Central Configuration Facility Operator's Manual

PREFACE

This guide contains a description of the operation of the Central Configuration Facility (CCF). The guide leads the user through the basic steps needed to create system maps. Information is presented in an easily assimilable form; it assumes a working knowledge of DCS 3000, 6000 Series and Microcompact Systems.

The installation of the CCF software onto a personal computer (PC) and the connection of the PC to the System and to PROM Programmers is covered in the CCF Installation Manual.

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NOTE: The remainder of Section 2 does not apply to Microcompact.

NOTE: Section 3 does not apply to Microcompact.

1 INTRODUCTION

The Central Configuration Facility (CCF) is a software package running on an IBM Personal Computer or compatible machine which permits the generation of configuration data for the **DCS 3000**, the **6000 Series** and **Microcompact** Intercom Systems. This configuration data is called a system map and sets up the system to the operational requirements of the desired application. A system map is required for each system used and allows the following to be implemented.

☐ Assignment of names and mnemonics to ports, groups and conferences

☐ Setting of the initial or permanent status of each crosspoint within a matrix

☐ Assignment of functions and, for DCS 3000 and the 6000 Series only, assignment of operation modes to individual keys on control panels

☐ Assignment of function limits and default settings to Control Panels, for DCS 3000 and the 6000 Series only.

☐ Configuration of External Control input and output actions to either Panel keys or Matrix crosspoints

☐ Production of multiple maps

☐ Provide Trunk Line assignments for Networked systems and cross correlate this information between maps on the network.

The CCF operator facilities follow the 'Windows, Icons, Mouse and Pointer' approach (abbreviated to WIMP) and is based on the GEM user interface software from Digital Research Inc. A familiarity with this user interface is advisable before using CCF. A detailed explanation of this environment is given in the GEM Desktop Manual (reference C).

From a configuration viewpoint, DCS 3000, 6000 Series and Microcompact Systems are central audio mixing matrices to which various Control Panels can be connected. When configuring a system, information is provided for the following:

a) the characteristics of each matrix crosspoint,

b) a directory listing of the outstation port connections and their parameters which are used to make up the System Map.

c) the action to be performed by each key of every Panel (defined in terms of communication with the elements of the list of (b) above and of the state of DC Output signals),

d) any Trunk Line routing when configuring a Networked system,

e) any DC control functions using the DC inputs and outputs.

The creation and modification of these sets of information for DCS 3000 and the 6000 Series are covered in Sections 2, 3, 4, 5 and 6 of this manual. The creation and modification of these sets of information for Microcompact are covered in Sections 2, 3, 4, 5 and 7 of this manual. When the information represented on CCF is satisfactory, it can be transferred in a single step to the system. This is covered in Section 8 of this manual.

1.1 Starting CCF

There are two ways of calling up the CCF package:

a) It may be installed such that it is executed automatically when the PC is switched on. In this case, simply await the appearance of the password entry request (see below) after switching on the PC.
   or

b) At the DOS C:\> command prompt, type the command 'CCF' and press the ENTER ↵ key.

When CCF starts loading into the computer it initiates a password protection security mode which operates as follows.

a) The screen displays 'Enter a password or CTRL C to exit' (CTRL C means pressing down the Ctrl and C keys together).

b) Type the default password (this is set initially by Philip Drake Electronics Ltd. to be 'USER' for user access). This may be typed in upper or lower case letters as desired. When this password is typed, the screen displays '*' characters in place of the actual letters to avoid the password being compromised.

   If the password is typed incorrectly, the backspace (←) key can be used to remove the letters and the word entered again.

c) When the password is correctly typed in, press the ENTER ↵ key to action the entry. If the password does not match the message 'Incorrect Password. Enter a password or CTRL C to exit' is displayed; requiring the correct password to be entered.

d) When the password has been entered correctly a message is displayed indicating correct entry. Press ENTER ↵ (carriage return) to exit from security mode and continue loading CCF.

This sequence is repeated whenever CCF is loaded.

The password can be modified to avoid unauthorised access to the system (See Section 1.2).

When the CCF program has completed its loading sequence it displays the top level screen (CCFTOP); see Figure 1.1. Note that all of the screens shown in this manual are only diagramatic representations of actual screens

There are eight 'System' icons present showing the maximum number of systems which can be networked together; a 'system' can comprise DCS 3000, 6000 Series or Microcompact. On initial entry to CCF these icons are shown as inactive, as none of the systems has a map currently active on it. The centre icon, labelled 'Trunk Lines', provides access to the trunk line configuration which is detailed in section 5.

To exit from the CCF program the 'File' menu selection at the top right is selected revealing a 'Quit' option. Clicking once on this option exits from CCF. All other 'Quit' options in CCF simply exit from a screen displayed to the previous level screen.

To begin configuration, click the left-hand button of the mouse with the arrow over one of the System icons (e.g. click on System 1 for a single system). This invokes the
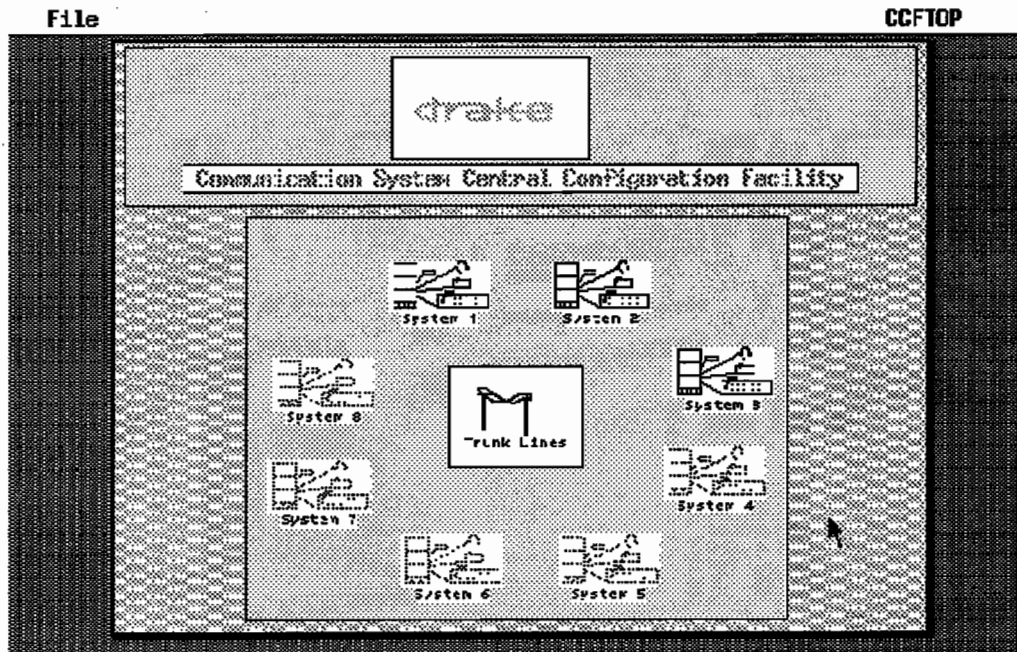
Figure 1.1 CCF - Top Level Screen

ccftopm1.pcx

workbench screen for the system selected; see Figure 1.2.
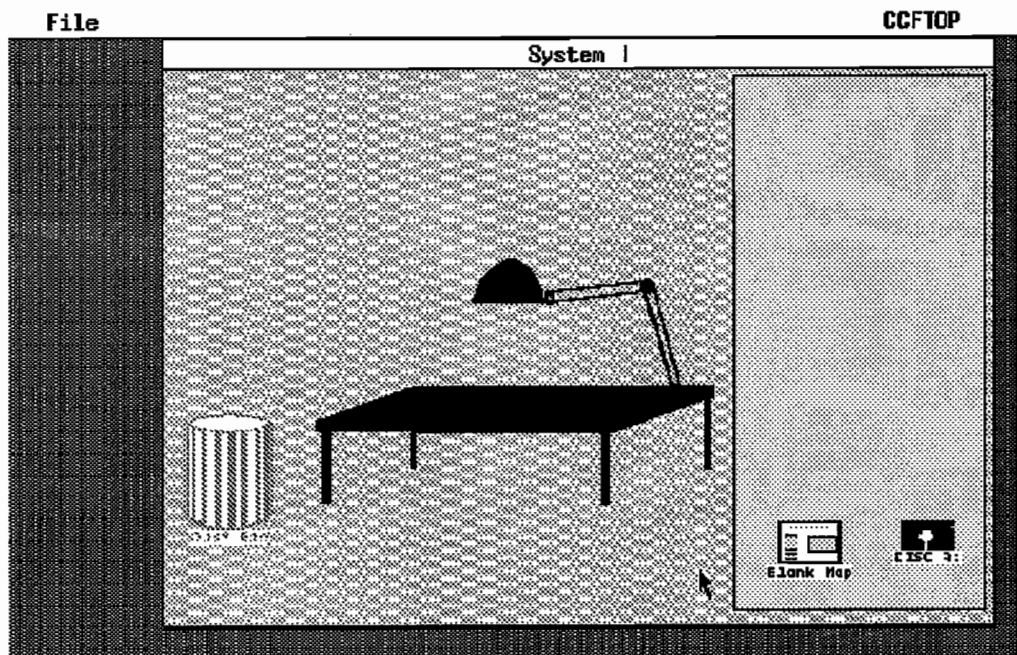
Figure 1.2 CCF - Workbench Screen

ccftop2.pcx

This screen provides an environment for loading, creating, editing and deleting system maps.

When CCF is first run the screen shows two icons in the right hand block (unless a converted map is available, which will be indicated by a corresponding 'Map' icon in the block). This block shows which maps are resident on the hard disk drive C.

The 'Floppy Disk A' icon at the bottom right of the screen is used to load system maps from drive A. If a system map has been provided by Drake on a floppy disk it should be inserted into drive A and the mouse clicked with the arrow over the 'Floppy Disk' icon. This will transfer the system map from drive A to drive C. System maps can also be saved to floppy disk, for archiving purposes, by dragging the desired map icon onto the floppy disk icon.

CAUTION: **A complete set of maps for a network system should be archived together since the Trunk Line configuration between systems must be compatible at all times (See Section 5). Saving and retrieving individual system maps may cause a mismatch of trunk line configurations which will cause the network to fail.**

The second icon present on drive C is the blank map icon which can be used to create an initial system map. By dragging this icon up into the drive C area a map creation form is initiated. This allows a suitable name to be entered for the system map, from the keyboard, before it is created by clicking on OK or pressing Return.

To edit the new map it needs to be put on the workbench by dragging the map icon to the chart table top. This makes the map the current active map for that system.

Note: A current system map should always be resident on the chart table or system errors may occur.

Should the map become unusable or unwanted it can be deleted from the workbench by dragging the map icon to the 'Dustbin'. Note that this does not delete the map immediately but holds it ready for retrieval until the editing session is ended by quitting from this screen. Up to 10 maps can be discarded and retrieved from the dustbin during any one editing session.

To save any changes made to the current system map (i.e. after an editing session), simply 'drag' the map icon to the drive C block. To avoid accidentally overwriting an existing map, a dialogue box is opened which allows the map to be renamed before saving it to disk.

To change the current system map (i.e. put another system map on the table) the map on the table must first be saved to disk and/or discarded in the 'dustbin'. A different map can now be placed on the chart table.

Once a system map is on the chart table it can be accessed for editing by either clicking on the table lamp or by pressing Return. This reveals the Map Configuration Screen as shown in Figure 1.3.

To the left are seven icons labelled with which you may select the various functions of CCF. Their use is described briefly overleaf and detailed in the following sections. To the right is displayed information about the current system map status.

The screen icons are used to access sections of CCF as follows:

MATRIX   Selecting this icon enters the Matrix configuration screen. This allows individual crosspoints in the matrix to be configured as either normally open, normally closed, permanently open or permanently closed. It also allows additional control actions to be assigned to crosspoints.
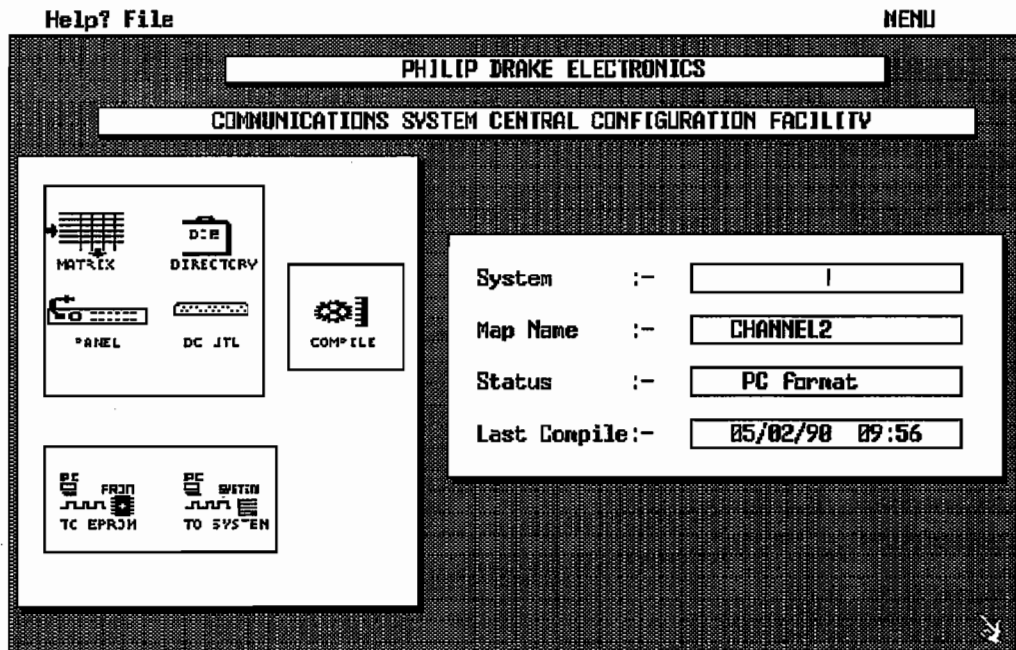
Figure 1.3 CCF - Map Configuration Screen   ccfm003.pcx

DIRECTORY   Selecting this icon enters a facility for defining and naming the various resources within a system i.e. ports, groups, conferences, etc.

PANEL   This icon, which relates to the **DCS 3000** and **6000 Series** systems only, enters the Panel Configuration facility, where the panel type, key type and individual key assignments are defined. For Microcompact, panel keys are programmed via the DC UTL icon.

DC UTL   This icon allows access to the DC Control programming facilities of CCF. Individual DC Control signals can be configured, according to a number of logical options, to give the control operation required. Note that in **Microcompact**, panel keys are programmed via the DCC Control programming facilities (Card 17 - Card 32).

COMPILE   This option performs a conversion from the files generated by CCF to the 'machine code' system map used by the microprocessors in the matrix.

TO EPROM   Clicking on this icon sends the compiled system map to an attached EPROM Programmer to produce the EPROMs to be inserted in the Martix or Central Switching Unit (CSU).

TO SYSTEM   Clicking on this icon sends the compiled system map to the Matrix, via the RS232 interface link or the network, to install the map on the system.

When creating a new system map it is recommended to follow the sections of this manual in the order presented. Each section is concerned with a particular part of the map and it is advisable to create the map information in the order presented.

1.2 Changing Passwords

When CCF is delivered it contains two default passwords which allow either normal 'user' access or an 'administrator' level of access. The administrator level allows the entry passwords to be modified for both user and administrator access.

To the access administrator level the correct password must be entered on loading CCF when the 'Enter the correct password or CTRL C to exit' message is displayed. The Default administrator password is 'ADMIN'. It is advisable to change this password on initial use of the CCF to avoid unauthorised or undocumented alterations to the administrator password.

On entry of the administrator password the screen displays the following:

'The Administrator password has been entered.
Enter choice (1 - 3):
    1   Modify User Password
    2   Modify Administrator Password
    3   Exit'

Enter the number of the action required. When 1 or 2 has been entered the screen displays a brief message, after which CCF is ready for the new password to be entered. The rules for creating passwords are given below. The '*' character is displayed in place of the typed character, as before.

On correct entry of the password the message 'Type password once more' is displayed. Enter the password again and press ENTER. Incorrect entry will result in the message 'Passwords were not identical - Please repeat process' being displayed. Repeat the process until there is a correct match. When the password has been successfully modified the following message is displayed:

'Central Configuration Facility only operates when User Password entered. Hit <return>'

Press ENTER and CCF exits from the administrator level back into the operating system (DOS). Type CCF and press ENTER to reload CCF. The correct (new) password must be entered for CCF to load successfully

Password Rules

a) The password must be a minimum of 3 characters.

b) The maximum number of characters is 10.

c) Only the alphabetical (a..z) and numerical (0..9) characters may be used. Any other character entered is ignored.

d) The characters may be entered in upper or lower case as desired. This does not effect the entry of the password on loading CCF.

e) The backspace key can be used to correct any typing mistakes.

When option 3 is pressed the following message is displayed:

'Central Configuration Facility only operates when User Password entered. Hit <return>'.

Press ENTER and CCF exits from the administrator level back into the operating system (DOS). Type CCF and press ENTER to reload CCF.

