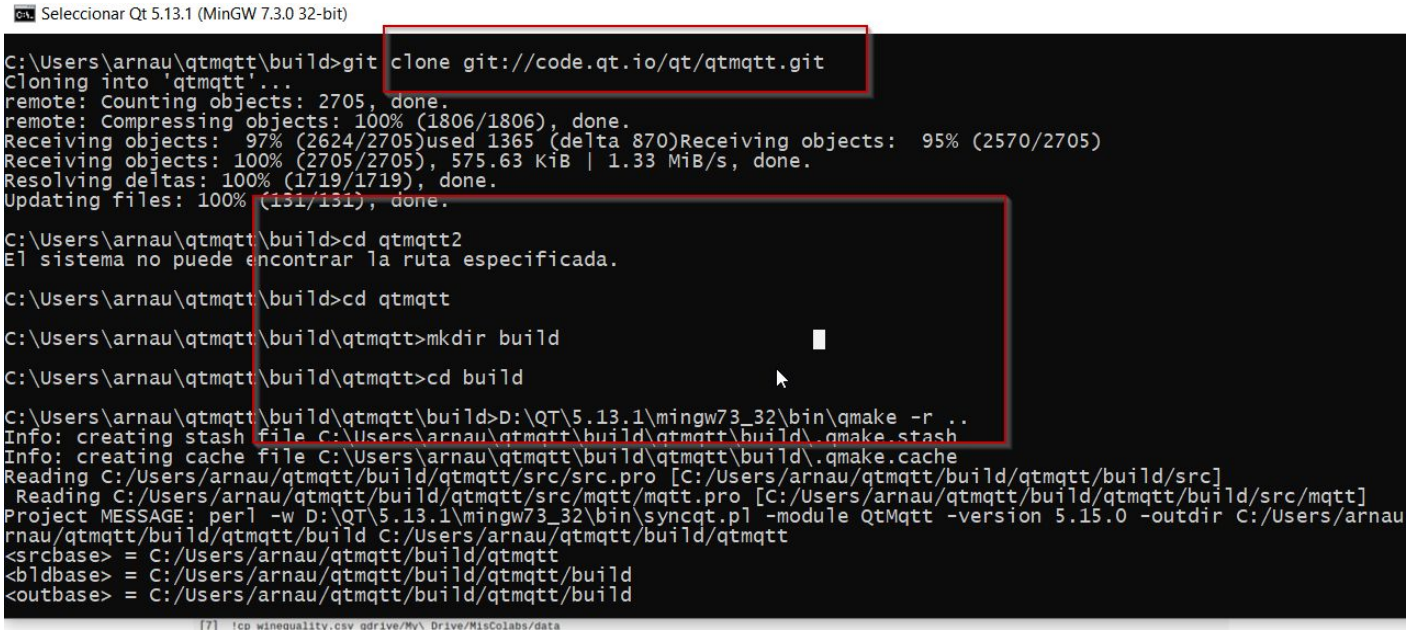

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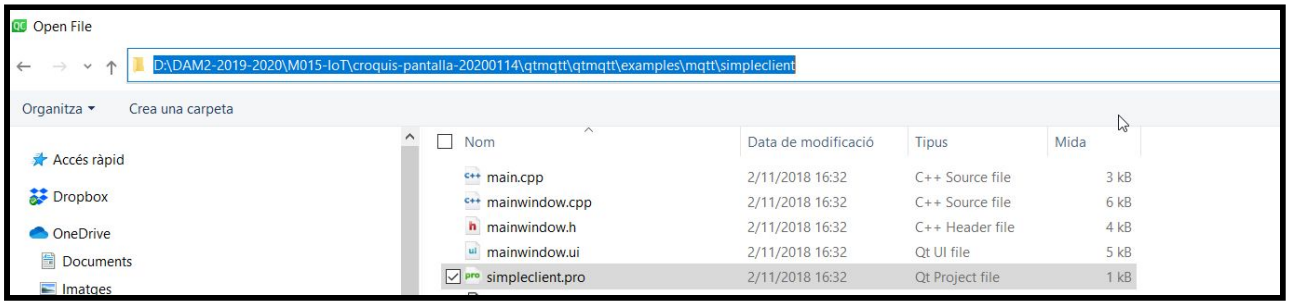
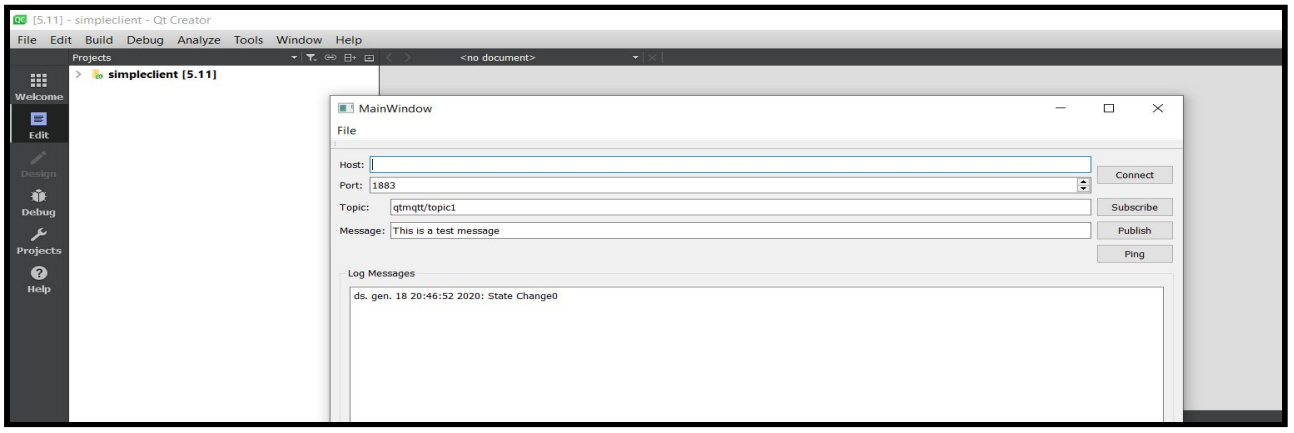
- Obrim un exemple per confirmar que el protocol MQTT funciona en les QT





