

Manual for Batch file builder

ATR Neural Information Analysis Laboratories (June 15, 2011)

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Manual for Batch File Builder

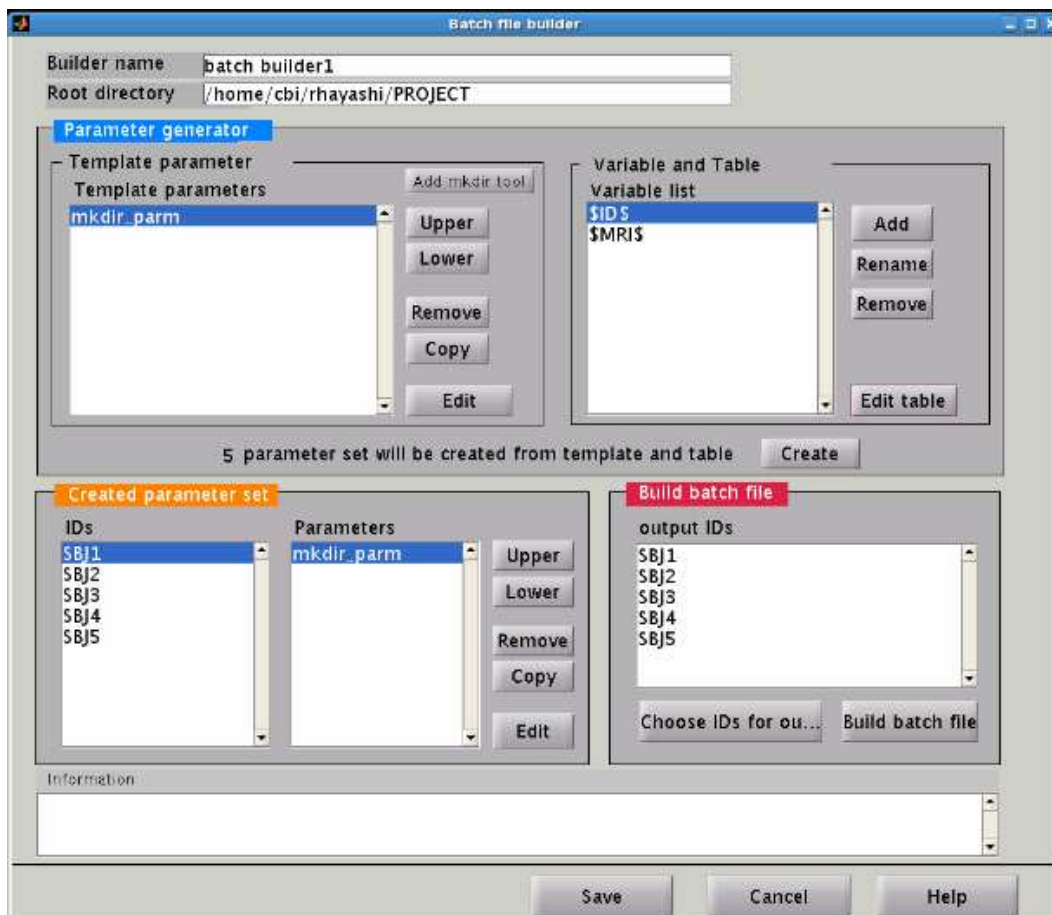
Introduction

VBMEG has several GUIs for specifying parameters.

These GUIs, however, set parameters for a single subject and cannot be used to process multiple subject at the same time. Therefore, the Batch File Builder was created to support batch processing.

Using the Batch File Builder one can modify the parameters for multiple subjects easily and efficiently.

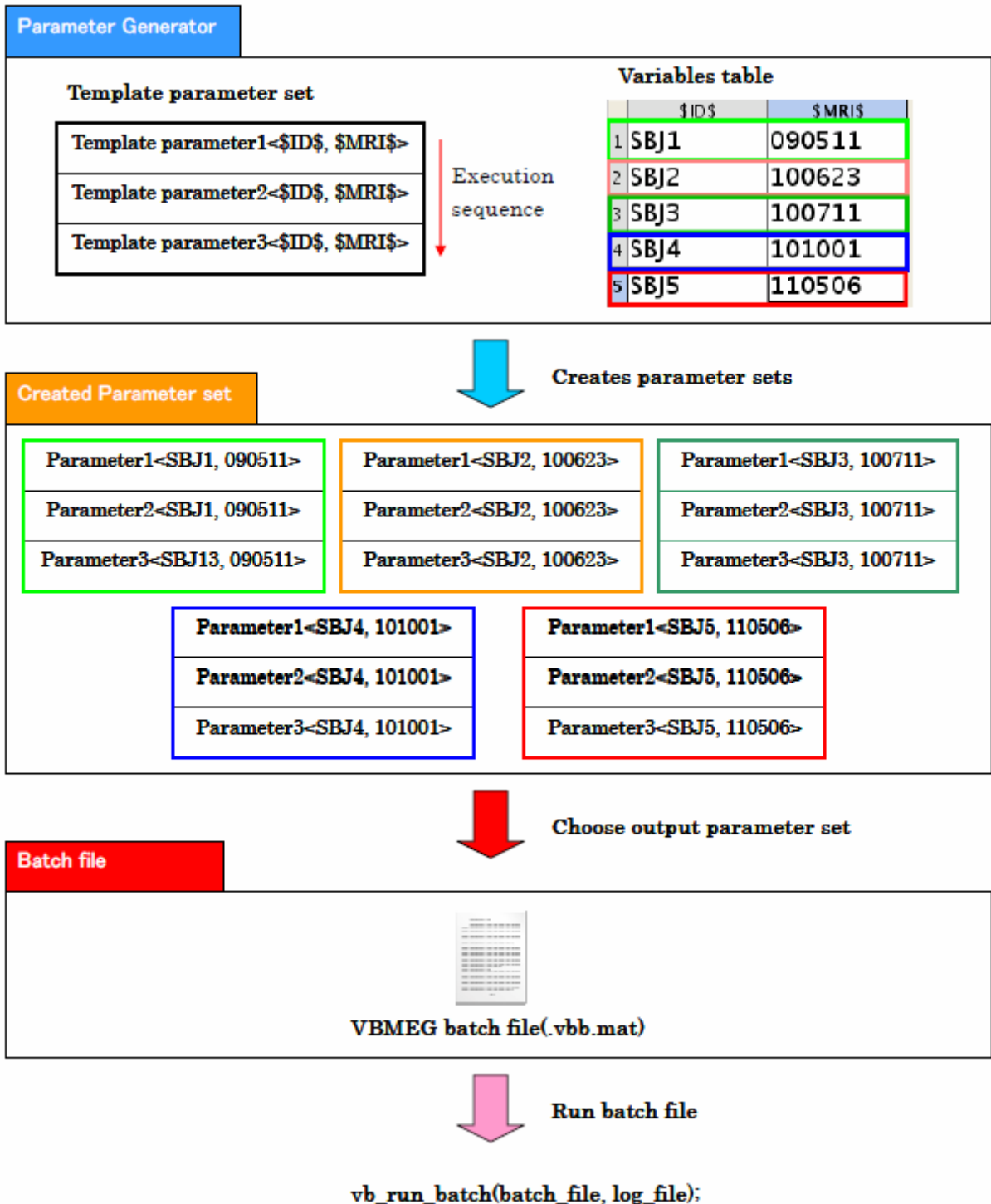
The Batch File Builder is based on the concept that each subject's parameters can be distinguished by each subject's specific file name.



Work Flow

Work flow is as follows.

1. Specify template parameters.
You can use the following parameters as template parameters.
 - Pre-selected parameters from a project file.
 - Parameters for making directories.
2. Put variables in template parameters.
Variables are strings which are enclosed by \$(e.g. \$ID\$, \$MRI\$, etc.). You can define any number of variables.
3. Define variable values.
4. Output parameter set.
5. Generate batch file.



The following will explain in detail how to use Batch File Builder.

Creating Multiple Subject Directories Simultaneously

Overview

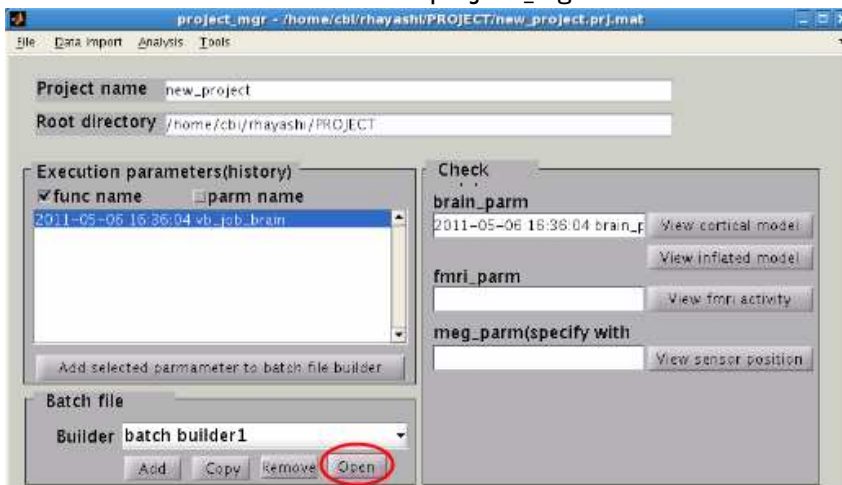
- In the following, SBJ[n] refers to a subject directory.

