
CS 696

Introduction to Grid Computing:
Lecture #17: TeraGrid Accounts

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TeraGrid Accounts

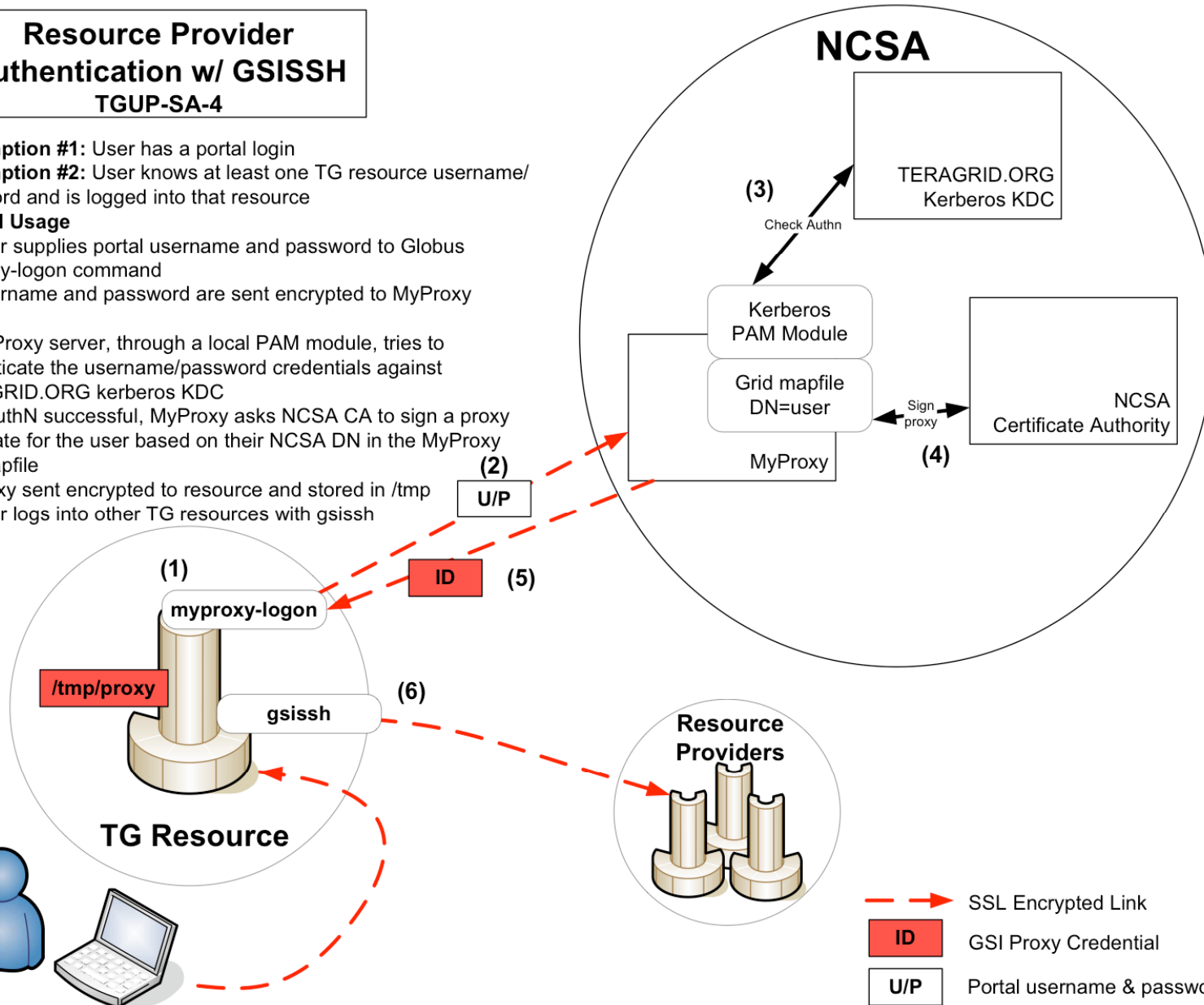
TeraGrid Single Sign-on Implementation

Resource Provider Authentication w/ GSISSH TGUP-SA-4

Assumption #1: User has a portal login
Assumption #2: User knows at least one TG resource username/
 password and is logged into that resource

