



PSI3541 2023

SISTEMAS EMBARCADOS DISTRIBUIDOS

AULA 05 14/04/2023

ATIVIDADE 5.2 CONECTAR NODE-RED AO IOT CENTRAL

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Instalação e Execução - Windows

- <https://nodered.org/docs/getting-started/windows>
- Executar o Terminal de Comandos do Windows
- Instalar NPM & NODE.JS
 - Instalar o Node.js
 - Baixar e executar o instalador: <https://nodejs.org/en>
 - Verificar a versão do Node.js instalado: **node --version && npm -v**
- Instalar NODE-RED
 - `npm install -g --unsafe-perm node-red`
- Executar o Node-Red
 - `C:\Users\user> node-red`
- Acessar o GUI do Node-Red pelo Navegador:
 - `https://localhost:1880`

CONFIGURAÇÃO DO NODE-RED

MÓDULOS INSTALADOS

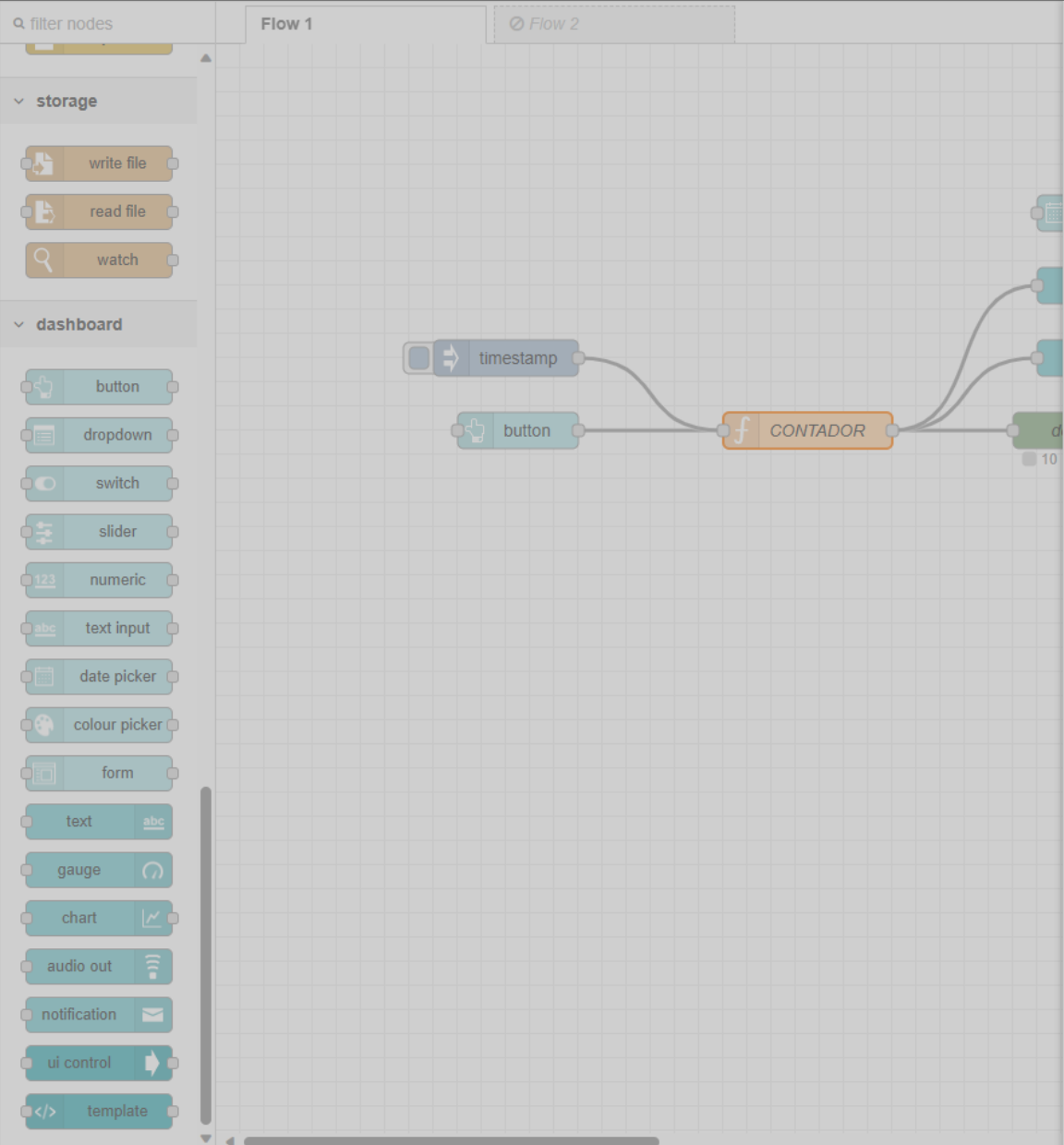
- DASHBOARD node-red-dashboard 3.4.0
 - <https://flows.nodered.org/node/node-red-dashboard>
- AZURE IOT CENTRAL
 - <https://flows.nodered.org/node/node-red-contrib-azure-iot-central>