Directories for (SBJ1,SBJ2,SBJ3,SBJ4,SBJ5) will be made by batch processing. (The value of SBJ[n] is given by a variable.)

```
/home/cbi/rhayashi/PROJECT/SBJ[n]/brain
                                     /fmr i
                                     /meg
                                     /leadfield
                                     /estimation
                                     /current
```

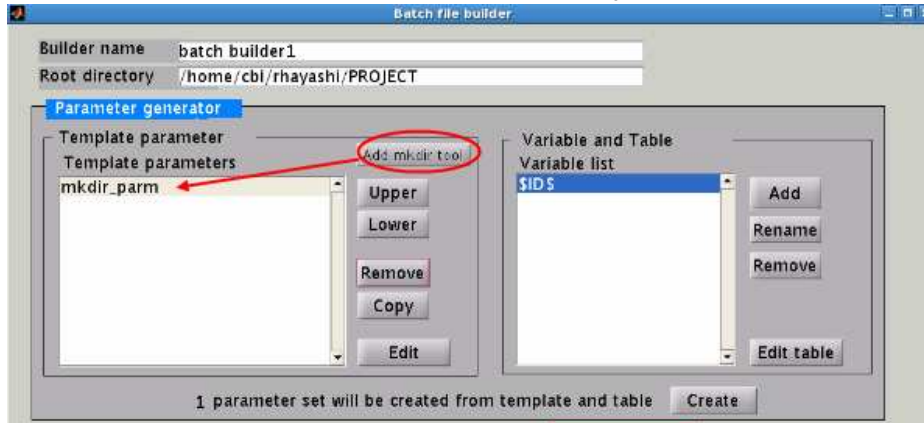
step1: Launching Batch File Builder

Launch Batch File Builder from project_mgr.



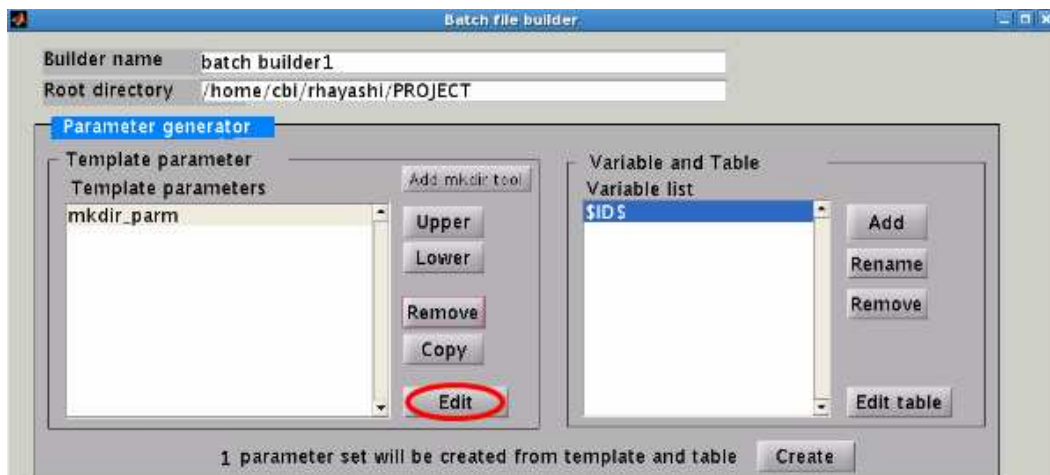
step2: Add a Template Parameter for Creating Directories

Push the "add mkdir tool" button. The mkdir parameter is added.



step3: Edit the Template Parameter for Creating Directories

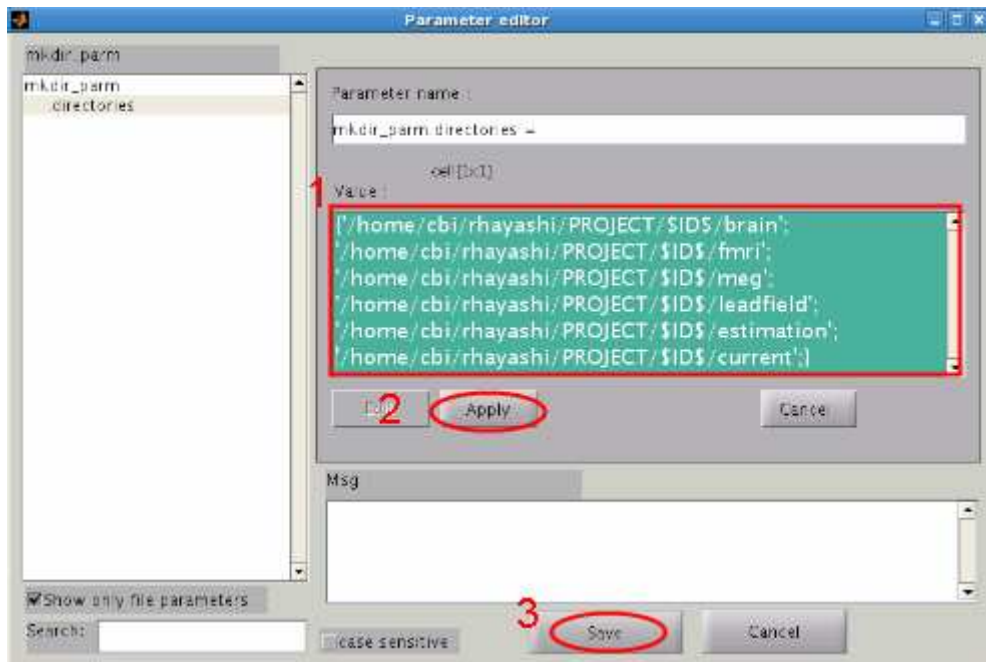
1. Push the "Edit" button. The dialog for editing parameter appears.



2. Push the "Edit" button in the dialog and input the following values.

Value:

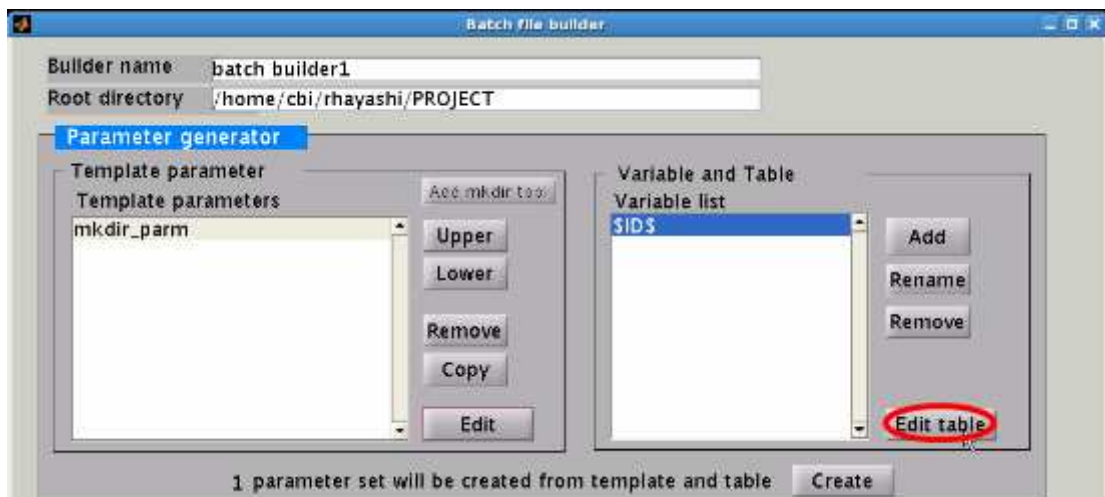
```
{/home/cbi/rhayashi/PROJECT/$ID$/brain';  
'/home/cbi/rhayashi/PROJECT/$ID$/fmri';  
'/home/cbi/rhayashi/PROJECT/$ID$/meg';  
'/home/cbi/rhayashi/PROJECT/$ID$/leadfield';  
'/home/cbi/rhayashi/PROJECT/$ID$/estimation';  
'/home/cbi/rhayashi/PROJECT/$ID$/current';}
```



