Neeraj Appan I073

ate
10/21

SDS Page No.
Date

IOT Practical 08

Aim - Trigger a set of led GPIOS on the pi via a Node Red

Steps:

1) Open Node-Red from application
2). Open browser and type localhost:1880
3) Drag and drop nodes - inject, rpi-gpio: raspberry icon on the right and debug
4) Double-Click on the node and a box will appear to let you configure the node
5) Change the GPIO pin to be GPIO22
6) Give the node a name - ie called it RED LED
7) Click Done
8) Click on the Deploy button once it is deployed successfully
9) Click on the inject button

Date
21/10/21

Neeraj Appan IOT3

IOT Practical -09

Aim: Setup a Mosquitto MQTT server and client and write a Python script to communicate data between Pi's

Steps

1) Install MQTT
2) Open terminal
3) Sudo apt-get install -y mosquitto mosquitto-clients
4) Mosquito_sub -h localhost -v -t test_Channel
5) Open second terminal
6) Mosquito_pub -h localhost -t test_Channel -m "Hello Raspberry Pi"
7) Sudo pip install paho-mqtt
8) Sudo nano-mqtt_subscriber.py pub.py

```
import paho.mqtt publish as publish
MQTT_SERVER = "192.168.0.112"
MQTT_PATH = "test_channel"
Publish.single (MQTT_PATH, "Welcome to TYCS Practical
hostname = MQTT_SERVER)
Sub.py
import paho.mqtt.client as mqtt
MQTT_SERVER = "192.168.0.112" MQTT_PATH = "test_
channel"
def on_connect (client, userdata, flags, rc):
print( "Connected with result code" + str (rc)) client.subscr
(MQTT_PATH)
def on_message (client, userdata, msg):
print (msg. topic +" " + str (msg.payload))
```

Client = mqtt.Client
Client on _connect = on_ Connect client. on_message -
: on_ message = on_message Client.connect (MQTT SERVER,
1883, 60) Client .loop_forever ()

Date
21/10/21

Neeraj Appani T073

IOT Practical - 10

Aim. Setup a physical button switch and trigger an led in node red and python w dibounced

