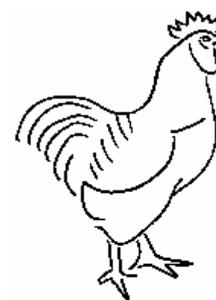


CLTC Project Information Sheet 1:

Using The 'K' Desktop Environment – KDE



Developed by The 'Free Range' Community Linux Training Centre Project –
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This briefing deals with using graphical user interfaces (GUIs) – in particular the 'K' Desktop Environment (KDE) that is used within the Community–Linux Training Centre. The purpose of the briefing is to briefly outline the basics of using KDE as a gateway to the other functions of the CLTC system.

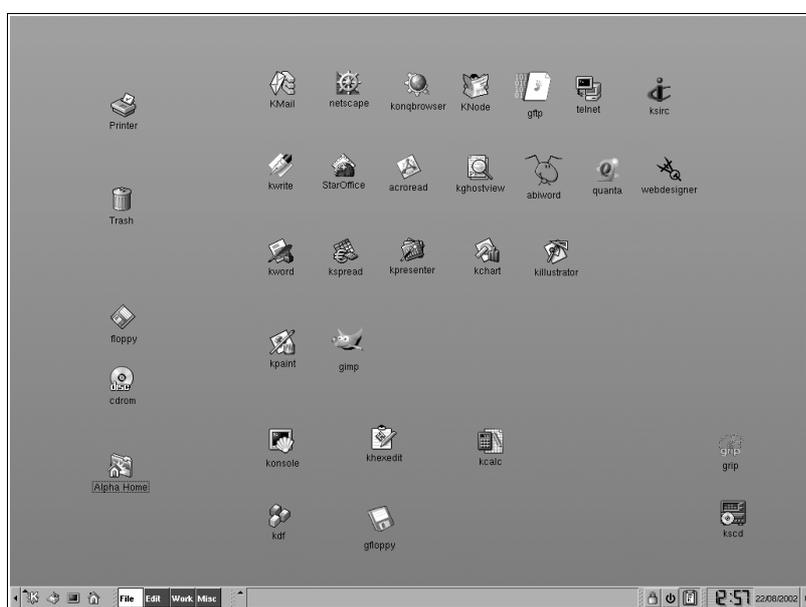
GUIs, 'X' and KDE

The first computers were complex because they required complex instructions to be manually keyed in. Even the the first widely used microcomputers – the Apple II and the IBM PC – required people to learn complex instructions to use them fully.

The problem of human–computer communication was partially solved with the introduction of the 'graphical user interface'. This used a graphical representation of information within separate 'windows' to allow the user to access information about the system. Then a mouse or other pointing device is used to move a pointer on the screen. One or more buttons on the pointing device are used to select different windows, select graphical 'icons', or select options from computer-generated menus, to cause the computer to undertake tasks.

GUIs were developed on high–powered computers in the late 1970s. They were not widely used on microcomputers until Apple launched the Mackintosh computer in 1984. A few years later Microsoft developed a GUI for the PC – *Windows*. The Apple Mac integrated the GUI with the operating system, meaning everything was graphical. The first Windows systems ran the GUI as a program floating over the top of the operating system, and did not integrate the GUI into the operating system until *Windows 95*.

On Linux systems, the kernel and many of the applications Linux uses are text based – or 'console – applications'. This is because console programs require far less resources to use, and are far simpler to write. What gives Linux its graphical capabilities is a special program called an *X server*. X servers receive information from programs, and then send information to the computer's display to produce the graphical display. The X servers used with Unix systems are proprietary. Therefore a project



was started to create an open source X server, called the 'Xfree86 Project'. The Xfree86 X server provides the graphical control for your computer, irrespective of which particular GUI you use. To run the GUI on a Linux system from the command line you simply type `startx`