NODE-RED :

- Iniciem Node-Red , utilitzarem un flux senzill per fer les proves i confirmar que hi ha comunicació entre les QT i Node-Red

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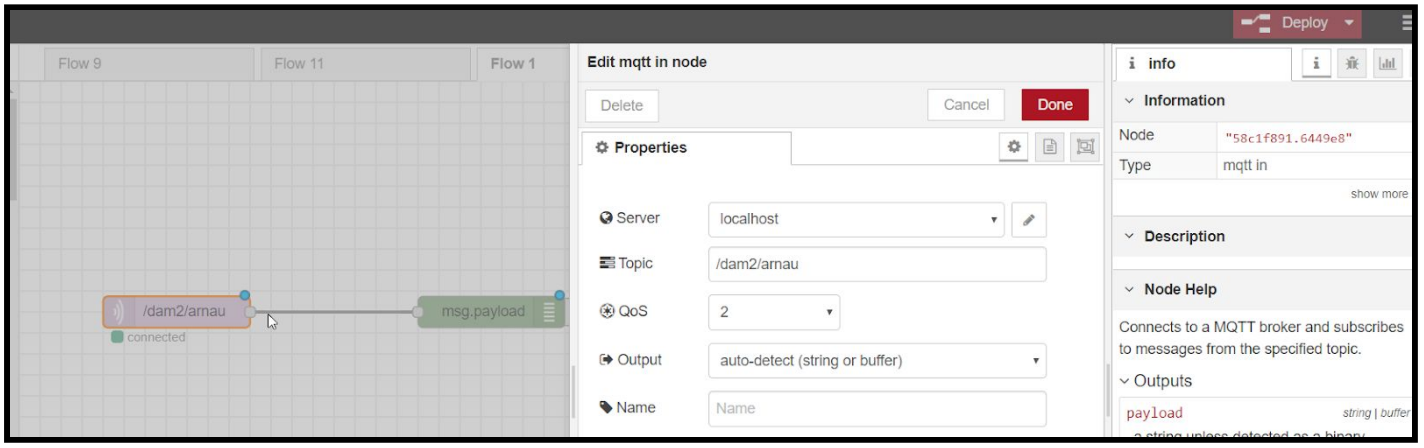