3. Push the "Apply" button to change the field and then push the "Save" button.

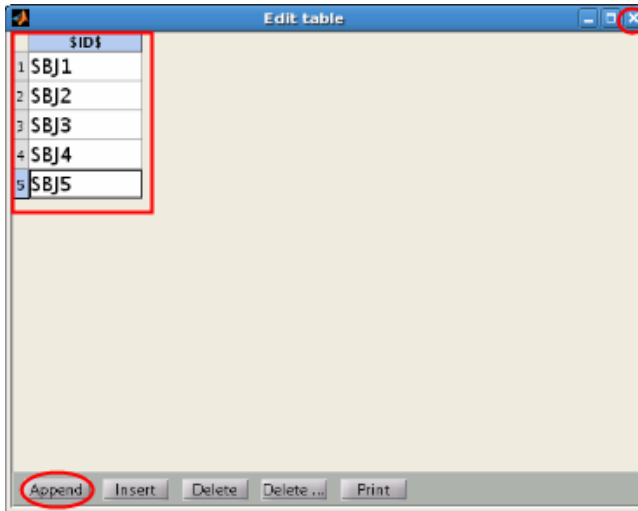
step4: Define Variables

1. Push the "Edit Table" button. The table editor dialog appears.



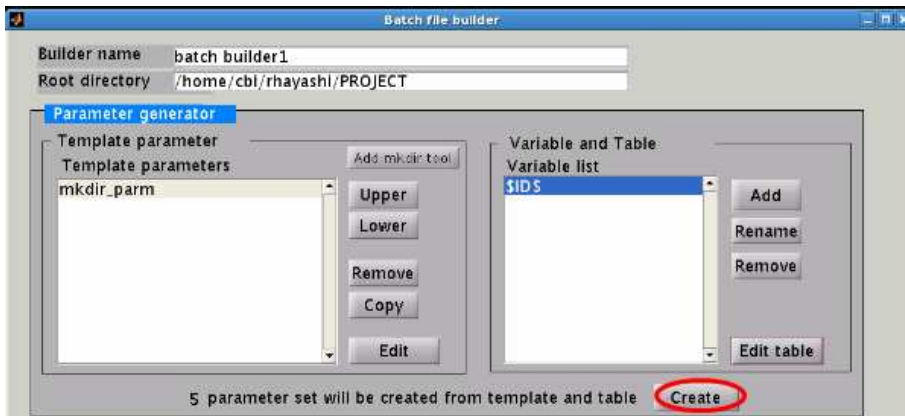
2. Push the "Append" button four times and enter values for SBJ1 to SBJ5.

When finished, push the close button(X) in the top right corner.

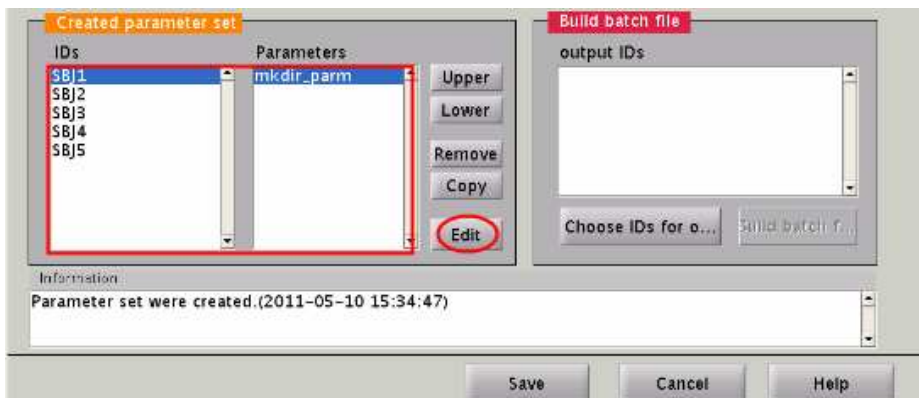


step5: Creating a Parameter

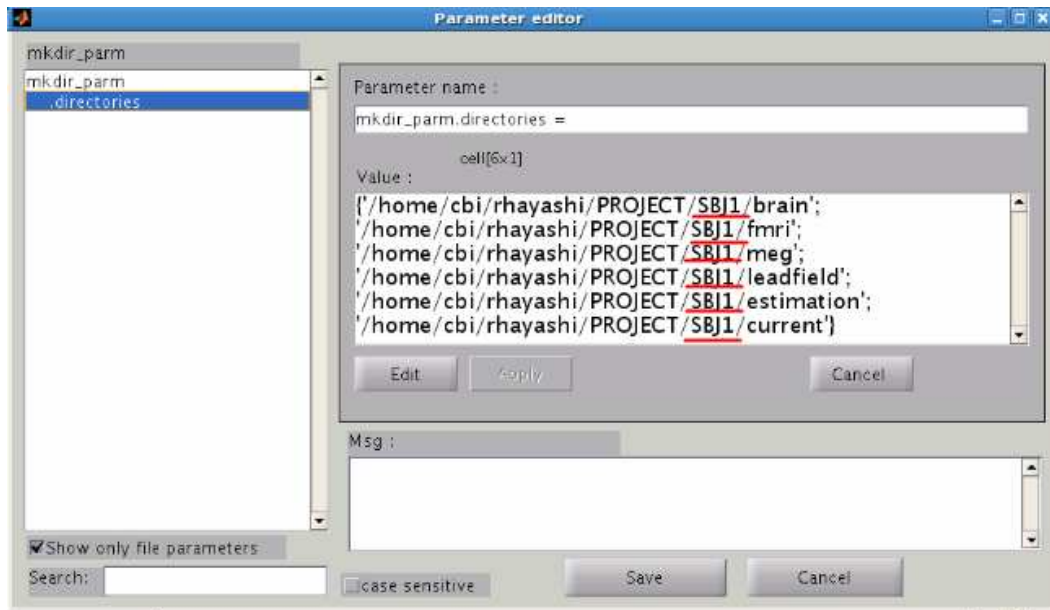
1. Push the "Create" button.



2. Five parameters are created. Push the "Edit" button and check the parameters.

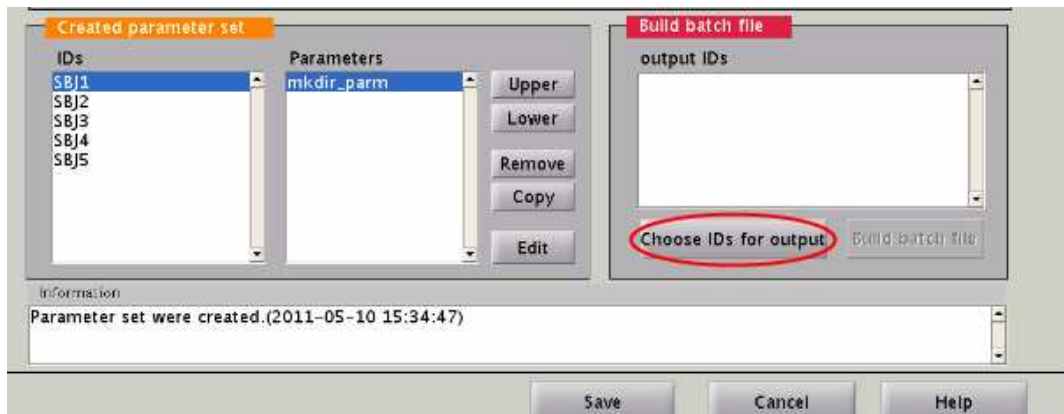


3. Variable: **\$IDS** is replaced by SBJ1.



step6: Making a Batch File

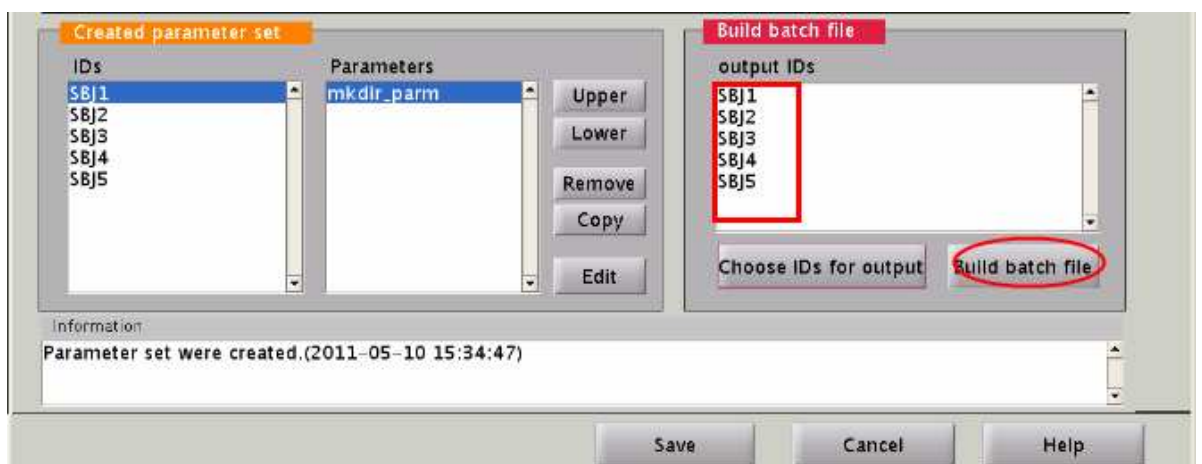
1. Push the "Choose IDs for output" button.