Normal Usage

- (1) User supplies portal username and password to Globus myproxy-logon command
- (2) Username and password are sent encrypted to MyProxy server
- (3) MyProxy server, through a local PAM module, tries to authenticate the username/password credentials against TERAGRID.ORG kerberos KDC
- (4) If AuthN successful, MyProxy asks NCSA CA to sign a proxy certificate for the user based on their NCSA DN in the MyProxy grid mapfile
- (5) Proxy sent encrypted to resource and stored in /tmp
- (6) User logs into other TG resources with gsissh



check software environment

- Check on machines you want to run on
- SoftEnv is a tool that makes it easy for users to modify Unix shell environment variables as necessary to make software available.
- See:
 - http://teragrid.org/userinfo/getting_started.php?level=new_account#env
 - <http://teragrid.org/userinfo/jobs/softenv.php>
- Check for: `$HOME/.soft`
 - If not there: type
 - `cp $TG_EXAMPLES/.soft.ctssv3 .soft`

TeraGrid: Starting a session

To start a session, you will need to create a certificate proxy following the steps below. Once you have created the session, you will be able to access all the allocated resources without the need to authenticate repeatedly.

1. Initial login: Log in to the TeraGrid resource that you've chosen as a starting point using the instructions for that resource from your account information packet.
2. Check for existing proxy: At the command line, type ***grid-proxy-info***. If you already have a proxy, you can start computing. If you receive an error saying that you do not have a temporary proxy, then continue below. (If this is your first time logging in to a TeraGrid resource, you can skip this step.)
3. Create certificate proxy: Run ***myproxy-logon -l <username>*** You will get a prompt to enter your MyProxy passphrase. Use the TeraGrid-wide (Portal) username and password that you received in your packet for this step.
4. Verify proxy: Run ***grid-proxy-info*** again.

TeraGrid: logging on using GSI and single sign-on

- Using standard SSH depends on site:
 - <http://www.teragrid.org/userinfo/access/ssh.php#sites>
 - ssh <username>@bglogin.sdsc.edu
 - ssh <username>@tg-login.uc.teragrid.org
 - NCSA--you must go to the Kerberos page
- Using GSI enabled tools better (mostly)
 - gsissh, gsiftp, gsiscp

TeraGrid Single Sign-on using gsissh

1. Initial login: Log in to a single TeraGrid resource
2. Check for existing proxy: run *grid-proxy-info*.
3. If needed, create certificate proxy: Run *myproxy-logon -l <username>*. Use TeraGrid-wide (Portal) username and password that you received in your packet for this step.
4. Verify proxy: Run *grid-proxy-info* again.

Example: to log in to SDSC's cluster from another TG host:

```
%gsissh tg-login.sdsc.teragrid.org
```

```
....
```

Note: this automatically finds local userID.

Using SSO from local laptop

- Download & install required components, MyProxy and GSISSH
 - http://www.teragrid.org/userinfo/access/tgsso_native.php
 - Can access wherever you have an account.
 - Your account is configured using default cert issued by NCSA Certificate Authority (CA)
 - Your account information packet will contain your TeraGrid-wide login - same as portal.
- With this, you will be able to initiate a session on any TeraGrid resource:
 - log in only once during the session.
 - GSISSH allows you to access Globus Security Infrastructure
 - (GSI-) enabled features of the TeraGrid from your desktop.
- Note: it does not work everywhere
 - Lately I find NCSA is best suited for 'home base system'

Myproxy/GSISSH Installation Comments

STEP 1: Download and unpack the Globus Toolkit installer for your system from <http://www.globus.org/toolkit/downloads/>. To install MyProxy and GSISSH:

STEP 2:

2a: Decide where \$HOME is going to be for the library. I typically use
/usr/local/apps/globus4.x.x

2b: Change your directory to the location of the installer:
\$ cd gt4*-installer

2c: Use configure script and make files to install the package:
\$./configure --prefix=\$HOME/globus
\$ make gsi-myproxy gsi-openssh
\$ make install

Notes:

- Ignore Ant/Java errors - they aren't needed for installing MyProxy and GSISSH
- they are needed for installing WSRF components but we'll deal with this later.

