

SAC Editor

Version 3.01

User's Guide

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Windows 9x / Me / NT / 2K / XP
(IBM 46xx)

Purpose

The purpose of this document is to explain how to use the SAC Editor software package, to create and maintain SAC files for ScreenKey consoles. The package runs on a Windows platform but creates SAC files for Windows or IBM 46xx target systems.

www.ScreenKeys.com



SAC Editor

Information in this document is subject to change without notice.

The latest revisions of the ScreenKey documents and software can be found on the ScreenKeys Web site.

Web: www.ScreenKeys.com

Technical Support is available

via Email support@ScreenKeys.com

via Web: www.ScreenKeys.com

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DISCLAIMER:

SKI reserves the right to revise data file formats and functionality at any time.

If data file formats are revised, the *FileVersion* field in the HEADER record will be updated. Utility programs written to process the data file should check this field.

SKI – ScreenKey Interface

ScreenKey technology has been in use for a considerable number of years. In this time, SKI has developed a range of software tools to simplify the task of integrating a ScreenKey console into an application or hardware solution.

The principal operating system targeted by the SKI Software Toolset is the Windows platform.

SKI publishes the device-level communications interface so that non-Windows users may employ ScreenKey consoles and devices in other environments.

The SKI Software Toolset offers an advanced and feature rich set of software applications that enable developers and/or end-users to integrate a ScreenKey console quickly and easily yet providing the in-depth control capabilities to allow developers to maximise the potential of ScreenKey technology and the different console features.

Note – Discontinued Products

This document sometimes refers to products that have been discontinued by SKI (e.g. SK-2000 or SK-6000). Please be aware that the software toolset continues to offer support for these products as an assistance to legacy users of these products. Product snapshots and examples used in this document sometimes refer to these products.

Foreword

ScreenKey consoles are available for Windows and IBM 46xx target platforms. These operating systems are very different and require different ScreenKey support software and utilities. Please see ScreenKeys website (www.ScreenKeys.com) for further information.

ScreenKey Active Control (SAC) files are used extensively by SKI in providing solutions for both target platforms.

The Editor when installed is unique to a specific target platform. Different installation programs are used to install the appropriate SAC Editor. Please note that it is possible to install both versions of the Editor on to the same PC.

The SAC Editor described in this document explains how to create and maintain SAC files for both systems although the Editor itself only runs on Windows platforms. That is, SAC files for IBM 46xx systems must be created on a Windows PC and transferred to the 46xx runtime system.

Other helpful documents are:

ScreenKey Getting Started & Installation Guide

Covers installation and how to get started for both Windows platforms.

ScreenKey Planning and Installation Guide for IBM 46xx Systems

Covers installation and how to get started for IBM 46xx systems.

Note



In this document pointing hands in the left margin are used to indicate differences for certain platforms and console types. Where **Win-9x** is mentioned, it applies to Windows 98 and Windows Me.



An upward pointing hand indicates that the whole chapter only applies to the description below the pointing hand.



A rightward pointing hand indicates a difference in that section if the hand is pointing to a section or a difference in the paragraph if the hand is pointing to a paragraph.

Most of the information contained in this document is also available via the on-line help.

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INTRODUCTION

SAC Editor Overview

What is ScreenKey Console?

The ScreenKey console is an Input/Output device for use with Point-of-Sale (POS) and other specialized applications, such as process control, dealer desks, call centers etc. The ScreenKey console combines the best features of a standard console and a TouchScreen. It is made up of conventional fixed keys and special ScreenKeys. Each ScreenKey acts like a conventional key but incorporates a built-in LCD display panel. This enables the ScreenKey's legend to be changed at will. ScreenKeys are available in several configurations:

- Resolution: LC16 (32x16 pixels) or LC24 (36x24 pixels)
- Backlight Colors: RG (red-green) or RGB (red-green-blue) LED backlighting

Windows



Open Systems ScreenKey consoles connect to the PC via the Serial RS232 port. Future versions will be offered using USB interfaces.

IBM 46xx



IBM 46xx ScreenKey consoles connect to the IBM POS terminal via socket 4 or 9 of the device channel backplane (RS-485 connection).

What is SAC Editor?

The SAC Editor is a software package that allows the design and maintenance of a ScreenKey menu-based navigation system in the form of a self-contained data file (SAC). The data file contains all ScreenKey text, graphics, backlight colours, flash colours and keypress return codes as well as navigation rules to move between different ScreenKey menus.