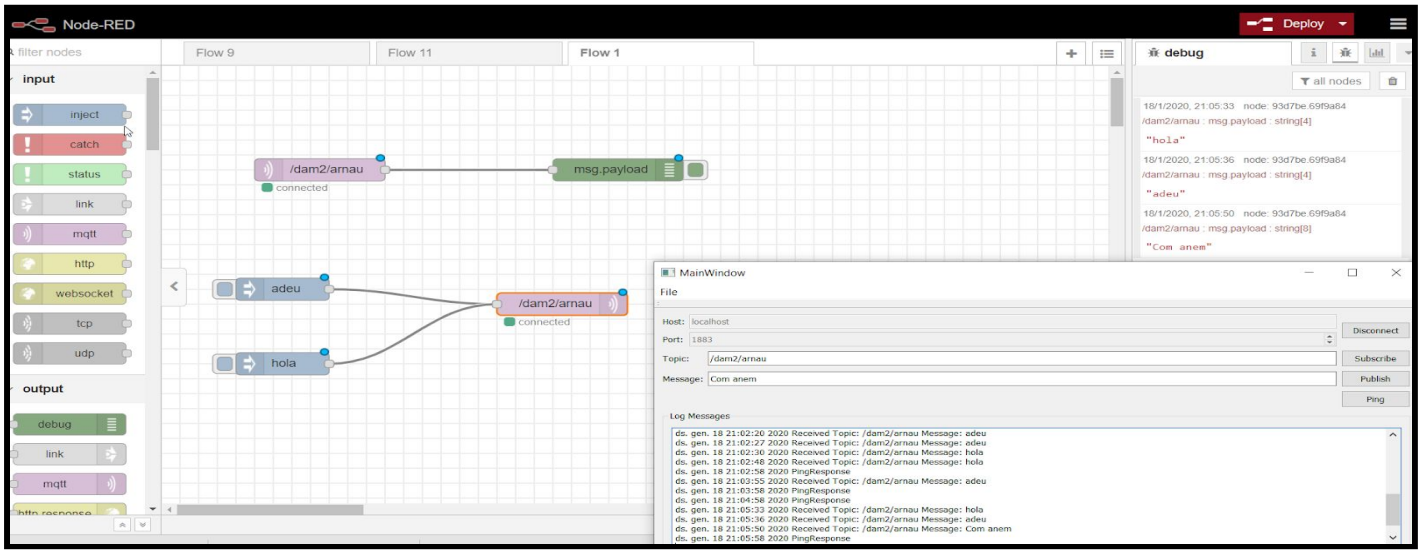

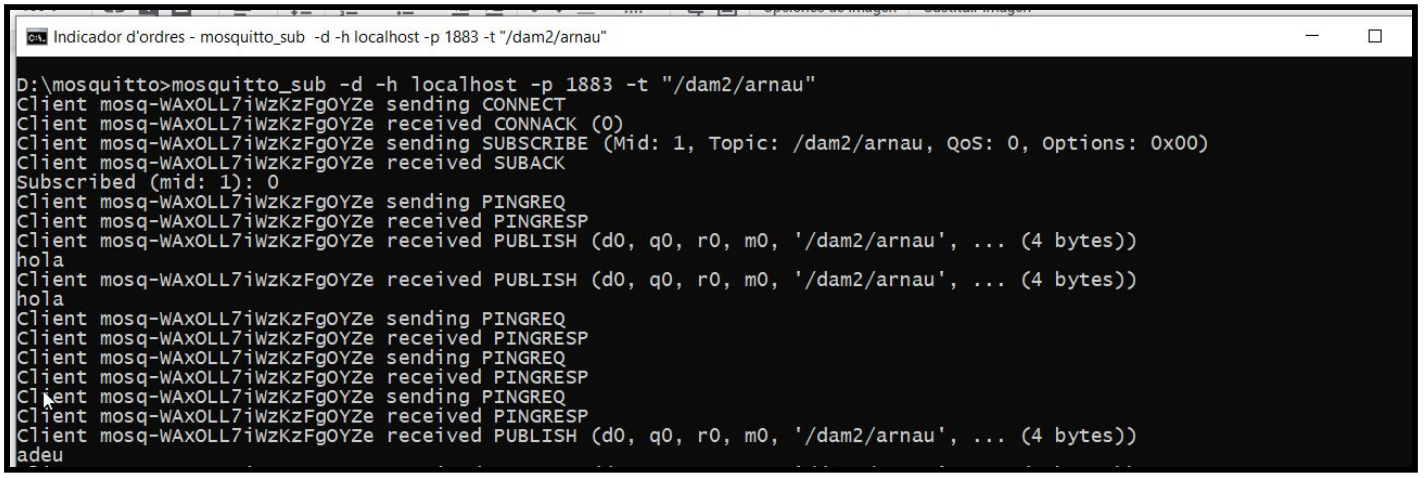

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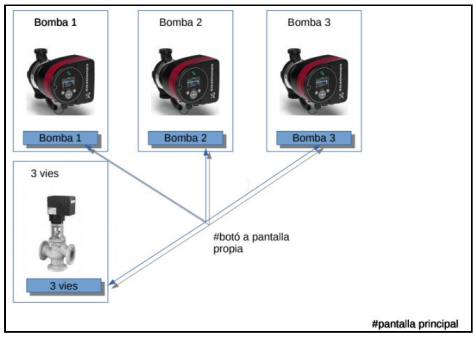
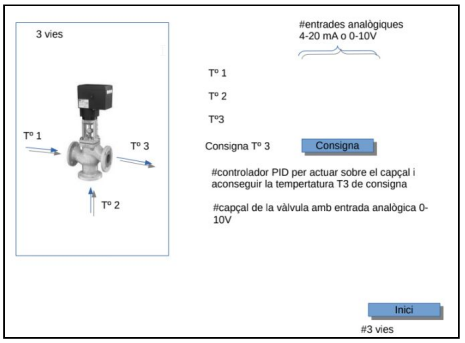
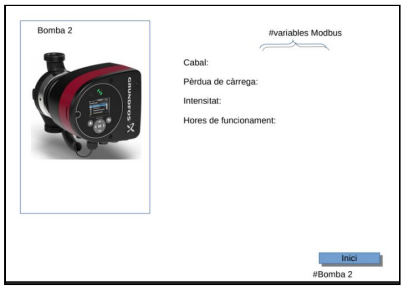
PRACTICA -

