

# Using Mosix with LTSP

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Relevant links:

- <http://www.mosix.org/>
- <http://www.ltsp.org/>

## 1 Why use Mosix with LTSP?

LTSP(The Linux Terminal Server Project) allows clients to run Linux(remote X) without needing disks, using only some data on a network card or a simple boot floppy disk. For more info on LTSP, see <http://www.ltsp.org/>

Mosix is a set of kernel patches and a few utilities that allows Linux processes to be migrated from one host to another. This allows heavily used machines to migrate processes to machines with a lower load. There are almost no limits to this: harddisk and other resources can be accessed by the migrated processes as usual and they seem in all ways to be running on the server. See <http://www.mosix.org/> for more info about Mosix.

Client machines running LTSP only have to run a X server or a telnet session. Since these tasks are (on modern machines) not very processor-intensive and all programs the user behind the client are actually runned on the server, Mosix could speed up your server a bit.

## 2 Step 1: Installing Mosix on the server

The first thing we have to do is to install Mosix on the server. Download the latest version of Mosix from the net.

*NOTE: Always make sure you can boot your old kernel using loadlin or lilo. If the newly installed kernel doesn't work, you can always switch back to your old kernel and repair any problems*

You can choose either for the pre-compiled kernel RPM(advisable when you haven't compiled any kernel before) or use the kernel-patches. The pre-compiled kernel has support for both uni-processor and SMP, with no sound, video for Linux and joystick support. If you want support for, for example, sound, you have to compile the kernel yourself.

### 2.1 The pre-compiled kernel

Download the following files:

- `ftp://ftp.cs.huji.ac.il/users/mosix/RPMs/mosix-redhat-0.97.8-2.i386.rpm`
- `ftp://ftp.cs.huji.ac.il/users/mosix/RPMs/kernel-mosix-0.97.8-2.2.17.i386.rpm`

Now, install the RPM's:

```
$ rpm -Uvh kernel-MOSIX-0.97.8-2.2.17.i386.rpm
$ rpm -Uvh mosix-redhat-0.97.8-2.2.17.i386.rpm
```

Then reboot your system and everything should work properly.

## 2.2 Compiling the kernel yourself

A good document about how to configure and compile the kernel can be found in the Kernel Howto<sup>1</sup>

In order to apply the Mosix patches, you need something to patch to: the Linux kernel. Make sure you have the sources of kernel 2.2.17 installed.

Download the sources of Mosix:

```
ftp://ftp.cs.huji.ac.il/users/mosix/MOSIX-0.97.9.tar.gz
```

Next, unpack them and start the mosix installation process: (assuming you placed the *MOSIX-0.97.9.tar.gz* file in */root/mosix*)

```
$ cd /root/mosix
$ tar xvfz MOSIX-0.97.9.tar.gz
README
kernel.new.2.2.17.tar
patches.2.2.17
user.tar
manuals.tar
install.src.tar.gz
mosix.init
mosix.install.perl
mosix.install
scripts/
scripts/backup_kernel
scripts/redhat_atd
scripts/redhat_inetd
scripts/redhat_inittab
scripts/redhat_slocate
$ ./mosix.install
```

Follow the instructions that appear on your screen.

You should in both cases modify the */etc/mosix.map* file and change it according to your network. See *man mosix.map* for more information.

## 3 Installing or compiling the client's kernel with mosix support

Next, you can either download a precompiled kernel or compile your own kernel.

<sup>1</sup><http://www.linuxdoc.org/HOWTO/Kernel-HOWTO-1.html>

### 3.1 Downloading a precompiled kernel

I made some precompiled kernels with Mosix support:

- <http://www.nl.linux.org/~jelmer/vmlinuz-mosix.ne2000>
- <http://www.nl.linux.org/~jelmer/vmlinuz-mosix.all>

### 3.2 Compiling your own kernel

Just follow Scott Balneaves's LTSP Kernel Building HOWTO <sup>2</sup>, but patch the kernel first: (I assume your kernel sources are in */usr/src/linux* and your mosix sources are in */root/mosix*)

```
$ cd /usr/src/linux
$ patch -p0 /root/mosix < patches.2.2.17
```

Move the kernel you downloaded or compiled to */tftpboot/lts*

Next, we should make sure the XServer process on the client won't be migrated. Add the following line to the beginning of */tftpboot/lts/ltsroot/etc/rc.local*, after the line with *PATH=...*:

```
echo 1 > /proc/mosix/admin/stay
```

Link the *mosix.map* file:

```
$ ln /etc/mosix.map /tftpboot/lts/ltsroot/etc/mosix.map
```

Some tips from Tim Chapman to get it all working:

- use slightly older version of LTSP which has better "local app" support
- disable NIS, create shadow/passwd files in the */tftp/...lts/etc* path to permit login to nodes via telnet.
- in same directory, tweak *inetd.conf*, as well as *mosix.map* and "hosts" file. Copy into this tftp structure the "user" files for mosix. Add a mosix startup script into the *rc.local* for the nodes.

Everything should work now. Start the client to test the new setup.

More (updated) information can be found at: <http://www.lpmo.edu/~daniau/lts-mosix/>.

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<sup>2</sup><http://www.ltsp.org/documentation/kernel.html>