

Installation Guide  
For UNIX versions of the  
KCML Software Development Environment

UNIX KCML Release 4.00.20

*Kerridge Computer Company Ltd.*

**KCML Installation and  
Configuration Guide**  
UNIX

Version 2.1

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# 1 KCML Installation guide

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## 1.1 Introduction

These notes contain all of the information required to install the **KCML** software development environment onto your chosen hardware platform.

Appendix A contains information about each machine supported by **KCML**. Before proceeding any further with this installation you must read the notes that relate to the machine that you are installing on. If the machine that you are using does not appear in Appendix A then contact your distributor.

These notes assume that the reader has a very basic knowledge of a computer system running a UNIX or a UNIX clone operating system, such as XENIX or AIX.

You should also have access to the super-user login (root).

## 1.2 Terminal recommendations

The installation of **KCML** can be performed on any UNIX supported terminal. **KCML** itself can also be used on any supported terminal however, some terminals give better results and offer greater functionality than others. These days most people connect to UNIX machines from a PC either serially or directly from a PC over a LAN using TCP/IP. In this situation we recommend that you use the Kerridge Windows Terminal emulator as this provides greater functionality than any other Windows based terminal emulators that can be used with **KCML**. The Kerridge Windows Terminal emulator provides a true client server environment for Windows applications developers who wish to make the most of the processing power of modern UNIX machines while remaining in a Windows environment. The Kerridge emulator is also required if you wish to get all of the benefits out of the **KCML** full screen editor and debugger. This emulator also provides direct access to the MS Windows API which allows UNIX applications written in **KCML** to look and feel like true Windows applications. Many other UNIX terminal emulators are available but will give less functionality.

If dumb terminals are to be used then we suggest that you stick to modern versions of popular terminals, for example DEC VT220/320/420/520 and Wyse 60/99/120/160/325 terminals as these can offer basic features like attribute control, box graphics and function keys. Beware of cheap imitations of DEC and Wyse terminals as they may not support things like downloadable fonts which are used by **KCML** to provide box graphics.

For more information about terminal support and for a list of supported terminals refer to the Terminal support chapter in Volume 1 of the **KCML** language reference manuals.

## 1.3 What to do when KCML has been installed

Volume 3 of the **KCML** Language Reference Manual has useful information on how to transfer Wang BASIC-2 and Niakwa BASIC-2C applications into the **KCML** environment. It is very important that you read the compatibility information held in the Appendices in Volume 3.

If you are using **KCML** for the first time and you are not familiar with BASIC-2 or BASIC-2C then you should start by reading Volume 1 of the **KCML** Language Reference Manual.

## 1.4 Important note

Depending on the applications being used it is sometimes required to configure the UNIX Kernel. This is a process that should only be performed by an experienced person. Users of Kerridge applications, i.e. Autoline, KITE or KUBE, should contact the Kerridge UNIX support department to implement these changes. If your software makes use of the KISAM file access method then these changes are also relevant to you.

For more information, refer to the "Semapores" and "File Locks" section in Appendix E

## 1.5 The *kcmladmin* program

The **KCML** software development environment is installed with the *kcmladmin* program which is held as the first file on the installation media. The same program is also used to upgrade or remove the **KCML** environment. If your machine does not have any form of removable media then it is possible to install **KCML** from an image file that has been transferred via ethernet, see Appendix D for more information.

Once the installation has completed successfully you should be able to login to the **KCML** development system directly from the UNIX login prompt. Once you have logged in **KCML** loads an example start-up program called DEVICES. This program is used to configure communications devices, printers, platter images etc.

### 1.5.1 Installing the *kcmladmin* program

Before the *kcmladmin* program can be used you must first login to the UNIX system using the super-user login (root). The following instructions assume that you have successfully logged in and you have the shell prompt next to the cursor. Most UNIX systems will display a hash sign (#) as the shell prompt for the root user, but this may vary from machine to machine.

The *kcmladmin* program is stored as the first file on the installation media. To restore this file, first insert the installation media into the appropriate device and enter the following two commands:

```
cd /tmp
cpio -icvB kcmladmin < device_address
```

The directory specified after the *cd* command specifies the directory which will be used by the installation script to create temporary files. Any directory may be used but it must be on a file system with at least 4 megabytes of free space.

The correct *device\_address* for your floppy or tape device can be found in Appendix A. When the command has been entered correctly, press RETURN. If at this stage you get an error reading the device then refer to your UNIX documentation and check that the correct device name has been specified.

The cursor should move to the next line and display the word 'kcmladmin'. If any errors are returned as a response to this command then either the media is faulty in some way, or an incorrect *device\_address* has been specified. If the filename 'kcmladmin' is not displayed then the wrong volume has been inserted.

### 1.5.2 Using the *kcmladmin* program

Once the program has successfully been copied onto the hard disk the installation script is ready for execution. If you are performing an upgrade or a removal of the **KCML** development system, then there must be no **KCML** tasks running on the machine. Upon execution, the installation script will check for other **KCML** tasks. These other tasks must be logged out or killed, although *kcmladmin* will give the opportunity to continue with the installation. See Appendix B for instructions on how to find out what **KCML** tasks are currently running on your machine. Appendix B also contains a list of the other errors that may be reported by this program along with the possible reasons and solutions.

To execute the *kcmladmin* program enter the following:

```
./kcmladmin
```

Before the menu is displayed the program checks to see if there are any **KCML** tasks running on the machine, if there are the following will be displayed:

```
ERROR : All KCML tasks must be terminated before
the installation/upgrade can take place, including
any background and global partitions.
```

```
Do you wish to continue? (y/n) : n
```

It is recommended that you always reply 'n' to this prompt and terminate all currently running tasks. If you enter 'n' to the above prompt, *kcmladmin* will rename the 'kcml' file in the utilities directory to 'kcml.running'. See Appendix B for instructions on how to find out what **KCML** tasks are currently running on your machine

After a couple of seconds the screen should clear and the following menu will be displayed:

```

KCML Administration program Version 1.9
=====
Interrupt key = ^y

      KCML administration menu
=====

1      INSTALL the KCML Development system
2      UPGRADE the KCML Development system
3      REMOVE the KCML Development system
4      INSTALL/UPGRADE KCML Console Driver <DK2 Versions only>
5      Modify KCML users environment
6      Exit

Enter option number <1-6> : _
    
```

If your menu appears different to the menu shown above then either your terminal is set up incorrectly, or UNIX does not support your terminal. Try setting the TERM environment variable to the type of terminal that you are using. For example, if you are using a Wyse 60 terminal, first exit from the *kcmladmin* program and type the following:

```

TERM=wy60
export TERM
    
```

and then re-run the *kcmladmin* program.

#### Option 1 (Install the KCML Development system)

This option performs the following tasks:

- Create the **KCML** utilities directory (*/usr/lib/kcml*), and the **KCML** users home directory (*/usr/kcml*) along with a default login script (*.profile*). (Refer to the section Using **KCML** after the installation, later on in this guide for more information.)
- Copy the **KCML** files from the installation media into the utilities directory.
- Create two UNIX logins, *kcml* and *kl*, which are used to enter the **KCML** development system or the UNIX shell respectively. Both logins are added to the group *kcml*. Note that logins may not be created on all platforms, refer to the notes for your chosen platform in Appendix A for more information.
- Configure UNIX to allow global partitions to be started during system initialisation. (Refer to the section Using **KCML** after the installation, later on in this guide.)
- Install the **KCML** Protection method (See section 1.5).
- Compile the **KCML** Terminal information (TERMINFO) and General Printer Driver databases (GPDINFO). (See Volume 1 and Volume 3 of the language reference manuals for more information.)

If the install option has been used before then the utilities directory will be removed and recreated. The default users and the modifications to allow global partitions are only added if they do not already exist.