5.2.1 DASHBOARD SIMPLES

- IMPLEMENTE UM DASHBOARD CONTENDO OS SEGUINTE ELEMENTOS:
 - TÍTULO: PSI3541/2023 ATIVIDADE 5.2.1
 - ELEMENTOS:
 - BOTÃO
 - MOSTRADOR DE CONTAGEM DE PULSOS

Função contador de mensagens recebidas

- Vamos utilizar variável de context
 - `var count=context.get('count') || 0;`
 - `count +=1;`
 - `msg.payload="F1 "+msg.payload+" "+count;`
 - `context.set('count',count);`
 - `return msg;`



Edit function node

Delete Cancel Done

Properties

Name CONTADOR

Setup On Start On Message On Stop

```

1 var count = context.get('count') || 0;
2 count += 1;
3 msg.payload = count;
4 context.set('count', count);
5 return msg;

```

Enabled

dashboard

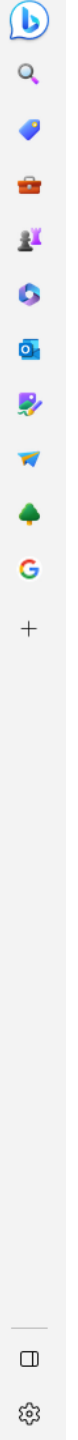
Layout Site Theme

Style Light (default)

Base Settings

Colour

Font Arial Black




Node-RED Dashboard


BUTTON

text 3

gauge



3
units

date  **14/04/2023**

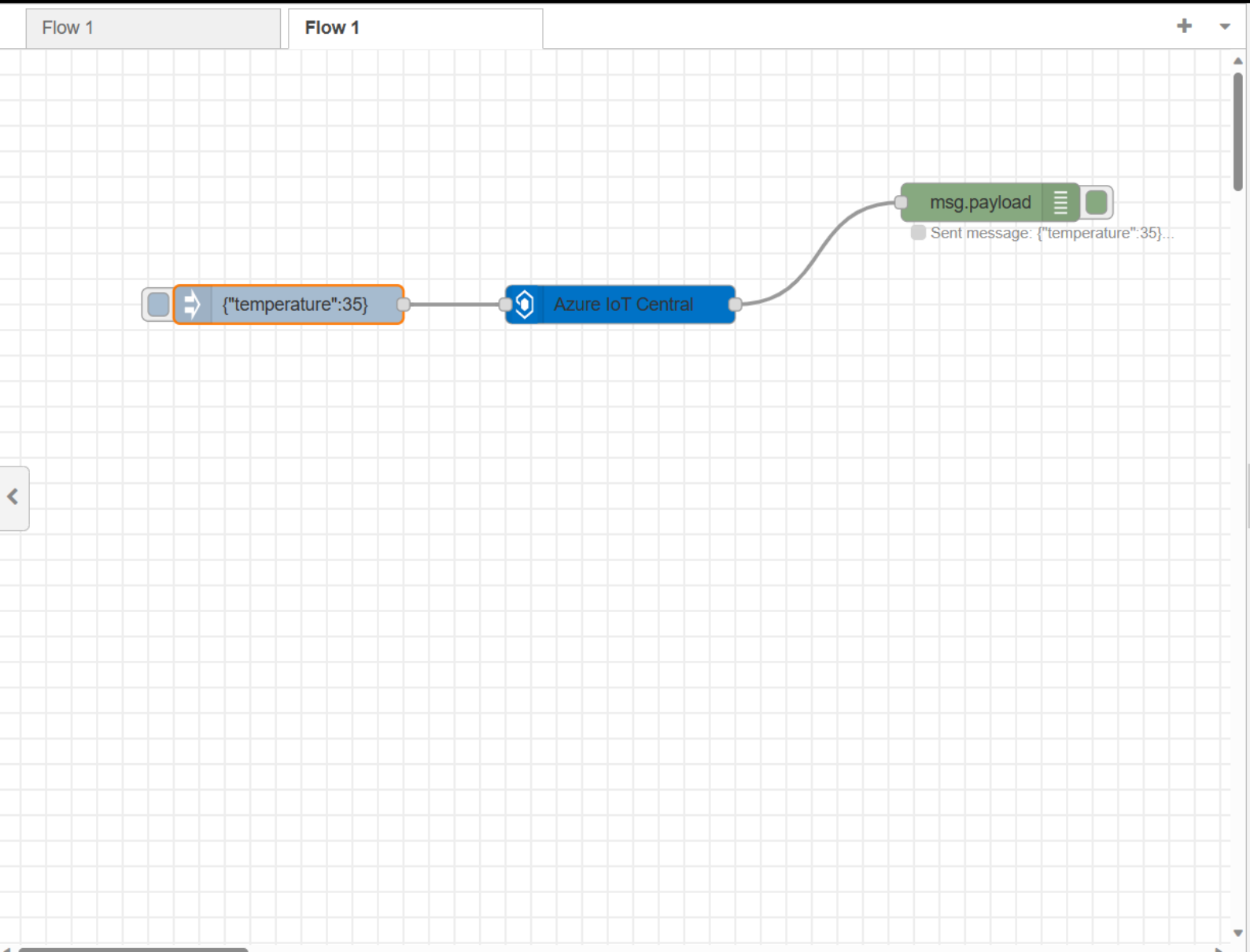
The dashboard contains a central widget with a blue header labeled 'BUTTON'. Below the header, there is a text label 'text 3'. Underneath that is a gauge chart with a blue circular needle pointing to the number '3', with the unit 'units' written below the needle. At the bottom of the widget, there is a date field labeled 'date' with a calendar icon and the value '14/04/2023'.