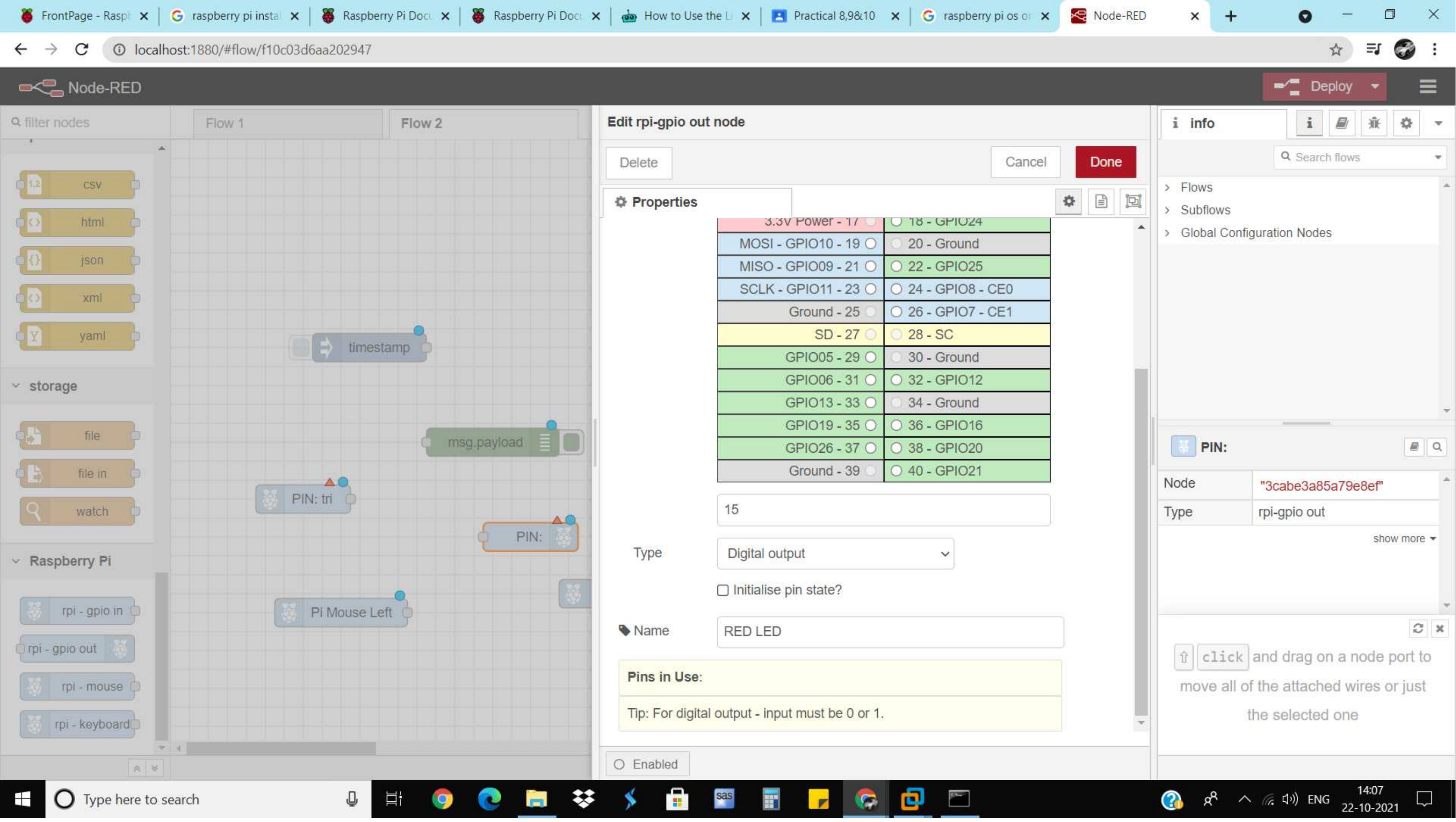
Steps

1) Open an idle
2) Type the code

Code

```
import RPi.GPIO as GPIO import time
GPIO.setmode(GPIO.BCM)
GPIO.setup(19, GPIO.IN) GPIO.setup(16, GPIO.IN
GPIO setup (20, GPIO.OUT) GPIO.setup(21, GPIO.OUT)
while True:
reading = GPIO.input (19) if reading = = 0
print "FIRST BUTTON Pressed"
GPIO.output (20, I) time.sleep (0.2) GPIO.output (21
time.sleep (0.2), reading 1 = GPIO.input (16), if reading=
print ("Second BUTTON Pressed"
GPIO.output (20,0) time.sleep(0.2)
GPIO.output (21, 0) time.sleep(0.2)
#GPIO.output (20,0)
#time.Sleep (0.2)
#GPIO.. output (21,0)
# time.sleep(0.2)
```

3) Open the terminal
4) Type : Sudo python pythonfile.py



Edit rpi-gpio out node

3.3V Power - 17 ○	○ 18 - GPIO24
MOSI - GPIO10 - 19 ○	○ 20 - Ground
MISO - GPIO09 - 21 ○	○ 22 - GPIO25
SCLK - GPIO11 - 23 ○	○ 24 - GPIO8 - CE0
Ground - 25 ○	○ 26 - GPIO7 - CE1
SD - 27 ○	○ 28 - SC
GPIO05 - 29 ○	○ 30 - Ground
GPIO06 - 31 ○	○ 32 - GPIO12
GPIO13 - 33 ○	○ 34 - Ground
GPIO19 - 35 ○	○ 36 - GPIO16
GPIO26 - 37 ○	○ 38 - GPIO20
Ground - 39 ○	○ 40 - GPIO21

15

Type: Digital output

□ Initialise pin state?

