CLTC Documentation Sheet 1/C:
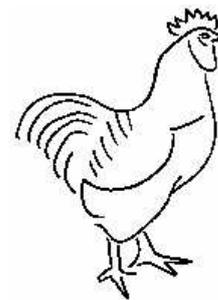
Installing the CLTC's Client Systems

Developed by The 'Free Range' Community–Linux Training Centre Project -
Version 1.0, January 2003.   http://www.fraw.org.uk/cltc/

"Today we are witness to a convergence of the computerized activist and the politicized hacker. This coming together of forces will open up unforeseen doors and possibilities. As a way to envision what this hybridized activist-hacker might engage in, it is instructive to borrow the metaphor of civil disobedience with its tactics of trespass and blockade."
Stefan Wray, *Transforming Luddite Resistance into Virtual Luddite Resistance*

This sheet looks at the configuring the CLTC's client systems. There is no one way of doing this because different Linux distributions have slightly different methods of installation. They also organise the graphical desktop and some of the Linux configuration files slightly differently too. Therefore this sheet concentrates on the issues related to client installation, and the configuration of the various programs and network clients after installation.

Selecting a distribution

There are many Linux distributions. Some are highly specialised. Some are wholly general purpose. All install with varying degrees of success on different laptops. For the CLTC, the main concern is getting an installation that can function well enough to allow people to train in ICT skills, but that is not so poor as to be unusable.

Various distributions have been installed to see how they perform on the CLTC'c client machines:

- Red Hat Linux 7.1.
- Red Hat Linux 7.3.
- SuSE Linux 7.3.
- SuSE Linux 8.1.
- Mandrake Linux 8.2.

As noted elsewhere, we use these distributions because we have been able to obtain them for free from Linux users.

There are some problems with each of these installations. Red Hat 7.1 does not have audio drivers suitable for the Dell laptops. Mandrake seems to hiccup over the fact that the floppy drive is not plugged into the swappable CD-ROM/floppy drive bay, and it can't locate the sound card. Of the three, SuSE seems to have the most flawless desktop system, albeit there seem to be a few glitches when you run the Gnome (1.2) desktop system.

In the end, after long experimentation, we settled on SuSE 8.2. It gave the best driver support for the Dell laptops, and this in turn allowed better use of the multimedia packages that can be installed as part of the SuSE distribution. Using one distribution also meant that we could install all the clients identically, making it far easier when teaching users to use the desktop.

For those seeking to replicate the CLTC, especially using laptops, finding the right distribution, or mixture of distributions, is really a matter of trial and error.

Post-install configuration

As noted above, all the distributions have slightly different installation processes. They also install slightly different combinations. From here on we'll assume that you have installed the distribution with the '*KDE*', '*Gnome*' and '*Laptop*' groups of packages. You've also booted up the system, and are logged in as root.

We'll also assume that you have the CLTC server system installed, at least from Documentation Sheets 1B through to 7, so that your network is operating fully. We also assume that you've plugged the client into the network, and that it has been assigned a network address by the server. You can check this with the `ifconfig` command to find out the IP number for the `eth0` interface:

```
/sbin/ifconfig
```

On the CLTC, we modify the behaviour of the `Ctrl-Alt-Del` buttons. Normally this causes Linux to restart. We like it to shutdown instead. The reason for this is that it allows us to shutdown the training centre really fast by pressing `Ctrl-Alt-Backspace` to crash out of the X server, and then `Ctrl-Alt-Del` to force a system shutdown.

We change the behaviour of the `Ctrl-Alt-Del` keys by editing the `/etc/inittab` file, changing the line:

```
# Trap CTRL-ALT-DELETE
ca::ctrlaltdel:/sbin/shutdown-t3-r now
```

to:

```
# Trap CTRL-ALT-DELETE
ca::ctrlaltdel:/sbin/shutdown -h now
```

SuSE Linux, which was eventually used on all the client machines, has a graphical interface for the configuration of the system called '*YaST2*'. The next stage is to configure the client machine with *YaST2*.

Firstly we configure the sound card. Run *YaST2*, then select *Hardware*, then select *Sound*. Sound is a problem with the Dell laptops. We have to configure sound manually. To begin we select 'Add'. Then find the driver for the '*Cirrus Logic CD4232*', and then select the '*SIC Crystalwave 32*' option and click '*Next*'. Select '*advanced setup*', click next, and then configure the following setting (all

others should be blank):

```
snd_cport      0x538
snd_dma1       0
snd_dma2       5
snd_irq        5
snd_isapnp     0
snd_port       0x530
```

To complete this, complete installation of the sound card, and then click 'Finish'.

