

SPRED FILE UPLOAD TUTORIAL

GETTING STARTED WITH SPRED FILE UPLOAD TUTORIAL

Training Prerequisites:

- *Brain-CODE Portal Introduction and Security Guidelines Training Module*
- *Brain-CODE Subject ID Naming Conventions Training Module*
- *Brain-CODE Introduction to SPReD Training Module*
- *Brain-CODE SPReD Naming Conventions Training Module*
- SPReD_demo_data_v1.1.zip
 - The Demo Data files required for this tutorial

What is SPReD/XNAT?

XNAT (www.xnat.org) facilitates common management, productivity, and quality assurance tasks for imaging and associated data. XNAT can be utilized to support a wide range of imaging-based projects.

The original Stroke Patient Recovery Research Database (SPReD) was developed by the Centre for Stroke Recovery and the Rotman Research Institute, Baycrest, as a tool for storing, searching and accessing neuroimaging data based on the open source XNAT neuroimaging database. A revised version of this SPReD database structure now forms part of several larger databases, including Brain-CODE, The Virtual Brain and PURE-MIND. The current version of the Brain-CODE SPReD is based on XNAT.

SPReD/XNAT is a comprehensive database for the storage, management, and analysis of imaging data including MRI, PET, EEG, CT, as well as other types of binary data such as gait measures and pathology.

Who is the training manual intended for?

This tutorial is addressed to a new SPReD user who wishes to upload neuroimaging and related data into an existing SPReD project via the web interface

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SPRED ACCESS

How to Access SPReD from the Portal:

1. Visit www.braincode.ca and login with your Brain-CODE Portal credentials
 - a. Please see the *Brain-CODE Portal Introduction and Security Guidelines Training Module* for more information
2. Click the “Data Capture Tools” tab

The screenshot displays the Brain-CODE portal interface. At the top, the Brain-CODE logo is visible. Below the logo is a navigation bar with the following items: Dashboard, Data Capture Tools (circled in red), File Repository, Need Help?, Terms of Use, and My Account. The main content area is titled "Data Capture Tools" and contains four tool cards:

- Brain-CODE Subject Registry**: Includes an icon of two people and an "Enter Data" button.
- REDCap**: Includes the REDCap logo and buttons for "Enter Data" and "Training Site".
- SPReD Neuroimaging Database**: Includes the SPReD logo (Powered by XNAT) and buttons for "Enter Data" and "Training Site".
- LabKey Molecular Data Management System**: Includes the LabKey Software logo and buttons for "Sign In" and "Test Site".

3. To access the SPReD Production instance select “Enter Data”

The screenshot shows the Brain-CODE Data Capture Tools dashboard. The navigation bar includes 'Dashboard', 'Data Capture Tools', 'File Repository', 'Need Help?', 'Terms of Use', and 'My Account'. The main content area is titled 'Data Capture Tools' and contains four tool cards:

- Brain-CODE Subject Registry**: Includes an 'Enter Data' button.
- REDCap**: Includes 'Enter Data' and 'Training Site' buttons.
- SPReD Neuroimaging Database** (Powered by XNAT): Includes 'Enter Data' and 'Training Site' buttons. The 'Enter Data' button is circled in red.
- LabKey Molecular Data Management System**: Includes 'Sign In' and 'Test Site' buttons.

Brain-CODE SPReD Production Instance: <https://spred.braincode.ca/spred>

4. To access the SPReD Training instance select “Training Site”

The screenshot shows the Brain-CODE Data Capture Tools dashboard. At the top, there is a navigation bar with links for Dashboard, Data Capture Tools, File Repository, Need Help?, Terms of Use, and My Account. The main content area is titled "Data Capture Tools" and contains four tool cards:

- Brain-CODE Subject Registry:** Includes an "Enter Data" button.
- REDCap:** Includes "Enter Data" and "Training Site" buttons.
- SPReD Neuroimaging Database (Powered by XNAT):** Includes "Enter Data" and "Training Site" buttons. The "Training Site" button is circled in red.
- LabKey Molecular Data Management System (LabKey Software):** Includes "Sign In" and "Test Site" buttons.

Brain-CODE SPReD Test Instance: <https://spreddev.braincode.ca/spred>

- **Never upload real research data to this instance**
- **All data uploaded to this database will be deleted within one month (probably sooner)**
- **For the tutorials within this Training Manual use the Test Instance of SPReD**
- Please email spred@braincode.ca to arrange to have a temporary account and a test project created for you to practice with, on a separate SPReD database that is just for testing. If you are in a training session this may already have been created for you.

OVERVIEW OF SPRED

Data Upload to Brain-CODE via SPReD:

There are three possible routes to upload project data into Brain-CODE from SPReD:

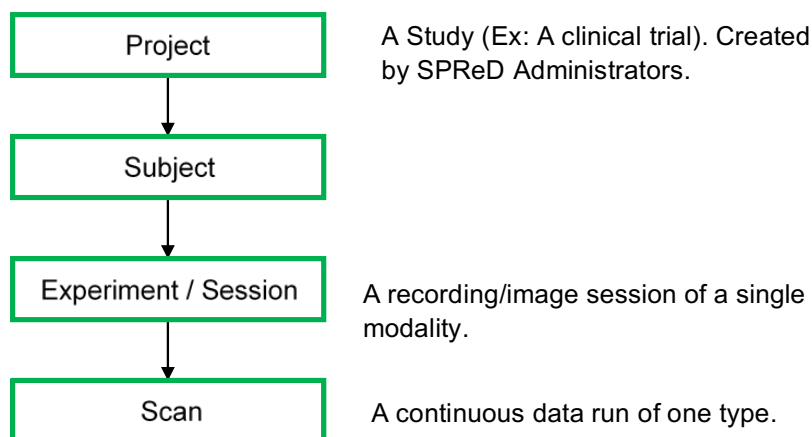
1. **Manually upload data directly into Brain-CODE via the web interface.**
2. **Manually upload data into a local SPReD via the web interface, from which it can subsequently be automatically transferred to Brain-CODE.**
3. **Arrange for an automatic upload from a flat file system into a local SPReD, which can subsequently be automatically transferred to Brain-CODE.**

This training manual will cover how to perform (1) and (2). Option (3) will require custom script development, which you may request instructions for. (See Appendix B)

De-identification:

All data uploaded to Brain-CODE should currently be de-identified, unless you have confirmed with your ID Program coordinator that your program and project are exempt from this requirement. De-identification means that all textual data, including DICOM fields, that could possibly identify the subject are removed, and all images that could possibly allow visual identification of the subject are de-faced. See Appendix A for information regarding the defacing pipeline.

SPReD Central Hierarchy:



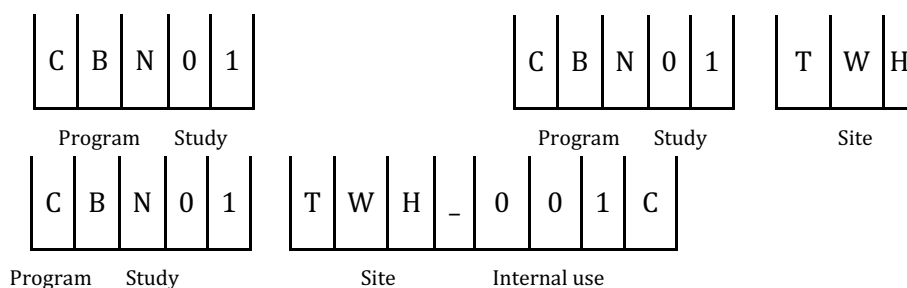
SPReD projects can only be created by database administrators. This ensures that projects have approval and follow the naming convention. Projects are classed as either public, protected or private. Public projects are completely visible and usable by all users. Private projects are only visible to users who have been nominated as owners, members or collaborators. Protected projects are in between: their title and description are visible, but nothing more.

Overview of SPReD Naming Conventions

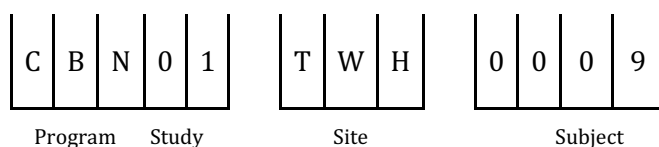
The naming conventions for SPReD data structures are given in Appendix F and summarized here. A SPReD Project ID always begins with a Program and Study code assigned by OBI. These are followed by optional suffixes, separated by underscores:

A 3-character Site code, assigned by OBI (e.g. “TWH”); and

A 4-character suffix reserved for internal use by SPReD Administration. See Appendix F for details. Here are three examples:



Within an OBI research program (“ID Program”), each subject must have a unique Subject ID assigned by the project coordinator, using Program, Study and Site IDs assigned by OBI. An example of a Subject ID is:



Note that with a few exceptions, the majority of IDP projects use 4 digits to record their subject identification number. A handful of studies (e.g., OND03, PND12, etc) use a 5-digit subject identification number. Without the correct subject IDs Brain-CODE cannot associate other data sets (e.g., demographic and clinical measures, genomics, etc.) with the correct imaging data sets. Putting in the correct Subject IDs for your research program is essential. Appendix C outlines what must be done if errors are made when entering filenames or uploading data, as well as tips on how to avoid potentially serious errors such as sharing a subject's data among different platforms.

A SPReD Session ID, e.g. CBN01_TWH_0009_02_SE01_MR, usually consists of the Subject ID followed by: an underscore, a 2-digit Visit ID, “_SE” and a 2-digit session number, another underscore and a Modality code from the list in Appendix F. A multi-modal recording/imaging session is assigned a single 2-digit session number, but corresponds to two or more SPReD sessions, each with a different Modality code. See Appendix F for the complete session naming convention.

Within sessions, each scan has a number and a type. These are assigned automatically during DICOM data uploads (see below), otherwise they are entered manually. When they are entered manually, the scans should usually be numbered consecutively from 1. Scan types begin with the Modality code that appears in the session name, but have an optional suffix that begins with an underscore but is otherwise unrestricted. See Appendix F.

FILE FORMATS

DICOM:

MR and CT scanners typically produce files in DICOM format. This format is understood by SPReD, so that certain metadata, including date and operator, are automatically extracted and displayed once the file is uploaded.

Other Formats:

After processing, MR and CT data files may be in different formats, e.g. NIfTI. Other modalities, including EEG and MEG, have their own, non-DICOM formats. Non-DICOM formats are *not* interpreted by SPReD. They can be uploaded, however their contents will not be interpreted automatically, so any labels such as a recording date must be manually entered. The uploading method is different for DICOM and non-DICOM files.

TUTORIAL – PRACTING ON TEST DATABASE

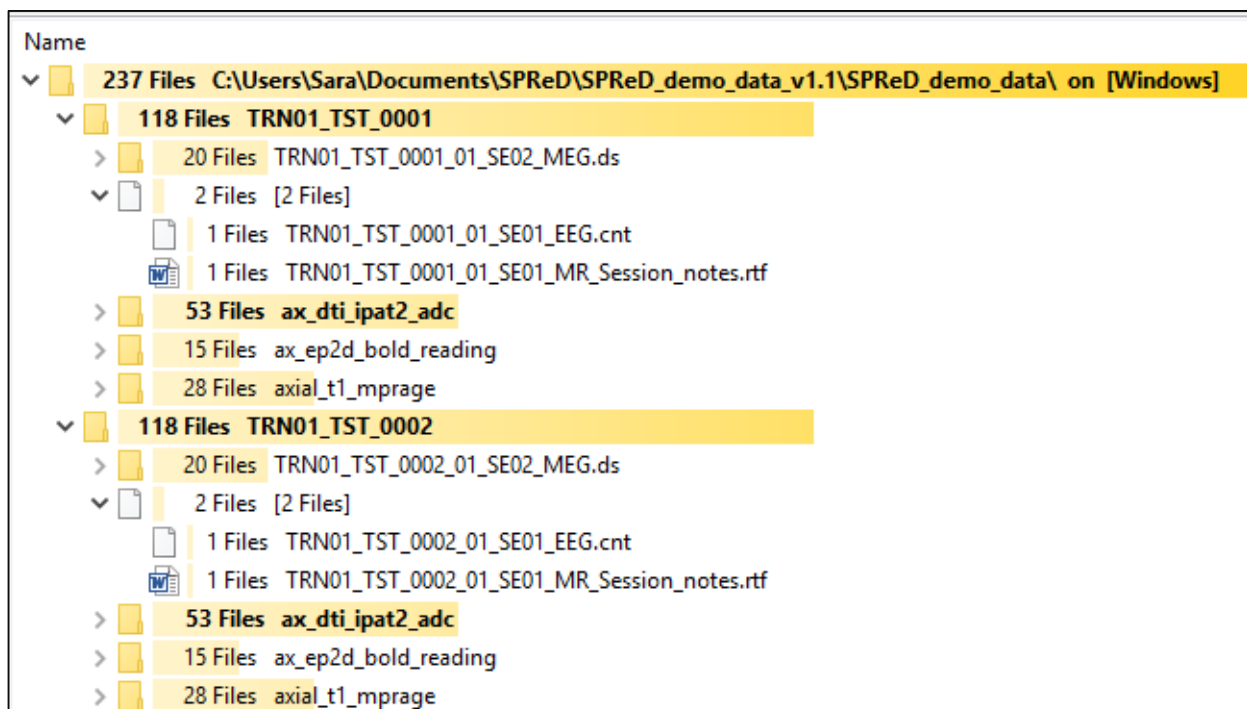
Please email spred@braincode.ca to arrange to have a temporary account and a test project created for you to practice with, on a separate SPReD database that is just for testing. If you are in a training session this may already have been created for you. The database is located at <https://spreddev.braincode.ca/spred> . All data uploaded to this database will be deleted within one month (probably sooner).

Download the Example Files

1. **Using your browser, download the following zip file:**
https://www.braincode.ca/sites/default/files/about/SPReD_demo_data_v1.1.zip

- a. Save it to a suitable local directory, and unzip it. This may occur automatically when you download the zip file, but if it doesn't then you can unzip them manually as follows:
- b. On Apple OS X, double-click on the zip file.
- c. At a Linux/Unix/Mac command prompt, change to the directory containing the zip file and then enter: `unzip SPReD_demo_data_v1.1.zip`
- d. On a Windows 7 system, the “zip file” appears as a compressed folder. Right-click the folder, click “Extract Here”. It will extract the files in the same directory as the compressed folder.
- e. On a Windows 8 system, the “zip file” appears as a compressed folder. Open the folder, click the Compressed Folder Tools tab, and then click Extract all.

2. The directory structure of the demo data should look like this:



The highest-level directories/folders are named TRN01_TST_0001 and TRN01_TST_0002, which are OBI subject IDs, following the convention in Appendix F.

In real study data, the first 5 characters of all subject names and file names will always contain the Program and Study codes, as shown in Appendix F.

Each subject folders contain the following:

- Three folders of MRI data in DICOM format (with names containing “ax”)
- One file of EEG data (name ending in “EEG.cnt”) • Text file (name ending in “Session_notes.rtf”)
- One folder of MEG data (name ending in “MEG.ds”).

The filenames indicate that this data is from a study that has two imaging sessions per visit, with MR and EEG in the first and MEG in the second. Indeed, note that the session codes appearing after “SE” are “01” for the EEG file and the MR session notes, and “02” for the MEG. (See Appendix F for filename conventions.)

The Second Subject

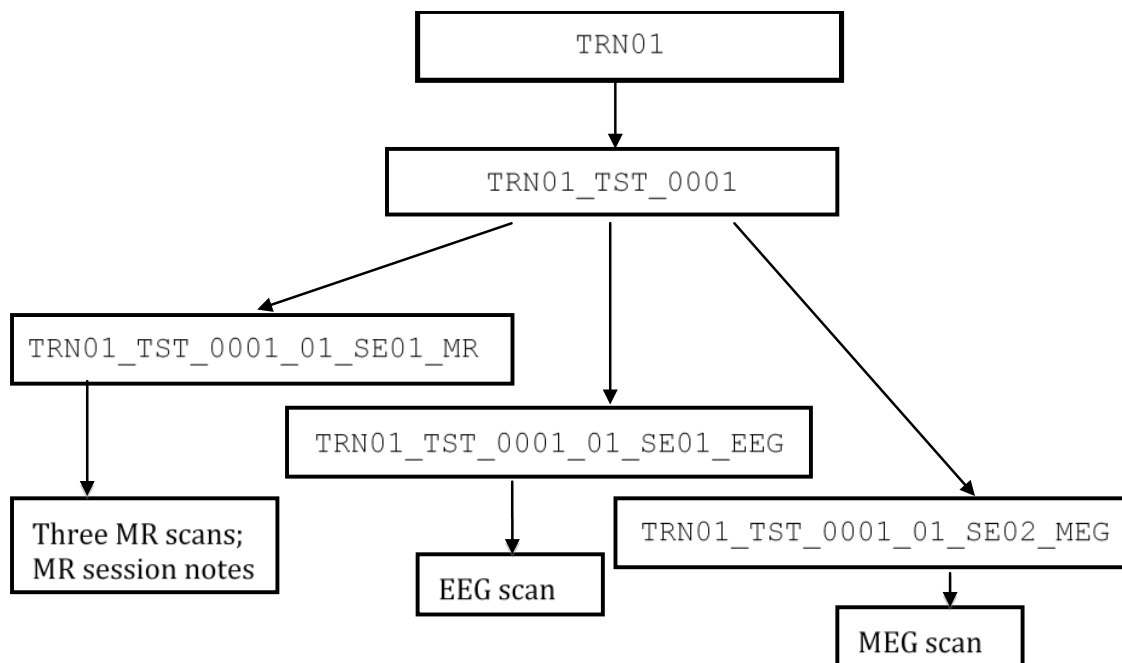
Demo data from a second subject TRN01_TST_0002 is provided for optional extra practice. If you wish, you may repeat all of the above steps for the second subject. However, your training will be considered complete once all data from the first subject is correctly uploaded.

