

# Makefile Documentation

Documenting makefiles: PrepSubject.mk

*June 9, 2016*

## Contents

1 [This File](#) 2 [Targets](#) 3 [Variables](#) 4 [Intermediate Files](#) 5 [Makefiles](#)

## 1 This File

This document was prepared on June 9, 2016 at 17:31 by tkmday.

Project Directory: /mnt/home/tkmday/sdmf/make-document

### 1.1 Description

No description supplied.

### 1.2 Files

**PrepSubject.mk** No description supplied.

Note that the items are sorted uppercase, then lowercase: [A-Za-z]

## 2 Targets

Target	Definition & Description	File
ConvertCommon	Convert survey, flair, T1 PAR/RECS to nifti.	<a href="#">PrepSubject.mk</a>
ConvertOff	Convert OFF scans	<a href="#">PrepSubject.mk</a>
ConvertOn	Convert ON scans	<a href="#">PrepSubject.mk</a>
PrepStructurals	Combining, Reorienting and Skullstripping	<a href="#">PrepSubject.mk</a>
PrepSubject	No comment supplied	<a href="#">PrepSubject.mk</a>
PrepSubject	No comment supplied	<a href="#">PrepSubject.mk</a>

## 3 Variables

Variable	Definition & Description	File
MATLABCompiler	/usr/local/MATLAB/MATLAB_Runtime/v81 #! always use the same vresion of MATLAB No comment supplied	<a href="#">PrepSubject.mk</a>

---

## 4 Intermediate Files

<b>PrepStructuralsOff</b> No comment supplied	<a href="#">PrepSubject.mk</a>
<b>axcpt-%/rest_e001.nii.gz</b> Convert task scan	<a href="#">PrepSubject.mk</a>
<b>dti/blipA.nii.gz</b> Convert DTI	<a href="#">PrepSubject.mk</a>
<b>fieldmap-%/B0_mag_fMRI.nii.gz</b> convert B0 fieldmap	<a href="#">PrepSubject.mk</a>
<b>fieldmap-%/B0_mag_fMRI_brain.nii.gz</b> skull-stripped fieldmap	<a href="#">PrepSubject.mk</a>
<b>flair/Flair.nii.gz</b> Convert and reorient Flair	<a href="#">PrepSubject.mk</a>
<b>mprage/T1.nii.gz</b> Convert and reorient MPRAGE	<a href="#">PrepSubject.mk</a>
<b>mprage/T1_brain.nii.gz</b> skull-stripped brain	<a href="#">PrepSubject.mk</a>
<b>mprage/T1_in_fs.nii.gz</b> No comment supplied	<a href="#">PrepSubject.mk</a>
<b>pcasl-%/Pcasl.nii.gz</b> PCASL conversion should be done with mcverter in subject_setup	<a href="#">PrepSubject.mk</a>
<b>rest-%/rest_e001.nii.gz</b> Convert resting state	<a href="#">PrepSubject.mk</a>
<b>test-grp</b> No comment supplied	<a href="#">PrepSubject.mk</a>

## 5 Makefiles

### 5.1 PrepSubject.mk

```
### Unpacks nifties, PARRECs

.PHONY: PrepSubject ConvertCommon ConvertOn ConvertOff PrepStructurals
#.SECONDARY:

MATLABCompiler=/usr/local/MATLAB/MATLAB_Runtime/v81 #! always use the same version
of MATLAB

# all:

# test whether this is a control or PD
ifeq ($(strip $(GROUP)),CONTROL)
PrepSubject: ConvertCommon ConvertOn PrepStructurals
else
PrepSubject: ConvertCommon ConvertOn ConvertOff PrepStructurals PrepStructuralsOff
endif

## Convert survey, flair, T1 PAR/RECS to nifti.
ConvertCommon: flair/Flair.nii.gz mprage/T1.nii.gz dti/blipA.nii.gz

## Convert ON scans
ConvertOn: pcal-on/Pcal.nii.gz rest-on/rest_e001.nii.gz axcpt-on/rest_e001.nii.
gz fieldmap-on/B0_mag_fMRI.nii.gz

## Convert OFF scans
ConvertOff: pcal-off/Pcal.nii.gz rest-off/rest_e001.nii.gz axcpt-off/rest_e001.
nii.gz fieldmap-off/B0_mag_fMRI.nii.gz

#
# Scans for which there is only one per subject
#

#> Convert and reorient Flair
flair/Flair.nii.gz: parrec/FLAIR.zip
    mkdir -p flair
    unzip $(word 1,$^) -d flair/ ;\
    $(BIN)/run_ConvertR2A.sh $(MATLABCompiler) $(SubjDIR)/flair/ ;\
    rm -f flair/*.PAR flair/*.REC flair/*.XML flair/*.LOG ;\
    mv flair/*FLAIR*.nii flair/Flair.nii ;\
    gzip flair/*.nii ;\
    fslreorient2std flair/Flair.nii.gz flair/Flair.nii.gz

#> Convert DTI
dti/blipA.nii.gz: parrec/DTI-BlipA.zip parrec/DTI-BlipP.zip
    mkdir -p dti ;\
    unzip parrec/DTI-BlipA.zip -d dti/ ;\
    unzip parrec/DTI-BlipP.zip -d dti/ ;\
    parrec2nii -v -b -c --scaling fp --overwrite -d --field-strength=3 -o dti
    dti/*PAR ;\
    rm -f dti/*.PAR dti/*.REC dti/*.XML dti/*.LOG ;\
    mv dti/*BlipA*.nii.gz dti/blipA.nii.gz ;\
    mv dti/*BlipA*.bvals dti/blipA.bvals ;\