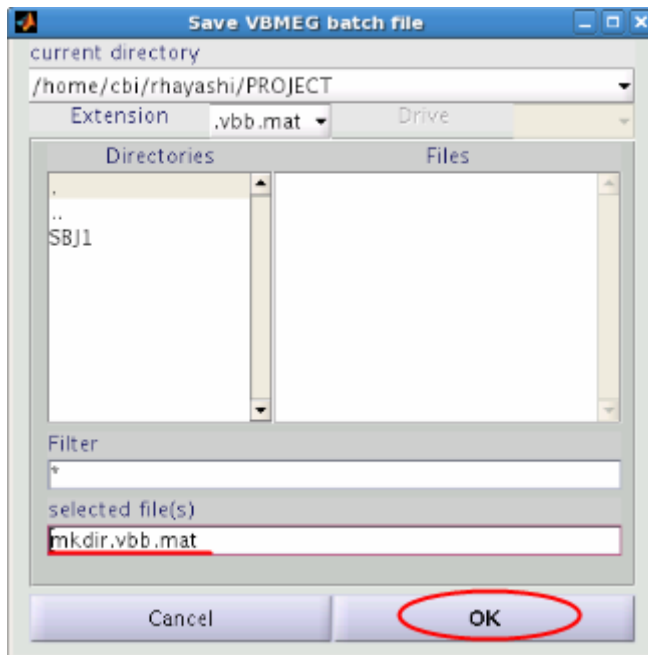
2. Choose parameter sets made from the template parameter and push the "OK" button.



3. Push the "Build batch file" button.



4. The dialog appears to input the name of the output file. Input a filename and push the "OK" button.



step7: Executing a Batch File

1. Run `vb_run_batch` function from MATLAB.

```
vb_run_batch('/home/cbi/rhayashi/PROJECT/mkdir.vbb.mat',  
'/home/cbi/rhayashi/PROJECT/mkdir_log.txt');
```

2. The following directories are made.

```
>> ! tree /home/cbi/rhayashi/PROJECT  
/home/cbi/rhayashi/PROJECT  
|-- SBJ1  
|   |-- brain  
|   |-- current  
|   |-- estimation  
|   |-- fmri  
|   |-- leadfield  
|   `-- meg  
|-- SBJ2  
|   |-- brain  
|   |-- current  
|   |-- estimation  
|   |-- fmri  
|   |-- leadfield  
|   `-- meg  
|-- SBJ3
```

```
|  |-- brain
|  |-- current
|  |-- estimation
|  |-- fmri
|  |-- leadfield
|  `-- meg
|-- SBJ4
|  |-- brain
|  |-- current
|  |-- estimation
|  |-- fmri
|  |-- leadfield
|  `-- meg
|-- SBJ5
|  |-- brain
|  |-- current
|  |-- estimation
|  |-- fmri
|  |-- leadfield
|  `-- meg
```

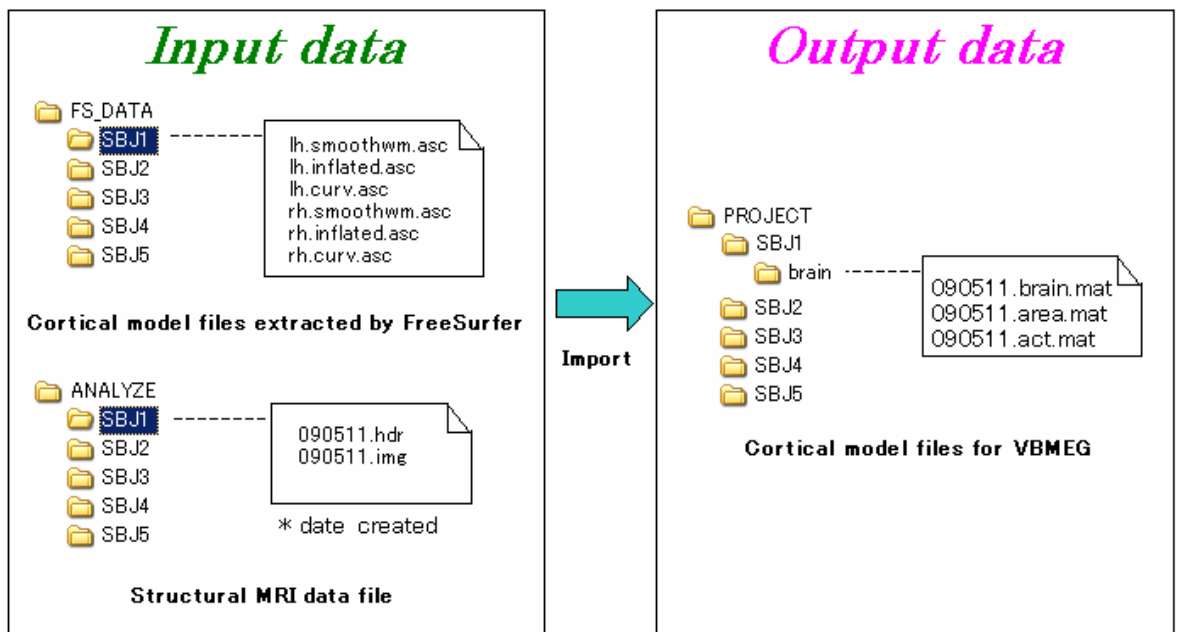
Push the "Save" button and the Batch File Builder workspace is saved into the project file(.prj.mat).

Importing a Brain Model after Creating a Subject Directory

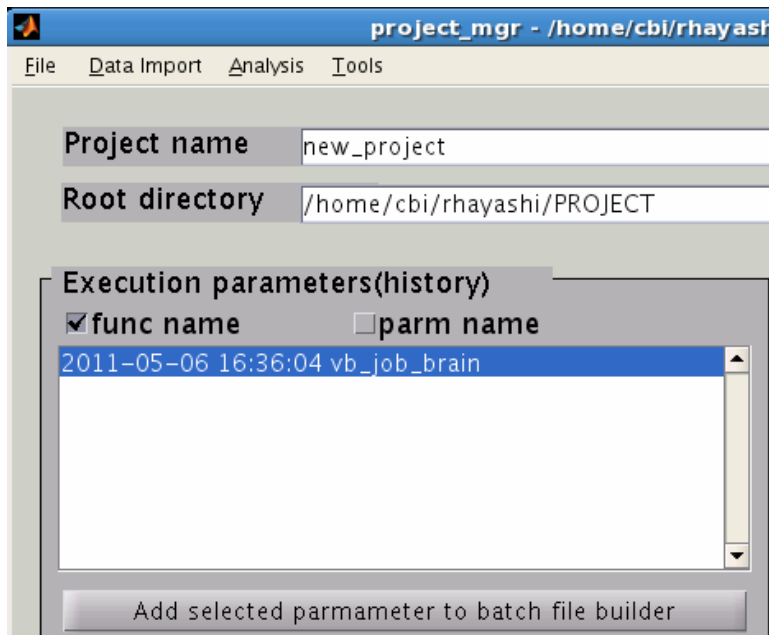
Preparation

1. In the following example, we assume the following input and output directory structure.

Root directory: /home/cbi/rhayashi



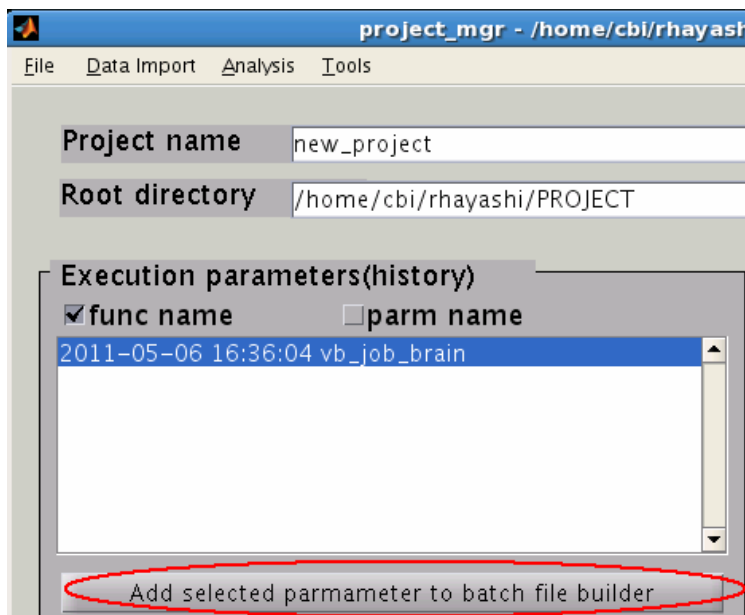
2. Import the brain model of SBJ1 by using the project_mgr GUI.
(For instructions on how to import a brain model, please refer to the user manual or tutorials.)
Check the result of the import process to check the validity of the parameters. The execution parameters are stored in the project file and these parameters are used as a template parameter.