Note: The passwords are recorded and stored on the hard disk. If the correct passwords are lost it will be neccessary to re-install the CCF software from the master floppy disks.

2 CONFIGURING THE DIRECTORY

2.1 General

The Directory facilities permit the CCF operator to define and name the system's resources. The names which are so defined are used subsequently in further operation of the CCF and by the Panel operators.

The Directory is a list of up to 800 entries, identified by the numbers 000 to 799. Thus the 'names' above are actually numbers. Each entry defines a system resource and comprises:

a) a mnemonic of up to four alphanumeric characters,

b) a text description,

c) the definition of the system component referred to which may be any of: an audio Port, a Group or a Conference,

d) the resource characteristics.

Ranges of the Directory numbers are allocated as follows:

000 to 199	:	Reserved for future enhancements,
200 to 499	:	Groups,
500	:	Master conference talk,
501 to 564	:	Conferences 1 to 64 respectively,
565 to 599	:	Reserved for future enhancements,
600 to 727	:	Physical ports 1 to 128 respectively,
728	:	Remotely assignable key,
729	:	Key with centrally programmed DCC, but panel can locally re-assign key function for making audio routes.
730 to 799	:	May be used as a 'dummy' entry to gain access to DCC programming and provide a mnemonic for panel keys.

Because of the fixed relationship between Panels/Ports and the Directory numbers 600 to 727, Panels/Ports are often referred to as their corresponding Directory number.

The Directory is usually supplied with entries 500 to 564 and 600 to 727 defined as described above but with default mnemonics and descriptions.

The definition of a Directory entry is performed in two Phases. Firstly, the mnemonic, the text description and the components of a Directory entry (the component Directory numbers which comprise a Group for instance) are selected. Secondly the resource characteristics are assigned to the entry.

The CCF facilities providing the first phase are accessed via the Directory icon of the top level screen and those providing the second phase are accessed in the case of DCS 3000 and 6000 System via the Panel icon or for Microcompact via the DCC Utilities icon.

2.2 First Phase: Mnemonic, Description and Component Assignment

Select the Directory icon from the CCF screen,(only one press of the Mouse button is required). The resulting top level Directory screen is shown below:

| View File | DIR |

```
                                   ------DIRECTORY------
                                  No.   Description   Mne.

                                  500  Master Conf Tlk  MTLK
                                  501  Conference 1     CF1
                                  564  Conference 64    CF64
                                  600  Port 1           PT1
                                  601  Port 2           PT2
                                  602  Port 3           PT3
                                  603  Port 4           PT4
                                  604  Port 5           PT5
                                  605  Port 6           PT6
                                  606  Port 7           PT7
                                  607  Port 8           PT8
                                  608  Port 9           PT9
```
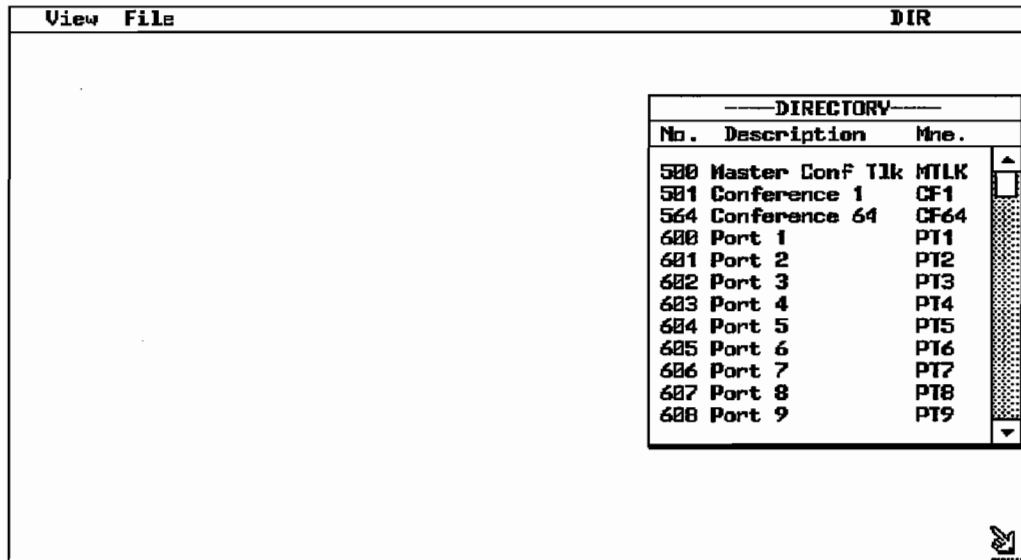
Figure 2.1 CCF - Top Level Directory Screen   ccf3m028.pcx

2.2.1 Viewing the Directory

The directory is displayed in a window which can be moved up and down to allow all of the directory entries to be viewed.

At the right hand side of the Directory Window is a standard GEM border comprising an Up Arrow, a Down Arrow, a Scroll Bar and a Slider. The Window may be moved in the standard ways by:

☐ clicking on the Up or Down Arrows to move up or down by one Directory entry,

☐ clicking on the Scroll Bar above or below the Slider to move up or down by one window height,

☐ dragging the Slider up or down to move the window correspondingly.

The VIEW menu at the top of the screen presents three mutually exclusive options allowing selection of the way in which the displayed Directory is ordered:

☐ by Directory number (in ascending numerical order),

☐ by Mnemonic (in alphanumeric order),

☐ by Description (in alphabetical order).

2.2.2   Creation and Editing of Directory Entries

This is accomplished by filling-out and/or editing displayed forms.

Either of two types of form are displayed. The first and simplest type is displayed for entry numbers above 600 (inclusive) which are reserved for Ports/Panels, i.e. not Groups. This is displayed below:

dirent01.pcx

The second type is displayed for Directory entries below 600 (exclusive). It permits the definition of a Group. This is displayed below:

dirent02.pcx

The simple Directory entry form is a subset of the Group Directory Entry form and therefore will not be described separately.

Selection of an existing entry for editing may be accomplished in two ways. The first way is to click the Mouse over the entry. This will cause a form describing the entry to be displayed ready for editing. The type of the form will correspond to the selected entry.

The second way is to select Edit/Enter from the File menu where upon a blank form of the simple type will be displayed. Fill in any one of the three fields in the form and click on the OK box in the form. The CCF will locate the Directory entry from this information and will display the remaining fields. If appropriate the form type will change to the Group type.

Creation of a new Directory entry may be accomplished either by clicking the Mouse over the blank area of the Directory Window below the last used entry or by selecting

Edit/Enter from the File menu. Either technique will result in the display of a blank form of the simple type as on the previous page.

Having obtained the display of a (possibly blank) Directory entry form the entry may be defined by filling-out or editing the fields of the form.

When a new Group is defined, the simple form type will be displayed initially. When it is filled-out, clicking the Mouse over the OK box will cause the CCF to redisplay the entry in a Group form.

Selection of fields for input may be accomplished by:

☐ the Down Arrow key or the Tab key to step forwards through the fields,

☐ the Up Arrow key to step backwards through the fields,

☐ clicking the Mouse over the field.

When a field is selected the cursor is positioned at the rightmost end of any data already entered therein. Editing may be conducted by using:

☐ the Left and Right Arrow keys to position the cursor within the field,

☐ the Del key to delete the character to the right of the cursor,

☐ the Backspace key to delete the character to the left of the cursor,

☐ the Esc key to delete the entire field.

When filling-in the fields, the following rules apply:

☐ Directory numbers must be in the range 200 to 799.

☐ Directory numbers and mnemonics must be unique, i.e. two entries may not have the same directory number or mnemonic.

☐ Mnemonics will automatically appear in lower or upper case depending on whether they are Listen-Only or not, respectively.

☐ The first character of the Description will be capitalised automatically.

☐ Within the Description, only letters and numerals, ie. no punctuation marks, are allowed.

☐ In general, where any character is not permitted in a field, the system will ignore any depression of the corresponding keyboard key thus preventing its entry into the field.

The three fields at the top of the form, i.e. 'Directory No.', 'Mnemonic' and 'Description' must be filled-in. When filling-in the component fields of the Group section, only the 'Directory No.' field has the effect of defining the component. It must be filled-in to select the component but neither of the other two fields need be.

A component Directory entry may be removed from a Group by erasing all three fields of the component's line of the form.

A maximum of 11 component entries may be defined for a Group. If more entries are required a Group-of-Groups may be defined since a Group may be a component of another Group. Note that the groups are expanded to form a single large group when this group-of- groups is displayed on a panel.

Where the facilities of a Group are not required, a Group with no component Directory entries or of one entry only may be defined.

In the case of entry numbers 501 to 564 which are assigned to conferences the Group entry form is displayed and Group components are accepted by the CCF if entered. These have no effect, however, and should not be entered, ie these Directory entries should

have their own Mnemonics and Descriptions defined but should not have any component Directory entries defined.

2.2.3 Leaving the Directory Subfunction

Selecting QUIT from the drop down menu exits from directory to the System Configuration menu.

> **NOTE: The remainder of Section 2 does not apply to Microcompact.**

2.3 Second Phase: Assignment of Characteristics to Directory Entries'

The resource characteristics affect Panel Keypad usage and Intelligent Panel Local Programming facilities by defining the permitted mode of communication. They are:

a) Talk-Only: other parties may only talk to the Directory entry when using their keypad.

b) Listen-Only: other parties may only listen to the Directory entry when using their keypad.

c) Talk-and-Listen: other parties may both talk and listen to the Directory entry when using their keypad.

d) Reply-bar: normally set for non-panel ports which may have permanent or normally-made crosspoints to panels. Setting Reply-bar blocks the normal signalisation, i.e. flashing LED.

e) Valid: by removing the validity, entries become inactive.

f) Conference: This is a pre-defined characteristic and may not be altered by the CCF operator. It is displayed for information only.

g) Locked: Setting of the Talk, Listen and Talk-and-Listen attributes (above) is intended to control the means of communication to the relevant Directory from all other keypads in the system.

   In the individual panel programming menus, when programming keys in Soft mode, any panel may be assigned a Facility level to override this 'normal' mode of communication.

   Setting the Lock attribute to a port (directory entry) in this table 'locks' the selected attribute to Talk, Listen or Talk-and-Listen, from panel assignments.

   Chosen panels can however be assigned the highest facility level, 'Lock Override', which enables these panels to select Talk, Listen or Talk-and-Listen to any other panel (when in Soft mode, irrespective of any Lock attribute

Note that characteristics (a), (b) and (c) are mutually exclusive.

The characteristics may be overridden when defining key actions using the CCF as described in Section 3.

The characteristics of the Directory entries are assigned using facilities accessed via the Panel icon of the CCF screen. The resulting top level Panel screen is shown below:
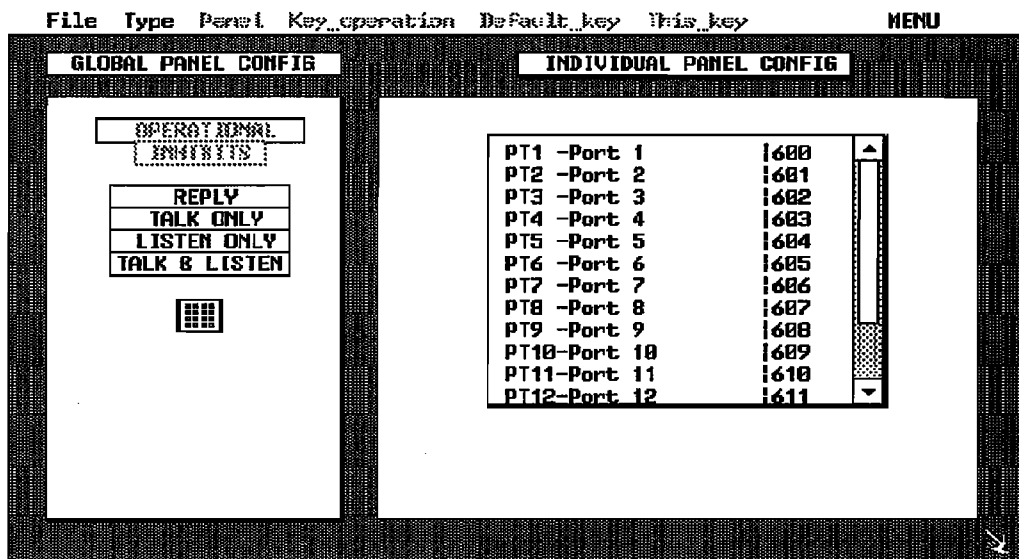
Figure 2.2 CCF - Top Level Panel Screen   ccf3m005.pcx

Next select the Global Characteristics icon (the rectangular, chequered icon in the box labelled 'OPERATIONAL INHIBITS'). This will cause the box to the right hand side containing the Directory listing to disappear. Select the icon again. The resulting screen is shown below:
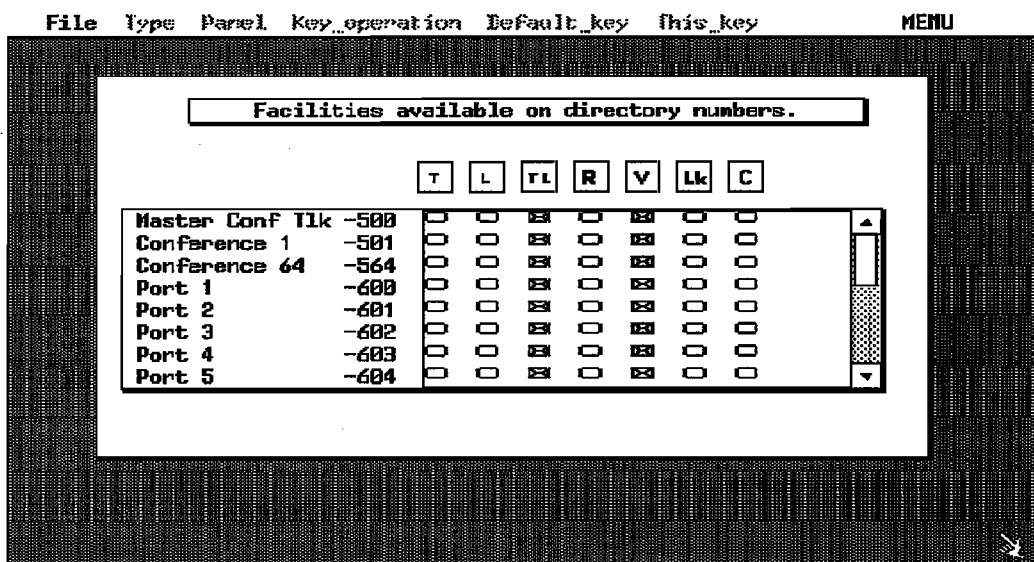
Figure 2.3 Panel Screen - Global Characteristics   ccf3m004.pcx

The displayed part of the Directory is a 'window' into the whole Directory. It may be moved up and down the Directory to view the remainder. Against each Directory entry are a number of boxes arranged in columns. Each column represents one of the set of characteristics. Where a box is marked with a cross then the characteristic is present or active for the corresponding entry. The correspondences between the column labelling

and the indicated characteristics (see Section 2.1) are:

T	L	TL	R	V	Lk	C
TALK-ONLY	LISTEN-ONLY	TALK-AND-LISTEN	REPLY	VALID	LOCK	CONFERENCE
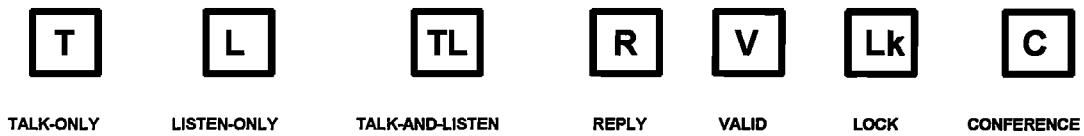
keyassn1.gem

At the right-hand side of the Directory Window is a standard GEM border comprising an UP Arrow, a DOWN Arrow, a Scroll Bar and a Slider. The Window may be moved in the standard ways by:

☐ clicking on the Up or Down Arrows to move up or down by one Directory entry,

☐ clicking on the Scroll Bar above or below the Slider to move up or down by one window height,

☐ dragging the Slider up or down to move the window correspondingly.

To alter a Directory entry's assigned characteristics, click the Mouse over the corresponding characteristic box. This will 'toggle' the box's status, i.e. a disabled box will be enabled and vice versa. Note that the CCF will automatically maintain the mutual exclusivity of the Talk-Only, Listen-Only and Talk-and-Listen characteristics.

Note: The T, L and TL characteristics refer to keypad access from all other panels, **not** to the keypad of the directory number in question.

To return to the CCF screen, click the Mouse over the Quit item in the File menu. This will restore the top level Panel screen. Then click the Mouse over the Quit item of that screen's File menu.

3 CONFIGURING PANELS

3.1 General

This permits the selection of actions to be performed by individual keys on individual panels.

Each key may be configured to cause Talk-Only, Listen-Only or Talk-and-Listen to any one of a simple Directory entry, a Group or a Conference. This overrides the corresponding characteristic of the Directory entry. Instead of the foregoing, a key may be configured as a Master Conference Talk key. Additionally, it may be chosen to activate any of the DC Control actions.

