

WPSA OP task

Remote access architecture improvement

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Deliverables under SA-SE.OP.REC.01-T001



- D1 - Report on JT-60SA tools for remote participation
- D2 - Report on the implementation of the IMAS interfaces → moved to WPTE / JT-60SA Experiment Team activities
- D3 - Improvement of remote access to the EDICAM via a trusted EU site

D1-JT-60SA tools for remote participation

Current status 1/2

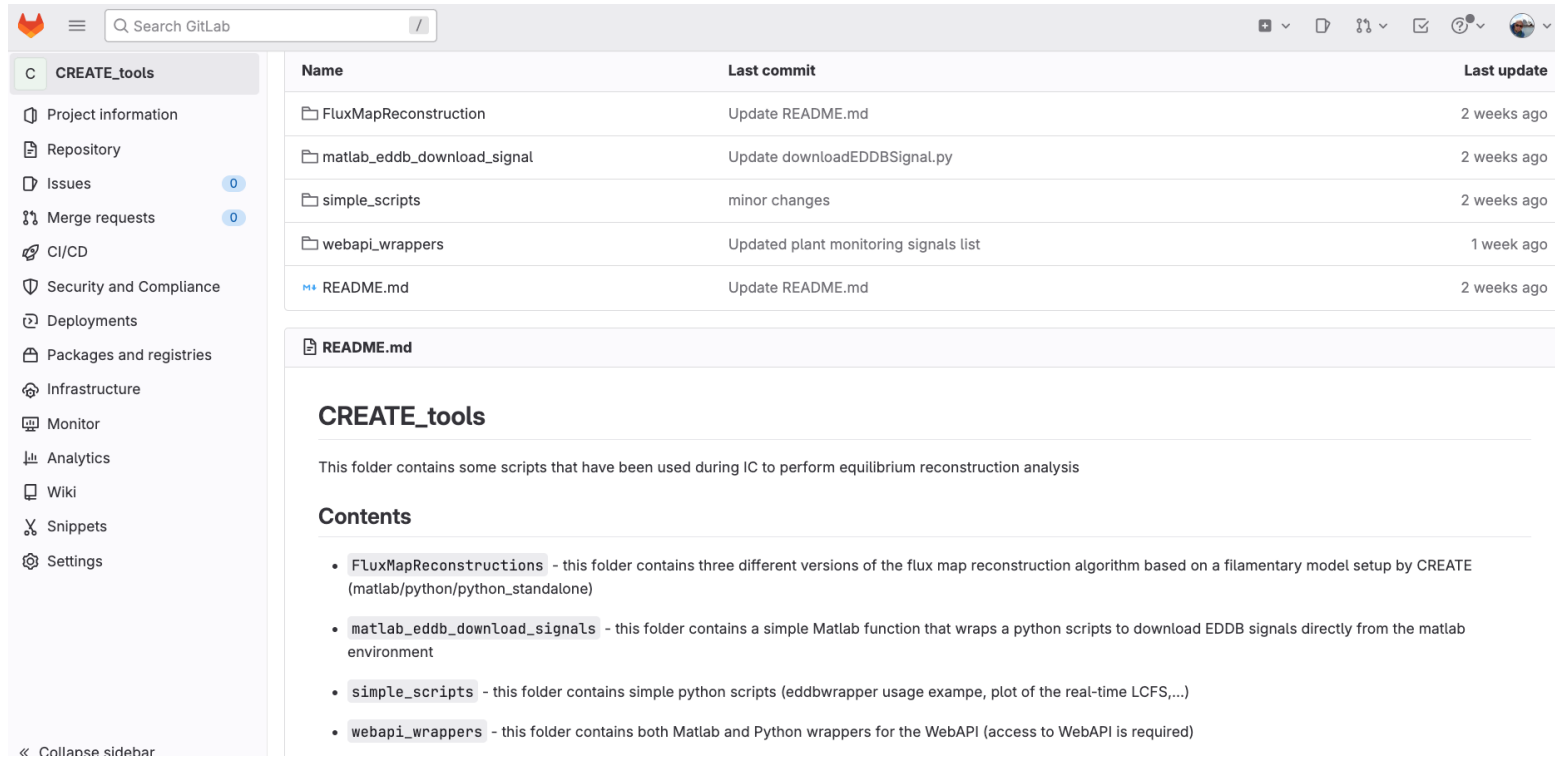


- **Remote Computer Access** is available (to access to the so called Naka Data Analysis Server aka `nakasvr23`)
 - At the moment access granted only to limited number of EU members ~80 (50% F4E, 50% EUROfusion) → the number of users will grow once Exp Team will go at *steady state*
- **Remote Data Access is possible for all users with accounts on the Naka Server**
 - through RCA by using the data access libraries provided by QST to access
 - Experimental Data (EDDB) (pulse data)
 - Plant Monitoring Data (PMDB) (continuously recorded data)
 - these data access libraries are available in C, python and Fortran
 - through the so called WebAPI (which allows to download data on the local host once logged into the QST VPN)
 - Available in Matlab and python
 - Very limited number of users (< 10 EU members)

D1-JT-60SA tools for remote participation

Current status 2/2

- All the code developed with the data access libraries by the participants to IC/OP1 is available on a GIT repository managed by F4E → access is granted to all EU naka server users
- These represent example to develop your own data analysis code
