



janpeter19 / BPL_TEST2_Fedbatch



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[BPL_TEST2_Fedbatch](#) / BPL_TEST2_Fedbatch_colab.ipynb



janpeter19 Created using Colab

de98979 · 2 minutes ago



2576 lines (2576 loc) · 373 KB

BPL_TEST2_Fedbatch script with PyFMI

The key library PyFMI is installed.

After the installation a small application BPL_TEST2_Fedbatch is loaded and run.
You can continue with this example if you like.

In [1]: `!lsb_release -a # Actual VM Ubuntu version used by Google`

```
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 22.04.4 LTS
Release:        22.04
Codename:       jammy
```

In [2]: `%env PYTHONPATH=`

```
env: PYTHONPATH=
```

In [3]: `!python --version`

```
Python 3.12.12
```

In [4]: `!wget https://repo.anaconda.com/miniconda/Miniconda3-py312_25.5.1-1-Linux-x86_64.sh
!chmod +x Miniconda3-py312_25.5.1-1-Linux-x86_64.sh
!bash ./Miniconda3-py312_25.5.1-1-Linux-x86_64.sh -b -f -p /usr/local
import sys
sys.path.append('/usr/local/lib/python3.12/site-packages/')`

```
--2025-11-17 12:53:32-- https://repo.anaconda.com/miniconda/Miniconda3-
py312_25.5.1-1-Linux-x86_64.sh
Resolving repo.anaconda.com (repo.anaconda.com)... 104.16.32.241, 104.1
6.191.158, 2606:4700::6810:20f1, ...
Connecting to repo.anaconda.com (repo.anaconda.com)|104.16.32.241|:44
3... connected.
HTTP request sent, awaiting response... 200 OK
Length: 155011870 (148M) [application/octet-stream]
Saving to: 'Miniconda3-py312_25.5.1-1-Linux-x86_64.sh'
```

```
Miniconda3-py312_25 100%[=====>] 147.83M 143MB/s in
1.0s
```

```
2025-11-17 12:53:33 (143 MB/s) - 'Miniconda3-py312_25.5.1-1-Linux-x86_6
4.sh' saved [155011870/155011870]
```

```
PREFIX=/usr/local
```

```
Unpacking payload ...
```

```
entry_point.py:256: DeprecationWarning: Python 3.14 will, by default, fi
lter extracted tar archives and reject files or modify their metadata. U
se the filter argument to control this behavior.
```

```
entry_point.py:256: DeprecationWarning: Python 3.14 will, by default, fi
lter extracted tar archives and reject files or modify their metadata. U
se the filter argument to control this behavior.
```

```
Installing base environment...
```

```
Preparing transaction: ...working... done
```

```

Executing transaction: ...working... done
entry_point.py:256: DeprecationWarning: Python 3.14 will, by default, fi
lter extracted tar archives and reject files or modify their metadata. U
se the filter argument to control this behavior.
installation finished.

```

```

In [5]: !conda tos accept --override-channels --channel https://repo.anaconda.c
!conda tos accept --override-channels --channel https://repo.anaconda.c
!conda update -n base -c defaults conda --yes

```

accepted Terms of Service for <https://repo.anaconda.com/pkgs/main>

accepted Terms of Service for <https://repo.anaconda.com/pkgs/r>

Jupyter detected...

2 channel Terms of Service accepted

Channels:

- defaults

Platform: linux-64

Collecting package metadata (repodata.json): - \ | / - \ | / - \ | / - \
| / - \ | done

Solving environment: - \ done

```

==> WARNING: A newer version of conda exists. <==
current version: 25.5.1
latest version: 25.9.1

```

Please update conda by running

```
$ conda update -n base -c defaults conda
```

Package Plan

environment location: /usr/local

added / updated specs:

- conda

The following packages will be downloaded:

package	build	
ca-certificates-2025.11.4	h06a4308_0	128 KB
certifi-2025.11.12	py312h06a4308_0	154 KB
openssl-3.0.18	hd6dcaed_0	4.5 MB
Total:		4.8 MB

The following packages will be UPDATED:

```

ca-certificates                2025.2.25-h06a4308_0 --> 2025.11.
4-h06a4308_0
certifi                        2025.7.14-py312h06a4308_0 --> 2025.11.
12-py312h06a4308_0
openssl                        3.0.16-h5eee18b_0 --> 3.0.18-h
d6dcaed_0

```

Downloading and Extracting Packages:

```

openssl-3.0.18      | 4.5 MB      | :   0% 0/1 [00:00<?, ?it/s]
certifi-2025.11.12  | 154 KB      | :   0% 0/1 [00:00<?. ?it/s]

```

```

openssl-3.0.18      | 4.5 MB      | :    0% 0.003483453807029756/1 [00:00<
00:29, 29.78s/it]

ca-certificates-2025 | 128 KB      | :   12% 0.12480765421941893/1 [00:00<0
0:00, 1.13it/s]

ca-certificates-2025 | 128 KB      | :  100% 1.0/1 [00:00<00:00, 1.13it/s]
certifi-2025.11.12   | 154 KB      | :   10% 0.10398050365556458/1 [00:00<0
0:01, 1.28s/it]
certifi-2025.11.12   | 154 KB      | :  100% 1.0/1 [00:00<00:00, 1.28s/it]

ca-certificates-2025 | 128 KB      | :  100% 1.0/1 [00:00<00:00, 1.13it/s]

```

```

Preparing transaction: / done
Verifying transaction: \ | / - done
Executing transaction: | done

```

In [6]:

```
!conda --version
!python --version
```

```
conda 25.5.1
Python 3.12.11
```

In [7]:

```
!conda config --set channel_priority strict
```

In [8]:

```
!conda install -c conda-forge pyfmi --yes # Install the key package
```

Jupyter detected...