Planning the Upload

A test project will be assigned to you when you obtain your temporary account, and its title and ID will be communicated with your login details. The filenames in the demo data start with “TRN01”, which is NOT your test project ID. It is very important that subject IDs and filenames match the project ID.

***** Before beginning to upload this data, you should change every occurrence of “TRN01” (in folder and file names) to the name of the test project that has been created for you. *****

In real data, if the names don’t match, it is a sign that data is being uploaded into the wrong project. You should stop uploading and investigate or report the mismatch. Each subject will have three SPReD sessions: MR, EEG and MEG. Both the MR and EEG sessions will have the same session code “01”, indicating that these were recorded simultaneously. The MEG session will have code “02”. The following diagram summarizes the SPReD hierarchy for this example, showing only the first subject. Here “TRN01” is used as an example, even though you should always use your own test project ID.



The lowest-level boxes show the scans and associated notes. The MR scan types will be automatically generated from the DICOM headers during upload, and in this example they match the directory names starting with “ax” shown on the previous page. The filenames for the EEG and MEG scans and the session notes, also shown on the previous page, will be preserved in SPReD during upload.

Preparing Zip Archives for Upload without using the Uploader Applet

(The Uploader Applet is described in Appendix D and allows multiple DICOM files to be selected and uploaded. It is not described here as the primary upload procedure because it has some system and Java revision level dependencies that may cause difficulties on some systems.)

In order to use the “Compressed upload” option (see below), we first need to create zip archives for the MR and MEG data. It would be possible to upload your MR scans one by one, but it’s faster and simpler to instead create one zip file containing all three MR scans. Create a zip file (or zip folder, on Windows) named TRN01_TST_0001_MR.zip as follows:

Unix/Linux OSX Instructions:

1. At a Linux/Unix/OSX command prompt, change to the directory TRN01_TST_0001 and then enter the following, on one line:

```
zip -r TRN01_TST_0001_01_SE01_MR ax_dti_ipat2_adc ax_ep2d_bold_reading
axial_t1_mprage
```

Mac OS X Instructions:

1. Open the TRN01_TST_0001 folder, select all three of the folders with names containing “ax”, then right-click (Ctrl-click) on these folders and choose “Compress 3 Items”. When it’s done, find the new file
2. Archive.zip and rename it TRN01_TST_0001_01_SE01_MR.zip

Windows 7 System Instructions:

1. Select all three of the folders with names containing “ax” (shift + click), then right-click on these folders and choose “Send to” and click “Compressed (zipped) Folder”. Change the name of the newly-created folder to TRN01_TST_0001_01_SE01_MR.zip .

Windows 8 System Instructions:

1. Open the TRN01_TST_0001 folder, select all three of the sub-folders with names containing “ax”, then click the “Share” tab and click “Zip”. When it’s done, change the name of the newly-created folder to TRN01_TST_0001_01_SE01_MR.zip .

For Non- Macintosh Users:

1. Follow the same directions above and create a compressed file TRN01_TST_0001_01_SE02_MEG.zip from the folder TRN01_TST_0001_01_SE02_MEG.ds
2. Optionally, create the analogous zip files (or folders) for the second subject, with names beginning with TRN01_TST_0002.

Macintosh Users:

1. On a Mac, for non-DICOM files, using zip from a Terminal command line (as in the “Linux/Unix/OS X” option above) is preferable, as the “Compress” option in the Finder includes Mac-specific folders named __MACOSX, and possibly also Mac-specific files named .DS_Store. These are harmless, and invisible on Macs, but they will be visible on SPReD or if downloaded by Windows or Linux users. These Mac-specific files are ignored by SPReD when uploading zipped DICOMs.

Starting to Upload

1. Go to the training instance of SPReD (<https://spreddev.braincode.ca/spred>) and log in. You will be directed to a homepage similar to below.

Last login: 04/23/2018 15:07:49 Logged in as: [slatour](#) | Auto-logout in: 0:14:55 - [renew](#) | [Logout](#)

SPReD TRAINING

Home New ▾ Upload ▾ Tools ▾ Help ▾

spred currently contains 151 projects, 322 subjects, and 425 imaging sessions.

Projects Subjects MR PET CT

ID Name Description
 Keywords Investigator

Projects

Training Session Practice 45
 Project ID: TRN45
 You are a member for this project.

Recent Data Activity

powered by **XNAT**
 version 1.6.2.1

Near the top of the page is a “Home” button and four pull-down menus, including “New” and “Upload”. Slightly below are five tabs: Projects, Subjects, MR, PET, CT; which can be used to search all non-private projects in the database. Below this, on the left, is a list of projects that are visible to you either because they are classed as public or protected, or because you are listed as an owner, member or collaborator on the project. All projects have a title (e.g. Training Session Practice 45), a running title, and a project ID (e.g. TRN45).

2. Select (by clicking on it) the title of the project that has been created for you, e.g. “Training Session Practice 45”.

Last login: 04/23/2018 15:07:49 Logged in as: [slatour](#) | Auto-logout in: 0:14:55 - [renew](#) | [Logout](#)

SPReD TRAINING

Home New Upload Tools Help

spred currently contains 151 projects, 322 subjects, and 425 imaging sessions.

Projects Subjects MR PET CT

ID Name Description
 Keywords Investigator (SELECT)

Projects

Training Session Practice 45
 Project ID: TRN45
 You are a member for this project.

Recent Data Activity

powered by **XNAT**
 version 1.6.2.1

- a. There may be many projects in the list. If you can't see your project title, check to see whether there is a scroll bar to the right of the project list. Alternatively, you could search for the project by typing its ID (e.g. TRN01) into the ID field, or its name into the Name field, and clicking “Submit”.
- b. Once you have selected your project, you will see a list of subjects, under the tab “Subjects”. The subject list will be empty if you are the first to use this project.

3. Create a new subject, by pulling down the “New” menu near the top of the screen, and selecting “Subject”.

- a. An equivalent way of doing the same thing is: from the “Actions” menu on the right, select “Add” and then “Subject”.

The screenshot shows the SPReD TRAINING web application. At the top left is the logo 'SPReD TRAINING'. A navigation bar contains 'Home', 'New', 'Upload', 'Tools', and 'Help'. The 'New' dropdown menu is open, and 'Subject' is highlighted with a red circle. Below the navigation bar, there is a sidebar with a tree view of 'Projects' (Recent, Favorite, My projects, Other projects), 'Stored Searches', and 'Data'. The main content area shows 'Training Experiment 45' with a 'Details' tab and 'ID: TRN45'. On the right, an 'Actions' menu is visible with options like 'Add', 'Upload Images', 'View Prearchive', 'Scan Type Cleanup', 'Add to Favorites', 'Download XML', 'Download Images', and 'Manage Files'. At the bottom, there is a 'Subjects' table with one row: 'TST01_TRN_0001', 'M', 'L', '2000'. Navigation controls include 'Add Tab', 'Reload', and 'Options'.

4. This leads to the New Subject page:

The screenshot shows the 'Enter a new subject' page in the SPReD TRAINING application. The breadcrumb is 'PROJECT: Training_45 >'. The page title is 'Enter a new subject'. There are three input fields: 'Primary Project:' (filled with 'Training 45'), 'Subject's ID within this project:', and 'Subject's research group within this project:'. Below this is a 'Demographics' section with the following fields: 'YOB/DOB/Age' (radio buttons for 'Date Of Birth', 'Year Of Birth', and 'Age', with 'Date Of Birth' selected), 'Gender' (dropdown menu), 'Handedness' (dropdown menu), 'Education' (text input), 'Race' (text input), and 'Ethnicity' (text input). The 'Please Select One' label is above the radio buttons.

5. Fill in at least the Subject ID (in this case TRN45_TST_0001).
 - a. The “research group” field is optional. For this demo, type in “CONTROL”.
 - b. We strongly recommend that at least Age and Gender be entered at this time as well, for future use in Quality Control (QC). Note: ages over 90 may require special handling for deidentification: please check with your study coordinator. For this test data, fill in any fictitious Age and Gender. The other fields are optional and within OBI research programs using Brain-CODE will typically be filled from other sources.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training_45 >

Enter a new subject

Primary Project: Training 45

Subject's ID within this project: TRN45_TST_00

Subject's research group within this project: CONTROL

Demographics

YOB/DOB/Age: Date Of Birth 25 Year Of Birth Age

Gender: Male

Handedness: (SELECT)

Education:

Race:

Ethnicity:

Height (inches):

Weight (lbs):

Recruitment Source:

Submit

6. Press “Submit” at the bottom of the page when done.

All fields can be viewed and edited later. Members cannot delete a Subject, and should send a deletion request to spred@braincode.ca (see Appendix C) if they wish to do so.

7. You are now on the main Subject Page. You may click the project's running title (e.g. "Training 45", near the top of the screen) to get back to the main Project Page or "Home" to get back to your account Home Page.
- Try this now: click "Home", then your project title, then TRN01_TST_0001, to get back to the Subject Page for TRN01_TST_0001.

SPReD
TRAINING

Logged in as: [slatour](#) | Auto-logout in: 0:14:54 - [renew](#) | [Logout](#)

Home **N w** Upload Tools Help

PROJECT: [Training 45](#) > TRN45_TST_0001

Subject Details: TRN45_TST_0001

Details	Projects
Accession #	spread_S00907
Date Added	2018-04-23 16:21:37.276 (slatour)
Birth year	--
Gender	Male
Handedness	
Group	CONTROL

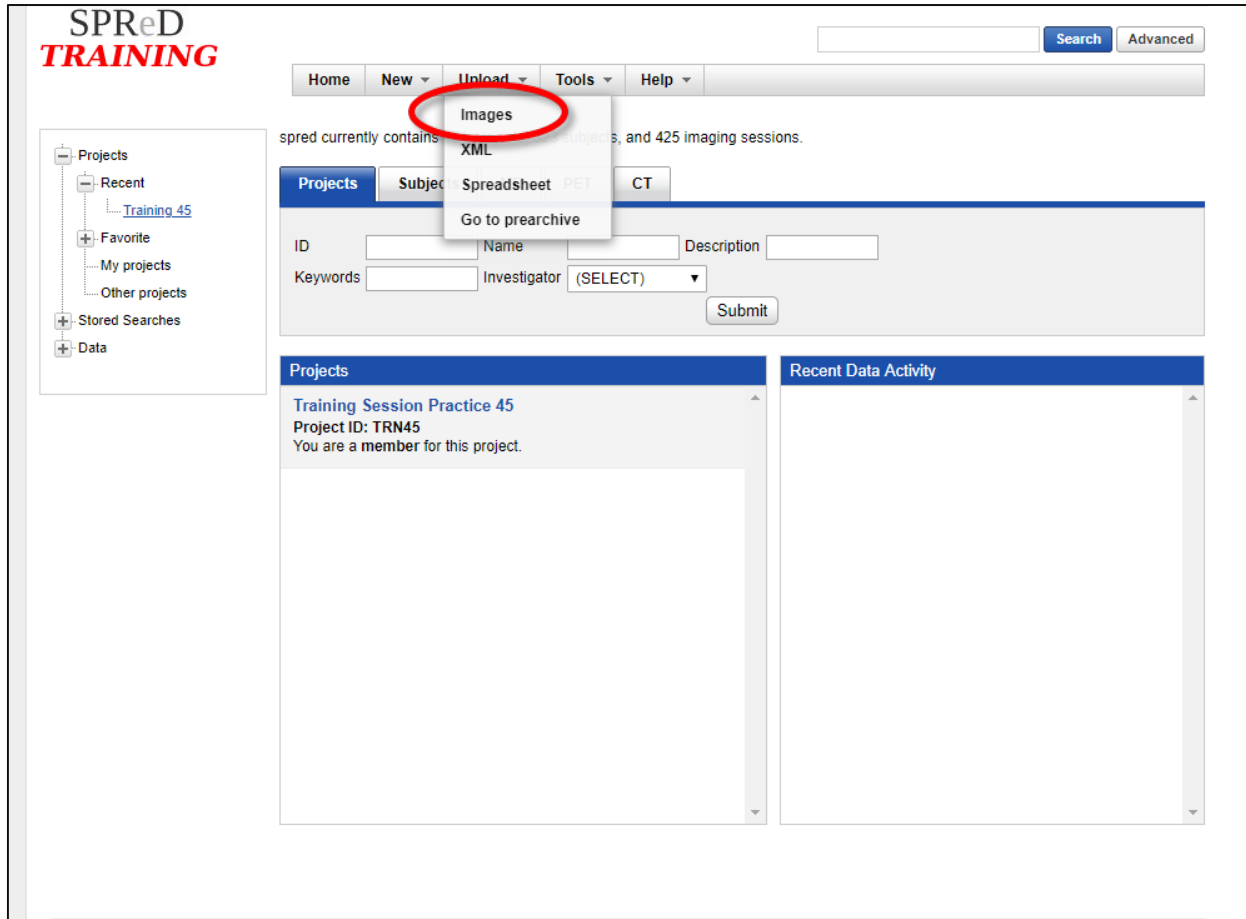
Actions	
Edit	
View XML	
Add Experiment	
Upload Images	
Download XML	
Email	
Manage Files	

Experiments

Date	Experiment	Project	Label
------	------------	---------	-------

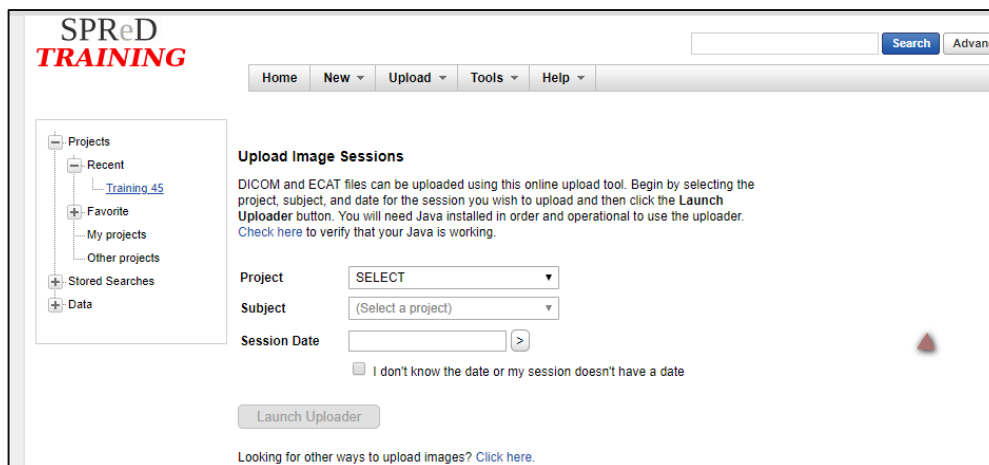
Upload the MR Scans (DICOM Files)

1. From the top of the Subject Page, choose the “Upload” menu, then “Images”



The screenshot shows the SPReD TRAINING web application interface. At the top, there is a navigation bar with 'Home', 'New', 'Upload', 'Tools', and 'Help' menus. The 'Upload' menu is open, and 'Images' is highlighted with a red circle. Below the navigation bar, there is a search bar and a 'Search' button. The main content area displays a list of projects, including 'Training 45'. The 'Upload' menu options include 'Images', 'XML', 'Spreadsheet', 'PET', 'CT', and 'Go to prearchive'.