The SAC file can be used by other ScreenKey runtime components to control a ScreenKey console and to interact with a new or existing application.

The SAC Editor may also be used as a generator and repository for ScreenKey graphics. Graphics may be exported to binary and 'C' source files for use in other applications or other ScreenKey firmware designs.

Some of the benefits of ScreenKey consoles are:

- Interface the ScreenKey console to an existing application with **no changes** to the application itself
- Tailor the “Look and Feel” of the ScreenKey console to suit the application
- Design user interface offline from the runtime system
- Add security feature to the application using the Mode Lock with no application changes (available on some console types)

Who should read this document?

The User’s Guide is intended for the person who will create and maintain SAC files. Typically this will be an operation or IT person but may be a software developer, system integrator, dealer or end-user.

This guide assumes that the reader is familiar with Windows and Windows commands.

I N S T A L L A T I O N

Installation Procedure

Hardware Installation

Windows



See the **ScreenKey Console, Getting Started & Installation Guide** document for details of hardware installation.

IBM 46xx



See the **Planning and Installation Guide** document for details of hardware installation.

Software Installation

The SAC Editor software is supplied on a CD or may be downloaded from the web (www.ScreenKeys.com).

When distributed by CDROM, the CD usually incorporates an autorun facility that launches an installation helper utility (e.g. HTML file). Follow the on-screen instructions as described by this utility to install the SAC Editor. If the utility is not present or the autorun feature is disabled on your computer, you can install the software directly from the CD. The ScreenKey software package typically includes several software applications that reside separately on the CD. Find and open the SAC Editor sub-folder using Windows explorer from the root of the CD and run Setup.exe from this folder. Follow the on-screen instructions presented during the installation process.

If the software is downloaded from the Web, follow the instructions that come with the software.

Follow the on-screen instructions during the installation process.

Notes:

1. Please refer to the installation README.PDF file that ships with the Editor distribution package. This will contain the latest information on this product and specific installation instructions.
2. If this is the first installation of ScreenKey software, the user will be prompted to specify the installation folder. The offered default directory is C:\Program Files\ScreenKey, however any other directory can be selected by clicking on the Browse button. If the directory you choose does not exist, it will be created.
3. If ScreenKeys software has been installed previously, the Editor will be installed into the folder previously assigned.
4. The choice of target system installs determines the selection of keyboard templates that will be installed with the software as well as configuring enabling/disabling specific target platform options in the Editor.
5. Dual installations may be created on one PC, i.e. one for Windows target platform and one for IBM 46xx target systems.

Uninstallation of Software

Installation of the SAC Editor creates a component in the “Add/Remove Programs” utility of the Windows Control Panel.

Windows



This is called *SAC Editor* when the target system is Windows platforms.

IBM 46xx



This is called *SAC Editor for IBM 46xx* when the target system is IBM 46xx systems.

To uninstall the software, launch the “Add/Remove Programs” utility from the Windows Control Panel.

Select the component to be removed and click on the “Add/Remove” button at the bottom of the window. Click “Yes” to proceed with removal of the installed software.

T H E E D I T O R

The Editor

Editor Overview

The SAC Editor is a Windows application that allows SAC files to be created and maintained.

The Editor operates offline from the runtime system and does not require the ScreenKey console to be connected to the PC while using the Editor.

The SAC file is a binary file. Details of the data file format can be found in the document **ScreenKey Console Technical Reference Manual** (see www.ScreenKeys.com for latest version).

The main features of the Editor are...

- Supports all ScreenKey console (including legacy support for discontinued products, e.g. SK-2000) and ScreenKey types, including LC16 and LC24 resolution and RG and RGB LED backlighting.
- Allows menus (identified by menu names) to be set up for the ScreenKeys.
- Allows Text/Graphics and key colour to be set up for each ScreenKey within each menu.
- Supports Graphics editing, import from bmp or jpg files and export to binary or 'C' source files.
- Allows one or more scan codes to be associated with a fixed key or ScreenKey.
- Allows Barcodes to be associated with a fixed key or ScreenKey, either as manual input or by a bar code scanner.
- Allows the display of a new ScreenKeys menu to be associated with a fixed key or ScreenKey.
- Allows Magnetic Card Reader, Modelock and Error parameters to be defined. (dependent on console type)
- Supports testing of the menu hierarchy without using the ScreenKey console.