2 channel Terms of Service accepted

Channels:

- conda-forge
- defaults

Platform: linux-64

Collecting package metadata (repodata.json): - \ | / - \ | / - \ | / - \ | / - \ | / - \ | / - \ | / - \ done

Solving environment: / - \ | / - \ done

```

==> WARNING: A newer version of conda exists. <==
      current version: 25.5.1
      latest version: 25.9.1

```

Please update conda by running

```
$ conda update -n base -c defaults conda
```

Package Plan

environment location: /usr/local

```

added / updated specs:
- pyfmi

```

The following packages will be downloaded:

package	build		
_____	_____		
_x86_64-microarch-level-3	2_broadwell	8 KB	conda-
forge			
assimulo-3.7.2	py312ha9e6814_1	1.0 MB	conda-
forge			
ca-certificates-2025.11.12	hbd8a1cb_0	149 KB	conda-
forge			
conda-25.9.1	py312h7900ff3_0	1.2 MB	conda-
forge			
fmilib-3.0.4	haa4a5bd_1	364 KB	conda-
forge			
gmp-6.3.0	hac33072_2	449 KB	conda-
forge			
icu-75.1	he02047a_0	11.6 MB	conda-
forge			
libamd-3.3.3	haaf9dc3_7100102	49 KB	conda-
forge			
libarchive-3.7.7	hadbb8c3_0	854 KB	conda-
forge			
libblas-3.9.0	39_h4a7cf45_openblas	17 KB	con
da-forge			
libbtf-2.3.2	h32481e8_7100102	27 KB	conda-
forge			
libcamd-3.3.3	h32481e8_7100102	46 KB	conda-
forge			
libcbblas-3.9.0	39_h0358290_openblas	17 KB	con
da-forge			
libccolamd-3.3.4	h32481e8_7100102	42 KB	conda-
forge			
libcholmod-5.3.1	h59ddab4_7100102	1.1 MB	conda-
forge			
libcolamd-3.3.4	h32481e8_7100102	33 KB	conda-
forge			
libcurl-8.4.0	hca28451_0	377 KB	conda-
forge			
libcxsparse-4.4.1	h32481e8_7100102	118 KB	conda-
forge			
libexpat-2.7.1	hecca717_0	73 KB	conda-
forge			
libgcc-15.2.0	h767d61c_7	803 KB	conda-
forge			
libgcc-ng-15.2.0	h69a702a_7	29 KB	conda-
forge			
libgfortran-15.2.0	h69a702a_7	29 KB	conda-
forge			
libgfortran5-15.2.0	hcd61629_7	1.5 MB	conda-
forge			
libgomp-15.2.0	h767d61c_7	437 KB	conda-
forge			
libiconv-1.18	h3b78370_2	772 KB	conda-
forge			
libklu-2.3.5	hf24d653_7100102	142 KB	conda-
forge			
liblapack-3.9.0	39_h47877c9_openblas	17 KB	con
da-forge			
libldl-3.3.2	h32481e8_7100102	24 KB	conda-
forge			
liblzma-5.8.1	hb9d3cd8_2	110 KB	conda-
forge			
liblzma-devel-5.8.1	hb9d3cd8_2	430 KB	conda-
forge			
libnghttp2-1.52.0	h61bc06f_0	608 KB	conda-
forge			

libblas-2.0.1	hb9d3cd8_1	33 KB	conda-
forge			
libopenblas-0.3.30	pthreads_h94d23a6_4	5.7 MB	conda-
a-forge			
libparu-1.0.0	h17147ab_7100102	91 KB	conda-
forge			
librbio-4.3.4	h32481e8_7100102	47 KB	conda-
forge			
libsolv-0.7.35	h9463b59_0	506 KB	conda-
forge			
libspex-3.2.3	had10066_7100102	79 KB	conda-
forge			
libspqr-4.3.4	h852d39f_7100102	213 KB	conda-
forge			
libsqlite-3.45.2	h2797004_0	837 KB	conda-
forge			
libssh2-1.11.1	hcf80075_0	298 KB	conda-
forge			
libstdcxx-15.2.0	h8f9b012_7	3.7 MB	conda-
forge			
libstdcxx-ng-15.2.0	h4852527_7	29 KB	conda-
forge			
libsuitesparseconfig-7.10.1	h92d6892_7100102	42 KB	conda-
forge			
libumfpack-6.3.5	heb53515_7100102	424 KB	conda-
forge			
libuuid-2.41.2	he9a06e4_0	36 KB	conda-
forge			
libxcrypt-4.4.36	hd590300_1	98 KB	conda-
forge			
libxml2-2.13.9	h04c0eec_0	681 KB	conda-
forge			
libzlib-1.3.1	hb9d3cd8_2	60 KB	conda-
forge			
lzo-2.10	h280c20c_1002	187 KB	conda-
forge			
metis-5.1.0	hd0bcaf9_1007	3.7 MB	conda-
forge			
minizip-4.0.10	h05a5f5f_0	91 KB	conda-
forge			
mpfr-4.2.1	h90cbb55_3	620 KB	conda-
forge			
numpy-2.3.5	py312h33ff503_0	8.4 MB	conda-
forge			
openssl-3.6.0	h26f9b46_0	3.0 MB	conda-
forge			
pcre2-10.46	h1321c63_0	1.2 MB	conda-
forge			
pyfmi-2.19.0	py312h4f23490_2	5.4 MB	conda-
forge			
python-3.12.2	hab00c5b_0_cpython	30.8 MB	conda-
-forge			
python_abi-3.12	8_cp312	7 KB	conda-
forge			
scipy-1.16.3	py312h7a1785b_1	16.0 MB	conda-
forge			
sqlite-3.45.2	h2c6b66d_0	829 KB	conda-
forge			
suitesparse-7.10.1	ha0f6916_7100102	12 KB	conda-
forge			
sundials-7.4.0	h8bc8c85_0	979 KB	conda-
forge			
tk-8.6.13	noxft_ha0e22de_103	3.1 MB	conda-
-forge			
xz-5.8.1	hbcc6ac9_2	23 KB	conda-

