

Practical 8:- Configure NIS Server in order to share users' accounts in your local networks, Configure NIS Client to bind NIS Server.

Solution:-

Step 1:- Installing NIS Server

You can install it like this:

\$ sudo apt-get install nis

```
rootclient@ubuntu:~$ sudo apt-get install nis
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libtirpc1 make rpcbind
Suggested packages:
  make-doc nscd
The following NEW packages will be installed:
  libtirpc1 make nis rpcbind
0 upgraded, 4 newly installed, 0 to remove and 7 not upgraded.
Need to get 427 kB of archives.
After this operation, 1,353 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 make amd64 4.1-9.1ubuntu1 [154 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtirpc1 amd64 0.2.5-1.2ubuntu0.1 [75.7 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 rpcbind amd64 0.2.3-0.6 [40.6 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu bionic/universe amd64 nis amd64 3.17-1
```

During the installation you need to set the NIS server name by using the domain name command.

On Ubuntu distros, you can achieve the same result by adding the domainname command with the correct value to one of the **rc scripts** which run at boot time.

Step 2:- Configuring NIS Master Server

NIS is an RPC service, so you need to ensure that the **rpcbind** program is up and running before you attempt to start the Linux NIS server.

On new Linux distros that rely on systemd as the service manager, systemd will automatically take care of service intra-dependencies that exist between rpcbind and ypserv.

If your distro is not one of them, you can start rpcbind like this:

\$ sudo systemctl start rpcbind

On our distro which has systemd, we can start the service like this:

\$ sudo systemctl start ypserv

To confirm that the service is running, you can use the rpcinfo command.

\$ sudo rpcinfo -p | grep ypserv

```
rootclient@ubuntu:~$ sudo systemctl start rpcbind
[sudo] password for rootclient:
rootclient@ubuntu:~$ sudo systemctl start ypserv
rootclient@ubuntu:~$ sudo rpcinfo -p | grep ypserv
rootclient@ubuntu:~$
```

Step 3:- Editing the /etc/default/nis file

Make some changes in /etc/default/nis file for configuring NIS master server. We can change /etc/default/nis file in text editor. Use following command.

Sudo nano /etc/default/nis

Make changes in **NISERVER=master**

```
GNU nano 2.9.3 /etc/default/nis

#
# /etc/default/nis      Configuration settings for the NIS daemons.
#

# Are we a NIS server and if so what kind (values: false, slave, master)?
NISERVER=master

# Are we a NIS client?
NISCLIENT=true

# Location of the master NIS password file (for yppasswdd).
# If you change this make sure it matches with /var/yp/Makefile.
YPPWDDIR=/etc

# Do we allow the user to use ypchsh and/or ypchfn ? The YPCHANGEOK
# fields are passed with -e to yppasswdd, see it's manpage.
# Possible values: "chsh", "chfn", "chsh,chfn"
YPCHANGEOK=chsh
```

Step 3:- Editing the /var/yp/Makefile file

The make command is responsible for preparing the list of files that need compilation and the needed program for compilation for each of them.

- The make command compiles a file called Makefile.
- Taking this concept to work on NIS is straightforward. In this case, a series of text files need to be converted into database format. We want a tool that will re-convert any files that have been changed, we can use the make command.
- The Makefile is in **/var/yp/Makefile** directory. This file contains all the shared files by NIS server.

Let's Change the options in the Makefile.

NOPUSH Option

NOPUSH=true

Keep in mind that you need to list the hostnames of your slave servers in **/var/yp/ypservers** file and ensure to list a corresponding entry in the **/etc/hosts** file.

Min UIDs GIDs

MINUID=500

MINGID=500

Merging Shadow Passwords with Real Ones

The Linux NIS server can be used to authenticate their users, NIS server will automatically take the encrypted field from the **/etc/shadow file** and merge it into the NIS shared copy of **/etc/passwd**. This is done using **MERGE_PASSWD** option:

MERGE_PASSWD=true

Merging Group Shadow Passwords with Real Ones

The **/etc/group** file allows passwords to be applied to group settings. Since the **/etc/group** file needs to be publicly readable, most distros have taken to support shadow group files **/etc/gshadow**. The option is called **MERGE_GROUP**:

MERGE_GROUP=true

Shared Entries

In Makefile, there is an option that specifies what is shared, it is (all) option

all: passwd group hosts services shadow networks

The option **YPPWDDIR** specifies the location of the **passwd**, **group**, and **shadow** files, so you don't need to type the full path.

```
GNU nano 2.9.3 /var/yp/Makefile

# entries) in the NIS password database, for security. MINUID is the
# lowest uid that will be included in the password maps. If you
# create shadow maps, the UserID for a shadow entry is taken from
# the passwd file. If no entry is found, this shadow entry is
# ignored.
# MINGID is the lowest gid that will be included in the group maps.
MINUID=500
MINGID=500

# Similarly, we also define a MAXUID and MAXGID specifying the maximum
# user ID and group ID which will be exported.
MAXUID=4294967295
MAXGID=4294967295

# Don't export this uid/guid (nfsnobody).
# Set to 0 if you want to
NFSNOBODYUID=65534
NFSNOBODYGID=65534

# Should we merge the passwd file with the shadow file ?
# MERGE_PASSWD=true|false
MERGE_PASSWD=true

# Should we merge the group file with the gshadow file ?
# MERGE_GROUP=true|false
MERGE_GROUP=true

# These are commands which this Makefile needs to properly rebuild the
# NIS databases. Don't change these unless you have a good reason.
AWK = /usr/bin/awk
MAKE = /usr/bin/make
UMASK = umask 066

#
# These are the source directories for the NIS files; normally
# that is /etc but you may want to move the source for the password
# and group files to (for example) /var/yp/ypfiles. The directory
# for passwd, group and shadow is defined by YPPWDDIR, the rest is
# taken from YPSRCDIR.
#
YPSRCDIR = /etc
YPPWDDIR = /etc
YPBINDIR = /usr/lib/yp
YPSBINDIR = /usr/sbin
YPDIR = /var/yp
```

Step 4:- Editing the /etc/host file

Use following command

\$ sudo nano /etc/host

```
GNU nano 2.9.3 /etc/hosts

127.0.0.1    localhost
127.0.1.1    ubuntu
192.168.171.131 dlp.srv.world
# The following lines are desirable for IPv6 capable hosts
::1         ip6-localhost ip6-loopback
fe00::0     ip6-localnet
ff00::0     ip6-mcastprefix
ff02::1     ip6-allnodes
ff02::2     ip6-allrouters
```

Step 4:- Update NIS Database

Initialize NIS Server Using ypinit

Once you've finished editing options in Makefile, you can initialize the NIS server like this:

```
$ /usr/lib64/yp/ypinit -m
```

The -m option is used to initialize the server as a master server.

Or if you are using a 32bit system the command will be:

```
$ /usr/lib/yp/ypinit
```

This tool will ask about the secondary NIS servers if you have any.

These entries will be stored in the **/var/yp/ypservers** file.

Step 5:- Configuring NIS Client

On Ubuntu distros, you can install it like this:

```
$ sudo apt-get install nis
```

The **/etc/yp.conf** file is the configuration for the client-side daemon.

You can start ypbind now:

```
$ sudo systemctl start ypbind
```

```
$ sudo systemctl enable ypbind
```

Step 6:- The /etc/nsswitch.conf File

This file contains entries of facilities and their corresponding files and services that the system will use for searching.

```
passwd:files nis
```

This entry means that search requests for password entries will first be done in the **/etc/passwd** file. If the requested entry isn't found there, check NIS server.