

How to install Globus 2.0

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Abstract: I describe how to install Globus 2.0 on a Linux system

Before you start: you should know the root password to your system. Create an account called globus. Make sure that your system has perl 5.005 or greater.

Where to get more information: Globus project home page is <http://www.globus.org/>. Installation instructions can be found on <http://www.globus.org/gt2/install/index.html>

1. Download the binaries from <http://www.globus.org/gt2/install/gt2-beta-i686-pc-linux.html>, you should end up with the following files:
 - globus_api_bundle-i686-pc-linux-gnu.tar.gz
 - globus_services_1_bundle-i686-pc-linux-gnu-gcc32dbg.tar.gz
 - globus_services_2_bundle-i686-pc-linux-gnu-gcc32dbgpthr.tar.gz
 - globus_tools_bundle-i686-pc-linux-gnu.tar.gz
 - gpt-0.2.tar.gz
2. Create globus directory in /home/products area. Define environment variables
export
GLOBUS_LOCATION=/home/products/globus/globus-2.0
export GPT_LOCATION=/home/products/globus/gpt-0.2
Make sure that directories to which those variables point exist.
3. Unzip the file gpt-0.2.tar.gz
4. Untar the file gpt-0.2.tar. It contains globus packaging software. Now do
cd gpt-02
./build_gpt
This will install the packaging programs in \$GPT_LOCATION. You should see etc lib libexec man sbin share subdirectories in that directory now.
5. Create directory \$GLOBUS_LOCATION/bin
6. Now you have to install all the bundles you have imported in step 1. For each of the globus*.tar.gz files do:
\$GPT_LOCATION/sbin/globus-install globus_api_bundle-i686-pc-linux-gnu.tar.gz
7. execute \$GLOBUS_LOCATION/setup/globus-postinstall.sh
8. As user root execute \$GLOBUS_LOCATION/setup/globus/setup-gsi.
It will first ask you if you want to continue – press return to tell him “yes”. Then

if will ask you something. Reply “q” and press return. The script will execute. When it stops exit from root account.

9. execute `$GPT_LOCATION/sbin/globus-install globus_tools_bundle-i686-pc-linux-gnu.tar.gz` followed by `$GLOBUS_LOCATION/setup/globus-postinstall.sh`
10. Execute `$GPT_LOCATION/sbin/globus-install globus_services_1_bundle-i686-pc-linux-gnu-gcc32dbg.tar.gz` followed by `$GLOBUS_LOCATION/setup/globus/setup-gsi`
11. Execute `$GPT_LOCATION/sbin/globus-install globus_services_2_bundle-i686-pc-linux-gnu-gcc32dbgpthr.tar.gz` followed by `$GLOBUS_LOCATION/setup/globus-postinstall.sh`

Ok , now the installation is completed. We need to verify that it works.

Logon as your regular work account (not root account, and not globus)

Execute `.$GLOBUS_LOCATION/etc/globus-user-env.sh` (Warning: if this script does not execute, then you need to give yourself the right to execute it. In such a case become user root and do `chmod g+x` on this script. Then go back to your account and try to execute it again).

Once this is done you should create user certificate. Execute `grid-cert-request`. The program will ask you for a globus password. Give him some string of characters. Then you will be asked to confirm. Type it again. (Store your password in a safe place! If you forget it – you will be in trouble!)

warning 1: common problem which may occur at this stage is: the program cannot find `grid-cert-request` script. Check that its directory is in `PATH` variable. If not, add it to path. The script should be stored in `$GLOBUS_LOCATION/bin`, so add this directory to `PATH`. End of warning 1.

Warning 2: another common problem which may occur is that the program cannot find some libraries which are needed to execute `grid-cert-request`. This means that your environment has not been set properly. In this case go to `$GLOBUS_LOCATION/etc` directory and execute script `. globus-user-env.sh` (`GLOBUS_LOCATION` must be defined for the script to run. If you have `csh` shell, then there is a `c` shell version of this script too).

End of warning 2.

The program will generate your certificate and store it in file
~/ .globus/usercert_request .pem. Look into this file, copy the certificate and
mail it using your mail program to ca@globus.org. Wait for a response (1 to 2 days).

When they send you the response, save their email message, with the certificate, in the
file ~/ .globus/usercert .pem

Ask for gatekeeper certificate: as user root execute

```
grid-cert-request -gatekeeper <FQDN> \  
-key /etc/grid-security/hostkey.pem \  
-cert /etc/grid-security/hostcert.pem \  
-req /etc/grid-security/host.req
```

Where FQDN is the domain name of your farm. (In our case hepfm000.uta.edu).