forge				
xz-gpl-tools-5.8.1		hbcc6ac9_2	33 KB	conda-
forge				
xz-tools-5.8.1		hb9d3cd8_2	94 KB	conda-
forge				
zlib-1.3.1		hb9d3cd8_2	90 KB	conda-
forge				
zstandard-0.25.0		py312h5253ce2_1	456 KB	conda-
forge				
zstd-1.5.7		hb8e6e7a_2	554 KB	conda-
forge				

Total:			110.5 MB	

The following NEW packages will be INSTALLED:

_x86_64-microarch~	conda-forge/noarch::_x86_64-microarch-level-3-2_bro
adwell	
assimulo	conda-forge/linux-64::assimulo-3.7.2-py312ha9e6814_
1	
fmilib	conda-forge/linux-64::fmilib-3.0.4-haa4a5bd_1
gmp	conda-forge/linux-64::gmp-6.3.0-hac33072_2
libamd	conda-forge/linux-64::libamd-3.3.3-haaf9dc3_7100102
libblas	conda-forge/linux-64::libblas-3.9.0-39_h4a7cf45_ope
nblas	
libbtf	conda-forge/linux-64::libbtf-2.3.2-h32481e8_7100102
libcamd	conda-forge/linux-64::libcamd-3.3.3-h32481e8_710010
2	
libcbblas	conda-forge/linux-64::libcbblas-3.9.0-39_h0358290_op
enblas	
libccolamd	conda-forge/linux-64::libccolamd-3.3.4-h32481e8_710
0102	
libcholmod	conda-forge/linux-64::libcholmod-5.3.1-h59ddab4_710
0102	
libcolamd	conda-forge/linux-64::libcolamd-3.3.4-h32481e8_7100
102	
libcxsparse	conda-forge/linux-64::libcxsparse-4.4.1-h32481e8_71
00102	
libexpat	conda-forge/linux-64::libexpat-2.7.1-hecca717_0
libgcc	conda-forge/linux-64::libgcc-15.2.0-h767d61c_7
libgfortran	conda-forge/linux-64::libgfortran-15.2.0-h69a702a_7
libgfortran5	conda-forge/linux-64::libgfortran5-15.2.0-hcd61629_
7	
libiconv	conda-forge/linux-64::libiconv-1.18-h3b78370_2
libklu	conda-forge/linux-64::libklu-2.3.5-hf24d653_7100102
liblapack	conda-forge/linux-64::liblapack-3.9.0-39_h47877c9_o
penblas	
libldl	conda-forge/linux-64::libldl-3.3.2-h32481e8_7100102
liblzma	conda-forge/linux-64::liblzma-5.8.1-hb9d3cd8_2
liblzma-devel	conda-forge/linux-64::liblzma-devel-5.8.1-hb9d3cd8_
2	
libnsl	conda-forge/linux-64::libnsl-2.0.1-hb9d3cd8_1
libopenblas	conda-forge/linux-64::libopenblas-0.3.30-pthreads_h
94d23a6_4	
libparu	conda-forge/linux-64::libparu-1.0.0-h17147ab_710010
2	
librbio	conda-forge/linux-64::librbio-4.3.4-h32481e8_710010
2	
libspex	conda-forge/linux-64::libspex-3.2.3-had10066_710010
2	
libspqr	conda-forge/linux-64::libspqr-4.3.4-h852d39f_710010
2	
libsqlite	conda-forge/linux-64::libsqlite-3.45.2-h2797004_0
libstdcxx	conda-forge/linux-64::libstdcxx-15.2.0-h8f9b012_7

```

libsuitesparsecon~ conda-forge/linux-64::libsuitesparsecontig-7.10.1-n
92d6892_7100102
libumfpack          conda-forge/linux-64::libumfpack-6.3.5-heb53515_710
0102
libxcrypt           conda-forge/linux-64::libxcrypt-4.4.36-hd590300_1
libzlib             conda-forge/linux-64::libzlib-1.3.1-hb9d3cd8_2
lzo                 conda-forge/linux-64::lzo-2.10-h280c20c_1002
metis              conda-forge/linux-64::metis-5.1.0-hd0bc9f9_1007
minizip             conda-forge/linux-64::minizip-4.0.10-h05a5f5f_0
mpfr               conda-forge/linux-64::mpfr-4.2.1-h90cbb55_3
numpy              conda-forge/linux-64::numpy-2.3.5-py312h33ff503_0
pyfmi              conda-forge/linux-64::pyfmi-2.19.0-py312h4f23490_2
python_abi         conda-forge/noarch::python_abi-3.12-8_cp312
scipy              conda-forge/linux-64::scipy-1.16.3-py312h7a1785b_1
suitesparse        conda-forge/linux-64::suitesparse-7.10.1-ha0f6916_7
100102
sundials           conda-forge/linux-64::sundials-7.4.0-h8bc8c85_0
xz-gpl-tools       conda-forge/linux-64::xz-gpl-tools-5.8.1-hbcc6ac9_2
xz-tools           conda-forge/linux-64::xz-tools-5.8.1-hb9d3cd8_2

