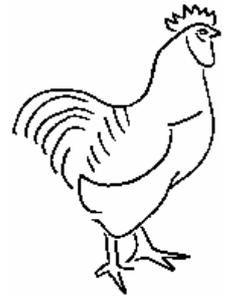


CLTC Project Information Sheet 3:

Using Email



Developed by The 'Free Range' Community Linux Training Centre Project –
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This briefing looks at how email works, and how email can be practised on the Community Linux Training Centre. It also looks at some of the applications of email, such as lists.

Electronic mail

Email – electronic mail – is one of the fundamental protocols of the Internet. From the first development of the Internet, email has been one of its primary uses. Millions of email are sent every day across the Internet – millions more across local networks in offices.

Email is run by mail server machines connected to the Internet. To access email you use an email client program, such as *KMail*. When you send mail it goes from your email client to a mail server. That mail server then passes it on to another mail server registered as handling the mail for the destination address. In turn, that mail server may pass the mail on again, and again, until it reached the mail server of the person for whom the mail is intended.

Everyone who uses email has an 'identity'. The email address is made up of a name, and then a server address. For example, `a.person@emailserver.org`. This identified the person of a user of the 'emailserver.org' system. This can act as a vital clue for people who wish to find out more about you, or track your work on the Internet.

Even if you encrypt you email, to prevent people reading it, the 'traffic data' (the email addresses and server information attached to the email) can still be read and used to map your work online.

Email is text-based. Recently some email systems (e.g. Microsoft *Outlook*) have been using Hyper-Text Mark-up Language (HTML), similar to the marking up of web pages. Although this adds emphasis to the text of the email, it also significantly enlarges the size of the email. It also really annoys those who do not use HTML-enabled clients because it makes the email pretty unreadable.

Although email is text based, you can attach files to the email. Files – no matter what they are – are read and encoded as a large block of text suitable for transmitting within emails. There are various forms of encoding, and it important that those communicating with each other

share a common method of encoding attached files.

Email is a 'point to point' system. The information moves from one named location to another. A key development in the usefulness of email has been the 'email list'. A list is, at its simplest, a unique email address with a list of email addresses associated with it. By sending an email to the list's address, the mail server will forward that email to all the other email addresses associated with the list. People can then reply to your email the same way. It's therefore a way of having a dialogue online.

Email lists have also been refined. Many email lists maintain an archive of all the email that has been transmitted through the list. This means that those on the list can access the information via the world-wide web, and those new to the list can look back and see what sort of things have been discussed on the list.

Another development from the email system is 'Internet Network News'. It works in a similar way to email – but it will be dealt with in another information sheet because it works slightly differently to email (but if you can master email, you can master newsgroups).