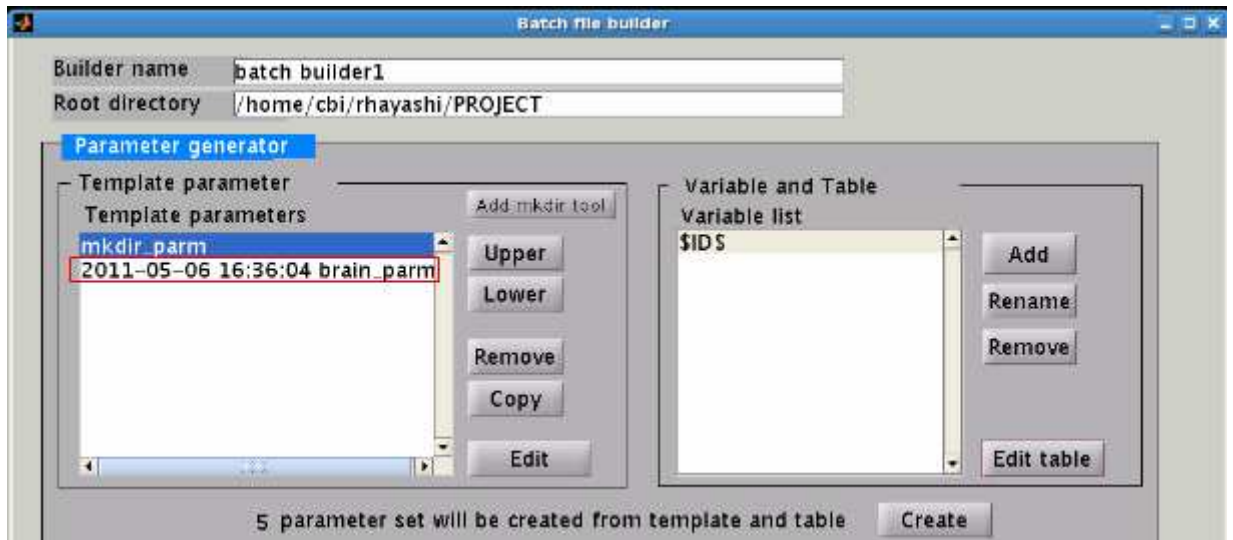


This parameter was used to import a brain model. It is stored in the project file.

step1: Adding a parameter for importing a brain model

1. Perform step1 to step4 described in "Creating Subject Directories Simultaneously."
2. Select "vb_job_brain" from the history window in the project_mgr, and push the "Add selected parameter to batch file builder" button.

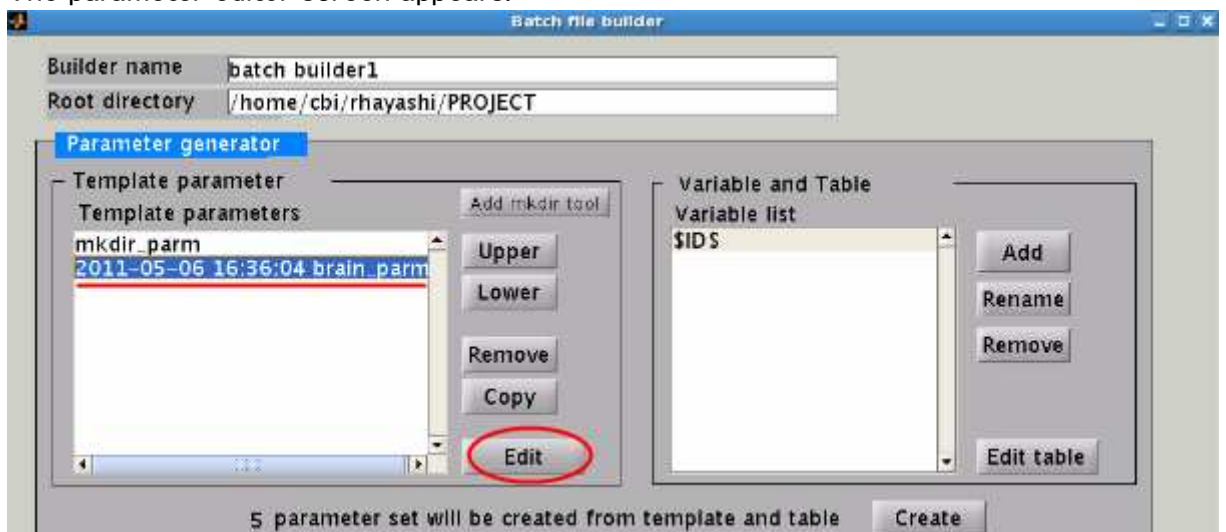




step2: Editing the Parameter for Importing the Brain Model

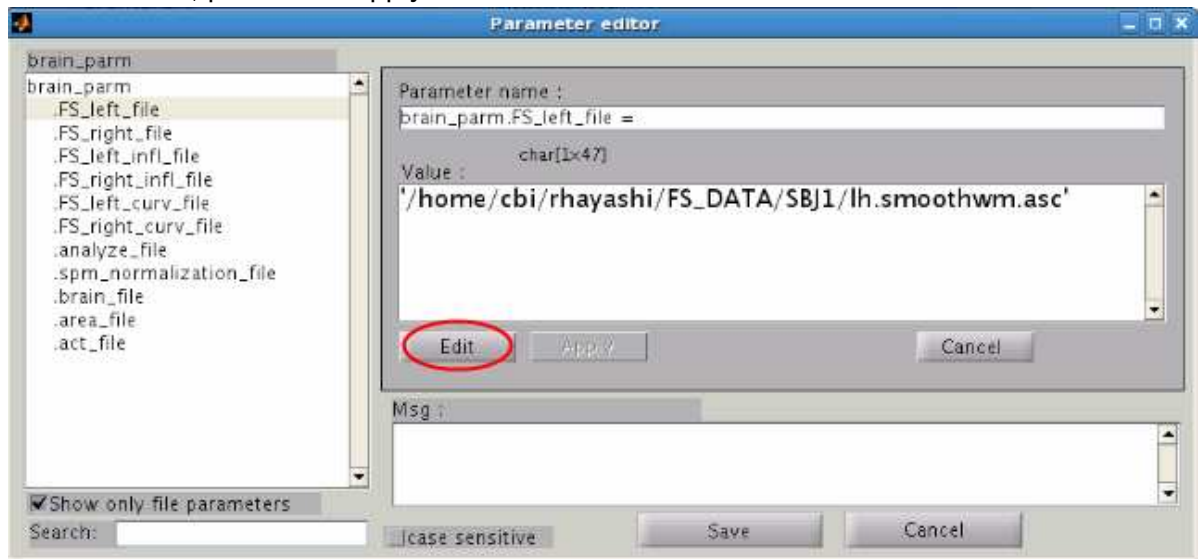
1. Select the newly added parameter and push the "Edit" button(or double click on the parameter).

The parameter editor screen appears.



2. Select a field name and push the "Edit" button(or double click on the field name).

Enter the variable values \$ID\$ and \$MRI\$ into the field.
 When finished, push the "Apply" button and edit the next field.



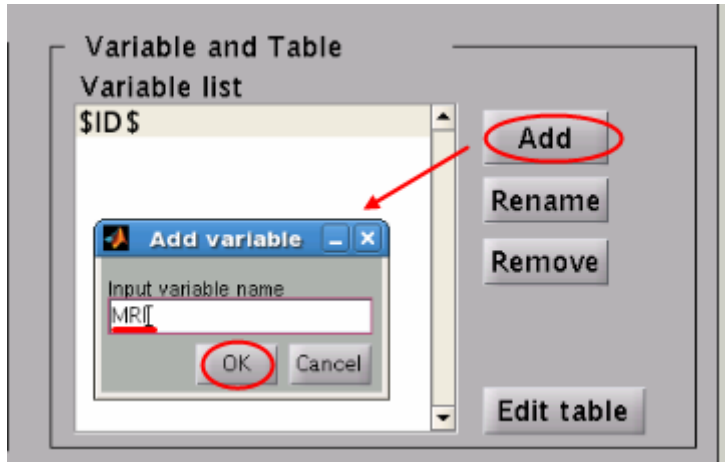
FS_left_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/lh.smoothwm.asc'
FS_right_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/rh.smoothwm.asc'
FS_left_infl_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/lh.inflated.asc'
FS_right_infl_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/rh.inflated.asc'
FS_left_curv_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/lh.curv.asc'
FS_right_curv_file	'/home/cbi/rhayashi/FS_DATA/\$ID\$/rh.curv.asc'
analyze_file	'/home/cbi/rhayashi/ANALYZE/\$ID/\$MRI\$.hdr'
brain_file	'./\$ID\$/brain/\$MRI\$.brain.mat'
area_file	'./\$ID\$/brain/\$MRI\$.area.mat'
act_file	'./\$ID\$/brain/\$MRI\$.act.mat'

3. When finished, push the "Save" button to save all the input fields.

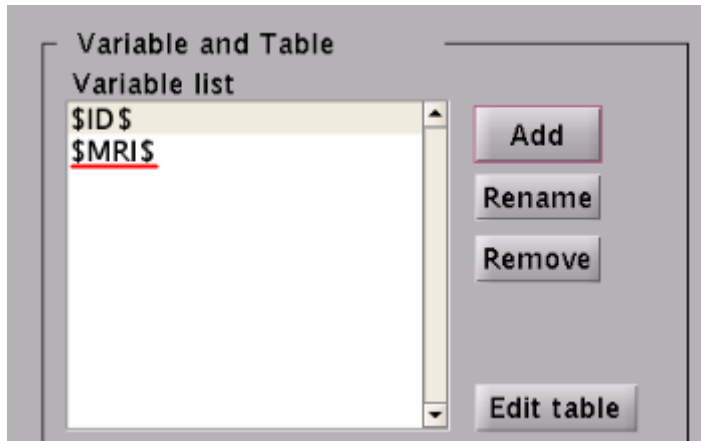
step3: Adding a Variable(\$MRI\$)

1. When you push the "Add" button, the dialog to input the names of the variable appears.

Input "MRI" and push the OK button.