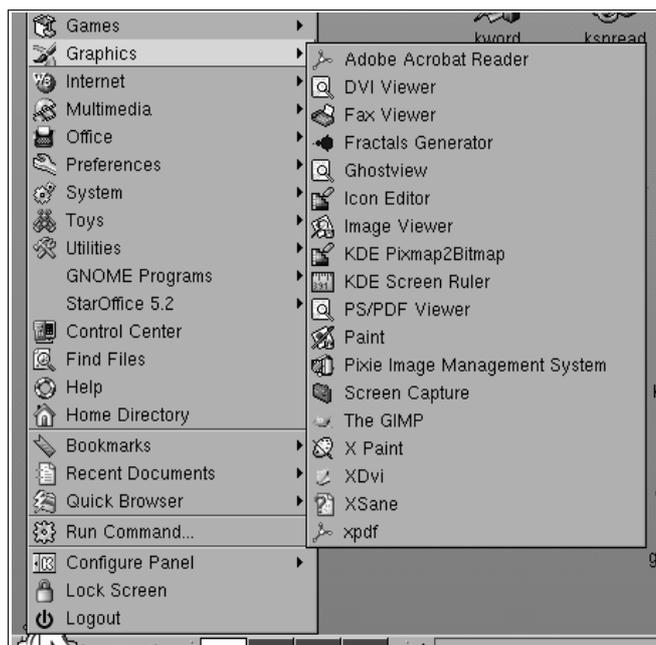
On the CLTC, we use the *K Desktop Environment*, or 'KDE'. We use KDE because those migrating from Windows often find it the easiest to use. However, we recommend that you have a look at some of the other GUIs on offer, such as Gnome, as they are equally as good.

KDE provides a graphical 'desktop' – see the image above. The desktop can be left blank, or as in the case of the CLTC, filled with clickable icons to make it easier to run applications. In addition there is a 'taskbar' at the bottom of the screen (although it can be at the top, side, whatever). The taskbar provides buttons to activate regularly used functions. It also provides additional information, such as the time and date. As you use programs, these are also shown on the taskbar as small boxes, and you can click on these boxes to switch between programs.

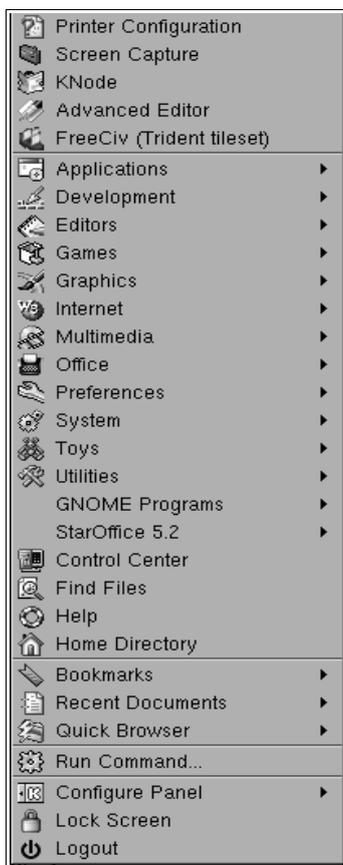


At one end of the taskbar (see above) is the 'K' button. Like the 'Start' button in Windows this give you access to menus and other special functions within KDE (see below). Other buttons on the taskbar provide other short-cuts. The picture of the desktop closes all the windows on the desktop, allowing you to see the desktop itself. The small black monitor provides a shortcut to the KDE terminal window – this lets you enter console commands directly to run console programs (which you will have to do from time to time). The small house is a shortcut to a directory window for the user's home directory.

The next part of the taskbar allows you to switch between different desktops. On the Mackintosh and Windows you have only one desktop. KDE provides multiple desktops, each working as an ordinary desktop with applications. These can be used in various ways. On the CLTC they are each labelled with different types of activity ('File', 'Edit', 'Work' and 'Misc') allowing you to dedicate a particular desktop for doing different activities. This means that, unlike Windows, you can have lots of programs open without cluttering the desktop. Instead of switching between windows, resizing, maximising or minimising, you just switch between desktops.



Clicking on one of the classified menus brings up further sub-menus (see above). From these you can select particular applications to run. Note that the precise configuration of the menus, and what they contain, can be edited using the 'Menu Editor' program under the 'Configure Panel' option of the main menu.



As noted above, clicking the 'K' button brings up the KDE main menu (left). This provides access to special functions, and to classified menus of programs.

Selecting 'Logout' allows you to close down KDE. 'Lock Screen' activates the screen saver, and if your screen saver is password protected you'll have to enter the password before you get back in again.

Some of the functions are very useful. 'Help' allows you to browse or search the help and documentation for KDE applications. 'Find Files' searches directories, or the whole disk, for files – not just by name, but also by the text they contain.