On an Intelligent Panel, only keys which are not configured as above or are assigned as directory number 729 by the CCF are available for Local Programming operations.

Selecting the Panel icon of the CCF screen results in the following screen being displayed:

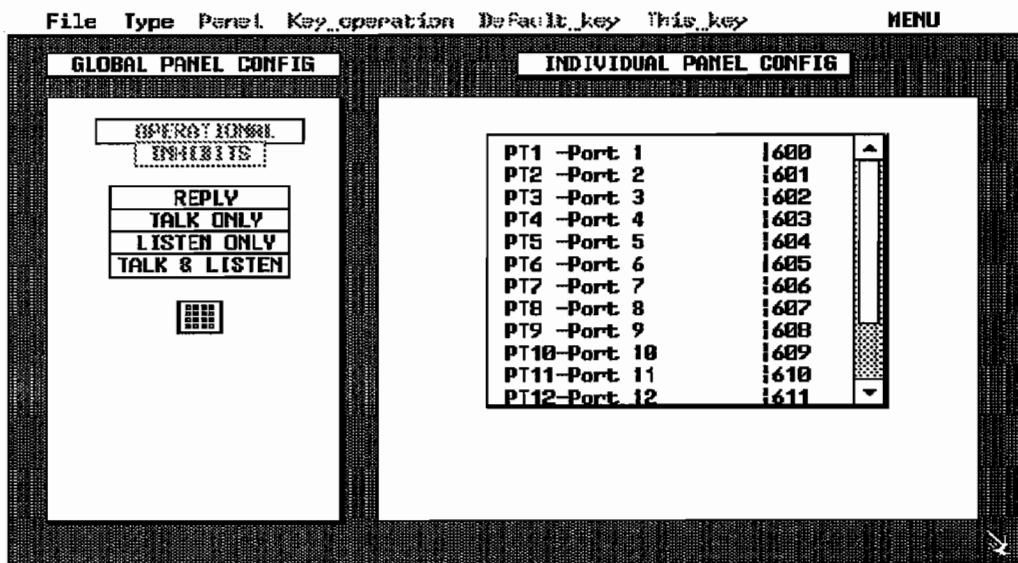*Figure 3.1 CCF - Top Level Panel Screen*   ccf3m005.pcx

The box headed 'GLOBAL PANEL CONFIG' should be ignored as it is not relevant to the assignment of Panel keys (see Section 2.3).

3.2 Panel Selection

The box labelled 'INDIVIDUAL PANEL CONFIG' is a window into a subset of the Directory and contains only entries above 599 (to 727) which have already been created in the

directory. The CCF assumes that all of these entries have a corresponding control panel in your system.

Note: The engineer configuring the system using the CCF must ensure that only the ports which have a control panel connected are configured as panels. Any ports which are to be allocated as Trunk Lines should not be configured by 'Individual Panel Config'.

The displayed part of the directory may be moved up and down the Directory to view the remainder of the subset. At the right hand side of the window is a standard GEM border comprising an Up Arrow, a Down Arrow, a Scroll Bar and a Slider. The window may be moved in the standard ways by:

a) clicking on the Up or Down Arrows to move up or down by one Directory entry,

b) clicking on the Scroll Bar above or below the Slider to move up or down by one window height,

c) dragging the Slider up or down to move the window correspondingly.

The general type of control panel can be selected from the Type menu which drops down to display the panel types. Two panel types are available which cover all the panels currently available; the table below cross-relates the panel types.

Panel Identity	Panel Type (keys)	CCF Panel Icon - Keys
PD 6110	24	24 - Keys 1 to 23 + Reply
PD 6111	24	24 - Keys 13 to 23 + Reply
PD6150	24	24 - Keys 1 to 23 + Reply
PD 6190	16	16 - Keys 1 to 15 + Reply
DCP 3190	24	24 - Keys 1 to 23 + Reply
DCP 3191	16	16 - Keys 1 to 16 + Reply
DCP 3120	24 - Extension Panel	Extension Panel - Keys 25 to 48
DCP 3194	32	24 - Keys 1 to 24 + Ext panel keys 25 to 31 + Reply
DCP 3195	16	16 - Keys 1 to 16
DCP 3126	16 - Extension Panel	16 - Keys 33 to 48

Note: The panel icon key number corresponding to the Reply key on the panel (normally the bottom right-hand key) should not be re-programmed.

The menu selection for the icon with the higher number of keys should be made. Where an extension panel is required or in the case of the lever key panels, the extension screen icon should be selected.

CCF Panel Icon: A representation of a 16-key panel or a 24-key panel. In either case the keys are numbered from left to right and from top to bottom.

Panel   As with the icon, the keys are numbered from left to right and top to bottom. In some cases this will result in the icon keys not visually corresponding with the positions of the panel keys.

Figure 3.2 is given to illustrate the application of CCF to the Lever Key panels.
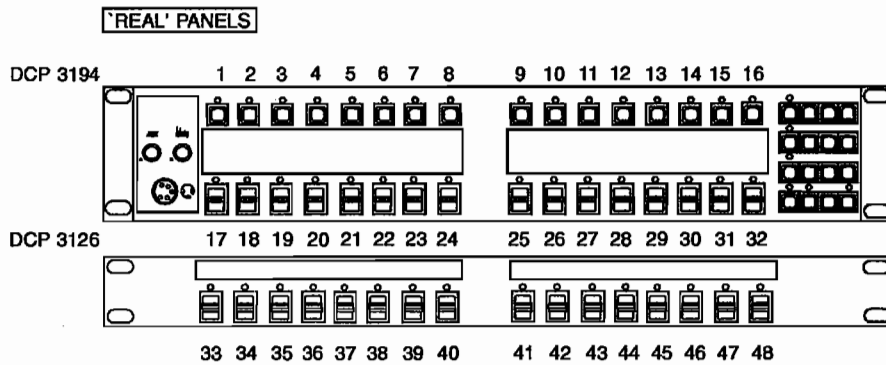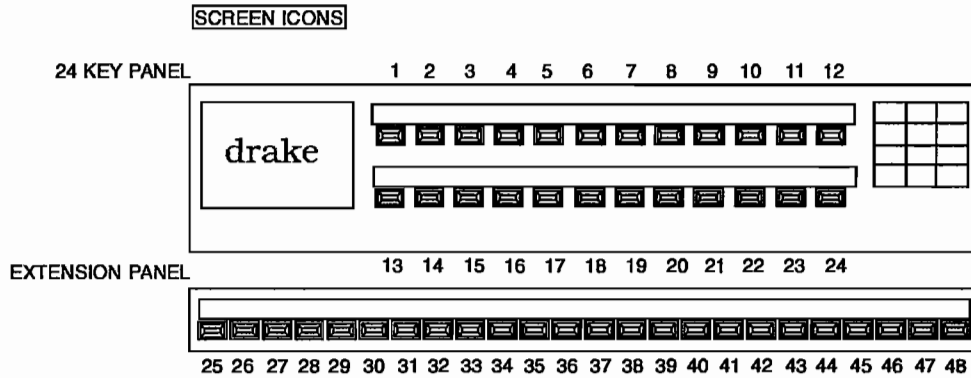
Figure 3.2 Lever Key Panel Configuration   pansel01.pcx

To configure the keys of a particular Panel, click the Mouse over the Panel's Directory entry within the window. The following screen (or similar) is displayed:
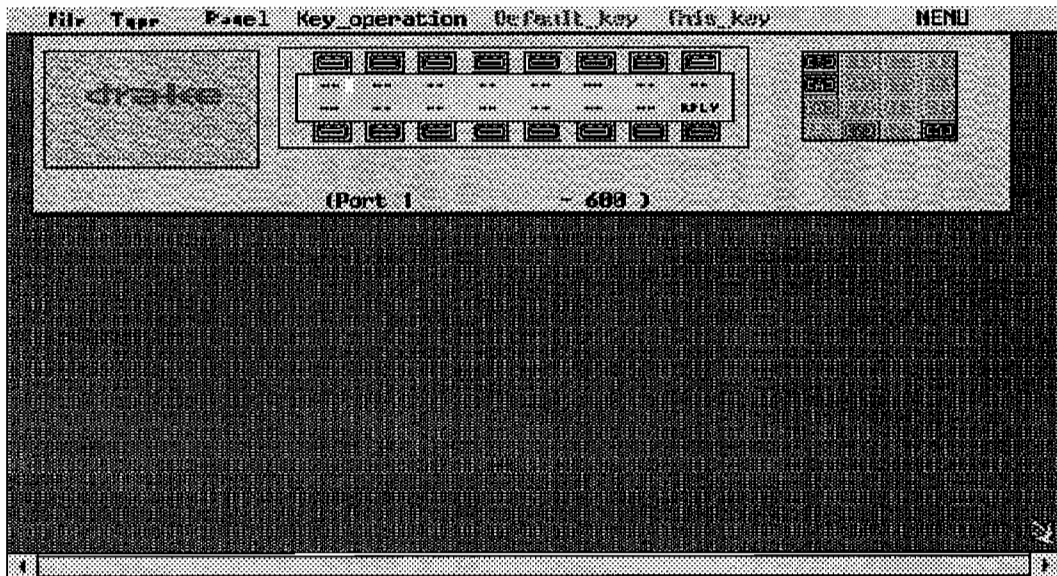
Figure 3.3 Panel Display   ccf3m027.pcx

It is a depiction of a particular Panel type. The Panel types can be viewed using the Type menu. The adjacent Panel menu is used to select either the main or extension panel for

configuration. The Panel menu also contains the 'Personality' option which accesses the panel personality dialogue box detailed overleaf. This facility sets a number of operating parameters for a panel.

The mnemonic associated with any assignment made to a key is displayed next to the key. The mnemonics for Listen-Only assignments are shown in lower case. Assignments to remote 6000 systems (when using Network 6000) are shown as four digit numbers.

3.2.1 Panel Personality

When Personality is selected from the Panel Menu the following dialogue screen appears.

Figure 3.4 Panel Personality   ccf3m029.pcx

This screen allows display panels (i.e. PD 6190 and PD 6190R) to be tailored to meet individual needs.

The flash time-out of the push button yellow LEDs can be altered from 0 to 99 seconds (default is 10 seconds) by clicking on the number field and entering the new value. The flash interval (frequency) can be adjusted from 0 to 9.9 cycles per second in the same manner (default is 1.0).

The backlight time out can also be adjusted from 0 (always on) to 990 seconds duration in 10 seconds steps. The setting is altered by clicking on the number field then entering the new value.

Facility Levels

The box at the left hand side labelled 'Facility level' allows the alteration of the panel facility status. The facility levels available are listed below the title in descending levels of facility (i.e. lowest at the bottom). Each level of facility is inclusive of any lower level facility (e.g. Fast Assign includes Fast Dir). The facility levels available are as follows:

Lock Override   This level allows all directory characteristics to be overridden including those set as Locked i.e. Talk, Listen, Talk-and-Listen (see Section 2.3). The lower level facilities are also enabled.

Normal Override This is the default level and allows the normal directory characteristics to be overridden. Directory characteristics which have been 'Locked', however, cannot be overridden (see Section 2.3). The lower level facilities are also enabled.

Soft Mode   Allows the panel to use Soft Mode, Fast Assign and Fast Dir facilities.

Fast Assign   (6000 Series only) Allows access to the fast assignment facility and fast directory facility only.

Fast Dir   (6000 Series only) Allows the panel access to the fast directory facility only (i.e. bars access to Fast Assign and Soft Mode etc.).

To accept any changes and close the dialogue box, click on the OK box. To cancel any changes made during this session and close the dialogue box, click on the CANCEL box. This returns the entries to the previous settings.

3.3 Enhanced Keys
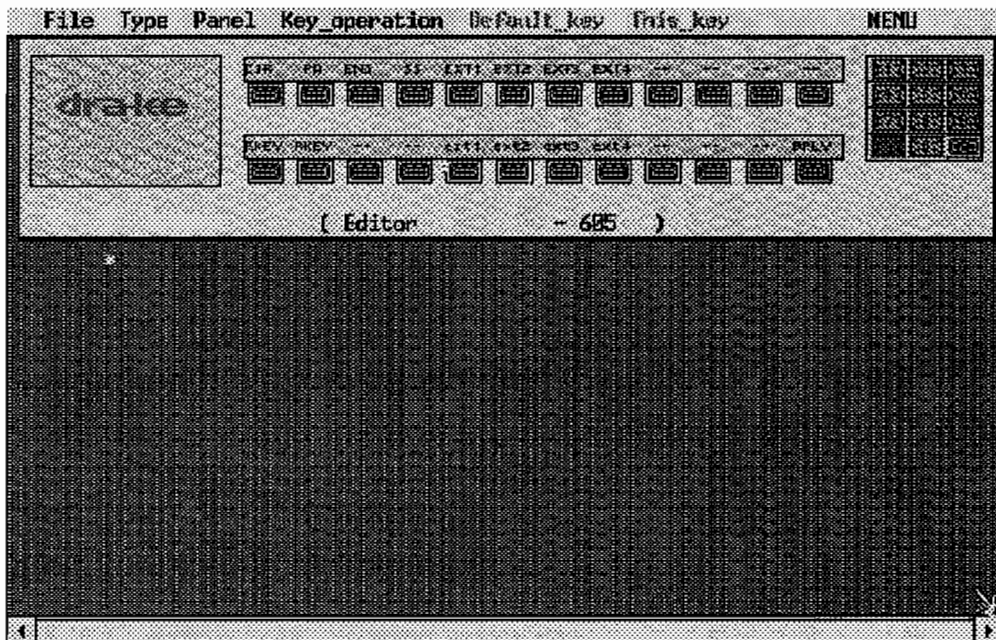
Figure 3.5 Typical Panel Configuration   menu01.pcx

From the panel configuration sub-system of CCF, the current enhanced key configuration may be viewed and/or edited. Refering to Figure 3.3, three menu titles are discussed in the following text:

Key_operation   **Default_key**   and   **This_key**

3.3.1 Key_operation

File	Type	Panel	Key_operation	Default_key	This_key		MENU
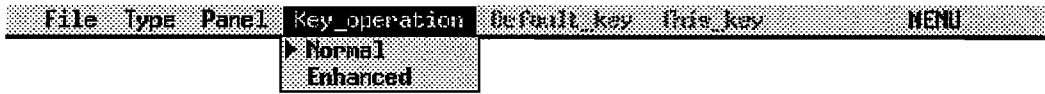
► Normal
  Enhanced

Figure 3.6 Key Operation Menu   menu03b.pcx

This menu allows the operator view/edit the selected mode of key operation for the currently selected panel. The selected mode of operation may be either enhanced or normal, the mode which is currently selected is ticked.

Normal Mode

When normal operation is ticked for a given panel, the keys of that panel will be configured to operate as latching for short key presses and momentary for longer key presses. This mode is only used for push-button panel types.

Enhanced Mode

Once the enhanced option is selected, editing/viewing of the enhanced key operation of the panel becomes possible. If at any stage normal mode is selected the panels key configuration will revert to normal key operation, however all the enhanced key functions will be retained in case the enhanced mode is once again selected. This menu is shown in figure 2.

3.3.2 Default_key

File	Type	Panel	Key_operation	Default_key	This_key		MENU

► Latch/Nonlatch
  Momentary
  Latching

Figure 3.7 Default Key Menu   menu04b.pcx

This menu is only selectable when the Key operation is set to enhanced. It allows the operator view/edit the default enhanced key configuration for all the default keys on that panel (and extension panel). All keys on both the main panel and the extension panel are default to begin with, and will remain default unless selected to be otherwise using the "This_key" menu. The options available for default keys are :-

Latch/Nonlatch	Normal key operation
Momentary	Momentary operation only; used for all lever keys
Latching	Latching operation only

Once the operation of the keys is selected to be other than the default the symbols (icons) for the panel keys will change as described in 3.3.5. These icons will always represent the currently selected configuration for the key represented.

3.3.3   This_key
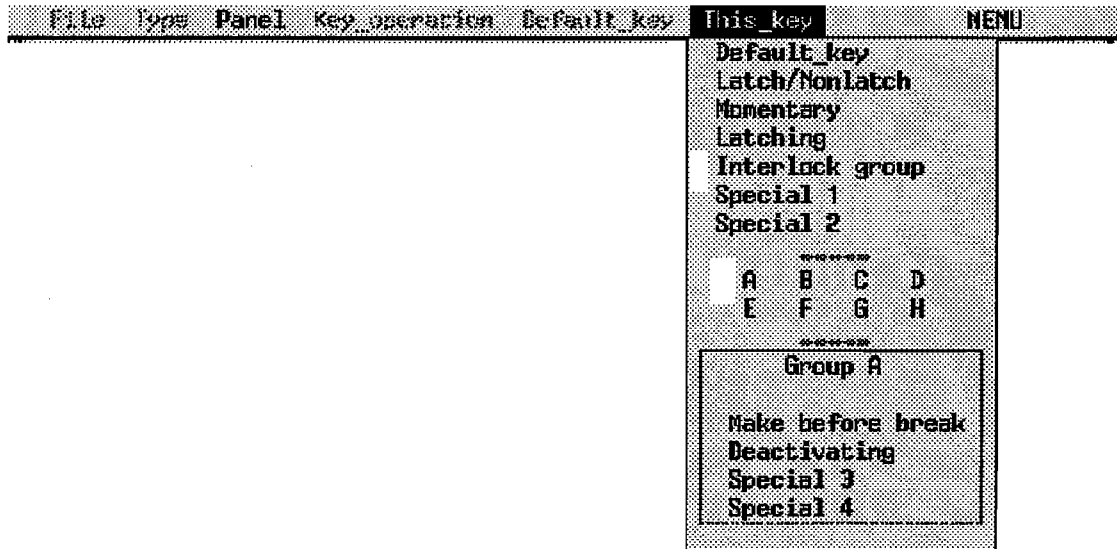
Figure 3.8 This Key Menu   menu05b.pcx

This menu is only available when a key has been selected and then only if enhanced key operation has been selected. This menu allows the operator edit/view the enhanced key operation of the selected key.