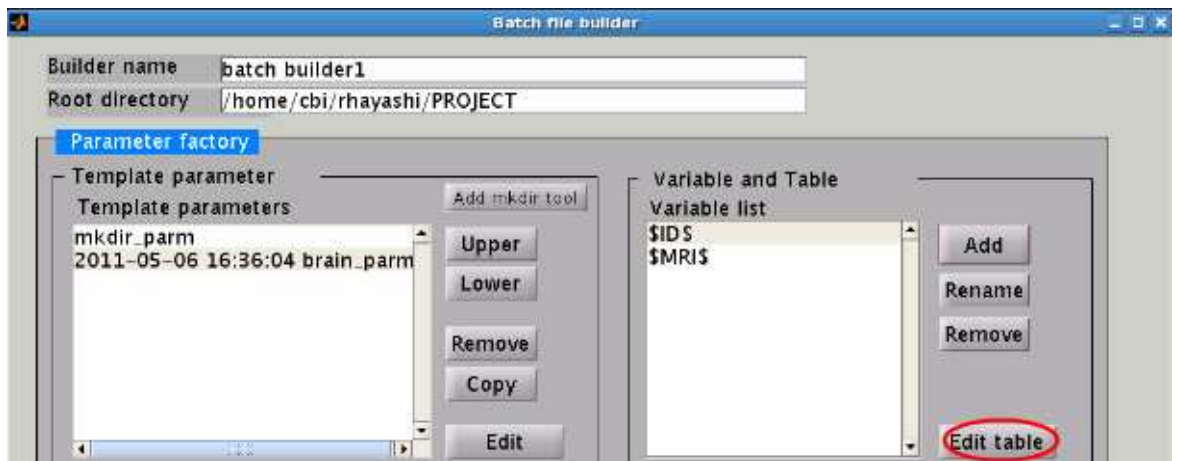


2. The variable is added.



step4: Defining Variables in Table

1. Push the "Edit table" button. The table view appears.



- Input values as follows and then push the close button(X) in the top right corner.

You can copy data from an Excel worksheet and paste it into the table.

	\$ID\$	\$MRI\$
1	SBJ1	090511
2	SBJ2	100623
3	SBJ3	100711
4	SBJ4	101001
5	SBJ5	110506

step5: Creating Parameters

- Two parameters (mkdir_parm, brain_parm) x 5 sets(the number of lines defined in the table) will be created.

- Push "Create" button and the two parameters are created.

Select one of the parameters and push "Edit" button to check the parameter.

Builder name: batch builder1
 Root directory: /home/cbi/rhayashi/PROJECT

Parameter generator

Template parameter: mkdir_parm
 2011-05-06 16:36:04 brain_parm

Variable and Table
 Variable list: \$ID\$, \$MRI\$

5 parameter set will be created from template and table **Create**

Created parameter set

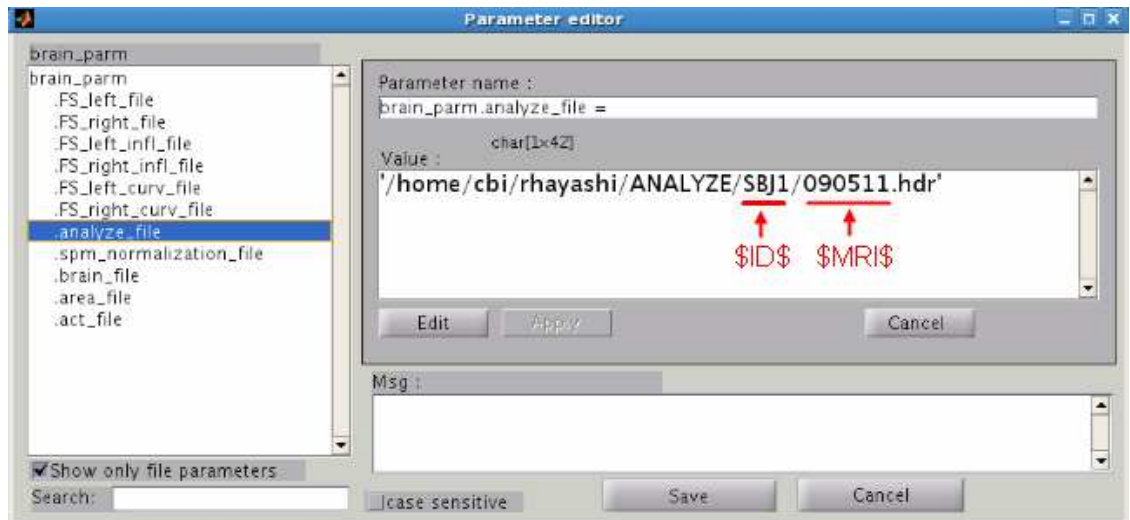
IDs: SBJ1, SBJ2, SBJ3, SBJ4, SBJ5
 Parameters: mkdir_parm, brain_parm

output IDs: [Empty list]
 Choose IDs for ou... Build batch file

Information
 Parameter set were created.(2011-05-13 13:53:11)

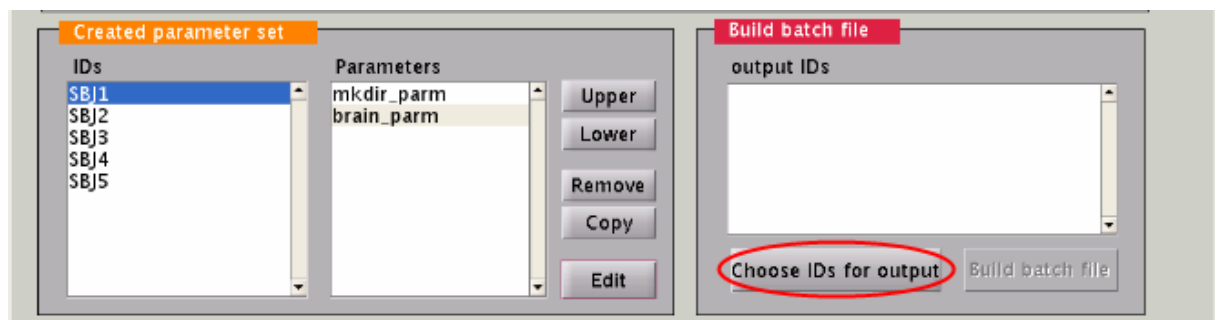
- For example, if you see the analyze_file field, \$ID\$ and \$MRI\$ are replaced by **SBJ1, 090511**, then the parameter was created correctly.

Confirm all the fields in which variables are embedded are correct.



step6: Making a Batch File

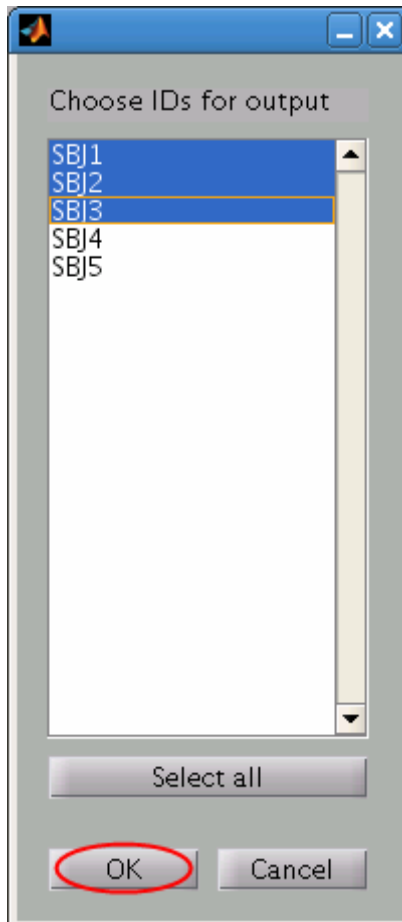
- Push the "Choose IDs for output" button.