Email on the CLTC, using KMail

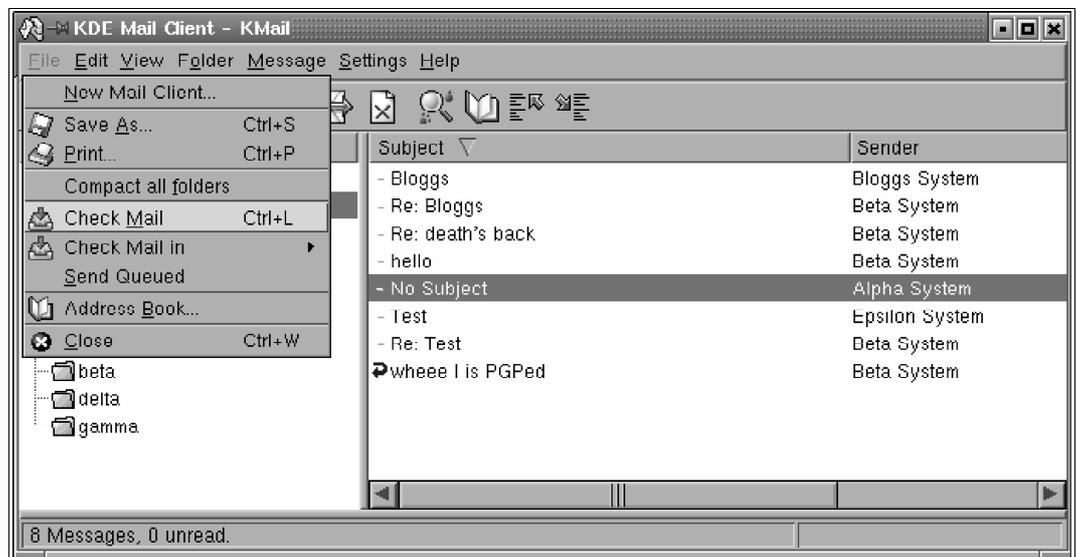
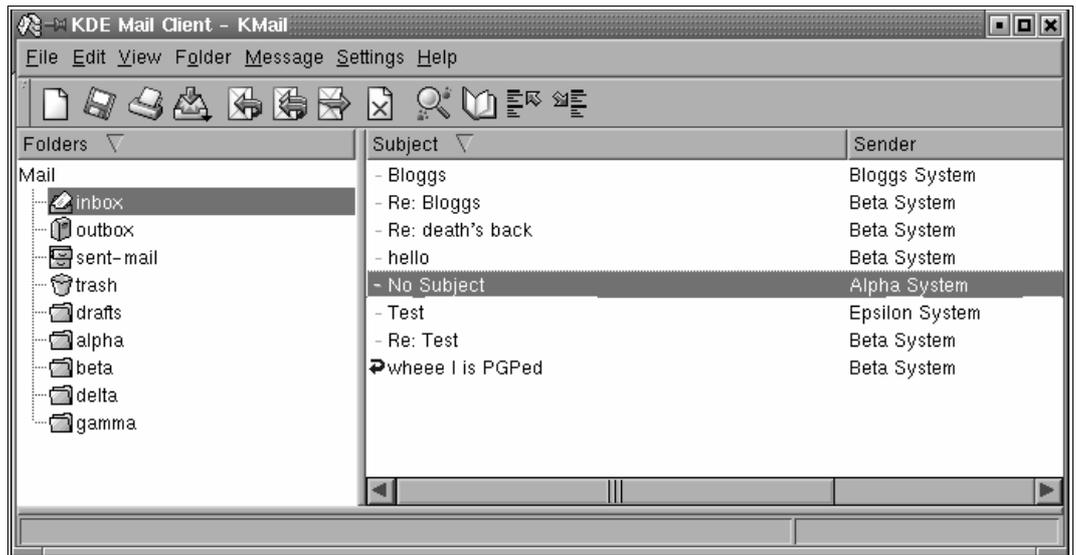
The Community-Linux Training Centre is a closed network. Mail does not move in or out of it. It has just one mail server which handles all the mail for the system. Each of the CLTC client machines has its own email addresses. Each client can send email to the others. To simulate a dial-up Internet connection, email is sent to the server, and then read from the server, with an email client program. However, with Linux it is possible to automate this process if you were working over an ordinary local network, such as within an office.

For information on the email addresses used with your particular client machine, read the 'client configuration sheet' for your machine (each of the clients – alpha, beta, gamma and delta – have their own configuration sheet). These sheets also give you the passwords you need.

On the CLTC we use KMail as the email client (see right).

KMail has three distinct parts – the taskbar and menus at the top, a window with email folders on the left, and a display of the emails held in the currently selected directory on the right. On the CLTC the screen is configured only with these two main windows. But if you click on the bar at the foot of the screen and drag it upward, it produces a third window. If you click on a message, it will be displayed in this window.

To read mail from the server click on 'File', and then move down and click 'Check mail' (see right). This makes the email client negotiate with the mail server to download your email. If there is email waiting, you will see a display in the status bar at the bottom of the KMail window. If not, after a few moments, it just goes back to its normal state.