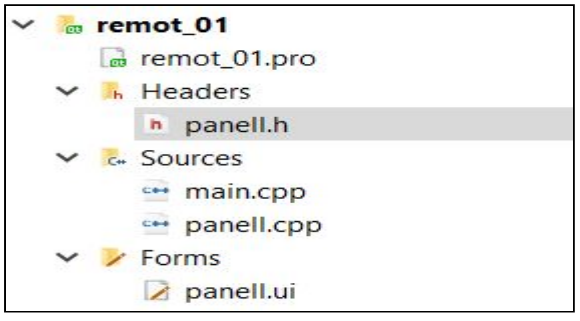






- Obrirem un projecte QT anomenat : “remot_01” (en basarem en un que ja està fet per poder-lo analitzar com funciona)

https://binefa.cat/dam/M7UF1_M9UF2_M9UF3_M15UF1/20200128_m07uf1_m09_uf3/



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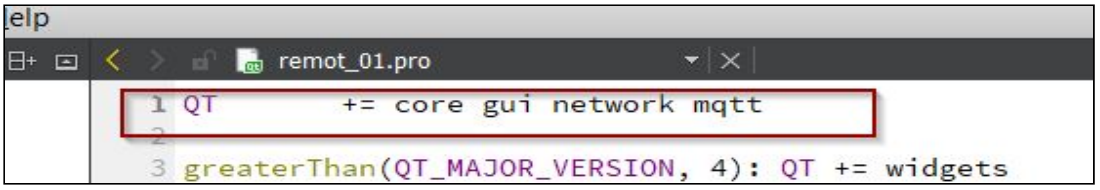
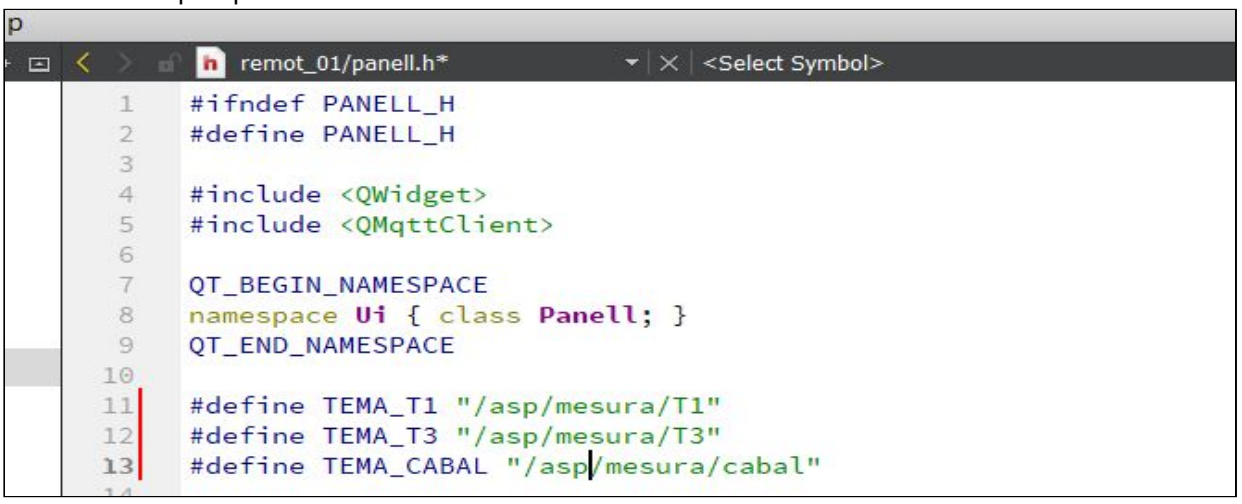
- Arxiu : remot_01.pro

  s'ha d'afegir si volem utilitzar el protocol mqtt



- Headers
  - arxiu: panell.h

Definim els temes subscrits (utilizant Mqtt). Com que ens estem basant en un codi, ens interessa modificar els topics per evitar errors.



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- Sources
  - arxiu: main.cpp (l'executable)
  - arxiu: panell.cpp

```
{
    ui->setupUi(this);

    m_client = new QMqttClient(this);
    m_client->setHostname(ui->lineEditUrlBroker->text());
    m_client->setPort(ui->lineEditBrokerPort->text().toInt());    ⚠ implicit conversion loses integer precision: 'int' to 'qu

    connect(m_client, &QMqttClient::stateChanged, this, &Panell::updateLogStateChange);
    connect(m_client, &QMqttClient::disconnected, this, &Panell::brokerDisconnected);
    connect(m_client, &QMqttClient::messageReceived, this, [this](const QByteArray &message, const QMqttTopicName &topic) {
        const QString content = QDateTime::currentDateTime().toString()
                    + QLatin1String(" Received Topic: ")
                    + topic.name()
                    + QLatin1String(" Message: ")
                    + message
                    + QLatin1Char('\n');
        vGestionaResposta(topic.name(),message);
        ui->plainTextEdit->insertPlainText(content);
    });
    vEnableTopLayout(false);
}
```

```
void Panell::brokerDisconnected()
{
    ui->lineEditUrlBroker->setEnabled(true);
    ui->lineEditBrokerPort->setEnabled(true);
    ui->btConnect->setText(tr("&Connect"));
}

void Panell::subscription(QString topic)
{
    auto subscription = m_client->subscribe(topic);
    if (!subscription) {
        QMessageBox::critical(this, QLatin1String("Error"), QLatin1String("Could not subscribe. Is there a valid connection?"));
        return;
    }else
        qDebug() << "Subscrit a " << topic;
}

void Panell::vGestionaResposta(QString tema,QString missatge){
    if(tema == TEMA_T1){
        ui->progressBarT1->setValue(missatge.toInt());
    }
    if(tema == TEMA_CABAL){
        ui->etCabal->setText(missatge);
    }
}
```

