



PSI3541 2023

SISTEMAS EMBARCADOS DISTRIBUIDOS

AULA 11 09/05/2023

ATIVIDADE 11 BANCO DE DADOS DE SERIES TEMPORAIS

PROF. SERGIO TAKEO KOFUJI - KOFUJI@USP.BR

OBJETIVO

- IMPLEMENTAR UM CONTROLE PROPORCIONAL PARA O AQUECEDOR A CASA INTELIGENTE

MÓDULOS DO NODE-RED UTILIZADOS

- node-red-contrib-influxdb 0.6.1
 - <https://flows.nodered.org/node/node-red-contrib-influxdb>
- Dashboard

ATIVIDADE 11.1

ATIVIDADE 11.1 CONTA INFLUXDB

- CRIAR UMA CONTA NO BANCO DE DADOS NA NUVEM INFLUXDB
 - <https://www.influxdata.com/>
 - Conta de email da USP
 - EMPRESA: USP
 - ORGANIZAÇÃO: PSI35412023
- CONFIGURAÇÃO



Create your Free InfluxDB Cloud Serverless Account

No credit card required

Continue with



OR

LOG IN SIGN UP

First Name* Last Name*

Work Email Address*

Password*

Confirm Password*

CREATE ACCOUNT

Or subscribe on [AWS](#), [Azure](#), or [Google Cloud](#)



Welcome to InfluxData

Just a few things before we get started. No credit card required.

Workspace Details

Account

Your company name

USP

Organization

Your first organization or project in your account

PSI35412023

Storage Provider

This is where we will store your time series data.

Amazon Web Services

US East (N. Virginia) ▾

Don't see the region you need? [Let us know.](#)

I have viewed and agree to the [InfluxDB Cloud 2.0 Services Subscription Agreement](#) and [InfluxData Global Data Processing Agreement](#).

CONTINUE

Next: [Choose a plan](#)

Resource Center

What would you like to do?

NOME DO HOST: us-east-1-1.aws.cloud2.influxdata.com



Manage Databases & Security

Create and manage your buckets (databases) & access tokens.

Database Manager

Use the built-in bucket (database) management tools to create and manage your databases.

[GO TO BUCKETS](#)

Access Token Manager

Use the built-in token management tools to generate and manage your access tokens.

[GO TO TOKENS](#)

API

Use the InfluxDB REST API to manage your databases.

[VIEW API DOCS](#)

CLI

Use the InfluxDB Command Line Interface to manage your databases.

[VIEW CLI DOCS](#)



Add Data

Write data into your database with our reporting agent, programmatically, API, CLI, or upload a CSV or Line Protocol File.



Query Data

Query your data with the UI, programmatically, or integrate with 3rd party tools.



Visualize & Alert

Integrate with 3rd party tools to visualize your data or set up alerts.

What's New

★ Introducing InfluxDB Cloud Dedicated

Get the high performance of InfluxDB serverless in a single-tenant service with InfluxDB Cloud Dedicated. It lets you **isolate your data**, **customize configurations**, **enable regulatory or data residency requirements**, and ensure the capacity you need is always available.

[Join our webinar](#) on May 23, 2023 8:00 am PT / 3:00 pm GMT to learn more.

Latest Blogs

6 Project Ideas to Get Started with IoT

MAY 08 This article was originally published in The New Stack and is reposted here with permission. A look at the main things you need to consider when planning your IoT project with links to tutorials and source code. There's a lot of... [read more](#)

OpenTelemetry Tutorial: Collect Traces, Logs & Metrics with InfluxDB 3.0, Jaeger & Grafana

MAY 05 Here at InfluxData, we recently announced InfluxDB 3.0, which expands the number of use cases that are feasible with InfluxDB. One of the primary benefits of the new storage engine that powers InfluxDB 3.0 is its ability to store traces, metrics,... [read more](#)

[MORE BLOGS](#)

[InfluxDB Cloud Serverless](#)
Version 2.0.0 (7dc6997)

Load Data

SOURCES **BUCKETS** TELEGRAF API TOKENS

Filter buckets... Sort by Name (A + Z)

+ CREATE BUCKET

_monitoring	System Bucket	Retention: 7 days	Schema Type: Implicit	ID: 0cd3750...
_tasks	System Bucket	Retention: 3 days	Schema Type: Implicit	ID: 79d6784...