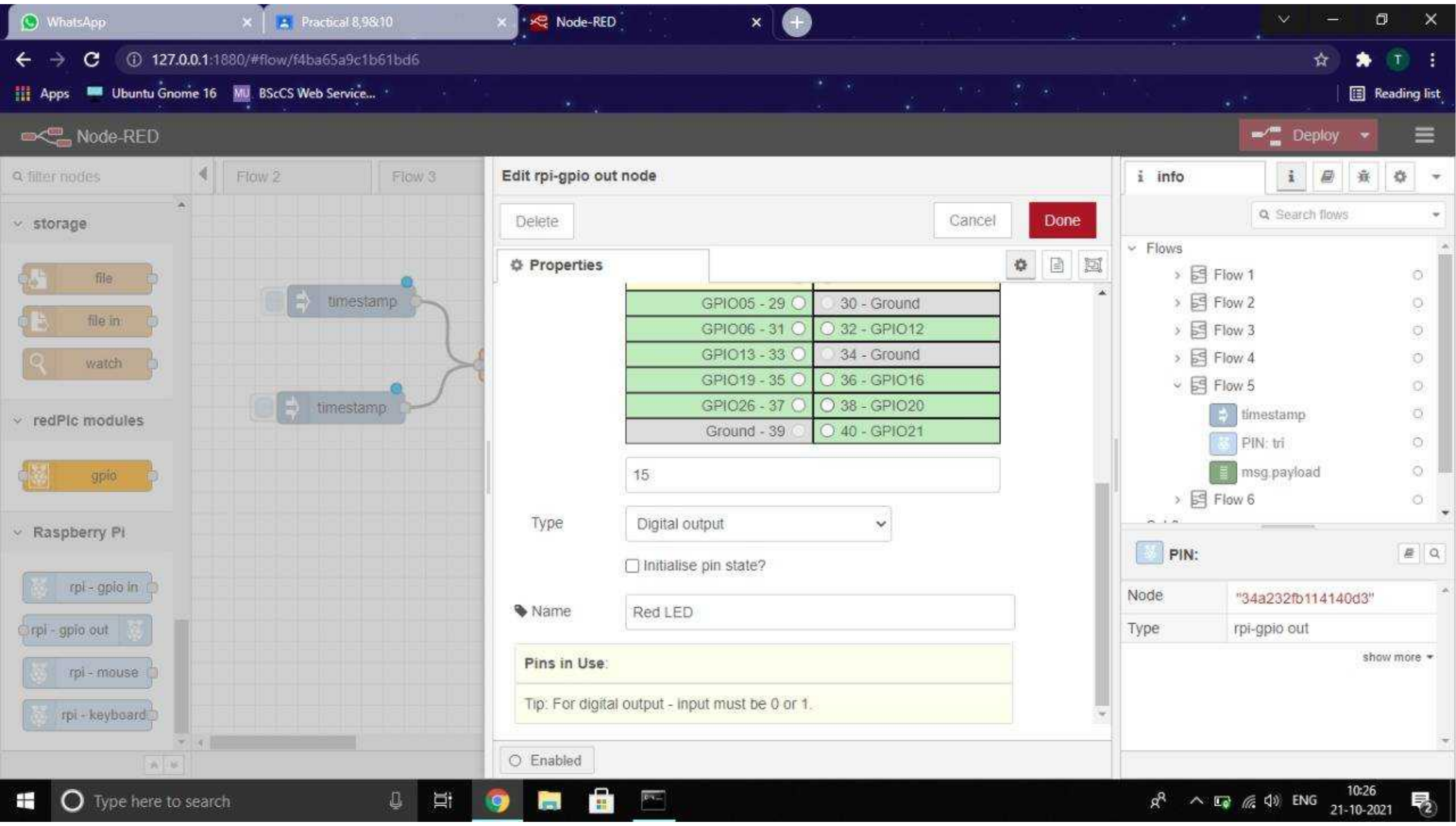
Name: RED LED

Pins in Use:

Tip: For digital output - input must be 0 or 1.

Node	"3cabe3a85a79e8ef"
Type	rpi-gpio out

⇧ click and drag on a node port to move all of the attached wires or just the selected one



Edit rpi-gpio out node

Delete Cancel Done

Properties

GPIO05 - 29 ○	30 - Ground
GPIO06 - 31 ○	○ 32 - GPIO12
GPIO13 - 33 ○	34 - Ground
GPIO19 - 35 ○	○ 36 - GPIO16
GPIO26 - 37 ○	○ 38 - GPIO20
Ground - 39	○ 40 - GPIO21

15

Type: Digital output

□ Initialise pin state?