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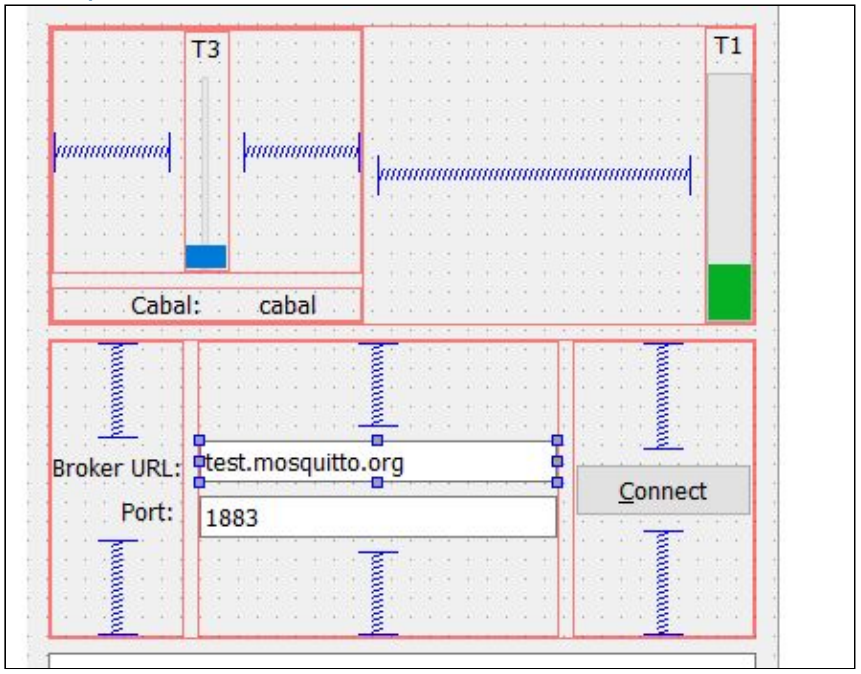
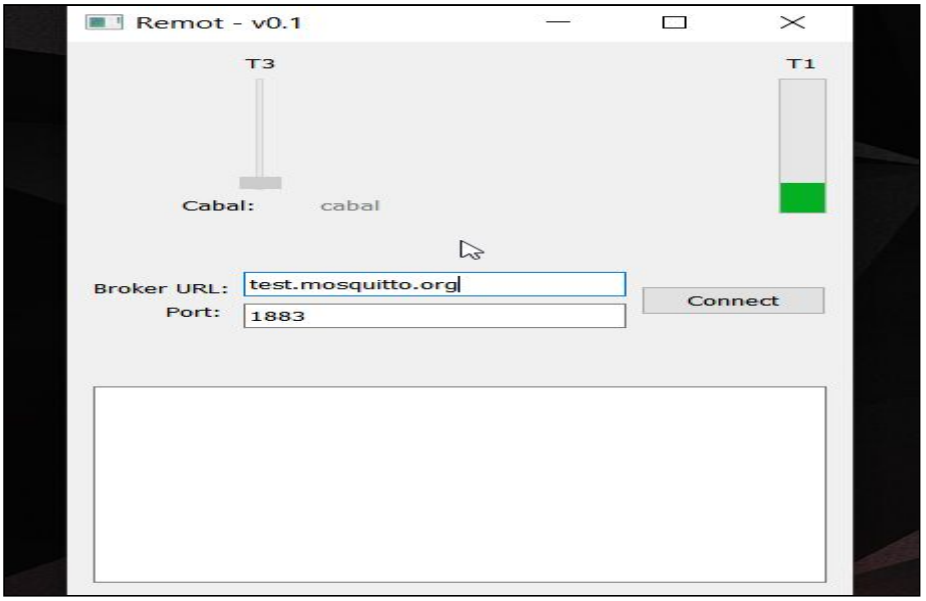
- Forms
  - arxiu: panell.ui