2. You will be re-directed to the Upload Image Sessions page.

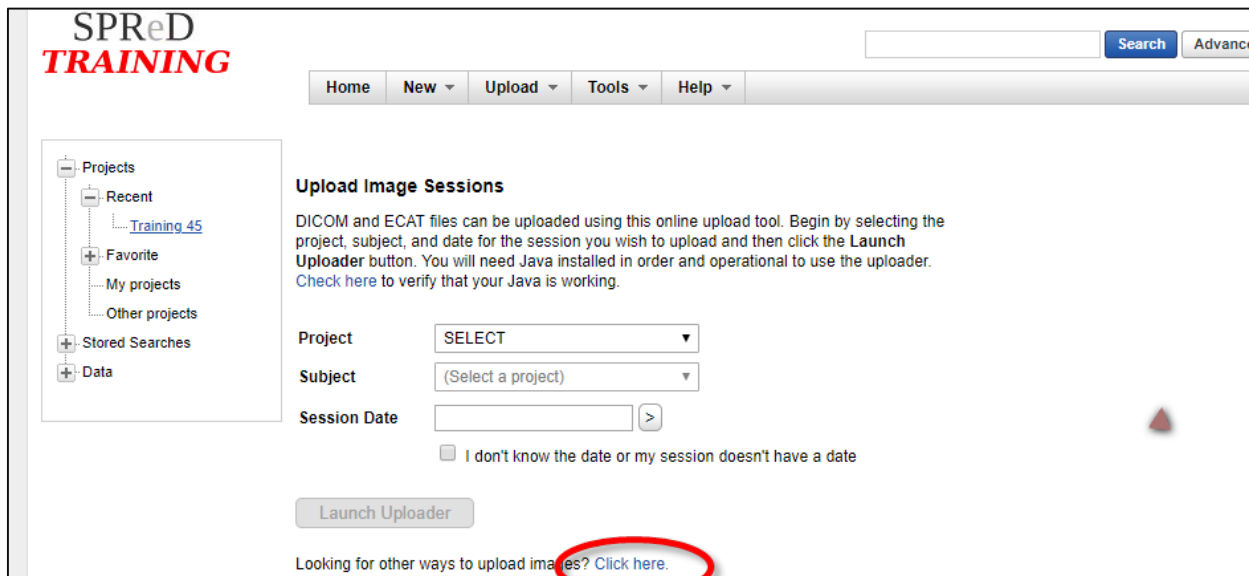


The screenshot shows the 'Upload Image Sessions' page in the SPReD TRAINING application. The page title is 'Upload Image Sessions'. Below the title, there is a paragraph of instructions: 'DICOM and ECAT files can be uploaded using this online upload tool. Begin by selecting the project, subject, and date for the session you wish to upload and then click the Launch Uploader button. You will need Java installed in order and operational to use the uploader. Check here to verify that your Java is working.' Below the instructions, there are three dropdown menus: 'Project' (SELECT), 'Subject' (Select a project), and 'Session Date' (with a calendar icon). There is also a checkbox labeled 'I don't know the date or my session doesn't have a date'. At the bottom, there is a 'Launch Uploader' button and a link: 'Looking for other ways to upload images? Click here.'

3. There are two ways to proceed.

- a. Use the Uploader Applet, described in Appendix D. However, some users might have difficulty running it if their Java installation is out of date.
- b. Upload without the Uploader Applet.

4. Upload without the Uploader Applet. Click the link that says “Click Here” within the Upload Images page.



The screenshot shows the SPReD TRAINING web application. The header includes the logo 'SPReD TRAINING' and a navigation menu with 'Home', 'New', 'Upload', 'Tools', and 'Help'. A search bar is located in the top right. On the left, there is a sidebar with a tree view containing 'Projects', 'Recent' (with a sub-item 'Training 45'), 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. The main content area is titled 'Upload Image Sessions' and contains the following text: 'DICOM and ECAT files can be uploaded using this online upload tool. Begin by selecting the project, subject, and date for the session you wish to upload and then click the Launch Uploader button. You will need Java installed in order and operational to use the uploader. Check here to verify that your Java is working.' Below this text are three input fields: 'Project' (a dropdown menu with 'SELECT' selected), 'Subject' (a dropdown menu with '(Select a project)' selected), and 'Session Date' (a text input field with a right-pointing arrow button). A checkbox labeled 'I don't know the date or my session doesn't have a date' is located below the date field. A 'Launch Uploader' button is positioned below the form. At the bottom of the page, the text 'Looking for other ways to upload images? Click here.' is displayed, with the link 'Click here.' circled in red.

5. This takes you to a secondary upload page.

Note: depending on your browser, you may see “Choose File” instead of “Browse”.

The screenshot shows the SPReD TRAINING web interface. At the top left is the logo 'SPReD TRAINING'. To the right is a search bar with 'Search' and 'Advanced' buttons. Below the logo is a navigation menu with 'Home', 'New', 'Upload', 'Tools', and 'Help'. On the left side, there is a sidebar with a tree view containing 'Projects' (with sub-items 'Recent' and 'Training_45'), 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. The main content area is titled 'Additional Options for Uploading Sessions'. It features two options: 'Option 1: Compressed upload' and 'Option 2: DICOM C-STORE Service Class User'. Under 'Option 1', there is a 'Project' dropdown menu set to 'SELECT', a 'Destination' radio button selected for 'Prearchive', a 'File' field with a 'Choose File' button and 'No file chosen' text, and a 'Begin Upload' button. Below 'Option 2', there is a paragraph of text and a list of 'DICOM C-STORE receiver (SCP) Specifications' including Host Name, Port, and AE Title(s).

We will use “Option 1: Compressed Upload”. (“Option 2: DICOM C-STORE Service Class User” is not supported.)

6. Within “Option 1” Select Project as current project title (Training 45 in this case)

- Destination: make sure this is set to “Prearchive”.
- File: choose the zip file (or folder) TRN01_TST_0001_01_SE01_MR.zip you created earlier (see Page 7).
- Click the “Begin Upload” button.

- Favorite
- My projects
- Other projects
- Stored Searches
- Data

Option 1: Compressed upload

Raw image files can be zipped (.zip or .tar.gz) and uploaded using the form. This tool currently supports DICOM and ECAT files. Selecting 'Prearchive' will place your images into a temporary holding space. You will then have the ability to review the details and match the data to the proper subject & session ID. If you are confident the data will be mapped properly, you can directly 'Archive' the files and specify whether the resulting session should go into a quarantine state.

Project

Destination Prearchive

File TRN45_TST_...MR.zip.zip

Option 2: DICOM C-STORE Service Class User

Any DICOM C-STORE SCU, including scanner consoles or DICOM applications like [OsiriX](#) or [DicomBrowser](#), can send files directly to this server.

7. From the “Upload” menu at the top of the screen, select “Go to prearchive”, which brings up the following screen:

SPReD
TRAINING

Home
New ▾
Upload ▾
Tools ▾
Help ▾

Sessions

View ▾
Refresh
Check
Uncheck
Check All
Uncheck All

Project	Subject	Session	Scan Date	Upload Date	Status	
<input type="checkbox"/>	TRN45	12Chn_Dat	12 Chn QC	Tue Jan 15 201...	Mon Apr 23 2018 1...	Ready

one row

Details of Highlighted Session(s)

Project :
Subject :
Session : No sessions highlighted.
Scan Date :
Upload Date :
Status :
Scanner :
More :

Actions

Actions are performed on checked sessions.

Filters

Projects:

Upload Date: From ... To ...

Scan Date: From ... To ...

Status:

Subject/Session:

8. Assuming there is only one row in the list on the left, select this row by clicking the small box on the left
 - a. If there is more than one row, look at the “Upload Date” column, which can be made wider by dragging its right-hand border.
 - b. Check that the project ID in the second column is correct.
 - c. When working with real data, if you have access to more than one project, then it is possible that you or someone else has uploaded data to the wrong project. If this occurs (and you are sure!), then you can select the row and press the “Change Projects” button in the right-hand half of the screen and select the correct project. Once this is done, refresh the prearchive page; wait and repeat until the status of the moved row is “Ready”.

9. Click the “Review and Archive” button. This begins an archiving process, at the end of which the data will be moved into the main database, and will be visible to others who have access to the project.

The screenshot displays the SPReD TRAINING web application interface. At the top left, the logo "SPReD TRAINING" is visible. A navigation menu includes "Home", "New", "Upload", "Tools", and "Help". A search bar with "Search" and "Advanced" buttons is located at the top right.

The main content area is divided into two sections:

- Sessions:** A table with columns: Project, Subject, Session, Scan Date, Upload Date, and Status. The first row is selected, showing Project: TRN45, Subject: 12Chn_Dai..., Session: 12 Chn QC, Scan Date: Tue Jan 15 201..., Upload Date: Mon Apr 23 2018 1..., and Status: Ready. Below the table, it indicates "one of one row".
- Details of Highlighted Session(s):** A panel showing session details:
 - Project : TRN45
 - Subject : 12Chn_DailyQC
 - Session : 12 Chn QC
 - Scan Date : Tue Jan 15 2013 00:00:00 GMT-0500 (Eastern Standard Time)
 - Upload Date : Mon Apr 23 2018 16:52:11 GMT-0400 (Eastern Daylight Time)
 - Status : Ready
 - Scanner :
 - More : Details

Below the details, there is an **Actions** section with the text "Actions are performed on checked sessions." and buttons for "Review and Archive", "Change Projects", "Delete", and "Rebuild".

At the bottom, there is a **Filters** section with input fields for "Projects", "Upload Date" (From and To), "Scan Date" (From and To), "Status" (a dropdown menu), and "Subject/Session".

10. After clicking “Review and Archive”, you will see the “Add New MR Session” form, shown on the following page.

- a. At the top of the form is the Project short title. If this is incorrect, click the “Back” button at the bottom of the form, and see instructions above about changing projects.

11. The Subject and Session fields will have been filled in automatically and incorrectly from the DICOM files.

- a. Press OK in response to the popup window complaining about invalid characters (spaces) in the session name. Ignore the message in red “This subject does not exist...”, as we are about to change the subject.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training 45 >

Add New MR Session

Project: Training 45

Subject: 12Chn_DailyQC [Add New Subject](#)

** This subject does not exist, and will be automatically created. To populate demographic details for this subject please use the 'Add New Subject' link.*

Session: 12ChnQC

Date: January 15, 2013

Visit ID:

Scanner: MRC35120 (SIEMENS TrioTim MRC35120)

Acquisition Site: Baycrest Centre for Geriatr

Scans [Add Scan](#)

Scan	Type	Quality	Note
<input type="checkbox"/> 2	AXIAL T1 MPRAGE	usable	28 files, 4.5 MB
<input type="checkbox"/> 4	AX ep2d_bold	usable	15 files, 5.4 MB
<input type="checkbox"/> 6	AX_DTI lpat2_ADC	usable	53 files, 6.1 MB

Additional Notes

Notes:

[Back](#) [Submit](#)

12. For the Subject field, select TRN01_TST_0001 from the pull-down list. (Renamed TRN45_TST_0001 in this example)

- For the Session field, enter TRN01_TST_0001_01_SE01_MR . (Remember to change TRN01 to your project number).
- The acquisition date, scanner and acquisition site will have been filled in automatically, but you should enter “01” into the Visit ID field. (This is the visit number encoded in the demo data filenames and session names.)
- In real data, you should always review these fields and correct them if needed; it is important that this information is correctly and consistently entered as defined by your study coordinator.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training_45 >

Add New MR Session

Project Training 45

Subject: TRN45_TST_0001 [Add New Subject](#)

Session TRN45_TST_0001_01_SE01_MR

Date January 15 2013

Visit ID 01

Scanner MRC35120 (SIEMENS TrioTim MRC35120)

Acquisition Site Baycrest Centre for Geriatric

Scans [Add Scan](#)

Scan	Type	Quality	Note
2	AXIAL T1 MPRAGE	usable	28 files, 4.5 MB
4	AX ep2d_bold	usable	15 files, 5.4 MB
6	AX_DT1 lpat2_ADC	usable	53 files, 6.1 MB

Additional Notes

Notes

[Back](#) [Submit](#)

The list of scans will have been automatically filled in from the DICOM. It can be edited if necessary, except that the scan numbers cannot be changed. In our example, the scans are numbered 2, 4, and 6; whereas in real data, they would normally be numbered consecutively

from 1. You could create extra scans here (and later upload data to them manually), but this is not normally necessary.

13. Check the scan type and usability (usable/questionable/unusable).

- The usability field will re-filled following the Quality Control pipeline process, so unless you have definite doubts or information about the poor quality of the data uploaded choose “usable”. However, if there are any comments or unusual circumstances you know of during image acquisition (e.g., subject seemed anxious or was restless) please add a comment in the Note fields.
- Try this now by adding “Subject had trouble staying still” in the AXIAL T1 MPRAGE Note field.

The screenshot shows the SPReD TRAINING web interface. The main content area is titled 'PROJECT: Training_45 >' and 'Add New MR Session'. The form includes fields for Project (Training 45), Subject (TRN45_TST_0001), Session (TRN45_TST_0001_01_SE), Date (January 15, 2013), Visit ID (01), Scanner (MRC35120), and Acquisition Site (Baycrest Centre for Geriatri). Below the form is a table of scans:

Scan	Type	Quality	Note	Files	Size
2	AXIAL T1 MPRAGE	usable	Subject had trouble staying still	20 files	4.5 MB
4	AX ep2d_bold	usable		15 files	5.4 MB
6	AX_DT1 Ipat2_ADC	usable		53 files	6.1 MB

Below the table is an 'Additional Notes' section with a text area. At the bottom of the form are 'Back' and 'Submit' buttons.

14. Press “Submit”. This completes the archiving process. You are now at the Session Page, where you should see the new scans listed.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training_45 > SUBJECT:TRN45_TST_0001 > TRN45_TST_0001_01_SE01_MR

MR Session: TRN45_TST_0001_01_SE01_MR

Active Processes
AutoRun: Queued Start Time: 2018-04-24 10:04:54.95

Details		Projects	
Accession #:	spread_E01512	Subject:	TRN45_TST_0001
Date Added:	04/24/2018 10:04:42 (slatour)	Gender:	Male
Date:	01/15/2013	Handedness:	
Time:	07:54:44	Age:	25
Visit:	01		
Operator:	Annette Weekes-Holder		
Scanner:	MRC35120 SIEMENS TrioTim		
Acquisition Site:	Baycrest Centre for Geriatric Care		

Actions

- Edit
- Add QC
- View
- Upload
- Download
- Email
- Build
- Manage Files

Scans

Scan	Type	Series Desc	Usability	Files	Note
2	AXIAL T1 MPRAGE	AXIAL T1 MPRAGE	usable	Show Counts	Patient had trouble staying still
4	AX ep2d_bold	AX ep2d_bold	usable	Show Counts	
6	AX_DTI Ipat2_ADC	AX_DTI Ipat2_ADC	usable	Show Counts	

Total Counts

History

Action	Launch Time	Status	Note
AutoRun	2018-04-24 10:04:54.95	Queued	
Transferred	2018-04-24 10:04:42.904	Complete	
Created	2018-04-24 10:04:42.904	Complete	By: slatour

15. Press “Total Counts” or “Show Counts” to see the sizes of the data files. You may also see a list of “Active Processes” in the top half of the screen, including “AutoRun”. One thing that this process does is automatically create snapshots for the MR images. Once this process completes, the snapshots can be seen by pressing the “+” button to the left of any of the scans. (Press “-“ to hide them again.)

The screenshot displays the SPReD TRAINING web interface. At the top, there is a navigation menu with options: Home, New, Upload, Tools, and Help. A search bar is also present. The main content area shows the following information:

MR Session: TRN45_TST_0001_01_SE01_MR

Active Processes
AutoRun: Queued Start Time: 2018-04-24 10:04:54.95

Details

Accession #:	spred_E01512	Subject:	TRN45_TST_0001
Date Added:	04/24/2018 10:04:42 (slatour)	Gender:	Male
Date:	01/15/2013	Handedness:	
Time:	07:54:44	Age:	25
Visit:	01		
Operator:	Annette Weekes-Holder		
Scanner:	MRC35120 SIEMENS TrioTim		
Acquisition Site:	Baycrest Centre for Geriatric Care		

Actions

- Edit
- Add QC
- View
- Upload
- Download
- Email
- Build
- Manage Files

Scans

Scan	Type	Series Desc	Usability	Files	Note
2	AXIAL T1 MPRAGE	AXIAL T1 MPRAGE	usable	Show Counts	Patient had trouble staying still
	AX ep2d_bold	AX ep2d_bold	usable	Show Counts	
6	AX_DTI Ipat2_ADC	AX_DTI Ipat2_ADC	usable	Show Counts	

History

Action	Launch Time	Status	Note
AutoRun	2018-04-24 10:04:54.95	Queued	
Transferred	2018-04-24 10:04:42.904	Complete	
Created	2018-04-24 10:04:42.904	Complete	By: slatour

Also during the “AutoRun” process, a report is automatically sent to the Subject Registry to facilitate project administration and quality control (QC). The project owners will receive an email, from noreply@research.baycrest.org, informing them of the creation of this session.