Now we configure networking. First of all we have to create some directories to mount networked file systems upon. We will create the mount points in a new directory, `/home/cltc`. We create this directory as follows (this example is for the *alpha* client):

```
mkdir /home/cltc
mkdir /home/cltc/www
mkdir /home/cltc/export
chown -R alpha.users /home/cltc
chmod -R 777 /home/cltc
```

This creates a open directory held by the main user of the client machine.

Returning to YaST2, click on '*Network/Advanced*' and then '*NFS Client*'. Add the following two NFS entries:

First entry –
Server,	192.168.66.1
Remote fs,	/var/www
Mountpoint,	/home/cltc/www
Options,	defaults

Second entry –
Server,	192.168.66.1
Remote fs,	/home/export
Mountpoint,	/home/cltc/export
Options,	defaults

After clicking 'Finish', the required NFS entries are made to the `/etc/fstab` file.

To enable mounting and unmounting of the NFS system users need to have access to the `mount` and `umount` commands. By default this is restricted to the *root* user. To make life easier we allow users to use `mount` and `umount` the NFS system under the `sudo` command, and for simplicity, wrap all this up in a script which can be run from the desktop.

First, as *root*, we edit the `/etc/sudoers` file, adding the following two lines (this example is for the *alpha* client):

NFS Mount/Unmount Scripts

NFS mount script –
```
#!/bin/sh
sudo mount 192.168.66.1:/home/export /home/cltc/export
/opt/gnome2/bin/nautilus /home/cltc/export
```

NFS unmount script –
```
#!/bin/sh
sudo umount /home/cltc/export
```

Now we select the printer driver. First, select the `HP Deskjet 340C` driver, click Next, and then select the `monochrome 300dpi` option. Click Next, and then set the new configuration by clicking the *Finish* button.

```
alpha ALL=NOPASSWD:/bin/mount
alpha ALL=NOPASSWD:/bin/umount
```

This permits the alpha user to access `mount` and `umount` if they prefix the command with '`sudo`', and they do not have to supply a password to enable this.

Now we have to create two scripts, `nfsmount` and `nfsumount`. These load and unload the `/home/export` directory of the CLTC server. The content of the two scripts is given in the box over the page. The first script mounts the remote '`export`' directory, and then opens a directory window of it. The second script unmounts the directory.

Note that the scripts only deal with the main 'export' directory. The '`www`' directory need only be mounted/unmounted as part of maintaining the web servers. This does not form part of the ordinary tuition, and so we would expect those using this directory to do all the mounting/unmounting manually.

Finally, we configure the network printer. We do this using the *YaST2* system. Open *YaST2*, select *Hardware* and then *Printer*. First of all we click on the *Configure* button. This puts up a list of printer types. Networked printers are not on this list so we select *Show more connection types* and then click *Next*.

From the list of network printing options we select *LPD Filtering and Forwarding Queue* and then click *Next*. On the next page we enter the host name of the printer server, `cltc.lan`, and the name of the remote queue, `Deskjet_340C`, and then click *Next*. We then enter the local name for the printer, `network`, and provide a general description of the type and location of the printer, and then click *Next*.

Network client configuration

It's not really part of 'networking'. But the first thing we do is install *Star Office 5.2*. On the Red Hat *Star Office* CD (SuSE now carry only *OpenOffice*, not *Star Office*), only one user account can use *Star Office*. Therefore we wait until we've finished the post-install configuration and have logged out of root, and into the client's user account, to install the program. We do this by running the *Star Office* binary files (`so-5.2`, etc) in the `/uk` directory of the *Star Office* CD.

Once Star Office is installed, it's useful to configure it. For good practice, we'll create two directories in the client's home directory, `workspace` and `backups`. We then make the default directories for storing documents, or finding graphics, the `workspace` directory. Then, we set Star Office to create backup copies of edited documents in the `backups` directory. Many other programs offer the same options, so we can replicate these setting for other applications too.

The next thing to do is create a standard desktop full of icons (see screen shot and list on next page). One of the annoying thing about different Linux distributions is that even on a fairly standard desktop, like Gnome or KDE, the start menu is arrange according to very different rules and classifications. Therefore we dump a load of icons onto the desktop to make it easier for people to locate applications.