The following options available are:

Default	Operation as per default
Latch/Nonlatch	Normal key operation
Momentary	Momentary operation only
Latching	Latching operation only
Interlock group	Part of an interlock latching group

These operations are all mutually exclusive. Again a tick is used to show the currently selected operation.

Two further special facilities may be toggled on/off

Special 1
Special 2

They should not be selected unless advised to do so to achieve a non-standard operation.

3.3.4 Interlock Groups

If the interlock group option has been selected the following interlock group selections become available:

<div align="center">

A   **B**   **C**   **D**

E   **F**   **G**   **H**

</div>

These are also mutually exclusive options allowing the operator to select any one of eight interlock latching groups to which the key will belong. Once again the currently selected group is marked with a tick.

Beneath the interlock group selections is a box which allows the operation of the currently selected interlock group to be edited/viewed. The selectable modes of operation are :-

Make before break
Deactivating
Special 3
Special 4

These modes of operation are independently selectable. If 'make before break' is ticked the operation of that group will be to activate the new key before deactivating the currently selected key in that group. If 'Deactivating' is ticked the group keys will be deactivated by a further press once they are selected.

The remaining items (special 3 and special 4) should not be selected unless advised to do so to achieve a non-standard operation.

3.3.5 Key symbols (Icons)
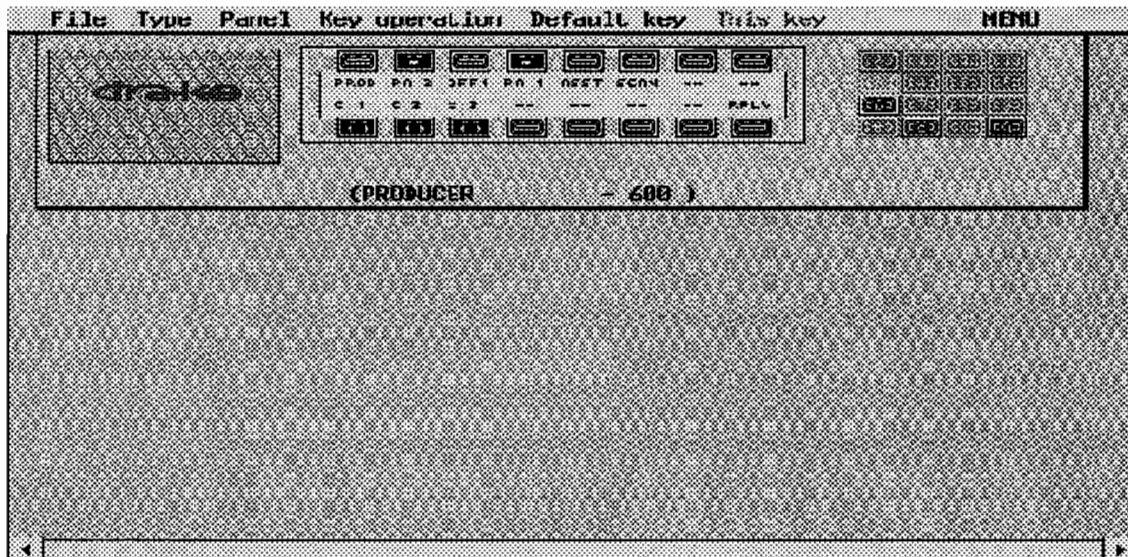
Figure 3.9 Typical Key Symbol Usage   menu02.pcx

The panels key symbols (icons) are used to give a visual display of the operation of the keys which they represent. The following symbols are used :

NORMAL OPERATION   MOMENTARY   LATCHING   INTERLOCKING GROUP

enhkeys.gem

These symbols show the currently selected mode of operation of the key they represent.

3.3.6 Key Selection

To select a key on the Panel (or extension) for configuring, click the Mouse over the key on the display. An example of the resulting screen is shown below:
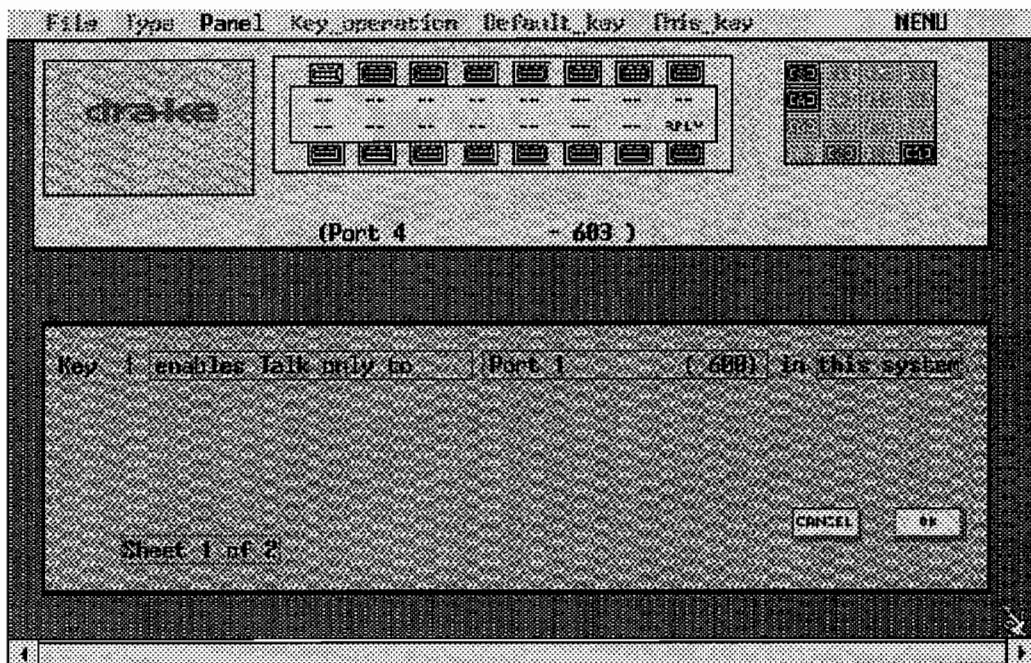
Figure 3.10 Key Selection   ccf3m006.pcx

The additional box is one of two relating to the key which are used to set the key's parameters.

Sheet 1 (of 2) is used to configure the type and source or destination for a key. Sheet 2 is used to assign a DC Control action to a key, if required. Note that sheet 2 cannot be accessed until sheet 1 has been configured. If no audio assignment is required for the key, a dummy number (Directory Entry 730 to 799) can first be programmed to the key in sheet 1, to give access to sheet 2 programming. The mnemonic assigned to the chosen Directory Entry will be displayed in the panel display.

3.4 Assignment of Communications Action to the Selected Key

The box shown displays the communications (as opposed to the DC Control) configuration of the key.

To change the communications type (eg Talk-Only, Talk-and-Listen) click the Mouse over the existing type. This opens a window listing the available types, as shown below, with the currently selected type in inverse video. Click the Mouse over the required type to select it. Note that the DC Control options are not available on this sheet.
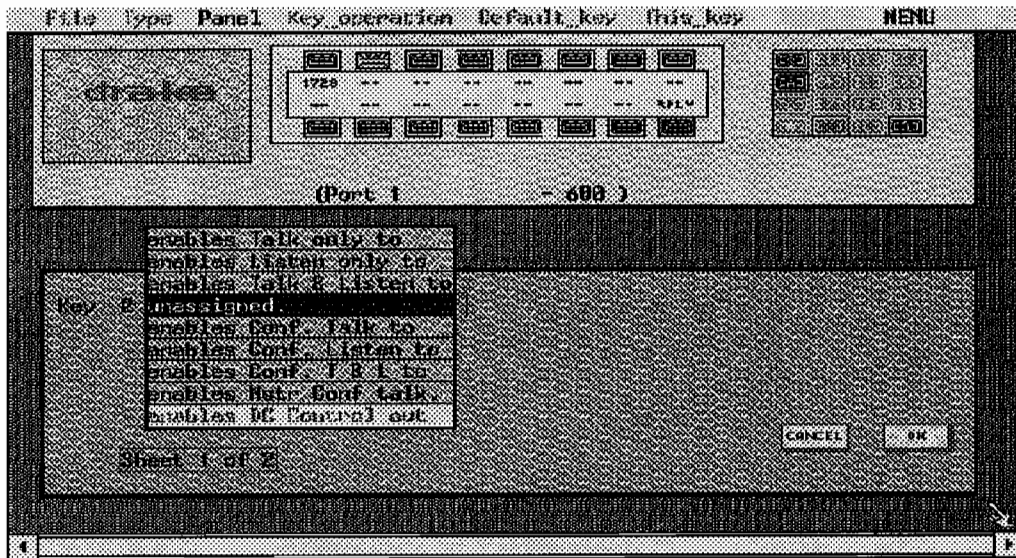
Figure 3.11 Communication Type Selection Menu   ccf3m007.pcx

To change the destination of the communication, click the Mouse over the Directory number. This will cause to be displayed a Directory window with scroll bar etc. as below:

Figure 3.12 Destination Selection Menu   ccf3m008.pcx

Scroll the window until the required Directory entry is in view and click the Mouse over it. The window will disappear and the underlying communication information box will be updated with that destination.

When configuring for Networking it is also necessary to tell CCF in which system the destination is resident. For 'Local' destinations the entry is set to 'This System'. To select 'Remote' destinations, click on the 'System' dialogue box and select the required system number.

3.5 Assignment of DC Control Action to the Selected Key

To assign a DC Control action to the key the second information box must be displayed. Click the Mouse over the legend "Sheet 1 of 2". This results in a small menu offering a choice of two sheets (In case of problems , see Appendix A). Click the Mouse over the 'Sheet 2 of 2' menu item. This results in the second information box being displayed. This relates to the DC Control actions of the key. A typical resulting screen is shown below:
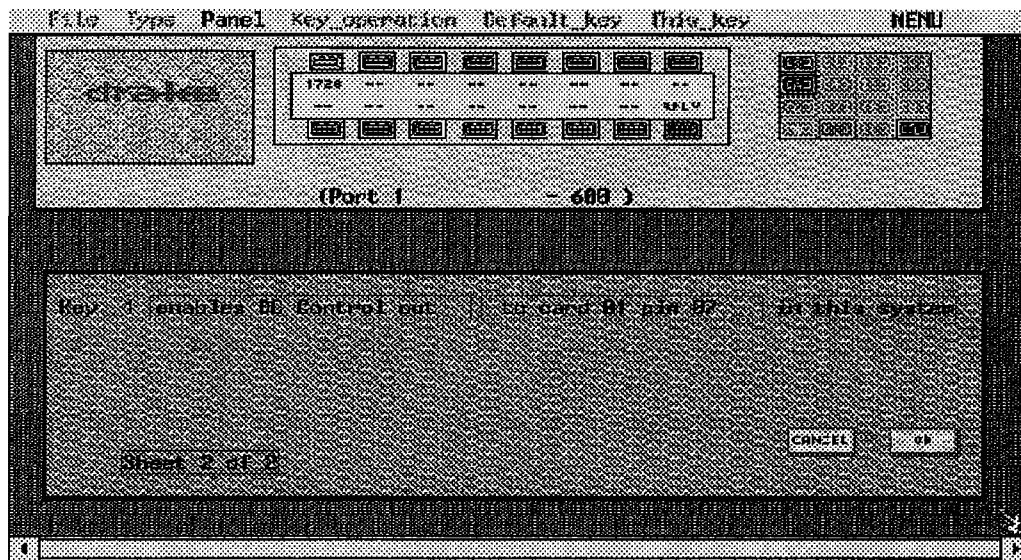
Figure 3.13 Information Box Selection   ccf3m010.pcx

To assign a DC Control to the key, click the Mouse over the 'Unassigned' dialogue box. This will cause to be displayed a window showing the available types as below. Click the Mouse over the required type to select it. Note that only Enable DC Control Out and Unassigned are available.
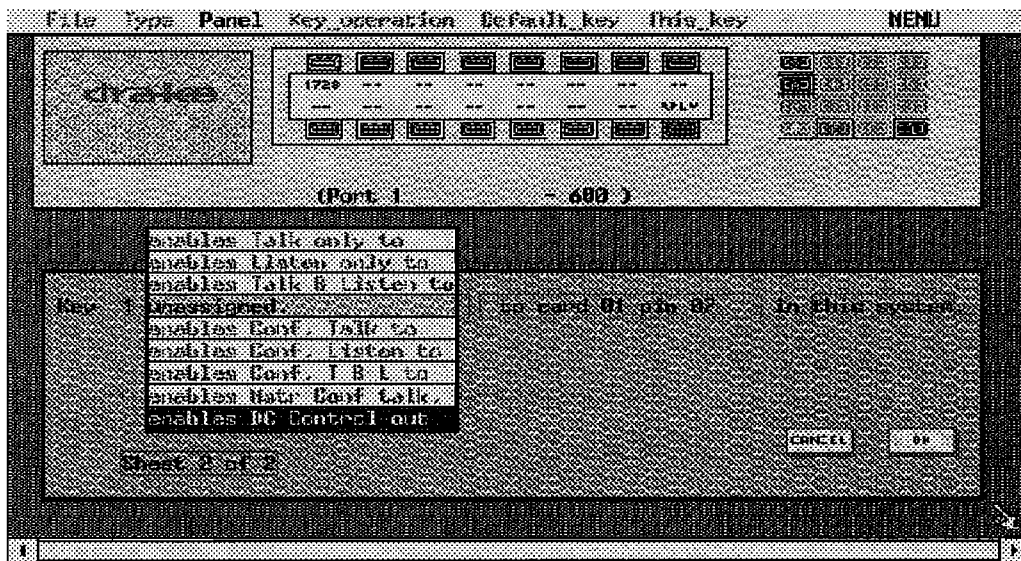
Figure 3.14 DCC Type Selection Menu   ccf3m012.pcx

To change the DC Output to be controlled, click the Mouse over the DC Output number dialogue box. This will cause to be displayed a window with scroll bar etc. onto a list of

DC Outputs as below:

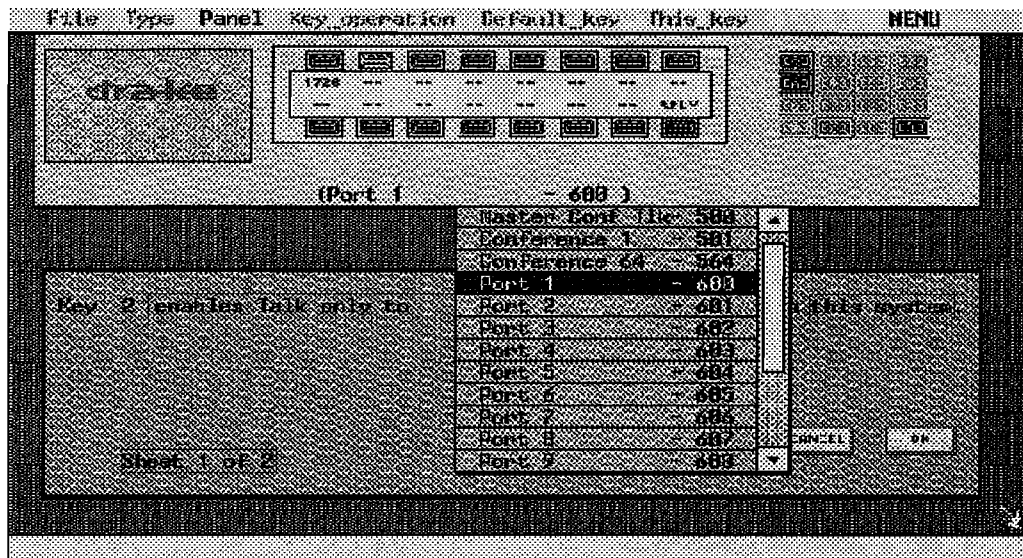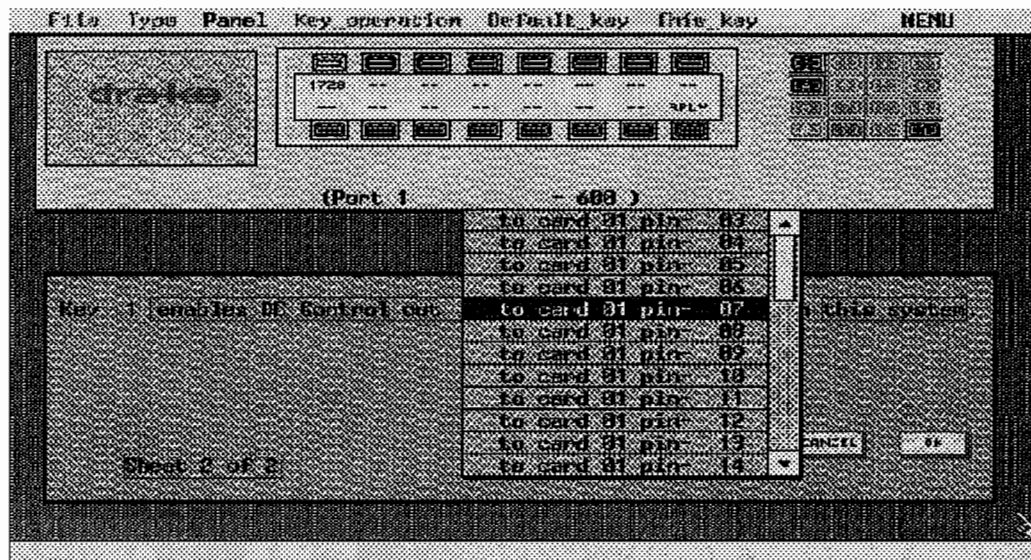*Figure 3.15 DCC Output Selection Menu*   ccf3m011.pcx

Scroll the window until the required DC Output is in view and click the Mouse over it. The window will disappear and the underlying information box will be updated with that Output.