```

The following packages will be UPDATED:

```

ca-certificates    pkgs/main/linux-64::ca-certificates-2~ --> conda-fo
rge/noarch::ca-certificates-2025.11.12-hbd8a1cb_0
conda              pkgs/main::conda-25.5.1-py312h06a4308~ --> conda-fo
rge::conda-25.9.1-py312h7900ff3_0
icu                pkgs/main::icu-73.1-h6a678d5_0 --> conda-fo
rge::icu-75.1-he02047a_0
libgcc-ng          pkgs/main::libgcc-ng-11.2.0-h1234567_1 --> conda-fo
rge::libgcc-ng-15.2.0-h69a702a_7
libgomp            pkgs/main::libgomp-11.2.0-h1234567_1 --> conda-fo
rge::libgomp-15.2.0-h767d61c_7
libsolv            pkgs/main::libsolv-0.7.30-he621ea3_1 --> conda-fo
rge::libsolv-0.7.35-h9463b59_0
libstdcxx-ng       pkgs/main::libstdcxx-ng-11.2.0-h12345~ --> conda-fo
rge::libstdcxx-ng-15.2.0-h4852527_7
libuuid            pkgs/main::libuuid-1.41.5-h5eee18b_0 --> conda-fo
rge::libuuid-2.41.2-he9a06e4_0
libxml2            pkgs/main::libxml2-2.13.8-hfdd30dd_0 --> conda-fo
rge::libxml2-2.13.9-h04c0eec_0
openssl            pkgs/main::openssl-3.0.18-hd6dcaed_0 --> conda-fo
rge::openssl-3.6.0-h26f9b46_0
pcre2              pkgs/main::pcre2-10.42-hebb0a14_1 --> conda-fo
rge::pcre2-10.46-h1321c63_0
xz                 pkgs/main::xz-5.6.4-h5eee18b_1 --> conda-fo
rge::xz-5.8.1-hbcc6ac9_2
zlib               pkgs/main::zlib-1.2.13-h5eee18b_1 --> conda-fo
rge::zlib-1.3.1-hb9d3cd8_2
zstandard          pkgs/main::zstandard-0.23.0-py312h2c3~ --> conda-fo
rge::zstandard-0.25.0-py312h5253ce2_1
zstd               pkgs/main::zstd-1.5.6-hc292b87_0 --> conda-fo
rge::zstd-1.5.7-hb8e6e7a_2

```

The following packages will be SUPERSEDED by a higher-priority channel:

```

libarchive         pkgs/main::libarchive-3.7.7-hfab0078_0 --> conda-fo
rge::libarchive-3.7.7-hadbb8c3_0
libcurl            pkgs/main::libcurl-8.14.1-h31d0fb7_0 --> conda-fo
rge::libcurl-8.4.0-hca28451_0
libnghttp2         pkgs/main::libnghttp2-1.57.0-h2d74bed~ --> conda-fo
rge::libnghttp2-1.52.0-h61bc06f_0
libssh2            pkgs/main::libssh2-1.11.1-h251f7ec_0 --> conda-fo
rge::libssh2-1.11.1-hcf80075_0
python             pkgs/main::python-3.12.11-h22baa00_0 --> conda-fo
rge::python-3.12.2-hab00c5b_0 cpython

```

```
sqlite pkgs/main::sqlite-3.50.2-hb25bd0a_1 --> conda-forge::sqlite-3.45.2-h2c6b66d_0
tk pkgs/main::tk-8.6.14-h993c535_1 --> conda-forge::tk-8.6.13-noxft_ha0e22de_103
```