Note the History display at the bottom of the page, which can be toggled on and off.

Upload the Session Notes

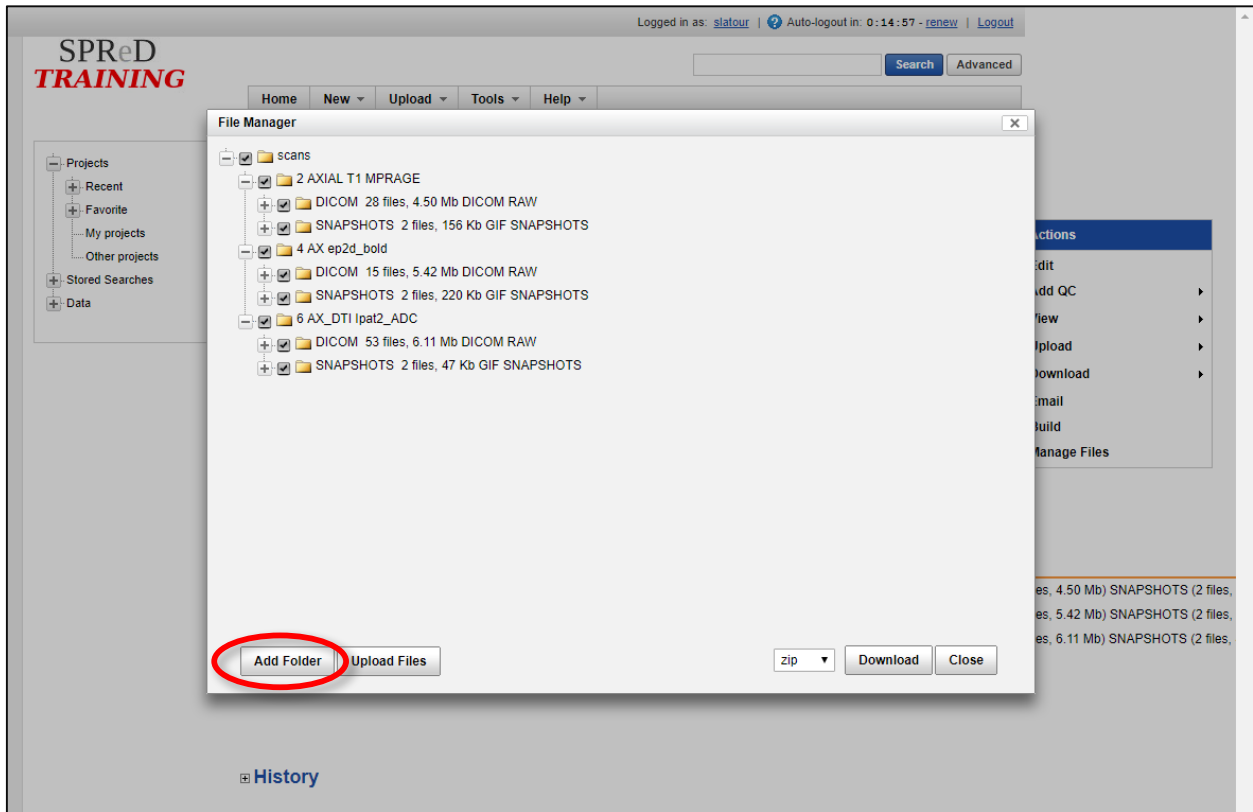
The file TRN01_TST_0001_01_SE01_MR_Session_notes.rtf in the example data contains (fictitious) technician's notes from Session 01. This is an example of a Session Resource file, i.e. a file that is part of a session but is not a scan. The name indicates that these notes are to be loaded into the MR session that we have just created. It is possible that this file contains some notes that are also relevant to the simultaneously-recorded EEG scan. There is no way to associate a session-level resource with multiple sessions, so in the case of multi-modal sessions, one of the corresponding SPReD sessions must be chosen in which to store the resource.

1. From the Session page, choose "Manage Files" from the "Actions" menu on the right.

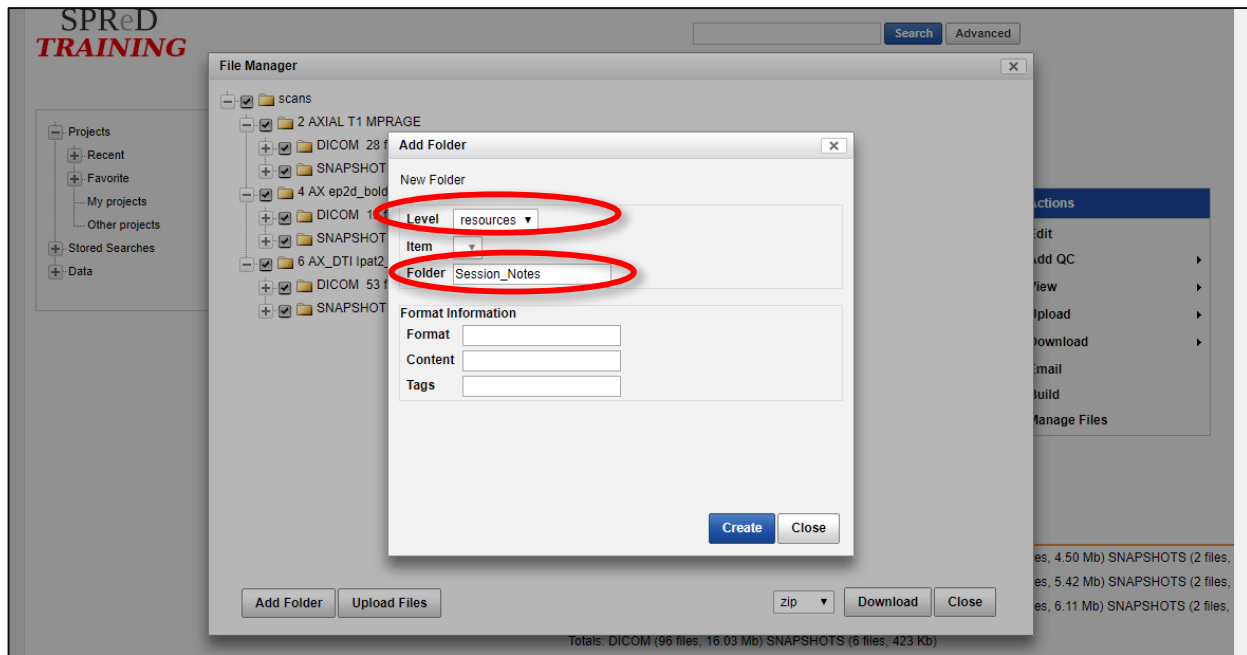
The screenshot displays the SPReD TRAINING web application interface. At the top, there is a navigation bar with 'Home', 'New', 'Upload', 'Tools', and 'Help' menus. A search bar is also present. The main content area shows the breadcrumb path: PROJECT: Training_45 > SUBJECT: TRN45_TST_0001 > TRN45_TST_0001_01_SE01_MR. Below this, the 'MR Session: TRN45_TST_0001_01_SE01_MR' details are shown in a table format. To the right of the details is an 'Actions' menu with options: Edit, Add QC, View, Upload, Download, Email, Build, and 'Manage Files' (which is circled in red). Below the session details is a 'Scans' table with columns: Scan, Type, Series Desc, Usability, Files, and Note.

Scan	Type	Series Desc	Usability	Files	Note
2	AXIAL T1 MPRAGE	AXIAL T1 MPRAGE	usable	Show Counts	Patient had trouble staying still
4	AX ep2d_bold	AX ep2d_bold	usable	Show Counts	
6	AX_DTI Ipat2_ADC	AX_DTI Ipat2_ADC	usable	Show Counts	

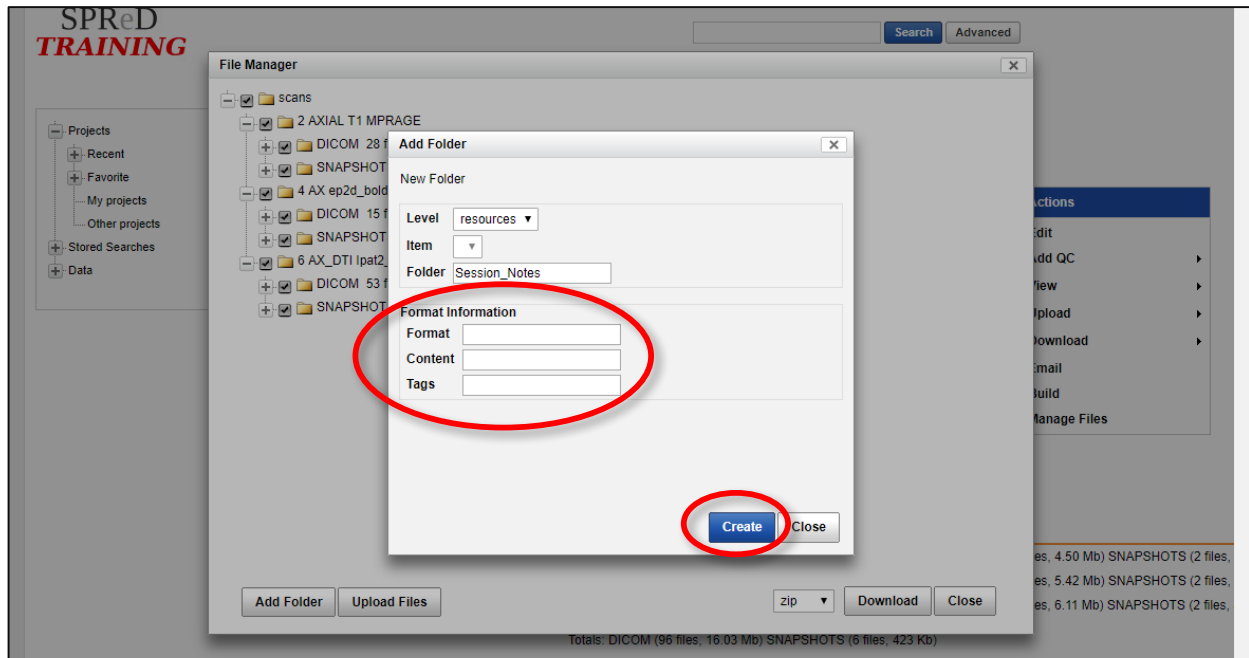
2. This brings up a “File Manager” window. Choose “Add Folder”:



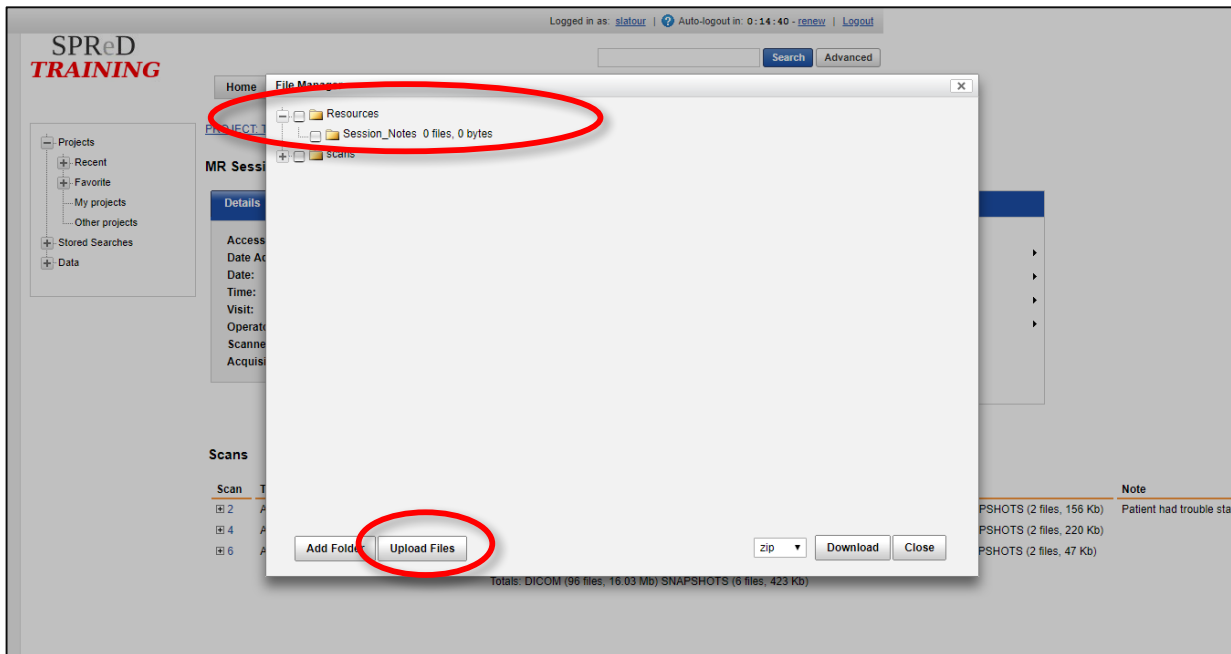
3. In the “Add Folder” dialog: for Level, select “resources”; then enter the Folder name “Session_Notes” (do not use spaces in the name)



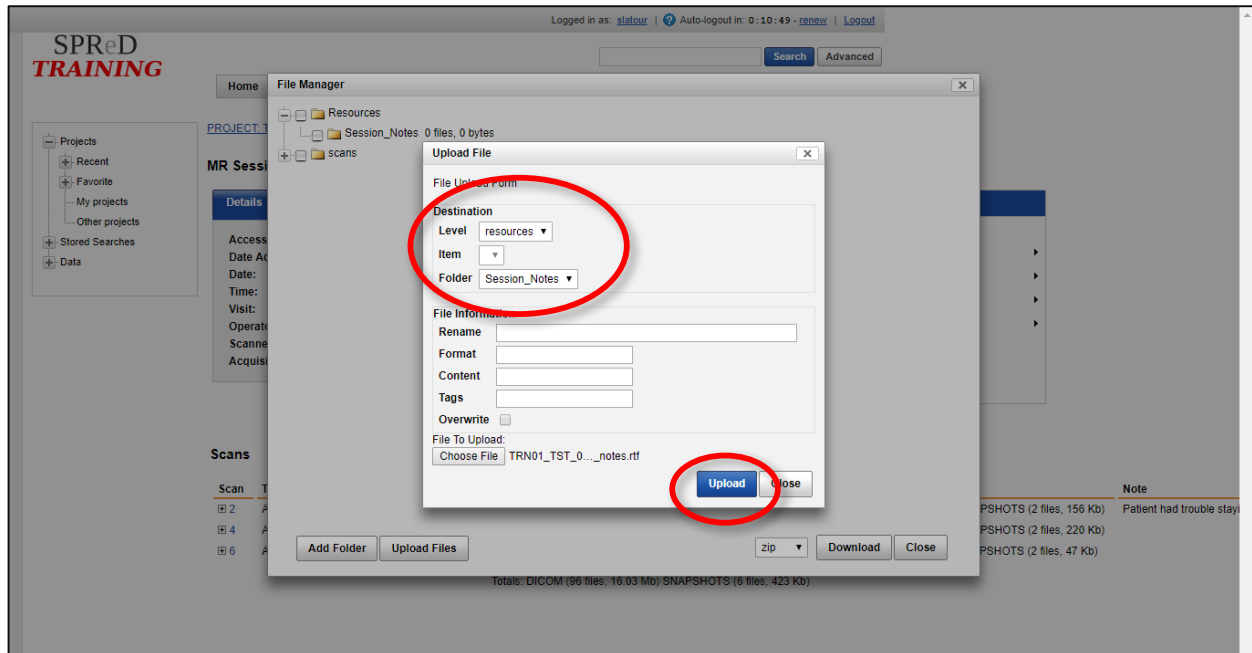
4. (The “Format Information” fields may be left blank.) Folders created mistakenly cannot be deleted or renamed by Members; please submit a deletion request to spread@braincode.ca (Appendix C). Then press Create.