A total of up to 32 inputs may actively control the same DC output.

A maximum of 1024 outputs can be configured. The outputs are subdivided into thirty-two groups of thirty-two.Each group is associated with a particular DCC card (PDE 6619 or Ethernet/DCC Card (PDE 6650), from card 1 thru card 32.

Note: Cards 1 thru 12 relate to real hardware outputs , while Cards 17 thru 32 relate to 'Phantom' DC outputs. The latter are directly mapped one-to one with Phantom DC inputs , so as to automatically trigger these inputs whenever Phantom DC outputs on Cards 17 thru 32 are enabled.

You may return to sheet 1 of the Communication Information sheet by clicking on the 'Sheet 2 of 2' dialogue box, then clicking on the revealed 'Sheet 1 of 2' box.

3.6 Changing the Selected Key

Clicking the Mouse over the OK icon will terminate the assignment to the selected key, saving the final configuration.

Clicking the Mouse over the CANCEL icon will terminate the assignment to the selected key but will restore the configuration to that which the key had on initial entry.

Further keys of the selected Panel may then be successively selected for configuring as described at 3.3 above.

3.7 Changing the Selected Panel

Selecting the Quit item of the File menu will terminate and save the configuration of the selected Panel and the Screen will once again display the Panel list.

Further Panels may then be successively selected for configuring as described at 3.2 above.

3.8 Returning to the CCF Screen

Selecting the Quit item of the File menu will cause the CCF screen to be redisplayed.

4 CONFIGURING THE MATRIX

4.1 General

Each matrix crosspoint has an associated characteristic which will affect its operation. A crosspoint's characteristic is chosen from the following:

□ Permanently Open: The crosspoint is open (off) under all circumstances.

□ Permanently Closed: The crosspoint is closed (on) under all circumstances.

□ Normally Open: The crosspoint is open until some action e.g. panel key, causes it to close.

□ Normally Closed: The crosspoint is closed until opened (inhibited) by some control action.

An initial matrix configuration has every crosspoint set to Normally Open.

The CCF facilities which permit the matrix to be configured are accessed by selecting the Matrix icon of the CCF screen.

From CCF Version 3.1 onwards, each crosspoint can activate up to two DC control actions (DC control actions are detailed in section 6). This provides the ability to control additional system functions by a crosspoint action (or by a range of crosspoints). These crosspoint assignments are completely independent of the control panel key assignments.

4.2 Viewing the Matrix

Depicted below is a typical screen which results from selecting the Matrix icon on the CCF screen:
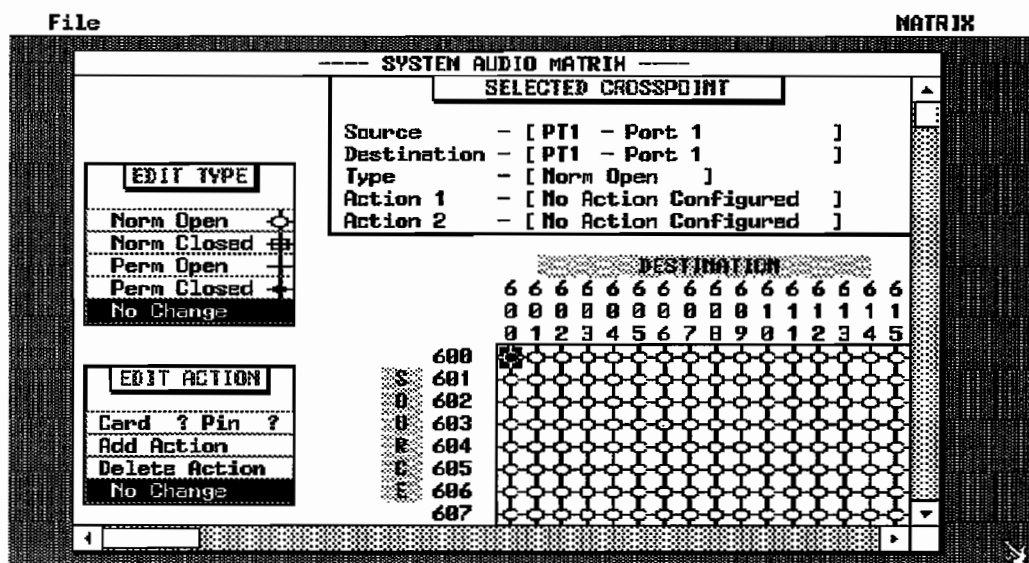

Figure 4.1 Matrix Screen (Example 1)   matrix31.pcx

At the bottom right of the screen is a window into the matrix configuration which is represented in diagramatic form. The rows represent audio sources. The columns represent audio destinations. The intersection of a row and column represents the corresponding crosspoint. Each crosspoint is depicted by a symbol representing the characteristic. The box to the left labelled 'EDIT TYPE' provides a key to the crosspoint symbols.

The rows and columns are labelled with their Directory entry numbers. Note that only the audio port entries (i.e. directory entries 600 to 727) are present; as only these send or receive audio signals for individual crosspoint switching.

At the bottom and right hand side of the screen are standard GEM scroll bars each comprising an Up/Right Arrow, a Down/Left Arrow, a Scroll Bar and a Slider. The Scroll Bar represents the whole matrix and the Slider is a scaled representation of that portion of the matrix visible in the Window. The crosspoint window may be moved over the whole matrix as follows:

□ clicking on the Arrows to move in the corresponding directions by one row or column,

□ clicking on the Scroll Bars outside the Sliders to move in the corresponding directions by one window height/width,

□ dragging the Sliders to move the window correspondingly.

4.3 Viewing Crosspoints in greater detail

One of the crosspoints always has additional information displayed in the window labelled 'Selected Crosspoint'. If present in the crosspoint window, it is displayed on the diagram in inverse video. The additional information includes the mnemonic and description from the Directory of the source and destination Ports. The crosspoint may be selected as follows:

a) Ensure that within the EDIT TYPE window, the 'No Change' legend is in inverse video; if it is not, click the Mouse over the legend/symbol. This will select it and cause it to be displayed in inverse video.

b) Click the Mouse over the required crosspoint. The crosspoint's symbol will be displayed in inverse video and the information displayed in the 'Selected Crosspoint' window will be updated.

4.4 Altering the Characteristic of Crosspoints

The characteristic of one or more crosspoints may be altered as follows:

a) Select the required characteristic by clicking the Mouse over the legend/symbol in the EDIT TYPE window. Your selection will be indicated using inverse video.

b) Click the Mouse over those crosspoints which you wish to alter to your selected characteristic. You will observe on the diagram as you alter each crosspoint that the crosspoint's symbol on the diagram changes accordingly and that the 'Selected Crosspoint' window reflects the newly selected crosspoint.

The figure below shows a matrix with some crosspoints set to Permanently Open:
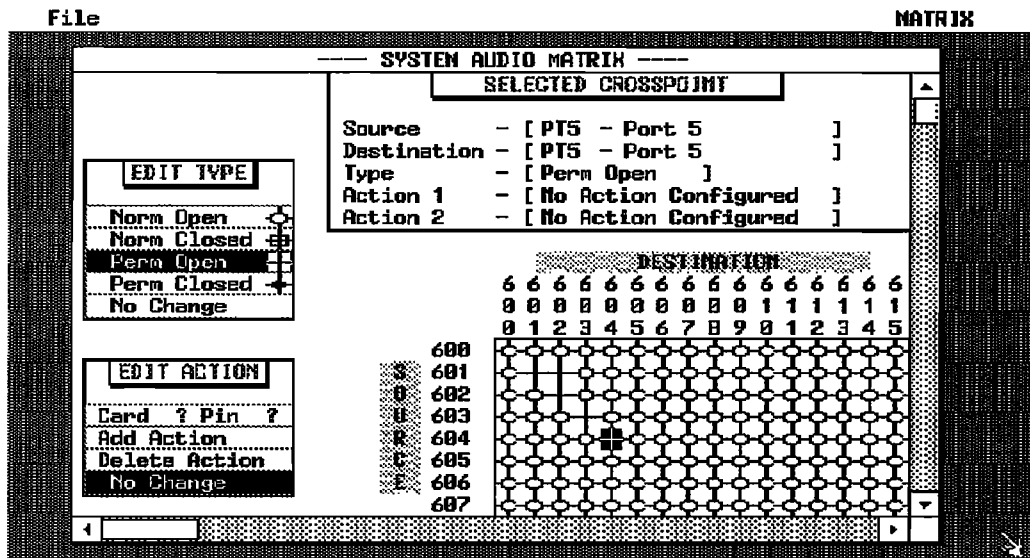
Figure 4.2 Matrix Screen (Example 2)   matrix31.pcx

4.4.1   Assigning DC Control Actions

The assignment of DC Control actions to crosspoints is achieved using the EDIT ACTION window. This is normally set to 'No Change' to allow the crosspoints to be viewed without changing any DC action assignments; similar to the EDIT TYPE 'No Change' option.

A card assignment is achieved by first clicking on the 'Card ? Pin ?' legend; this produces an entry window which is used to select the card and pin number of the required DC control output. Note that two digits must be entered (e.g. 01, 12, etc.) for the card and the number. Pressing Enter or Clicking on OK accepts the entry. Notice that the legend now indicates the selected card and pin number (e.g. Card 01, Pin 02).

To add this card/pin action to a crosspoint, click on the 'Add action' legend, then click on the desired crosspoint(s) in the matrix display. The assignment is indicated by a short diagonal line on the crosspoint symbol.

To add a second DC action to a crosspoint, the required crosspoint must first be selected. When the crosspoint details are displayed in the SELECTED CROSSPOINT window, you must first click on the 'Action 2 - [No action Configured]' legend. This informs CCF that the second action is to be configured. The second assignment is then achieved by the same process as the first one.

Should you need to delete a DC action from a crosspoint; first click on the 'Delete Action' legend then click on the crosspoint(s) concerned. Deletion occurs immediately, therefore, this facility should be used with care.

Should you wish to edit action 1, when two actions have been assigned to a crosspoint; this can be achieved by first clicking on the 'Action 1 - [...]' legend when the crosspoint concerned has been selected.

Note: When DC Control actions are assigned to crosspoints, it only allows the DCC to be activated. The actual function of the DCC must be configured in the DC Control section of CCF (see Section 6).

4.4.2 Crosspoint Priority

It is important to remember that any crosspoints set as Permanently Open or Permanently Closed have highest priority and cannot be overrridden by any other configuration affecting those crosspoints. Normally Open and Normally Closed crosspoints have lowest priority and can be overridden by any other configuration action. Specific priority information is given in Section 6.

4.5 Returning to the CCF Screen

Selecting the Quit item of the File menu causes the matrix configuration to be saved and the CCF screen to be redisplayed.

5 TRUNK LINE CONFIGURATION

5.1 General

This section of CCF is concerned with 'Trunk Line' configuration for use by Networked Systems. When using Network Systems (DCS 3000, 6000 System and/or Microcompact) audio interconnections are made via 'Trunk lines'; this allows users of one system to communicate with the other systems on the network.

Trunk lines are audio routes between individual Systems, using the normal audio ports for connection, under the control of the each System using a digital ring network. Thus, when configuring for the Network, the map in each System must correlate in its use of audio ports for trunk lines. CCF, version 3.0 onwards, provides the additional trunk routing facility needed to configure these trunk lines correctly. CCF supports three type of trunk line as follows:

Pool   Trunk lines of this type can be taken by any user of one System to call a remote system. These lines act much like a telephone exchange. When the user calls a control panel of a remote system, the first free pool trunk line is automatically assigned to that call. The line is only assigned for the duration of the call and is released when the call is terminated.

Conference   These trunk lines allow the conference facility to be extended to allow a conference on one System to be connected to a conference on another System. Each trunk line is configured as a Talk/Listen conference connection on each conference.

Reserved   A reserved trunk line is assigned to an individual port (i.e. a single user) to provide privileged access to another System. Users of the other System may use this trunk line for calling or replying to the reserved port connection. All other access to this trunk line is barred. A number of reserved trunk lines may be configured to a single port and a number of ports may have reserved trunk lines configured to them.

5.2 Configuring Trunk Lines

Trunk line configuration is accessed from the CCFTOP screen (top level screen) by clicking on the 'Trunk Lines' icon; which reveals the Trunk Line Configuration Screen shown overleaf.

The dialog box in the centre of the screen indicates the trunk line currently available for configuration (i.e. Trunk Line 1). Up to 256 trunk lines can be created within CCF (providing the corresponding physical trunk lines exist).

The boxes to the left and right of the dialogue box are used to determine which two Systems are connected by this trunk line. The left hand box is termed the 'local' connection and the right hand box is the 'remote' connection. As a trunk line connection is bi-directional it does not matter which system is entered first or which box is used.
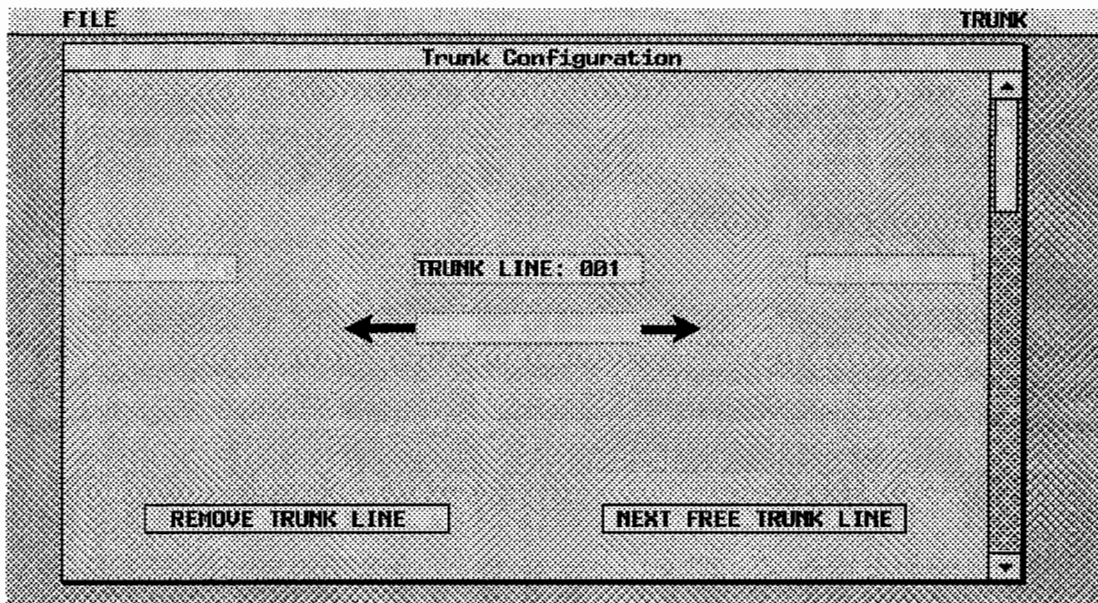
Figure 5.1 Trunk Line Configuration Screen   ccf3m001.pcx

A System is selected by clicking once on the relevant System box, which displays a menu of all the System numbers. The Systems available are shown in solid text. Clicking on the desired System selects it. The same operation is repeated on the other System box to complete the connection (note that the previously selected System number is automatically disabled to prevent a System being connected to itself).

When a System is selected a new entry box appears beneath it; which is used for entering the relevant trunk line port number (i.e. the audio port number to which the trunk line is connected on the System). Clicking once on this box reveals a window containing the list of available ports. If the desired port is not in view, the scroll bars at the right side of the screen can be used to move up and down the entire list. Note that once a port has been used it is automatically disabled from the menu to prevent illegal port allocations. If the wrong port has been selected, simply select the correct port; and the unwanted port is restored to the list.

Note: CCF assumes that the port number selected is physically configured on the System as a trunk line connected to the corresponding System selected.