Downloading and Extracting Packages:

python-3.12.2	30.8 MB	:	0% 0/1 [00:00<?, ?it/s]
scipy-1.16.3	16.0 MB	:	0% 0/1 [00:00<?, ?it/s]

icu-75.1	11.6 MB	:	0% 0/1 [00:00<?, ?it/s]
----------	---------	---	-------------------------

numpy-2.3.5	8.4 MB	:	0% 0/1 [00:00<?, ?it/s]
-------------	--------	---	-------------------------

libopenblas-0.3.30	5.7 MB	:	0% 0/1 [00:00<?, ?it/s]
--------------------	--------	---	-------------------------

pyfmi-2.19.0	5.4 MB	:	0% 0/1 [00:00<?, ?it/s]
--------------	--------	---	-------------------------

metis-5.1.0	3.7 MB	:	0% 0/1 [00:00<?, ?it/s]
-------------	--------	---	-------------------------

libstdcxx-15.2.0	3.7 MB	:	0% 0/1 [00:00<?, ?it/s]
------------------	--------	---	-------------------------

tk-8.6.13	3.1 MB	:	0% 0/1 [00:00<?, ?it/s]
-----------	--------	---	-------------------------

openssl-3.6.0	3.0 MB	:	0% 0/1 [00:00<?, ?it/s]
---------------	--------	---	-------------------------

libgfortran5-15.2.0	1.5 MB	:	0% 0/1 [00:00<?, ?it/s]
---------------------	--------	---	-------------------------

pcr2-10.46 | 1.2 MB | : 0% 0/1 [00:00<?, ?it/s]

conda-25.9.1 | 1.2 MB | : 0% 0/1 [00:00<?, ?it/s]

libcholmod-5.3.1 | 1.1 MB | : 0% 0/1 [00:00<?, ?it/s]

assimulo-3.7.2 | 1.0 MB | : 0% 0/1 [00:00<?, ?it/s]

sundials-7.4.0 | 979 KB | : 0% 0/1 [00:00<?, ?it/s]

```
libarchive-3.7.7      | 854 KB      | :    0% 0/1 [00:00<?, ?it/s]
```

```
libsqlite-3.45.2     | 837 KB      | :    0% 0/1 [00:00<?, ?it/s]
```

```
sqlite-3.45.2        | 829 KB      | :    0% 0/1 [00:00<?, ?it/s]
```

... (more hidden) ...

```
libopenblas-0.3.30 | 5.7 MB | : 0% 0.0027638610991105005/1 [00:00<00:38, 38.79s/it]
```

```
numpy-2.3.5 | 8.4 MB | : 0% 0.0018574586419555738/1 [00:00<01:00, 60.85s/it]
```

```
scipy-1.16.3 | 16.0 MB | : 0% 0.0009762383327632055/1 [00:00<02:13, 133.30s/it]
```

```
python-3.12.2 | 30.8 MB | : 0% 0.0005070463002532972/1 [00:00<05:10, 310.55s/it]
```

```
libopenblas-0.3.30 | 5.7 MB | : 42% 0.4228707481639065/1 [00:00<0:00, 2.41it/s]
```

```
numpy-2.3.5 | 8.4 MB | : 29% 0.2860486308611584/1 [00:00<0:00, 1.59it/s]
```

```
scipy-1.16.3 | 16.0 MB | : 11% 0.10836245493671581/1 [00:00<0:01, 1.77s/it]
```

```
python-3.12.2 | 30.8 MB | : 4% 0.04309893552153026/1 [00:00<0:04, 4.92s/it]
```

```
libopenblas-0.3.30 | 5.7 MB | : 85% 0.845741496327813/1 [00:00<0:00, 3.22it/s]
```

```
numpy-2.3.5 | 8.4 MB | : 61% 0.6129613518453394/1 [00:00<0:00, 2.33it/s]
```

```
scipy-1.16.3 | 16.0 MB | : 29% 0.28506159316685603/1 [00:00<0:00, 1.07it/s]
```

```
python-3.12.2 | 30.8 MB | : 13% 0.126254528763071/1 [00:00<0:01, 2.19s/it]
```

```
numpy-2.3.5 | 8.4 MB | : 85% 0.8544309752995639/1 [00:00<0:00, 2.27it/s]
```

```
scipy-1.16.3 | 16.0 MB | : 48% 0.4764043063884443/1 [00:00<0:00, 1.37it/s]
```

```
python-3.12.2 | 30.8 MB | : 23% 0.22664969621322387/1 [00:00<0:01, 1.52s/it]
```

```
libopenblas-0.3.30 | 5.7 MB | : 100% 1.0/1 [00:00<00:00, 3.22it/s]
```

```
scipy-1.16.3 | 16.0 MB | : 65% 0.6452935379564788/1 [00:00<0:00, 1.48it/s]
```

```
python-3.12.2 | 30.8 MB | : 30% 0.2976361782486855/1 [00:00<0:01, 1.52s/it]
```

0:01, 1.50s/it]

pyfmi-2.19.0	5.4 MB	:	0% 0.0029053508888593343/1 [00:00<03:19, 200.31s/it]
python-3.12.2	30.8 MB	:	39% 0.3883974659940257/1 [00:00<0:00, 1.35s/it]

pyfmi-2.19.0	5.4 MB	:	49% 0.4851935984395088/1 [00:00<0:00, 1.05s/it]
scipy-1.16.3	16.0 MB	:	96% 0.964523472770047/1 [00:00<0:00, 1.53it/s]