The right side of the taskbar contains further useful options (see above). The padlock replicates the 'lock screen' option of the main menu. Likewise, the 'power' button is a shortcut to logout of KDE.

The small clipboard works with the KDE clipboard. When you cut and paste it remembers the previous contents of the clipboard. This allows you to click on the clipboard icon and select something that you copied or cut a few operations ago to reuse it.

Clicking on the clock or date brings up a small calendar. If you right click on the clock/date you can change the way they are displayed.

Finally, at each end of the taskbar, there are small buttons with little arrows. Clicking on these buttons makes the taskbar disappear of in that particular direction to increase the area of the screen you have available. The button remains afterward, and clicking the button again will make the taskbar return.

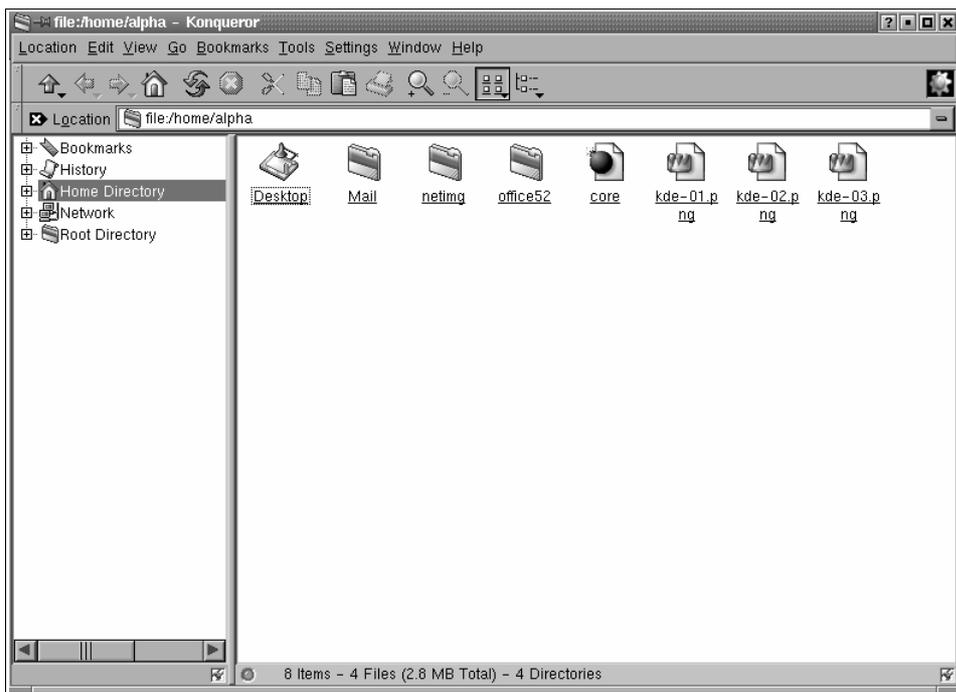
Mounting and unmounting disk drives

One thing Windows user's must get used to is mounting and unmounting removable disks before they can use or remove them. The purpose of making you mount and un-

The KDE 'Control Centre' allows you to change the configuration of KDE, such as the design of the desktop, colour schemes, etc.

mount disks is to ensure that you have access. Remember, Linux is a multiuser system, even if there is only one floppy drive. It means that if one user mounts a disk, someone else can't immediately unmount it. Getting clearance to unmount the disks also ensures that all the data has been written, and all disk operations have ceased, before you are allowed to unmount. It is also possible to restrict who has permission to mount and unmount disks, preventing all but those allowed from moving data off and on the computer.

For example, imagine we wish to mount a CD ROM. First, we right-click on the CD-ROM icon with the mouse, and then click on the 'mount' option (below, left). If the disk successfully mounts, you will see a small tab on the CD ROM icon that indicates the drive is mounted (below, right).