The desktop we use for training is *Gnome*. It's not as Windows-like as the other widely used desktop, *KDE*. But we find it's more time efficient than *KDE* on slower systems, and its
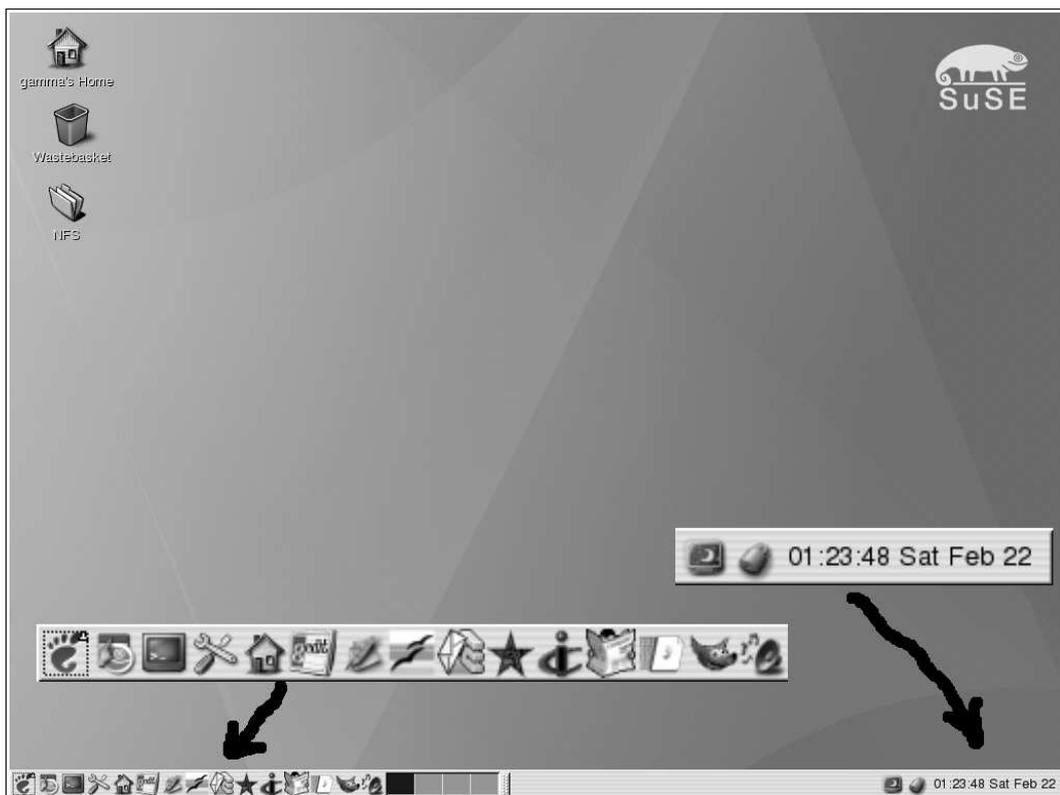
comparative lack of functionality makes it far easier to use as a teaching platform. The lack of complexity means that it's simpler to use.

We could dump losts of icons on the desktop using the '*New Launcher*' dialog (right click on the desktop for this). Instead we add them to the taskbar at the foot of the screen where they produce less clutter (right click on the taskbar and select '*Add to Panel*').

Standard icons for client desktop

On the desktop –
 Home directory
 Wastebasket
 NFS 'mount' script

Left side of taskbar (from left to right) –
 Gnome menu button
 Yast2
 Terminal
 Window manager
 Home directory
 gEdit
 Star Office
 Open Office
 KMail
 Mozilla
 KsIRC
 Knode
 gFTP
 The Gimp
 XMMS

Right side of taskbar (from left to right) –
 Logout
 Lock screen
 Time and date

The applications chosen for inclusion on the taskbar are those used as part of most training. Other applications can be selected from the menus access from the Gnome button.

When the desktop is set up, we move on to setting up networking applications. Firstly we create ssh keys and upload them to the CLTC server. The easiest way to do this is to create the keys using the following commands (this requires that NFS is working and mounted):

```
mkdir .ssh
cd .ssh
ssh-keygen -t rsa
cp id_rsa.pub /home/cltc/export
```

This creates the .ssh directory and the keys, and then moves the key to the server via the export directory. Then, at the server end (for this example we are logged in as *alpha*), we enter the following commands:

```
mkdir .ssh
cp /home/export/authorized_keys2
        /home/alpha/.ssh
```

This creates the remote .ssh directory and moves the key to it. We can now test SSH by logging into the CLTC server, which will also locally log the CLTC server's host key, using

the command:

```
ssh cltc.lan
```

New we begin to configure the various desktop and networking applications. Let's start with the *Mozilla* web browser. We need to point it at `http://www.cltc.lan/` as the home page.