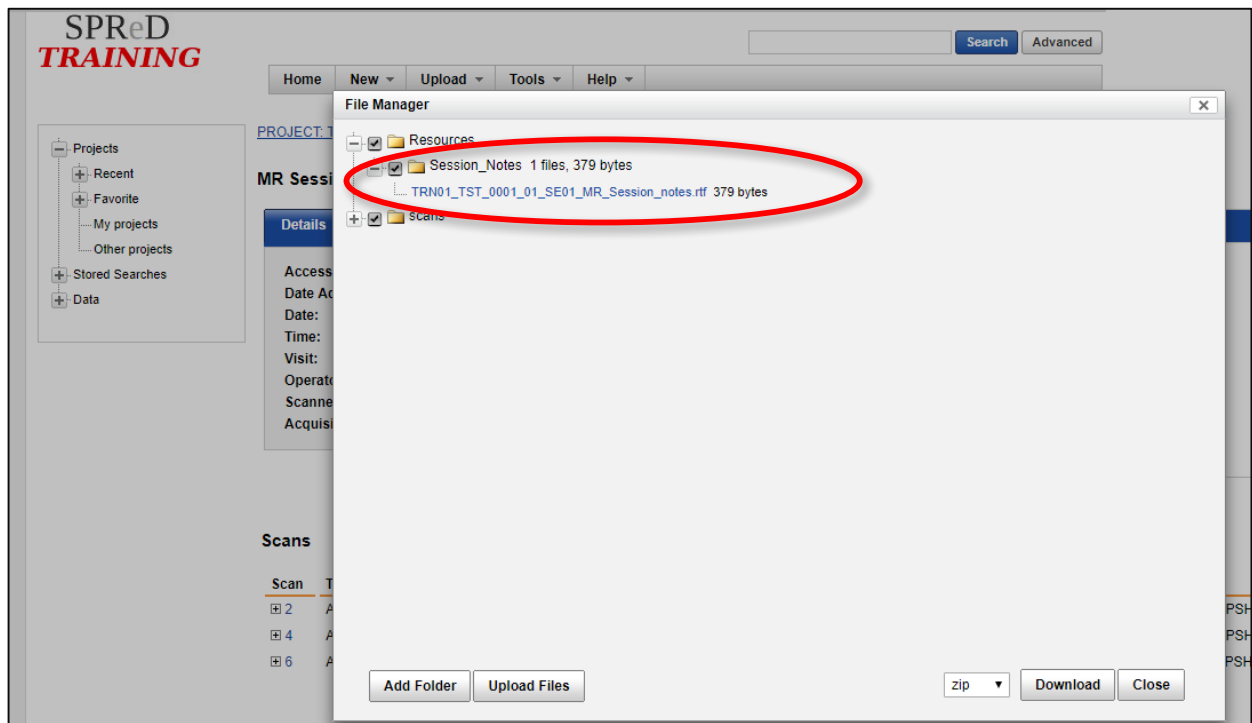
5. The new folder is now visible in the File Manager window. Press “Upload Files”:



6. This brings up an Upload File window. Select “resources” and “Session_Notes”. Choose the file TRN01_TST_0001_01_SE01_MR_Session_notes.rtf, then press “Upload”.



7. When it's done, you'll see the File Manager window again. Press the “+” button beside Session_Notes to see the uploaded file.

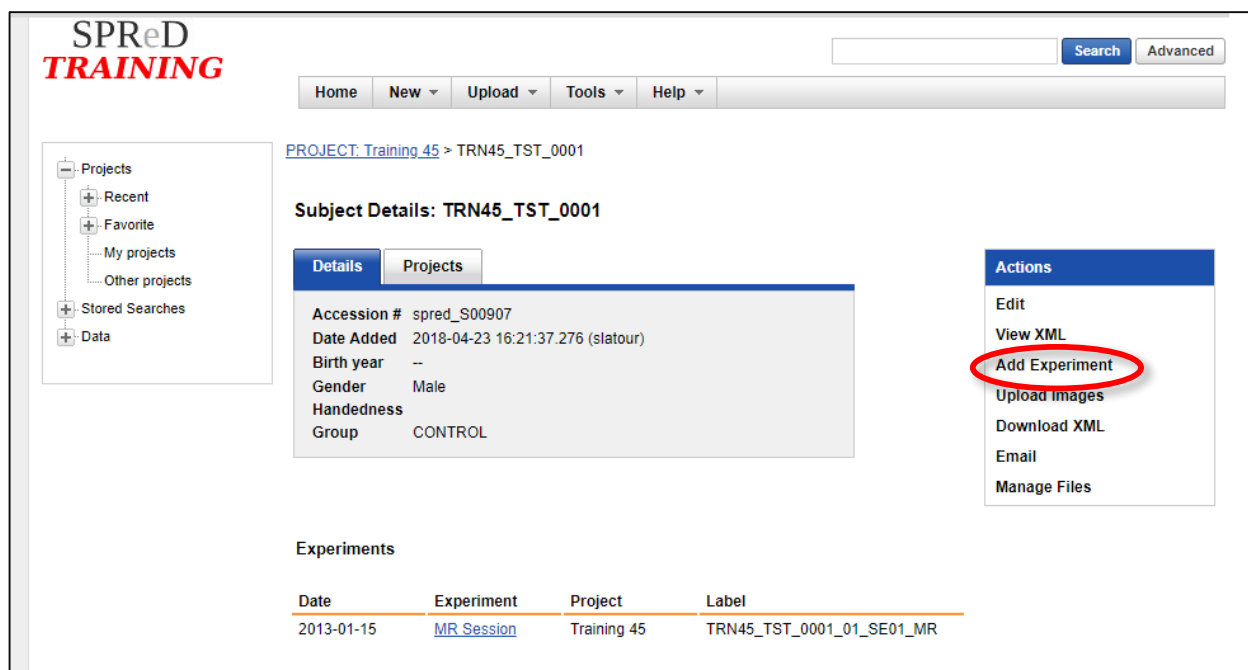


8. Press “Close” to return to the Session page.

Upload the EEG Scan (Non-DICOM)

In our example, there is a single EEG scan collected simultaneously with MR as part of Session 01. Since by convention SPReD sessions contain only one recording/imaging modality, we create a second SPReD session to hold the EEG scan.

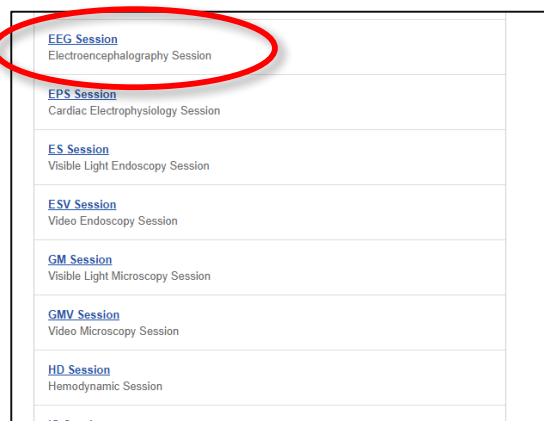
1. Go back to the Subject page by clicking “SUBJECT: TRN01_TST_0001” near the top of the screen. From the “Actions” menu on the right, select “Add Experiment” (recall that in SPReD, “experiment” is a synonym of “session”).



The screenshot shows the SPReD TRAINING web interface. At the top, there is a navigation bar with 'Home', 'New', 'Upload', 'Tools', and 'Help' menus, along with search and advanced search buttons. The main content area displays 'PROJECT: Training_45 > TRN45_TST_0001' and 'Subject Details: TRN45_TST_0001'. On the left, there is a sidebar with a tree view for 'Projects' (Recent, Favorite, My projects, Other projects), 'Stored Searches', and 'Data'. The subject details are shown in a table with tabs for 'Details' and 'Projects'. The 'Details' tab is active, showing fields for Accession #, Date Added, Birth year, Gender, Handedness, and Group. To the right of the details is an 'Actions' menu with options: Edit, View XML, Add Experiment (circled in red), Upload Images, Download XML, Email, and Manage Files. Below the details is an 'Experiments' table with columns for Date, Experiment, Project, and Label.

Date	Experiment	Project	Label
2013-01-15	MR Session	Training 45	TRN45_TST_0001_01_SE01_MR

2. Select “EEG Session”. You will see the same kind of session creation form as before, however this one will have no scans prefilled.



The screenshot shows a list of session types in a table. The first row, 'EEG Session' (Electroencephalography Session), is circled in red. Other session types listed include EPS Session (Cardiac Electrophysiology Session), ES Session (Visible Light Endoscopy Session), ESV Session (Video Endoscopy Session), GM Session (Visible Light Microscopy Session), GMV Session (Video Microscopy Session), HD Session (Hemodynamic Session), and IQ Session.

EEG Session Electroencephalography Session
EPS Session Cardiac Electrophysiology Session
ES Session Visible Light Endoscopy Session
ESV Session Video Endoscopy Session
GM Session Visible Light Microscopy Session
GMV Session Video Microscopy Session
HD Session Hemodynamic Session
IQ Session

3. Enter the session name “and Visit ID “01”. (Note that on this form, Visit ID is obligatory.) For real data, it is strongly recommended that you also fill in the fields Date, Scanner and Acquisition Site.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training 45 > SUBJECT: TRN45_TST_0001 >

Add New EEG Session

Project Training 45
Subject: TRN45_TST_0001
Session **TRN45_TST_0001_01_SEI**

Date January 1 2018

Visit ID 01

Scanner MEDPC

Acquisition Site BYC

Scans Add Scan

Scan	Type	Quality	Note
	✓	usable	
	✓	usable	
	✓	usable	
	✓	usable	
	✓	usable	

Additional Notes

Notes

Back Submit

4. In the list of scans, delete all but the first row (important!), by pressing the scissors icon beside each of the other rows. After this is done, enter Scan number “1”, and for Type, enter “EEG”. Select “usable” and optionally add a note. Click “Submit”.

SPReD TRAINING

Home New Upload Tools Help






PROJECT: Training_45 > SUBJECT: TRN45_TST_0001 >

Add New EEG Session

Project Training 45
Subject: TRN45_TST_0001
Session TRN45_TST_0001_01_SEI

Date January 1 2018
Visit ID 01
Scanner MEDPC
Acquisition Site BYC

Scans Add Scan

Scan	Type	Quality	Note
 <input type="text"/>	<input checked="" type="checkbox"/> <input type="text"/>	usable	<input type="text"/>
 <input type="text"/>	<input checked="" type="checkbox"/> <input type="text"/>	usable	<input type="text"/>
 <input type="text"/>	<input checked="" type="checkbox"/> <input type="text"/>	usable	<input type="text"/>
 <input type="text"/>	<input checked="" type="checkbox"/> <input type="text"/>	usable	<input type="text"/>
 <input type="text"/>	<input checked="" type="checkbox"/> <input type="text"/>	usable	<input type="text"/>

Additional Notes

Notes

Back Submit

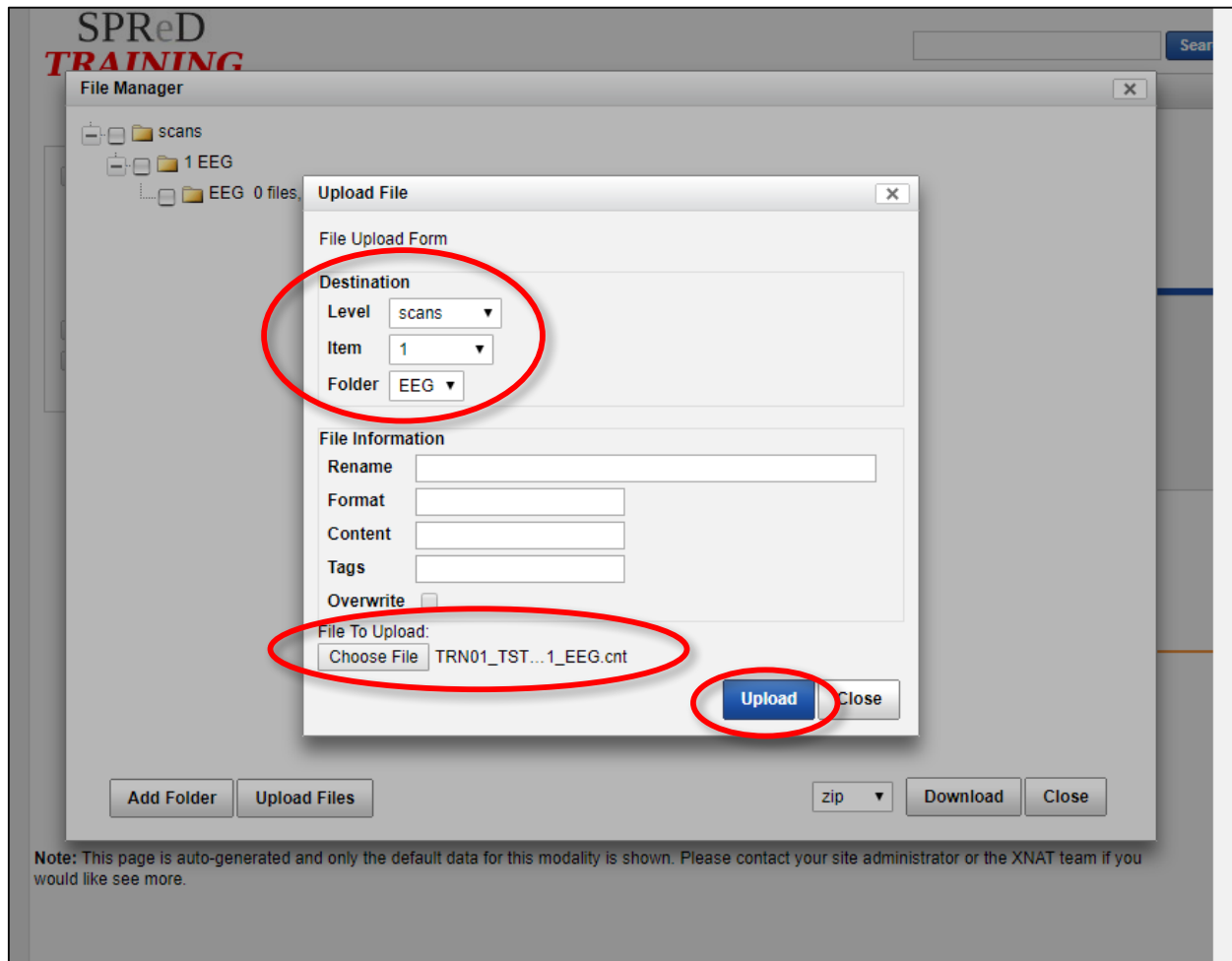
5. You will now see the Session Page for TRN01_TST_0001_01_SE01_EEG. To upload the EEG data, choose “Manage Files” from the “Actions” menu on the right. This brings up the “File Manager” window. Choose “Add Folder”.

The screenshot shows the SPReD interface for a session named TRN45_TST_0001_01_SE01_EEG. A 'File Manager' window is open, displaying a tree view with a folder named 'scans' containing one item named '1 EEG'. The 'Add Folder' button at the bottom of the window is circled in red. Other buttons visible include 'Upload Files', 'zip', 'Download', and 'Close'.

6. For Level select “scans”; for Item select “1”; enter the Folder name “EEG”, and press “Create”.

The screenshot shows the 'Add Folder' dialog box within the File Manager. The 'New Folder' section has 'Level' set to 'scans', 'Item' set to '1', and 'Folder' set to 'EEG'. The 'Format Information' section has empty fields for 'Format', 'Content', and 'Tags'. The 'Create' button at the bottom of the dialog is circled in red. The background shows the File Manager window with the same tree view as in the previous screenshot.

7. Still in the File Manager, click “Upload Files”, and select “scans”, “1” and “EEG”. Click “Browse”/“Choose File” and choose the file TRN01_TST_0001_01_SE01_EEG.cnt, then press “Upload”. (The File Information fields may be left blank.) This may take a couple of minutes, and there is no progress bar. (Your browser may show a status such as “Sending request to spreadev.braincode.ca”, which disappears once upload is complete.) Files uploaded with this method may be zipped first, but don’t have to be. Note that if you do zip them you will have a choice of whether to unzip them or store them in the zipped format.



8. Press “Close” to return to the Session page.

Reload the Session page (either click a reload button in your browser, or go to the Subject page and then return to the EEG Session page). Click “Total Counts” to see the uploaded file listed.

Upload the MEG Scan (Non-DICOM)

1. Click on “SUBJECT:TRN01_TST_0001” to return to the Subject Page. From the “Actions” menu on the right, select “Add Experiment” (recall that in SPReD, “experiment” is a synonym of “session”), and select “MEG Session”. You will see the same kind of session creation form as for the EEG session shown previously.