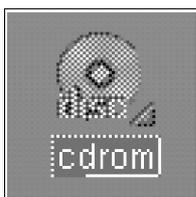
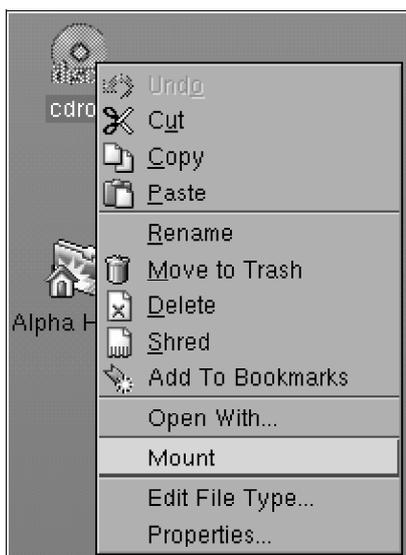
Browsing directories and manipulating files

Within KDE there is a program called *Konqueror*. Konqueror is a web browser, but it also doubles-up as file manager. This is quite powerful, because it means that, under Konqueror, there is no distinction between the contents of your hard disk, the content of another computer on the network, or the contents of the Internet.

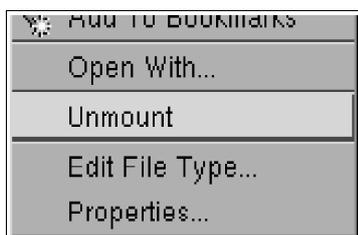
If you click on the 'Home' button on the taskbar of KDE, or on Konqueror's taskbar, Konqueror will display the contents of your home directory graphically (see above).

Under Linux, everyone has a home directory, located at `/home/name` (where 'name' is your login name). Sometimes you'll see the `/home/name` path truncated to just a tilde - `~` - character (this is the default way of showing you location when using a console interface). With Konqueror, what you'll see in the location bar is something like `file:/home/name` (or whatever your login name is). Just like using a web browser, you can type in other locations on your hard disk to display the contents of that directory. If you were to type in the name of a file or image, like a web browser, Konqueror will attempt to display it. You can also 'bookmark' directories or files.

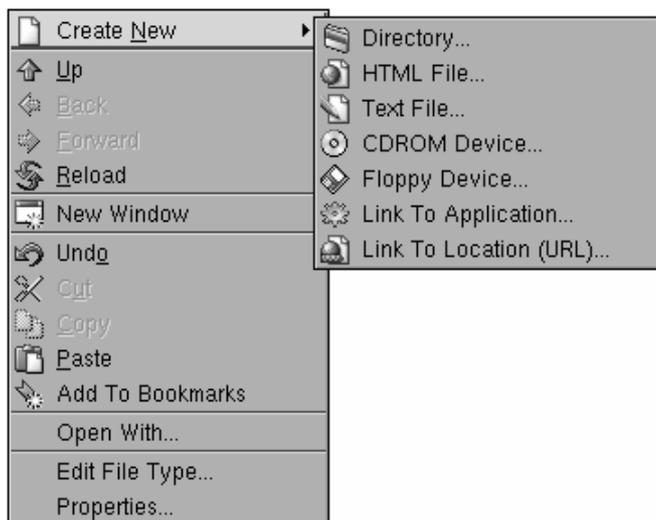
Different types of file are displayed as different icons. Directories are also displayed as icons. Clicking on a file will cause it to be displayed. Clicking on a directory will make the display switch to the content of that directory. The navigation arrows on Konqueror's taskbar work the same way as a web browser - taking you one step back from where you came, you up one directory level. You can also use the directory tree displayed on the left side of the display window to change the location of where Konqueror is currently looking.



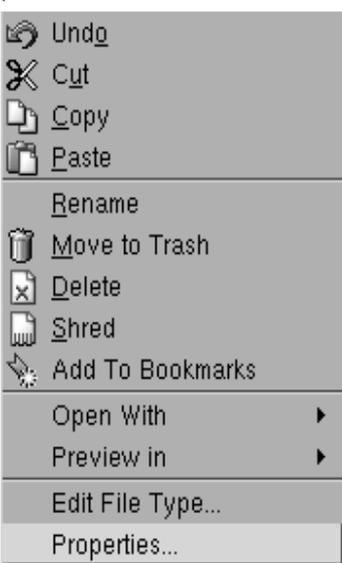
To unmount, right click on the drive icon again. Because the drive is currently mounted you will have an 'unmount' option (below, left) instead of 'mount'. Clicking unmount, if all operations have ceased and you have permission, will unmount the disk. The drive icon will then revert to its unmounted state (below, right).



If you right-click on Konqueror's display area with the mouse you get a menu displayed with various options for using Konqueror (see below).