#### Option 2 (Upgrade the KCML Development system)

This option performs the following tasks:

- Copy the **KCML** files from the installation media into the utilities directory.
- Optionally upgrade the screen font files, default \$SCREEN and \$KEYBOARD files, the **KCML** utilities platter image, and the TERMINFO and GPDINFO databases.

#### Option 3 (Remove the KCML Development system)

This option performs the following tasks:

- Remove both the **KCML** utilities and the **KCML** users home directory.
- Remove the two **KCML** logins (*kcml* and *kl*), and the **KCML** group (*kcml*).
- Remove the **KCML** protection device driver.
- Remove all global partition modifications.

#### Option 4 (Install/Upgrade KCML Console Driver)

This option is used only on Intel based machines that use parallel DK2 dongles. See section 1.4 for more information.

#### Option 5 (Modify **KCML** users environment)

This option allows the environment variables in the users *.profile* to be modified. This will only work if the *.profile* was created by the *kcmladmin* program.

#### Option 6 (Exit)

Returns back to the UNIX shell prompt. Enter the word *exit* to return to the Unix login prompt.

### 1.5.2.1 The INSTALL option

Once the option has been selected you will be asked the following:

```
Enter the device address containing the installation
media
(Press RETURN for default) :_
```

This device address must be the full address of the device. If the *default* device address shown is correct then press RETURN. This address should be the same address as the one specified after the *cpio* command used earlier. If in doubt then refer to Appendix A. If you are installing from an image file then enter the full path name of the file, see Appendix D for details.

After the installation media has been tested the program will display a list of operations performed by the automatic installation. You will then be asked:

Would you like this install to run automatically? (y/n):\_

If 'y' is entered to this prompt, the program will then proceed to install the **KCML** utilities. The only time that the user is prompted is when another disk needs to be inserted. The manual installation will prompt for a response to each step of the installation. These steps are detailed below, defaults used by the automatic installation are shown in italics.

Will you be using Wang flow control on Chase Research AT/EISA cards? (y/n) : **n**

This prompt is only relevant on IBM compatible PC architecture machines if Chase Research AT or EISA Cards are being used, if you are using the Chase Research IOPRO cards then you should always answer 'n'. Answering 'y' to this prompt will add Wang flow control support into the *kcmlsetup* script so that Wang flow control is started up automatically during the system initialisation process for Wang terminals connected to Chase Research AT or EISA cards.

The directory name entered to the next prompt is the directory into which **KCML** and its associated utilities will be copied into. If the RETURN key is pressed to this prompt *kcmladmin* will use the default directory '/usr/lib/KCML'.

Enter the directory name in which to install the KCML utilities.

Press RETURN for /usr/lib/kcml : ***/usr/lib/kcml***

If the directory entered already exists then the following warning message will be displayed:

The directory /usr/lib/kcml already exists, do you wish to overwrite it? (y/n) **n**

**WARNING:** Entering 'y' to this prompt will remove the specified directory and its contents including any sub directories before recreating it. Therefore you must be sure that you have a backup of any important files before proceeding. Also make sure that the directory specified is not an important UNIX directory such as /usr/lib, /etc, /tmp, /usr, /bin etc. as this will cause serious problems.

The directory name entered to the next prompt is the directory that the installation program will configure the two users 'kcml' and 'kl' to login into, also a default user profile and DEVICES program will be created in this directory. This defaults to '/usr/kcml'.

Enter the home directory for **KCML** users  
Press RETURN for /usr/kcml : ***/usr/kcml***

Next the program will proceed to create the directories prompted for above and read the files from the installation media. If you are installing from floppy diskettes and the files span multiple diskettes then you will be prompted with the following:

```
Insert volume n and press RETURN :
```

The next section installs the relevant protection method. On most machines, except for those using Intel x86 chips and based on the IBM PC standard, **KCML** is supplied with a serial dongle known as a DK96. PC compatibles require a parallel dongle, known as a DK2, to be installed on the parallel printer port and KCML talks to the parallel dongle through a UNIX device driver installed as part of this installation. See the KCML protection chapter, (section 1.5) later on in these notes for more information.

If a DK2 parallel dongle is being installed then you will be asked:

```
This dongle type needs the KCML Console driver to be  
installed
```

```
Would you like to install it now? (y/n) : y
```

If you have never installed the KCML Console driver before then you should always answer 'y' to this prompt as **KCML** will not work without it. See 1.4.2.4 for information on how to separately install, upgrade or remove the DW Console Driver.

If a serial DK96 dongle is being used then the following prompt will be displayed:

```
Enter the tty address for the dongle : _
```

This prompt will also be displayed when running an automatic installation. Answer with the device address of the serial port to which you have connected the dongle. See the notes in Appendix A for suggestions to this prompt.

The installation of the **KCML** utilities is now complete. The script will now proceed to compile the TERMINFO and GPDINFO databases, set-up some default logins, along with the modification of the necessary files to allow global partitions to be used.

```
Would you like to use the BASIC-2C compatible TERMINFO  
database (y/n): n
```

Answering 'y' to this prompt will instruct *kcmladmin* to compile BASIC-2C compatible \$KEYBOARD files from the standard KCML Terminal information database. Unless you are familiar with the way that BASIC-2C \$KEYBOARD files work and you particularly want this limited functionality we suggest that you always answer 'n' to this prompt.

```
Would you like the KCML default logins to be set up in  
the password file? (y/n): y
```

Answering 'y' to the next prompt will cause the script to set-up two users with logins called 'kcml' and 'kl' in the */etc/passwd* file. It will also create the group 'kcml' in the */etc/group* file and a home directory with a default *.profile* will also be created.

Will you be using KCML Global partitions? (y/n): **y**

Answering 'y' to the next prompt will cause the script to create an entry in the */etc/inittab* file which is used to call the *kcmlsetup* script each time the machine boots up. The *kcmlsetup* script is used to load and execute global partitions.

Would you like to modify any of the environment variables contained in the default **KCML** .profile? (y/n) : **n**

This option will allow you to change the values of the environment variables contained in the **KCML** users .profile file, see section 1.4.2.5 for more information. The installation is only complete when the following message has been displayed:

The installation of the **KCML** utilities is now complete

See the installation notes for additional information about this release.

If any errors were reported during this installation then refer to Appendix B of the installation notes for more information.

### 1.5.2.2 The UPGRADE option

This option can only be used if the **KCML** utilities already exist on the machine. Only the **KCML** utilities will be overwritten; site specific files such as the TERMINFO database, font files etc. are backed up before the upgrade proceeds.

Once this option has been selected you will be asked the following:

Enter the device address containing the installation media  
(Press RETURN for *default*):\_

This device address must be the full UNIX address of the device. If the *default* device address shown is correct then press RETURN. If in doubt then refer to Appendix A for details of device addresses for your machine. If you are installing from an image file then enter the full path name of the file, see Appendix D for details.

Enter the directory name in which to upgrade the KCML utilities.  
Press RETURN for /usr/lib/kcml : \_

The directory name entered at this prompt is the directory that currently contains the **KCML** utilities that need to be upgraded.

If you are installing from floppy diskettes and the files span over multiple diskettes then you will be prompted with the following:

Insert volume *n* and press RETURN :

Next you will be asked:

Would you like to upgrade the TERMINFO database? (y/n):

If you have never made any custom changes to the TERMINFO database then enter 'y' to this prompt, the new source files will be installed and the database will be recompiled. Your existing source files will remain in the TERMINFO directory with the '.old' extension. Replying 'n' to this prompt will leave your existing files alone. The new files will be copied into the TERMINFO directory with the '.new' extension.

Would you like to upgrade the GPDINFO database? (y/n):

This prompt will only appear if you have the GPDINFO database installed. The same rules apply with this database as did with the TERMINFO database.