- If access is needed, please contact Antti Jokinen (F4E)



The screenshot shows the GitLab interface for the 'CREATE_tools' repository. The left sidebar contains navigation options: Project information, Repository, Issues (0), Merge requests (0), CI/CD, Security and Compliance, Deployments, Packages and registries, Infrastructure, Monitor, Analytics, Wiki, Snippets, and Settings. The main content area displays a table of repository contents:

Name	Last commit	Last update
FluxMapReconstruction	Update README.md	2 weeks ago
matlab_eddb_download_signal	Update downloadEDDBSignal.py	2 weeks ago
simple_scripts	minor changes	2 weeks ago
webapi_wrappers	Updated plant monitoring signals list	1 week ago
README.md	Update README.md	2 weeks ago

Below the table, the 'README.md' file is open, showing the following content:

CREATE_tools

This folder contains some scripts that have been used during IC to perform equilibrium reconstruction analysis

Contents

- **FluxMapReconstructions** - this folder contains three different versions of the flux map reconstruction algorithm based on a filamentary model setup by CREATE (matlab/python/python_standalone)
- **matlab_eddb_download_signals** - this folder contains a simple Matlab function that wraps a python scripts to download EDDB signals directly from the matlab environment
- **simple_scripts** - this folder contains simple python scripts (eddbwrapper usage exampe, plot of the real-time LCFS,...)
- **webapi_wrappers** - this folder contains both Matlab and Python wrappers for the WebAPI (access to WebAPI is required)