This contains options such as cut, copy and paste. It also allows you to add a particular location to your bookmarks (remember, this is a browser). Selecting 'create new'



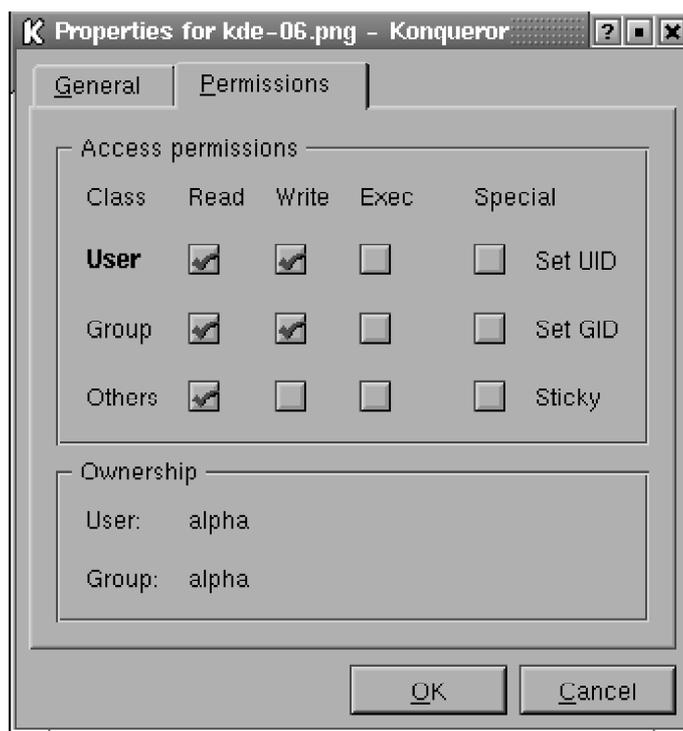
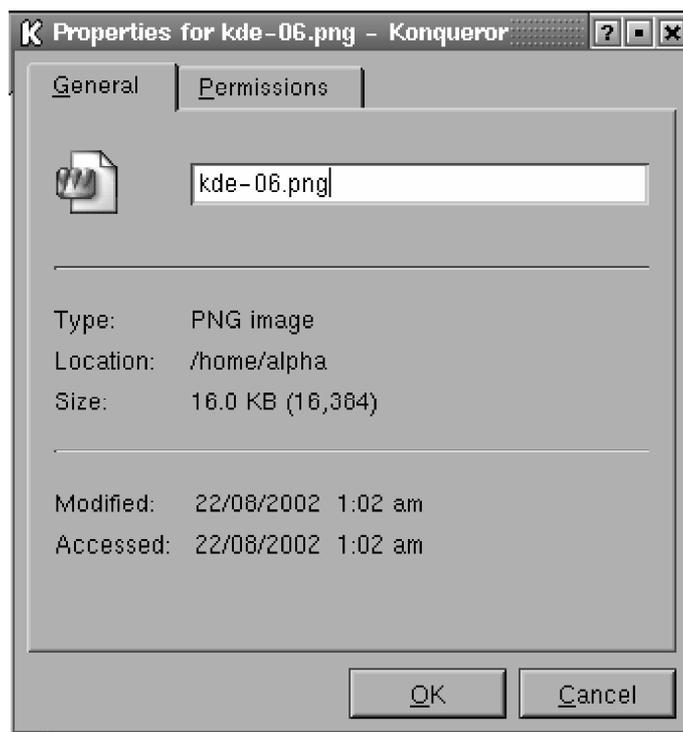
brings up a sub-menu that creates new object, such as directories or links.

If you right-click on a file or directory icon you also get a menu. This has similar options for editing, opening or pre-viewing. It also has a option called 'properties'. This allows you to edit the name and access permissions.

Under Linux, all resources have permissions. These relate to particular users (user ID or 'UID') and groups of

users (group ID or 'GID'). These permissions define who may read, write or execute files – or who may access, read from and write to directories.

After clicking 'properties' you get a new dialog box with two tabs – 'general' and 'permissions' (see right). The 'general' tab describes the information about the file, such as its name (which you can edit), size, location, file type, and when it was modified or accessed. The 'permissions' tab lists the permissions, the UID and the GID. If you have sufficient permission yourself, you can change these setting – but beware, as it has security implications! (for now, don't worry about the 'special' options)



If you wish to keep a file private, it should only be readable and writable (and perhaps executable if required) by yourself. You can also allow files to be read, if the directory they are in allows other users access, but not written to. You can also disable writing by yourself in order to make them 'read-only' – this prevents files being accidentally corrupted.

