

1 Summaries of the MINC command-line tools

Command	Notes	Description
mincaverage	1,2	Calculates the voxel-wise average of two or more MINC files.
mincblob		Calculates statistical measures from a deformation grid file.
minccalc	1,2	Performs voxel-wise calculations on one or more input MINC files. Supports simple looping and conditional syntax.
minccmp	1	Calculates statistics between two MINC files (e.g. RMSE, Z-score, etc.).
minconcat	2	Concatenates several MINC files into a single output file.
mincdiff		Determines whether two MINC files are identical.
mincextract		Extracts a hyperslab of voxels from a MINC file and dumps them in a selected raw format.
mincinfo		Prints various information about the dimensions and the metadata in a MINC file.
mincmath		Performs voxel-wise mathematical calculations on one or more input MINC files. A simpler version of minccalc.
mincpik		Generates image files from particular slices of a MINC file.
mincresample	2	Resamples an input file to a different coordinate grid, using either an transform (.xfm) file and/or an example template file.
mincreshape	2	Reorganizes or reshapes data into a different organization. Useful for cropping
mincsample		Extract a random subsample of voxels from a set of MINC files.
mincstats		Calculates statistical measures and histograms for a single MINC file.
voxeltoworld, worldtovoel		Converts from voxel to world coordinates, or vice-versa.
xfmconcat		Concatenates two or more MNI transform (.xfm) files into a single transform.
xfminvert		Inverts an MNI transform file.

2 Explanation of notes

1. All input files must have the same dimensions and structure.
2. Produces an output MINC file.

3 General syntax

Most MINC command line tools follow the basic syntax:

```
$ mincxxxx [options] infile.mnc [infile.mnc*] outfile.mnc
```

That is, you type the command name, followed by a number of possible options, then a list of one or more input files, followed by an output file, if appropriate.

In practice, most options can be present anywhere on the command line.

Most of the MINC tools use a command-line parser library which allows for “long” option names introduced with a single dash (-). Most option can be given in an abbreviated form as long as long the prefix given is unique. For example, “-clob” will generally be a synonym for “-clobber”.

Each MINC tool provides a UNIX “man” page that describes the command in a greater level of detail.

4 Common command-line options

Most of the MINC tools share a few common command-line options:

-help Prints a help message

-verbose, -quiet Controls amount of extra information printed during operation.

-version Just reports the version number of the tool and/or MINC library.

-clobber This option will allow the tool to overwrite an existing output file, if present.

-byte, -short, -int, -long, -float, -double These options specify the voxel type of the output MINC file. Otherwise, the type of the first input file is generally used.

-signed, -unsigned Specifies whether the output integer voxel type should be signed or unsigned. Does not apply to floating-point types (-float or -double), which are always signed.

-range <min> <max> Specifies the minimum and maximum valid range for output integer voxel values. Sometimes specified as `-valid_range`

5 Advanced tools

There are a number of more specialized tools available in the MINC package:

Command	Description
Display	Supports visual segmentation of MINC files.
register	Displays two MINC files side-by-side and along with their combined image. Can be used for manual registration.
nu_correct	Performs the "N3" algorithm for nonuniformity correction.
mritotal, mrito-self	Calculates the transform from a MINC file's native space to MNI (Talairach) space (or to another MINC file from the same subject).

6 Conversion tools

The MINC toolkit provides a number of tools for converting among common medical image formats:

Command	Description
dcm2mnc	Converts from ACR-NEMA DICOM (and Siemens IMA format) to MINC.
ecattominc	Convert from ECAT (PET) format files to MINC.
mincconvert	Converts between MINC 1 and MINC 2 format.
nii2mnc, mnc2nii	Converts from NIFTI-1 (or Analyze) format to MINC, or vice-versa.
upet2mnc	Convert from Concorde microPET format to MINC.