The screenshot shows the SPReD TRAINING web interface. At the top, there is a search bar and navigation tabs: Home, New, Upload, Tools, and Help. The breadcrumb trail indicates the current location: PROJECT: Training 45 > TRN45_TST_0001. The main content area is titled 'Subject Details: TRN45_TST_0001' and has two tabs: 'Details' (selected) and 'Projects'. The 'Details' tab displays the following information:

- Accession # : spread_S00907
- Date Added : 2018-04-23 16:21:37.276 (slatour)
- Birth year : --
- Gender : Male
- Handedness :
- Group : CONTROL

To the right of the details is an 'Actions' menu with the following options: Edit, View XML, Add Experiment (circled in red), Upload Images, Download XML, Email, and Manage Files. Below the details is an 'Experiments' table:

Date	Experiment	Project	Label
2013-01-15	MR Session	Training 45	TRN45_TST_0001_01_SE01_MR
2018-01-01	EEG Session	Training 45	TRN45_TST_0001_01_SE01_EEG

The screenshot shows a dropdown menu for selecting a session type. The 'MEG Session' option is circled in red. The other options are:

- [MG Session](#): Digital Mammography Session
- [MR Session](#): An event in which MR scans are obtained on a subject
- [NM Session](#): Nuclear Medicine Image Session
- [OP Session](#): Ophthalmic Photography Session
- [OPT Session](#): Ophthalmic Tomography Session

2. Enter the session name “TRN01_TST_0001_01_SE02_MEG”, and Visit ID “01”. (Note that on this form, Visit ID is obligatory.) For real data, it is strongly recommended that you also fill in the fields Date, Scanner and Acquisition Site.
3. In the list of scans, delete all but the first row (important!), by pressing the scissors icon beside each of the other rows. Then in the remaining row, enter Scan number “1”, and for Type, enter “MEG”. Select “usable” and optionally add a note. Click “Submit”. You will now see the Session Page for TRN01_TST_0001_01_SE02_MEG.

SPReD TRAINING

Home New Upload Tools Help

PROJECT: Training 45 > SUBJECT: TRN45_TST_0001 >

Add New MEG Session

Project Training 45
Subject: TRN45_TST_0001
Session TRN45_TST_0001_01_SE02_MEG

Date September 9 2012
Visit ID 01
Scanner ACHIEVA
Acquisition Site BYC

Scans Add Scan

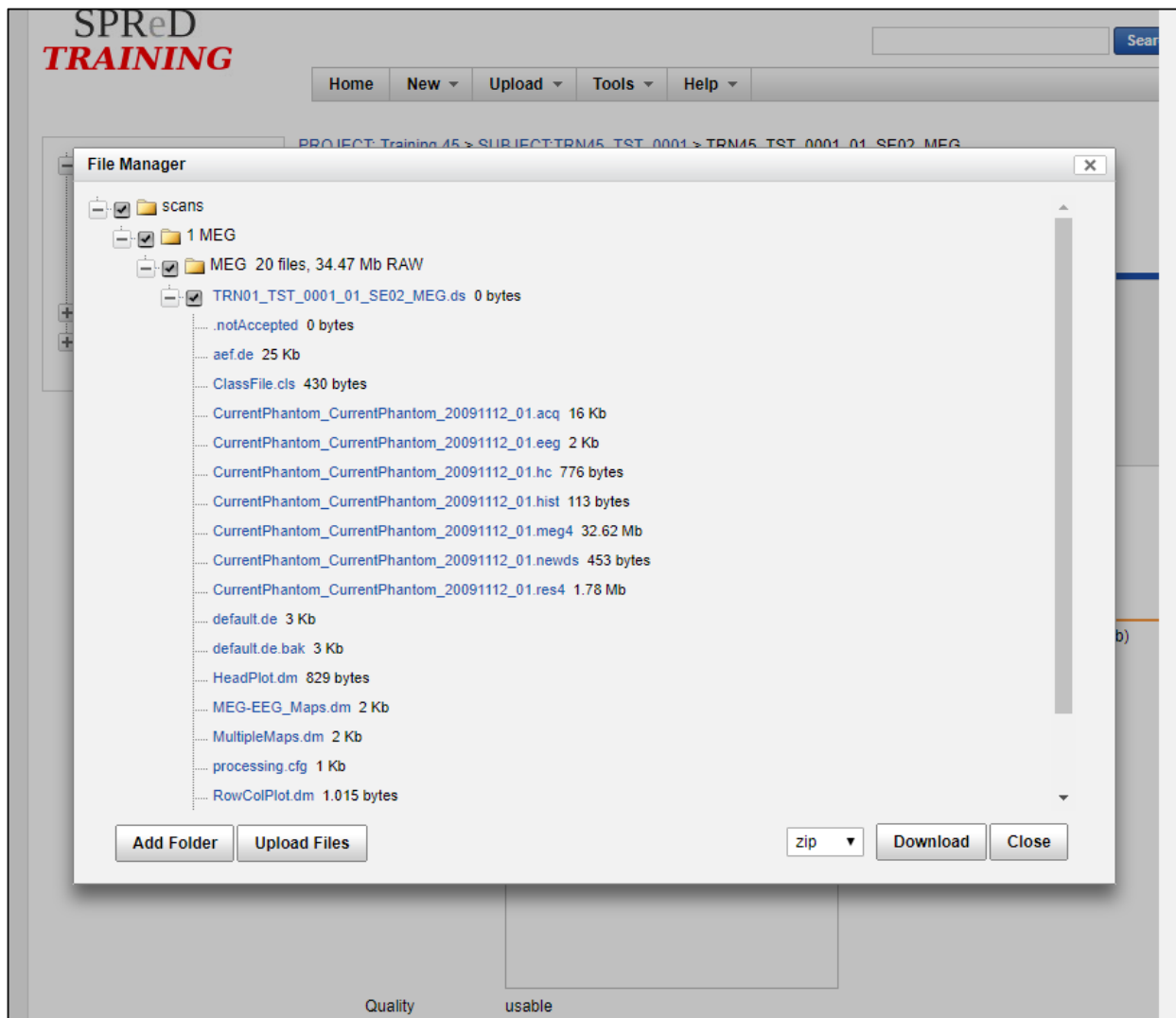
Scan	Type	Quality	Note
1	MEG	usable	

Additional Notes

Notes

Back Submit

4. To upload the MEG data, choose Manage Files from the Actions menu. Click “Add Folder” to create a folder. For Level select “scans”; for Item select “1”; enter the Folder name “MEG_data”, and press “Create”. Then click “Upload Files” and select the “scans” for Level and select “1” for Item. Browse and choose the file TRN01_TST_0001_01_SE02_MEG.zip. You will see a popup with the question “Would you like the contents of this archive file to be extracted on the server?” Click “OK” to unzip the MEG data before archiving it. (“Cancel” would skip that step, in which case your data would be archived as one zip file.) The upload may take several minutes, and there is no status bar. When it is done, press “Close” to close the Upload Files window. You will see the file listed in the File Manager. When it’s done, you’ll see the File Manager window again, with the new data:



Downloading Files

Images and resource files can be downloaded either via the File Manager or via the Download Applet. The File Manager only deals with one session at a time (or one subject at a time, for subject-level resources). In contrast, the Download Applet, which requires the Java Deployment Toolkit (JDK) 1.5 or higher, allows batch downloading, with a batch potentially containing all images and resource files in a given project.

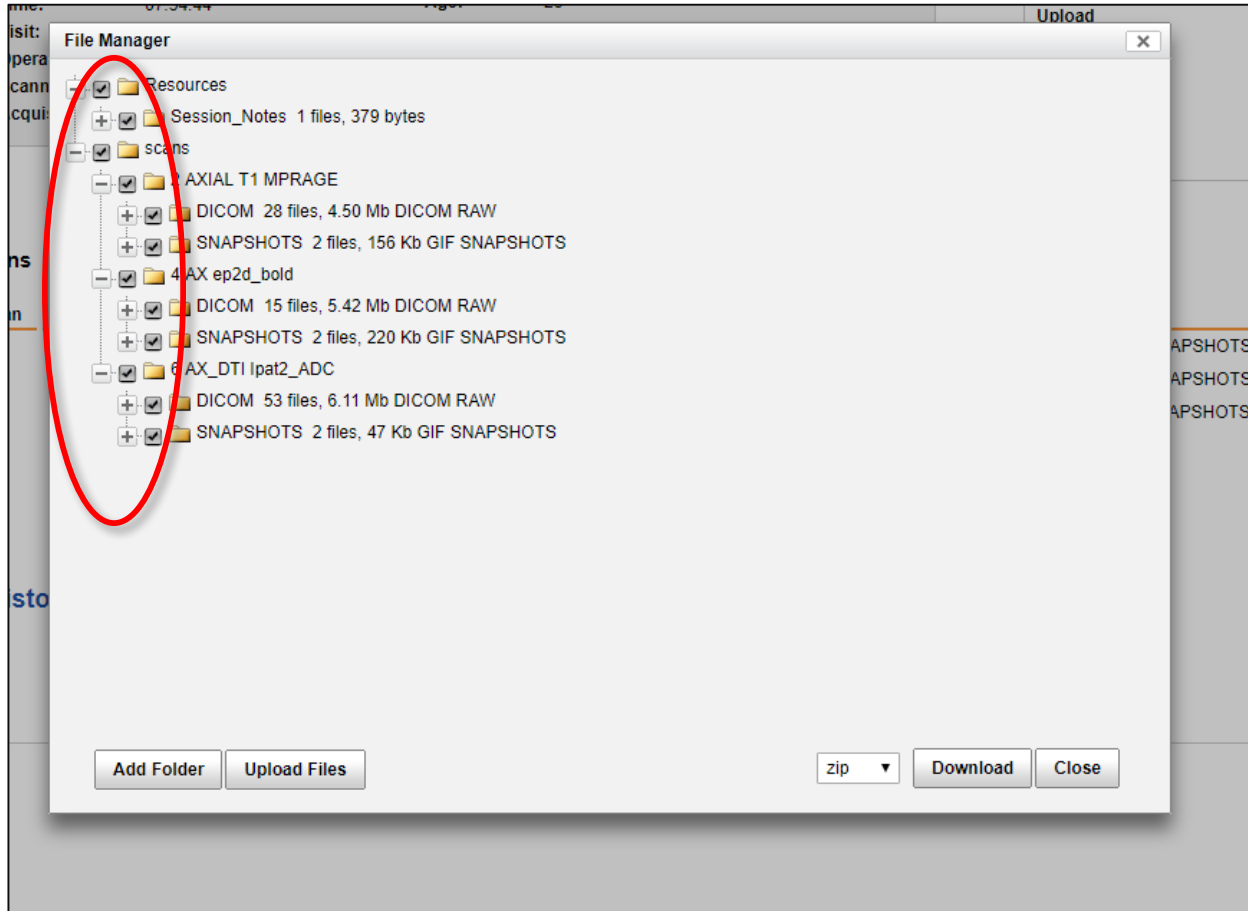
1. The File Manager is accessed by choosing “Manage Files” from an “Actions” menu, on either a Session page (the usual case) or a Subject page (for subject-level resources only). For example, go to the TRN01_TST_0001_01_SE01_MR page, and choose “Manage Files” from the “Actions” menu on the right.

The screenshot displays the SPReD TRAINING web application interface. At the top, there is a navigation bar with 'Home', 'New', 'Upload', 'Tools', and 'Help' menus, along with a search bar. The breadcrumb trail indicates the current location: PROJECT.Training 45 > SUBJECT.TRN45_TST_0001 > TRN45_TST_0001_01_SE01_MR. The main content area is titled 'MR Session: TRN45_TST_0001_01_SE01_MR' and is divided into 'Details' and 'Projects' tabs. The 'Details' tab shows patient information: Accession #: spred_E01512, Subject: TRN45_TST_0001, Date Added: 04/24/2018 10:04:42 (slatour), Gender: Male, Date: 01/15/2013, Handedness: , Time: 07:54:44, Age: 25, Visit: 01, Operator: Annette Weekes-Holder, Scanner: MRC35120 SIEMENS TrioTim, and Acquisition Site: Baycrest Centre for Geriatric Care. To the right of the details is an 'Actions' menu with options: Edit, Add QC, View, Upload, Download, Email, Print, and Manage Files. The 'Manage Files' option is circled in red. Below the details is a 'Scans' table with columns for Scan, Type, Series Desc, Usability, Files, and Note.

Scan	Type	Series Desc	Usability	Files	Note
2	AXIAL T1 MPRAGE	AXIAL T1 MPRAGE	usable	DICOM (28 files, 4.50 Mb) SNAPSHOTS (2 files, 156 Kb)	Patient had trouble staying still
4	AX ep2d_bold	AX ep2d_bold	usable	DICOM (15 files, 5.42 Mb) SNAPSHOTS (2 files, 220 Kb)	
6	AX_DT1 ipat2_ADC	AX_DT1 ipat2_ADC	usable	DICOM (53 files, 6.11 Mb) SNAPSHOTS (2 files, 47 Kb)	

Totals: DICOM (96 files, 16.03 Mb) SNAPSHOTS (6 files, 423 Kb)

- When the File Manager opens, all of the selection boxes are ticked, indicating that all files will be downloaded. You may optionally uncheck some of these to omit them from the download. Select the download format (e.g. zip) from the pull-down menu to the left of the “Download” button. Click “Download”. Your browser will start downloading a zip file containing all of the selected files.



3. Alternatively, to use the Download Applet, choose “Download Images” from the “Actions” menu of either a Session page or the main Project page. Doing so from the Project page leads to:

The screenshot shows the SPReD TRAINING web interface. The page title is 'PROJECT_TRN45' and the main heading is 'Imaging Data Download'. The interface is divided into four numbered sections:

- 1 Confirm Sessions for download:** A table with one row:

Toggle All (1)
<input checked="" type="checkbox"/> TRN45_TST_0001_01_SE01_MR MR
- 2 Select image data to download:** A list of scan formats and types:
 - Scan Formats: SNAPSHOTS, DICOM
 - Toggle All:
 - Scan Types: AX_DTI Ipat2_ADC (1), AX ep2d_bold (1), AXIAL T1 MPRAGE (1)
 - Add Resources: Session_Notes
- 3 Select download format:** Two radio button options:
 - Option 1: Direct download (selected)
 - Option 2: Catalog XML (.xcat)
 Below these are three checkboxes:
 - Include project in file paths
 - Include subject in file paths
 - Simplify downloaded archive structure
- 4 Submit Data Request:** A 'Submit' button and a note: 'Upon page submission, the pertinent files will be reviewed and organized for download. Depending on the number of files, this may take several minutes to process.'

4. Select the sessions from which images are to be downloaded in section (1); and the scan formats and types in section (2). In section (3), keep the default options. Then click “Submit”. This opens the Download Applet. Depending on the settings of your web browser, the first time you run the applet you may be prompted to activate certain Java plugins (e.g. JDK) and approve the applet “org.nrg.upload.ui.UploadAssistantApplet” (Publisher: Washington University).
5. Once the applet is running, you will see “Select local folder”. Click “Browse”/“Choose File” to select the local destination folder, then click “Start”. There is a progress bar, and a “Stop” button to abort the download if necessary. When the download is finished, you will see “Download Complete”.
6. An alternative way to open the Download Applet is to choose “Download” -> “Download Images” from the “Actions” menu of a Session page. This brings up the same Download page as shown above except that the first column shows only the current session, and the second column shows only the relevant formats, types and resources.

TUTORIAL: STARTING TO WORK WITH YOUR OWN DATA

Before You Start

In this section of the tutorial, if your data is de-identified and you have approval from OBI, you may upload it to the same Test SPReD used in Part 2. Alternatively, you may upload it to your own local SPReD, if one exists. If the latter, you will need to know where the home web page of your SPReD is. You will need to access it via a browser running on a server where your data resides. You will also need:

1. An account on the SPReD database you will be using
2. The name of an existing SPReD project of which you are a member.

A test version of your project has been created where possible, with the name such as CBN01_test. In a training session, this test project may be shared by all participants associated with your project.

You will need the correct Subject IDs from your research program coordinator. Having the correct subject IDs in advance is essential before uploading and allows for quality control verification and tracking of uploads, as well as some automatic data transfers if these are pre-authorized by the Principal Investigator. If you do not use the correct subject IDs the uploaded data may never be able to be linked to its associated clinical, genomic and related data sets.

Planning Your Upload

Make a survey of all data to be uploaded, and check that all associated notes and files, e.g. stimulus timing files, are included. For example, is there a standard check sheet, e.g. for MRI, that is filled in for each subject at each scanning session? If so, a copy of this document could be uploaded as a “resource”, like the Session_notes file in the previous section. For multi-modal sessions, there may be one or more resource files that contain information about multiple modalities. However, the Brain-CODE convention is that each SPReD session corresponds to one modality. Therefore you must put all resource files into a SPReD session for a specific modality.

You will need to decide on Session IDs, filenames and data organization in general before you start. It is possible that some filenames will need to be changed before upload, in order to conform to the naming conventions in Appendix F, though this should be done with great care. Any changes to filenames should be pre-approved by the study coordinator, and should be documented. An exception may be made when using a temporary copy of data for training purposes, as long as that copy is clearly marked as being for training.