python-3.12.2	30.8 MB	:	47% 0.46546850363252684/1 [00:00<0:00, 1.40s/it]
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pyfmi-2.19.0	5.4 MB	:	92% 0.9239015826572683/1 [00:00<0:00, 1.70it/s]
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metis-5.1.0	3.7 MB	:	0% 0.004175799528999174/1 [00:00<03:12, 193.62s/it]
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python-3.12.2	30.8 MB	:	54% 0.538990217169255/1 [00:00<0:00, 1.81s/it]
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metis-5.1.0	3.7 MB	:	86% 0.8643905025028291/1 [00:01<0:00, 1.27it/s]
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python-3.12.2	30.8 MB	:	61% 0.6064273751029435/1 [00:01<0:00, 1.73s/it]
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icu-75.1	11.6 MB	:	100% 1.0/1 [00:01<00:00, 1.85it/s]
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libstdcxx-15.2.0	3.7 MB	:	0% 0.004202891078065675/1 [00:01<04:21, 262.92s/it]
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metis-5.1.0 | 3.7 MB | : 100% 1.0/1 [00:01<00:00, 1.27it/s]

python-3.12.2 | 30.8 MB | : 68% 0.675385671937392/1 [00:01<00:00, 1.64s/it]

openssl-3.6.0 | 3.0 MB | : 1% 0.005175966758061148/1 [00:01<03:47, 228.68s/it]

libstdcxx-15.2.0 | 3.7 MB | : 67% 0.672462572490508/1 [00:01<00:00, 1.30s/it]

python-3.12.2 | 30.8 MB | : 75% 0.7468792002731068/1 [00:01<00:00, 1.57s/it]

python-3.12.2 | 30.8 MB | : 81% 0.813809311906542/1 [00:01<00:00, 1.63s/it]
scipy-1.16.3 | 16.0 MB | : 100% 1.0/1 [00:01<00:00, 1.53it/s]

tk-8.6.13 | 3.1 MB | : 100% 1.0/1 [00:01<00:00, 1.09s/it]

libstdcxx-15.2.0 | 3.7 MB | : 100% 1.0/1 [00:01<00:00, 1.30s/it]

openssl-3.6.0 | 3.0 MB | : 100% 1.0/1 [00:01<00:00, 1.07s/it]

python-3.12.2 | 30.8 MB | : 88% 0.8776971457384575/1 [00:01<00:00, 1.71s/it]

pcre2-10.46 | 1.2 MB | : 1% 0.013549711911490212/1 [00:01<01:49, 111.21s/it]

libgfortran5-15.2.0 | 1.5 MB | : 1% 0.01041736872424111/1 [00:01<02:23, 144.86s/it]

libcholmod-5.3.1 | 1.1 MB | : 1% 0.014870549794649543/1 [00:01<01:43, 104.71s/it]

```
conda-25.9.1      | 1.2 MB      | :   1% 0.013581689919010553/1 [00:01<01:53, 115.01s/it]
```

```
python-3.12.2     | 30.8 MB     | :  97% 0.9715007112853175/1 [00:01<00:00, 1.48s/it]
```

```
libgfortran5-15.2.0 | 1.5 MB      | : 100% 1.0/1 [00:01<00:00, 1.18s/it]
```

```
libgfortran5-15.2.0 | 1.5 MB      | : 100% 1.0/1 [00:01<00:00, 1.18s/it]
```

```
libcholmod-5.3.1   | 1.1 MB      | : 100% 1.0/1 [00:01<00:00, 1.20s/it]
```

conda-25.9.1 | 1.2 MB | : 48% 0.47535914716536937/1 [00:01<00:01, 2.53s/it]

assimulo-3.7.2 | 1.0 MB | : 2% 0.01548722757452472/1 [00:01<01:47, 109.30s/it]

sundials-7.4.0 | 979 KB | : 2% 0.016346533744657245/1 [00:01<01:42, 104.22s/it]

conda-25.9.1 | 1.2 MB | : 100% 1.0/1 [00:01<00:00, 2.53s/it]

libarchive-3.7.7 | 854 KB | : 2% 0.01874125650150248/1 [00:01<01:29, 91.57s/it]

assimulo-3.7.2 | 1.0 MB | : 100% 1.0/1 [00:01<00:00, 109.30s/it]

libsqlite-3.45.2 | 837 KB | : 2% 0.019106950643098627/1 [00:01<01:30, 92.68s/it]

libarchive-3.7.7 | 854 KB | : 100% 1.0/1 [00:01<00:00, 91.57s/it]

sundials-7.4.0 | 979 KB | : 100% 1.0/1 [00:01<00:00, 1.30s/it]

sundials-7.4.0 | 979 KB | : 100% 1.0/1 [00:01<00:00, 1.30s/it]

libsqlite-3.45.2 | 837 KB | : 100% 1.0/1 [00:01<00:00, 92.68s/it]

libopenblas-0.3.30 | 5.7 MB | : 100% 1.0/1 [00:01<00:00, 3.22it/s]

sqlite-3.45.2 | 829 KB | : 2% 0.019311190212394806/1 [00:01<01:33, 95.52s/it]

... (more hidden) ...

sqlite-3.45.2	829 KB	: 100% 1.0/1 [00:01<00:00, 95.52s/it]
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... (more hidden) ...

python-3.12.2	30.8 MB	: 100% 1.0/1 [00:02<00:00, 1.48s/it]
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numpy-2.3.5	8.4 MB	: 100% 1.0/1 [00:03<00:00, 2.27it/s]
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rich-13.7.1	11.6 MB	: 100% 1.0/1 [00:05<00:00, 1.85it/s]
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```
tk-8.6.13 | 3.1 MB | : 100% 1.0/1 [00:05<00:00, 1.09s/it]
```