The box below the Trunk Line Number dialogue box is used to determine how the trunk line is used by the network. Clicking on this box reveals the options available as follows.

NOT USED   Can be used for reserving a trunk line for future use or to take a line out of service (e.g. if a trunk line failure has occurred).

POOL   This is the normal allocation for trunk lines. Selecting this option allows the local System and port assignment, and the remote System and port assignment; by clicking on the appropriate box. Each box reveals either the System or ports available for configuration. Clicking on the required System and port enables the selection.

RESERVED REMOTE This allocates the trunk line to be exclusively assigned to a port on the remote (right hand) System. When this option is selected a new entry box appears beneath the remote System port number. The port

number (i.e. user) that is to have exclusive access to this line is then selected.

RESERVED LOCAL This is similar to the Reserved Remote option except that the port (user) is selected from the local (left hand) System.

CONFERENCE This is used to connect a conference in the local System to a conference in a remote System via a trunk line. The connection of conferences is on a one to one basis (e.g. System 1 conference 1 connects to System 2 conference 1, conference 2 connects to conference 2). Therefore selecting a conference on one System automatically selects the corresponding conference of the other System.

Clicking the mouse on the desired option selects it for that trunk line only.

Selecting New Trunk Lines

Once the first trunk line configuration is completed the next trunk line can be created by clicking on the 'Next Free Trunk Line' dialogue box. The screen then updates to show the next trunk line available with blank entry boxes as before.

Viewing the Trunk Line Configuration

To look at any previous trunk line entries, the scroll bar to the right of the screen can be used in a similar manner to the other scroll bars.

Removing Trunk Lines

To remove unwanted trunk line configurations from the list, the relevant trunk line is displayed using the scroll bars and deleted by clicking on the 'Remove Trunk Lines' dialogue box. The screen entry then becomes blank (except for the trunk line number) and is ready for reconfiguration if desired.

Note: When 'Next Free Trunk Line' is used it selects the first blank trunk line in the list. This is either the following trunk line in the list or any previously deleted trunk lines lower in the list.

5.3 Saving and Exiting

Once a trunk line configuration has been established, the FILE menu options can be used to perform several functions, as follows.

BACKUP This option copies the current configuration to a floppy disk in drive A.

RESTORE This copies a trunk line configuration from a floppy disk in drive A into the current CCF configuration.

SAVE & QUIT Saves the current configuration on to hard disk and exits from Trunk Line Configuration.

ABANDON & QUIT Exits from the configuration session without saving any alterations made during the session; the original configuration is restored.

5.4 Trunk Condition Messages

When using the network, the possibility exists for the number of network users to exceed the number of pool trunk lines. Should no trunk line be available, or if the System is disconnected or off line, a message can be sent to the user to indicate the problem. This message appears as a four character mnemonic on the display of intelligent panels. Indication is also given by flashing the yellow LED of the Reply key (or a user specified key).

This requires that not all of the Ports are needed for audio communication, as each message must use one port directory number.

Implementation

In order to implement the trunk condition message, it must be entered into each System map on the network. The message is entered into the directory as a panel port entry. The port used can be any one of the unused panel ports in the range 600 to 727. The message must be entered exactly as shown below for the System to recognise it. The mnemonic entered against the message is user defined (a suggested label is shown).

Trunk not avail -This message indicates that all of the available trunk lines are engaged.

A typical directory entry in CCF would look like this:

direntry.pcx
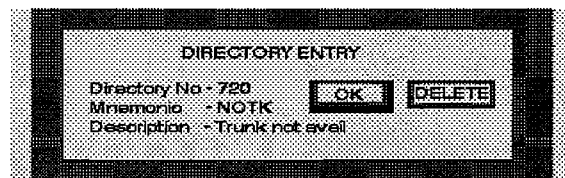
Once the message is entered in CCF, ensuring that upper and lower case letters and spaces match exactly, the new map is compiled and downloaded. Note that the message must be entered into the System map of each System requiring trunk messages (i.e. the messages cannot be sent from remote Systems to local panels).

In order for the System to clear a 'trunk fail' message from a panel, a 'Trunk cleared' message is required. This message is configured into the System in the same way as the 'fail' message. The message is sent to show that either the previous error condition has been removed or that the trunk line request has been cancelled. A typical entry in CCF would look like this:

Directory No - 724 Mnemonic   - TKCL Description - Trunk cleared

If the 'Trunk Cleared' message is not configured, the System will substitute the previously defined 'Trunk not avail' message in its place.

Additional Messages

Three additional trunk messages have been defined to give indication of other trunk line conditions; and different tones can be sent for each message. The following messages are configured into the System by using CCF as before.

RU down   Indicates that the remote System is not operating on the network (e.g. powered down).

RU disconnected Indicates that the remote System is working but no trunk lines have been configured (e.g. a trunk configuration mismatch).

Trunk reserved Indicates that only 'reserved' trunk lines are available at present.

Example entries for these messages are given in the table below.

Table 5.1 CCF Message Entries (Typical)		
MNEMONIC (suggested)	MESSAGE (Drake defined)	PORT NUMBER (example)
NOTK	Trunk not avail	720
NORU	RU down	721
NOCU	RU disconnected	722
REST	Trunk reserved	723
TKCL	Trunk cleared	724

Operation

In operation, any of the above trunk line failures are indicated by the relevant mnemonic appearing above the Reply key (or adjacent to a key assigned to receive the message). The signalisation LED flashes as if indicating an incoming call. On control panels without displays separate keys could be used to receive each type of message.

Functionally, a trunk line connection failure is detected by the System, which then 'connects' the message port to the panel initiating the call. The panel then 'receives' the message in the same way as any call made to it. Thus an audio route is opened and the yellow LED flashes on the key designated to receive that message port (e.g. the Reply key). On an Intelligent panel the mnemonic given to the message is also displayed, adjacent to the relevant key. The normal rules for panel calls apply to these message calls.

A tone source could be connected to the port input for the appropriate message to provide an audible warning of unavailable trunk line communication.

A message default process is used to send trunk messages for a given failure condition. The System will detect the condition and attempt to find the corresponding message to send to the panel. If the correct message has not been defined the System will use a default message; usually 'Trunk not avail'. The default message is chosen on a priority basis; the priority for this is shown in the table above (i.e. highest to lowest as listed).

6 DC CONTROL UTILITIES

6.1 General

DCS 3000 and The 6000 provides extensive DC Control facilities, allowing a wide range of control functions to be performed from the intercom system. Some of these DC Controls (DCCs) appear as inputs and outputs on DCC cards within the system.

DCCs can be real control inputs and outputs connecting to external devices via PDE 6619 DCC cards or PDE 6650 Ethernet/DCC cards. In the DCS 3000 Matrix frame this card occupies position 3.

The number and location of these cards is shown in the table below.

Table 6.1 Allocation Table for DCC Cards 1 to 16			
	6000 Series	DCS 3000	Microcompact
1	Rack 1	Slot 3	Inputs 1 to 16 only
2	Rack 2	Slot 18	Separate Frame
3	Rack 3	Slot 19	Separate Frame
4	Rack 4	Separate Frame	Separate Frame
5			
6			
7			
8			
9			Phantom
10			Phantom
11			Phantom
12			Phantom
13		Vox 1 to 32	Phantom
14		Vox 33 to 64	Phantom
15		Vox 65 to 96	Phantom
16		Vox 97 to 125	Phantom

A number of similar control elements (phantom DCCs) are also available for programming special logic functions and performing actions on the Matrix and Panel hardware, e.g. operation of crosspoints or LEDs.

This section deals with the programming of both real and phantom DCC inputs. Real and phantom DCC outputs may be actioned from panel keys, crosspoints or DCC inputs.

The part of the CCF which provides for the configuration of DC Control inputs can be evoked by clicking on the 'DC UTL' icon on the Map Configuration screen.

6.2 Viewing an Input

To view an input, first select 'Card' on the title bar. This will produce a drop-down menu supplying choice of cards. Click on the desired one. Now move the mouse pointer over 'Input' on the title bar and click to provide a drop-down menu supplying choice of inputs ranging from input 1 to input 32.
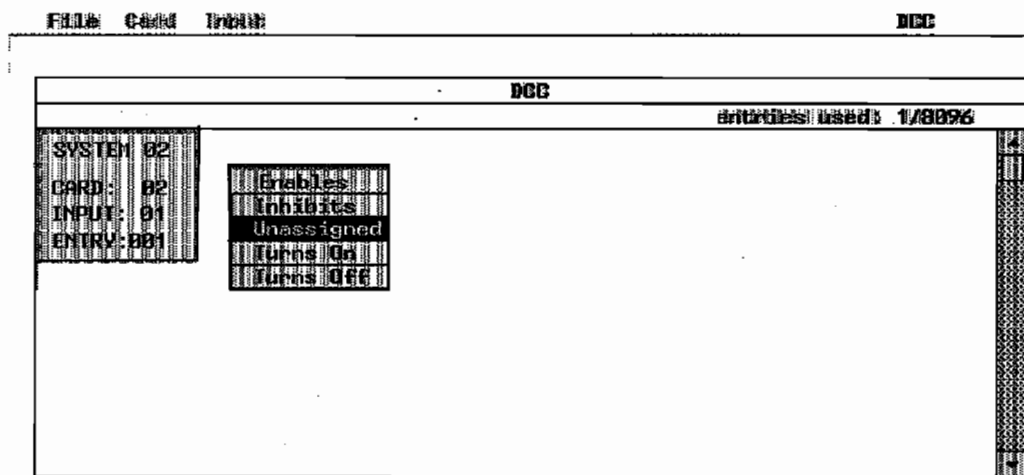
Figure 6.1 DCC Inputs Configuration Screen   ccf3m014.pcx

Selecting an input will cause the configuration of that input (if any set) to be displayed on the screen. Each input is allowed to cause up to 128 independent actions, only one of which is shown on the screen at a particular time. It may be necessary to use the slider bar or arrows to view an input's total attributes. The entry number indicates which of the 128 possible actions is now on view, as does the position of the slider on the slider bar.

6.3 Editing an Entry

There are five types of entry:

1. Audio route configuration
2. DCC output configuration (Real and Phantom)
3. Conference talk configuration
4. Conference listen configuration
5. Isolated route configuration

Each type of entry has three attributes :

a) enable/inhibit route

b) local priority - see Appendix B

c) logic triggering

Clicking on the 'Unassigned' dialogue box reveals the attributes available as shown on the sample screen above.

6.4 Enable/Inhibit Type

Clicking on 'Enable' or 'Inhibit' causes further dialogue boxes to appear which lead the user to select the desired crosspoint routing assignment. Clicking on each box as it apears reveals a menu from which a selection is made.

An enable type entry is one which allows the action described by the entry unless that action has been barred by an equivalent inhibit type action of a higher or equal priority.

Clicking on priority allows the priority of the entry to be selected from any value from priority 1 (lowest) to priority 5 (highest).

Note: Any entry made directly to a key in the Panel Configuration Menu is an enable type at priority level 1.

6.5 Priority Levels

The following priorities apply for panel software versions V24 and Matrix software version N6002 onwards.

Panel Keys

	Priority
Talk key	2
Listen key	1
Conference Talk key	1
Conference Listen key	1
Call key listen	1
Call key talk	2
Reply key	4
DCC key	1

Matrix Assignments

Normally closed	0
Normally open	0
Permanently closed	6
Permanently open	6

Router Panel Assignments

Conferences	1
Audio listen routes	1
Audio talk routes	2
Talk/listen keys	1

DCC Assignments

Conferences   1
Others   defined by local priority setting

Note: Priorities are set in software, where:
       Priority 6 - Highest
       Priority 0 - Lowest

Certain system functions may be programmed via DCCs with priorities 1 to 5.

6.6 Logic Triggering

The default status of these three bits is 'all selected', hence one DC input, when activated, will cause the configured action (If any of these bits is selected with the mouse, those bits are then absent from the particular action configured). In this way, the DC input, when activated, will have no affect until another DC input, of identical priority and action, has been activated with those missing bits present. In this way, logical AND functions are possible.

Any entry can be changed to being another type by clicking the mouse on the type part of the screen, for example, if an entry is of audio route type, clicking on 'Audio Route From' will create a drop-down menu allowing selection of any other type.

There are some combinations of attributes which are illegal, e.g. audio routes cannot include conference numbers. However, any illegal options will be unselectable by the operator and will be displayed in light grey. Clicking the mouse on a light grey object will have no effect; in this situation a valid option must be selected.

6.7 Isolated Route Configuration

The main purpose of isolated routes in the CCF is to provide a facility for private communication. Each isolation entry in the ccf has three basic attributes, local priority, source priority and destination priority. For example, a typical isolation type action statement would look like this:
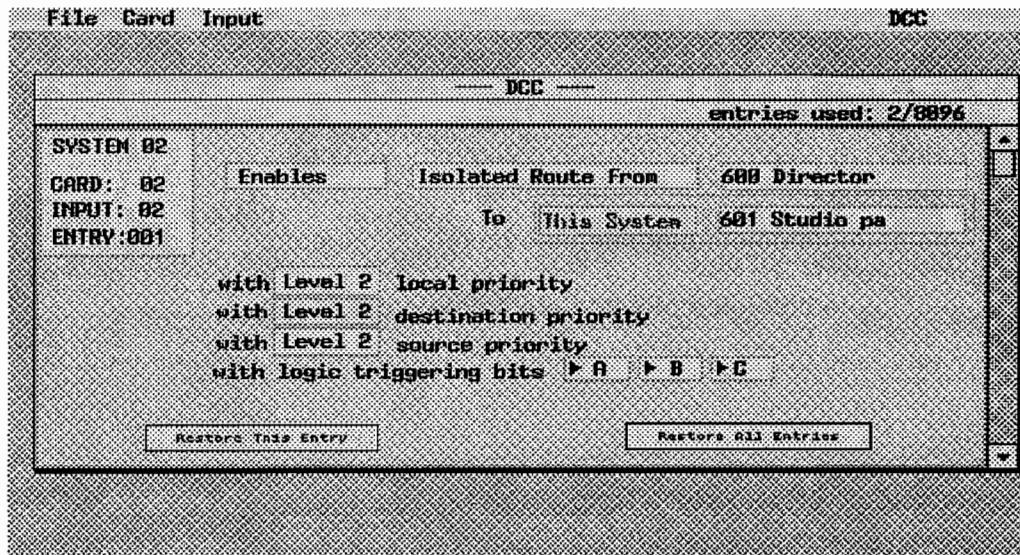
Figure 6.2 Isolated Route Configuration Screen   ccf3m022.pcx

The first two lines describe the source and destinations involved. The local priority value indicates the precedence of this particular action statement with respect to any other action statement which may be loaded on to a given crosspoint, in the above case, crosspoint 600-601. The above statement would produce no action if an inhibiting isolated route (iso) at local priority level 2 (or greater) was also loaded on the 600-601 crosspoint.

The source and destination priority levels, however mean something significantly different. These relate not to an individual crosspoint, but to a whole row of source crosspoints (source priority) or a column of destination crosspoints (destination priority).

The source priority level will cause all crosspoints in the specified source row to be turned off unless the local priority of any crosspoint in that row is equal or higher than the source priority level.

Similarly, the destination priority level will cause all crosspoints in the specified destination column to be turned off unless the local priority of any crosspoint in that column is equal or higher than the destination priority level.

In the example above, the iso route from 600-601 will cause every crosspoint on row 600 and column 601 to be recalculated.

If the highest local priority loaded on a crosspoint on row 600 is less than the specified destination priority then that crosspoint will be unmade.

Conversely, if the highest local priority loaded on a crosspoint on row 600 is higher than or equal to the specified destination priority then that crosspoint will be unaffected.

If the highest local priority loaded on a crosspoint on column 601 is less than the specified destination priority then that crosspoint will be unmade.

Conversely, if the highest local priority loaded on a crosspoint on column 601 is higher than or equal to the specified destination priority then that crosspoint will be unaffected. Equivalent recalculations will take place when the iso action statement is removed.

6.8 Local Output Assignment

In the normal course of events the yellow LEDs on the panel are governed by audio routes to the panel. However CCF provides the facility to make these driven by DCC inputs. All of the possible 48 keys are mapped one to one with the so-called local outputs, i.e. local output 1 drives the top left key yellow LED on the main panel while local output 48 drives the last key yellow LED on the extension panel. Table 6.1 gives the local output assignments for the DCS 3000 and 6000 Series panels.

Source Priority is primarily designed to enable specific keys on a panel to inhibit routes from other keys on the panel, obviating the need to de-select them if private speech is required.

Destination Priority is primarily designed to disable any other lower priority 'talker' to the selected deestination.

