

SSHFS and Kerberos

SSHFS

- SSHFS allows you to access a directory on a remote server like you would a local directory
 - e.g. you would like to access your CoEPP UI home directory from your machine at your University
 - You would like to access your CoEPP UI home directory from Ixplus
- You will need to have sshfs installed on your computer (which it is on Melbourne desktops, and can be installed on Sydney desktops)
- If you have installed your SSH key on the remote host, it is passwordless!

SSHFS

```
|scrosby@stewie|21:14:23: ~$ mkdir mel_ui
|scrosby@stewie|21:14:27: ~$ sshfs scrosby@cxin01.cloud.coep.org.au:/home/scrosby mel_ui
|scrosby@stewie|21:14:32: ~$ ls mel_ui
asgc          datasets_to_delete  fio.dat  macros          rcSetup.csh  temp          xroottests
aus-transfers.sh  datri.tar.gz      iodata  make_lgd.pl    rcSetup.sh   test
bin           downloaded_datasets  iotest  metalink       root_core    test.py
checkUserGrid.sh  dpm-migration     jdl     millie         RootCoreBin  test_sfn.sh
cxcodes       dump_20140429_0734.txt.gz  lgd     pbstests       sent         workarea
datasets      file_counter       lgd.tar  plots          stuff        WorkT
```

```
|scrosby@stewie|21:14:37: ~$ cd mel_ui
|scrosby@stewie|21:14:50: mel_ui$ touch seans_sshfs_test
|scrosby@stewie|21:14:55: mel_ui$ rm seans_sshfs_test
|scrosby@stewie|21:14:58: mel_ui$ cd ..
|scrosby@stewie|21:15:05: ~$ fusermount -u mel_ui
|scrosby@stewie|21:15:10: ~$
```



SSHFS

- It can sometimes be slow (especially between Ixplus and Melbourne)
- Everything is encrypted (due to the SSH connection), so it is very secure
- You can even do it from home! (as long as you're using Mac or Linux)

Kerberos

- Kerberos is a security mechanism used by CERN (and Fermilab) to authenticate users and give them access to storage/services on their network
- Kerberos is a ticket based system where you present a ticket to a service to gain access to it
- You need a ticket to access the AFS storage at CERN

Kerberos

- When you log in with your password on lxplus, in addition to being logged into the system, you also get an AFS ticket and token (amongst other tickets)
- This doesn't happen if you set lxplus to use SSH keys, hence you wouldn't be able to access your home directory using SSH keys
- Same goes for other services (e.g. `svn.cern.ch`)
- Good news! You can get a ticket from outside CERN, and use that to do passwordless authentication from the UI's

Kerberos

```
scrosby@vm-115-146-84-190:~$ cat .ssh/config
```

```
Host lxplus*  
  User scrosby  
  GSSAPITrustDNS yes  
  GSSAPIAuthentication yes  
  GSSAPIDelegateCredentials yes  
Host git.cern.ch  
  User scrosby  
  GSSAPITrustDNS yes  
  GSSAPIAuthentication yes  
  GSSAPIDelegateCredentials yes
```

```
Host svn.cern.ch  
  User scrosby  
  GSSAPITrustDNS yes  
  GSSAPIAuthentication yes  
  GSSAPIDelegateCredentials yes
```

```
scrosby@vm-115-146-84-190:~$ kinit scrosby@CERN.CH
```

```
Password for scrosby@CERN.CH:
```

```
scrosby@vm-115-146-84-190:~$ klist
```

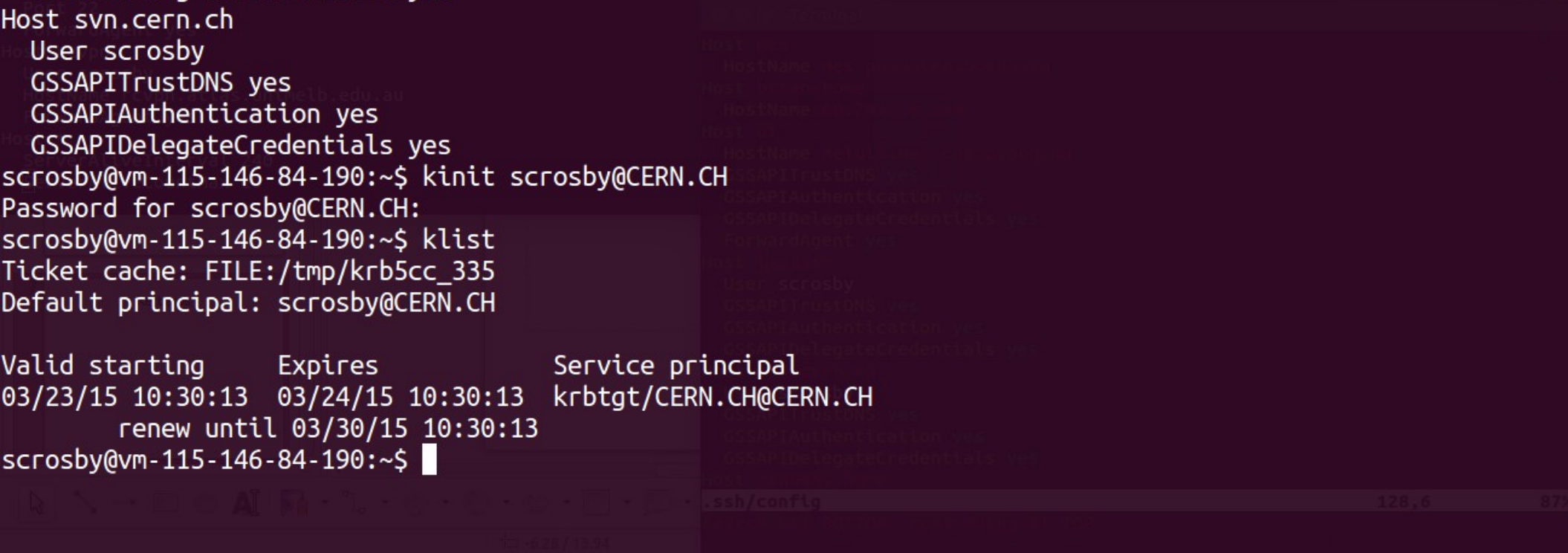
```
Ticket cache: FILE:/tmp/krb5cc_335
```

```
Default principal: scrosby@CERN.CH
```

```
Valid starting Expires Service principal  
03/23/15 10:30:13 03/24/15 10:30:13 krbtgt/CERN.CH@CERN.CH
```

```
renew until 03/30/15 10:30:13
```

```
scrosby@vm-115-146-84-190:~$
```



Kerberos

- The ticket (the TGT) is valid for 7 days. You will have to reauthenticate (using kinit) after 7 days
- When you log out of lxplus, scripts on lxplus will clean up your ticket and AFS token
- This is a problem if you try to run programs in screen on lxplus (when you detach and logout, you lose access to reading/writing your home dir)
- Solution – get a new AFS token in your screen session

Kerberos

```
[scrosby@lxplus0027 ~]$ pagsh -c /bin/bash
bash: /afs/cern.ch/user/s/scrosby/.bashrc: Permission denied
bash-4.1$ aklog
bash-4.1$ source ~/.bashrc
[scrosby@lxplus0027 ~]$ screen
```

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- This is a problem if you try to run programs in screen on lxplus (when you detach and logout, you lose access to reading/writing your home dir)
- Solution – get a new AFS token in your screen session