```

```
mv dti/*BlipA*.bvecs dti/blipA.bvecs ;\
mv dti/*BlipP*.nii.gz dti/blipP.nii.gz ;\
mv dti/*BlipP*.bvals dti/blipP.bvals ;\
mv dti/*BlipP*.bvecs dti/blipP.bvecs
```

*#> Convert and reorient MPRAGE*

```
mprage/T1.nii.gz: parrec/MPRAGE.zip
mkdir -p mprage ;\
unzip $(word 1,$^) -d mprage ;\
$(BIN)/run_ConvertR2A.sh $(MATLABCompiler) $(SubjDIR)/mprage/
rm -f mprage/*.PAR mprage/*.REC mprage/*.XML mprage/*.LOG ;\
mv mprage/*.nii mprage/T1.nii ;\
gzip mprage/T1.nii ;\
fslreorient2std mprage/T1.nii.gz mprage/T1.nii.gz
```

#

# *ON/OFF scans*

#

*#> PCASL conversion should be done with mcuverter in subject\_setup*

*# this comment should be removed*

```
pcasl-%/Pcasl.nii.gz:
mkdir -p pcasl-$*
cp dicom/*PCASL*.nii.gz pcasl-$* ;\
mv pcasl-$*/PCASL_pld*.nii.gz pcasl-$*/Pcasl.nii.gz
```

*#> Convert resting state*

```
rest-%/rest_e001.nii.gz: parrec/rest_%.zip
mkdir -p rest-$* ;\
unzip $(word 1,$^) -d rest-$*/ ;\
$(BIN)/run_ConvertR2A.sh $(MATLABCompiler) $(SubjDIR)/rest-$*/ ;\
rm -f rest-$*/*.PAR rest-$*/*.REC rest-$*/*.XML rest-$*/*.LOG ;\
for i in `seq 1 3`; do mv rest-$*/RS*-e00$$${i}*.nii rest-$*/rest_e00$$${i}
}.nii; done ;\
gzip rest-$*/*.nii
```

*#> Convert task scan*

```
axcpt-%/rest_e001.nii.gz: parrec/axcpt_%.zip
mkdir -p axcpt-$* ;\
unzip $(word 1,$^) -d axcpt-$*/ ;\
$(BIN)/run_ConvertR2A.sh $(MATLABCompiler) $(SubjDIR)/axcpt-$*/ ;\
rm -f axcpt-$*/*.PAR axcpt-$*/*.REC axcpt-$*/*.XML axcpt-$*/*.LOG ;\
for i in `seq 1 3`; do mv axcpt-$*/Task*-e00$$${i}*.nii axcpt-$*/
rest_e00$$${i}.nii; done ;\
gzip axcpt-$*/*.nii
```

*#> convert B0 fieldmap*

```
fieldmap-%/B0_mag_fMRI.nii.gz: parrec/B0-ME_%.zip
mkdir -p fieldmap-$* ;\
unzip $(word 1,$^) -d fieldmap-$*/ ;\
$(BIN)/run_ConvertR2A.sh $(MATLABCompiler) $(SubjDIR)/fieldmap-$*/ ;\
rm -f fieldmap-$*/*.PAR fieldmap-$*/*.REC fieldmap-$*/*.XML fieldmap-$*/*.
LOG ;\
mv fieldmap-$*/B0_ME*2.nii fieldmap-$*/B0_mag_fMRI.nii ;\
mv fieldmap-$*/B0_ME*5.nii fieldmap-$*/B0_phase_fMRI.nii ;\
gzip fieldmap-$*/*.nii
```

```

#
# PrepStructurals
#

#? Combining, Reorienting and Skullstripping
PrepStructurals: mprage/T1_brain.nii.gz fieldmap-on/B0_mag_fMRI_brain.nii.gz
PrepStructuralsOff: fieldmap-off/B0_mag_fMRI_brain.nii.gz

#> skull-stripped brain
mprage/T1_brain.nii.gz: mprage/T1.nii.gz
    bet $< $@ -B -f .1

#> skull-stripped fieldmap
fieldmap-%/B0_mag_fMRI_brain.nii.gz: fieldmap-%/B0_mag_fMRI.nii.gz
    bet fieldmap-$*/B0_mag_fMRI.nii.gz fieldmap-$*/B0_mag_fMRI_brain.nii.gz -R

# requires freesurfer
mprage/T1_in_fs.nii.gz: $(SUBJECTS_DIR)/$(subject).s1/mri/T1.mgz
    source $(FREESURFER_SETUP) ;\
    export SUBJECTS_DIR=$(SUBJECTS_DIR) ;\
    mri_convert $(word 1,$^) $@

#
# Testing
#

test-grp:
    @echo $(GROUP)

```