Discuss this with all project members present and then, once you've agreed, draw the structure for one subject here, following the example on page 7:

If there are any unclear points, note these for future discussion here:

Each participant in the same project should choose a single subject assigned a unique Subject ID to work on:

Starting the Upload

1. On the home page for either the Test SPReD or your local SPReD, log into your account.
2. Select the name of your project.

If this doesn't work, you may need to contact your project leader. One possible problem is that the project exists but you are not named as a member, in which case you will not be able to view it. Refer to your upload plan and the SPReD Upload Quick Reference in Appendix E.

Getting Help or Reporting Issues

Some further documentation is available from the Help menu at the top of the screen. This is general XNAT documentation, and it applies to SPReD. Limited assistance is available. Please email spred@braincode.ca, or select "Report a problem" from the Help menu at the top of every page.

Bug reports or any comments about SPReD or this documentation are very welcome.

The screenshot displays the SPReD TRAINING web application. At the top left is the logo 'SPReD TRAINING'. A navigation bar includes 'Home', 'New', 'Upload', 'Tools', and 'Help'. The 'Help' menu is circled in red, with 'Report a Problem' and 'Documentation' visible. Below the navigation bar, a status message reads 'spred currently contains 151 projects, 326 subjects, and 45 training sessions'. A secondary navigation bar has tabs for 'Projects', 'Subjects', 'MR', 'PET', and 'CT'. The 'Projects' tab is active, showing a form with fields for 'ID', 'Name', 'Description', 'Keywords', and 'Investigator' (a dropdown menu with '(SELECT)' selected). A 'Submit' button is located below the form. On the left side, there is a sidebar with a tree view containing 'Projects', 'Recent', 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. Below the form, there are two tables: 'Projects' and 'Recent Data Activity'. The 'Projects' table shows a project titled 'Training Session Practice 45' with 'Project ID: TRN45' and the note 'You are a member for this project.'. The 'Recent Data Activity' table shows three rows of data:

Project ID	Modality	Study ID	Accession
TRN45	MEG	TRN45_TST_0001_...	REL
TRN45	EEG	TRN45_TST_0001_...	REL
TRN45	MR	TRN45_TST_0001_...	ARC

APPENDIX A:

DEIDENTIFICATION OF MR DICOMS

All Personal Health Information (PHI) must be removed from data before uploading to Brain-CODE. This includes:

- Textual information, including (but not limited to) all 18 items listed in the US HIPAA “safe harbor” rule; and
- Identifiable faces in T1 and T2 anatomical MRIs.

There are several software tools available to remove PHI from DICOM. All require some human verification. To remove PHI in DICOM fields, we recommend Dicom Browser with a customized tag list based on the supplied base.das. Note that the DICOM standard allows custom (“user-optional”) fields, so each project must review all fields being used.

For de-facing T1 images, the following two software tools are well-tested:

1. `mri_deface` (part of Freesurfer), documented in Bischoff-Grethe et al., *Human Brain Mapping* 28:892–903 (2007);
2. `mask_face` (from Washington University), documented in Milchenko and Marcus, *Neuroinform* (2013) 11:65–75.

The second tool is able to deface T2 images as well. However, as released, it requires that Matlab and FSL be installed. For this reason, to maximize portability, we are currently recommending a pipeline based on `mri_deface`.

Here are the installation and run instructions for our recommended MR DICOM deidentification pipeline (for T1 images only). This pipeline has been tested on 64-bit CentOS 6 Linux and on Mac OS X 10.6. Users of other systems may have to compile some components from source. These instructions and the run script, `defaceMR_DICOM.sh`, are available at:

https://www.braincode.ca/sites/default/files_new/deidentpipeline_v1.0.zip

Installation and Configuration:

1. Download and unzip the appropriate Freesurfer binary from <https://surfer.nmr.mgh.harvard.edu/fswiki>; set `$FREESURFER_HOME` to the root of the Freesurfer directory tree; obtain license key (it's free) and put it in a `.license` (or `.license.txt`) file in `$FREESURFER_HOME`. (Further setup not required.)
2. Download the `mri_deface` binary package from http://ftp.nmr.mgh.harvard.edu/fswiki/mri_deface. Copy `talairach_mixed_with_skull.gca` from this package to `$FREESURFER_HOME/average`. (The rest of the package can be discarded, as the files are duplicates of files already in Freesurfer. Note that the versions of `mri_deface` in the Freesurfer package and in the separate `mri_deface` release are different. We have tested both successfully.)
3. Download the appropriate version of `analyze2dcm` from xnat.org:
 - a. For Linux version, search for `analyze2dcm` in <https://wiki.xnat.org> .
 - b. For Mac version, download `mask_face` package from <http://nrg.wustl.edu/software/face-masking/> , then get `analyze2dcm` from `mask_face/bin`. The rest of the package is not used by this pipeline.

4. (Optional) Download and install MRlcron (used to check results).
5. Download defaceMR_DICOM.sh and a230e15.ini from https://www.braincode.ca/sites/default/files_new/deidentpipeline_v1.0.zip and put them in a working directory. Edit defaceMR_DICOM.sh if necessary to point to the correct locations of the above tools (check definitions of fsbindir, adir, a2dcmcmdir, mricrondir, rdir).
6. Download and install the appropriate DicomBrowser binary from <http://nrg.wustl.edu/software/dicom-browser/>. (Note: the Linux version includes command line tools, the Mac version doesn't.)
7. Download <http://nrg.wustl.edu/projects/DICOM/base.das>.
8. Edit base.das to remove additional tags as appropriate for your project. Note that base.das comes with a warning: "WARNING: this script will almost certainly not sufficiently deidentify your data. Test on your data by applying the script, then use multiple tools to manually verify that all PHI has been removed"

To run the pipeline, do the following for each DICOM:

1. Run defaceMR_DICOM.sh from the command line:
Usage: defaceMR_DICOM <dicomdir> <dicomslice> <outputprefix>
2. Examine the output file <outputprefix>_check.nii with e.g. MRlcron, scrolling through slices to see that face has been removed but not brain, and also viewing a render. MRlcron is opened as the last step of defaceMR_DICOM.sh.
3. Run DicomBrowser and apply your edited version of the script base.das.
 - a. Alternatively, this can be accomplished using command line tools, see: <http://nrg.wustl.edu/software/dicom-browser/instructions/batch-anonymizations/>

Please send any comments or questions regarding deidentification to spred@braincode.ca .

APPENDIX B:

HOW TO REQUEST AN AUTOMATIC DATA UPLOAD

Note that all data must currently be deidentified before uploading to Brain-CODE unless you have confirmed with your ID Program coordinator that your program and project are exempt from this requirement.

If you have data loaded into a local SPReD or XNAT database, we will work with you to automatically upload this data to Brain-CODE. We have existing scripts, but we will need to tailor them to your site and get access to your SPReD/XNAT.

If you have a large amount of data in a file system, and the process of manual uploads via a web interface seems infeasibly time-consuming, we may be able to work with you to develop scripts to automatically load your data into Brain-CODE. We don't have the resources to do this for every project. We estimate that this would take us approximately one week of development time, with a lead time of about two months. If you estimate that uploading via the web interface would take more than one week full-time, then it's worth discussing automating the process. We would need an IT contact at your site who has sufficient time to work with us and authority to send data from your site to Brain-CODE through your institutional firewall.

In either case, please contact SPReD team at spread@braincode.ca, stating your project name, site, and whether it is currently in a SPReD or XNAT database or in a file system. If the latter, then please also give the following information:

- Number of subjects (current and planned)
- Data size per subject
- Operating system
- IT contact at your site

APPENDIX C:

POSSIBLE EDITS (INCLUDING DELETION) ON SPRED

File and folder names cannot be edited in SPReD, even by SPReD Admin. Thus, the only way to fix an incorrectly named file or folder is to delete it and then re-upload or re-create it. To request a deletion, first make sure that you have a local copy of all data to be deleted (i.e. a copy of the data on your own computer). Then complete the following form and email it to spread@braincode.ca :

DELETION REQUEST

Project:

Subject:

Session:

Item(s) to be deleted (scans, folders, or files):

Do you have local copies of all data to be deleted (Yes/No)?

For files or sub-folders, be sure to fully specify the location of the item to be deleted. A separate request should be submitted for each session. Note that the request will only be fulfilled if you answer “Yes” to the last question.

The request will be granted if one of the following conditions is satisfied:

1. The request is being made by the creator of the session, within 4 weeks of its creation
2. The request is from the relevant ID Program Manager or delegate (or, in a QC project, an IDP Manager or MRI platform lead of any IDP that uses the relevant scanner).

Once the deletion request is fulfilled, which will be confirmed in an email from spread@braincode.ca, you should re-upload or re-create the item(S) with the correct name(s). For example, if a file is misnamed, you should locate it on your local computer, rename it there, and then re-upload it.

If a member would like to delete a session/subject, they may do so by editing the session or subject's name to add the suffix of “_deleted”. If the reason for deletion is to rename scan names, the user must add the suffix “_oldnames”.

Sharing Data

Please note that although it is possible to do so, an individual subject's data should never be shared between their different projects. For example, when on the Subject Page, there is the option of clicking on the “Projects” tab and selecting an option under the heading “Share info”. This is an unintended feature of the XNAT system that SPReD is based upon, and it should not be used; under no circumstances may users share data.

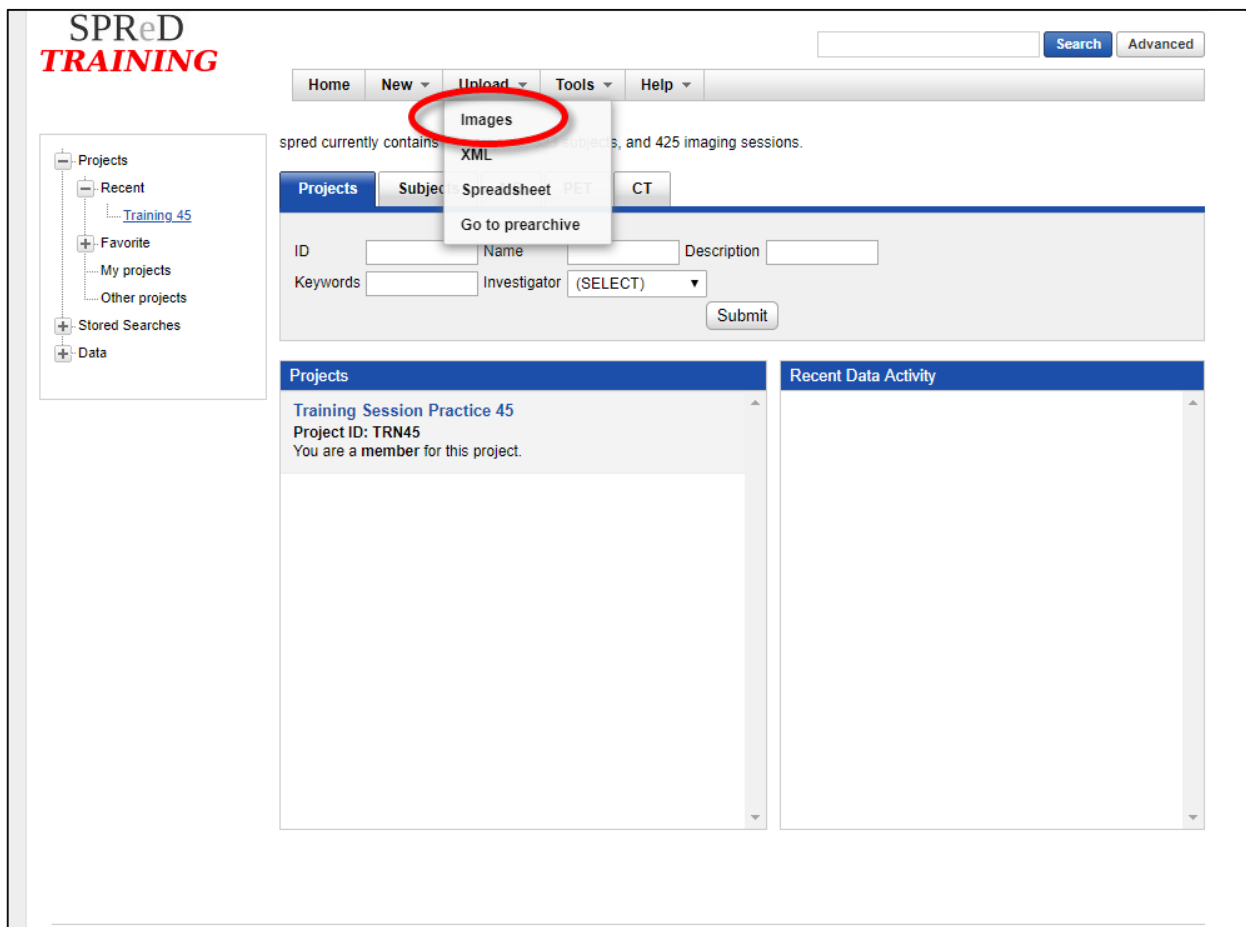
APPENDIX D:

UPLOADING DICOM DATA USING THE UPLOADER APPLET

An alternative to the upload method presented in the main tutorial (pp. 12-14) is to use the XNAT Uploader Applet, which requires Java JDK 1.5 or higher. When used as outlined below (Destination set to “Prearchive”), the effect is equivalent to the method in the main tutorial.

This appendix explains how to upload the same example MR data as in the main tutorial, using the Uploader Applet. The screenshots are made on a Linux system; other operating systems will show slightly different screens when the Uploader Applet is running.

From the top of the Subject Page, choose the “Upload” menu, then “Images”:



The screenshot displays the SPReD TRAINING web application interface. At the top left, the logo "SPReD TRAINING" is visible. A navigation bar includes "Home", "New", "Upload", "Tools", and "Help". The "Upload" menu is open, with "Images" highlighted by a red circle. Below the menu, a form for uploading data is shown, with fields for ID, Name, Description, Keywords, and Investigator (SELECT). A "Submit" button is present. The main content area is divided into two panels: "Projects" and "Recent Data Activity". The "Projects" panel shows a project titled "Training Session Practice 45" with Project ID: TRN45 and a note that the user is a member for this project. The "Recent Data Activity" panel is currently empty.

This takes you to the Upload Page. For Project, select Training 01 and for Subject select TRN01_TST_0001. If you are not sure about the Session Date, then check “I don’t know the date or my session doesn’t have a date”. Click “Launch Uploader”:

The screenshot shows the SPReD TRAINING web interface. At the top left is the logo 'SPReD TRAINING'. A search bar is at the top right. Below the logo is a navigation menu with 'Home', 'New', 'Upload', 'Tools', and 'Help'. On the left side, there is a sidebar with 'Projects' expanded, showing 'Recent', 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. The main content area is titled 'PROJECT: TRN45' and 'Upload Image Sessions'. It contains a form with the following fields: 'Project' (Training 45), 'Subject' (TRN45_TST_0001), and 'Session Date' (empty). A checkbox labeled 'I don't know the date or my session doesn't have a date' is checked. The 'Launch Uploader' button is circled in red. Below the button is a link: 'Looking for other ways to upload images? [Click here.](#)' At the bottom right, there is a logo for 'powered by XNAT version 1.6.2.1'.

Depending on the settings of your web browser, the first time you run the applet you may be prompted to activate certain Java plugins (e.g. Java Deployment Toolkit) and approve the applet “org.nrg.upload.ui.UploadAssistantApplet”.

In the Upload Applet window, select your scans: go to the TRN01_TST_0001 folder and select all three of the folders with names containing “ax”, then click Next:

APPENDIX E: SPRED UPLOAD QUICK REFERENCE

Create New Subject:

Subject IDs must be assigned by your study coordinator.

From top of Project page, “New” → “Subject”

Subject ID is mandatory, Age and Gender strongly recommended.

Create New Session/Experiment:

Session IDs should follow a convention decided by your study coordinator.

A session is automatically created when a DICOM zip file is loaded.

To manually create a session (e.g. MEG):

From Subject page “Actions” menu, “Add Experiment”; Select “MEG Session”.

Enter Session Name (and optional details);

Delete unused scan rows. Enter scan number(s); for Type, enter MEG; Select Quality (usually “usable”); “Submit”.

Create New Scan:

Scan(s) automatically created when a DICOM zip file is loaded.

To manually create a scan:

From Session page “Actions” menu, “Edit”; “Add Scan”; Enter Scan number(s), Type, Quality; “Submit”.

It is not possible to delete a scan, though its contents can be deleted.

Upload DICOM images:

From top of Subject page: “Upload” → “Images”.

Either use Uploader Applet (Appendix D), or Press “Click Here”, then:

“Option 1: Compressed Upload”, with Destination: “Prearchive”.

Choose a DICOM zip file, then “Begin Upload” (and wait for upload).

“Upload” → “Go to prearchive”. Select uploaded session, then “Archive”. Check/correct Subject ID, Session and other fields, then “Submit”.