Downloaded email is placed in the folder called 'inbox'. If you have more than one email address, you can configure KMail to download email to different folders. There is also a feature called 'filters' – present on most email clients – that reads the email as it is downloaded. It is then 'filtered' to a particular folder depending on who/where it has come from, or because parts of the email contain certain sequences of words. For the moment, this briefing only considers using email in general, not configuring KMail in detail (KMail has 'help' pages to inform you on configuration).

As the email downloads – if you have the 'inbox' folder selected – you will see the messages filling the display window. As noted above, if you drag the divide from the foot of the main KMail window, the text of emails will be displayed at the foot of the screen. But in such a small space it is hard to read. So to read email on the CLTC clients, double-click on a particular email message and it will be displayed in a large window on its own.

When you have finished reading you can close the win-

dow. But you can also leave the window open and cut and paste the text from the email to other KDE applications as you work.

You can tidy up email by moving it from one folder to another – to save them for future reference. From the inbox (or any other) folder, click and hold down the mouse button on the email, then drag the pointer over to the folder you wish to move it to and release the mouse. The mail will now disappear from the inbox folder. If you click on the folder you moved the email to, you should see it there. You can also delete email to the 'trash' folder by selecting the email and then press the 'Del' key. Usually, the trash folder is emptied every time you exit the KMail program.

Sending email

To send a new email, click on the 'Message' menu and then 'New Message' – or instead just click the first button on the task bar (the blank sheet of paper). This will cause a blank email window to pop-up (see right). You can now

write your email message.

The taskbar of KMail contains a number of useful buttons (below). The first button queues the email so you can send it later. The second queues the mail, but then tries to contact the server to send it immediately. The third button opens a 'new email' window again, and the fourth prints the current contents of the email. The fifth and sixth buttons undo and redo your last editing actions (useful if you make a mistake). The next three buttons are used to cut, copy and paste text. Finally, the 'book' button opens the KMail address book, where you can store people's email addresses for later use. The 'paper clip' button attaches files to the email (discussed in detail later).

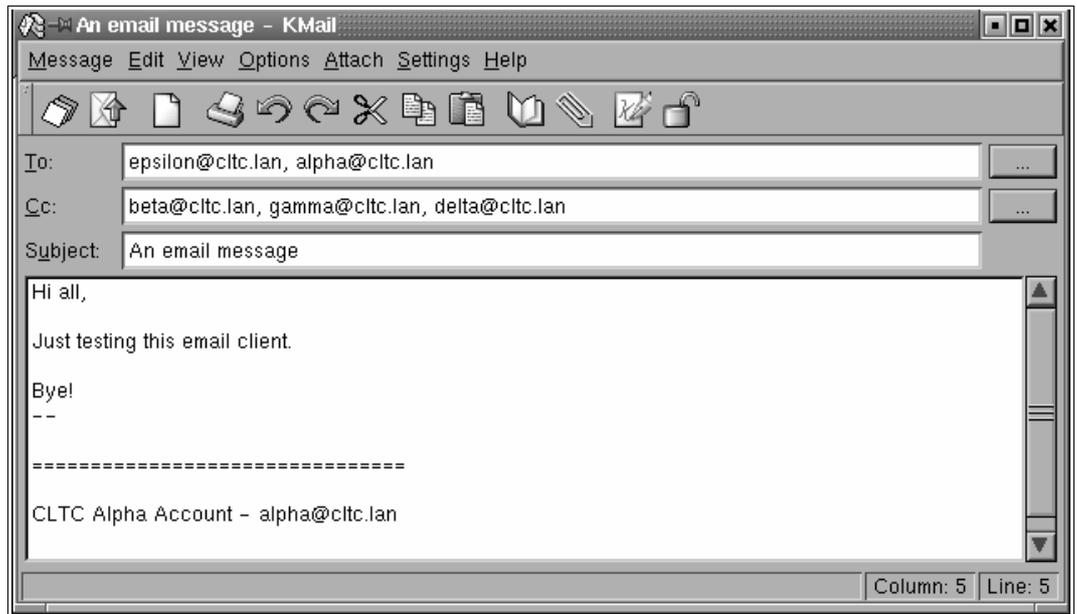


When creating an email one of the first things to do is enter the details of who you want to send it to. This information is entered at the top of the email:

- The 'To' box indicates who the email will be sent to. This can be one, or one hundred people (generally, the restriction is around one to two hundred because email servers themselves limit the numbers of people that can be mailed in a single email). When using more than one address, separate them with a comma and a space.
- The 'Cc' (or 'carbon copy') box indicates who the email will also be circulated to. This is pretty much the same as if the email had been sent 'to' the person. But by using the 'To' and 'Cc' boxes you can indicate who you are addressing in the email, and who you're just sending copies of it to.

There is also another box, not shown here, called 'Bcc' – 'blind carbon copy'. To enable a Bcc option click on the 'View' menu option, and then check the 'Bcc' option. Bcc circulates the email like Cc, but it does not display any of the email addresses from the Bcc box. This is really useful because if you wanted to forward a message to a large number of people, but did not wish to disclose your distribution list, you put all the addresses in the 'Bcc' box. All those receiving the email then see '*Recipient list withheld*' or some such message. Of course, you still have to send it to someone – usually when using Bcc you send it to yourself.

Next you need to give your email a title in the 'Subject'



box. The subject should be descriptive of the email's content or purpose.

You can now enter the text of your message. When finished, you click on either the 'queue' or 'queue and send' buttons to store the email. The contents of the email are not saved in any way until you click one of these two buttons. Queued email is held in the 'outbox' folder.

Depending on who has been using the CLTC system before you, you may get the following window pop-up when you click on the 'queue' button:



The reason for this is because 'email signing' has been enabled. This is discussed later in the briefing. You can enter the passphrase for the encryption key of your CLTC client machine. Alternately click 'Cancel' – which returns you to your email. You then click on the button to clear the email signing (see right). If you press the 'queue' button again now, you shouldn't get the request for the PGP passphrase.



To send queued email, you select 'File' and then click on 'Send queued'. When KMail has finished sending the email it moves the mail to the 'Sent mail' folder. If there is a problem with any of the email, sending will stop – blocking the sending of any email in the folder after it. In this case you can 'edit' the email, and send again.

Working with email

When you've downloaded email, new messages are initially highlighted in red (see below, top). However, if you switch to another folder and come back again, they will be highlighted in another colour (usually blue).

You can now select and email with the mouse in order to read or work with it. If you double click on an email a new window pops-up with the content of the email (see below, bottom). The 'header information' – the subject line, email addresses, etc. – is given at the top, before the text of the email. You can change the amount and detail of header information displayed by clicking the 'View' menu, and then selecting the appropriate level of information you require (this is discussed later).

To make life easier, there are short-cut buttons on the KMail taskbar:



The first one creates a new window with a blank email message. The second saves the currently selected email as a text file. The third prints the email to your printer. The fourth makes KMail contact the mail server to check if there is any mail waiting.

The fifth, sixth and seventh are very important:

If you have an email, and you wish to reply to its sender, clicking the fifth button – 'reply to' – opens a new email window. It also: inserts the reply address from the original email in the 'To' box of your email; inserts a copy of the subject with 'Re:' in front of it; and inserts a copy of the email text in the body of the new email. It also puts a '>' character in front of each line of the original email text so that you can distinguish the original email text from your own.

