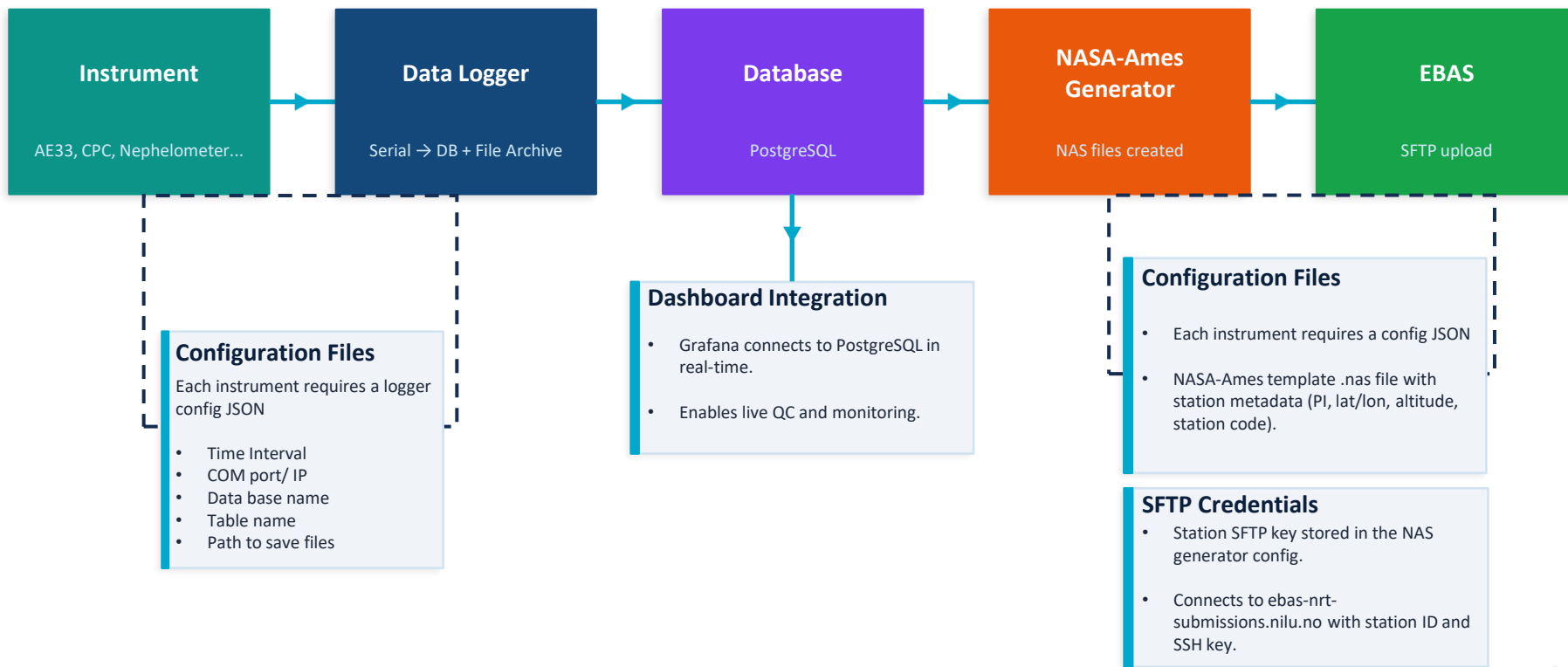


ACTRIS In-Situ Near Real-Time DAQ

Data Acquisition, Monitoring & EBAS Submission

Sudheer Bhakare
Tropos, Leibniz Institute for Tropospheric Research

How It Works ?



Supported Instruments — Data Logger Availability

Instrument	Model	Logger	Dashboard	NAS Generator
CPC	CPC3750	✓	✓	✓
	CPC3772	✓	✓	<i>In Progress</i>
	GRIMM CPC	✓	✓	<i>In Progress</i>
Aethalometer	AE33, AE36	✓	✓	✓
Nephelometer	NE300/3000/400/4000	✓	✓	✓
	TSI3563	✓	✓	✓
MAAP	MAAP	✓	✓	✓
MPSS	TSI3082	✓	<i>In Progress</i>	✓
	TROPOS	✓	<i>In Progress</i>	✓

✓ = Available

In Progress = Under active development

GitHub Repository

Starting **January 2026**, this repository replaces the old GitLab repository.

