

XNAT Site Administration
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Audience: Site Administrators, Developers

Goals: Explain the XNAT Data Hierarchy and identify key points of interest. Walk through the administrative features of the XNAT website. Review the encouraged maintenance tasks. Identify the key resources for troubleshooting your XNAT installation

XNAT Data Hierarchy

- Includes common elements used in neuroimaging studies
 - Project
 - Subject
 - Experiment
 - Imaging Sessions
 - Scans
 - Reconstructions
 - Assessments
- Files can be referenced at all levels of the hierarchy
- XNAT has an extensible data model. Extensions should be made at common extension points for best support.
 - xnat:subjectAssessorData
 - xnat:imageAssessorData

Access Control

- Ownership
 - XNAT allows data to be 'owned' by a project or 'shared' into a project. The different levels have implications on the permissions assigned to different users.
- Roles
 - Owners: Have full control over the project. They can add users to the project, add data to the project, or delete data from the project.
 - Members: Have control over managing data in a project. They can add and modify data in a project. They cannot delete data or add other users to the project.
 - Collaborators: Have read-only access to the data. They cannot edit or add data. They cannot add other users to the project.
- Permissions Management
 - Data Types are registered on the server to allow their data to be secured.

- Permissions are mapped between data-types and groups/users based on values (project IDs) in administrative XML documents.
- Permissions are managed for you, when you use the integrated interfaces for access control.

User Administration

- Self-Registration: New feature in XNAT 1.4 that allows users to register themselves.
- Auto-Creation: New feature that is used in the LDAP model.
- Admin-created: This is the traditional model for creating user accounts.
- Enabling: All accounts must be enabled by a user unless auto-enabling is enabled.
- Authentication Options
 - Traditional: Usernames and passwords stored in local database.
 - LDAP: Passwords stored in external server and XNAT will query that server to authenticate login attempts.

Administrative Tools

- Administrative interface allows for the management of various aspects of your XNAT server:
 - Users
 - Data Types
 - Groups
 - Stored Searches
 - Pipelines
 - More Options
 - Default Settings
 - Email Settings
 - Reload Display Documents
 - Database management
 - Workflow management
 - Site level summaries

Maintenance

- Require your configuration (usually cron)
- Backups
 - Database: We use `pg_dump` to do nightly backups of our production server.
 - File System: Use `rsync` to manage the backup of your data.
- Clean-up
 - Logs: Older log files should be removed from the server at regular intervals.
 - Cache: Contains deleted content and backups of archived data. This should be deleted after a span of time.
 - Pre-archive: Unclaimed data should be moved to the cache and deleted after a span as well.

Troubleshooting

- Report a Bug: Added in 1.4 to give site administrators all the information they need to track down issues. It also provides all of the version information that the XNAT team would look for.
- Logs:
 - **access.log**: Contains log of every request to your site (including username). This should be maintained for auditing purposes.
 - **turbine.log**: Captures logs thrown from the Turbine framework. This is usually only relevant when you are building new actions or screens.
 - **velocity.log**: Output from the Velocity engine. This is relevant when you are modifying the logic in a VM file.
 - **xdat.log**: This is the primary log for XNAT errors and should be the first place you look when you encounter an issue.
 - **application.log**: This log captures messages from XNAT addons like pipelines and XNAT FS.
 - **sql.log**: Captures error statements thrown from interactions with the Database. Any failed SQL statements are logged here.
 - `Tomcat/logs/catalina.out`: System.out of the Tomcat server. This may contain some useful information.
- Common Problems

- Memory Issues: Recommended > 512MB
- Site URL: Should match user accessible address.
- Pipelines: Review `application.log` and run logged execution statement.
- SMTP: Currently needs un-authenticated SMTP server.