

BEV DC 2.0

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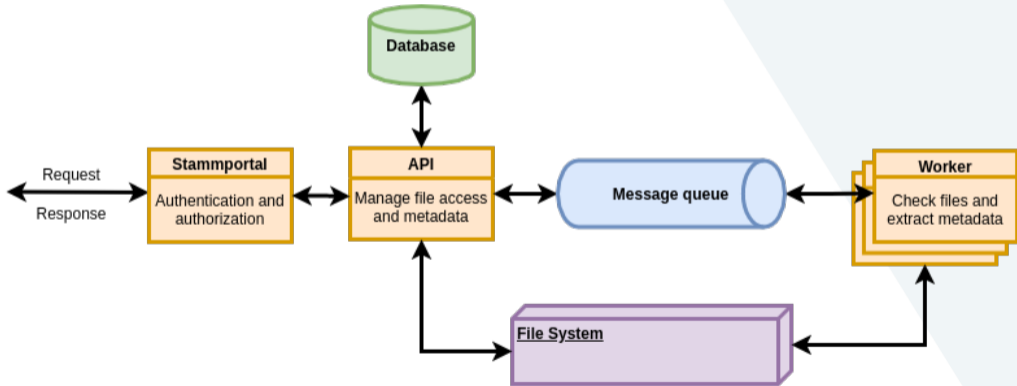
Data Center (DC) *Why do we need it?*

- A DC is an **integral part** of any large GNSS network.
- Its purpose is to:
 - **collect** RINEX data from the stations.
 - **check** the data for errors and consistency.
 - **provide** a single endpoint, where the networks. data can be accessed
- Must facilitate **easy data access**.

DC Challenges

- **Speed** – data must be processed within 10 minutes.
- **Reliability** – service must be highly available.
- **Integrity** – data must be consistent.
- **Quality** – quality standards must be enforced.
- **Standards** – easy data access for users.

DC 2.0 Application structure



DC 2.0 **What is new?**

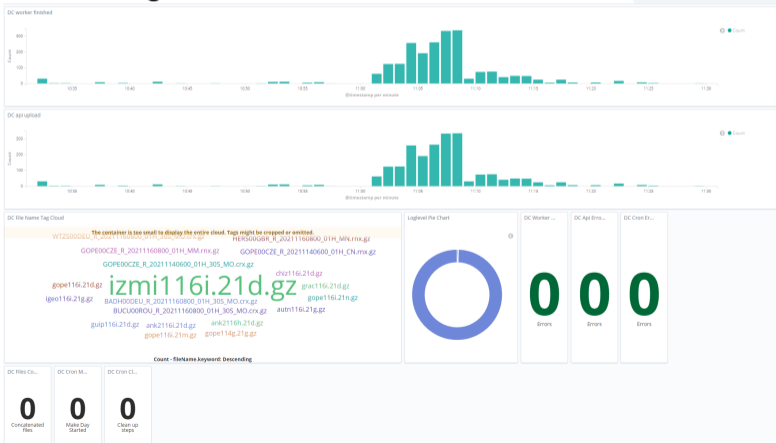
- **Speed**
 - Event-driven architecture.
 - Scalable workers.
- **Reliability**
 - Redundancy with load balancer.
 - Asynchronous micro service architecture with messaging queue.
 - Containerization with Docker.
- **Integrity**
 - Authentication and authorization.
- **Quality**
 - Data check at API and Worker level.
- **Standards**
 - RESTful API design.

API design

- API follows **REST conventions**.
 - Accept and respond JSON.
 - Item and list views.
 - ...
- Metadata of RINEX files can be **filtered and searched**.
 - Name filter.
 - Station filter.
 - Date and time filter.
 - ...
- API supports **file download** and **file upload** via HTTPS.
- User **authentication** and authorization with certificate.

Logging

Application monitoring with ELK stack.



How can I access it?

Data upload

<https://sti.bev.gv.at/at.gv.bev.dc/>

Certificate is needed for upload. Please send an Email to david.mayer@bev.gv.at.

Data filter, search, download

<https://www.gnss.bev.gv.at/api/>

Can be accessed by **anonymous** user.

What will happen to the FTP server?

- API and FTP server will **run in parallel** for now.
- However, we plan to **retire the FTP server in the future**.

Future work

- Design a **responsive front-end**, that will guide the user.
- Adding **more data quality checks** to the worker.
- Migrating **historical data**.

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