

PONTÍFICA UNIVERSIDADE CATÓLICA DE MINAS GERAIS

Ensino Superior

Engenharia de Computação

LÂMPADA DE LAVA

Trabalho de IOT 3

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- **OBJETIVO DO TRABALHO:**

Explorar os conhecimentos adquiridos na teoria sobre o protocolo MQTT.

- **FERRAMENTAS UTILIZADAS:**

- Broker MQTT test.mosquitto.org: Viabiliza a conexão com diversos brokers Mqtt de forma simultânea, possibilita a publicação e inscrição em tópicos.
- Cliente MQTTBox: O Eclipse Mosquitto funciona como um intermediário entre mensagens de código aberto, sendo uma instância pública, ele implementa todas as versões do Protocolo MQTT, é leve e adequado ao uso em todos os dispositivos, indo de computadores de baixa potência à servidores complexos, basta que sua URL seja inserida no host do programa.

- **ESTRUTURA HIERÁRQUICA DOS TÓPICOS:**

Estrutura hierárquica



- PRINTS DO MQTTBox

→ Área 1

Tópico: area/1/sensor/1/temperatura

Menu

Connected

Add publisher

Add subscriber

Mosquitto Test - mqtt://test.mosquitto.org

Topic to publish

area/1/sensor/1/temperatura

QoS

0 - Almost Once

Retain

Payload Type

Strings / JSON / XML / Characters

e.g. ("hello" "world")

Payload

40

Publish

40
topic:area/1/sensor/1/temperatura, qos:0, retain:false

area/1/sensor/1/temperatura

40

qos : 0, retain : false, cmd : publish, dup : false, topic : area/1/sensor/1/temperatura, messageid : , length : 31, Raw payload : 5248

Tópico: area/1/sensor/2/gasestoxicos

Menu

Connected

Add publisher

Add subscriber

Mosquitto Test - mqtt://test.mosquitto.org

Topic to publish

area/1/sensor/2/gasestoxicos

QoS

0 - Almost Once

Retain

Payload Type

Strings / JSON / XML / Characters

e.g. ("hello" "world")

Payload

70

Publish

70
topic:area/1/sensor/2/gasestoxicos, qos:0, retain:false

area/1/sensor/2/gasestoxicos

70

qos : 0, retain : false, cmd : publish, dup : false, topic : area/1/sensor/2/gasestoxicos, messageid : , length : 32, Raw payload : 5548

Tópico: area/1/atuador_rele

Topic to publish

area/1/atuador_rele

OoS

0 - Almost Once

Retain

Payload Type

Strings / JSON / XML / Characters

e.g. {"hello":"world"}

Payload

Liga Rele e Desliga Rele

Publish

Liga Rele e Desliga Rele
topic:area/1/atuador_rele,qos:0,retain:false

area/1/atuador_rele

Liga Rele e Desliga Rele

qos : 0, retain : false, cmd : publish, dup : false, topic : area/1/atuador_rele, messageId : , length : 45, Raw payload : 76105103973282101108101321013268101115108105103973282101108101

Tópico: area/1/alerta

Topic to publish

area/1/alerta

OoS

0 - Almost Once

Retain

Payload Type

Strings / JSON / XML / Characters

e.g. {"hello":"world"}

Payload

"Limite ultrapassado" ou Operação Normal"

Publish

"Limite ultrapassado" ou Operação Normal"
topic:area/1/alerta,qos:0,retain:false

area/1/alerta

"Limite ultrapassado" ou Operação Normal"

qos : 0, retain : false, cmd : publish, dup : false, topic : area/1/alerta, messageId : , length : 64, Raw payload : 226128156761051091051161013211710811611497112971151159710011122612815732111117327911210111497195167195163111327811111410997108226128157

→Área 2

Tópico: area/2/sensor/1/temperatura

The image shows the MQTT Explorer interface. On the left, the 'Publish' configuration panel is visible. The 'Topic to publish' is 'area/2/sensor/1/temperatura'. The 'QoS' is set to '2 - Exactly Once'. The 'Retain' checkbox is unchecked. The 'Payload Type' is 'Strings / JSON / XML / Characters'. The 'Payload' is '88'. The 'Publish' button is highlighted. Below the configuration, a preview of the published message is shown: '88' with metadata: 'topic: area/2/sensor/1/temperatura, qos: 2, retain: false'. On the right, the message view for 'area/2/sensor/1/temperatura' shows the payload '88' and the same metadata: 'qos: 0, retain: false, cmd: publish, dup: false, topic: area/2/sensor/1/temperatura, messageid: , length: 31, Raw payload: 5656'.