Name: Red LED

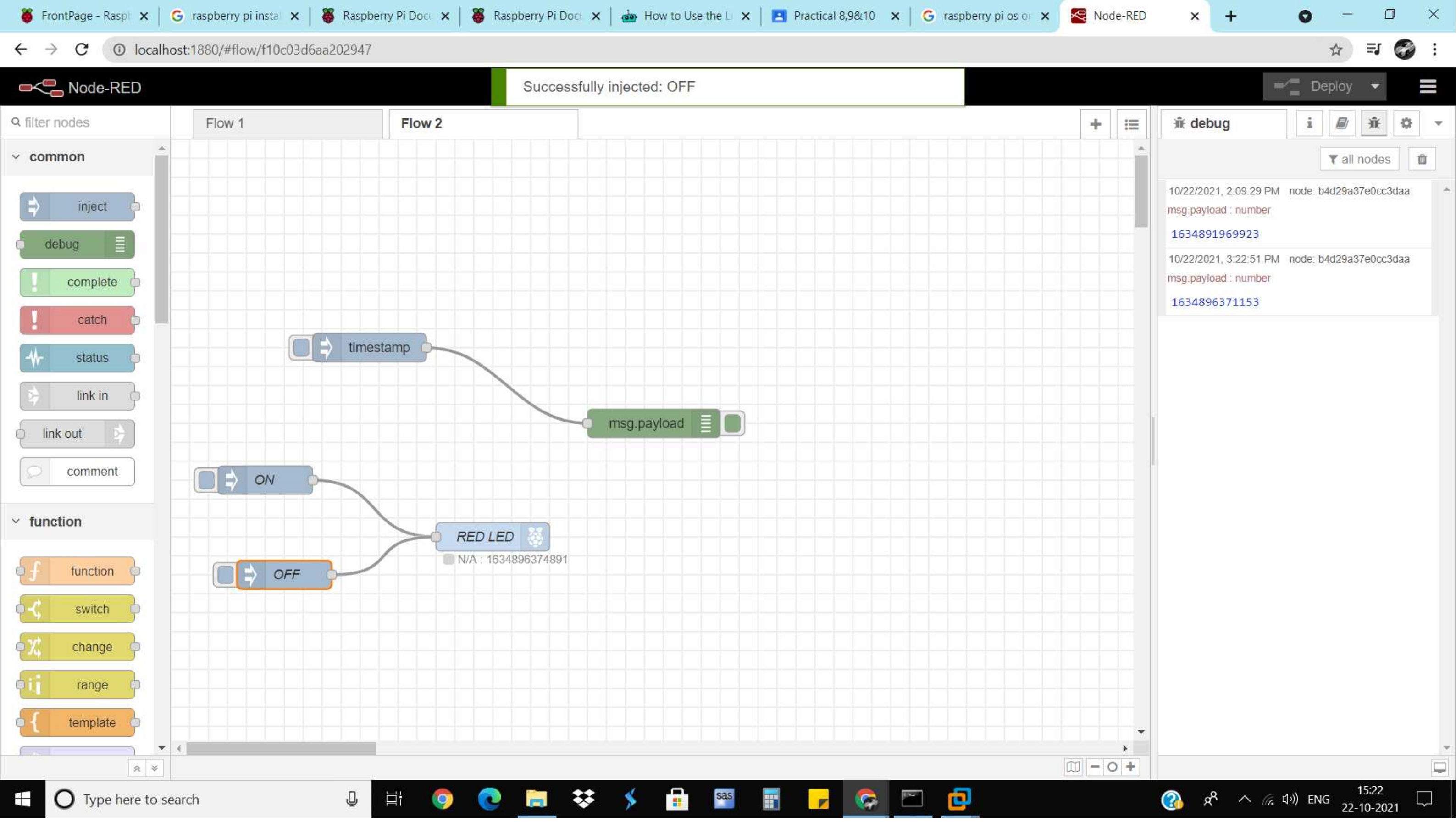
Pins in Use:

Tip: For digital output - input must be 0 or 1.

○ Enabled

PIN:

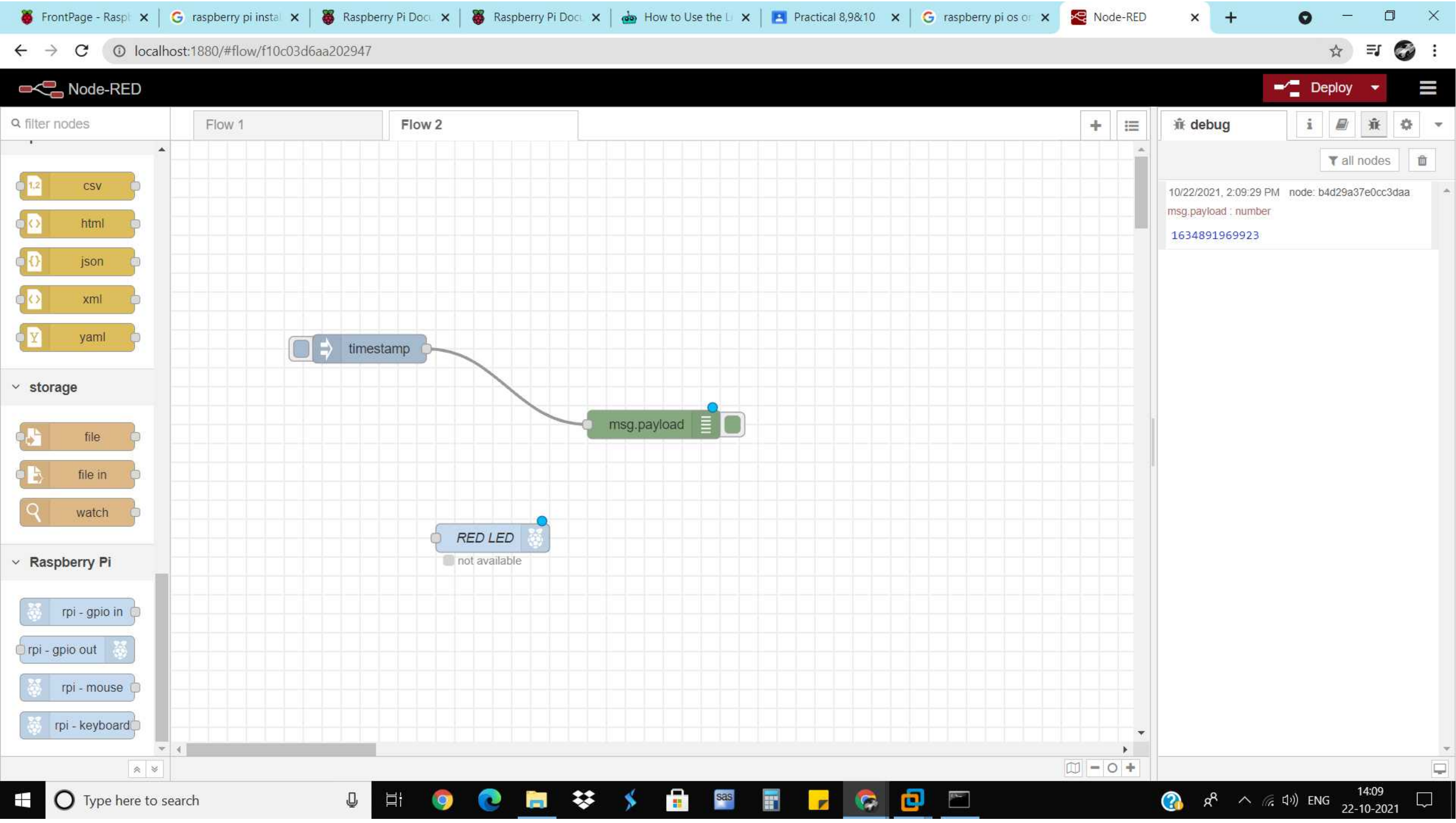
Node	"34a232fb114140d3"
Type	rpi-gpio out