- Executem el programa



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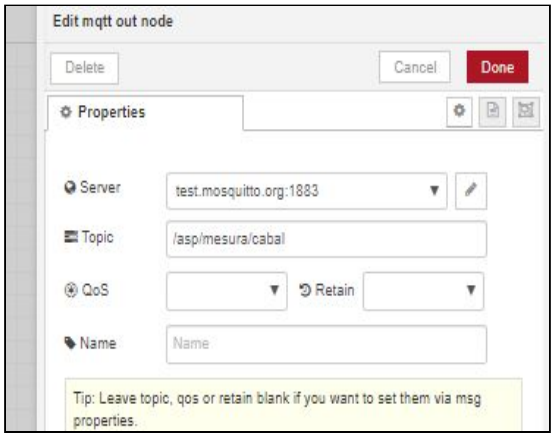
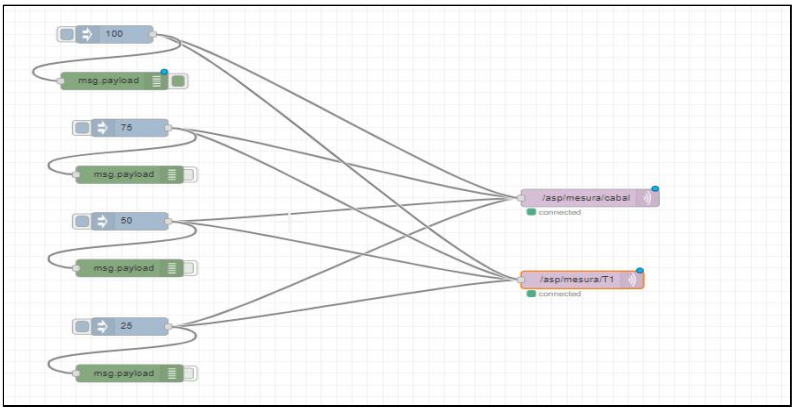
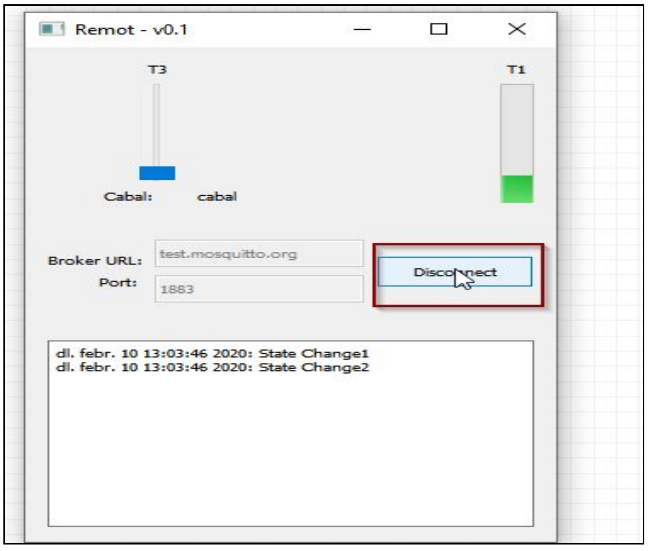
- Vinculació de les QT amb Node-Red mitjançant MQTT

- En el Node-Red crearem un fluxe senzill tenin en compte els topics que hem creat en el programa QT i utilitzarem el mateix servidor Mqtt per defecte (test.mosquitto.org:1883)
  - En QT utilizem els topics com a subscritor
  - En Node utilitzarem els mateixos topics però com a publicadors. Afegirem 4 nodes "inject" de tipus number i si funciona s'haura de veure reflexat en el programa QT