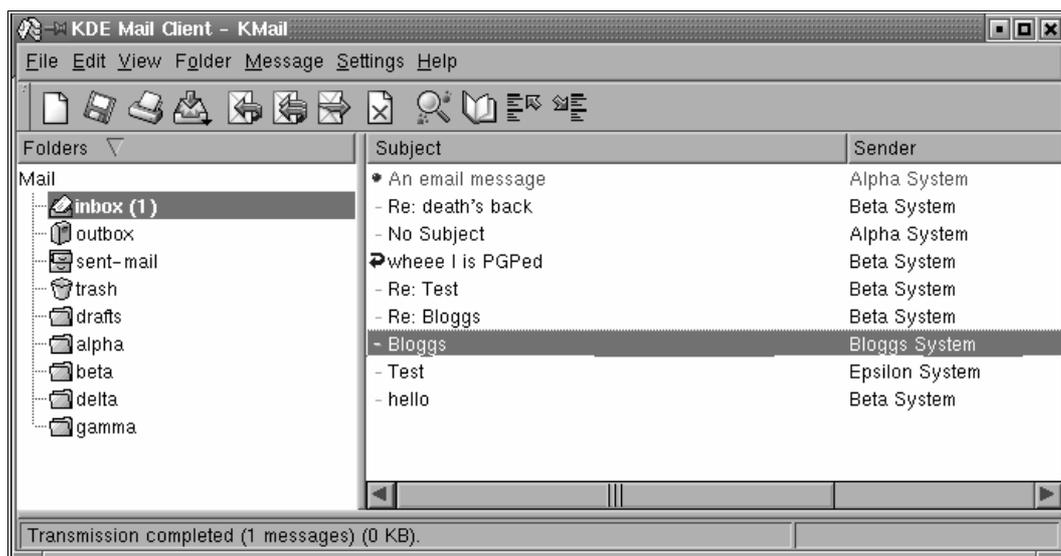
Clicking the sixth button

– 'reply to all' – does the same as 'reply to', but copies to all listed in the original email. It puts not only the reply-to address of the sender into the 'To' box – it copies the whole content of the 'To' and 'Cc' boxes and puts them in your new email as well.

Clicking the seventh button – 'forward' – opens a new email which contains a copy of the original email. However, the 'To' and 'Cc' boxes are left blank, and the text of the email is prefixed with a line saying 'Forwarded Message' to identify that you have forwarded the mail from someone else. You can then enter the addresses of the people you wish to forward the mail to in the 'To' and 'Cc' (and perhaps 'Bcc') boxes.

Whichever of these three buttons you click, you are free to sub-edit the content of the email. In this way you can use the content of one email to inform the content of another. This is a really useful feature when holding an on-line discussion, or developing a debate, via email.

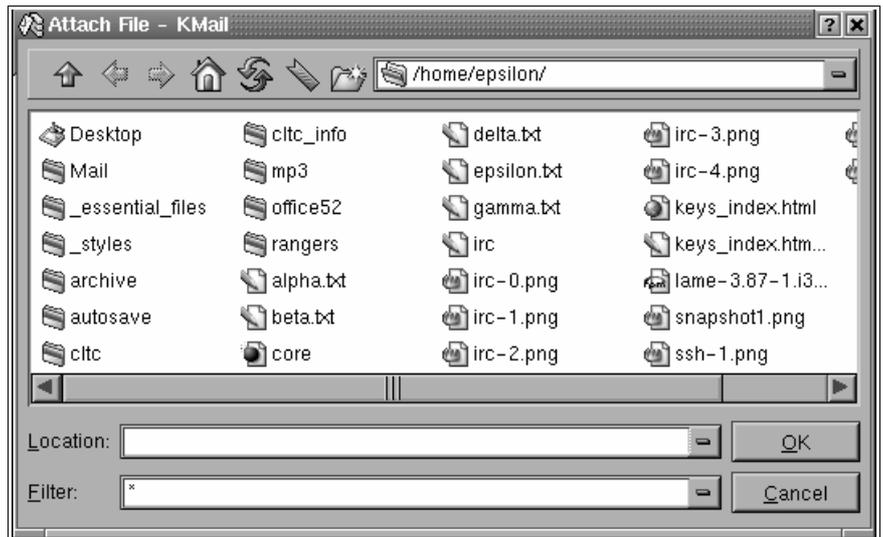
The final button on the row of buttons shown above deletes the currently selected email.