Would you like to upgrade the utilities platter D99.bin?  
(y/n):

If you have never added or modified any files on the **KCML** utilities platter then enter 'y' to this prompt. The old platter will be renamed with the '.old' extension. Entering 'n' to this prompt will leave your existing platter alone and will install the new platter with the '.new' extension.

Would you like to upgrade the terminal font files? (y/n):

If you have never modified any of the font files within the **KCML** utilities directory then enter 'y' to this prompt. The old font files will be renamed with the '.old' extension. Entering 'n' to this prompt will leave your existing font files alone and will install the new files with the '.new' extension.

If you are running on an Intel based machine and **KCML** is protected with a parallel dongle then you will be asked:

Would you like to upgrade the KCML Console Driver?(y/n):\_

Entering 'y' to this prompt will upgrade the Console Driver and rebuild the Unix kernel

The upgrade is only complete when the following message has been displayed:

```
The upgrade of KCML is now complete  
See the installation notes for more information
```

If you are upgrading an Intel version and you upgraded the Console Driver then you must reboot your machine before continuing, otherwise **KCML** will attempt to access the dongle using the old device driver which may fail and generate an error.

### 1.5.2.3 The REMOVE option

Once selected the program will display the following warning message

```
WARNING : Taking this option removes the KCML utilities  
and all associated files and directories  
Do you wish to continue? (y/n) : _
```

If you are not sure at this stage then enter 'n' to return back to the UNIX shell prompt, otherwise enter 'y'.

**WARNING:** Entering 'y' to this prompt will remove the specified directory and its contents including any sub directories. Also make sure that the directory specified is not an important UNIX directory such as /usr/lib, /etc, /tmp, /usr, /bin etc. as this will cause serious problems.

Enter the directory name in which to remove the **KCML** utilities.  
Press RETURN for /usr/lib/kcml : \_

The directory name entered to this prompt is the directory that the program will remove the **KCML** utilities from.

Enter the home directory for **KCML** users  
Press RETURN for /usr/kcml : \_

The directory name entered to this prompt is the directory used by the default **KCML** users 'kcml' and 'kl'.

The removal is complete when the following message is displayed:

The removal of the KCML utilities is now complete

See the installation notes for additional information about this release.

If any errors were reported during this removal then refer to Appendix B of the installation notes for more information.

If you are de-installing an Intel version of **KCML** then you must reboot your machine to make sure that the newly made kernel is loaded.

#### 1.5.2.4 The install/upgrade KCML Console Driver option

This option is only used by Intel versions of **KCML** that require the use of parallel DK2 dongles. Once selected the following prompt will be displayed:

Enter 'I' to install/upgrade, 'r' to remove, else enter 'q' to quit :

Next you will be asked:

Enter 's' if you are running SCO UNIX/XENIX, or 'I' if you are running Interactive 386ix or a generic UNIX 5.4:

This prompt is very important as the method used to add the device driver to the operating system differs widely between the two types of operating system. The SCO Unix installation uses the custom mechanism whereas the Unix 5.4 system uses idinstall mechanism.

The script will also ask if you would like to remake the UNIX kernel, you must say yes to this prompt. Once the kernel has been rebuilt you must reboot the machine to make the changes come into effect.

### 1.5.2.5 The Modify users environment option

This option when selected will prompt you for each of the environment variables held within the users *.profile* file. This file must be the file created by the *kcmladmin* script.

Most of the environment variables used by **KCML** work as switches which can be set to anything to enable the variable, and must be commented out from the profile to disable it.

To disable a variable the word 'notset' must be entered for the variable. Disabling a variable in this way simply inserts a hash sign (#) at the beginning of the line containing the variable.

A full description of each variable can be found in the **KCML** environment tuning chapter in Volume 1 of the Language Reference Manuals.

If you wish to add variables of your own to the profile then they should be added between the lines that start with '#DO' and '#DONE'.

## 1.6 KCML Protection

To prevent **KCML** from being illegally duplicated, **KCML** can be protected with one of three different methods, these are:

- DK2 Parallel Dongles
- DK96 Serial Dongles
- Branded

All of the above methods monitor and control the number of users that can be logged into **KCML** at any one time. When the maximum number of users is reached the message 'Terminal count exceeded' will be displayed and the terminal will be logged off. Global and background partitions which are not connected to a terminal (#TERM=0) are not counted against this total. Nor are \$RELEASE'd partitions.. The following sections describe each protection method in turn.

### 1.6.1 DK2 Dongles

The DK2 dongle is a parallel dongle which is used on PC compatible Intel based CPU's i.e. SCO UNIX, SCO/XENIX, Interactive 386ix, Unixware and the ICL DRS3000 versions of **KCML**. To allow **KCML** to read the dongle, the **KCML** console driver must have been installed, normally this would have been installed by the *kcmladmin* program. The dongle should be plugged directly into the parallel port on the machine with the guide arrows pointing towards the machine. Any printers or other external parallel devices can be plugged into the dongle.

The Console Driver not only controls the interface between **KCML** and the dongle but on SCO systems it also allows any of the console MultiScreen windows to act as a **KCML** terminal with full box graphic support. By default the '.profile' supplied with this installation will always use the first console window. For information about how to manually install or upgrade the Console driver along with other information refer to Appendix A.

The following messages are errors that can be returned when using this type of dongle:

**Driver not installed**

This message is returned if **KCML** cannot locate the console driver. Alternatively if the console driver has been installed then perhaps the machine needs to be rebooted to reload the new UNIX/XENIX kernel.

**Software lock not installed**

This messages is returned if **KCML** cannot locate the dongle. The dongle should be plugged into the parallel port of the machine.

**Terminal count exceeded**

If the maximum number of users that are currently using **KCML** is reached, the very next user to login will get this message. The maximum number of users allowed for your version is written on the dongle.

**1.6.2 DK96 Dongles**

The DK96 Dongle is a serial dongle which is connected to any disabled serial port on the machine. The *kcmladmin* program will prompt for the UNIX *tty* device that the dongle is connected to. See Appendix A for suggested device addresses for each machine. Usually the dongle is supplied with a short connector cable which should be plugged directly into the machine. DK96 dongles do not allow other devices to be connected after the dongle so a dedicated port is required.

**KCML** talks to the dongle via the UNIX device `/dev/dongle` which is linked to the device name of the UNIX *tty* address to which the dongle is attached. The specified *tty* address must be a disabled port without a login service. The RS6000 and SCO UNIX versions of the *kcmladmin* program automatically disables the port, on other versions this must be done manually by disabling the port in the Port Services section of the *sysadm* utility on Unix 5.4 systems or by changing the word *respawn* to *off* in the */etc/inittab* file on earlier Unix versions. Refer to your UNIX System Administrators documentation for more information on terminal control. For example if the dongle is to be connected to `/dev/tty09` then the dongle device is created thus:

```
ln /dev/tty09 /dev/dongle
```

This should already have been done by the *kcmladmin* program, but if the dongle needs to be moved to a different port then first remove the device `/dev/dongle` and run the above command for the appropriate device. You will need to be logged in as the super-user (root) to do this, and again the port must have previously been disabled. You will also need to set the permissions to allow all users to read and write to the device using the following command:

```
chmod 666 /dev/dongle
```

The following messages are errors that can be returned when using this type of dongle:

### **Software lock not installed**

This message is returned if **KCML** cannot locate, read or write to the dongle. It may be that the file '/dev/dongle' does not exist or perhaps it is linked to a different device to the one that the dongle is connected.

This error may also occur if the port that the dongle is connected to is enabled, therefore UNIX will be sending login prompts to the dongle. Refer to your UNIX documentation for information on disabling tty ports.

### **Terminal count exceeded**

If the maximum number of users that are currently using **KCML** is reached, the very next user to login will get this message. The maximum number of users available with your version is written on the dongle.

### **1.6.3 Branded KCML versions**

These versions of **KCML** do not have any external protection devices. The name and address of the customer along with the **KCML** licence number and the maximum number of users that can use **KCML** will be displayed within a box when **KCML** is first executed.