- Desde QT :Ens conectem al servidor MQTT : test.mosquitto.org:1883



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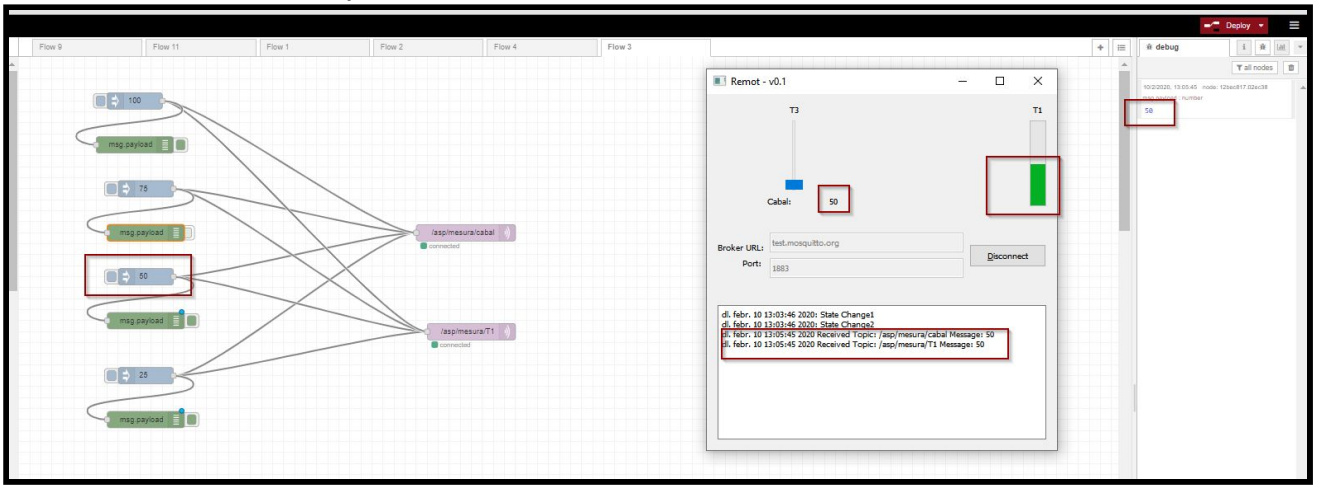
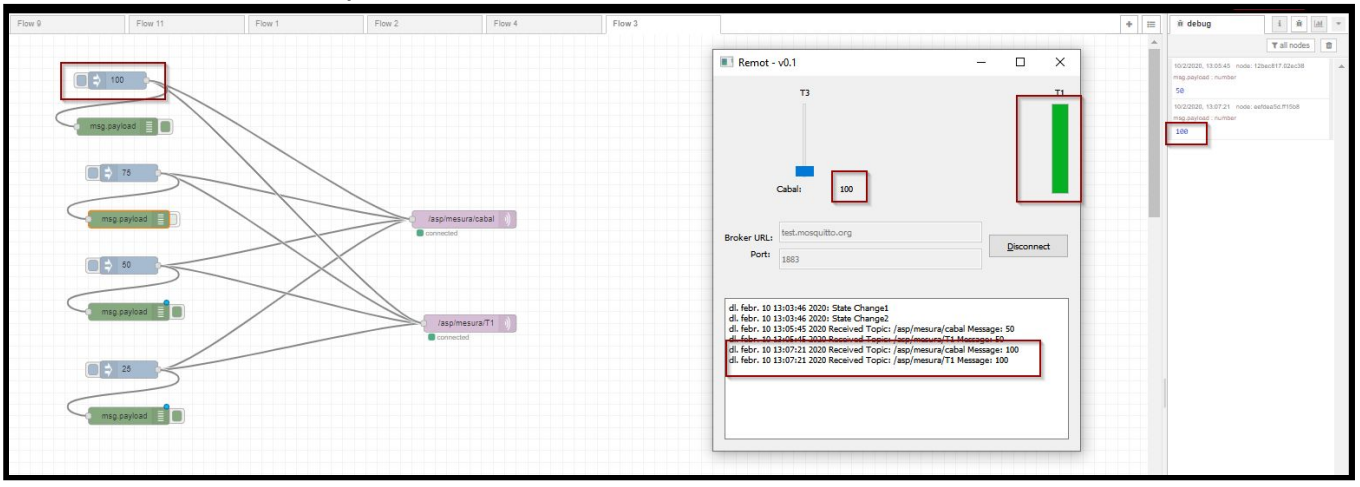
- Desde Node-Red :Publiquem el valor de 50



- Desde Node-Red :Publiquem el valor de 100



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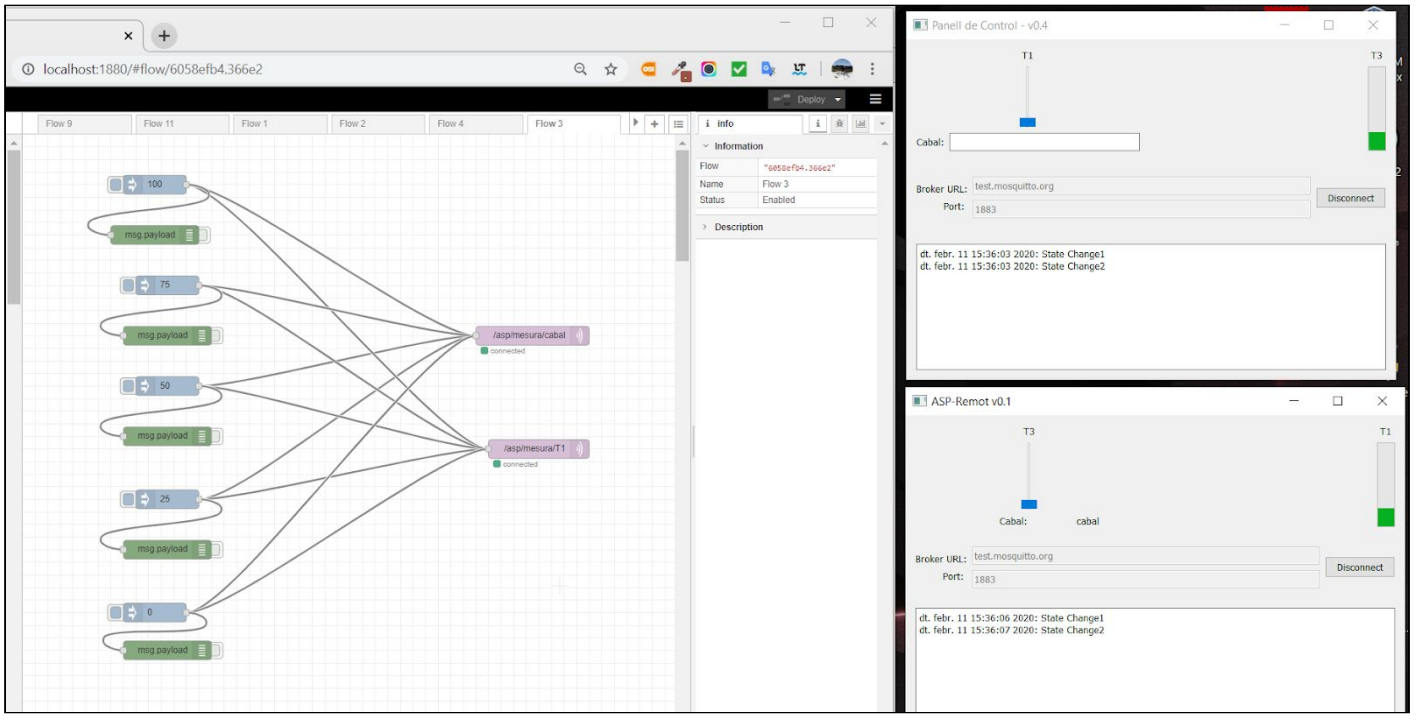
Ampliació- FONT consultada:

- https://binefa.cat/dam/M7UF1_M9UF2_M9UF3_M15UF1/20200204_m07uf1_m09_uf3/
- Ens descarguem els 2 programes QT
  - remot_01
  - panell_04
    (per poder analitzar el seu funcionament abans de fer modificacions)

Primer de tot accedir al fluxe de Node-Red que prèviament havíem fet proves.

- Les 2 aplicacions es connecten al mateix broker Mqtt : test.mosquitto.org
  - Back-end : Panel de Control
  - Front-end : ASP-Remot1



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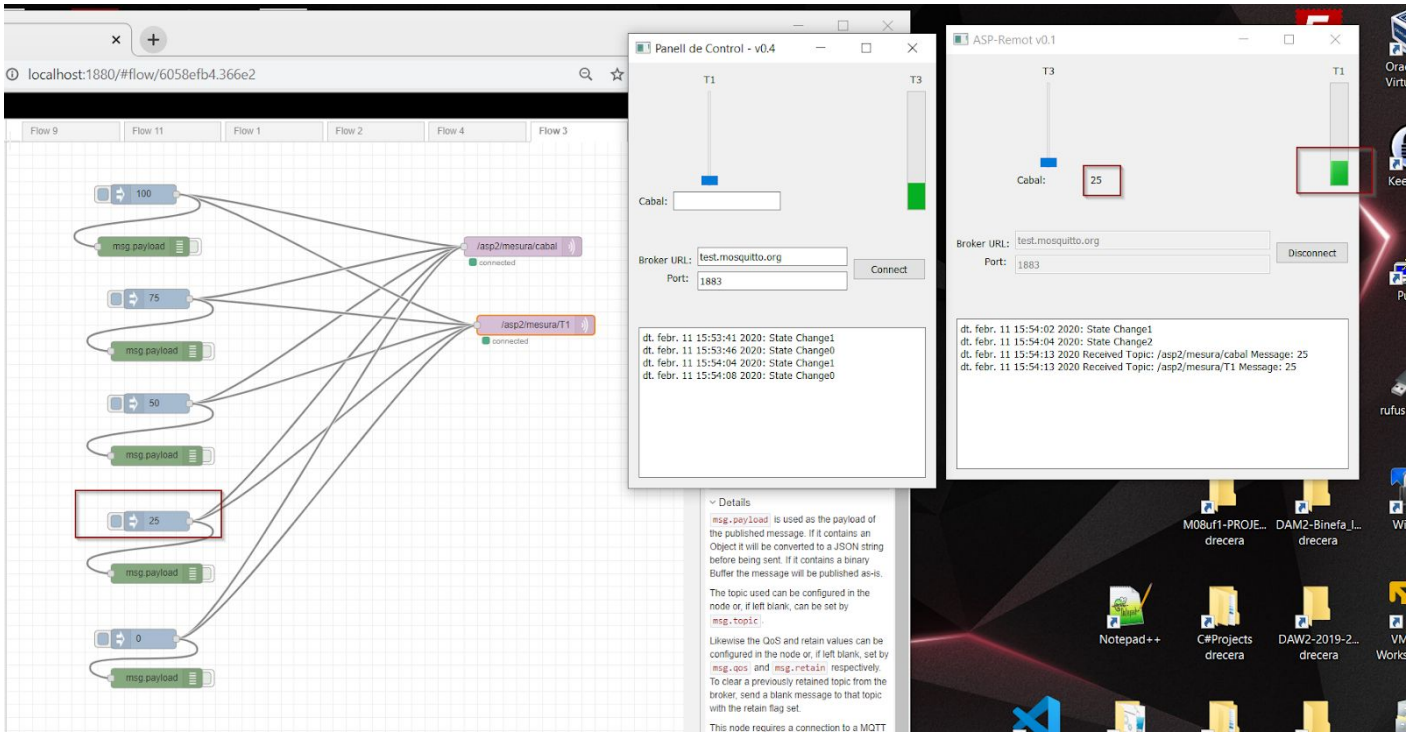

Per acabar ……