Attaching and attached files

When composing an email you can attach a file by clicking on the 'paper clip' button on the taskbar. When you do so you'll get the usual KDE file selection dialog box (right). By default, this is viewing either your home directory, or the location that you last selected to attach a file from.

You now navigate to the location of the file you want to attach, click on it, and click 'OK'. After this you get another box which displays information about the file you've selected, and it's size (right, bottom), and the encoding method that is to be used to send the file.



The size of the information you send is important. Some people have to pay money for their 'free' email account if they have more than a certain amount of email waiting for them. Some people are physically restricted from receiving more than a certain size of email. Most importantly, most people can only download 150 to 200 kilobytes per minute if they are using an ordinary dial-up connection – less if they are using a slow modem. Therefore never send more than fifty or sixty kilobytes of data unless you know they won't mind downloading it.

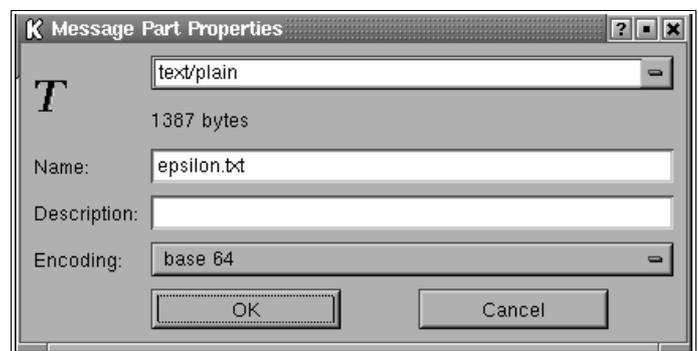
The encoding method is 'base 64' by default – that should suit most people. If not, you have the option of '8-bit' and 'quoted-printable' if the recipients email client supports those encoding methods.

Finally, the description box is left blank. If you add any text to this box it is displayed with the filename of the attachment in the email message to help the recipient understand what the file is all about.

Once you've clicked OK, especially if the file is big, there will be small delay whilst the contents of the file are encoded for transmission. You are then returned to your email composition window. At the bottom of the window will be a new section containing information on the file(s) attached to that particular email.

If you receive an attached file you will see information about the attachment displayed at the end of the email – usually a file name, and perhaps a small icon, depending upon the settings of KMail. If you click on the file name KMail will try to display the attachment. But if the format is not something simple – like text or HTML – you will get a window asking whether you wish to try and open the file, save the file, or just cancel.

Be aware that opening a file could cause problems with your system. The best option is to save the file, and then run the program that you believe is able to read the file to see if it really is in that format. The problem is that if the file contains a version of the file format that Linux has



problems reading, it could make KDE hang, or worse, could corrupt some of your setting for the program you use to read that file.

Another option is to right-click on the attachment's file name. If so, the following menu pops-up:



This gives you more options. You can save the file with 'save as', or you can use 'open with' to run the application you would normally use to read that file format. Clicking on 'properties' will give you more information about the attachment – similar to the 'message property' window shown above.

Improving the security of email

Email might be useful, but it is very insecure in ordinary operation. Email is sent as plain text – therefore anyone able to intercept the information as it crosses the network can read it. It is also very easy to 'spoof' an email address to make it appear as if you are someone else, or someone else is you. It's therefore a good idea to take some

simple steps to improve the security of your email transactions. There are two options – digital signing, and digital encryption. These are controlled by two buttons on the taskbar of the email composer:



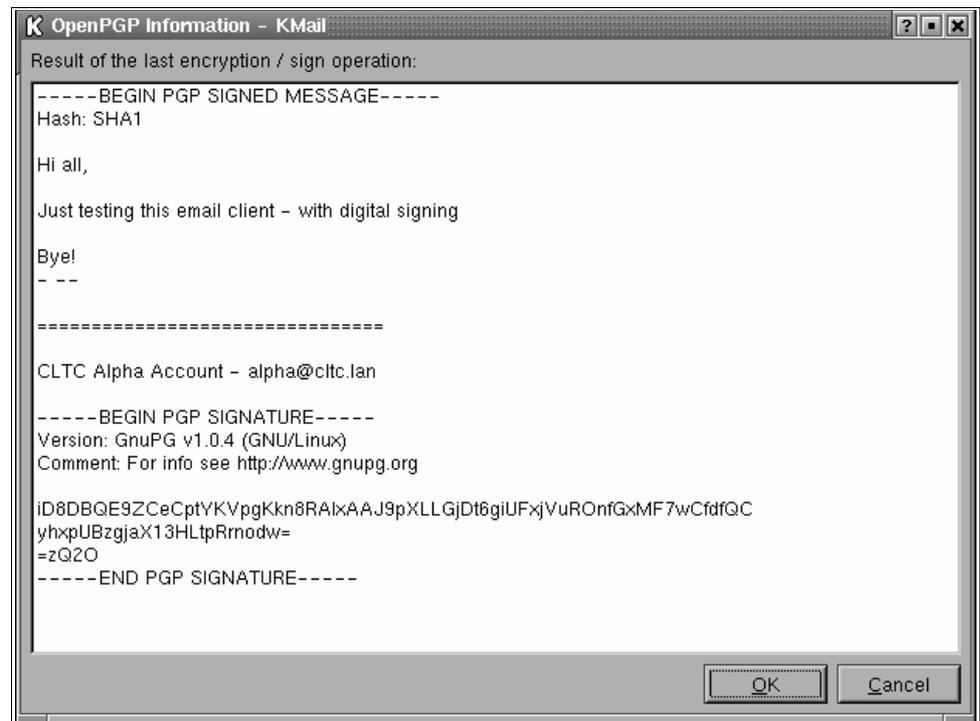
If the 'signature' button on the left is depressed, the email will be signed. If the 'padlock' button on the right is depressed, the email will be encrypted. If both – both.

With digital signing, a statistical digest is made of the content of the email. This is then encrypted with your personal (or 'private') email encryption key and added to your email as a 'signature'.

For example, take an email message (right, top). If digital signing has been configured, when you click the button to queue the email you get a window popping-up for you to enter your encryption pass phrase (there's a picture of the 'Open PGP Security Check' window on page 3). If you configure your passphrase to be held in memory, you'll only need to enter it once each time you use KMail (which saves time, but can cause security problems if you share an office).

If you enter the passphrase for your encryption key correctly you'll then get a window showing you the digitally signed email (see right, middle). Clicking 'OK' then queues the signed email.

If the recipient does not have PGP installed all they will see is raw digital signature – but this can still be used for verification at a later date if required. If the recipient does have PGP installed, and they have read your 'public' encryption key into their PGP keyring, then their email client will verify your identity. What happens is that the email program verifies the signature with your public key, and then confirms verification when it displays the email (see right).



Signing verifies identity, but it still does not make the message unreadable. To do this you must encrypt.

Encryption is controversial – because it works. It prevents people's information being disclosed. However, there is a clause in the *Regulation of Investigatory Powers Act 2000* that require a user of encryption to turn over their private key if the state wants it to investigate you. If you refuse, you can be fined, imprisoned, or both.

Encryption works in the same way as signing. However, you encrypt with the recipient's public key instead of your private key. So to use encryption you must have that person's encryption key on your key ring.

After encrypting, you are again shown a copy of the text that will be sent. As you can see, when the email is encrypted (same message as before) you get a load of gibberish rather than the text of the email (see right). When the email arrives at the other end the recipient uses their private key to decrypt it.

