
Fusion Data Framework Documentation

Release 0.0.0

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October 06, 2015

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ABOUT FDF

Fusion Data Framework (FDF) is a data access, management, and visualization framework for magnetic fusion experiments.

Repository: <https://github.com/Fusion-Data-Framework/fdf>

[HTML Documentation](#) or [PDF Documentation](#)

Submit bugs or feature requests: <https://github.com/Fusion-Data-Framework/fdf/issues>

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To contribute to the FDF project, please contact John, David, Kevin, or Howard.

USER GUIDE

This guide is for people who want to use FDF on the PPPL Linux cluster. If you wish to contribute to the FDF code repository (<https://github.com/Fusion-Data-Framework/fdf>), see developer-guide.

HTML documentation is available here: <http://fusion-data-framework.github.io/fdf/>

To use FDF on the PPPL Linux cluster (`portal.pppl.gov`), load the module `nstx/fdf` (you may need to unload other `nstx` modules):

```
[sunfire06:~] % module load nstx/fdf
[sunfire06:~] % module list
Currently Loaded Modulefiles:
1) torque/2.5.2      5) idl/8.2          9) java/v1.6
2) moab/5.4.0        6) nstx/treedefs    10) nstx/mdsplus5
3) ppplcluster/1.1   7) nstx/epics       11) nstx/fdf
4) freetds/0.91      8) nstx/idldirs
```

Verify that python points to `/p/fdf/anaconda/bin/python`:

```
[sunfire06:~] % which python
/p/fdf/anaconda/bin/python
```

If python does not point to `/p/fdf/anaconda/bin/python`, then `PATH` contains to a different python distribution ahead of `/p/fdf/anaconda/bin`. In this case, you need to modify `PATH` so `/p/fdf/anaconda/bin` is the first python distribution in `PATH`.

Finally, you can launch python and import the FDF package:

```
[sunfire06:~] % python
Python 2.7.10 |Anaconda 2.3.0 (64-bit)| (default, Sep 15 2015, 14:50:01)
[GCC 4.4.7 20120313 (Red Hat 4.4.7-1)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
Anaconda is brought to you by Continuum Analytics.
Please check out: http://continuum.io/thanks and https://anaconda.org
>>> import fdf
>>>
```

DEVELOPER GUIDE

USAGE EXAMPLES

PACKAGE REFERENCE

5.1 Module factory.py

Root module for the FDF package.

Classes

- Machine - root class for the FDF package
- Shot - shot container class
- Logbook - logbook connection class
- Container - diagnostic container class
- Node - mdsplus signal node class
- FdfError - error class for FDF package

Usage:

```
>>> import fdf
>>> nstx = fdf.Machine('nstx')
>>> nstx.s140000.logbook()
>>> nstx.addshots(xp=1048)
>>> nstx.s140000.mpts.plot()
```

5.2 Class Machine

class `factory.Machine` (*name='nstx', shotlist=[], xp=[], date=[]*)

Factory root class that contains shot objects and MDS access methods.

Basic class initialization is performed as follows: >>>nstx = Machine(name='nstx')

the Machine class contains a model shot object: nstx.s0

shot data can be accessed directly through the Machine class: >>> nstx.s141398 >>> nstx.s141399

alternatively, a list of shot #'s may be provided during initialization: >>>nstx = Machine(name='nstx', shotlist=[141398, 141399])

or added later using the addshot method: >>>nstx.addshot([141398, 141399])

5.3 Class Shot

```
class factory.Shot (shot, root=None, parent=None)
```

5.4 Class Logbook

```
class factory.Logbook (name='nstx', root=None)
```

5.5 Module fdf_signal.py

fdf-signals.py - module containing Signal class

Classes

- Signal - signal class for data objects

Created on Tue Jun 23 2015

@author: hyuh

5.6 Class Signal

```
class fdf_signal.Signal (**kwargs)
    sig=fdf.Signal(signal_ndarray, units='m/s', axes=['radius','time'], axes_values=[ax1_1Darray,
    ax2_1Darray], axes_units=['s','cm'])

    e.g.:    mds.Signal(np.arange((20*10)).reshape((10,20)), units='keV', axes=['radius','time'],
    axes_values=[100+np.arange(10)*5, np.arange(20)*0.1], axes_units=['s','cm'])

    or an empty signal: s=mds.Signal() default axes order=[time, space] sig=fdf.Signal(units='m/s',
    axes=['radius','time'], axes_values=[radiusSignal, timeSignal])
```

5.7 Module fdf_globals.py

fdf_globals.py contains package-level constants

Created on Thu Jun 18 11:18:16 2015

@author: ktritz

LICENSE

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