Create Bucket

Name*

 ✓

Data Retention Preferences

NEVER DELETE DELETE OLDER THAN

30 days

CANCEL CREATE

What is a Bucket?

A bucket is a named location where time series data is stored. All buckets have a **Retention Policy**, a duration of time that each data point persists.

Here's [how to write data](#) into your bucket.

Load Data

- SOURCES
- BUCKETS
- TELEGRAF
- API TOKENS**

Sort by Description (A → Z) ▾

+ GENERATE API TOKEN ▾

- All Access API Token
- Custom API Token

Looks like there aren't any **API Tokens**, why not generate one?

+ GENERATE API TOKEN ▾

ATIVIDADE 11.2 NODE-RED & INFLUXDB: ESCRITA

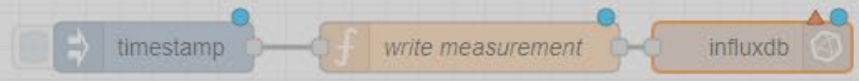
filter nodes

Flow 6 Flow 7 Flow 8 Flow 9 Flow 11

common

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

function



Edit influxdb out node

Delete Cancel Done

Properties

Name Name

Server Add new influxdb...

Measurement

Advanced Query Options

Tip: If no measurement is specified, ensure **msg.measurement** contains the measurement name.

Tip: If no retention policy is specified, **autogen** will be assumed.

filter nodes

Flow 6 Flow 7 Flow 8 Flow 9 Flow 11

common

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

function



Edit influxdb out node > Edit influxdb node

Delete Cancel Update

Properties

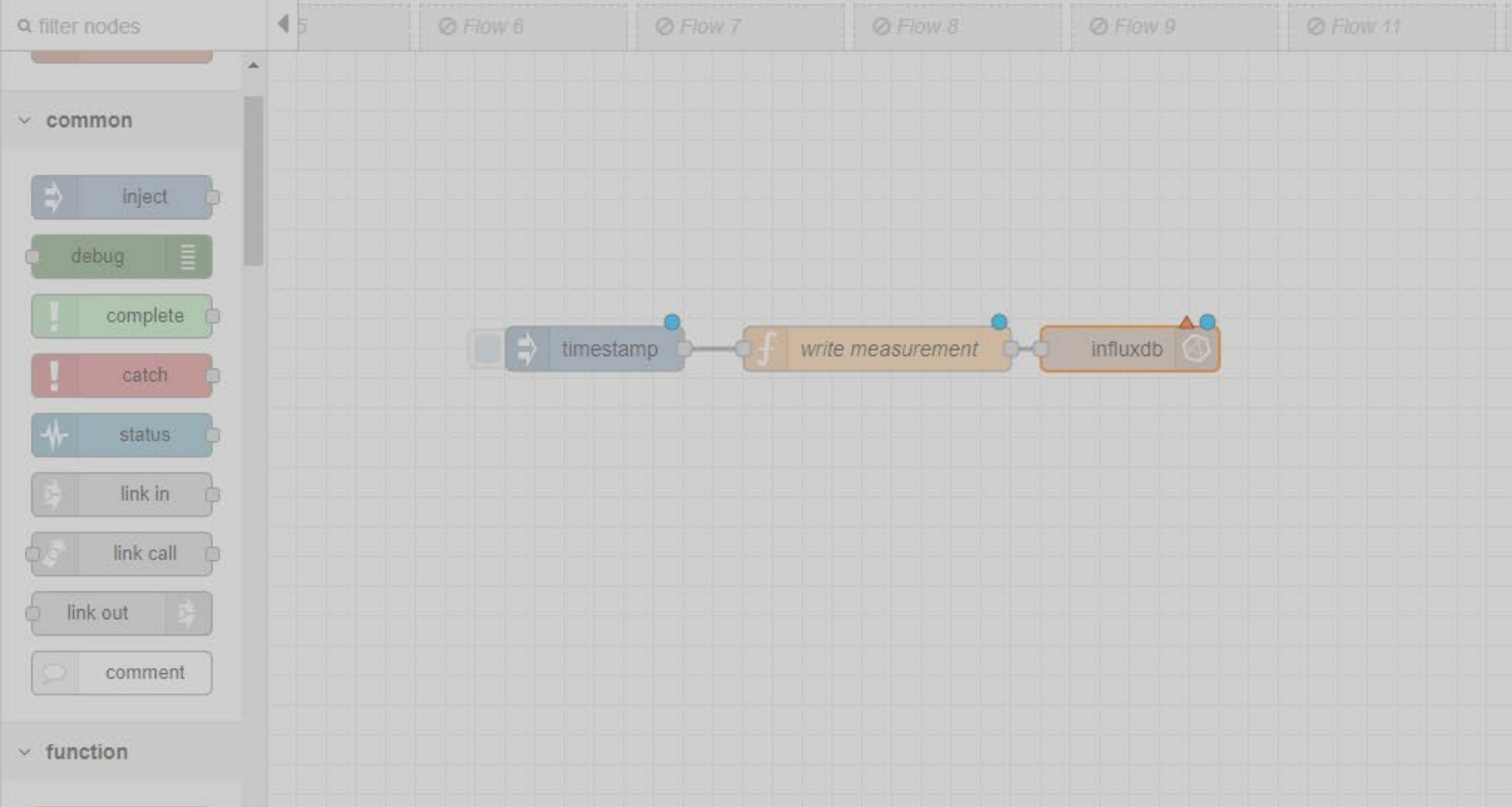
Name:

Version:

URL:

Token:

Verify server certificate



Edit influxdb out node

Buttons: Delete, Cancel, Done

Properties

- Name:
- Server:
- Organization:
- Bucket:
- Measurement:
- Time Precision:

Data Explorer

+ New Script OPEN SAVE

Schema Browser

SQL Sync

Bucket

atividade10

Measurement

temperature

Search fields and tag keys

Fields

indoor

outdoor

Tag Keys

No Tags Found

```
1 SELECT *
2 FROM "temperature"
3 WHERE
4   time >= now() - interval '1 hour'
5 AND
6   ("indoor" IS NOT NULL OR "outdoor" IS NOT NULL)
7
```

Ready (284ms)

CSV Past 1h RUN

Graph CUSTOMIZE TABLE GRAPH



Query Modifier

Grouping

Graph smoothing

indoor

retained 5% retained 100%

Data

X Column

_time

Y Column

_value

Adaptive Zoom

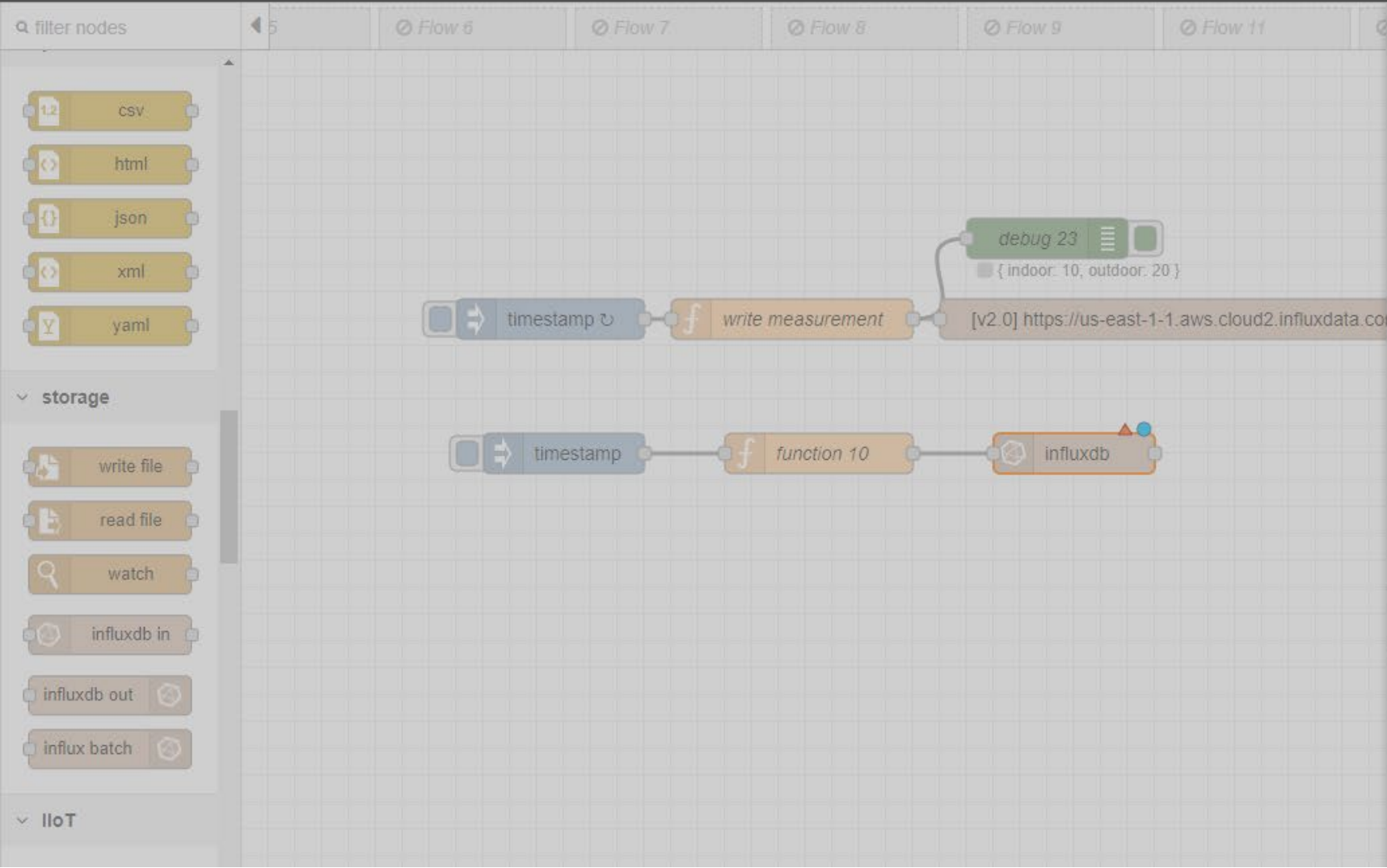
Options

Time Format

YYYY-MM-DD HH:mm:ss

Interpolation

ATIVIDADE 11.3 NODE-RED & INFLUXDB: LEITURA



Edit influxdb in node

Delete Cancel Done

Properties

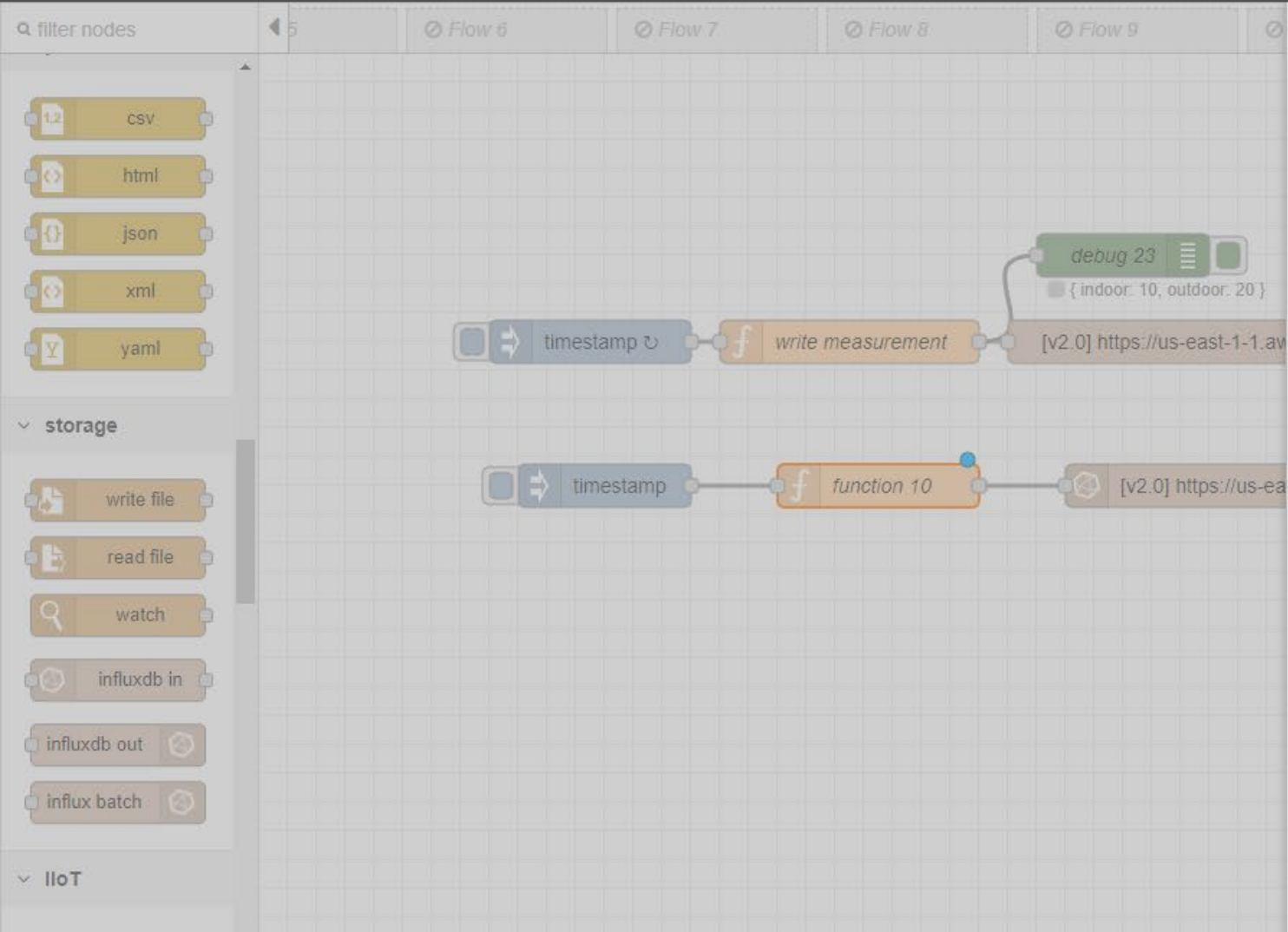
Name:

Server: [v2.0] <https://us-east-1-1.aws.cloud2.influxdata.com>

Organization: PSI35412023

```
</> Query
1 SELECT *
2 FROM temperature
3 WHERE time >= now() - interval '1 hour'
```

Tip: If no query is set, ensure `msg.query` contains a query.