Installation Comments (cont.)

STEP 3: Configure your environment variables:

For CSH

```
$ setenv GLOBUS_LOCATION $HOME/globus
$ setenv MYPROXY_SERVER myproxy.teragrid.org
$ setenv MYPROXY_SERVER_PORT 7514
$ source $GLOBUS_LOCATION/etc/globus-user-env.csh
```

For Bash

```
$ GLOBUS_LOCATION=$HOME/globus
$ MYPROXY_SERVER=myproxy.teragrid.org
$ MYPROXY_SERVER_PORT=7514
$ export GLOBUS_LOCATION MYPROXY_SERVER
MYPROXY_SERVER_PORT ... is this a typo?
$ . $GLOBUS_LOCATION/etc/globus-user-env.sh
```

STEP 4: Add these environment variables to your `.cshrc`, `.login`, `.bashrc`, or `.profile` so you don't need to run them again the next time you login.

Note: Be sure to launch new window/shell to clear & reset ENV vars

Installation Comments (cont.)

Step 5: Install the NCSA CA certificate

To use the TeraGrid MyProxy server, you need the NCSA CA certificate and signing policy file installed locally.

To install the certificates:

```
$ mkdir -p ~/.globus/certificates
$ cd ~/.globus/certificates
$ wget http://ca.ncsa.uiuc.edu/4a6cd8b1.0
$ wget http://ca.ncsa.uiuc.edu/4a6cd8b1.signing_policy
$ wget http://ca.ncsa.uiuc.edu/4a6cd8b1.r0
```

(Note: The certificates end in 1's (ones) not L's)

If you do not have **wget** installed on your machine, you can also use **curl**.

Test local client installation

```
[gidget:/usr/local] mthomas% which myproxy-logon
/usr/local/apps/globus/bin/myproxy-logon
[gidget:/usr/local] mthomas% myproxy-logon
Enter MyProxy pass phrase:
Failed to receive credentials.
ERROR from myproxy-server (myproxy.teragrid.org):
"/C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas" not
authorized by server's trusted_retrievers policy
"/C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas" not
authorized by server's authorized_renewers policy
Failed to map username to DN via grid-mapfile
CA failed to map user
[gidget:/usr/local] mthomas% myproxy-logon -l thomasm
Enter MyProxy pass phrase:
A credential has been received for user thomasm in /tmp/x509up_u501.
[gidget:/usr/local] mthomas% grid-proxy-info
subject : /C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas
issuer  : /C=US/O=National Center for Supercomputing Applications/CN=Certification
Authority
identity : /C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas
type    : end entity credential
strength : 1024 bits
path    : /tmp/x509up_u501
timeleft : 11:46:47
[gidget:/usr/local] mthomas%
mthomas% gsissh tg-login.ncsa.teragrid.org
Last login: Tue Apr 17 14:47:52 2007 from 146.244.28.123
```

**Need to use
portal account ID**

Test (cont.)

```
<--- LOG ONTO REMOTE HOST ---->
mthomas% whoami
mthomas
mthomas% gsissh tg-login.ncsa.teragrid.org
Last login: Tue Apr 17 14:47:52 2007 from 146.244.28.123
NCSA Teragrid Cluster (MERCURY) --In Production with 870 nodes
...
...
tg-login3 thomasm/globus.tests.apr07> whoami
thomasm
tg-login3 thomasm/globus.tests.apr07> grid-proxy-info
subject : /C=US/O=National Center for Supercomputing Applications/CN=Mary
Thomas/CN=29601590
issuer  : /C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas
identity : /C=US/O=National Center for Supercomputing Applications/CN=Mary Thomas
type    : Proxy draft (pre-RFC) compliant impersonation proxy
strength : 512 bits
path    : /home/ac/thomasm/.globus/userproxy.pem
timeleft : 10:49:11
tg-login3 thomasm/globus.tests.apr07>
```

