Introduction

PXES Universal Linux Thin Client (http://pxes.sf.net) is a micro distribution allowing to create or boot thin clients.

These thin clients could be a real thin client or any compliant PC hardware that you can turn into a thin client in minutes.
Installing components

Pre-Built images can be downloaded from SourceForge (http://sourceforge.net/project/showfiles.php?group_id=45684&package_id=60463&release_id=239615)

Selecting boot method

The image to download and the install depend on the boot method you will be using.

<table>
<thead>
<tr>
<th>Boot method</th>
<th>Type</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootable ISO</td>
<td>Local</td>
<td>pxes-0.8-17PB-NX.iso</td>
</tr>
<tr>
<td>PXE, GRUB (pxegrub)</td>
<td>Network</td>
<td>pxes-0.8-17PB-NX.squash</td>
</tr>
<tr>
<td>Etherboot, GRUB (nbgrub)</td>
<td>Network</td>
<td>pxes-0.8-17PB-NX.nbi</td>
</tr>
</tbody>
</table>

The simplest method to test the Pre-Built image is to download the bootable ISO, burn the CDROM and boot any PC.

Native PXE boot requires support by NIC and BIOS. Some bootloaders can simulate a PXE boot.

Etherboot (http://etherboot.sf.net) boot requires a supported NIC and corresponding ROM image that is usually booted from a diskette.

Network boot requires some services like DHCP and TFTP to be functional and configured to support it, and some other files to be in place.

Booting the thin client

Selecting a LOCAL session

After booting you will see a simple desktop like the one presented here.

This simple desktop is the core of the PXES Universal Linux Thin Client LOCAL session, presenting the icons to access the clients configured in the image.
**Launching NX Client**

Click (single click) on the “NX Client” icon to launch NX session wizard.
Session settings

Select the desired desktop settings.

Select a smaller desktop size than the actual resolution used by the thin client to being able of handling the window.

Desktop settings

Select the desired desktop settings.

Select a smaller desktop size than the actual resolution used by the thin client to being able of handling the window.
**Finishing configuration**

Uncheck the “Create shortcut on desktop”. As PXES filesystem is mounted read only it is impossible to create such shortcut in a typical situation.

Then press “Finish” to end the configuration step.
**NoMachine NX server login**

Login using the corresponding username and password. This username should have been configured previously on the NoMachine NX server.
Accepting host authenticity

Established session
The new session window is presented on the desktop.
Remote configuration

One of the most important features of PXES Universal Linux Thin Client is the ability to load its configuration from a remote server.

This configuration is obtained by TFTP protocol, so TFTP server should be active in the configuration server.

**Remote configuration server name**

The remote configuration server name is determined by

- Kernel command line parameter CONFIGURATION_SERVER_NAME (cse)
- DHCP option tftp-server-name
- DHCP option next-server if the special value '$NEXTSERVER' is specified in CONFIGURATION_SERVER_NAME
- preconfigured server name (confserv). A DNS alias could be required
Remote configuration directory
The preconfigured remote configuration directory is `/pxes/config`.
Can be altered passing the kernel command line parameter
CONFIGURATION_DIRECTORY (cdir)

NX remote configuration directory
The NX configuration is searched in `$CONFIGURATION_DIRECTORY/nx`.
File found here are used to configure the NX session.
Those files are parsed and some variables are replaced by their actual values.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX_SERVER_NAME</td>
<td>NoMachine Server name or IP address</td>
</tr>
</tbody>
</table>

Next release will include some more variables to control NX session from configuration files.

NX remote configuration files
The following files are searched to configure the thin client.

known_hosts
The NoMachine NX server public key.

nxclient.conf

```xml
<!DOCTYPE NXClientSettings>
<NXClientSettings application="nxclient" version="1.3" >
<group name="General" >
<option key="Default font" value="Sans,10,-1,5,50,0,0,0,0" />
<option key="Last session" value="PXES" />
<option key="New Fixed font" value="Fixed,10,-1,5,75,0,0,0,1,0" />
<option key="Personal NX dir" value="/root/.nx" />
<option key="Remove old sessions" value="true" />
<option key="System NX dir" value="/usr/NX" />
</group>
</NXClientSettings>
```
PXES.conf

<!DOCTYPE NXClientSettings>
<NXClientSettings application="nxclient" version="1.3">
<group name="Advanced">
<option key="Cache size" value="1" />
<option key="Cache size on disk" value="0" />
<option key="Current keyboard" value="true" />
<option key="Disable TCP no-delay" value="false" />
<option key="Disable ZLIB stream compression" value="false" />
<option key="Enable SSL encryption" value="false" />
<option key="Other keyboard" value="0" />
<option key="Restore cache" value="true" />
</group>
<group name="General">
<option key="Backingstore" value="when_requested" />
<option key="Desktop" value="GNOME" />
<option key="Link speed" value="lan" />
<option key="Remember password" value="false" />
<option key="Resolution" value="640x480" />
<option key="Resolution height" value="600" />
<option key="Resolution width" value="800" />
<option key="Server host" value="172.16.170.1" />
<option key="Server port" value="22" />
<option key="Session" value="Unix" />
<option key="Use default image encoding" value="0" />
</group>
<group name="Login">
<option key="Auth" value="" />
<option key="Password" value="" />
<option key="User" value="pxes" />
</group>
<group name="Services">
<option key="Audio" value="false" />
<option key="Shares" value="false" />
</group>
<group name="VNC Session">
<option key="Password" value="" />
</group>
<group name="Windows Session">
<option key="Password" value="" />
</group>
</NXClientSettings>
Selecting NX session

Another alternative is to use the NX session to go directly to the NX login. This is achieved appending SESSION_DEFAULT=nx to kernel command line.