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2.71835675758059e-05 8.15507027274176e-05 8.15507027274176e-05 2.71835675758059e-05	As it is text file, be careful of include a maximum of significant digits. In this example, coefficients are corresponding to a low-pass Butterworth filter of order 3.
filter_a_coeff_nb 4	Number of A coefficients (in the Matlab way). These coefficients can be of a Butterworth filter, or any other filter.
filter_a_coefs 1 -2.87730072411486 2.76201379931893 - 0.884495606663461	List of A coefficients. As it is text file, be careful of include a maximum of significant digits. In this example, coefficients are corresponding to a low-pass Butterworth filter of order 3.

Use **parameters** when working with a Butterworth filter and setting filter order, type and cutoff frequency(ies).
Use **parameters** when working with a coefficients computed by another way.

• Examples

1. This parameter file ([lowpass_butter_10hz.par](#) [1]) computes Butterworth coefficients from the filter definition, and filters all channels of an EEG file containing 10 channels (8 EEG channels and 2 ELAN technical channels) :

```
#low_pass Butterworth filter
filter_type 0

filter_order 3

filter_cutoff_freq1 10

filter_channel 1 1 1 1 1 1 1 1 0 0
```

2. This parameter file ([lowpass_butter_10hz_coefs.par](#) [2]) filters all channels of an EEG file containing 10 channels (8 EEG channels and 2 ELAN technical channels), with a Butterworth filter of same characteristics designed in Matlab (with butter function):

```
filter_channel 1 1 1 1 1 1 1 1 0 0

#low_pass Butterworth filter designed with Matlab butter function
filter_b_coeff_nb 4

filter_b_coefs
2.71835675758059e-05      8.15507027274176e-05      8.15507027274176e-05
2.71835675758059e-05

filter_a_coeff_nb 4

filter_a_coefs
1      -2.87730072411486      2.76201379931893 -0.884495606663461
```

3. This parameter file ([bp_2-30Hz.par](#) [3]) computes a band-pass (2-30Hz) Butterworth filter, and filters all channels of an EEG file containing 10 channels (8 EEG channels and 2 ELAN technical channels):

```
#band_pass
filter_type 2

filter_order 3

filter_cutoff_freq1 2
filter_cutoff_freq2 30

filter_channel 1 1 1 1 1 1 1 1 0 0
```

• Comments

- WARNING : this tool is not intended to use with concatenated data. For this kind of data use [eegepochfiltfilt](#) [4].

• Current version

1.05 05-09-2011

• History

- 1.00 09-11-2010 (PEA) : 1st version.
- 1.01 17-11-2010 (PEA) : adds test for filter stability when computing Butterworth coefficients.
- 1.02 08-12-2010 (PEA) : minor modification.

- 1.03 03-03-2011 (PEA) : adds +b32 option to force 32 bits output EEG data.
- 1.04 01-09-2011 (PEA) : fixes error when saving 16 bits data in 32 bits format (+b32 option).
- 1.05 05-09-2011 (PEA) : changes initial conditions computation (fits to Matlab).

- **Files**

\$ELANPATH/bin/eegfiltfilt

- **See also**

[epfiltfilt](#) ^[5], [eegepochfiltfilt](#) ^[4], [eegresample](#) ^[6]

Attachment	Size
lowpass_butter_10hz.par ^[7]	119 bytes
lowpass_butter_10hz_coefs.par ^[8]	335 bytes
bp_2-30Hz.par ^[9]	123 bytes

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CRNL



Source URL: <http://elan.lyon.inserm.fr/?q=eegfiltfilt>

Links:

- [1] http://elan.lyon.inserm.fr/?q=sites/default/files/lowpass_butter_10hz.par
- [2] http://elan.lyon.inserm.fr/?q=sites/default/files/lowpass_butter_10hz_coefs.par
- [3] http://elan.lyon.inserm.fr/?q=sites/default/files/bp_2-30Hz.par
- [4] <http://elan.lyon.inserm.fr/?q=eegepochfiltfilt>
- [5] <http://elan.lyon.inserm.fr/?q=epfiltfilt>
- [6] <http://elan.lyon.inserm.fr/?q=eegresample>
- [7] http://elan.lyon.inserm.fr/sites/default/files/lowpass_butter_10hz.par
- [8] http://elan.lyon.inserm.fr/sites/default/files/lowpass_butter_10hz_coefs.par
- [9] http://elan.lyon.inserm.fr/sites/default/files/bp_2-30Hz.par