gsissh test script

```
tg-login3 thomasm/globus.tests.apr07> cat gsissh.auth.test
#!/bin/tcsh
#assumes proxy is OK, checks remote host authentication using gsissh
set HOST = `/bin/cat tg.login.hosts`
foreach h ($HOST)
  echo "GSISSH Tests: gsissh $h '/bin/date; /bin/echo $HOSTNAME'"
  gsissh $h "/bin/date; /bin/echo $HOSTNAME"
end
```

```
tg-login3 thomasm/globus.tests.apr07> cat tg.login.hosts
tg-login1.iu.teragrid.org
tg-login.ncsa.teragrid.org
tg-login.ornl.teragrid.org
tg-login1.lemieux.psc.teragrid.org
tg-login.purdue.teragrid.org
tg-login.sdsc.teragrid.org
tg-login.tacc.teragrid.org
tg-login.uc.teragrid.org
```

Gsissh.auth.test output

```
tg-login3 thomasm/globus.tests.apr07> ./gsissh.auth.test
GSISSH Tests: gsissh HOSTNAME '/bin/date; /bin/echo HOSTNAME'
GSISSH Test: tg-login1.iu.teragrid.org
Tue Apr 17 20:11:03 EDT 2007    tg-login3.ncsa.teragrid.org
GSISSH Test: tg-login.ncsa.teragrid.org
Tue Apr 17 19:11:05 CDT 2007    tg-login3.ncsa.teragrid.org
GSISSH Test: tg-login.ornl.teragrid.org
Tue Apr 17 20:11:06 EDT 2007    tg-login3.ncsa.teragrid.org
GSISSH Test: tg-login1.lemieux.psc.teragrid.org
ssh: connect to host tg-login1.lemieux.psc.teragrid.org port 22: Connection timed out
GSISSH Test: tg-login.purdue.teragrid.org
Tue Apr 17 20:14:17 EDT 2007    tg-login3.ncsa.teragrid.org
GSISSH Test: tg-login.sdsc.teragrid.org
Tue Apr 17 17:14:19 PDT 2007    tg-login3.ncsa.teragrid.org
GSISSH Test: tg-login.tacc.teragrid.org
Lonestar maintenance has been extended while we perform preventative maintenance on the /work filesystem.
...
Connection closed by 129.114.50.32
GSISSH Test: tg-login.uc.teragrid.org
Tue Apr 17 19:14:22 CDT 2007
tg-login3.ncsa.teragrid.org
```

Note:

Move to another machine, some tests fail

```
tg-login3 thomasm/globus.tests.apr07> gsissh mthomas@tg-login.sdsc.teragrid.org
Last login: Tue Apr 17 13:13:51 2007 from tg-login4.ncsa.teragrid.org
Welcome to the TeraGrid Itanium2 Linux Cluster
San Diego Supercomputer Center
...
Directory: /users/mthomas
Tue Apr 17 17:18:38 PDT 2007
tg-login1 mthomas/globus.tests> ./gsissh.auth.test
GSISSH Tests: gsissh HOSTNAME '/bin/date; /bin/echo HOSTNAME'
GSISSH Test: tg-login1.iu.teragrid.org
Tue Apr 17 20:21:42 EDT 2007    tg-login1.sdsc.teragrid.org
GSISSH Test: tg-login.ncsa.teragrid.org
Tue Apr 17 19:21:45 CDT 2007    tg-login1.sdsc.teragrid.org
GSISSH Test: tg-login.ornl.teragrid.org
Tue Apr 17 20:21:47 EDT 2007    tg-login1.sdsc.teragrid.org
GSISSH Test: tg-login1.lemieux.psc.teragrid.org
ssh: connect to host tg-login1.lemieux.psc.teragrid.org port 22: Connection timed out
GSISSH Test: tg-login.purdue.teragrid.org
Tue Apr 17 20:24:58 EDT 2007    tg-login1.sdsc.teragrid.org
GSISSH Test: tg-login.sdsc.teragrid.org
gss_init_context failed
GSISSH Test: tg-login.tacc.teragrid.org
gss_init_context failed
GSISSH Test: tg-login.uc.teragrid.org
Tue Apr 17 19:25:01 CDT 2007    tg-login1.sdsc.teragrid.org
```