The screenshot displays the GitHub repository page for `actris / ACTRIS-In-Situ-Instrument-DAQ-Software`. The repository is private and has 2 branches and 0 tags. The current branch is `main`. A commit by `sudheerbtropos` is highlighted, titled "Rename Instructions for EBAS Submission.md to 3.1 Instructions for EB...".

The repository structure is shown as follows:

Folder	Description
<code>source/</code>	Main data acquisition software for aerosol Nephelometers, etc.)
<code>base_packages/</code>	Core Python dependencies and libraries
<code>auxiliaries/</code>	Cross referencing and external sensor in
<code>dashboards/</code>	Grafana dashboard templates for real-t
<code>instructions/</code>	Setup and configuration guides

The commit history table is as follows:

Name	Last commit message	Last commit date
..		
assets	Import ebas_aerosol_daq with full history from GitLab	8 months ago
auxiliaries	Import ebas_aerosol_daq with full history from GitLab	8 months ago
base_packages/download	Import ebas_aerosol_daq with full history from GitLab	8 months ago
dashboards	CPC3772 Dashboard added	last month
instructions	Rename Instructions for EBAS Submission.md to 3.1 Instructions for EB...	last week
source	Delete grimm_basic-1.0.0.json	2 weeks ago
.gitignore	Import ebas_aerosol_daq with full history from GitLab	8 months ago
Frequently asked questions (FAQs).md	Import ebas_aerosol_daq with full history from GitLab	8 months ago
README.md	Update README	5 months ago
agpl-3.0.txt	Import ebas_aerosol_daq with full history from GitLab	8 months ago
security.md	Import ebas_aerosol_daq with full history from GitLab	8 months ago

<https://github.com/actris/ACTRIS-In-Situ-Instrument-DAQ-Software>



Instructions for New Users

Installation of base en

Any deviation from these instructions may lead to errors.
If the installation steps cannot be carried out, please contact the support team.

Install conda environment

- Follow [this link](#) to miniconda and follow the instructions to get to the download of the free Miniconda3 installer.
- In most Windows installations, conda is not installed. To execute the following command in the console, you need to run the following command in the console:

Install python 3.10 in conda

- Open Anaconda prompt (miniconda3) and run the following command:

```
(base) $
```

- Type in console to install Python 3.10 as follows:

```
conda create -n py310ebas python=3.10
```

It is strongly recommended not to install Python 3.10 globally.

- Activate environment:

```
conda activate py310ebas
```

The prompt should change to py310ebas.

With every new console for installation of software, the activation is carried out.

Install EBAS Aerosol NRT pack

- Download newest base software package from the following folder of your choice.
- Navigate console to the download folder:

```
conda activate py310ebas
pip install ebas_aerosol_nrt --vers=1.0
pip install ebas_io --vers=1.0 --py=3.10
```

Note: Replace <version> with the actual version number.

Installation of postgreSQL

Any deviation from these instructions may lead to errors.

If the installation steps cannot be carried out, please contact the support team.

1. Install PostgreSQL database

- Install version 17.x (download PostgreSQL Server, pgAdmin4) and install it. Do not check the "Add PostgreSQL to the PATH" checkbox.

- After installation, the PostgreSQL default user name is postgres. The PostgreSQL default user name is postgres on the local computer or the local network.

- ### 2. Install database administration tool
- pgAdmin4 must be started by the user postgres.
 - The user is asked to enter a password.
 - At first start is and may ask for confirmation.

- Register a new server:
 - Choose a name for your server.
 - physical server is specified.

- Enter connection parameters:
 - host name = localhost
 - port = 5432
 - maintenance database = postgres
 - username = postgres
 - password = postgres

- Under the new server create a new database.
- In SQL databases, specify the database name.
- Setting time zone to UTC: right-click on the database and select Name = TimeZone and select UTC.

Install and test data logger

- Create a project directory with a unique name.
- Create the subdirectories /data and /logs.

- Download <version>.zip and unzip it in the project directory.

- The installation for an AE33 is described here.

- Configure the data logger (ae33_data_logger).

- replace all occurrences of "sid" by the correct station ID:
 - section data_storage
 - subsection msg_logger, text
 - subsection postgres, table:
 - subsection csv_file, file: ae33
 - subsection raw_file, file: ae33

- put the correct number of your COM port:
 - section communication
 - subsection port: 'COM1'

- Note: The PostgreSQL database prefers a local connection. The convention should be maintained to avoid errors.

