

# Supporting Study Types with XNAT Project Structures

XNAT's extensibility and flexibility allows you to support multiple types of studies. This documentation will show you how to configure XNAT features to support several example study types.

## Determine Your Study Requirements with a Project Intake Document

Knowing how to translate your PI's requirements into XNAT features and capabilities can be a tricky process. This project intake document can help. It helps you gather answers to the following study components:

- Study Type, Structure and Business Rules
- Data Types to be collected
- Anonymization
- QC and Validation
- Project contributors
- Reporting
- Sharing or Publishing

**Presentation on Project Intake from the XNAT Workshop. Presenter: Jenny Gurney, CNDA Admin**

## Supporting Common Study Types with Project Configurations

Once you have gathered your requirements, you can apply some standard configuration options to support the most common study types. If your study falls outside of one of these prototypes, you may need additional customization as well. Feel free to consult the [XNAT Discussion Group](#) for advice from other XNAT admins and developers.

**Presentation on Project Configurations from the XNAT Workshop.**

## Prospective Data Study Configuration

*For studies that are actively enrolling subjects and capturing new data...*



### Optional: Set up a Study Protocol

If you know you have a precise protocol of data to collect from every subject, you can use the [Visits and Protocols plugin](#) to reflect this in XNAT. This will allow you to monitor what data has been collected, and what is expected, and what exceptions have been made for each subject in your study.

**Project Creation Settings: See [Creating and Managing Projects](#)**

- You will typically want to set a Prospective Study's access permission to "Protected" if you have multiple collaborators, or "Private" if you are the sole user of the project data.
- If your study is known by multiple identifiers (i.e. a NIH Grant Fund or internal accounting code), you can add those IDs in the "Alias" fields to enable easier searching of your data across those terms.

### Supporting Clinical Data Types

- You may need to install data type definitions to support your clinical data. In XNAT 1.7, all data types are installed as plugins by XNAT Administrators. See: [Deploying Plugins in XNAT](#). You can find some common data type plugins on the [XNAT Marketplace](#). If there is no plugin that supports your data type, you may need to develop one. See: [Developing XNAT Plugins](#).
- You may be capturing additional data points (i.e. demographic data on subjects) where only one or two fields need to be added to an existing data type. This can be supported with [Custom Variables](#).
- Clinical Data can be uploaded using a simple [Spreadsheet Uploader](#).

**Importing Imaging Data From Scanners or PACS: See [Connecting XNAT to DICOM Scanners and PACS](#)**

- Data can be imported directly from a DICOM Scanner or PACS system with a little configuration.
- Data can be anonymized before it gets archived using a project-specific Anonymization Filter. See [Project Data Import and Anonymization Settings](#). Note that any project-specific script will overwrite the default site-wide anonymization script.
- If you plan to anonymize incoming data, we strongly recommend routing all incoming scans to the Prearchive, where you can proof your DICOM data for PHI before it gets archived. See: [Using the Prearchive](#).

**Installing and Running Pipelines: See [Installing Pipelines in XNAT](#)**

- Pipelines can be auto-run on your incoming data, or run manually.

- For any pipeline that adds new data to your image sessions (e.g. FreeSurfer), you will need to install the data type for it to be supported in XNAT.

**Managing User Access:** See [Understanding User Roles and Permissions](#)

- If you have multiple collaborators on your study, gauge what kind of access each should have relative to your data.
- If you want specific users to have edit or delete access on only one type of data in your project, you can support this with [Custom User Groups](#).

**Facilitating Resource Uploads:** See [Adding Or Removing Resource Files](#)

- If you are gathering clinical data forms with static resource files (i.e. PDFs or XLS documents) that you want to store, you can add them as resource files using the [Manage Files](#) interface.
- You may want to add a shortcut for non-technical users to make it easier for them to add specific resources. See [Creating a Custom Resource Uploader](#)

## Retrospective Data Study Configuration

*For studies that are amassing large quantities of data from other previous studies...*

**Project Creation Settings:** See [Creating and Managing Projects](#)

- You will typically want to set a Restrospective Study's access permission to "Protected" or "Private" while you are gathering data. When you are ready to release data, you may decide to make your project "Public", or share data to be published into a separate public project. See [How To Share Data in XNAT](#).
- If your study is known by multiple identifiers (i.e. a NIH Grant Fund or internal accounting code), you can add those IDs in the "Alias" fields to enable easier searching of your data across those terms.

**Uploading Image Data in Bulk**

- In a typical retrospective study, your image session data may already be uploaded to your XNAT. If not, you can upload your existing data files using the [Desktop Upload Assistant](#).
- You can also script uploads to your XNAT using the REST API. See: [Upload Image Session Files with REST API](#)
- If your image session data is already anonymized, you can safely set your Data Import Settings to "Archive". See: [Project Data Import and Anonymization Settings](#)

**Searching and Data Mining Existing Data:** See [Using the Advanced Search](#)

- If you are looking to data mine an existing set of XNAT data, you will want to take advantage of advanced searches to join multiple data types together and filter on data attributes.
- You may want to save an advanced search so you can come back to it and pick up any new data that matches your filters. See: [Saving a Data Table as a Stored Search](#).
- You can also ask an XNAT Administrator to make your stored search available to other users. See: [Share Custom Data Tables as Stored Searches for Project Reporting](#).

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- If you want specific users to have edit or delete access on only one type of data in your project, you can support this with [Custom User Groups](#).

**Facilitating Resource Uploads:** See [Adding Or Removing Resource Files](#)

- If you are gathering clinical data forms with static resource files (i.e. PDFs or XLS documents) that you want to store, you can add them as resource files using the [Manage Files](#) interface.
- You may want to add a shortcut for non-technical users to make it easier for them to add specific resources. See [Creating a Custom Resource Uploader](#)

## Multi-Site Study Configuration

*For studies that are collecting data from multiple federated sites...*



Supporting Multi-site studies can be done in a single XNAT with multiple projects (one for each site, plus an "umbrella" project), or via multiple XNATs using the Project Sync plugin. See: [XNAT Project Sync \(Xsync\)](#) for installation and usage documentation.

**Project Creation Settings:** See [Creating and Managing Projects](#)

- For a typical multi-site study, you will want to federate your user access, so that users from a specific site can only see data from their site, unless you explicitly allow more access than that. To set this up, set up multiple projects in XNAT, one for each site. Designate a site coordinator in each site to be the "Project Owner" for that site, along with the overall study coordinator.
- Each site-specific project should be set to "Protected" Access, so that the project title and listing can be seen within XNAT by other users even if they do not have access.

- If your study is known by multiple identifiers (i.e. a NIH Grant Fund or internal accounting code), you can add those IDs in the "Alias" fields to enable easier searching of your data across those terms. Each individual site may have a unique set of aliases, which can be useful in charging and accounting for subjects scanned and data uploaded.

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### Sharing Data Between Sites: See [Understanding Data Sharing in XNAT's Security Structure](#)

- As data from each site is ready to be included into the "umbrella" aggregation project, a user who is both a member of the site-specific project and an owner of the umbrella project can share the data into the umbrella project.
- You can also sync data between projects across multiple XNAT using the [Project Sync plugin](#). This process can be scheduled or automated for additional convenience.

## Longitudinal Study

*For studies that are collecting data from subjects at multiple points over time...*



### Optional: Set up a Longitudinal Study Protocol

If you have a predictable visit frequency for your subjects, you can use the [Visits and Protocols plugin](#) to reflect this in XNAT. This adds the ability to add data to specific visits, open and close visits for reporting purposes, and ensure that you are getting the data you need at each point.