If you change any properties, you must click on 'OK' to activate them.

Running programs, and other problems

There are three ways to run a program. You can select it from the 'K' menu. You can click on its icon in Konqueror. Or, if you know its location, you can run it from the console line using 'run command' in the 'K' menu, or by entering the command in a terminal window.

The purpose of running programs is to work (or play). Unlike Windows, programs don't have neat little file extensions, such as '.exe', to tell you they're a program. Any file can be a program, provided that it has permission to 'execute' (see previous page).

It's also important to differentiate between 'executable' programs and 'scripts'. Executable programs – or 'binaries' – contain code that the Linux kernel can execute directly. These are the programs that you're familiar with if you use the Mac or Windows system. But under Linux you'll also see a lot of programs that are 'scripts'. These scripts are not run directly. Instead they are interpreted by a language interpreter, which then executes the commands they contain. Common scripting languages are Perl, Java or Python. You also have special scripts called 'shell scripts'. These are files that contain instructions, similar to those you enter at the console or 'command line' prompt. Shell scripts are very useful because they can be used to simplify or automate certain functions on a Linux system.

It really makes no difference whether the program is a binary or a script. This is because both binary programs and scripts can access the functions of the X server. Therefore many programs that may look like binaries are actually scripted using languages like Perl.

Linux is a very stable operating system. But that doesn't mean that all the programs work perfectly all the time. Sometimes programs 'hang' – they stick, doing nothing. Sometimes programs will lock up KDE preventing you from undertaking other actions. But, unlike Windows, this doesn't lead to a 'blue screen of death'.

If a program hangs, but doesn't block the operation of KDE, you can open a terminal window – there is an icon on the task bar for this. You then enter the command `xkill` and press return. You are now asked to click on the window, or some visible part, of the offending program. When you click on it, the program is 'killed'.

If the program blocks the operation of KDE, it's quite likely that it won't also block the operation of the keyboard too (although, sometimes, it might). In these situations you can crash out of KDE to kill the program. To do this press the *Ctrl* and *Alt* keys down together, and whilst holding them down also press the backspace key (the key you use to delete backwards – usually has an arrow pointing to the left). This collapses the X server. You can then restart X by typing `startx`

There are other ways to kill locked-up programs. For example, if you're on a network, you can remotely log in to your computer and kill the program. But these are beyond the scope of an introductory briefing such as this.

Developing your skills further

KDE, like other GUIs such as Gnome, is merely a simple means of enabling you to interact with the operating system. Learning how to use KDE, and especially all the various helpers and short-cuts available to make it easier to do things, can help you work more creatively.

Even though KDE is good, sometimes you will have to resort to using console commands. This is because Linux relies on console programs. You may also find, if you ever write programs yourself, that the first programs you will write will be console programs because they are easier to create than graphical applications. You should therefore not be afraid to open-up KDE's Terminal window and enter commands directly to Linux. It's difficult to cause problems from the command line, any more than it is when using KDE. Whilst logged in as an ordinary user you can't do any real damage to the system because you don't have the permissions to do so (however, you might damage your own data).

The best way to learn to use console programs and commands is to download a book from the 'Net on using Linux. The manuals you get with Linux distributions will also have information on various regularly used console commands. The problem with most console commands is not just knowing the command's format, but also the various 'switches'. For example, the command `ls` displays a list of the names of the files in the current working directory. But type `ls -l` and the list will contain information on file size, permissions and ownership.

If you ever get stuck there is extensive documentation in the 'manual pages' that come with most console programs. To view the manual page for a particular command or console program type 'man', a space, and then the name of the command. For example, for the `ls` command, type `man ls`

Mostly, you'll need to learn to use other programs rather than just using KDE's applications. KDE is just a vehicle to run programs and maintain the system. It does no real work itself, although KDE does come with a wide variety of programs to do other tasks. If you ever get stuck, don't forget that the KDE system, and all the other programs that work with KDE, have help pages that you can view by clicking on 'Help' in the 'K' main menu.