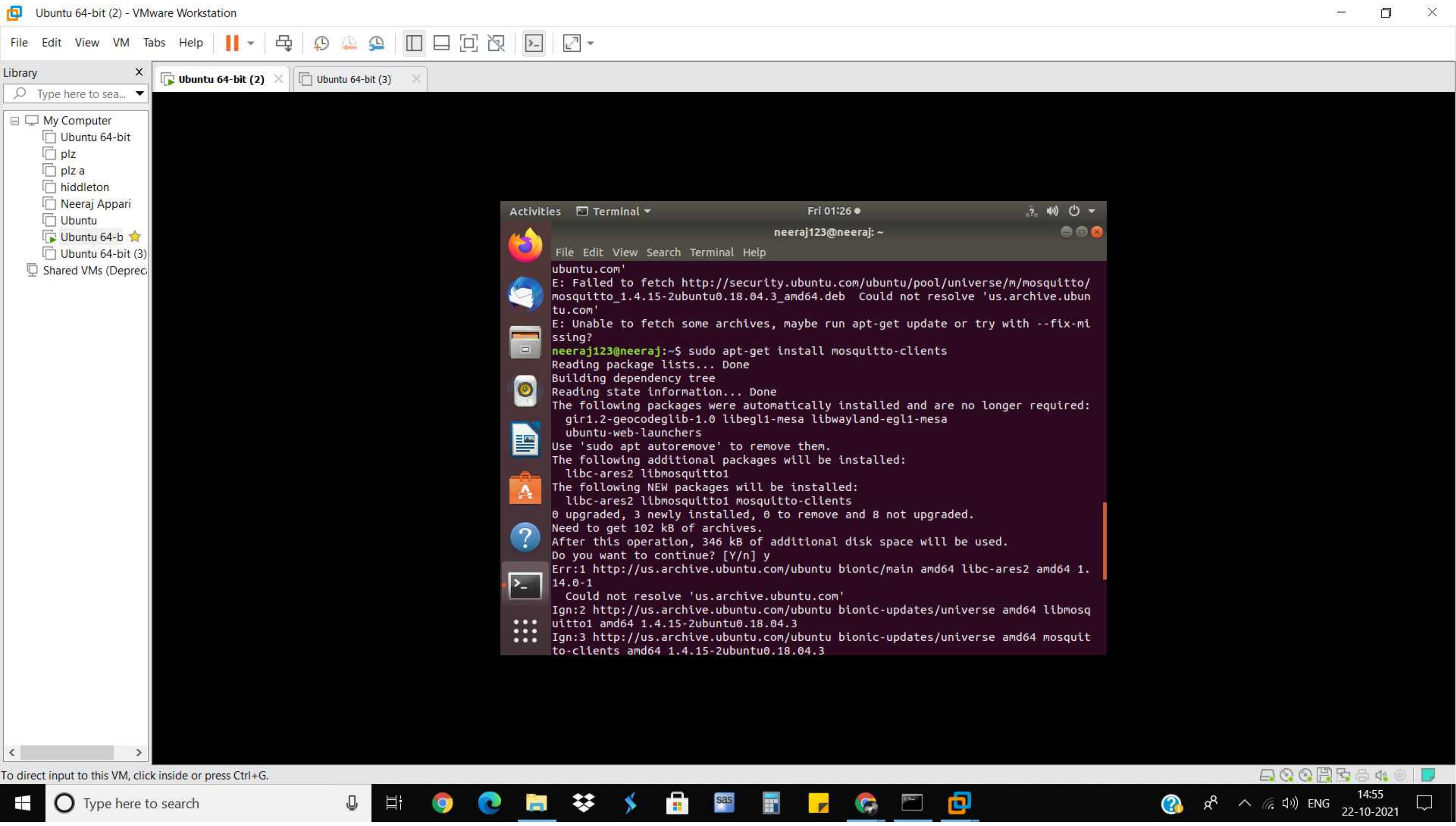
Successfully injected: OFF

N/A : 1634896374891

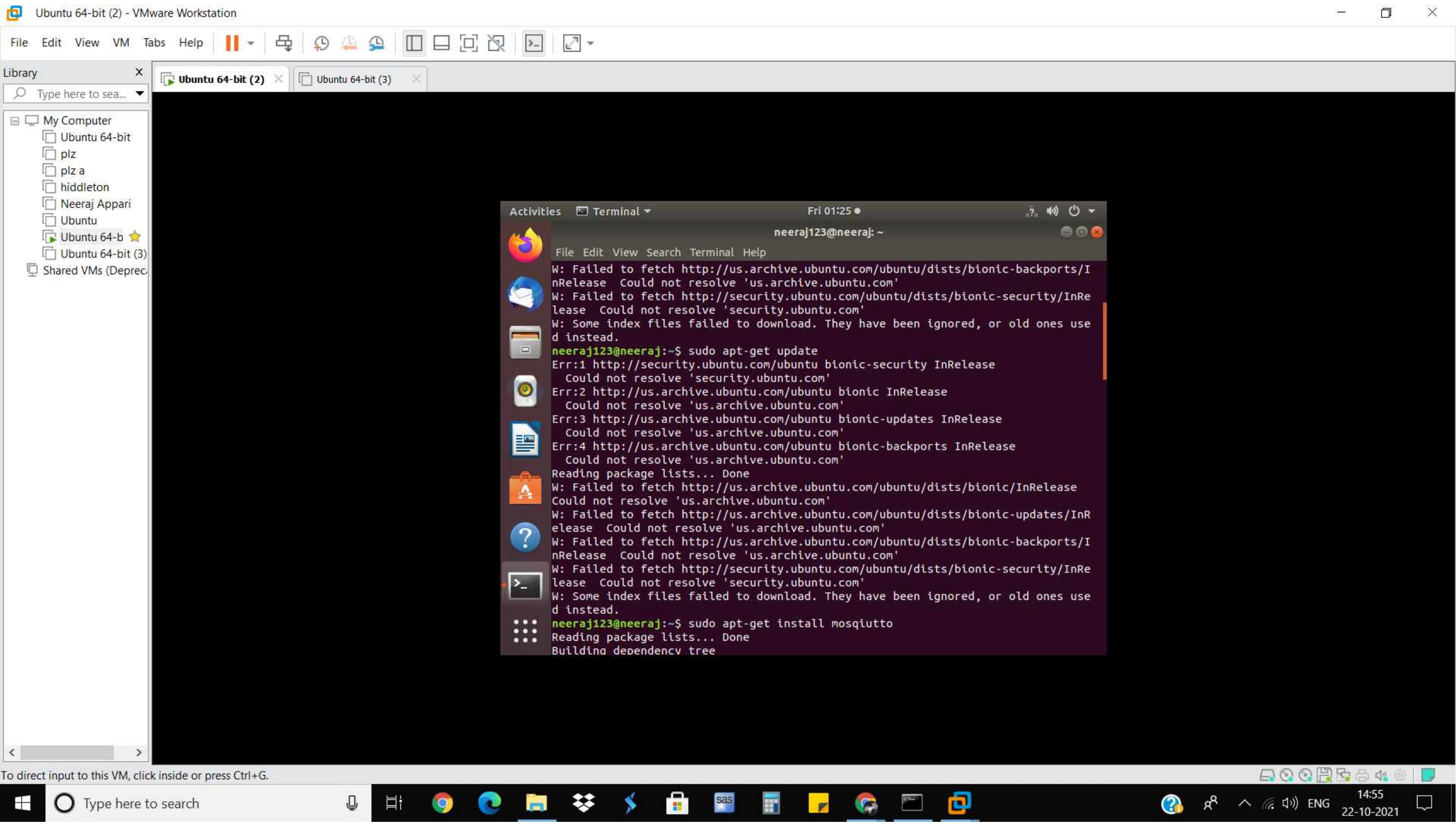
```
10/22/2021, 2:09:29 PM   node: b4d29a37e0cc3daa
msg.payload : number
1634891969923
10/22/2021, 3:22:51 PM   node: b4d29a37e0cc3daa
msg.payload : number
1634896371153
```