Tópico: area/2/sensor/2/gasestoxicos

The image shows the MQTT Explorer interface. On the left, the 'Publish' configuration panel is visible. The 'Topic to publish' is 'area/2/sensor/2/gasestoxicos'. The 'QoS' is set to '2 - Exactly Once'. The 'Retain' checkbox is unchecked. The 'Payload Type' is 'Strings / JSON / XML / Characters'. The 'Payload' is '1p'. The 'Publish' button is highlighted. Below the configuration, a preview of the published message is shown: '30' with metadata: 'topic: area/3/sensor/3/fumaça, qos: 2, retain: false'. On the right, the message view for 'area/2/sensor/2/gasestoxicos' shows the payload '10' and the same metadata: 'qos: 0, retain: false, cmd: publish, dup: false, topic: area/2/sensor/2/gasestoxicos, messageid: , length: 32, Raw payload: 4948'.

Tópico: area/2/atuador_rele

Topic to publish

area/2/atuador_rele

QoS

2 - Exactly Once

Retain

☐

Payload Type

Strings / JSON / XML / Characters

e.g. {"hello":"world"}

Payload

Liga Rele e Desliga Rele

Publish

Liga Rele e Desliga Rele

topic:area/2/atuador_rele, qos:2, retain:false

Liga Rele e Desliga Rele

topic:area/2/atuador_rele, qos:2, retain:false

area/2/atuador_rele

Liga Rele e Desliga Rele

qos : 0, retain : false, cmd : publish, dup : false, topic : area/2/atuador_rele, messageid : , length : 45, Raw payload : 76105103973282101108101321013268101115108105103973282101108101

Tópico: area/2/alerta

Topic to publish

area/2/alerta

QoS

2 - Exactly Once

Retain

☐

Payload Type

Strings / JSON / XML / Characters

e.g. {"hello":"world"}

Payload

"Limite ultrapassado" ou Operação Normal"

Publish

"Limite ultrapassado" ou Operação Normal"

topic:area/2/alerta, qos:2, retain:false

"Limite ultrapassado" ou Operação Normal"

topic:area/2/alerta, qos:2, retain:false

area/2/alerta

"Limite ultrapassado" ou Operação Normal"

qos : 0, retain : false, cmd : publish, dup : false, topic : area/2/alerta, messageid : , length : 64, Raw payload : 226128156761051091051161013211710811611497112971151159710011122612815732111117327911210111497195167195163111327811111410997108226128157

→Área 3

Tópico: area/3/sensor/3/fumaça

Topic to publish
area/3/sensor/3/fumaça

QoS
2 - Exactly Once

Retain ☐

Payload Type
Strings / JSON / XML / Characters
e.g. {"hello":"world"}

Payload
30

Publish

30
topic:area/3/sensor/3/fumaça, qos:2, retain:false

30
topic:area/3/sensor/3/fumaça, qos:2, retain:false

area/3/sensor/3/fumaça

30

qos : 0, retain : false, cmd : publish, dup : false, topic : area/3/sensor/3/fumaça, messageid : , length : 27, Raw payload : 5148

Tópico: area/3/atuador_rele

Topic to publish
area/3/atuador_rele

QoS
2 - Exactly Once

Retain ☐

Payload Type
Strings / JSON / XML / Characters
e.g. {"hello":"world"}

Payload
Liga Rele e Desliga Rele

Publish

Liga Rele e Desliga Rele
topic:area/3/atuador_rele, qos:2, retain:false

Liga Rele e Desliga Rele
topic:area/3/atuador_rele, qos:2, retain:false

area/3/atuador_rele

Liga Rele e Desliga Rele

qos : 0, retain : false, cmd : publish, dup : false, topic : area/3/atuador_rele, messageid : , length : 45, Raw payload : 76105103973282101108101321013268101115108105103973282101108101

Tópico: area/3/alerta

Topic to publish

area/3/alerta

QoS

2 - Exactly Once

Retain

Payload Type

Strings / JSON / XML / Characters

e.g: {'hello':'world'}

Payload

"Limite ultrapassado" ou Operação Normal"

Publish

"Limite ultrapassado" ou Operação Normal"

topic:area/3/alerta, qos:2, retain:false

"Limite ultrapassado" ou Operação Normal"

topic:area/3/alerta, qos:2, retain:false

area/3/alerta

"Limite ultrapassado" ou Operação Normal"

qos : 0, retain : false, cmd : publish, dup : false, topic : area/3/alerta, messageId : , length : 64, Raw payload : 226128156761051091051161013211710811611497112971151159710011122612815732111117327911210111497195167195163111327811111410997108226128157