Upload non-DICOM images:

From Session page “Actions” menu, “Manage Files”. “Add Folder”; Level: “scans”, Item: <scan #>; Folder: enter name (avoid spaces); “Create”.

“Upload Files”; Level: “scans”; Folder: select. Choose file, then “Upload” (and wait).

Upload non-image data (“Resources”):

From Session page “Actions” menu, “Manage Files”.

“Add Folder”; for Level: “resources”;

Enter a name, e.g. Session_Notes (avoid spaces); “Create”.

Upload Files” → “Resources” → Session_Notes.

Choose file, then “Upload” (and wait).

APPENDIX F:

SPRED NAMING CONVENTIONS – PROJECT IDS

OBI assigns codes for each ID Program (IDP), each study within an IDP, and each site. Within each study, each participant is assigned a unique Subject ID by the IDP, following the OBI convention (defined below).

Example: CBN01 or CBN01_TWH

These always begin with a 3-letter IDP code followed by a 2-digit study number. The study number may optionally be followed by an underscore and a 3-letter site code. Site codes are used in project IDs when data access must be controlled on a site-by-site basis for legal or other reasons. A further suffix of up to 5 characters may be added, beginning with an underscore. This suffix is of arbitrary format and is reserved for internal use by the SPReD Administration.

SPRED NAMING CONVENTIONS – IDP STUDIES

Brain-CODE Subject ID Naming Conventions:

The naming convention standards for Brain-CODE Subject IDs are outlined in the *Brain-CODE Subject ID Naming Convention* Training Module.

Naming Conventions for IDP Studies:

Example: CBN01_TWH_0022

For more information refer to *Brain-CODE Subject ID Naming Conventions Training Module*.

OBI assigns codes for each ID Program (IDP), each study within an IDP, and each site. Within each study, each participant is assigned a unique Subject ID by the IDP, following the OBI convention (defined below).

Variable Name	Description	Permissible Values	Recommended Coding
prgm_id	A unique identifier for OBI Integrative Discovery Program (IDP)		3-Character Abbreviation: PND: Province of Ontario Neurodevelopmental Disorders Network CPN: Childhood Hemiplegic Cerebral Palsy Integrated Neuroscience Discovery Network CBN: Canadian Biomarker Integration Network for Depression OND: Ontario Neurodegenerative Disease Research Initiative EPL: EpLINK * If not listed contact BrainCODE team for program abbreviation
study_id	A unique identifier for an IDP study	01-99	2-Digit Numeric Code * Contact Brain-CODE team for study code
site_id	A unique identifier of IDP recruiting site		3-Character Site Code: * Contact Brain-CODE team for site abbreviations
subj_num	Site subject number	0001-9999	4-Digit Numeric Code: Sequentially assigned by site or may be provided via a pre-populated list

Note that if an individual is a participant in more than one study, he or she will have separate Subject IDs for each study.

In general, the format is PPPTT_HHH_SSSS. Where PPP is the prgm_id, TT is the study_id, HHH is the site_id and SSSS is the subj_num. Note that the underscores (“_”) are between study_id and site_id and site_id and subj_num.

SPReD Session IDs in general consist of the Brain-CODE Subject ID (See the *Brain-CODE Subject ID Naming Convention Training Module* for more information) followed by an underscore, a 2 digit visit ID, and a 2 digit session number, followed by another underscore and modality code.

Session Names

Example: CBN01_TWH_0009_02_SE01_MR

In general, session names always begin with a Subject ID (see above), followed by an underscore and a 2-digit Visit ID. These are followed by “_SE” and a 2-digit session number, as well as an optional “part code” which, if present, is a single lower case letter. These are followed by an underscore and a Modality code, which is a string of 2 to 4 characters indicating the imaging/recording modality. Session numbers are assigned by IDPs, in a fixed logical order based on the study protocol (e.g. SE01 is always the first MRI session). If two or more modalities are used in a single imaging/recording session, then that session must correspond to two or more SPReD sessions, one per modality, all with the same two-digit session code. (E.g. a simultaneous MEG/EEG session could be coded as two SPReD sessions with names ending in SE01_MEG and SE01_EEG.) Part codes are only used if the session was interrupted and resumed, in which case the parts are assigned letters consecutively from ‘a’. A final optional suffix, consisting of “_A” followed by one or more digits, may be added to indicate that the IDP has applied an agreed-upon pipeline (e.g. for removal of Personal Health Information) to session data prior to uploading.

Variable Name	Description	Permissible Values	Recommended Coding
Visit_id	study visit	01-99	2 Digit Numeric Code
Session_id	Session numbers are assigned by IDPs, in a fixed logical order based on the study protocol	01-99	'SE' followed by 2 Digit Numeric Code
Part code (optional)	Part codes are only used if the session was interrupted and resumed	a-z	Alphabetical characters sequentially assigned from 'a'
Modality	Indicates the imaging/recording modality		<p>2-4 character code:</p> <p>CR: Computed Radiography CT: Computed Tomography DX: Digital Radiography DX3D: 3D Digital Radiography ECG: Electrocardiography EEG: Electroencephalography EPS: Electrophysiology ES: Visible Light Endoscopy ESV: Video Endoscopy GM: Visible Light Microscopy GMV: Video Microscopy HD: Hemodynamic IO: Intraoral Radiography MEG: Magnetoencephalography MG: Digital Mammography MR: Magnetic Resonance NM: Nuclear Medicine Image OP: Ophthalmic Photography OPT: Ophthalmic Tomography PET: Positron Emission Tomography RF: Radiofluoroscopy RT: Radiotherapy SM: Visible Light Slide-Coordinates Microscopy US: Ultrasound XA: X-ray Angiography XA3D: X-Ray 3D Angiography XC: Visible Light Photography XCV: Video Photography</p>
Pipeline code (optional)	A final optional suffix, may be added to indicate that the IDP has applied an agreed-upon pipeline (e.g. for removal of Personal Health Information) to session data prior to uploading.		"A" followed by one or more numeric digits

Scan Types

During DICOM uploads, scans are automatically assigned a type from the DICOM header, e.g. “AXIAL T1 MPRAGE”. For non-DICOM uploads, the user supplies a type for each scan when it is created; these may be either chosen from a list or entered free-form. The Brain-CODE convention is that all non-DICOM scan types begin with the same modality code that appears in the session name, but have an optional suffix that begins with an underscore and does not contain spaces, but is otherwise unrestricted. Examples: EEG or EEG_Subcut . If a suffix is used, it should be standardized and documented within the ID Program.

SPReD Naming Conventions – SPReD Scan Folder Names

For non-DICOM uploads, the first step after a scan is created is that a folder is created to hold the scan data, using “Add Folder” in the File Manager. The BrainCODE convention is that, for non-DICOM scans, this folder name begins with the same modality code that appears in the session name but may have an optional suffix that begins with an underscore and does not contain spaces but is otherwise unrestricted. If a suffix is used, it should be standardized and documented within the IDP. The folder name may equal the scan type but need not.

File and folder names for non-DICOM scan data and resources: When non-DICOM scans or resources are uploaded, all filenames are preserved in SPReD, including the entire directory tree if a zipped file is unloaded and then unzipped. The Brain-CODE convention is that the filename (in case of a single file) or top-level folder name begins with the session name, with an optional suffix that begins with either ‘_’ or ‘.’ and does not contain spaces, but is otherwise unrestricted. Examples: CBN01_TWH_0009_02_SE01_MEG.ds or

CBN01_TWH_0009_01_SE01_MR_Session_Notes.rtf . All files in SPReD should be individually named and archived using the SPReD conventions to facilitate searching and future data sharing; the only exception is for a series of slices (or timecourses), which may keep their original names as long as the folder containing them is named according to the SPReD convention.

SPRED NAMING CONVENTIONS – HUMAN PHANTOM STUDIES

Human phantom studies may or may not be part of a specific IDP. In all cases a program code and study number will be assigned by OBI.

Within each site, each scanner or imaging system that is used by OBI will be assigned a 2-digit Scanner code by the SPReD Admin Team. These are assigned irrespective of modality.

SPReD Project ID for a human phantom study that is part of an IDP:

e.g. CBNP5_TWH01. The general form is: the program code, followed by “P” and a 1-digit study number, followed by _HHHNN, where HHH is the Site code, and NN is the Scanner code.

SPReD Project ID for a human phantom study that is NOT part of an IDP:

e.g. PHA02_TWH01. The general form is: “PHA” followed by a 2-digit study number, followed by _HHHNN, where HHH is the Site code, and NN is the Scanner code.

SPReD Subject Name for a human phantom study:

e.g. PHA02_HUM0001.

Within any human phantom study, subjects do not have an OBI Subject ID, but instead have a Human Phantom ID. The first 5 characters are the same as those of the Project ID (see above). The “_HUM” is fixed, and the 4-digit human phantom number is assigned by the Program Manager.

SPReD Session Name:

e.g. PHA05_TWH01_HUM0001_0003

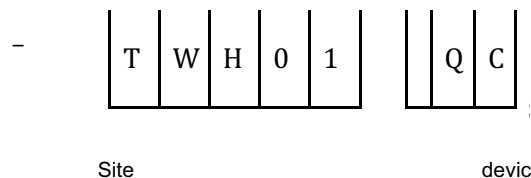
The general form is <Project ID>_HUMxxxx_yyyy, where xxxx is the human phantom number and yyyy is a visit number. (Though using 4 digits is excessively long for both of these numbers, it is consistent with the non-human conventions below.)

Scan folders and file names

These should begin with the session name, as for non-phantom IDP studies.

SPRED NAMING CONVENTIONS – NON-HUMAN PHANTOM STUDIES

In Brain-CODE, phantom scans and other Quality Control (QC) data associated with specific scanners or recording devices should be uploaded into special “QC projects” reserved for this purpose. This is done because these devices may be shared among multiple ID Programs. The Project ID of a QC project has the following form:



The 7th and 8th characters are always “QC”.

In a QC project, the SPReD “Subject ID” is actually a Non-human Phantom ID of the following form:

P	H	A	_	L	E	G	0	0	0	1
Type							Phantom			

The first three characters are always “PHA”. The allowable Phantom Types are the following:

LEG: Lego phantom

FBN: fBIRN phantom

HOF: Hoffman phantom

GE: GE phantom

ADN: ADNI Magphan phantom

ACR: ACR phantom

(**HUM:** Human phantom is treated separately, see above.)

QC Projects are created, and Phantom IDs are assigned, by the SPReD Admin Team upon request.

In a QC project, Session IDs have the following format: the first 5 characters of the Project ID (Site and Device codes), followed by an underscore, the Non-human Phantom ID, another underscore, and a 4-digit Visit ID, for example:

T	W	H	0	1	_	P	H	A	_	L	E	G	0	0	0	1	_	0	0	0	2
Site		Device			Phantom											Visit					

Scan folders and file names should begin with the session name, as for non-phantom IDP studies. Scan folder names may have an optional suffix that begins with an underscore and does not contain spaces, but is otherwise unrestricted. File names may have an optional suffix that begins with either ‘_’ or ‘.’ and does not contain spaces, but is otherwise unrestricted.

SPRED NAMING CONVENTIONS – RESCANS OR REACQUISITION

If rescans or reacquisitions need to occur after a session has already been completed, the session number must be used to record it. For example, assume that the session ID of a participant who comes in for the first time is PPPTT_HHH_SSSS_01_SE01_MR. Should that

session need to be rerun later that same day/same visit for some reason (e.g., while the participant was off being tested on another ONDRI platform, an error in the MR setup was discovered, and the participant was called back down to the MR suite to repeat the neuroimaging session), then a letter 'b' would be added to the new session code (i.e., PPPTT_HHH_SSSS_01_SE01b_MR).

Should that same participant need to be brought back on a different day to rerun part or all of that session (e.g., after manual quality control deemed that there were too many artifacts in the original session's T1 image), then the session number would increment by one to PPPTT_HHH_SSSS_01_SE02_MR, and a note must be entered into SPReD that SE02_MR was done in order to replace SE01_MR.

SPRED NAMING CONVENTIONS – SUBJECT SWITCHES SITES DURING THE COURSE OF THE ONDRI STUDY

Occasionally, a participant will move/relocate to a different city during the course of the ONDRI study. While it is certainly desirable from a neuroimaging quality control perspective that they return to their original site for subsequent neuroimaging scanning, it may be neither practical nor feasible to do so. In such cases, the participant may re-consent to have their testing done at another site, and the session ID formats will change as follows:

In addition to the 3-letter site code changing to reflect the new site, the second digit of the 4-digit subject code will be made a "9" (to indicate to SPReD users that this participant was previously tested at another site) and if possible but not required, the last two digits should remain the same. Thus, a hypothetical ALS patient at TWH initially coded as "OND01_TWH_2009" would become "OND01_LHS_2909" or "OND01_LHS_29###" if switching to London.

*Please also ensure that the subject's former Subject Code is recorded in SPReD field entitled 'Subject's research group within the project' located on the new subject's Subject Page. If you are unsure of what the former Subject Code is, please consult your Program Manager or Clinical Research Manager. To enter the subject's old Subject Code information, follow these steps:

1. From the new Subject's Details Page, select 'Edit' from the Actions Menu

The screenshot shows the SPReD TRAINING web application. The page title is 'Subject Details: TST01_TRN_0001'. On the left, there is a navigation menu with options like 'Recent', 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. The main content area displays subject information: Accession # sprd_S00906, Date Added 2018-04-20 13:21:37.63 (slatour), Birth year 2000, Gender Male, Handedness Left, and Group UNK. On the right, an 'Actions' menu is open, with the 'Edit' option circled in red. Below the subject details is an 'Experiments' section with a table header: Date, Experiment, Project, Label. The bottom right corner features the 'powered by XNAT version 1.6.2.1' logo.

2. Enter the old Subject Code into the field entitled 'Subject's research group within the project'. Then click the 'Submit' button at the bottom of the page.

The screenshot shows the 'Edit an existing subject' page in the SPReD TRAINING application. The page title is 'Edit an existing subject'. The 'Accession Number' is sprd_S00906. The 'Primary Project' is Training 45. The 'Subject's ID within this project' is TST01_TRN_0001. The 'Subject's research group within the project' field is circled in red and contains the value OND01_TWH_0. Below this is the 'Demographics' section, which includes a 'Please Select One' dropdown menu with options for 'Date Of Birth' (selected), 'Year Of Birth', and 'Age'. Other fields include 'YOB/DOB/Age', 'Gender' (Male), 'Handedness' (Left), 'Education', 'Race', 'Ethnicity', 'Height (inches)', 'Weight (lbs)', and 'Recruitment Source'. At the bottom center, the 'Submit' button is circled in red.

SPRED NAMING CONVENTIONS – NAMING CONVENTION REGARDING SUBJECTS TRANSFERRING DISEASE THEMES

On rare occasions the disease theme for a subject may need to be changed part way through the ONDRI study, after initial data have already been recorded and uploaded to SPReD. This recently occurred when several AD/MCI patients were later discovered to not meet the exclusionary criteria for AD/MCI assignment, and were subsequently moved to the VCI group. The following coding convention is used to indicate that switch:

Recall that the first digit of the 4-digit Subject number in ONDRI is reserved for Disease Theme, in which numbers 1-5 correspond to: AD/MCI=1, ALS=2, FTD=3, PD=4, VCI=5. In order to code a participant's disease theme switch, the remaining numbers (i.e., 6, 7, 8, 9, and 0) will be used. Thus, a Subject number beginning in '6' would indicate an AD/MCI patient that was switched from a previous (erroneous) disease theme of 2,3,4, or 5; '7' will indicate an ALS participant previously categorized as Disease Theme 1,3,4, or 5; '8' represents an FTD participant previously categorized as 1,2,4 or 5; '9' represents a PD participant previously categorized as 1,2,3, or 5; and '0' indicates a VCI participant previously categorized as 1,2,3, or 4. The Visit and Session IDs would continue to increment normally (i.e., as if the subject hadn't changed disease themes). For example, if a subject transferred from AD/MCI to VCI Disease theme after MR session 1, but prior to MR session 2, hypothetical Session 1 and Session 2 names might be OND01_SBH_1016_01_SE01_MR and OND01_SBH_0016_04_SE04_MR, respectively.

As is the case for subjects switching Sites, please ensure that the subject's former Subject Code (i.e., which includes the former Disease Theme) is also recorded in the subject's Subject Page. Please refer to * in the previous section above entitled 'Naming Convention if Subject Switches Sites during the Course of the ONDRI Study'.

CONTACT INFORMATION

SPReD Administrator: spred@braincode.ca

General Help: help@braincode.ca

RESOURCES

Brain-CODE Modules and Training Resources:

SPReD Resources:

<https://www.braincode.ca/content/spred-0>