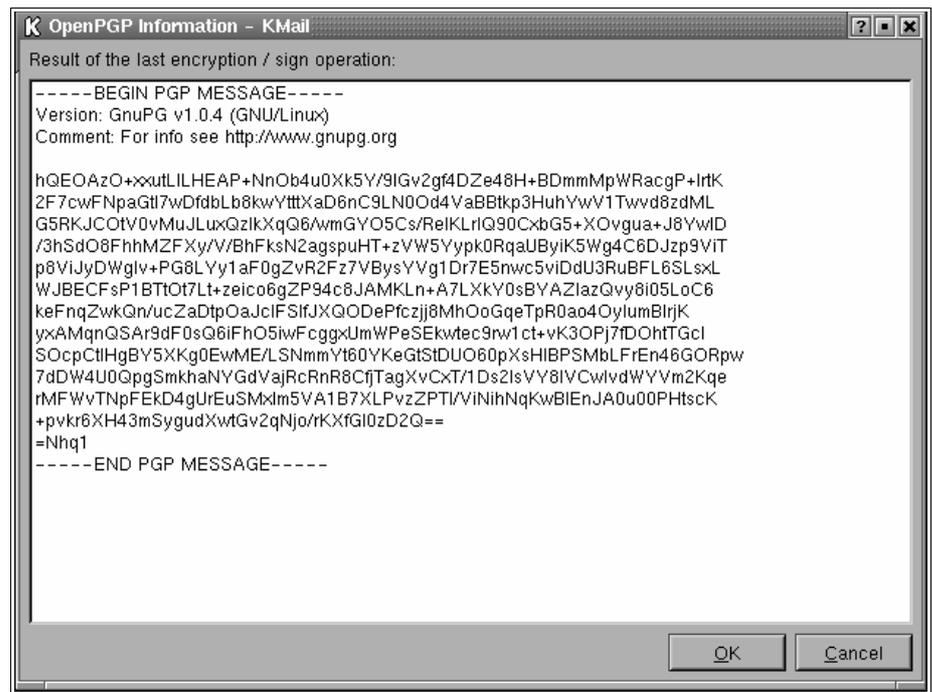
If you receive an encrypted email with KMail, you will be asked to enter your encryption passphrase. However, like signing, if you configure the phrase to be held in memory you'll only need to enter it once.

One word of warning! The signing and encryption of email only works with the content of the email, and not any attached files. Therefore if you want to sign and/or encrypt attachments you must do this first using *GnuPG*, and then attach the encrypted/signed files.

When email goes wrong

The main problem you'll have with email is if the address you are sending to doesn't exist. In this case the email will 'bounce'. However, it will also bounce the attachments. So if you send an email with a huge attachment, and the address does not exist, or it is incorrectly spelt, it will bounce back attachment and all.

The other major problem is computer viruses. Email viruses are primarily aimed at Windows users using Microsoft Outlook as their email client. The general advice to Windows users is, 'use *Linux*'. The specific advice to Outlook users is, 'use *something else*'.



Email viruses, and 'macro-viruses' that hide in the files of programs like Microsoft *Word*, usually require Microsoft's *Visual Basic* to work – or a Java environment. Although Linux machines won't carry Visual Basic, because it's proprietary, Java might be a problem. However, because of the inbuilt security of the Linux system – all users have limitations on what the program they run can do. Even if the virus ran on a Linux machine (not likely at the present, but perhaps in future) it could do little damage beyond your immediate user account.

The main problem you will have with email viruses is the junk that you will get from other email users infected with viruses. Another problem is that some viruses steal addresses and then 'spooF' (or forge) the outgoing email address/reply-to address in order to hide the identity of the person with the virus. You'll notice this when you start receiving bounced emails that you have never sent. This could actually be a serious problem if something malicious was sent, and you were blamed. But digital signing will solve this problem – viruses shouldn't be able to steal your secret key from someone else's computer.

The other major problem will be emails written with HTML tags inside them. It makes the email difficult, sometimes near impossible to read. KMail and many other email clients don't use this feature. If people send these to you – complain.