



arnes 

MQTT broker na RaspberryPi

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Predstavitev

Že 18 let hobi avtonomni mobilni roboti

Organizator informacijskih dejavnosti na OŠ



Nov izziv -> povezovanje med roboti (t. i. roji)



Internet stvari (IoT)

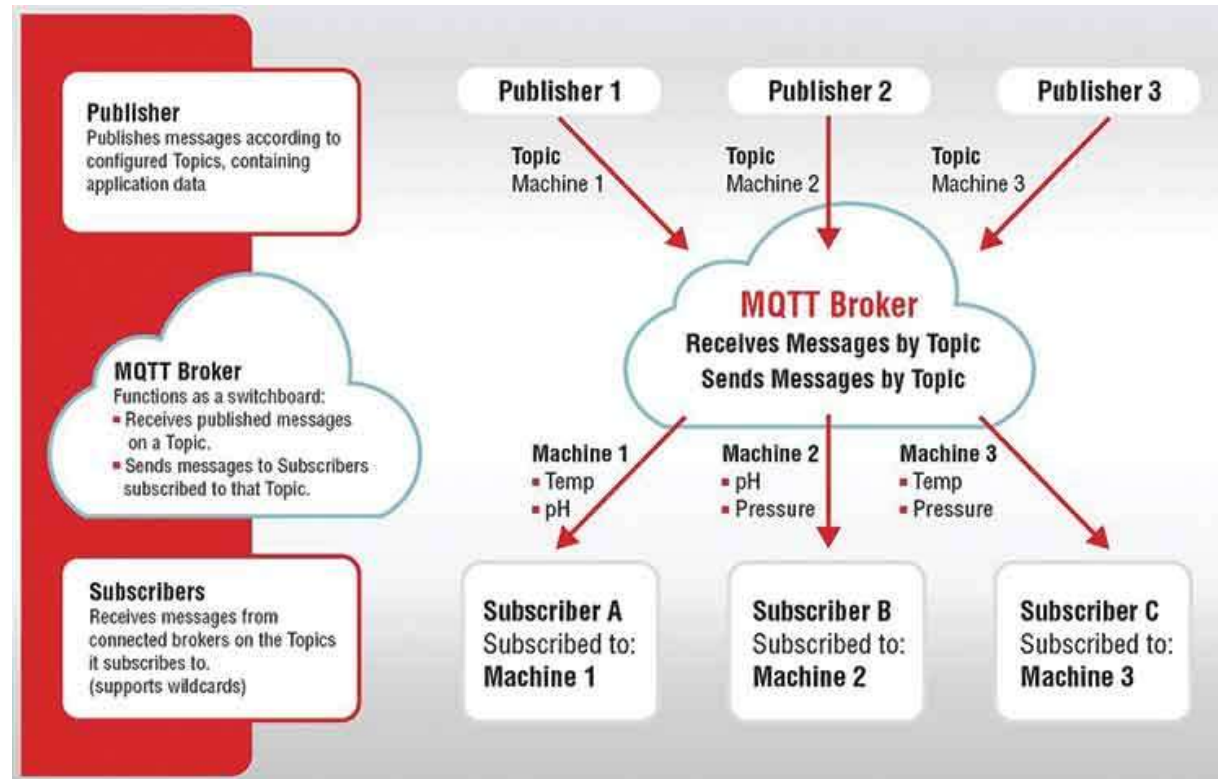
Internet stvari ali na kratko IoT

- Komunikacija **med napravami** (m2m)
- **Zbiranje podatkov** za podporo človeku (mreže tipal)
- Podpora umetni inteligenci s **podatki v realnem času**
- Komunikacija med prevoznimi sredstvi (avto – avto)
- **Pametni domovi**