By setting different priorities to a given destination from a number of source panels, a hierarchy can be set up such that high priority operators can override other panel operators.
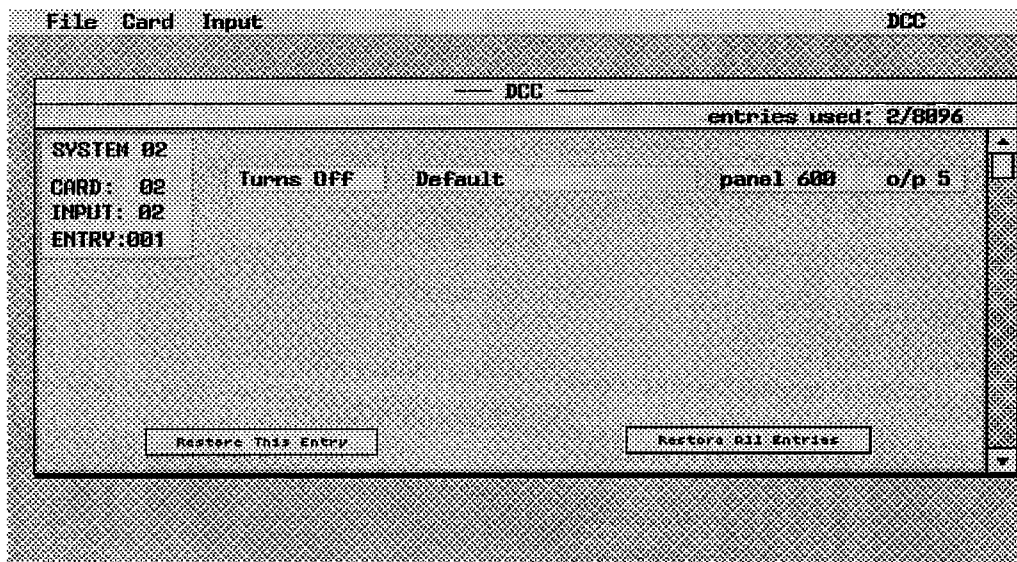
Figure 6.3 Local Output Information (Example 1)　　　　ccf3m023.pcx
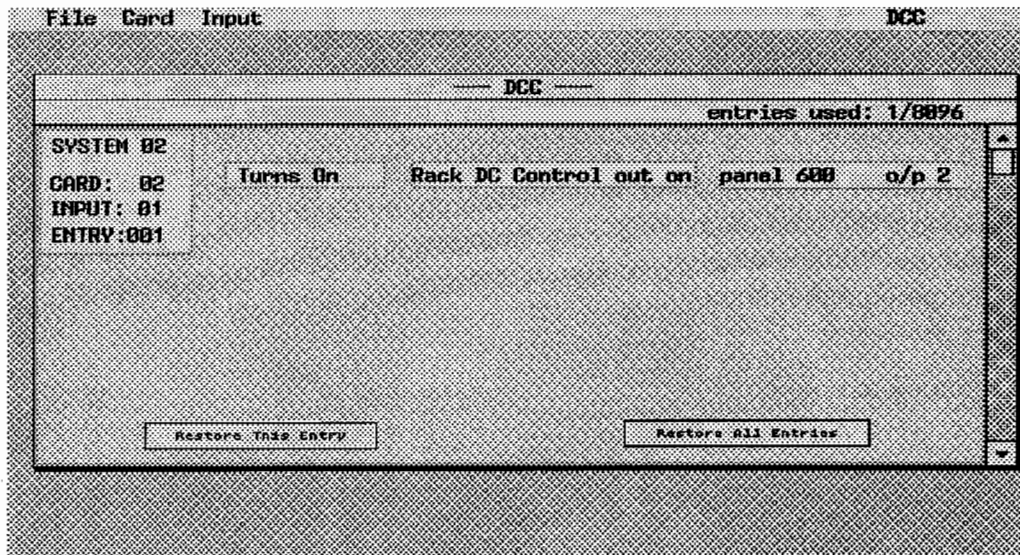
Figure 6.4 Local Output Information (Example 2)   ccf3m015.pcx

The operator can create two different types of statement as shown below. The first one, i.e. 'turns off default operation' prevents the particular LED or output in question from being driven in the normal way by the audio route feedback.

If the default operation is turned off, then the LED (or other output) in question will depend on the state of the corresponding output bit acted on by the second statement i.e. 'turns on DC control out' If this bit has been set,then the LED will light. Conversely, if this bit is clear,the LED will remain off.

The two diagrams above illustrate how the first and second sets of local output information can be configured, respectively.

Note: The Turn Off default entry must be made to an output to enable the Turn On action to be allowed.

Table 6.2 Panel Local DCC Outputs (DCS 3000 and 6000 System)					
6000		**3190/91**		**3194/95**	
O/P		**O/P**		**O/P**	
1 ↓ 48	Turns On Panel Yellow LEDs in keys 1 to 48				
49	Panel Mic Cut				
50	Panel Loudspeaker Cut				
51	Panel Loudspeaker Dim				
52	Spare	52	Headset Select / Mic Cutoff	52	No function
53		53	Not used	53	
54		54	Not used	54	
55		55	Mic Gain 0 1 0 1	55	
56		56	0 0 1 1 50 60 70 80dB	56	
57 ↓ 60	No function	57 ↓ 60	Panel Options Card outputs	57 ↓ 60	Panel Options Card outputs
61 ↓ 64	No function	61 ↓ 64	Panel Options Card outputs	61 ↓ 64	No function

6.9 Selecting a New Entry

When a particular input configuration is completed, the next card/input can be selected for editing by using the 'Card', and/or 'Input' menus. The next entry of an input can be accessed by using the scroll bar.

6.10 Restoring Entries

If an input entry is incorrect it can be discarded by clicking on the 'Restore This Entry' icon. Clicking on the 'Restore All Entries' icon discards all of the changes made during the editing session (or since the last 'Save And Resume' operation) and restores the entries to their original state.

6.11 Saving and Ending an Edit Session

Accessing the 'File' menu provides three options as follows:

Save and Resume Saves the current edits and resumes the editing session.

Save and Quit Saves the current edits and exits from the editing session to the Map Configuration menu.

Abandon Loses all changes in this session and exits to the Map Configuration Menu.

Click the mouse on an option to achieve the desired results.

Note: Although inhibition of conferences is permissable in the DCC configuration utilities, an entry of this type will have no effect on either DCS 3000 or the 6000 System.

7 PANEL KEY PROGRAMMING and
DCC CONTROL UTILITIES

> **NOTE: This Section applies only to Microcompact.**
> **DCS3000 and 6000 Series are covered in Section 6.**

7.1 General

Microcompact systems use a different form of data communications between the panels and the matrix. To be able to programme Microcompact panel keys using CCF, the DCC Utilities menus are used and Cards 17 to 32 (normally phantoms in DCS 3000 and 6000 Series) are deployed for up to 16 panels:

Card 17	=	Panel 1 (Port 600)	
Card 18	=	Panel 2 (Port 601)	
:	=	:	:
Card 32	=	Panel 16 (Port 615)	

Up to 32 keys can be programmed using DCC card inputs 1 to 32:

Input 1	=	Key 1
Input 2	=	Key 2
:	=	:
Input 32	=	Key 32

Example:
For Key 3 on Panel 1 to 'talk' to Panel 3, the following programming would be necessary (which this chapter explains):

Card 17 Input 3
Entry 1   Enables audio route from   600 Panel One
                                    to   602 Panel Three

The keys positions on the various Microcompact panels are shown in Figures 7.1 and 7.2 overleaf.

The part of the CCF which provides for the configuration of DC Control inputs can be evoked by clicking on the 'DC UTL' icon on the Map Configuration screen.

Because of the difference in operation between Microcompact and the other systems, another point to note is that the making of an audio route does not automatically produce a corresponding yellow LED indication; the signalisation must be programmed in addition to the audio route programming.
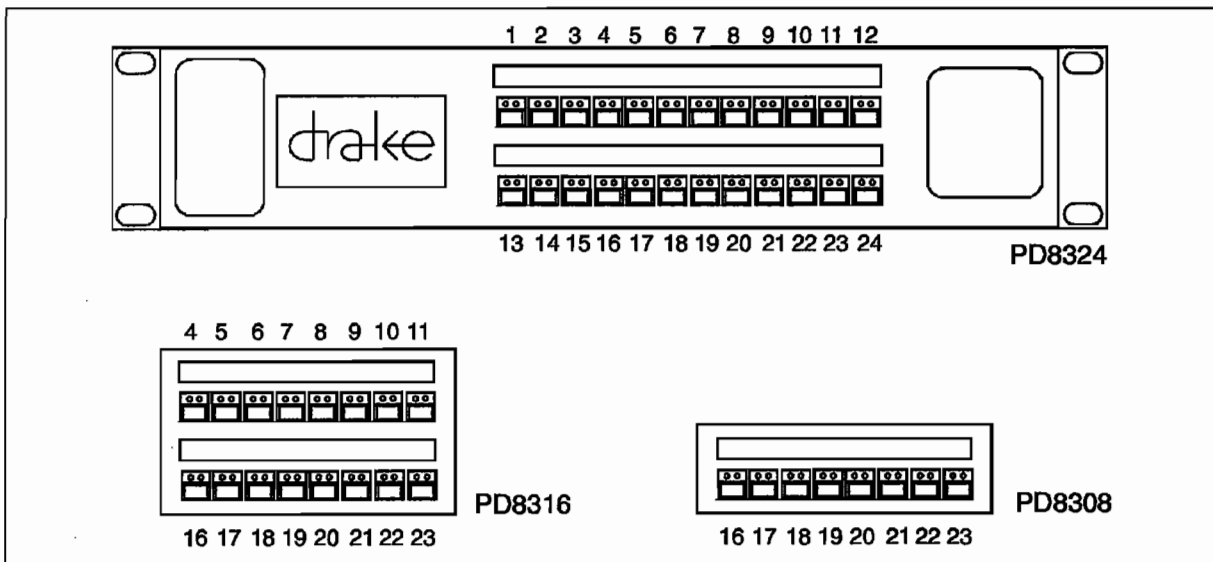
Figure 7.1 Pushbutton Positions   mcpanpb.pcx
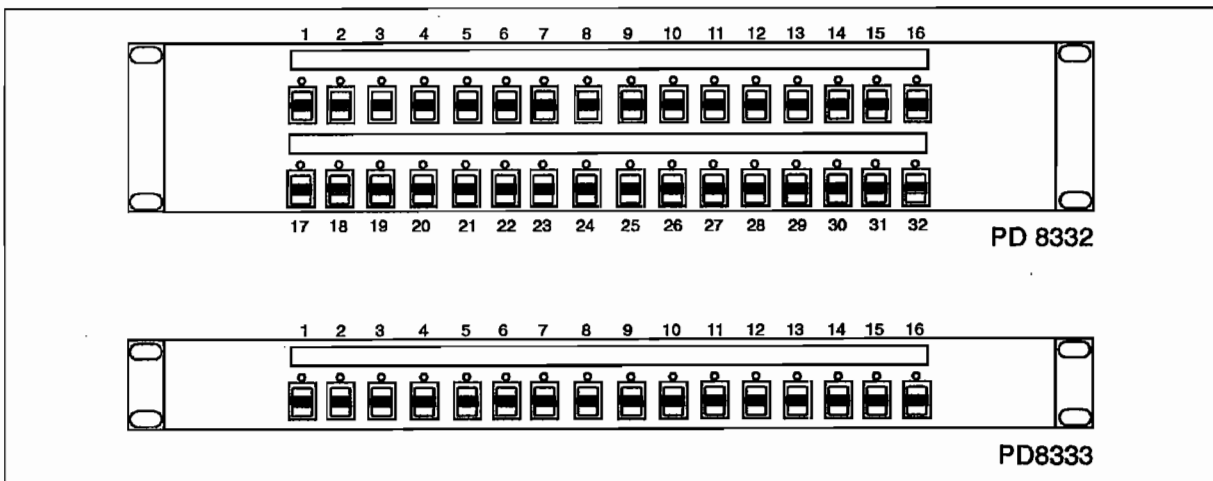
Figure 7.2 Lever Key Positions   mcpanlk.pcx

Example:

As in the previous example, Key 3 on Panel 1 is to 'talk' to Panel 3, but in addition the Yellow LED is to be illuminated on Key 1, Panel 3.

Card 17 Input 3

Entry 1	Enables audio route from	600, Panel 1
	to	602, Panel 3

Entry 2	Enables rack DC control out on	Card 19, Pin 1

The corresponding programming for the key on Panel 3 would be as follows:

Card 19, Input 1

Entry 1	Enables audio route from	602, Panel 3
	to	600, Panel 1

Entry 2	Enables rack DC control out on	Card 17, Pin 3

The application of the examples given above is explained in the remainder of this section.

In solely Microcompact Systems, the Panel menus can be accessed: but they serve no purpose and access is not recommended.

7.2 Viewing an Input

To view an input, first select 'Card' on the title bar. This will produce a drop-down menu supplying choice of cards. Click on the desired one. Now move the mouse pointer over 'Input' on the title bar and click to provide a drop-down menu supplying choice of inputs ranging from input 1 to input 32.
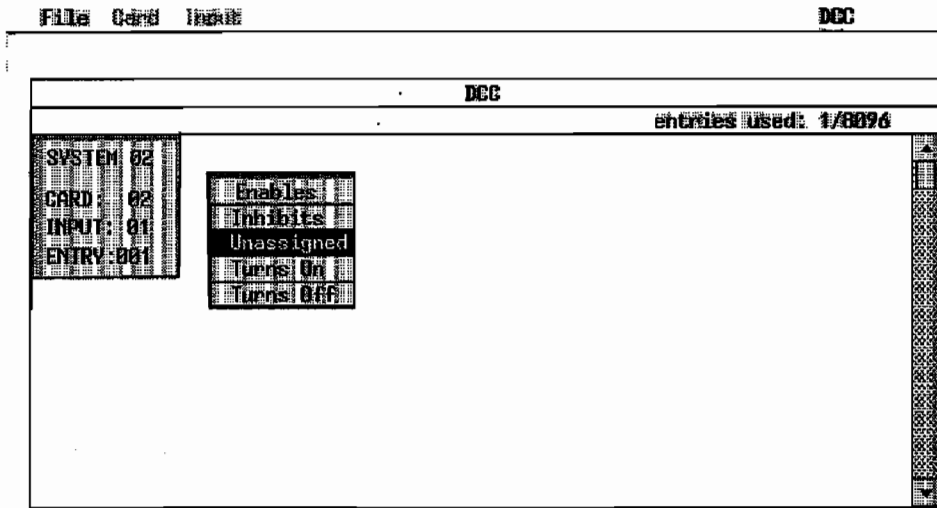

Figure 7.4 DCC Inputs Configuration Screen   ccf3m014.pcx
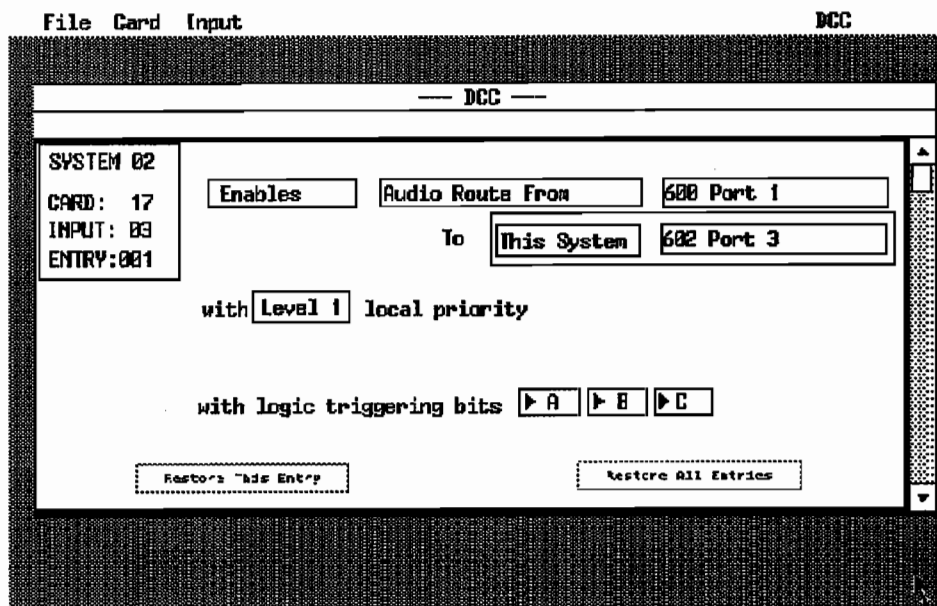

Figure 7.3 DCC Inputs Configuration (Example)   ccfdcc01.pcx

Selecting an input will cause the configuration of that input (if any set) to be displayed on the screen. Each input is allowed to cause up to 128 independent actions, only one of which is shown on the screen at a particular time. It may be necessary to use the slider bar or arrows to view an input's total attributes. The entry number indicates which of the 128 possible actions is now on view, as does the position of the slider on the slider bar.

7.3 Editing an Entry

There are five types of entry:

1. Audio route configuration
2. DCC output configuration
3. Conference talk configuration
4. Conference listen configuration
5. Isolated route configuration

Each type of entry has three attributes :

a) enable/inhibit route

b) local priority - see Appendix B

c) logic triggering

Clicking on the 'Unassigned' dialogue box reveals the attributes available as shown on the sample screen above.

7.4 Enable/Inhibit Type

Clicking on 'Enable' or 'Inhibit' causes further dialogue boxes to appear which lead the user to select the desired crosspoint routing assignment. Clicking on each box as it apears reveals a menu from which a selection is made.

