

# How to obtain and install DOE personal certificate

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**Abstract:** I describe the procedure of obtaining DOE personal grid certificate. I do not describe how to obtain DOE site certificate. This will be another note.

**A word of warning.** During the procedure you will be asked many times to create various passwords. It is easy to become confused which password you should use at a particular moment. Create a database of your passwords in order not to forget them. Otherwise you are in trouble. I will refer to various passwords by numbers (“use password 1” etc).

**Before you start:** You will have to use netscape from the machine on which you would like to install your browser. Make sure that you can open x-windows from that machine to your terminal. (Which means: install Exceed, if you run Windows, set the xhost if you run Linux, set properly the DISPLAY environment variable and so on. I assume you know what I am talking about).

**Globus 2.0 should be already installed on your system.** (We will make use of ssl library, which comes with Globus). Install it if it is not.

If you have previously requested and obtained certificates from other sources (like the Globus certificate authority) and they are stored in your `~/.globus` directory as `usercert.pem` and `userkey.pem` files, then copy them into a secure place. Those files will be overwritten during the installation, so if you want to use alternatively various certificates make sure you keep a secure copy of each one of them.

**Step 1: Request your personal DOE certificate:** Logon to your account on the Globus machine, where you would like to use your certificate. (In our case `hepfm000.uta.edu`). Start netscape. Go to page [www.ppdg.net/RA](http://www.ppdg.net/RA). Click “request personal certificate”. Open the request form. Fill your name, experiment, e-mail and phone number. You will need to fill the name of your sponsor person. (A person which will be contacted by people who issue the certificate to confirm that you are who you claim you are). A list of sponsors is on page <http://www.ppdg.net/RA/sponsors.htm>. Fill your sponsor information. This person will be contacted to confirm that you are who you are, so make sure to choose a sponsor who knows about your existence.

You have to provide a password which can be used for certificate revocation. Provide them with a password, write it down in your logs. This is password #1.

In “Comment” field write your experiment and university. The last field of the form is “Key length”. Choose “1024 high grade”. Once all this is done click “submit” button. Netscape will ask you to create password #2 which will be used to access a “netscape-internal” database of certificates. If you have played with netscape certificates before, chances are that your netscape already has such database created, in which case you do not have to create a password, but give it. If you do not understand what I am talking about then, you have never played with this feature of netscape before and it means you will be asked to create a password. Create it, confirm it and write in your files as “password #2”. Once this is done your request has been submitted. You will be given your request ID, write it down for reference, you will need it later. Wait for their response. (1-2 working days).

**Step 2:** Once you have received response form DOE signing authority. They will give you a www address where you should go to get your certificate. In principle, if you go to this address you should find instructions to follow. Unfortunately if you go to this place chances are that it will not work. My netscape browser crashed (“Browser error”), when I entered this address. So in the following steps I will give you an alternative bypass route, which worked for me.

Go to page [www.ppdg.net/RA](http://www.ppdg.net/RA). Choose option “Retrieve a certificate”. A form will open. In the field “Request ID” write id of your request for certificate. Press “submit” button. A page with “Request status” will appear. Your request should be “complete” by now. Follow the “issued certificate” link. You will see a page with your certificate text. “Plenty of encrypted characters”. At the bottom of the page there is an “Import certificate” button. Press it. Netscape will ask you for password to your communicator database of certificates. Type it. (Password #2). The certificate is now imported into netscape and stored in the browser’s internal guts.

**Step 3.** Now you have to export the certificate from the guts of netscape into the globus area and make it usable by globus. Click on “Security” button in netscape. A new window will pop up. Select option “Certificate”, go to “Yours”. You will get a list of your certificates. Most likely the list will have only one certificate – the one you have imported in previous step. Select this certificate. Press “Export” button. You will be asked for netscape database password (password #2). Type it.

To make things more confusing at this step netscape will ask you to invent yet another password, this time to encode data that will be exported from guts of netscape to a file, which will be later used by Globus. Give him a password. You will be asked to confirm it. Confirm it. (We will refer to this password as password #3). Then a window will pop up asking you in which file netscape should store the certificates. The certificates will be stored in a p12 file. (This magic p12 apparently refers to some industrial standard format of storing certificates). Ask netscape to store your certificates in a file – for example - MyCert.p12 in the ~/ .netscape directory.

Now you need to translate this MyCert.p12 file into Globus-readable files. Enter the directory where you have stored the MyCert.p12 file and execute:

```
openssl pkcs12 -in MyCert.p12 -clcerts -nokeys -out $HOME/.globus/usercert.pem
```

Again you will be asked for a password. Give him password #3. This will create a globus-readable certificate file `$HOME/.globus/usercert.pem`

Then execute

```
openssl pkcs12 -in YourCert.p12 -nocerts -out $HOME/.globus/userkey.pem
```

You will be asked for password #3 once again. Tell him the password. Then it will ask you for PEM pass phrase. You should invent some password again. (This will be password #4). Type it. You will be asked to confirm it. Confirm it. This will create a globus-readable file with your personal user key.

Those steps have created your personal certificate and password in the `~/.globus` directory.

Enter the `~/.globus` directory and change permissions of `userkey.pem` file so that it can be read/write by owner only. Globus will not work if your user key file is readable by someone else than user.

### **How to use it and test that all works:**

1. Make sure that Globus environment is set. Just as a reminder, if you do not know how to do this: set `GLOBUS_LOCATION` environment variable to point to the area where globus is installed. Add `$GLOBUS_LOCATION/bin` to your `PATH` variable. Source the `$GLOBUS_LOCATION/etc/globus-user-env.sh` script (\*.csh script you do not run bash shell).
2. Execute `grid-proxy-init`. You will be asked for password. Give him password #4. Then your proxy will be set.

### **How to tell Globus that you are running DOE certificate.**

You will need two files which contain information about the DOE

**How to make yourself known to remote computers:** In order to execute jobs at remote machines you should be known to those machines. To do this you should add your ID to the mapfiles at those machines.

Type `grid-proxy-init`. System will ask you for password, but it will also print your ID. It should look like:

```
Your identity: /O=doesciencegrid.org/OU=People/CN=Your Name SomeNumber
```

Send this line to system administrators of the systems you want to be able to access and ask them to add it to their mapfiles. Once they have done it, you are ready,.

## **How to run jobs**

To execute a job on remote system: first initialize your proxy and then do, for example,

```
globus-job-run RemoteNode Command
```

That's all folks.