Database for the clinical validation of INSIDE

Status update

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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

Home › Insidedb

Insidedb administration

INSIDEDB		
Acquired binaries	+ Add	✏ Change
Acquisition logs	+ Add	✏ Change
Analyses	+ Add	✏ Change
Calibration files	+ Add	✏ Change
Dicoms	+ Add	✏ Change
Fractions	+ Add	✏ Change
Patients	+ Add	✏ Change
Phantoms	+ Add	✏ Change
Simulations	+ Add	✏ Change
Targets	+ Add	✏ Change
Treatment reports	+ Add	✏ Change
Treatments	+ Add	✏ Change
Users	+ Add	✏ Change

- 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

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Admin UI: Treatment

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

INSIDE DB administration

Home › Insidedb › Treatments › Add treatment

Add treatment

Short description: Treatment test

Target: PMMA 446e9d55-272c-4f38-a6a7-f3aa628beaa4

FRACTIONS (SHOW)

ANALYSES (SHOW)

SIMULATIONS (SHOW)

Save and add another   Save and continue editing   SAVE

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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
  - 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-PI 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