

Python Upgrade from FNAL

The following steps were taken to install a new python from FNAL (version 2.1), first on the server, then propagating to all slave nodes. All work was done as root, and from the server.

To Obtain and Install Python from FNAL:

```
source ~products/etc/setups.sh
setup ups
setup upd

# next step might not be necessary on a new install, but would be on a
# re-install
ups undeclare python -fLinux+2.2 v2_1

upd install -fLinux+2.2 python v2_1
setup python

# the above setup command should now work with no problems
# At this point, the new python has installed in the /fnal/ups/prd/...
# directory, and its access is granted when you do "setup python".
```

To make python "standard" for server

```
# However, we need python running at boot time without having to do a
# setup, so the next steps will copy the new python to the "standard"
# bin and lib directories...

cd /fnal/ups/prd/python/v2_1/Linux-2-2/lib/
tar cf /usr/lib/python2.1.tar python2.1
cd /usr/lib/
rm -rf python2.1 # in case
tar xf python2.1.tar
cd /usr/bin
cp /fnal/ups/prd/python/v2_1/Linux-2-2/bin/python . -f

# at this point, you log out and back in and type "python" to see what
# version you have (without doing a "setup python"). It should be
# 2.1, and you enter Ctrl-D to exit. It is now installed on the
# server.
```

To propagate python to slave nodes

```
# Now it is necessary to propagate the new python to all slave nodes
# I used the root_command of mcfarm to do this. The approach is to
# place the new material in a directory on home, and perform root
# commands on each slave to get it from there (into the "standard"
# bin and lib areas).

# copy binary and library-tar-file to common area on home

cp /usr/bin/python /home/mcfarm/tmp/.
mv /usr/lib/python2.1.tar /home/mcfarm/tmp/.
```

```
# prepare the following bash script to do some command on each node
# I named this "/home/mcfarm/doall"
# make sure it is executable
```

```
#!/usr/bin/env bash
```

```
root_command hepfm001 --command=/home/mcfarm/$1
root_command hepfm002 --command=/home/mcfarm/$1
root_command hepfm003 --command=/home/mcfarm/$1
root_command hepfm004 --command=/home/mcfarm/$1
root_command hepfm005 --command=/home/mcfarm/$1
root_command hepfm007 --command=/home/mcfarm/$1
root_command hepfm008 --command=/home/mcfarm/$1
root_command hepfm009 --command=/home/mcfarm/$1
root_command hepfm010 --command=/home/mcfarm/$1
root_command hepfm011 --command=/home/mcfarm/$1
root_command hepfm012 --command=/home/mcfarm/$1
root_command hepfm013 --command=/home/mcfarm/$1
root_command hepfm014 --command=/home/mcfarm/$1
root_command hepfm015 --command=/home/mcfarm/$1
root_command hepfm016 --command=/home/mcfarm/$1
root_command hepfm017 --command=/home/mcfarm/$1
root_command hepfm018 --command=/home/mcfarm/$1
root_command hepfm019 --command=/home/mcfarm/$1
root_command hepfm020 --command=/home/mcfarm/$1
root_command hepfm021 --command=/home/mcfarm/$1
root_command hepfm022 --command=/home/mcfarm/$1
root_command hepfm023 --command=/home/mcfarm/$1
root_command hepfm024 --command=/home/mcfarm/$1
```

```
# prepare a bash script to run on each node, named /home/mcfarm/doi1
# make sure it is executable
```

```
#!/usr/bin/env bash
```

```
cd /usr/lib
tar xf /home/mcfarm/tmp/python2.1.tar
cd /usr/bin
mv python python1.5 -f
cp /home/mcfarm/tmp/python . -f
chmod +x python
```

```
# run that script from the server on all nodes
```

```
./doall doi1
```

```
# prepare a script to remove the old 1.5 python everywhere
# I named it /home/mcfarm/doi2
# make sure it is executable
```

```
#!/usr/bin/env bash
```

```
rm -rf /usr/lib/python1.5
rm -f /usr/bin/python1.5

# run that script on the server and on all slaves

./doit2
./doall doit2
rm -f tmp/python
rm -f tmp/python2.1.tar
```

Final checks and cleanup

```
# finally, I stopped and restarted all daemons to see if the new
# python causes any problems. This was all done as mcfarm

stop_gather --wait
rlogin hepfm004
stop_gather --wait
exit
rlogin hepfm005
stop_gather --wait
exit
stop_distribute --wait
stop_monitor
stop_execute -a
stop_lockman
start_lockman
start_distribute
start_execute -a
start_gather -m=cache
start_gather -m=metadata
start_gather -m=sammetadata
rlogin hepfm004
start_gather -m=sam
exit
rlogin hepfm005
start_gather -m=sam
exit
start_monitor
```