

XTOLM

XTOLM is a local bash XNAT-aware console. This documentation provides a use case for exporting data computations in XNAT to an external spreadsheet.

Useful for:

- developing or running image processing locally in bash shell; using
- using XNAT as data source and/or remote archive in shell scripts;
- automating processing of multiple XNAT sessions and to reporting results in spreadsheets.
- focusing on local script development and minimizing programming effort to interact with XNAT.

Installing XTOLM

Client machine prerequisites to run XTOLM on a 64 bit Linux:

- Download [xtolm](#)
- Download [XNAT tools](#) and [Java](#) if you plan to upload data back to XNAT

Make sure all required components are on your path.

XTOLM Command Reference:

Online Commands: mostly, load/save scans, resources and metadata as resources.

load_scans <id1>[,...]	load scan(s) to DICOM by ID to the processing dir
load_type <type>	load scan(s) DICOM of a given type to the processing dir
load_dir <dir1>[,...]	load resource dir(s) to the processing dir
load_file <fil1> [fil2..]	load resource file(s) to the processing dir
load_workspace	load context variables from XNAT session (stored under unique analysis ID)
save_workspace	save context variables to XNAT session (stored under unique analysis ID)
save_dir <dir>	write resource dir to XNAT (overwrites existing)

Offline Commands: The purpose is to enable repeated analysis. Each study is loaded into a separate directory and is processed within 'processing context': XNAT subject and experiment label. Each study directory can have DICOM, resource dirs, and some configuration files that store context information. Workspace is defined as all user-defined variables that should be saved as key-value pairs.

set_context <subject> <session>	set current context of subject and session
save_vars [var1] [...]	save one or more variables to current context
summary <label>	generate a comma-separated summary of existing contexts
help	list console commands
quit	quit interactive console

Built-in variables (online mode only)

xt_server	https://my_xnat_server
xt_user	xnat_user
xt_pass	xnat_password
xt_project	xnat_project

xt_subj	xnat_subject
xt_sess	xnat_experiment

Command Details

set_context: move to another processing dir that corresponds to another XNAT session, and load/init workspace variables for that session. Previously computed variables are loaded using this command.

save_vars: save local vars (name+value) to current context (context is saved in a file within processing dir or online in XNAT experiment).

load/save workspace: sync context variables with XNAT session (load/save to designated resource)

Script execution mode: the user writes a script which is interpreted by XTOLM, converted to a bash script and executed.

xtolm [options] <script file> [...]

Interactive mode : line-by-line command input.

Offline mode: all code that interacts with XNAT is ignored.

Debug mode:

Other commands

rcsv: convert a csv file into a set of bash arrays - can be used in XTOLM to change session context automatically, load specific scans/dirs, etc.

summary: create a summary spreadsheet that aggregates all contexts across the batch processing session.

Use case

- Compute whole brain volume using Brain Extraction Tool for all MPRAGE scans in an MRI project in XNAT and save statistics in a spreadsheet. [View Use Case](#).