5.2.2 ENVIO DE MENSAGENS AO IOT CENTRAL

- IMPLEMENTE UM **FLOW** PARA ENVIAR UMA MENSAGEM CONTENDO O TIMESTAMP AO AZURE IOT CENTRAL
 - Crie uma aplicação no Azure IoT Central.
 - Implemente um Fluxo no Node-Red usando o módulo AZURE IOT CENTRAL do NODE-RED
- VERIFIQUE NO IOT CENTRAL A RECEPÇÃO DA MENSAGEM
 - Lista de Mensagens Recebidas e JSON de uma das mensagens
 - Painel com um gráfico da variável temperatura

- filter nodes
- common
- inject
 - debug
 - complete
 - catch
 - status
 - link in
 - link call
 - link out
 - comment

- function
- function
 - switch
 - change
 - range
 - template
 - delay



info

Search flows

- Flows
 - Flow 1
 - Flow 1
- Subflows
- Global Configuration Nodes

Selected Node: {"temperature":35}

Node	"d2a169ae.05beb8"
Type	inject

show more

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

Node-RED

filter nodes

Flow 1

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change
- range
- template
- delay

Edit inject node

Delete Cancel Done

Properties

Name: Name

msg. payload = { \"temperature\":35}

msg. topic = a_z

+ add inject now

Inject once after 0.1 seconds, then

Repeat: none

Enabled

info

Search flows

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 - Flow 1
 - Flow 1
- Subflows
- Global Configuration Nodes

["temperature":35]

Node	"d2a169ae.05beb8"
Type	inject

show more

Search for nodes using ctrl-f

Node-RED

filter nodes

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change
- range
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- delay

Flow 1

```
graph LR; A[{"temperature":35}] --> B[Azure IoT Central]
```

Edit Azure IoT Central node

Delete Cancel Done

Properties

Transport: MQTT

Authentication: SAS

Scope ID: One009 [REDACTED]

Device ID: nsh6ruz [REDACTED]

Primary Key: DYZIK [REDACTED]

Command Name: Insert the command name of your model interface

Command Name: Insert the command name of your model interface

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Enabled

info

Search flows

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Azure IoT Central

Node	"75d8e212.c377dc"
Type	Azure IoT Central

show more

Show the Info tab with `ctrl-g i` or the Debug tab with `ctrl-g d`

Node-RED

filter nodes

Flow 1

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change
- range
- template
- delay

```
graph LR; inject[inject] --> debug[{"temperature":35}];
```

Edit debug node

Delete Cancel Done

Properties

Output: msg.payload

To: debug window system console node status (32 characters)

same as debug output

Name: Name

Enabled

info

Search flows

- Flows
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msg.payload

Node	"1eaeeca4.125703"
Type	debug

show more

Move the selected nodes using the ← ↑ ↓ and → keys. Hold ⬆ to nudge them further

DÚVIDAS?

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