Designing SAC File Layouts

One of the advantages of ScreenKey consoles is a reduced number of operator key choices at any one time. This facilitates faster and more accurate input selections. ScreenKeys offer 'multiple personalities' dependant on the currently active ScreenKey menu (i.e. the same key performs different functions in different menus). The actual menu offered to the operator is context sensitive with the current state of the application.

As some functions are then only available via a menu 'drill-down' process, it is advisable to keep the more frequently used functions either on the Fixed keys or on the main (top-level) ScreenKeys menu.

Terminology

This software uses common Windows features familiar to all Windows users.

In the documentation that follows, the following conventions are used:

'Press the Alt key and the M key then the C key' which means that you must hold down the first key (Alt) briefly press and release the second key (M), release the first key, and briefly press and release the third key (C). The case (lower/upper) of the keys does not matter - 'M' in the above example is the same as 'm', so you don't have to press the Shift key.

A word in *Italics* means it is the subject of a section in the document. For example, '*... deletes the goto menu reference...*' means that there is a section in this document with the title Goto Menu.

Windows



When designing SAC files for Windows platforms the term **scancode** is used to refer to key press return codes. When ScreenKey Windows's tools process SAC files, **scancodes** are translated to Windows keyboard messages.

IBM 46xx



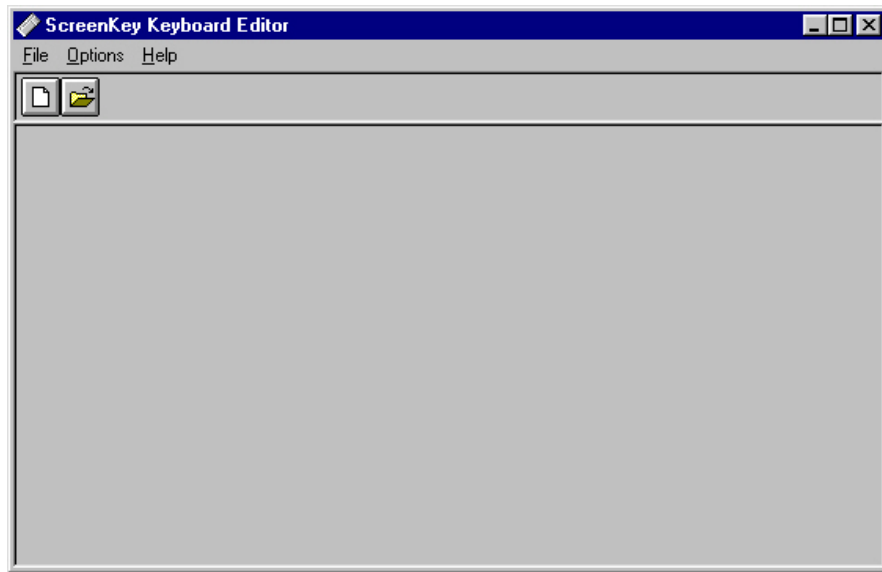
When designing SAC files for IBM 46xx platforms the term **stemcode** is used to refer to key press return codes. These match original POS keyboards as per the selected keyboard template. Please read **stemcode** wherever **scancode** is mentioned in this document if the target platform is for IBM 46xx systems.

The document often refers to **Item Codes** as a generic reference to **scancodes** or **stemcodes**.

SAC Editor Start-up

Launch the SAC Editor from the shortcut placed on the Windows START menu.

When first started, the following display is shown:



From here, the user may create a new SAC file, open an existing file, configure the editor or exit the program.

Keyboard Templates and Ini File

Windows



Assigning **scancodes** to fixed or ScreenKeys is effectively the same as specifying one or more keystrokes that simulate pressing these keys on a qwerty keyboard. The relationship between scancodes and key positions on the qwerty keyboard is defined by a keyboard template file. The SAC Editor is distributed with a standard 101-key UK keyboard template (kybgenuk.kbd). The keyboard template actually uses and requires some additional template support files described below. Other template files may be obtained from SKI on request. Users may modify this template to change the scancodes assigned to each key in the qwerty layout.

IBM 46xx



Assigning **stemcodes** to fixed or ScreenKeys is effectively the same as specifying one or more keystrokes that simulate pressing keys on a POS keyboard attached to the IBM 46xx terminal. The relationship between stemcodes and key positions on the emulated POS keyboard is defined by a keyboard template file. The SAC Editor is distributed with an IBM 50-key template (i46-050.kbd), IBM N50-Key template (i46-n50.kbd) and a 133 key POS template (i46-133.kbd). Keyboard templates use and require additional template support files as described below.