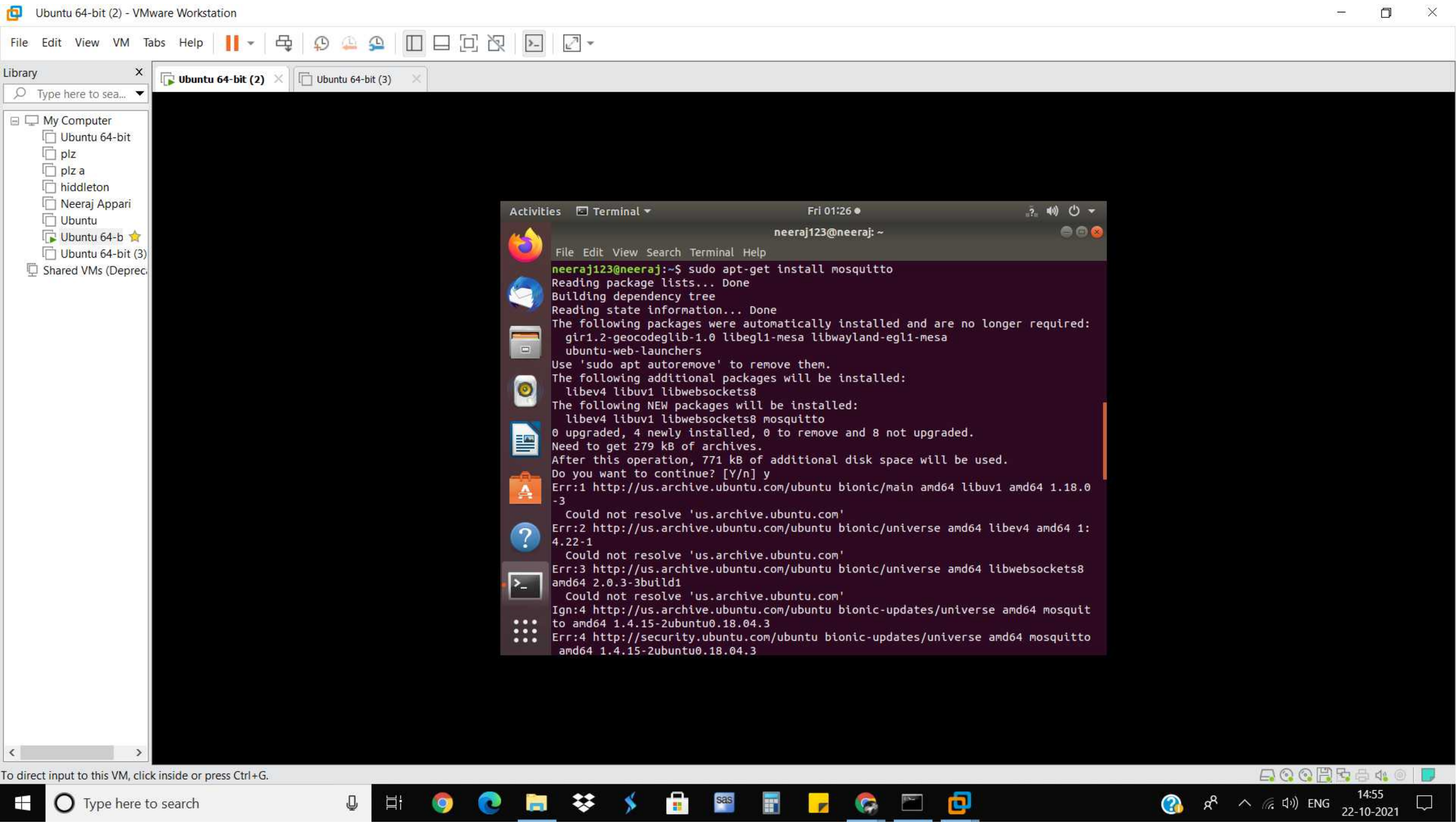
```
10/22/2021, 2:09:29 PM   node: b4d29a37e0cc3daa
msg.payload : number
1634891969923
```



```
ubuntu.com'
E: Failed to fetch http://security.ubuntu.com/ubuntu/pool/universe/m/mosquitto/
mosquitto_1.4.15-2ubuntu0.18.04.3_amd64.deb  Could not resolve 'us.archive.ubun
tu.com'
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-mi
ssing?
neeraj123@neeraj:~$ sudo apt-get install mosquitto-clients
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-geocodeglib-1.0 libegl1-mesa libwayland-egl1-mesa
  ubuntu-web-launchers
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libc-ares2 libmosquitto1
The following NEW packages will be installed:
  libc-ares2 libmosquitto1 mosquitto-clients
0 upgraded, 3 newly installed, 0 to remove and 8 not upgraded.
Need to get 102 kB of archives.
After this operation, 346 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Err:1 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libc-ares2 amd64 1.
14.0-1
  Could not resolve 'us.archive.ubuntu.com'
Ign:2 http://us.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 libmosq
uitto1 amd64 1.4.15-2ubuntu0.18.04.3
Ign:3 http://us.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 mosquit
to-clients amd64 1.4.15-2ubuntu0.18.04.3
```



```
W: Failed to fetch http://us.archive.ubuntu.com/ubuntu/dists/bionic-backports/I
nRelease  Could not resolve 'us.archive.ubuntu.com'
W: Failed to fetch http://security.ubuntu.com/ubuntu/dists/bionic-security/InRe
lease  Could not resolve 'security.ubuntu.com'
W: Some index files failed to download. They have been ignored, or old ones use
d instead.
neeraj123@neeraj:~$ sudo apt-get update
Err:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
  Could not resolve 'security.ubuntu.com'
Err:2 http://us.archive.ubuntu.com/ubuntu bionic InRelease
  Could not resolve 'us.archive.ubuntu.com'
Err:3 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease
  Could not resolve 'us.archive.ubuntu.com'
Err:4 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
  Could not resolve 'us.archive.ubuntu.com'
Reading package lists... Done
W: Failed to fetch http://us.archive.ubuntu.com/ubuntu/dists/bionic/InRelease
Could not resolve 'us.archive.ubuntu.com'
W: Failed to fetch http://us.archive.ubuntu.com/ubuntu/dists/bionic-updates/InR
elease  Could not resolve 'us.archive.ubuntu.com'
W: Failed to fetch http://us.archive.ubuntu.com/ubuntu/dists/bionic-backports/I
nRelease  Could not resolve 'us.archive.ubuntu.com'
W: Failed to fetch http://security.ubuntu.com/ubuntu/dists/bionic-security/InRe
lease  Could not resolve 'security.ubuntu.com'
W: Some index files failed to download. They have been ignored, or old ones use
d instead.
neeraj123@neeraj:~$ sudo apt-get install mosqiutto
Reading package lists... Done
Building dependency tree
```



```
neeraj123@neeraj:~$ sudo apt-get install mosquitto
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-geocodeglib-1.0 libegl1-mesa libwayland-egl1-mesa
  ubuntu-web-launchers
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libev4 libuv1 libwebsockets8
The following NEW packages will be installed:
  libev4 libuv1 libwebsockets8 mosquitto
0 upgraded, 4 newly installed, 0 to remove and 8 not upgraded.
Need to get 279 kB of archives.
After this operation, 771 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Err:1 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libuv1 amd64 1.18.0
-3
  Could not resolve 'us.archive.ubuntu.com'
Err:2 http://us.archive.ubuntu.com/ubuntu bionic/universe amd64 libev4 amd64 1:
4.22-1
  Could not resolve 'us.archive.ubuntu.com'
Err:3 http://us.archive.ubuntu.com/ubuntu bionic/universe amd64 libwebsockets8
amd64 2.0.3-3build1
  Could not resolve 'us.archive.ubuntu.com'
Ign:4 http://us.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 mosquit
to amd64 1.4.15-2ubuntu0.18.04.3
Err:4 http://security.ubuntu.com/ubuntu bionic-updates/universe amd64 mosquitto
 amd64 1.4.15-2ubuntu0.18.04.3
```