Edit function node

Delete

Cancel

Done

Properties

Name

function 10

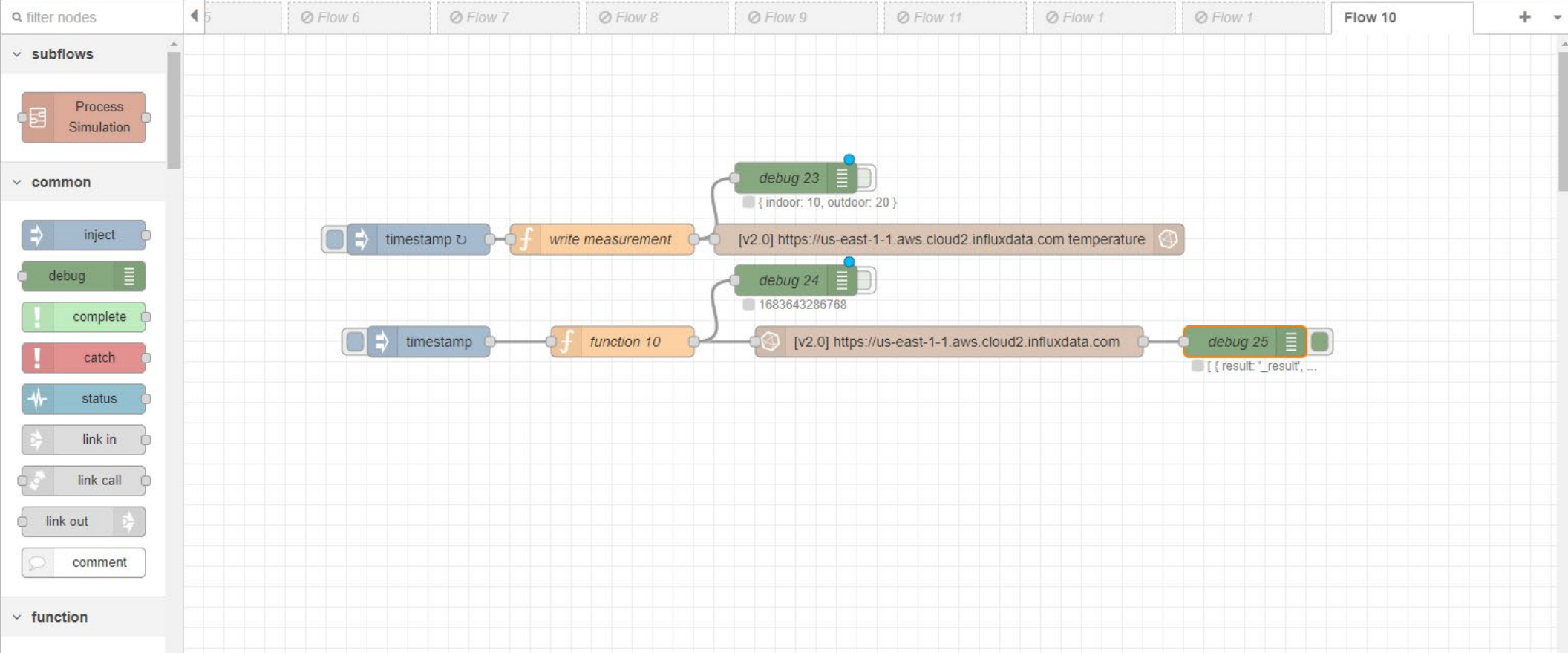
Setup

On Start

On Message

On Stop

```
1 msg.query = 'from(bucket: "atividade10") |> range(start: -1d,'  
2 return msg;
```



debug

all nodes all

```

5/9/2023, 11:41:19 AM node: debug 23
msg.payload: Object
  { indoor: 10, outdoor: 20 }

5/9/2023, 11:41:27 AM node: debug 25
msg.payload: array[380]
  array[380]
    [0 ... 9]
      0: object
        result: "_result"
        table: 0
        _start: "2023-05-08T14:41:35.709813312Z"
        _stop: "2023-05-09T14:41:35.709813312Z"
        _time: "2023-05-09T14:25:30.258Z"
        _value: 10
        _field: "indoor"
        _measurement: "temperature"
      1: object
      2: object
      3: object
      4: object
      5: object
      6: object
      7: object
  