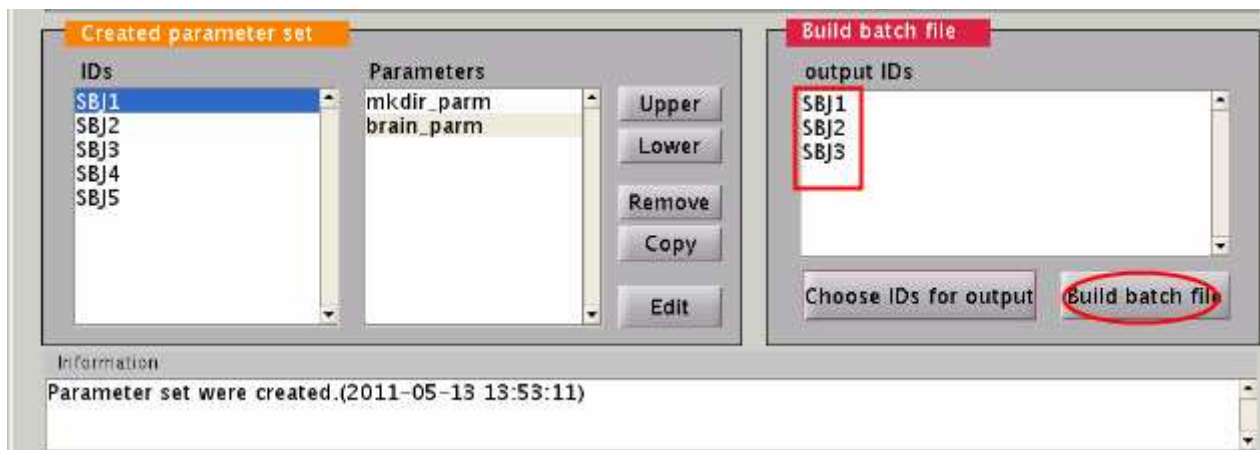
- Choose the parameter sets made from the template parameters.

Batch jobs are executed sequentially, so if the time-consuming parameters such as current variance estimation parameter are placed in the file, it will take a long time to complete. In this case, we recommend parallel processing. For example,

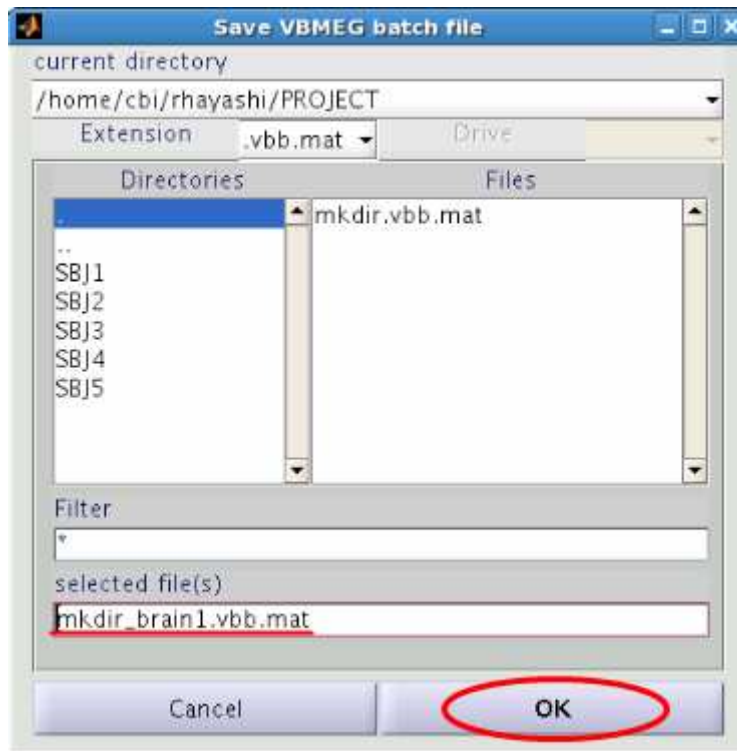
- Make two batch files. One contains parameters SBJ1, SBJ2, SBJ3, the other contains parameters for SBJ4, SBJ5.
- Launch two MATLAB processes.
- Run the batch file on each process.



3. Push the "Build batch file" button.



4. The dialog appears to input the name of output file. Input a filename and press the "OK" button.



step7: Executing a Batch File

1. Run `vb_run_batch` function from MATLAB.

```
vb_run_batch('/home/cbi/rhayashi/PROJECT/mkdir_brain1.vbb.mat',
'/home/cbi/rhayashi/PROJECT/mkdir_brain1_log.txt');
```

2. Directories for five subjects are created and the brain model is imported to each directory.

```
>> ! tree /home/cbi/rhayashi/PROJECT
/home/cbi/rhayashi/PROJECT
|-- SBJ1
|   |-- brain
|   |   |-- 090511.act.mat
|   |   |-- 090511.area.mat
|   |   `-- 090511.brain.mat
|   |-- current
|   |-- estimation
|   |-- fmri
|   |-- leadfield
|   `-- meg
|-- SBJ2
```

```

|-- brain
|   |-- 100623.act.mat
|   |-- 100623.area.mat
|   `-- 100623.brain.mat
|-- current
|-- estimation
|-- fmri
|-- leadfield
`-- meg
|-- SBJ3
|   |-- brain
|   |-- 100711.act.mat
|   |-- 100711.area.mat
|   `-- 100711.brain.mat
|-- current
|-- estimation
|-- fmri
|-- leadfield
`-- meg
|-- SBJ4
|   |-- brain
|   |-- 101001.act.mat
|   |-- 101001.area.mat
|   `-- 101001.brain.mat
|-- current
|-- estimation
|-- fmri
|-- leadfield
`-- meg
|-- SBJ5
|   |-- brain
|   |-- 110506.act.mat
|   |-- 110506.area.mat
|   `-- 110506.brain.mat
|-- current
|-- estimation
|-- fmri
|-- leadfield
`-- meg

```

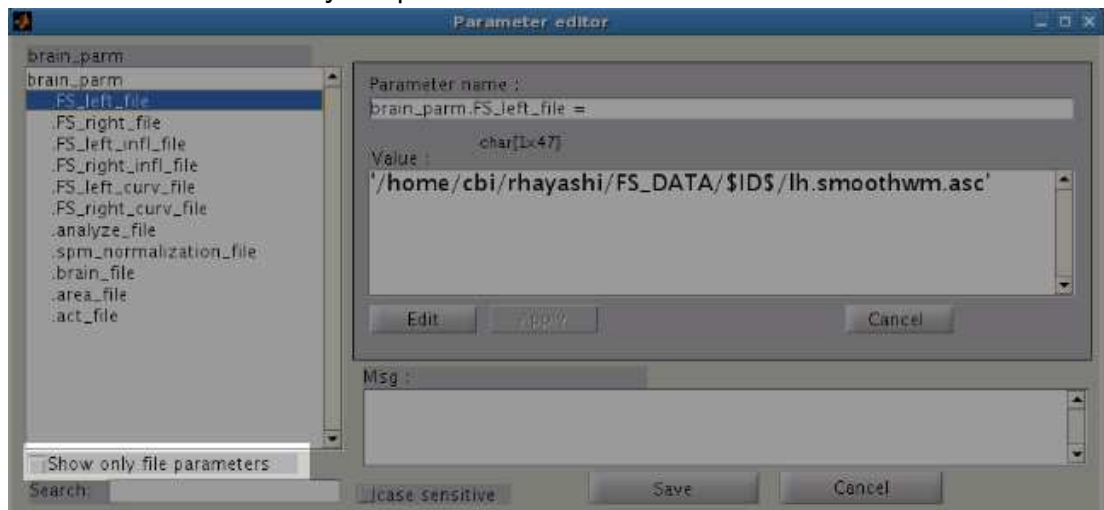
Tips

Parameter Editor Screen

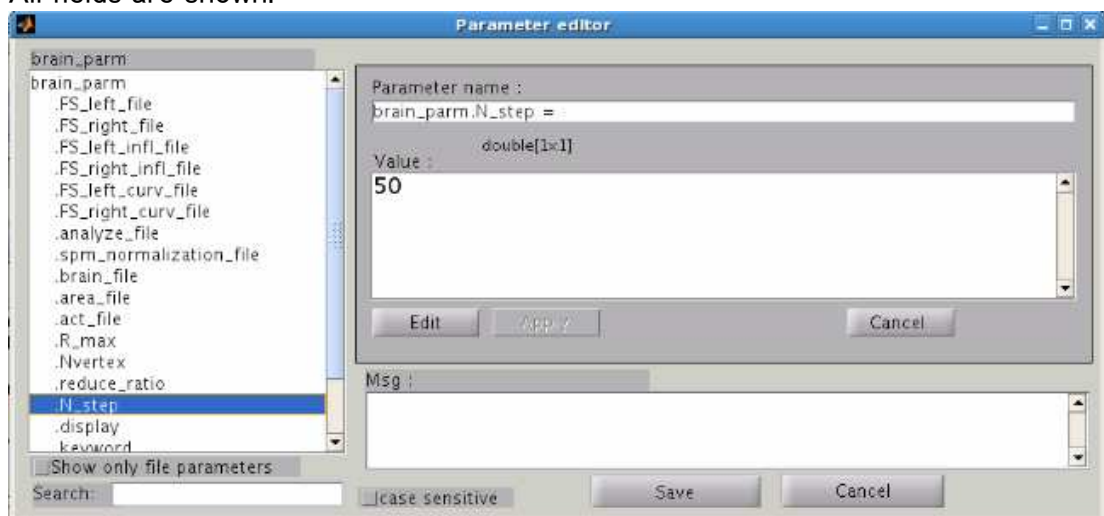
Display all fields

- By default, only fields related to files and directories are shown.

Uncheck the "Show only file parameters" box.