Next we need to generate a GPG key pair for the client. We do this with the following command:

```
gpg --gen-key
```

This creates a basic configuration (what follows is an example for the *alpha* client). You then have to run the program again to create the encryption key pair. Keep the default selections, and then enter the data for the user:

Real name - `The Alpha System`

Email add. - `alpha@cltc.lan`

Ignore the 'comment' by just pressing return. Then OK the summary. Then for the passphrase use:

```
The Alpha System
```

We now need to create a usable version of our public key to share with the other clients in the *export* directory. To do this we use the commands:

```
gpg --export --armor -o alphakey.asc
cp alphakey.asc /home/export
```

Assuming you've created the keys for the other clients and dumped them in the exports directory, you can now import them for use. You do this (with *beta's* public key as an example) using the command:

```
gpg --import
       /home/cltc/export/betakey.asc
```

Having done this for a number of keys you can review your current key ring using the command:

```
gpg --list-keys
```

Now we can configure KMail. The *Configuration* options are available via the *Settings* menu. Under the *Identity* icon, with the *General* tab selected, we configure the following:

Name –   `The Alpha System`

Email add. -   `alpha@cltc.lan`

Now click the *Advanced* tab and set the reply address to `alpha@cltc.lan`. Now we click on the *Signature* tab, check the *Enable Signature* box, select *Obtain text from input field below*, and then type an email signature in the text box.

Now click the *Network* icon, then click on the *Sending* tab. Click *Add*, select *SMTP*, and then enter the following information:

Name   `Alpha`
Host   `smtp.cltc.lan`
Port   `25`
Login   `alpha@cltc.lan`
Password   `alphapass`
Check '*Server requires authentication*'
Check '*Store SMTP password*'

Under common options, make sure that the check boxes are unchecked, *default send method* is set to *send later*, and *message property* is set to *MIME*.

Now click the *Receiving* tab. Click *Add*, select *Pop3*, and then enter the following information:

Name   `Alpha`
Login   `alpha`
Password   `alphapass`
Host   `mail.cltc.lan`
Port   `110`
'*Destination folder*', `inbox`
Check '*Store POP Password*'
Check '*Delete mail from server*'

Under new mail notification, the *Beep* and *Display Message Box* options should be checked.

Next click on the *Composer* icon. The options *automatically append signature*, *use smart quoting* and *word wrap* options should be checked. If you check the *automatically sign* or *automatically encrypt* options people will have to supply the GPG passphrase whenever they use email (so we don't usually check these).

Now click on the *Security* icon, and then on the *OpenPGP* tab. The *select encryption tool* option should be set to *GnuPG*, and the four check boxes should all be checked.

Click on the *Miscellaneous* icon. Make sure that the following are checked (everything else can be unchecked):

```
Confirm before emptying folders
```

```
Warn before expiring messages
Compact all folders
Empty trash
```

Now we click *OK*, and then quit *KMail*, and then restart it. The last stage is to select a GPG key for use with signing/encryption. Return to the *Configure* dialog, select the *Identity* icon, and then click the *Advanced* tab. On the *OpenPGP* line click the *Change* button, select the encryption key for the client, and then click *OK*, and then click *OK* on the *Configure* dialog.

This completes the configuration of *KMail*.

Next we'll configure *KNode*, the newsgroup reader. First click on the *Settings* menu, then on *Configure KNode*. Under the Identity icon configure the following:

```
Name –          The Alpha System
Email add. –    alpha@cltc.lan
Reply to add. – alpha@cltc.lan
```

Then, as with KMail, check *Specify signature below* and provide an email signature.

Now click the *Accounts* icon, to open it up, and then click on *News*. Click the New button. Under the tab marked *Server*, insert the following details:

```
Name  - CLTC News Server
Server - news.cltc.lan
Port  -   119
```

...and check the *Fetch group descriptions* option.

Then select the *Identity* tab. Here you just copy the details you entered earlier for the Identity icon. When that's done, click *OK*.
You've now created a `CLTC News Server`

account. Click on the account to highlight it and then click on the *Subscribe* button. This should bring up a new dialog which lists the available newsgroups on the CLTC server. Check the three *cltc.* newsgroups, and then click *OK*.

Now click on the Mail option of the Accounts list. Set the server name to `smtp.cltc.lan`, and the port to 25.

Now click the Signing/Verifying option. The *select encryption tool* option should be set to *GnuPG*, and all four check boxes should be checked. Then click *OK* on the *Preferences* box to store the configuration.

Finally, click on the *Account* menu and then *Get New Articles* option to read the current articles for the CLTC newsgroups. This completes the configuration of *KNode*.

Next we open *gFTP*. All we do here is login into `ftp.cltc.lan` in the name of the client machine. This means that when the program is opened in the future the default settings will appear on the drop-down list.

Next we open *KsIRC*. Click on the *Connections* menu, and then click on *New Server*. Set Server/Quick Connect to `irc.cltc.lan` and click on the *Connect* button. This will preset the connect option at the right address.

To finish off, we test run all the other programs on the desktop. This initialises them, e.g in the case of The GIMP, but mainly we're just checking that they function properly.

This completes the configuration of the client machine.