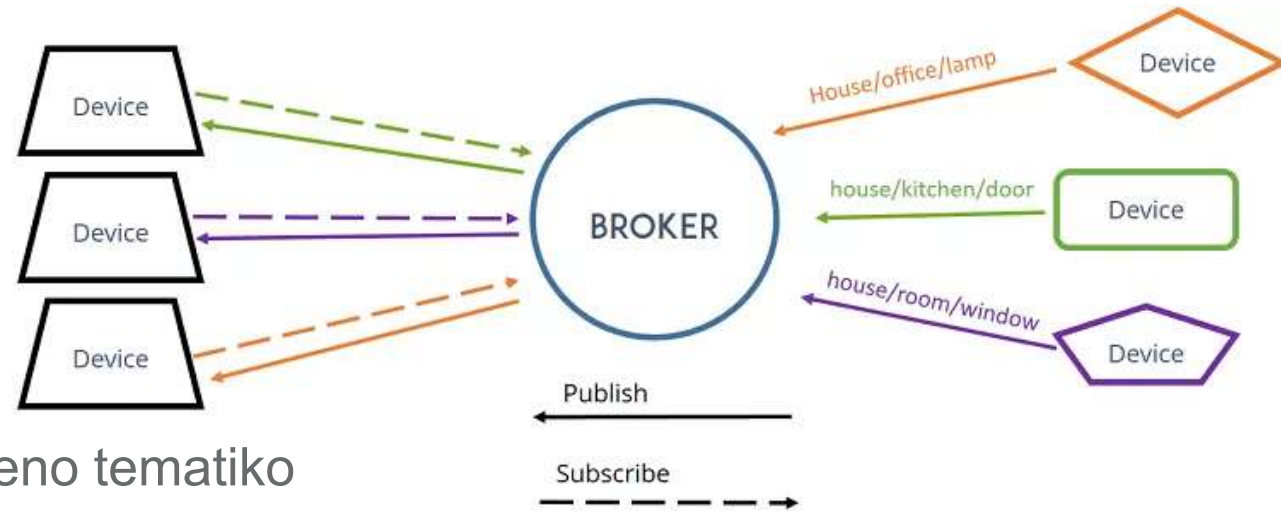
MQTT - vodilni komunikacijski protokol za Industrijo 4.0

- ultra **lahek**
- odprtokodni publish/subscribe komunikacijski model
- zelo **enostaven**
- uporaben pri aplikacijah, kjer je pomemben **nizek odtis kode** in majhna **poraba pasovne širine**



Broker – „posrednik“

- Omogoča naročanje na teme
- Hrani pretekle podatke o objavah na določeno tematiko
- Deluje kot forum
- **Primeri brokerjev:** Mosquitto, HiveMQ, Mosca...
- Možna lokalna namestitev ali kot spletne verzije (**varnost podatkov!!**)
- Mosquitto na testu zmogel 100K naprav na 100K temah hkrati
- Tako **nezahteven**, da ga je mogoče namestiti na **Raspberry Pi**



Namestitev Mosquitto brokerja na Raspberry Pi



- Uporaba **apt-get** metode:

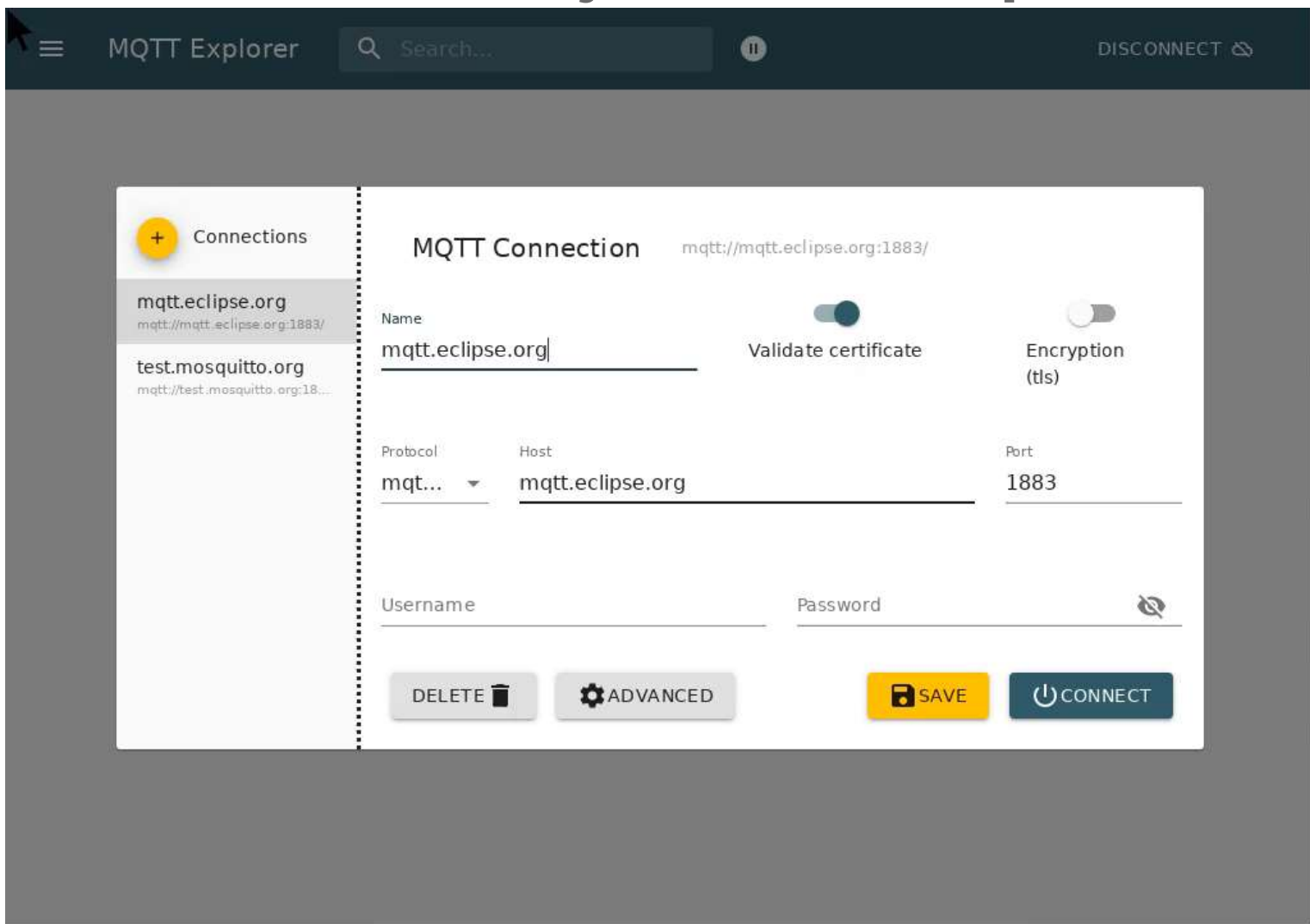
```
pi@raspberrypi:~$ sudo apt update
pi@raspberrypi:~$ sudo apt install -y mosquitto mosquitto-clients
```









```
pi@raspberrypi:~$ sudo systemctl enable mosquitto.service
```

```
pi@raspberrypi:~$ mosquitto -v
```

- Po namestitvi je strežnik odprt, potrebno nastaviti v `/etc/mosquitto/mosquitto.conf` → **VARNOST!!**

Test delovanja z MQTT explorer



Platform		Downloads
	Windows	 Get it from Microsoft portable, installer
	Mac	 Download on the Mac App Store dmg
	Ubuntu <i>debian, mint, neon, fedora, etc...</i>	 Get it from the Snap Store snap install mqtt-explorer Ubuntu Store
	Linux <i>almost every linux</i>	 Applmage Run Applmage: Make it executable and double-click it.

[More Downloads](#)

Test delovanja z ESP8266 in ESP32 moduli

The image shows a screenshot of a computer screen with two windows. The left window is a COMS terminal window showing the serial output of an ESP8266 module. The right window is the MQTT Explorer application, which is connected to the module and displays the MQTT topics and messages.

COMS Terminal Output:

```
g1-v1a15P1DOGA01checking wifi.....  
  
[Avtomatsko ponovitev] Show timestamps  
Obrzje: 14 in OK 1660 baud Clear output  
AdahurHuzanESP8266 | Arduino 1.8.10  
Datoteka Uredi Skica Orodja Pomoc  
AdahurHuzanESP8266  
client.publish("/status", "world")  
}  
}  
  
void messageReceived(String topic, String payload, char * bytes, unsigned int length) {  
  if(payload=="pink")  
  {  
    for (int i = 0; i <= 1; i++) {  
      digitalWrite(1, HIGH); // turn the LED on (HIGH is the voltage level)  
      delay(100); // wait for a second  
      digitalWrite(2, LOW); // turn the LED off by making the voltage LOW  
      delay(100); // wait for a second  
    }  
    Serial.print("incoming: ");  
    Serial.print(topic);  
    Serial.print(" = ");  
    Serial.print(payload);  
  }  
}
```

MQTT Explorer Interface:

- Application: Edit View
- MQTT Explorer
- 192.168.1.100
- SSYS (52 topics, 651 messages)
- hello = world
- status = pink
- Topic: status
- Value: pink
- History: status, pink, status, position
- Publish: Topic: status, raw, xml, json, PUBLISH
- QoS: 0, retain

Hvala!
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