The certificate request will be stored in the file /etc/grid-security/host.req file. Mail
content of this file to ca@globus.org to obtain the host certificate.

When they mail you the certificate, store the e-mail message they have sent to you in the
file /etc/grid-security/hostcert .pem. Make this file owned by root (chown
root hostcert.pem) and give it file attribute 600 (read write only by root).

How to run jobs

First execute grid-proxy-init. It will ask you for grid password and give you a proxy valid
for one day. Once this is done you can run jobs.

The syntax is:

```
globus-job-run nodename command
```

nodename is a node on which you have a globus-enabled account. Command is the script
you would like to execute. Please note that globus-job-run does not know about locations
of Linux/Unix commands on remote machines, so if you would like to execute – say – ls
command you should do it by

```
globus-job-run nodename /bin/ls
```

and not

```
globus-job-run nodename ls
```

Ok, now you can run jobs on other people machines. But you want others to run jobs on
yours. To do this you need

Install the host host gatekeeper.

Become root and in the file `/etc/services` add the line

```
globus-gatekeeper      2119/tcp                # Globus Gatekeeper
```

This will connect the globus gatekeeper to port 2119. Save the file.

Open the file `/etc/inetd.conf` and add line

```
globus-gatekeeper stream tcp nowait root GLOBUS_LOCATION/sbin/globus-  
gatekeeper globus-gatekeeper -conf GLOBUS_LOCATION/etc/globus-  
gatekeeper.conf
```

All must be in one line. Remember to replace `GLOBUS_LOCATION` by the actual globus location.

Execute `killall -HUP inetd`. This will kill the `inetd` process, restart it and on this occasion re-read the configuration of network services from `inetd.conf`

Now the globus gatekeeper must know that you are allowed to execute jobs on this machine. To tell him about this you should include your name in the mapfile.

Add your name to the mapfile

Exit from root account and become yourself. Execute the commands:

```
grid-cert-info -subject  
whoami
```

The first one will return something like

```
"/O=Grid/O=Globus/CN=Your Name"
```

the second will give your `userId`. Now become root, open the file `/etc/grid-security/grid-mapfile` (create if it does not exist) and add into it a line

```
"/O=Grid/O=Globus/CN=Your Name"                userId
```

Save this file and exit from root account. Now you should be able to send commands to this machine.

Install MDS

First you have to obtain LDAP certificate

Execute

```
grid-cert-request -cn "ldap/<FQDN>" \  
                  -cert $GLOBUS_LOCATION/etc/server.cert \  
                  -key $GLOBUS_LOCATION/etc/server.key \  
                  -req $GLOBUS_LOCATION/etc/server.request -nopw \  
                  -dir $GLOBUS_LOCATION/etc
```

replace FQDN with your farm name (in our case hepfm000.uta.edu). (All in one line!)

Your LDAP server certificate is stored in

/home/products/globus/globus2.0/etc/server.cert. Mail contents of this file to ca@globus.org.

When you receive reply from the certificate authority become root and tstore the email with their response in the file GLOBUS_LOCATION/etc/server.cert.

Open the file \$GLOBUS_LOCATION/etc/grid-info-slapd.conf and replace
modulepath /usr/local/globus/libexec/openldap/gcc32dbg
to
modulepath
/usr/local/globus/libexec/openldap/gcc32dbgpthr

As user root start MDS

```
$GLOBUS_LOCATION/sbin/SXXgris start
```

To check that it really started do

```
ps -auxw | grep slapd
```

Install Grid-ftp server

Become user root. Go to /etc/services and add the line

```
gsiftp      2811/tcp          # grid-ftp server
```

Save the file.

Then go to /etc/inetd.conf and add the line

```
gsiftp stream tcp nowait root /home/products/globus/globus-  
2.0/sbin/in.ftpd in.ftpd -l -a
```

(all in one line). Save the file. Then execute command

```
killall -HUP inetd
```

This will restart network services.

How to use grid ftp.

Ask for new proxy. Then execute

```
globus-url-copy source url destination url
```

Example:

```
globus-url-copy  
gsiftp://heppc6.uta.edu/home/tomw/temporary_file  
file://hepfm000.uta.edu/home/tomw/temporary\_file
```

(all in one line!)

Another useful program is `gsincftp`. It does not come with standard `globus-toolkit` installation, but if you have it then you use it by:

```
gsincftp <target node>
```

and then you can simply list and copy directories.