```

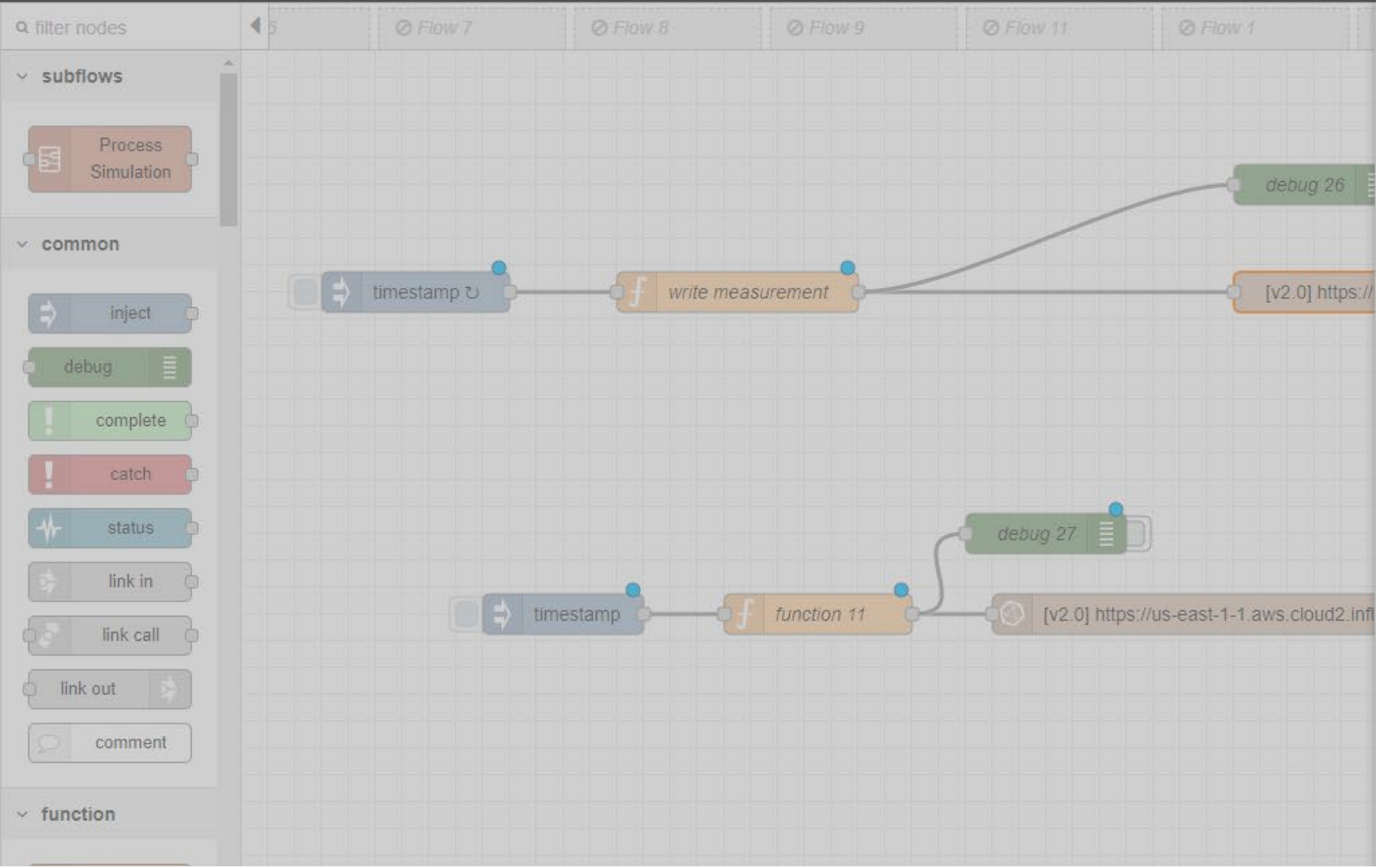
ATIVIDADE 11.4 NODE-RED & INFLUXDB: DASHBOARD

ATIVIDADE 10.3 ESCRITA SENSOR VIRTUAL TEMPERATURA E UMIDADE

- Influxdb:
 - Bucket: atividade10.3
- Node-red:
 - Measurement1: temperature
 - Measurement2: humidity
- Dashboard:
 - LER DADOS NO INFLUXDB
 - GRÁFICO 1: TEMPERATURE
 - GRÁFICO 2: HUMIDITY
 - SELECIONAR A FAIXA DE TEMPO (JANELA DE TEMPO) A SER EXIBIDA

Dashboard Node-Red Time Chart Avançado

- <https://github.com/node-red/node-red-dashboard/blob/master/Charts.md>



Edit influxdb out node

Delete Cancel Done

Properties

Name:

Server: [v2.0] <https://us-east-1-1.aws.cloud2.infl>

Organization: PSI35412023

Bucket:

Measurement:

Time Precision:

Tip: If no measurement is specified, ensure `msg.measurement` contains the measurement name.

