

# NIS for LINUX

## Abstract

In this paper I will explain about NIS – Network Information Service, I will give a short introduction and a summary of NIS and demonstrate master, client and slave NIS configurations.

## Introduction

### What is NIS?

NIS – Network Information Service, is a standard UNIX name service developed by Sun, to enable centralized network information services.

## System requirements

- CentOS 5/6/7

## NIS features

- Allows centralized name service configuration for a flat hierarchy of hosts.
- Allows DNS resolving through NIS.

## Terms and Definitions

**NIS**- Network Information Service

**YP** – Yellow pages, the former name of NIS.

**MAP** - a map is a repository file that replaces a configuration file.

**NIS domain** – a collection of hosts that are organized into a single collection of administrative authority.

**NIS master server** – a single point-of-control server that contains all the maps and contains all the ASCII configuration files that builds the NIS maps.

**NIS slave server** – a client to the NIS master and a server that contains copies of all the maps.

**NIS client** – a host that binds to a NIS slave or master in order to obtain network information that resides in a server map.

## NIS concepts

1. If configured as a NIS server –
  - a. contains the following daemons: ypserv, ypbind, rpc.yppasswdd, ypxfrd, rpc.yupdated
2. If configured as a NIS slave –
  - a. contains the following daemons: ypserv, ypbind
3. If configured as a NIS client –
  - a. contains the following daemons: ypbind

## NIS directories and configuration files

**/var/yp** – repository directory for all NIS configurations.

**/var/yp/domainname** – directory that contains all the maps in the domain.

**/var/yp/securenets** – a file that limits access to NIS services.

Simple lines can be :

host	127.0.0.1	
host	10.0.0.1	
255.255.255.0		10.0.0.0

[After changing this file a restart to NIS services is required].

## NIS relevant commands

**CentOS 6:**

**/usr/lib64/yp/ypinit** – The command to initialize NIS configuration.

**service ypbind start** – The command to start NIS client service.

**service yppasswdd start**

**service ypxfrd start**

**service ypserv start** – The commands to start NIS server service.

**cd /var/yp ; make** – set of commands to update NIS maps.

**ypcat hosts** – a command to read a map. (in this example the map is hosts)

**ypmatch key map** – print the value of one or more keys from a nis map.

e.g – **ypmatch haim passwd**

**ypwhich [-m]** – returns the name of the NIS server that we are binded to.

-m – return the maps provided by this server.

## Best practice - NIS Server configuration

Step 1: Install NIS Server using yum

```
yum -y install ypserv
```

Step 2: Configure a domain name by typing:

```
domainname <domainname>
```

```
echo "NISDOMAIN=`domainname`" >> /etc/sysconfig/network
```

Step 3: Create /etc/yp.conf with the IP address of the NIS server.

```
echo "ypserver 127.0.0.1" >> /etc/yp.conf
```

Step 4: Start the ypserv and yppasswdd daemons.

```
service ypserv start
```

```
service yppasswdd start
```

```
service ypxfrd start
```

Step 5: Enable ypserv and yppasswdd services to start at boot.

```
chkconfig ypserv on
```

```
chkconfig yppasswdd on
```

```
chkconfig ypxfrd on
```

Step 6: Initialize the YP database

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

```
[root@cent66vm1 ~]# /usr/lib64/yp/ypinit -m
```

At this point, we have to construct a list of the hosts which will run NIS servers. cent66vm1 is in the list of NIS server hosts. Please continue to add the names for the other hosts, one per line. When you are done with the list, type a <control D>.

```
next host to add: cent66vm1
```

```
next host to add: <CTRL+D>
```

The current list of NIS servers looks like this:

```
cent66vm1
```

```
Is this correct? [y/n: y] y
```

We need a few minutes to build the databases...

```
Building /var/yp/grigale/ypservers...
```

```
Running /var/yp/Makefile...
```

```
gmake[1]: Entering directory `/var/yp/grigale'
```

```
Updating passwd.byname...
```

```
Updating passwd.byuid...
```

```
Updating group.byname...
```

```
Updating group.bygid...
```

```
Updating hosts.byname...
```

```
Updating hosts.byaddr...
Updating rpc.byname...
Updating rpc.bynumber...
Updating services.byname...
Updating services.byservicename...
Updating netid.byname...
Updating protocols.bynumber...
Updating protocols.byname...
Updating mail.aliases...
gmake[1]: Leaving directory `/var/yp/grigale'
```

cent66vm1 has been set up as a NIS master server.

Now you can run `ypinit -s cent66vm1` on all slave server.

## Best practice - NIS client configuration

Step 1: Install ybind

```
yum install ybind
```

Step 2: setup /etc/yp.conf to contain the following line:

```
domain <domainname> server <nis-server-name>
```

Step 3: Configure the NIS client by running ypinit -c

```
/usr/lib64/yp/ypinit -c enter all master and slave servers, press Control-D when finished.
```

Use the following answers when prompted for the following questions -

Is this correct: **y**

Do you want this procedure to quit on non-fatal errors? **n**

Step 4: Starting NIS daemons on the client

```
service ybind start
```

```
chkconfig ybind on
```

## Best practice - NIS Slave configuration

Step 1: Install ypbind

```
yum install ypbind
yum install ypserv
```

Step 2: setup /etc/yp.conf to contain the following line:

```
domain <domainname> server <nis-server-name>
```

Step 3: Configure the NIS client by running ypinit -c

`/usr/lib64/yp/ypinit -s` enter the master server and press Control-D when finished.

Use the following answers when prompted for the following questions -

Is this correct: **y**

Do you want this procedure to quit on non-fatal errors? **n**

Step 4: Starting NIS daemons on the client

```
service ypbind start
chkconfig ypbind on
```

## Best practice – Updating NIS master maps

Step 1: Update the relevant configuration files either by using Linux commands or by editing the relevant configuration files.

For example modifying a user shell -  
`usermod -s /usr/bin/tcsh haim`

Step 2: Compiling and updating NIS master maps

Change into /var/yp directory by using:

**`cd /var/yp`**

Compile the NIS maps by using:

**`make`**

If you compile /etc/auto.master or /etc/auto.home  
you should use:

**`make auto.master`**

**`make auto.home`**

Step 3: Check that the clients can view update configuration by using:

**`getent passwd haim`**