An enable type entry is one which allows the action described by the entry unless that action has been barred by an equivalent inhibit type action of a higher or equal priority.

Clicking on priority allows the priority of the entry to be selected from any value from priority 1 (lowest) to priority 5 (highest).

Note: Any entry made directly to a key in the Panel Configuration Menu is an enable type at priority level 1.

7.5 Priority Levels

The following priorities apply for panel software versions V24 and CSU software version N6002 onwards.

Panel Keys

	Priority
Talk key	2
Listen key	1

Conference Talk key	1
Conference Listen key	1
Call key listen	1
Call key talk	2
Reply key	4
DCC key	1

Matrix Assignments

Normally closed	0
Normally open	0
Permanently closed	6
Permanently open	6

Router Panel Assignments

Conferences	1
Audio listen routes	1
Audio talk routes	2
Talk/listen keys	1

DCC Assignments

Conferences	1
Others	defined by local priority setting

Note: Priorities are set in software, where:
         Priority 6 - Highest
         Priority 0 - Lowest

Certain system functions may be programmed via DCCs with priorities 1 to 5.

7.6 Logic Triggering

The default status of these three bits is "all selected", hence one DC input, when activated, will cause the configured action (If any of these bits is selected with the mouse, those bits are then absent from the particular action configured). In this way, the DC input, when activated, will have no affect until another DC input, of identical priority and action, has been activated with those missing bits present. In this way, logical AND functions are possible.

Any entry can be changed to being another type by clicking the mouse on the type part of the screen, for example, if an entry is of audio route type, clicking on 'Audio Route From' will create a drop-down menu allowing selection of any other type.

There are some combinations of attributes which are illegal, eg audio routes cannot include conference numbers. However, any illegal options will be unselectable by the operator and will be displayed in light grey. Clicking the mouse on a light grey object will have no effect; in this situation a valid option must be selected.

7.7 Isolated Route Configuration

The main purpose of isolated routes in the CCF is to provide a facility for private routes. Each isolation entry in the ccf has three basic attributes, local priority, home priority and destination priority. For example, a typical isolation type action statement would look like this:
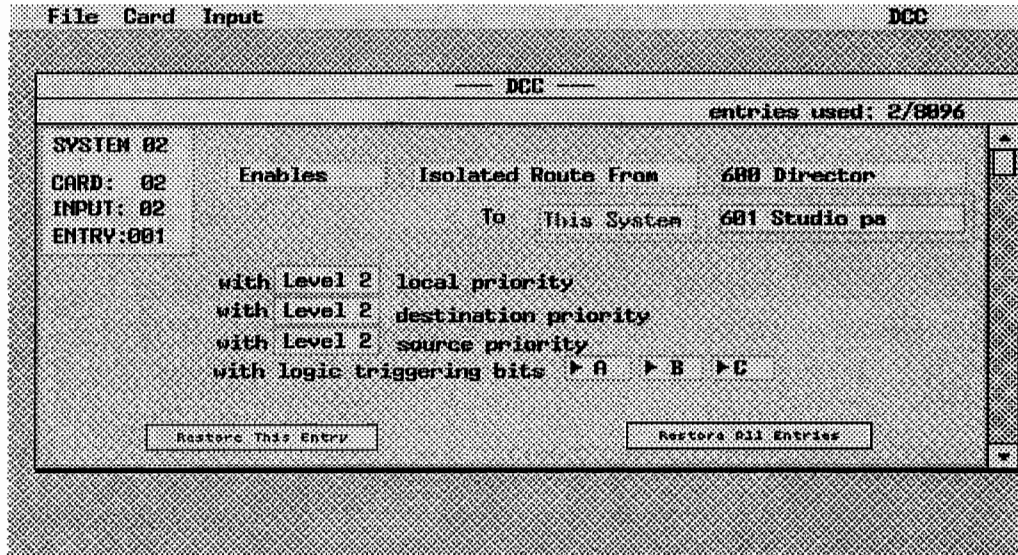

Figure 7.5 Isolated Route Configuration Screen   ccf3m022.pcx

The first two lines describe the source and destinations involved. The local priority value indicates the precedence of this particular action statement with respect to any other action statement which may be loaded on to a given crosspoint, in the above case, crosspoint 600-601. The above statement would produce no action if an inhibiting isolated route (iso) at local priority level 2 (or greater) was also loaded on the 600-601 crosspoint.

The source and destination priority levels, however mean something significantly different. These relate not to an individual crosspoint, but to a whole row of source crosspoints (source priority) or a column of destination crosspoints (destination priority).

The source priority level will cause all crosspoints in the specified source row to be turned off unless the local priority of any crosspoint in that row is equal or higher than the source priority level.

Similarly, the destination priority level will cause all crosspoints in the specified destination column to be turned off unless the local priority of any crosspoint in that column is equal or higher than the destination priority level.

In the example above, the iso route from 600-601 will cause every crosspoint on row 600 and column 601 to be recalculated.

If the highest local priority loaded on a crosspoint on row 600 is less than the specified destination priority then that crosspoint will be unmade.

Conversely,if the highest local priority loaded on a crosspoint on row 600 is higher than or equal to the specified destination priority then that crosspoint will be unaffected.

If the highest local priority loaded on a crosspoint on column 601 is less than the specified destination priority then that crosspoint will be unmade.

Conversely, if the highest local priority loaded on a crosspoint on column 601 is higher than or equal to the specified destination priority then that crosspoint will be unaffected. Equivalent recalculations will take place when the iso action statement is removed.

7.8 Selecting a New Entry

When a particular input configuration is completed, the next card/input can be selected for editing by using the 'Card', and/or 'Input' menus. The next entry of an input can be accessed by using the scroll bar.

7.9 Restoring Entries

If an input entry is incorrect it can be discarded by clicking on the 'Restore This Entry' icon. Clicking on the 'Restore All Entries' icon discards all of the changes made during the editing session (or since the last 'Save And Resume' operation) and restores the entries to their original state.

7.10 Saving and Ending an Edit Session

Accessing the 'File' menu provides three options as follows:

Save and Resume Saves the current edits and resumes the editing session.

Save and Quit Saves the current edits and exits from the editing session to the Map Configuration menu.

Abandon   Loses all changes in this session and exits to the Map Configuration Menu.

Click the mouse on an option to achieve the desired results.

Note: Although inhibition of conferences is permissable in the DCC configuration utilities, an entry of this type will have no effect on the 6000 system.

8 INSTALLING THE CONFIGURATION

To be of operational use, the configuration must be installed into the microprocessor card of the appropriate system; DCS 3000, 6000 Series or Microcompact. This may be accomplished by downloading the configuration to the System directly to the Matrix over a serial link or by downloading the configuration into EPROM (Eraseable Programmable Read Only Memory) devices which are then inserted into sockets on the Matrix processor boards. When the configuration is downloaded directly to the Matrix, it is stored in the NVRAM (Non Volatile Random Access Memory) devices on the Matrix processor boards.

The configuration is downloaded into EPROM devices using a 'PROM programmer' which is a separate piece of equipment and not part of the CCF. The configuration data is downloaded to the PROM Programmer via the serial link of the CCF computer. The CCF therefore has two similar but different downloading functions, indicated by the 'To System' and 'To EPROM' icons available on the system opening screen; both transmit the configuration data over the RS232 serial link. Downloading can also be carried out over a network where it is available.

Note: For details of how to connect the CCF to the various systems or to a PROM Programmer please refer to the CCF Installations Manual.

Compilation

The configuration used by the System is a processed version of the data entered by the user. This processing is known as 'compilation'. Compilation must be performed prior to a download if any changes have been made to the configuration since the last compilation. Otherwise compilation is not required.

Compilation is accomplished by clicking the mouse over the 'Compile' icon on the Map Configuration screen. The legend changes to yellow (or white) on black to confirm that compilation is in progress. This process may take a few minutes depending on the amount of data to be compiled. When the process is finished, the legend reverts to normal. On completion, the compiled map can be downloaded to PROM Programmer or to one of the Systems as required.

Downloading

Downloading to the System and to a PROM Programmer are very similar. At this point, the System or PROM Programmer should be checked to ensure that it is in suitable condition to receive the data.

Note: The System must be powered up to receive the download data.

When the conditions are satisfactory (possibly after corrective action), click the mouse over the corresponding icon. This starts the download and a descriptive box is displayed which indicates the progress of the download. At the end of the download, a further box is displayed informing you of the fact. The download may take up to several minutes depending on the complexity of the system.

Should the download fail (e.g. a link failure), a warning message is displayed after a set 'Time out' period has elapsed. Data should be downloaded to PROMs in accordance with PROM Programmer's instructions at start address 10000H.

Note: PROM Programmers should have at least 128kbyte internal RAM available.

Two 256kbit EPROMs should be programmed to reside on the Microprocessor board, (PDE 6642, positions IC2 and IC6, 512kbit - DCS 3000,
 PDE 6622, positions IC2(lsb) and IC6(msb), 256kbit - 6000 System,
 PDE 8600, positions IC72 and IC73, 256kbit - Microcompact).

When the configuration has been downloaded into PROMs they can be inserted into the microprocessor board in the positions indicated.

If the DCS 3000 is fitted with a spare Microprocessor board, change the EPROMs in the slave unit first and replace it. Perform a 'red button reset' (swap microprocessors) to make the slave the new master processor. Remove the other Microprocessor (now the slave) and replace the EPROMs. Replace the microprocessor.

CAUTION: **If the DCS 3000 is fitted with a single Microprocessor card, then it is advisable to power down the system before removing the Microprocessor card and replacing the EPROMs,**
The 6000 Matrix must be powered down before removing the microprocessor card to install new EPROMs or damage to the system may occur. Re-install the microprocessor board before powering up again.
Microcompact must be powered down before opening the Matrix unit to replace the EPROMs.

If a System has been powered down to replace the EPROMs, simply restoring power should invoke the new data.

When the configuration has been downloaded directly to a System, it can be made operational by performing a RED button reset. Information regarding the power up and reset procedures is given below.

8.1 Matrix Processor Operation

Each processor board in the central matrix may contain up to two separate configuration data sets, one in EPROM and one in NVRAM (Non-volatile RAM).

The data set in NVRAM is downloaded from the CCF and may be changed frequently. The data set in EPROM can only be changed by fitting new EPROMS programmed by downloading from CCF to an EPROM Programmer. Where CCF is provided, normal system operation will be from the NVRAM configuration data set which will reflect the current operational requirements. The EPROM configuration data set will be used as a fall-back should, for any reason the NVRAM data set not be usable. Where CCF is not provided, the system operation will be from the EPROM configuration data sets.

8.2 Power-up Sequence

Note: Microcompact has a single front panel mounted LED labelled CPU; this serves to perform all the signalling functions described in the following paragraphs.

On power-up, the processor board checks the validity of the NVRAM. If it is valid, this configuration is used. The green LED flashes at one second intervals at a 50/50 mark space ratio.

Should the NVRAM data set be invalid, the processor board checks the validity of the EPROM map. If it is valid, this configuration is used. The green LED flashes at one second intervals at a 20/80 mark space ratio.

If neither data set is valid then the system does not commence operation. The green LED double flashes at one second intervals at a mark space ratio of 20/20/20/40.

A full system reset (i.e. all routes and latched keys cleared) only occurs if the black button is being pressed (See 8.4). If neither of these constraints are met, then power-up restores all previously latched keys and audio routes.

8.3 Red Push Button

The red push button is used for a number of reset actions as follows.

☐ Red button only - When a dynamic download has been initiated, the new map is transferred from the RAM buffer into the NVRAM when the red push button only is pressed. The local programming on control panels remains unaffected unless the new map has changes to the panel's configuration.

In a dual processor system, when the Master is reset by pressing the red RESET button the Slave automatically becomes the Master and the previous master becomes the slave (See Section 8.7).

☐ Red and Blue buttons - Pressing both of these buttons simultaneously forces the 6000 system to use the PROM map instead of the NVRAM map.

☐ Red and Black buttons - Pressing both of these buttons simultaneously forces the 6000 system, including the control panels, to perform a complete reset (ie a cold start reset).

The push button actions are described in greater detail below.

Note: Microcompact has *two* Red buttons. This is a safety feature since the front panel mounted buttons may be inadvertently pressed; they must be pushed simultaneously to perform the actions described.

8.4 Blue Push Button

Depressing the blue push-button on a processor board (until the green LED begins to flash), while that board is being reset by depressing the red RESET push-button, forces the board to use the EPROM configuration. In the case where the EPROM configuration is invalid, the system does not commence operation.

The green LED must recommence flashing 50/50 or 20/80 before releasing the blue push-button.

8.5 Black Push Button

Depressing the black push-button on a processor board (until the green LED begins to flash) while that board is being reset, (either by re-application of power or manually by depressing the red RESET pushbutton), forces the board to reset the entire system.

The green LED must recommence flashing 50/50 or 20/80 before releasing the blue push-button.

8.6 Downloading New Panel Software

New panel software, located initially in the processor, can be downloaded as follows:

a) With the new components fitted on the processor card in the Matrix, hold the black, blue and red push-buttons down simultaneously and then release the red push-button.

b) Wait for the green LED to flash and then release the black and blue push-buttons.

c) Panels with displays will respond by displaying the message 'downloading xx%' indicating the proportion of software downloaded to the panel. After 99% the panels perform a 'checksum' test and then reconfigure. Panels without displays will appear inactive for a period. The whole process will take between 5 and 15 minutes, depending upon the number of panels connected to the system.

8.7 Dynamic Download

Configuration data is downloaded into a RAM buffer area of the master processor. On completion of download, the RED reset button is pressed and the new map is written into the NVRAM. The master processor then transfers the contents of it's NVRAM into the the slave processor (if fitted). Downloading from CCF automatically triggers a RED reset. The new map is now operational on the system.

All panels are updated with the new configuration but local programming is maintained where feasable.

Normal operation continues uninterrupted during the download of data into the RAM buffer. On pressing the RED reset button, all currently operating call connections remain made provided that the new configuration does not alter the route being used. However, the control panel keys are locked out for a short period, depending on the size of the system, before normal operation recommences (ie no new calls can be made while the map is being transferred into NVRAM). This is to prevent incorrect routing occuring during map transfer.

8.8 Dual Processor Operation

NOTE: Section 8.8 does not apply to Microcompact.

8.8.1 Master/Slave Description

In a system which has two processor boards, one processor becomes the Master and the other becomes the Slave. This decision is determined dynamically as described below.

The Master processor board illuminates its red LEDs marked "MAS", "MGB" and "SER" and also takes control of the entire system operation.

When both processor boards are reset simultaneously, e.g. when power is first applied, both processors compete to become Master by bidding where the bid is dependent on whether its own data set is NVRAM, PROM or none valid. The bids are ranked in the following order of decreasing precedence: NVRAM, PROM, none. Where the bids are the same, the processor in slot 2 becomes the Master.

If the Master is reset by pressing the red RESET button the Slave automatically becomes the Master and the previous master becomes the slave.

To reset either Red, Black or Blue, hold both Reds, Blacks or Blues to reset both processors.

8.8.2 Processor Failure

If one processor fails or has been extracted, the other automatically takes over control of the system.

CAUTION: In 6000 Series equipment, do not extract any cards while the system is powered up or damage may occur. DC control output number 1 (normally activated or low impedance to ground if the DCC card is fitted), de-activates (high impedance to ground) to indicate processor failure.

8.9 Panel Initialisation

A panel uses an extract of the configuration data set. This is sent to a panel whenever:

a) A processor board is reset (this includes the re-application of power or a manual reset) whilst the black button is pressed or directly after a new configuration has been loaded via CCF which involves new panel configuration data.

b) The panel is plugged into a different port.

c) The panel is plugged into the same port, but during disconnection, the system has been made to operate with a different map.

A black and red button reset causes all panels to be re- initialised and any local assignments made are lost. Situations (b) and (c) above cause the one panel to be re-initialised whilst normal operation continues.

Note: Removal of a panel with any keys in the ON position will cause any routes set up by those keys to be maintained by the system. The only way to clear down these routes is to either reset the whole system or to re-plug the panel into the same port, in which case activated keys and any local assignments made, are restored.

Appendix A   CCF/GEM Faults

A fault exists on all versions of CCF up to issue 2.6 working with all versions of GEM up to issue 3.0.

The symptoms of this fault are that a single click of the mouse will cause a double click action. Hence, for example, selection of 'Sheet 2 of 2' from within the Panel menu becomes virtually impossible.

Not all types of PC exhibit this fault, but should this problem arise simply perform the following sequence of operations.

a) Revert to main menu.

b) Select 'MAP TYPE' with the mouse.

c) Press the 'Return' key on the keyboard.

d) Continue with reconfiguration as normal.

This removes the fault until CCF is re-entered again from DOS. It is hoped to resolve this problem in later versions of CCF. This problem does not occur in CCF Version 3.0.

Mouse Pointer Problem

The mouse pointer can be made to disappear from the screen, with certain combinations of GEM, mouse and PC computer. This problem only occurs when the pointer is moved quickly back up to the menu bar when a 'quit' from a CCF screen is made. The pointer can be recovered by moving the mouse forward until the menu bar is activated and 'quitting' back to the top level screen.