D1-JT-60SA tools for remote participation

Current activities

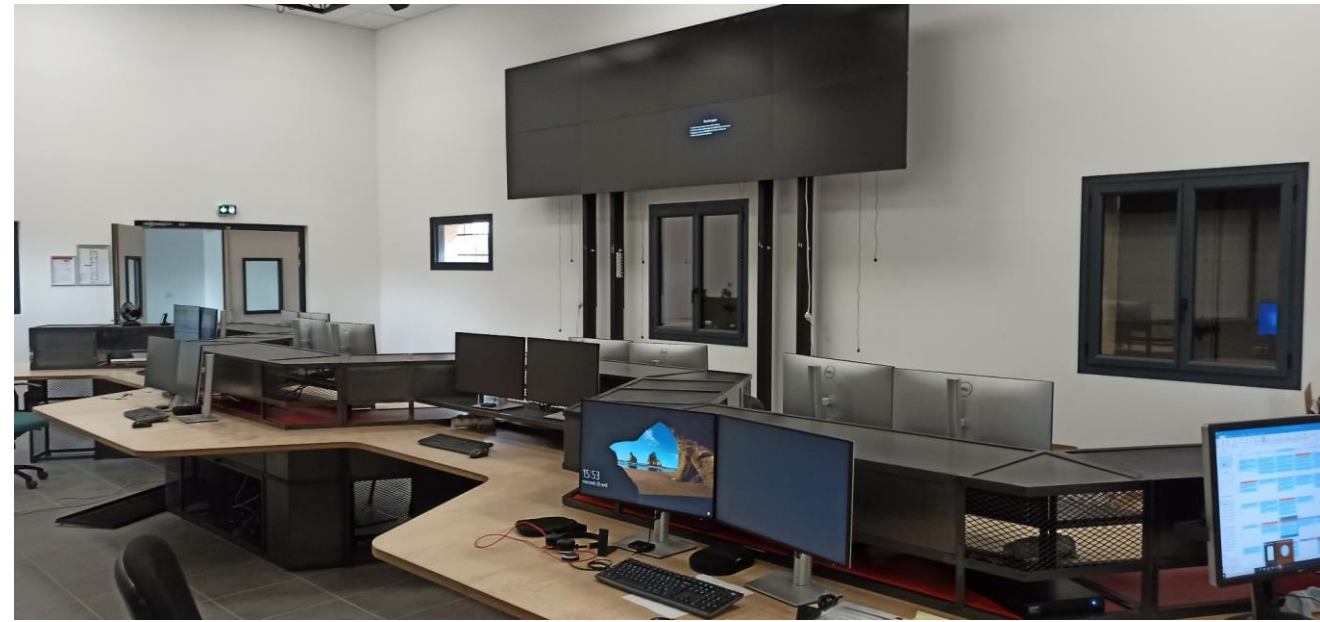
- After IC/OP1 feedbacks about remote participation have been provided by EU to QST (<https://users.jt60sa.org/?uid=2DN2UA>). Several issues have been raised:
 - New model of VPN
 - MDSplus interface to the databases
 - Distributed file systems
 - ...
- **CODAC, IT and Data Meetings (CIDM) have been setup since Feb 2024 to tackle these issues** (after the last TCM in Cadarache)
- Main topics under discussion within the CIDM:
 - **A proposal to *move the Naka Server* within the IFERC network → currently under discussion within QST**
 - If this solution will be adopted EU trusted site may grant access to the QST network with less restriction (i.e. a *lighter* VPN implementation)
 - **New server architecture** to be deployed at the end of 2025/beginning of 2026, before OP2
 - new features?
 - the task is contributing to the specs of the new server (G. De Tommasi & H. Ancher)

D3-La Bergerie: a Remote Experiment Center facility built at Cadarache



- Experiment room for ~18 people
- Meeting room, kitchen, ...
- Tested in real conditions by remote participation to JET and WEST experiments

- Dedicated building at the Cadarache Castle site (near ITER)
- Restaurant and hotel on site
- Connection to RENATER
- Being promoted as a EU trusted site



D3-Improvement of remote access to the EDICAM via a trusted EU site: testing remote access

- **Initial test: DONE on the 25th of March**
 - We succeeded in connecting to the PC controlling EDICAM using an individual account, from La Bergerie
 - This was already a challenge, due to very limited permissions for standard accounts and a very closed QST network
 - Connecting to EDICAM requires connecting to the QST VPN, then connecting to the KVM machine, then to the EDICAM computer → performance is not optimal
 - We could visualize one of the EDICAM movies and run the software controlling EDICAM. Movies of the screen have been taken and show ~1s lag when moving the mouse



D3-Improvement of remote access to the EDICAM via a trusted EU site: perspectives

- Technical side: investigate network performance between the involved chain of computers using the IPERF3 tool
 - Is this useful ?
 - It would help to have an admin contact at QST to install the tool
- Discussions have been engaged by A. Jokinen with QST to simplify the chain of access → ONGOING (within CIDM)
- Discuss the concept of EU trusted site with QST (can we use lighter access procedures when people are connecting from a trusted site ?): the new CIDM forum appears to be the right place to discuss this
 - Relevant if also diagnostics can be *moved* within the IFERC network