Branded versions are only supplied for machines that do not support any type of dongles.

The following messages are errors that can be returned when using this type of protection method:

### **Terminal count exceeded**

If the maximum number of users that are currently using **KCML** is reached, the very next user to login will get this message.

### **Brand error: time expired**

This message will only be returned by demonstration versions of **KCML**, which have an expiry date programmed into them.

## **1.7 Using KCML after the installation**

Once the **KCML** development system has successfully been installed onto your machine you can now login and install your applications.

If you are using an Intel based machine and you have not rebooted since the installation of the console driver then you must reboot before continuing otherwise **KCML** will not read the dongle.

Two logins are normally created by the installation program, the 'kl' login is used to access the UNIX shell and the 'kcml' login is used to access the **KCML** development system. If these logins have not been created by *kcmladmin* then you should create them yourself using the method recommended by your UNIX documentation. If you have to manually create the logins and groups you should also set the owner and group to the newly created login and group name on all files and directories within the **KCML** utilities directory as well as the **KCML** users directory. This can be done as follows:

```
chown kcml /usr/kcml /usr/kcml/* /usr/lib/kcml
chown kcml /usr/lib/kcml/* /usr/lib/kcml/*/*
chgrp kcml /usr/kcml /usr/kcml/* /usr/lib/kcml
chgrp kcml /usr/lib/kcml/* /usr/lib/kcml/*/*
```

This is assuming that you wish to call your user and group *kcml* in the same way that the default *kcmladmin* installation does. This is also assuming that the utilities directory and the users home directory are */usr/lib/kcml* and */usr/kcml* respectively

If you login as 'kcml' and enter the password that was set earlier within the installation program, **KCML** should now load. You should briefly see a copyright message at the top of the screen, the screen should then clear and the DEVICES program is loaded. If you do not get this far then reread section 1.5.

The DEVICES program is used to add addresses for communications devices, printers, platter images etc. into the **KCML** Device Equivalence Table. The program supplied with this installation only configures the platter D99 which contains some additional **KCML** utilities. The other lines in this program are REM'ed but show the basic syntax of the \$DEVICE statement. (See \$DEVICE in Volume 2 of the Language Reference Manuals for more information.)

The DEVICES program is held as a UNIX file, therefore to modify it you need to select to the correct UNIX directory, e.g.

```
SELECT DISK "/usr/kcml "
LOAD "DEVICES"
```

If you are using **KCML** for the first time and you are transferring programs and data from a BASIC-2 or a BASIC-2C environment then refer the Volume 3 of the Language Reference Manuals for conversion and compatibility information. If you are using **KCML** for the first time and you are not familiar with BASIC-2 or BASIC-2C then start by reading Volume 1 of the Language Reference Manuals.

### 1.7.1 The default KCML users login script ( *.profile* )

During the installation if *kcmladmin* is asked to set-up the default users, it will also create a default login script in the KCML users home directory, usually */usr/kcml* called *.profile*. The *.profile* contains various environment variables which can be used to modify certain characteristics of the KCML environment. Most of the variables set in the *.profile* are commented out, meaning that the line starts with a '#' character, and therefore they have no effect.

To modify these environment variables either use the option "Modify users environment" from the *kcmladmin* menu or edit the file *.profile* with any UNIX text editor. For a full list of environment variables and their uses refer to the **KCML** environment tuning chapter in Volume 1 of the KCML Language Reference Manuals.

The *.profile* also configures the terminal type and tests the terminal for an answer back. This is done by calling the *selfid* utility which sends enquiry sequences to the terminal to attempt to determine its type from the replies, if any. If the type can be determined this way it is then passed to **KCML** as the value of the *KTERM* UNIX environment variable. If the terminal is determined to be a Wyse 60 or DEC terminal VT220 that supports downloadable fonts, then *selfid* will return the terminal type with the word *box* added to the end. The *.profile* analyses this type and downloads the relevant font giving box graphics capabilities to the terminal, this is done as follows:

```
# Call selfid and set the KCML terminal type
KTERM=`selfid`
# Download fonts to terminals that support them
case $KTERM in
    wy60box)  cat $KCMLDIR/wyfont[12] ;;
    vt220box) cat $KCMLDIR/vt220font ;;
    vt420box) cat $KCMLDIR/vt420box ;;
esac
```

The *.profile* also tests to see if the terminal has an answerback message set, this is done by running the *selfid* utility with the *-a* flag. The answerback facility is supported by Wyse and DEC terminals as well as the Kerridge range of Terminal emulators. The *.profile* uses the answerback to force **KCML** to start-up with the specified terminal number which can later be returned with the **KCML** *#TERM* function. This is particularly useful when workstations are connected to the UNIX host over a network allowing any workstation to retain its unique terminal number. This is done by passing the answerback to **KCML** with the *FORCETERM* environment variable. For example:

```
FORCETERM=168 export FOR CETERM
kcml
```

would start up **KCML** with a *#TERM* value of 168. The following would start-up **KCML** with a *#TERM* value matching that set by the terminals answerback string.

```
FORCETERM=`selfid -a` export FORCETERM
kcml
```

Refer to the Terminal support chapter and the **KCML** Environment Tuning chapter in Volume 1 of the **KCML** Language Reference Manuals for more information.

Note that *selfid* may take a couple of seconds to obtain the terminal type and answerback. If you know that you have no Wyse terminals connected you can prevent *selfid* from testing for Wyse terminals by specifying the *-w* flag. Also if you do not intend to use the answerback feature then comment out the *selfid -a* entry in the *.profile*.

### 1.7.2 Troubleshooting

This section describes some of the possible problems and solutions that you may have when trying to use **KCML** after the installation:

#### **The copyright message is not displayed at the top of the screen during the login procedure.**

Either the terminal is not set up correctly or perhaps the terminal type expected by UNIX does not match the terminal. To find out the UNIX terminal type being expected, type in the following from the **KCML** immediate mode prompt, (omit the exclamation mark if working from the UNIX shell):

```
!echo $TERM $KTERM
```

**KCML** will always use the value of *KTERM* environment variable to determine the keyboard and screen characteristics, if *KTERM* is blank then it will use the value of the *TERM* environment variable. The value of *TERM* is either negotiated by telnet on a LAN connection or taken from a terminal database file maintained by a system management script like IBM's *smit* or *sysadm* on Unix 5.4. If the value of the *TERM* variable does not match your terminal then refer to your UNIX documentation for information about changing the terminal type.

If before **KCML** is loaded you get the following message:

```
Cannot open /usr/lib/kcml/TERMINFO/ term  
Press RETURN key to return to the login prompt:
```

This means that **KCML** does not recognise the value of the *KTERM* or *TERM* environment variables being passed from UNIX. The last component in the filename, represented by *term* in the filename above, indicates the *KTERM* value it was using. Refer to the terminal support chapter in Volume 1 of the Language Reference Manuals for a list of supported terminal types. **KCML** expects the *KTERM* environment variable to be one of the types listed in the */usr/lib/KCML/TERMINFO* terminal database. If *KTERM* does not exist then the value of *TERM* is tried. If your terminal supports several different emulation's then try setting it to a common emulation mode (i.e. vt100, vt220, wy60) and configure the terminal database in UNIX to use the new terminal type (refer to your UNIX documentation for details), and try again.

The default *.profile* created by *kcmladmin* used the *selfid* utility to set *KTERM* so if you are logging in through this login then *selfid* has been unsuccessful at detecting the terminal type. If it cannot tell the terminal type it substitutes the value of the *TERM* environment variable which is either negotiated over a network telnet connection by a PC terminal emulator, stored in the configuration of a network terminal server or taken from the terminal database maintained by Unix.

Another explanation of this message is Unix permissions not permitting read access to the files in the */usr/lib/KCML/TERMINFO* directory.