```
metis-5.1.0 | 3.7 MB | : 100% 1.0/1 [00:05<00:00, 1.27it/s]
```

```
tk-8.6.13 | 3.1 MB | : 100% 1.0/1 [00:06<00:00, 1.09s/it]
```

```
libstdcxx-15.2.0 | 3.7 MB | : 100% 1.0/1 [00:06<00:00, 1.30s/it]
```

```
openssl-3.6.0 | 3.0 MB | : 100% 1.0/1 [00:06<00:00, 1.07s/it]
```

```
pcre2-10.46 | 1.2 MB | : 100% 1.0/1 [00:06<00:00, 6.41s/it]
```

```
pcre2-10.46 | 1.2 MB | : 100% 1.0/1 [00:06<00:00, 6.41s/it]
```

```
libgfortran5-15.2.0 | 1.5 MB | : 100% 1.0/1 [00:07<00:00, 1.18s/it]
```

libcholmod-5.3.1	1.1 MB	: 100% 1.0/1 [00:07<00:00, 1.20s/it]
scipy-1.16.3	16.0 MB	: 100% 1.0/1 [00:07<00:00, 1.53it/s]

conda-25.9.1	1.2 MB	: 100% 1.0/1 [00:07<00:00, 8.09s/it]
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conda-25.9.1	1.2 MB	: 100% 1.0/1 [00:07<00:00, 8.09s/it]
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assimulo-3.7.2	1.0 MB	: 100% 1.0/1 [00:07<00:00, 7.32s/it]
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assimulo-3.7.2	1.0 MB	: 100% 1.0/1 [00:07<00:00, 7.32s/it]
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libarchive-3.7.7      | 854 KB      | : 100% 1.0/1 [00:07<00:00, 7.42s/it]
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libarchive-3.7.7      | 854 KB      | : 100% 1.0/1 [00:07<00:00, 7.42s/it]
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libsqlite-3.45.2      | 837 KB      | : 100% 1.0/1 [00:07<00:00, 7.47s/it]
```

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libsqlite-3.45.2      | 837 KB      | : 100% 1.0/1 [00:07<00:00, 7.47s/it]
```

```
sqlite-3.45.2         | 829 KB      | : 100% 1.0/1 [00:08<00:00, 7.50s/it]
```

```
sqlite-3.45.2         | 829 KB      | : 100% 1.0/1 [00:08<00:00, 7.50s/it]
```

```
sundials-7.4.0        | 979 KB      | : 100% 1.0/1 [00:08<00:00, 1.30s/it]
```

... (more hidden) ...

python-3.12.2 | 30.8 MB | : 100% 1.0/1 [00:11<00:00, 1.48s/it]



main ▾

[BPL_TEST2_Fedbatch](#) / BPL_TEST2_Fedbatch_colab.ipynb

↑ Top

Preview

Code

Blame



Raw




```
Preparing transaction: / - \ done
Verifying transaction: / - \ | / - \ | / - \ | / - \ | / - \ | / - done
Executing transaction: | / - \ | / - \ | done
```

BPL_TEST2_Fedbatch setup

Now specific installation and the run simulations. Start with connecting to Github.
Then upload the two files:

- FMU - BPL_TEST2_Fedbatch_linux_om_me.fmu
- Setup-file - BPL_TEST2_Fedbatch_explore.me.py

```
In [9]: %%bash
        git clone https://github.com/janpeter19/BPL_TEST2_Fedbatch
```

Cloning into 'BPL_TEST2_Fedbatch'...

```
In [10]: !ls -la
```

```
%cd BPL_TEST2_Fedbatch
```

```
/content/BPL_TEST2_Fedbatch
```

```
In [11]: run -i BPL_TEST2_Fedbatch_explore.py
```

Linux – run FMU pre-compiled OpenModelica

Model for the process has been setup. Key commands:

- par() – change of parameters and initial values
- init() – change initial values only
- simu() – simulate and plot
- newplot() – make a new plot
- show() – show plot from previous simulation
- disp() – display parameters and initial values from the last simulation
- describe() – describe culture, broth, parameters, variables with values/units

Note that both disp() and describe() takes values from the last simulation

and the command process_diagram() brings up the main configuration

Brief information about a command by help(), eg help(simu)

Key system information is listed with the command system_info()

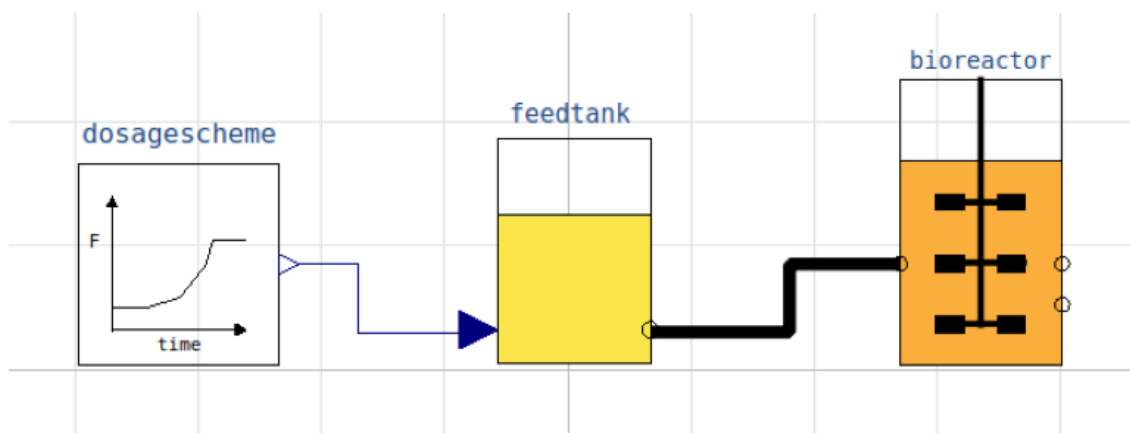
```
In [12]: %matplotlib inline
plt.rcParams['figure.figsize'] = [25/2.54, 20/2.54]
```