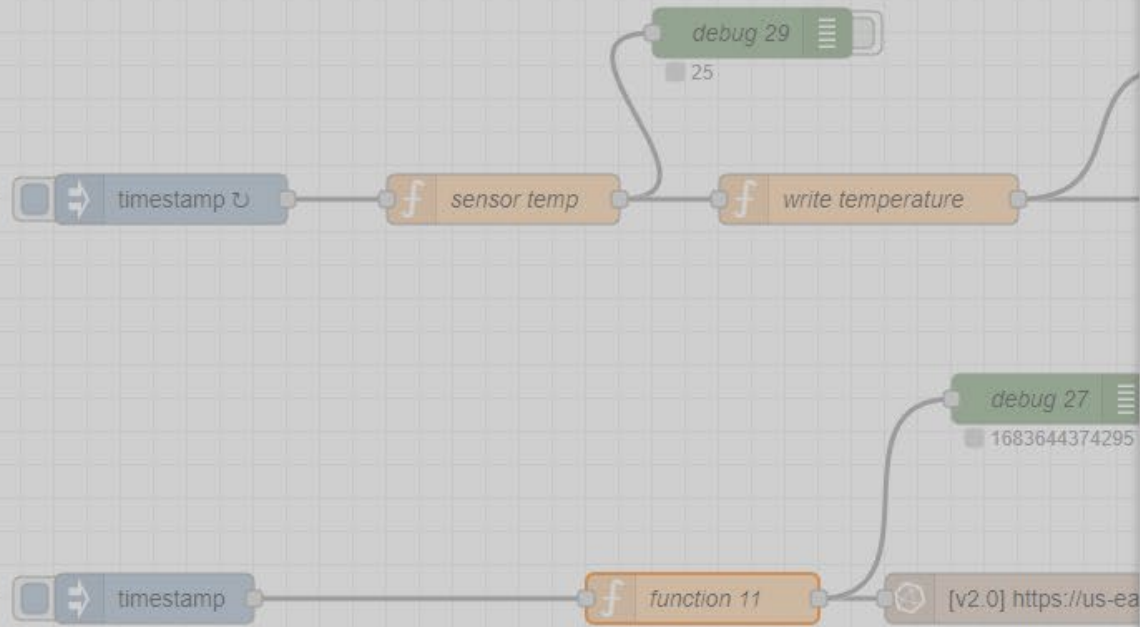
subflows

Process Simulation

common

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

function



Edit function node

Delete | Cancel | Done

Properties

Name: function 11

Setup | On Start | On Message | On Stop

```
1 msg.query = 'from(bucket: "atividade10.3") |> range(start: -1'
2 return msg;
```


Data Explorer

+ New Script | OPEN | SAVE

Schema Browser

SQL Sync

Bucket

atividade10.3

Measurement

temperature

Search fields and tag keys

Fields

indoor

Tag Keys

No Tags Found

```

1 SELECT *
2 FROM "temperature"
3 WHERE
4   time >= now() - interval '1 hour'
5
6

```

Ready (246ms)

CSV

Past 1h

RUN

Graph

CUSTOMIZE

TABLE

GRAPH



Query Modifier

Grouping

Graph smoothing

indoor

retained 5% | retained 100%

Data

X Column

_time

Y Column

_value

Adaptive Zoom

Options

Time Format

YYYY-MM-DD HH:mm:ss

Interpolation

DÚVIDAS?

KOFUJI@USP.BR