### **After logging in KCML returns back to the login.**

This is possibly due to a dongle problem. Refer to section 1.5 for a list of dongle errors. If the error is being cleared from the screen quickly then use the 'kl' login to login to the UNIX shell, and then execute **KCML** by typing in *kcml* in lower case letters followed by RETURN at the UNIX shell prompt.

## **1.8 The KCML full screen editor and debugger - a quick guide**

If this is the first time that you have used **KCML** then you may not be familiar with the **KCML** full screen editor and debugger. Generally the editor and debugger is only available if you are connected to the UNIX machine via the **KCML** Windows Terminal emulator. If you wish to use the editor and debugger on an alternative terminal then you will need to modify the **KCML** terminal definition description for that terminal. Refer to the Terminal Support chapter in Volume 1 of the language reference manuals for more details.

When you start-up **KCML** for the first time, using the login created by the *kcmladmin* program, **KCML** automatically loads and displays an example device definition program. At this point you will be presented with the colon cursor prompt, which will be familiar to existing BASIC-2x users. This prompt signifies that you are in the Console Window. To switch to the **KCML** editor window press the TAB key and the program will be displayed in the full screen editor. If you are executing a program, the Ctrl-BREAK key is used to HALT execution and display the program in the debugger.

Note that most keyboard and mouse actions follow those used by other CUA applications. Therefore if you are familiar with products like Microsoft Word then you will find the **KCML** editor easy to understand.

To clear the program memory, press F2, which moves the cursor into the status line, then enter the word CLEAR.

To load a program in to memory, press F2, which again moves the cursor to the status line, then enter LOAD "*PROGRAM*", where *PROGRAM* is the name of the required program. For more information on the syntax of the LOAD statement, see the relevant page in Volume 2 of the Reference Manuals.

To resave a program after modifications have been made, use the RESAVE command in the status line. Again, refer to the relevant page in Volume 2 of the Reference Manuals.

The following is a summary of the navigation keys available in the editor and debugger:

Key	Normal	Shifted	Ctrl
←	Move left one character	Mark text to the left	Move one word to the left
→	Move right one character	Mark text to the right	Move one word to the right
↑	Move up one line	Mark text up to the line above	Move up one line
↓	Move down one line	Mark text down to the line below	Move down one line
<b>Page Up</b>	Move up one page	Mark up one page	Move to the top of the screen
<b>Page Down</b>	Move down one page	Mark down one page	Move to the bottom of the screen
<b>Home</b>	Move to the Beginning of the line	Mark to the beginning of the line	Move to the start of the program
<b>End</b>	Move to the end of the line	Mark to the end of the line	Move to the end of the program

The following is a list of some of the special keys available while in the editor and debugger:

Tab	Switch back to the console window. (Tab in the console window returns back to the editor/debugger window.)
F1	Calls the relevant page in <b>KCML</b> Language Reference Manuals, if installed.
F2	Move to the status line. The status line can be used to enter some immediate mode commands, like CLEAR, LOAD, RESAVE etc. It can also be used as a PRINT statement to evaluate variables, functions and expressions etc.
F3	Display the Search dialog box.
SHIFT F3	Display the Search/Replace dialog box.
F4	Toggles between the output window and the editor/ debugger window.
F7	Check program for syntax errors.
F8	Toggle between the currently selected global partition and the editor/debugger.
F9	Resolve the program and stop at the first statement. If in debug mode, switch to edit mode.
F11	Execute the program.

The following are a few of the keys available while in debug mode:

SPACE	Step to the next statement, stepping over any subroutines.
I	Single step to the next statement, stepping through any subroutines.
C	Continue execution
N	Continue to the end of the current FOR ... NEXT loop.
R	Continue to the end of the current subroutine, after the RETURN.
O	Continue to the end of the current WHILE or REPEAT loop.
L	Continue until a new program is loaded.

This section only describes some simple operations available in the **KCML** editor. For more information you should refer to the **KCML** editor and debugger Windows Help file (KCMLEDIT.HLP) or the relevant chapter in Volume 1 of the language reference manuals.

## Appendix A - Machine information

---

This appendix lists all machines that may be installed with the *kcmladmin* program. Each machine is listed with the UNIX device address that is required for the installation method, the method of protection used by **KCML**, and methods available for supporting Wang terminals.

The following list shows all machines that are currently supported by **KCML**, and the page within this appendix that you can find the notes for that machine. Please note that only the machines that are installed with the *kcmladmin* program are contained within this Appendix.

Intel Based 386/486/Pentium based CPUs (SCO UNIX/SCO Open Desktop/SCO MP/ Unixware/AT&T UNIX 5.4)	21
Data General AViiON	22
CCI 6/32 - ICL DRS500	22
IBM RS6000	22
ICL DRS6000 - ICL Sparc Teamsver	23
ICL DRS3000 - ICL Intel Teamsver	23
Hewlett Packard HP9000 series	24
SUN SparcStation	24
Motorola 88000 Range	25
DEC Alpha	25

## Intel Based CPUs

386, 486 and Pentium's running either SCO UNIX, SCO Open Desktop, SCO MP, Novell Unixware, and most versions of UNIX 5.4.

Installation Media : 3.5" or 5.25" diskettes. The device addresses used are as follows, (for AT&T UNIX refer to the relevant section of your documentation for the correct disk address):

3.5" DSHD	/dev/fdx135
3.5" DSDD	/dev/fdx135ds9
5.25" DSHD	/dev/fdx96
5.25" DSDD	/dev/fdx96ds9

Where *x* is the drive number, 0 for the first drive and 1 for the second.

Protection íethod: DK2 Dongles, see section 1.5.

Wang terminals can be supported via the Chase Research AT/EISA or IOPRO cards, or via the Chase Research IOLAN card, see the Wang terminal support chapter in Volume 3 for more information.

SCO UNIX versions have a Multi-screen facility which allows up to 12 virtual screens to be used simultaneously on the console. Each active **KCML** Multi-screen has a different terminal number and counts towards the licensed user limit.

To get true boxes on the console the screen must be put into graphics mode. On SCO versions **KCML** will use graphics mode if its output is redirected to the graphics console device, thus

```
kcml >/dev/dw
```

This is done automatically on the first Multi-screen (/dev/tty01) by the default user profile created by the *kcmladmin* program. An EGA or VGA display is required for the console to support full **KCML** box graphics.

The *dwcolour* utility can be used to tailor the colours used by the driver, (See the **KCML** utilities chapter in Volume 1 of the **KCML** Language Reference Manuals for more information.)

The SCO UNIX Console has 25 rows as opposed to the normal 24. This can cause screen corruption problems on software that uses the **KCML** INPUT SCREEN and PRINT SCREEN statements. This problem can be overcome by changing the *Lines* clause back to 24 in the TERMINFO entry for the TERMINAL. Refer to the Terminal support chapter in Volume 1 of the **KCML** Language reference manuals.

To tune the SCO kernel use the configure utility as documented in the System Administrators Guide. For Unixware and other Unix5.4 systems use *idune* and *idbuild*.

## Data General AViiON

Installation Media: DAT or QIC Tape, the UNIX address for the tape is `‘/dev/rmt/’` where *x* is the drive number, usually 0 for the first drive.

Protection method: DK96 Dongles, see section 1.5.

Wang terminals may be supported via the Chase Research IOLAN terminal concentrator, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

This is a Unix 5.4 system which can be tuned with `idtune` and `idbuild`.

## CCI 6/32 - ICL DRS500

Installation Media: QIC tapes. The UNIX device address for the tape is `‘/dev/rmtx’` where *x* is the drive number, usually 0 for the first drive.

Protection method: DK96 Dongles or BRANDED, see section 1.5. DK96 dongles may be connected to any of the 9 pin serial ports on the back plane using the cable supplied. The ports are addressed as `‘/dev/tty $nn$ ’` where *nn* is the terminal number.