```
In [13]: import warnings
warnings.filterwarnings("ignore")
```

BPL_TEST2_Fedbatch - demo

```
In [14]: process_diagram()
```

No processDiagram.png file in the FMU, but try the file on disk.



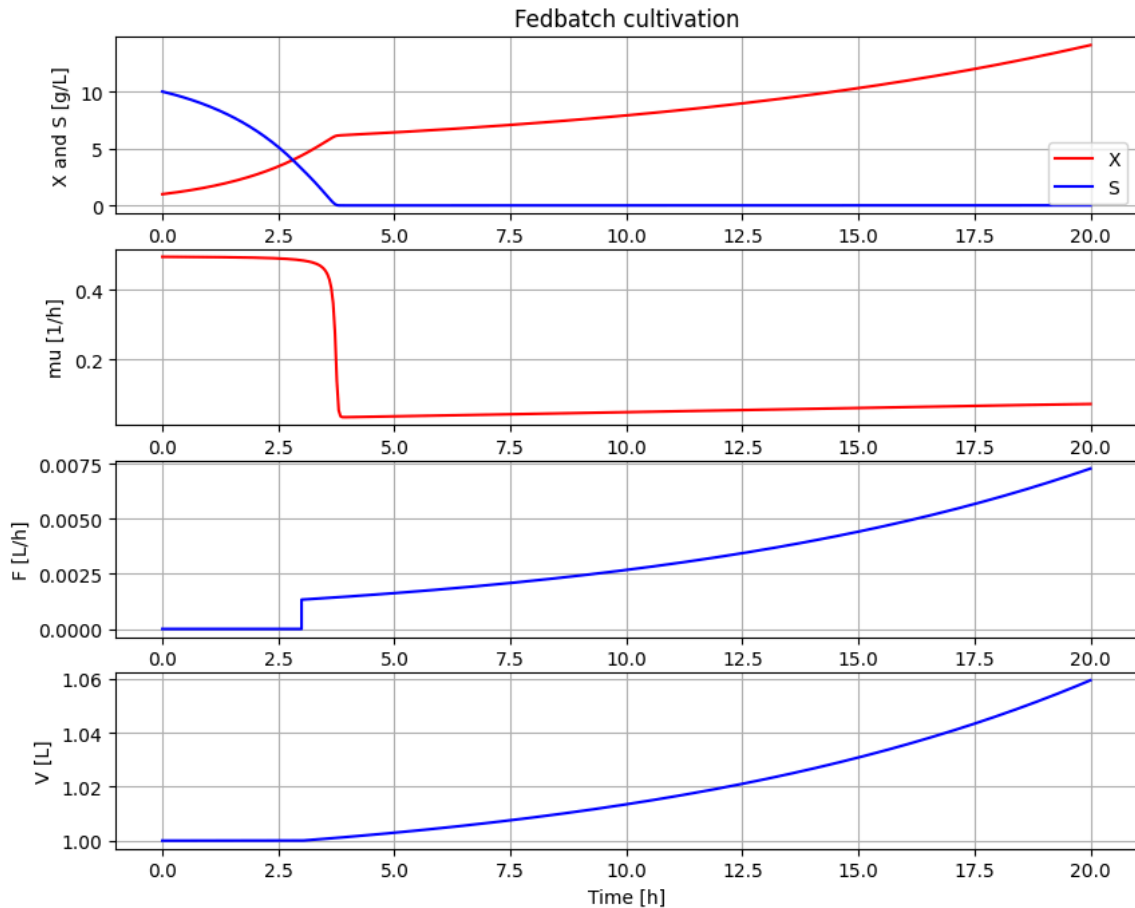
```
In [15]: describe('culture'); print(); #describe('liquidphase')
```

Simplified text book model – only substrate S and cell concentration X

```
In [16]: # Simulation with default values of the process
```

```
newplot(plotType='TimeSeries')
simu(20)
```

Could not find cannot import name 'dopri5' from 'assimulo.lib' (/usr/local/lib/python3.12/site-packages/assimulo/lib/__init__.py)
 Could not find cannot import name 'rodas' from 'assimulo.lib' (/usr/local/lib/python3.12/site-packages/assimulo/lib/__init__.py)
 Could not find cannot import name 'odassl' from 'assimulo.lib' (/usr/local/lib/python3.12/site-packages/assimulo/lib/__init__.py)
 Could not find ODEPACK functions.
 Could not find RADAR5
 Could not find GLIMDA.



In [17]: `# Let us display and then save the feedprofile
disp('dosagescheme')`

```
F_start : 0.0  
mu_feed : 0.1
```