# Database for the clinical validation of INSIDE

Status update

28/9/2018

Meeting INSIDE

Lilly Luongo / Giancarlo Sportelli

#### Current status

- June 2018: next iteration of the Administrator UI with batch file upload (→done)
- June 2018: agreement with CNAO on the internal network resources (→done)
- July 2018: agreement with CNAO on the security policies for data transfer to INFN-PI (→done)
- July 2018: first prototype of the custom UI with data submission within a same LAN (→ work in progress)
- July 2018 (depending on support from INFN IT staff!): first prototype of remote back-end server (→ work in progress)

### Development status

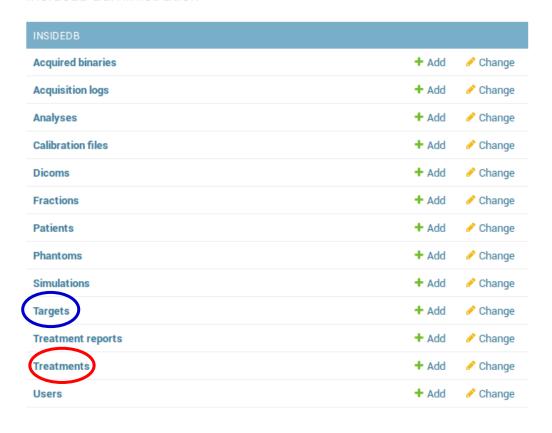
- Data insertion
  - Administrator UI
- Sharing and publication
  - Backend
  - DB Synchronization
  - File Synchronization
  - Application and file serving

#### Administrator UI: home

#### INSIDE DB administration

Home>InsidedI

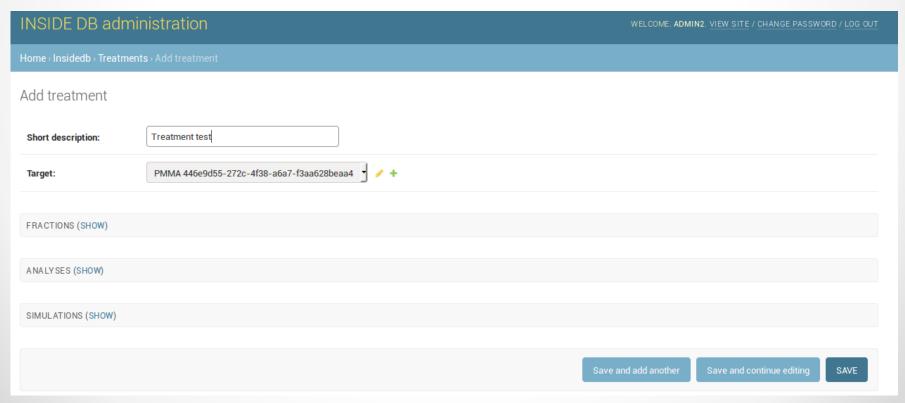
#### Insidedb administration



- Site home
- Main insertion points:
  - Treatments (whole exam)
  - Targets
    - Patient
    - Phantom
- Fraction model includes
  Fraction data, Acquisition
  data and Calibration data
- New models: Simulation and Analysis

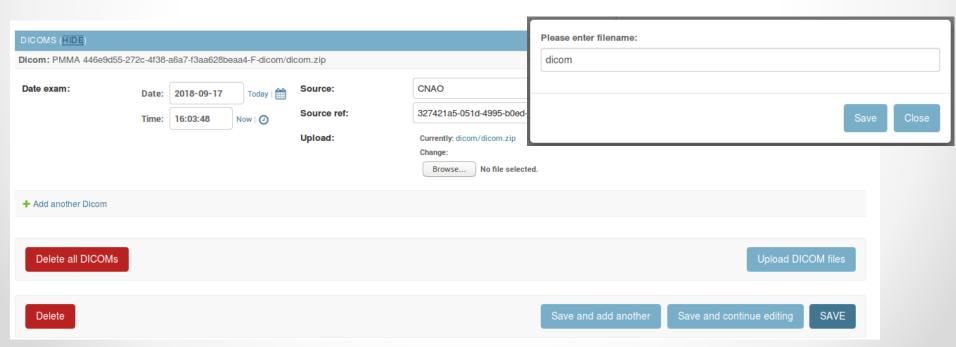
#### Admin UI: Treatment

- Each treatment can have one or multiple:
  - fractions
  - analyses
  - simulations



#### Admin UI: Phantom

- The UI facilitate upload of multiple files from a single folder
- The UI zips automatically all the files that are uploaded together



#### Backend

- The backend has been designed to run on two peer servers, one at CNAO and the other one at INFN
- The DB engine will also run two instances, one per server
- Currently, the DB engine of choice is PostgreSQL

### DB Synchronization

- Possibly, we will use active-active database replication
  - Both nodes have access to a common replicated database
  - o Both databases are used as an active site
- Synchronous replication: each database copy must always be in a consistent state
- If the network link between CNAO and INFN-PI fails, the INFN server will suspend any transaction until failure recovery
- Depends on the goodness of PostgreSQL support for active-active replication

# File synchronization and backup

- The files will be stored at CNAO and periodically replicated to the INFN AFS by the server running at CNAO
- A system for daily (for one week) and weekly (for one month) file backup replication is already in place
- All files in AFS have an additional built-in daily snapshot recovery facility (for recovering files accidentally deleted)

# Application and file serving

- The server will serve the Django application at https://insidedb.pi.infn.it/<app\_base\_url> public url
- The server will serve the files at https://insidedb.pi.infn.it/<files\_base\_url> public url
- Users will be able to access the INSIDE database through the Django built-in authentication and authorization system

### Schedule for the next two months

- Mid-October: setup of the server machines at INFN-Pl and CNAO
- End of October: testing of the Apache and PostgreSQL server configurations
- Mid-November: user ready prototype for data insertion testing with local-only access
- End of November: implementation of the production version of the authentication and authorization system