Wang terminals may be supported directly by use of special software in the machines terminal controller (MPCC).

## IBM RS6000

Installation Media: 3.5" DSHD Diskettes, or QIC HD Tapes. The UNIX address for the diskette drive is `‘/dev/fdx’` where *x* is the drive number, this will usually be `‘1’` if you only have one diskette drive installed. The UNIX address for the tape drive is `‘/dev/rmtx’` where *x* is the drive number. If an 8mm video backup drive is installed then the QIC drive is usually installed as `‘/dev/rmt1’`.

Protection method: DK96 Dongles, see section 1.5. A short cable is supplied with the Dongle and will only work in the second serial port of the machine. The AIX device address of this port is usually `‘/dev/tty1’`, this is the address that you will be prompted for during the installation.

Wang terminals may be supported via Chase IOLAN terminal concentrator if an ethernet card is present in the machine, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

The AIX kernel is completely self configuring and has no practical resource limitations.

## ICL DRS6000 and the ICL Sparc Teamserver

Installation Media: DAT or QIC tapes. The UNIX device address for the tape is `‘/dev/rmtx’` where *x* is the drive number, usually 0 for the first drive.

Protection method: DK96 Dongles, see section 1.5.

DK96 Dongles may be connected to any of the serial ports on the machine, a dongle cable is supplied with **KCML**. Terminals are labelled `‘/dev/term/nn’` where *nn* is the port number.

Wang terminals may be supported via the Chase Research IOLAN terminal concentrator, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

This is a Unix 5.4 system which can be tuned with `idtune` and `idbuild`.

## ICL DRS3000 and the ICL Intel Teamserver

Installation Media: DAT, QIC tapes, or 3.5" Diskettes. The UNIX device address for the tape is `‘/dev/rmtx’` where *x* is the drive number, usually 0 for the first drive. The same floppy disk addresses as SCO UNIX may be used (see below), although most of the UNIX installation programs use `‘/dev/rdisk/f0’`.

3.5" DSHD	<code>/dev/fdx135</code>
3.5" DSDD	<code>/dev/fdx135ds9</code>

where *x* is the drive number, 0 for the first drive and 1 for the second.

Protection method: DK2 Dongles, see section 1.5.

Wang terminals may be supported via the Chase Research IOLAN terminal concentrator, see the Wang terminal support chapter in Volume 3 of the Language Reference Manual.

This is a Unix 5.4 system which can be tuned with `idtune` and `idbuild`.

## Hewlett Packard HP9000 series

Installation Media: DAT tapes. The UNIX device address for the DAT tape is usually `/dev/rmt/xm` where *x* is the drive number, usually 0 for the first drive.

Protection method: DK96 Dongles, see section 1.5. DK96 dongles may be connected to any of the RS232 ports on the direct distribution cable or panel using the cable supplied. These ports are usually labelled `/dev/tty0pn` where *n* is the port number.

Wang terminals may be supported via the Chase Research IOLAN terminal concentrator, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

To tune the kernel use the SAM utility.

## SUN SparcStation

The operating system version should be at least SunOS 4.1.1.

Installation media: High density 3.5" diskettes or QIC tapes. The address used for the floppy device is normally `/dev/fd0`. The *eject* command is used to retrieve the floppy disk from the drive, although the *kcmladmin* script does this automatically. The address of the tape device, if installed, would normally be `/dev/rmt0`.

Protection method: DK96 Dongles, see section 1.5. DK96 dongles may be connected to any of the two RS232 ports on the machine, these ports are usually labelled `/dev/ttya` and `/dev/ttyb`. The dongle should plug direct into one of these ports, however some machines may require a short male to male gender changer between the dongle and the machine.

SunOs is based on the BSD version of UNIX at present though it will be AT&T System 5.4 compliant in the next release. **KCML** documentation assumes an AT&T version of UNIX and the use of the Bourne or Korn shells. This is available provided that the directory `/usr/5bin` precedes `/usr/ucb` on your path, e.g. in each users profile the *PATH* variable should be defined thus:

```
PATH=/usr/5bin:/usr/lib/kcml:$PATH
export PATH
```

This addition is automatically added to the default *.profile* created by the *kcmladmin* program.

Wang terminals may be supported with the Chase Research IOLAN terminal concentrator, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

## Motorola 88000 Range

Installation Media: QIC tapes. The UNIX device address for the tape is `‘/dev/rmt/ctape’`.

Protection method: DK96 Dongles, see section 1.5.

Wang terminals may be supported via the Chase Research IOLAN card, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

This is a Unix 5.4 system which can be tuned with `idtune` and `idbuild`.

## DEC Alpha

Installation Media: QIC, DAT or TK tapes can be used. The default address for the first tape device is `‘/dev/rmt0’`.

Protection method: DK96 Dongles, see section 1.5.

Wang terminals may be supported via the Chase Research IOLAN card, see the Wang terminal support chapter in Volume 3 of the Language Reference Manuals.

At the moment *kcmladmin* does not attempt to set up the default logins etc., this should be done manually using the system management tools provided.

## Appendix B - *kcmladmin* errors

---

The following is a list of errors that may be reported by the *kcmladmin* program.

### System errors

**All KCML tasks must be terminated before the installation or upgrade can take place, including any background or global partitions.**

A list of all currently running tasks can be displayed with the UNIX 'ps' command, e.g.

```
ps -ef | grep " kcml "
```

which may display something similar to the following:

```
root 76      1      0 09:11:11      ?      0:09 kcml -g KISAM
kcml 94      1202  0 11:54:11      2      0:99 kcml DEVICES
```

The first task is a **KCML** global partition and can be terminated by killing the process id number (PID) which is displayed in the second column e.g.

```
kill 76
```

In most cases the kill command will only work if you are logged in as the super-user. The other task in the example above are normal **KCML** users, these can either be logged out in the normal way or may be killed if you are sure that this will cause no corruption to your data.

**You must be logged in as the super-user to run this program**

Logout and login as the super-user (root) and re-run the program.

## General errors

**Could not rename the kcmlsetup file from the backup**

**Could not rename the kcml file from the backup**

If while performing an upgrade the *kcmladmin* program has a fatal error it will attempt to copy back any backup files. The 'kcml' file is renamed to 'kcmlversion' where *version* is the version number of the old **KCML**, and the *kcmlsetup* script is renamed to 'kcmlpid', where *pid* is the process id number of the *kcmladmin* program. This error will only occur if the backup file cannot be restored. It may be that the script failed before the backup took place. Check the utilities directory to see if the 'kcmlversion' or 'kcmlsetupid' files exist, if they do then make sure that they are identical to the 'kcml' and 'kcmlsetup' files respectively, if there is more than one backup file then use the file with the highest version number and the newest date stamp (use 'ls -l' to see the date stamp on the file). To check to see if the files are identical use the following:

```
cd /usr/lib/kcml
sum kcml kcml version
```

this command should return the checksum of the two files. If these numbers differ then copy the backup file into the *kcml* file:

```
cp kcml version kcml
```

The same can be done for the 'kcmlsetup' script.

**Cannot find device xxxx**

The device *xxxx* entered does not exist or is not a block or character special device. Refer to the notes in Appendix A for a list of the devices used by your machine.

**Failed to add the kcml,kl user(s) to the password file these need to be added manually.**

The installation script attempts to add two users (kcml and kl) into the password file for the machine. This message will only occur if the users already exist or if there is a problem with the password file itself. Try adding the users manually, see the notes in Appendix A for information on adding users.

**Failed to add the kcml group to the group file these need to be added manually.**

The installation script attempts to add the group 'KCML' to the group file. This message will only be displayed if the group already exists or if there is a problem with the group file itself. Try adding the group manually, see the notes in Appendix A for information on adding groups.