- Note: Configuration files for the loggers (https://www.yamllint.com) can be used to avoid indentation errors.

- For a functional test of the Python environment, the test does not include communication with the data logger.

- A windows with a graphical user interface and written to the database. The three last windows are for the data logger.

- In pgAdmin you should see under /Server the new database. Right-click on the database and select Refresh.

- Start logging:
 - For correct device settings read the manual.

NASA-Ames Generation

This document explains the basic steps required to configure the generator.

1. Update configuration file

Edit the file:

```
ae33_nas_lev0_template_SIRTA.cfg
```

Update the following fields:

- Correct PostgreSQL database name
- Correct table name used by your logger
- Correct paths for:
 - the NASA-Ames template (*.nas)
 - the output directory where NAS files will be written

2. Test NASA-Ames generation

Run the batch file:

If everything is configured correctly, the generator will create the NAS files.

3. Update the NASA-Ames template

Edit the file:

```
ae33_nas_lev0_template_TROPOS_SIRTA.nas
```

Update:

- Station metadata
- File headers (PI name, institute, latitude, longitude, altitude, etc.)

EBAS Credentials (Station ID + Key Pair)

If you do not yet have EBAS upload credentials, you must create an SFTP key pair and send your public key to NILU.

1. Open Command Prompt (CMD)

Run the following command in CMD:

```
ssh-keygen -t rsa -b 4096 -C "station_name"
```

When asked:

- Enter file in which to save the key:
Press Enter to accept the default location (C:\Users\USERNAME\.ssh\id_rsa)
- Enter passphrase:
Leave empty and press Enter
(EBAS does not accept passphrase-protected keys)

This will generate:

- id_rsa → your private key (keep this safe and do not share)
- id_rsa.pub → your public key (this must be sent to NILU)

3. Send Your Public Key to NILU

Email the file id_rsa.pub to: Paul Eckhardt — pe@nilu.no

Include:

- Your station name
- Your station ID (if already assigned)

NILU will add your public key to their SFTP server.

Prepared By

Sudheer Bhakare
Email: sudheer.bhakare@tropos.de
Thomas Müller
Email: thomas.mueller@tropos.de

TROPOS – Leibniz Institute for Tropospheric Research

Related Repository Useful for Users

Issue Tracker

actris / ACTRIS-In-Situ-Real-Time-Project

Issues 84

is:issue state:open

Status	Issue ID	Station Name	Instrument	Author	Created
Open	DE0054	Zugspitze-Schneefernerhaus	MPSS	pauleckhardt	5 days ago
Open	DE0054	Zugspitze-Schneefernerhaus	Nephelometer	pauleckhardt	5 days ago
Open	DE0054	Zugspitze-Schneefernerhaus	CPC	pauleckhardt	5 days ago
Open	DE0054	Zugspitze-Schneefernerhaus	AE33	pauleckhardt	5 days ago
Open	SE0021	Hyltemossa	ACSM	pauleckhardt	2 weeks ago
Open	IT0013	Potenza (CIAO)	AE33	pauleckhardt	Mar 31
Open	IT0013	Potenza (CIAO)	APS	pauleckhardt	Mar 31
Open	IT0013	Potenza (CIAO)	MPSS	pauleckhardt	Mar 31
Open	IT0013	Potenza (CIAO)	CPC	pauleckhardt	Mar 31
Open	NO0059	Trollhaugen	Nephelometer	pauleckhardt	Mar 6
Open	NO0059	Trollhaugen	AE33	pauleckhardt	Mar 4
Open	FI0050	Hyttälä	PTR-MS	pauleckhardt	Feb 4
Open	IT0004	Ispra	AE33	pauleckhardt	Jan 26

<https://github.com/actris/ACTRIS-In-Situ-Real-Time-Project/issues>

Used for:

- Reporting bugs or problems with loggers
- Tracking NRT instrument status across stations
- Coordinating fixes and updates
- *Users are encouraged to report issues and follow ongoing developments here.*

Issue Naming Convention

STATION_CODE | Station Name | Instrument
Example: IT0013 | Potenza (CIAO) | AE33

- From User we required: **GitHub** username to assign to the issue

Future Plans..

- New Loggers to be developed for CPCs: ACL, and Airmodis
- Update AE36 Logger for Aerosol Data Protocol
- GUI update for Configuration files
- Continue support to existing and new coming stations for setting up NRT

Thank You..

Contact:

sudheer.bhakare@tropos.de