

NOTE: Complete setup for NFS requires joining the computer to the ND.EDU realm. You will need to contact ESC (eschelp@nd.edu) with your computer's hostname or IP address so that our staff can create an object in ND's Active Directory.

Validate that you can login to the NFS system

Ensure that you can login with your ND NetID and password into an ESC remote Linux system.

```
ssh remote300.helios.nd.edu
```

If you are unable to login, please contact the ESC help desk (help@esc.nd.edu or 631-0101).

Perform the steps below on the Ubuntu workstation you wish to setup as an ESC NFS client

Switch user to root

```
sudo -i
```

Update the Ubuntu system to latest kernel

```
apt-get update
```

```
apt-get dist-upgrade
```

Install Packages

```
apt-get install openssh-server bash-completion sssd autofs krb5-user  
nfs4-acl-tools realmd
```

Note: When asked for the default realm, enter ND.EDU

Setup and Join AD Domain

```
hostnamectl set-hostname host.domain.nd.edu
```

Note: Replace "host" and "domain" appropriately for the specific machine

```
realm discover nd.edu
```

```
realm --verbose --user=netid join
```

```
--computer-ou=OU=NFS,OU=ESC,OU=Campus,dc=nd,dc=edu nd.edu
```

Note: Replace "netid" with your ND NetID

Adjust the configuration files

```
mv /etc/idmapd.conf /etc/idmapd.conf.orig
```

```
nano /etc/idmapd.conf
```

```
[General]
```

```
Verbosity = 0
```

```
Pipefs-Directory = /run/rpc_pipefs
```

```
# set your own domain here, if it differs from FQDN minus hostname
```

```
# Domain = localdomain
```

```
Domain = esc.nd.edu
```

```
[Mapping]
```

```
Nobody-User = nobody
```

```
Nobody-Group = nogroup
```

```
mv /etc/krb5.conf /etc/krb5.conf.orig
nano /etc/krb5.conf
[logging]
default = FILE:/var/log/krb5libs.log
kdc = FILE:/var/log/krb5kdc.log
admin_server = FILE:/var/log/kadmind.log

[libdefaults]
default_realm = ND.EDU
ticket_lifetime = 10h
renew_lifetime = 7d

[realms]
ND.EDU = {
}

[domain_realm]
nd.edu = ND.EDU
.nd.edu = ND.EDU
```

Stop the the sssd service and clear the cache

```
systemctl stop sssd
rm -f /var/lib/sss/db/*
```

Modify the sssd.conf

```
mv /etc/sss/sss.conf /etc/sss/sss.conf.orig
nano /etc/sss/sss.conf
[sss]
domains = ND.EDU
config_file_version = 2
services = nss, pam

[domain/ND.EDU]
ad_domain = ND.EDU
krb5_realm = ND.EDU
realmd_tags = manages-system joined-with-adcli
cache_credentials = True
id_provider = ad
krb5_lifetime = 10h
krb5_renewable_lifetime = 7d
krb5_renew_interval = 8h
krb5_store_password_if_offline = True
default_shell = /bin/bash
ldap_id_mapping = False
use_fully_qualified_names = False
override_homedir = /escnfs/home/%u
fallback_homedir = /home/%u@d
```

```
chpass_provider = ad
ignore_group_members = True
access_provider = simple
simple_allow_groups = esclinux-users-group
ad_server = addc11-prod.nd.edu, addc12-prod.nd.edu, addc13-prod.nd.edu
```

Change sssd.conf permissions and start the sssd service

```
chmod 600 /etc/sss/sss.conf
systemctl start sssd
```

Setup the autofs files

```
mv /etc/auto.master auto.master.orig
nano /etc/auto.master
```

```
#
# Sample auto.master file
# This is a 'master' automounter map and it has the following format:
# mount-point [map-type[,format]:]map [options]
# For details of the format look at auto.master(5).
#
/misc    /etc/auto.misc
#
# NOTE: mounts done from a hosts map will be mounted with the
#       "nosuid" and "nodev" options unless the "suid" and "dev"
#       options are explicitly given.
#
/net     -hosts
#
# Include /etc/auto.master.d/*.autofs
# The included files must conform to the format of this file.
#
+dir:/etc/auto.master.d
#
# Include central master map if it can be found using
# nsswitch sources.
#
# Note that if there are entries for /net or /misc (as
# above) in the included master map any keys that are the
#
# same will not be seen as the first read key seen takes
# precedence.
#
+auto.master
/escnfs/home /etc/auto.home --timeout=90 --ghost
/escnfs/apps /etc/auto.apps --timeout=90 --ghost
/escnfs/courses /etc/auto.courses --timeout=90 --ghost
/escnfs/backup /etc/auto.backup --timeout=90 --ghost
```

```
nano /etc/auto.home
```

```
* -port=2049,-fstype=nfs4,rw,proto=tcp,sec=krb5,vers=4.2 esc-nfs.esc.nd.edu:/home/&
```

nano /etc/auto.apps

```
* -port=2049,-fstype=nfs4,rw,proto=tcp,sec=krb5,vers=4.2 esc-nfs.esc.nd.edu:/apps/&
```

nano /etc/auto.courses

```
* -port=2049,-fstype=nfs4,rw,proto=tcp,sec=krb5,vers=4.2 esc-nfs.esc.nd.edu:/courses/&
```

nano /etc/auto.backup

```
* -port=2049,-fstype=nfs4,rw,proto=tcp,sec=krb5,vers=4.2 esc-nfs.esc.nd.edu:/backup/&
```

Create the root directory for the autofs mount points

```
mkdir /escnfs
```

Edit modules file

```
nano /etc/modules
```

```
# /etc/modules: kernel modules to load at boot time.
#
# This file contains the names of kernel modules that should be loaded
# at boot time, one per line. Lines beginning with "#" are ignored.

/escnfs/apps/Modules/modulefiles      # on esc-nfs.esc.nd.edu
/etc/modulefiles                       # locally if needed
```

Reboot the system

```
reboot
```