**Failed to remove the kcml,kl user(s) to the password file these need to be removed manually.**

If you are performing a removal the script attempts to remove the two users (kcml and kl) from the password file for the machine. This message will only occur if the users do not exist or if there is a problem with the password file itself. Try removing the users manually, see the notes in Appendix A for information on removing users.

**Failed to remove the kcml group to the group file these need to be removed manually.**

The installation script attempts to remove the group 'kcml' from the group file. This message will only be displayed if the group had already been removed or if there is a problem with the group file itself. Try removing the group manually, see the notes in Appendix A for information on removing groups.

**Could not copy .profile into /tmp/kcmlprof**

This error only occurs if you have asked to modify the users environment, either during the installation procedure or by taking the option from the *kcmladmin* menu, and you do not have the temporary directory (/tmp).

**Could not find the #DO entry in the /usr/kcml/.profile file, edit aborted!**

This error only occurs if you have asked to modify the users environment, either during the installation procedure or by taking the option from the *kcmladmin* menu, and the profile does not contain the #DO and the #DONE lines. The profile editor uses these lines to mark the start and end of the environment variable section.

**Could not find the permissions file therefore the permissions on the KCML utilities are not set correctly.**

The permissions files is created by the *kcmladmin* program, if for some reason this file does not exist then the permissions on the **KCML** utilities will not be set correctly, these must be set manually otherwise problems may occur when using **KCML**. To set the permissions enter the following commands:

```
chown kcml /usr/lib/kcml /usr/lib/kcml/*
/usr/lib/kcml/*/*
chown kcml /usr/kcml /usr/kcml/*
chgrp kcml /usr/lib/kcml /usr/lib/kcml/*
/usr/lib/kcml/*/*
chgrp kcml /usr/kcml /usr/kcml/*
chmod 777 /usr/lib/kcml /usr/kcml
chmod 555 /usr/lib/kcml/*
chmod 774 /usr/lib/kcml/kcml /usr/lib/kcml/GLOBAL*
chmod 666 /usr/lib/kcml/TERMINFO /usr/lib/kcml/TERMINFO/*
chmod 666 /usr/lib/kcml/D99.bin
```

The first four commands will fail if the user 'kcml' or the group 'kcml' have not been created successfully.

**The device *xxxx* is not a character special file !!**

Only occurs if you are using DK96 dongles. This error means that you have entered a device address that does not exist. Refer to Appendix A for a list of the recommended device addresses for DK96 dongles on your machine.

**Could not link the dongle device**

Only occurs if you are using DK96 dongles. This error means that the program failed to create a link between the device address at which the dongle is connected and the file `/dev/dongle`. Try executing the following command from the UNIX shell:

```
ln /dev/tty20 /dev/dongle
```

This assumes that the dongle will be connected to `/dev/tty20`.

**Could not read the Driver files from the installation media**

Only occurs if you are using DK2 dongles. This error means that you have inserted a floppy disk that does not contain the KCML Console Driver files, or perhaps the disk is faulty in some way.

**Could not create the file `/etc/perms/dw`**

Only occurs if you are using DK2 dongles. This error means that you are installing an SCO UNIX/XENIX version of the KCML Console Driver onto an Interactive or AT&T UNIX machine. Obtain the correct version of the Console Driver and try again

**Failed to make the directory `/tmp/dw`, Console Driver installation aborted**

Only occurs if you are using DK2 dongles. This error means that either the `/tmp` directory does not exist or that the file system containing the `/tmp` directory is full. Contact your hardware vendor for help.

**Machine type *xxxx* does not support DK2 dongles**

Only occurs if you are using DK2 dongles. This error will occur if you attempt to install the KCML Console driver on a machine that does not support DK2 Dongles.

**Failed to remove the KCML Console driver from the UNIX kernel**

or

**Failed to rebuild the UNIX kernel**

Only occurs if you are using DK2 dongles. This error means that the Console Driver was not removed correctly from the UNIX kernel. Try to remove this again by using option 4 on the *kcmladmin* menu.

**The KCML Console driver does not exist**

Only occurs if you are using DK2 dongles. This error occurs if you are performing a removal of the **KCML** Development system, and the Console Driver has already been removed, or was never installed.

**Could not read the KCML files from the installation media. Make sure that Volume 1 has been inserted.**

This error occurs if the media is faulty or if the wrong volume has been inserted.

**Failed to compile the TERMINFO database from the file TERMINFO/src**

**KCML** will not work correctly if the TERMINFO database has not successfully compiled. Once the installation is complete try compiling the database manually with the following commands:

```
cd /usr/lib/kcml
./tik TERMINFO/src
```

For more information about the TERMINFO database refer to the Terminal Support chapter in Volume 1 of the **KCML** Language Reference Manual.

**Failed to compile the GPDINFO database from the file GPDINFO/src**

The GPD database is only important if you are using the General Printer Driver capability of **KCML**. Try compiling the database manually using the following commands:

```
cd /usr/lib/kcml
./tik GPDINFO/src
```

**Fatal errors****1 Program Aborted**

This error is only displayed if the response to a 'Continue (y/n)' is 'n'.

**2 Could not make the KCML utilities directory**

For some reason *kcmladmin* could not make the utilities directory. Try running the 'mkdir' command manually:

```
mkdir /usr/lib/kcml
```

if this works then remove the directory and rerun *kcmladmin* again. To remove the directory type:

```
rm -r /usr/lib/kcml
```

**3 The disk(s) may be faulty, contact your distributor for another copy.**

Whilst reading the files from the installation media *kcmladmin* detected an error. Try running the installation again. Also check that you are entering the correct device address for the media supplied.

**4 Could not read the KCML files from the installation media**

This error occurs if *kcmladmin* cannot restore the 'compress' utility and the first volume file. This can only occur when installing from floppy disks. Either the disk is faulty or volume 1 has been removed from the disk drive.

**5 Could not uncompress the multiple volume file**

This error occurs if the 'compress' utility failed to decompress the files from the floppy disk. Try re-running the installation, if it fails again then contact you distributor.

**6 Could not cpio the information from the file VOLUME n**

This error occurs if the UNIX *cpio* command cannot extract the information from the VOLUME file. Try re-running the installation, if it fails again then contact you distributor.

**7 Could not cpio the information from the installation media**

This error occurs if the UNIX *cpio* command fails to extract the information from the installation media. Try re-running the installation, if it fails again then contact you distributor.

**8 Some of the important kcml files are missing**

This error occurs if some of the files that should be in the utilities directory that are required to allow **KCML** to run properly are missing. Try re-running the installation, if it fails again then contact you distributor.

**9 Could not create the home directory for KCML users**

For some reason *kcmladmin* could not make the **KCML** users home directory. Try running the 'mkdir' command manually:

```
mkdir /usr/kcml
```

if this works then remove the directory and rerun *kcmladmin* again. To remove the directory type:

```
rm -r /usr/kcml
```

**10 Could not rename VOLUME1 file**

Try re-running the installation, if it fails again then contact you distributor.

**11 Cannot determine machine type or protection method  
as the sum file does not exist**

**11 Cannot determine the KCML machine type**

**11 Cannot determine protection method**

No longer used.

**12 Could not merge the volume files**

Try re-running the installation, if it fails again then contact you distributor.

**HALT Program interrupted**

This error occurs if the program detects that the UNIX interrupt key has been pressed.



## Appendix C - KCML distribution files

---

The following is an alphabetical list of the files and directories that are distributed on each UNIX version of **KCML**.

