

MuPIF Requirements & Specifications

MuPIF Platform – how to access

- From the MuPIF pages (mupif.org)
- Directly on SourceForge

<http://sourceforge.net/projects/mupif/>

- Access/browse the code
- Register for notifications/updates
- Get support (Forum, Bug tracker)

- Getting the code directly via GIT

```
git clone git://git.code.sf.net/p/mupif/code mupif.git
```

The screenshot shows the SourceForge project page for MuPIF. The page title is "MuPIF Multi-Physics Integration Framework (MuPIF)" and it is brought to you by "bpatzak". The page has a navigation bar with links for Summary, Files, Reviews, Support, Wiki, Code, Tickets, and Discussion. Below the navigation bar, there is a "Browse Code" button with the SourceForge logo, which is highlighted with an orange box and an arrow pointing to it. Below the "Browse Code" button, there is a "Description" section with text about the MuPIF framework. Below the description, there is a "MuPIF Web Site" link. Below the web site link, there is a "Categories" section. Below the categories section, there is an "Update Notifications" section with a text input field containing "john.doe@example.org" and a "Subscribe to Updates" button, which is also highlighted with an orange box and an arrow pointing to it.

MuPIF platform

- General dependences:
 - Python (2.7.x recommended),
 - Python modules (Pyro4, pyvtk, NumPy)
- Recommended:
 - Pip (tool for installing and managing Python packages)
 - Paraview (vtk based visualization tool),
 - GIT client (distributed version control system)
 - VPN client (openVPN), ssh client (ssh, putty)

Recommended setup on Windows

1. Install Anaconda scientific python package:
<https://store.continuum.io/cshop/anaconda/>
2. Install mupif package

```
$ pip install mupif
```
3. Recommended
 - VPN client or putty (ssh client, <http://www.putty.org/>)
 - Paraview (<http://www.paraview.org/>)

Recommended setup on Unix/Linux

1. Install Python 2.x using your package manager or download installation package

<https://www.python.org/downloads/>

2. Install pip (package manager or

<https://pip.pypa.io/en/latest/installing.html>)

3. Install required python modules using pip:

```
$ pip install mupif
```

4. Install VPN or ssh clients

MuPIF directory structure

```
MuPIF_TOP_DIR - contains source code and other files of the MuPIF package
+--mupif - contains source code of the MuPIF package
|  |--doc - documentation (reference manual and User guide)
|  |--examples - examples and tests
|  |--tests - unit tests
|  |--APIs - available application interfaces
|  |--Physics - module for units
|  |--tools - various supportive tools
|
|--*.py - MuPIF classes
|--__init__.py - description of MuPIF module
|--README.txt - general description
|--setup.py - support for setuptools
|--MANIFEST.in - support for setuptools
```

Typical MuPIF_TOP_DIR locations

- C:\Users\user\Anaconda2\Lib\site-packages\mupif (Anaconda + pip install mupif)
- /usr/local/lib/python2.7/dist-packages/mupif (Linux + pip install)

MuPIF distributed services

- MuPIF nameserver required (tools/nameserver.py)
- Virtual Private Network set up highly recommended
 - User authorization
 - Encryption
 - Requires VPN server
- Optionally use ssh-tunneling
- Resource allocation:
 - Manually by running application servers
 - On-demand using MuPIF JobManager

MuPIF distributed services

- CTU provides distributed infrastructure for testing:
 - Composelector VPN (certificates will be distributed)
 - Nameserver running at 172.30.0.1, port 9090
 - Web monitoring tool
 - `http:\\172.30.0.1\\mupif\\openvpn-monitor\\monitor`
 - Monitors status of VPN
 - Monitors status of MuPIF components
- May need separate infrastructure for production runs

MuPIF web monitoring tool

Mozilla Firefox browser window showing the MuPIF OpenVPN Status Monitor interface.

URL: mupif.org/opencvn-monitor/monitor

Composelector VPN

VPN Mode	Status	Pingable	Clients	Total Bytes In	Total Bytes Out	Up Since	Local IP Address
Server	CONNECTED	Yes	4	6959169 (6.6 MiB)	6823758 (6.5 MiB)	17/03/2017 15:32:30	172.30.0.1

Username / Hostname	VPN IP	Remote IP	Location	Bytes In	Bytes Out	Connected Since	Last Ping	Time Online
mupif1	172.30.0.6	147.32.130.9	Hradec Kralove, Czech Republic	1331408 (1.3 MiB)	1143702 (1.1 MiB)	20/03/2017 12:53:30	21/03/2017 09:45:19	1 day, 0:26:45
mupif1	172.30.0.18	147.32.130.9	Hradec Kralove, Czech Republic	607207 (593.0 KiB)	621801 (607.2 KiB)	20/03/2017 13:40:09	20/03/2017 15:10:22	23:40:06
mupif1	172.30.0.14	147.32.130.89	Hradec Kralove, Czech Republic	313536 (306.2 KiB)	65941 (64.4 KiB)	21/03/2017 10:54:09	21/03/2017 10:54:10	2:26:06
mupif1	172.30.0.10	147.32.130.14	Hradec Kralove, Czech Republic	817602 (798.4 KiB)	1226331 (1.2 MiB)	20/03/2017 13:15:30	21/03/2017 12:56:16	1 day, 0:04:45

OpenVPN 2.2.1 1488-linux-gnu [SSL] [LZO] [EPOLL] [PKCS11] [eurephia] [MH] [PF_INET6] [IPv6 payload 20110424-2 (2.2RC2)] built on Dec 1 2014

MuPIF Status

nameserver IP	nameserver port	Status	Note
172.30.0.1	9090	OK	

jobmanager nameserver name	Signature	URI	Running jobs	Status
thermal	Cannot connect to jobManager thermal	PYRO:obj_c376bcf59b71479297eee6daa5112bf4@172.30.0.1:44382		Failed
jobMan1	Cannot connect to jobManager jobMan1	PYRO:obj_46a8269f26e141706eaa6ada9b192b6e@172.30.0.1:44382		Failed
Mupif.JobManager@Example	Mupif.JobManager.SimpleJobManager2	PYRO:obj_29fcbcd13eb947ef91c3078d193be209@172.30.0.1:44382	0	OK

Map View