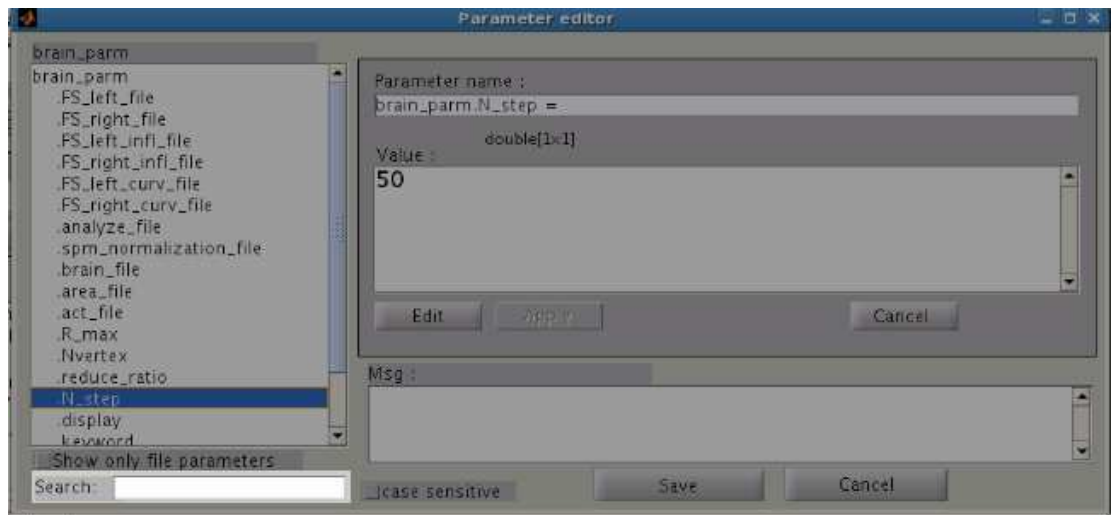


All fields are shown.



Finding fields which have specific string in the field name and in the field value

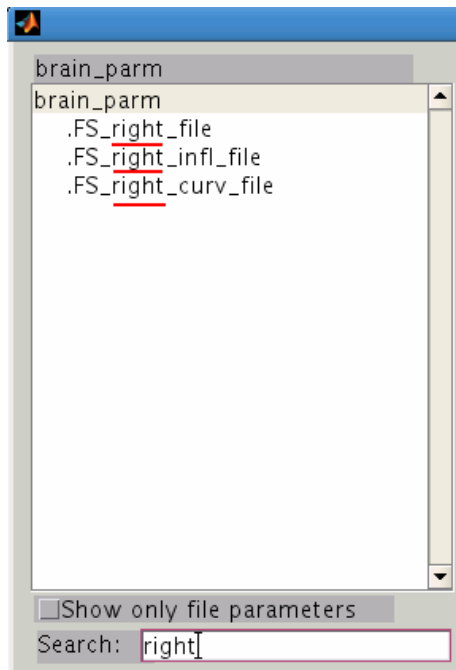
- Input the string in the Search box. You can use wild cards(*) in search strings.



Input right

Search:

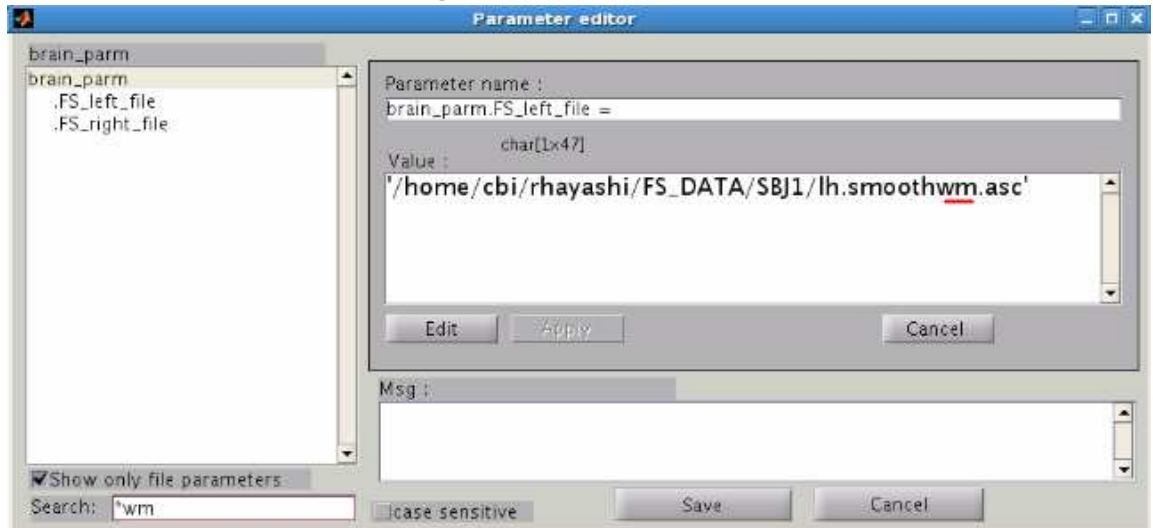
Three fields are shown.



Change search string to ***wm**.

Search:

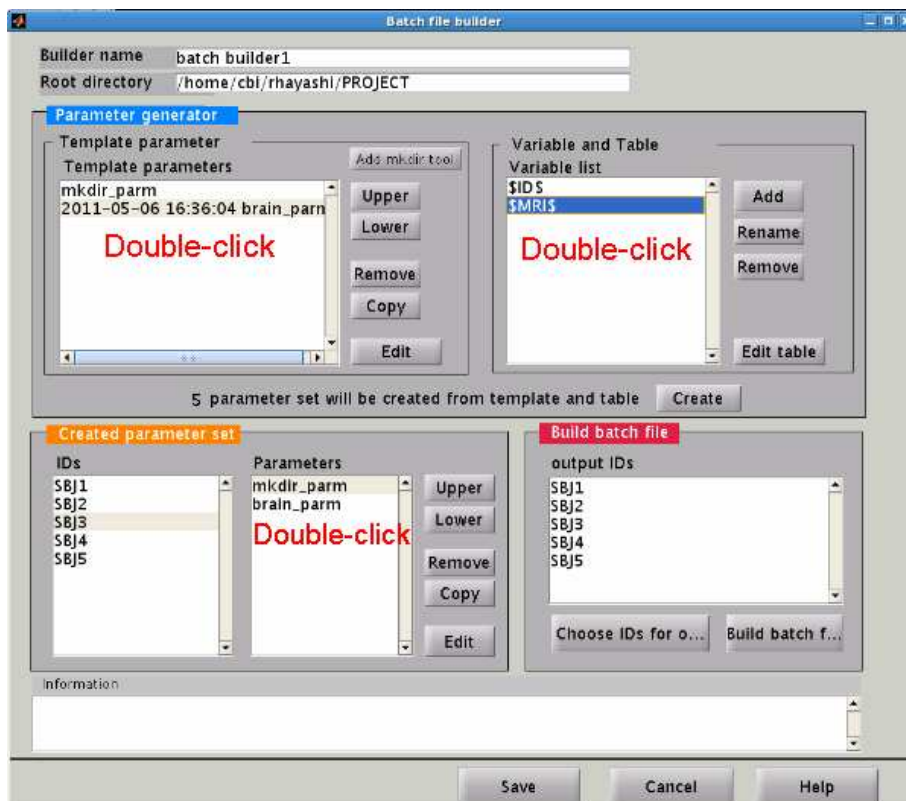
These fields have a search string **wm**



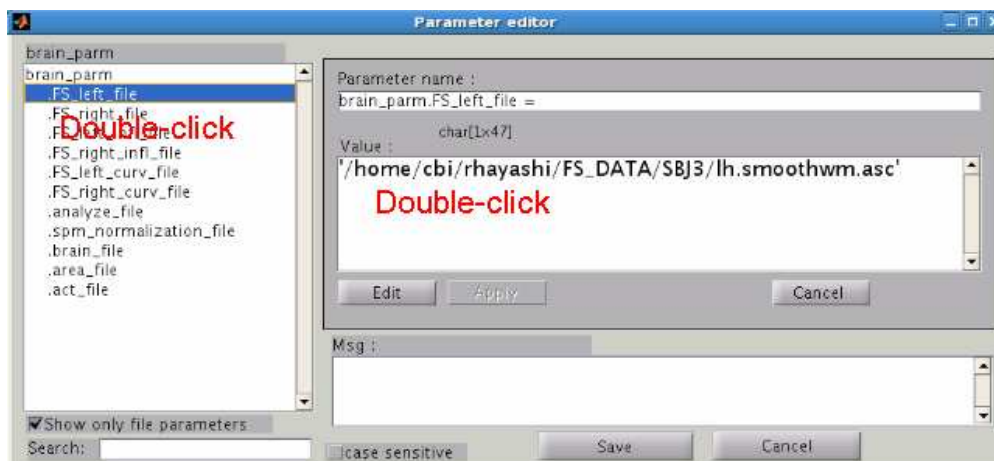
Double-click to open editing screen

- You can double-click on the places marked with a red text to open the editor screen.

Main screen



Parameter editor screen



Restrictions

- Currently, only fields with string values can be changed by the variable table. (i.e. you cannot assign a numerical value to a variable).