<code>.sumnn.nn.nn</code>	This file contains information required by the installation script.
<code>berror.d</code>	This file contains a list of <b>KCML</b> error codes and descriptions. Only the descriptions on the right hand side of this file can be changed, do not insert any lines or change any information in the first three columns.
<code>bkstat</code>	Partition status program, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>checknum</code>	Used to generate a one shot password for remote support of software that has scrambled programs, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>compare</code>	Used to compare program source files, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>compress</code>	Used to compress data files prior to a backup, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>compressdir</code>	Used to compress all files within a directory prior to a backup, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>convert</code>	Used to split Wang platter image files into native operating system files, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>convert.eds</code>	Text file used by the <code>convert</code> utility, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>D99.bin</code>	The <b>KCML</b> utilities platter image. Refer to the <b>KCML</b> utilities chapter in Volume 1 for information about these utilities.
<code>dcnum</code>	Used by older <b>KCML</b> versions to convert the internal numeric format to BCD format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>deatom</code>	Used to deatomise Wang BASIC-2 programs into ASCII format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
<code>fsort</code>	Used to sort files, called by the <b>KCML</b> FSORT statement, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.

GPDINFO	This is a directory which contains the <b>KCML</b> General Printer Driver Database, which consists of several files, one for each terminal type supported by <b>KCML</b> , and a source file (src). Refer to the General printer driver database chapter in Volume 3 for more information.
hd	Used to display the contents of a file in hexadecimal format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
hexed	Used to edit files in hexadecimal format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
iskcml	Used to determine whether a file is a <b>KCML</b> program or not, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information. This utility is the same as running <i>kat</i> with the '-p' flag and is actually a link to the <i>kat</i> utility.
kat	Used to convert <b>KCML</b> programs to BASIC-2 or ASCII format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
kcml	Starts up the <b>KCML</b> programming language, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
kcmladmin	Program used to install, upgrade and remove the <b>KCML</b> environment.
kcmlset	Used to invoke Wang flow control on certain terminal concentrators, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
kcmlsetup	Script used to start global partitions when the machine is booted. Usually called from <i>/etc/inittab</i> . Refer to the Background and Global partitions chapter in Volume 1.
kermit	File transfer program, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
KEYBOARD.*	Keyboard files used by the \$KEYBOARD statement. These files will only appear if you entered y to the prompt "Would you like to use the BASIC-2C compatible TERMINFO database". Refer to the Terminal support chapter in Volume 1 of the Language Reference Manuals for more information.
krebuild	Used to rebuild K-ISAM files. Refer to the K-ISAM manual for more information.
kref	Variable and subroutine referencing utility, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.

kverify	Used to verify K-ISAM files. Refer to the K-ISAM manual for more information
pltlist	Used to list the contents of a platter image, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
pltsplit	Used to split platter image programs into individual native operating system files, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information..
SCREEN	This directory contains screen tables for commonly used terminals only. To use these files they should be copied into a directory that exists on the current PATH. Refer to the Terminal support chapter in Volume 1 of the Language Reference Manuals for more information.
selfid	Used to determine the type of terminal being used. Also used to obtain answerbacks, graphics capabilities etc. Refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
TERMINFO	This is a directory which contains the <b>KCML</b> Terminal Information Database which consists of several files, one for each terminal type supported by <b>KCML</b> , and a source file called <i>src</i> . Refer to the Terminal support chapter in Volume 1 for more information.
tik	Used to compile the TERMINFO database, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
tiklist	Used to list the <b>KCML</b> TERMINFO equivalent for the specified terminal type, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
tsrch	Program text search utility, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
ucompile	Used to de-compile whole platters or directories of <b>KCML</b> programs into ASCII, or Wang BASIC-2 format, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
uncompressdir	Used to de-compress a compressed directory, refer to the <b>KCML</b> utilities chapter in Volume 1 for more information.
vt220font	Font table for vt220 and vt320 terminals. Refer to the Terminal support chapter in Volume 1 for more information.
vt420font	Font table for vt420 and vt510 terminals. Refer to the Terminal support chapter in Volume 1 for more information.

which                   Used to search the current path for the location of the named file, refer to the **KCML** utilities chapter in Volume 1 for more information.

wyfont1               Font tables for Wyse screens. Refer to the Terminal support chapter in Volume 1.

wyfont2

## Appendix D - Installing via ethernet

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This method is useful if your machine does not have any form of removable media, but is connected to a network of machines that do.

Firstly the distribution media should be copied onto a machine on the network, preferably a machine running UNIX or a UNIX clone operating system such as AIX or XENIX. The disk or tape is copied with the *dd* command as follows:

```
dd if=device_address of=kcml.img bs=1024
```

When the command is complete it will return the number of blocks read in and the number of block written out. Refer to the UNIX documentation for the correct device address for the media on your machine. The image file can now be copied onto the machine on which **KCML** is to run. Assuming that TCPIP is configured correctly on both machines the following command should work:

```
rcp kcml.img dest_machine:/tmp/kcml.img
```

where *dest\_machine* is the address or host name of the destination machine.

Once copied run the installation program (*kcmladmin*) and specify the file */tmp/kcml.img* as the device address part of the *cpio* command and when prompted for a device name during the installation.

## Appendix E - Unix kernel tuning

---

Modern Unix implementations are to a large extent self configuring and do not need to be tuned. However if you have a large number of users or you want to use global memory then you may need to change some kernel parameters. This is particularly likely if the Unix is not based on Unix 5.4 kernel (e.g. SCO).

If you find that you have exceeded some Unix resource limit then you will need to tune one or more kernel parameters, rebuild the Unix kernel and reboot. Some implementations automate this procedure for you (see appendix A) but others may require manual editing of tables. This is generally documented in the System Administrators Guide for your computer.

### File sizes

Most Unix systems restrict the size of files that non-root users can create. If you need very large database files or platter images you will either have to create the files while logged in as root or change the defaults if permitted. On Unix 5.4 you can set both the hard and soft limits to a large number like 2GB by setting the limit in bytes as a hexadecimal number e.g.

```
idtune SFSZLIM 0x7D000000
idtune HFSZLIM 0x7D000000
```

In SCO Unix the parameter is `ULIMIT` and is expressed in units of 512 byte blocks.

### Number of files open

If your application uses a lot of separate native files then you may find that you get D82 errors through needing more files open than the kernel allows per process. Applications using platters probably will not have a problem with the default limits. You can check the size of the file pool with `LIST DT`. Most modern Unix systems allow 60 or more but some older systems enforce a limits of only 20. The kernel parameter to tune is `SFNOLIM` on Unix 5.4 (default 64), *maxfiles* on HP-UX (default 60) and `NOFILES` for SCO (default 60).

There is also sometimes a limit on the total number of files open across the system. This is generally self configuring but on SCO it is a very low 200 by default so the parameter `NFILE` should be increased to an appropriate value.

### Shared memory

If you need a large amount of shared memory for one or more global partitions then you may find that get A02 errors while the global is starting and this means that you need to increase the `SHMMAX` kernel parameter. This is a number of bytes and should ideally be a multiple of 4 or 8 kilobytes.

## Semaphores

KCML uses Unix semaphores to manage access to both \$PSTAT and global partitions and many Unix versions have quite small limitations on the number of semaphore undo structures which can prevent KCML starting up (X79\_023 error) when the pool of structures is exhausted. You should set the SEMMNU kernel parameter, usually defaulted to 30, to at least the maximum number of KCML partitions that will be active times one plus the number of globals.

## File locks

If you will be using KISAM for database access you may need to increase the number of file locks that can be outstanding at any time. Symptoms of running out of locks is poor performance for database applications. On Unix 5.4 this is the FLCKREC parameter, on HP-UX it is *nflocks*. It is recommended that this parameter is set to a value of at least 3000. A larger value may be required for systems with more than 300 users.

## Number of processes

The maximum number of concurrent processes is dynamic on most Unix implementations but is limited in SCO Unix with a default of 100. This includes system processes as well as KCML processes. The parameter to change in SCO is NPROC.

There is also often a limit on the number of processes a single non-root user can create. If all your users log in with the same login id or your programs use \$RELEASE and \$SHELL extensively then this limit may be quickly reached. Under SCO you will need to change MAXUP and under HP-UX the equivalent parameter is *maxuprc*.