Other template files may be obtained from SKI on request. Additionally, users may modify the supplied templates to change or create new templates.

An ini file (paskeyed.ini) resides in the install folder. The currently selected keyboard template file (plus template support files) is recorded in this file. This file also has entries that record the previous file history and an entry that specifies the target platform for this installation of the SAC Editor.

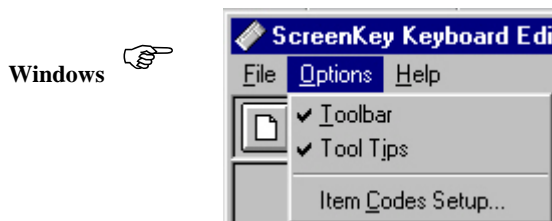
The following file set is required to create a complete keyboard template. Each member of the template file set has the same name but with a different extension (different file names may be used for the legend file).

<i>Filename</i>	<i>Purpose</i>
*.kbd	Defines scancodes/stemcodes for each key position
*.lay	Defines the key positions (relates to the bmp file)
*.bmp	Image (graphic) of the keyboard layout showing key positions
*.leg	Stores legends used on each key position

Note: The 101-Key UK Keyboard template does not require a leg or bmp file.

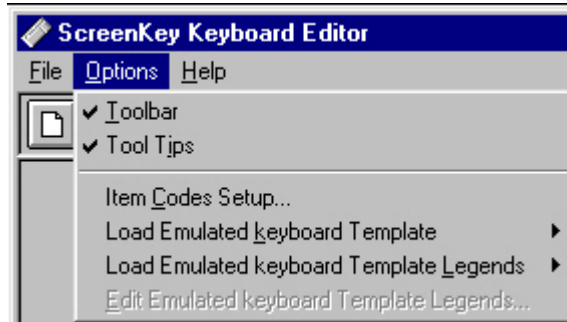
Options

The Options menu looks like this in Windows target mode:



and like this in IBM 46xx target mode:

IBM 46xx



The Options menu differs depending on the target system. In all cases there are menu items for turning the Toolbar and Tool Tips on or off, and a menu item for “Item Codes Setup”.

Item Codes Setup

This brings up a window for defining if and how item codes are entered.

“Item Codes” are numeric only data that can be used to quickly enter key return codes (sequences). Typically this represents barcode data, but they can be any number sequence. “Item codes” differ from ordinary scancodes, which can be any combination of keystrokes, i.e. item codes are not restricted to numbers only. All item codes are followed by a suffix character (e.g. 4711<enter>, where <enter> is the ASCII value for the Enter key). The suffix character to use may be set in this window.

If you wish to use item codes in the SAC file, tick the “**Use Item code field**” checkbox. This enables an entry field called *Item number* in main SAC window.

Actual item codes may be entered directly into the *Item number* field using either the qwerty keyboard or a barcode scanner attached to the PC. Using a scanner can be useful in cases where all the item codes (barcodes) are listed in a book or similar.

It is possible to use either a keyboard wedge scanner, or an RS-232 scanner:

- Keyboard wedge barcode scanner
This feeds the keystrokes through the keyboard cable as if they were typed on the keyboard. In this case it is not necessary to set up the Editor.
- RS-232 barcode scanner
This sends the scanned number through the PC’s RS-232 communication port and the Editor must be configured to support this method of operation. **Tick** the checkbox “**RS-232 Bar code reader**” to enable support for RS-232 scanners. Next specify the **Com-port** number to which the scanner is attached (1, 2, 3 or 4). Note that if this type of scanner is used, barcodes will

only be entered in the *Item number* field, when this has the focus or a ScreenKey or fixed key has it.

In both cases the scanner itself must be configured to read the required bar code types, to send numbers ONLY, and to send a Carriage Return (ASCII value 13) at the end. **This Carriage Return is NOT the “Item Code suffix.**

Windows



The “**Item code suffix**” must be specified. This may be specified as either a hexadecimal scancode (as in the .kbd file) or as a decimal ASCII value. In the latter case, the program will look this value up in the scancode table, and send that scancode.

IBM 46xx



For IBM 46xx target users, the actual suffix uploaded to the operating system is inferred from the barcode type (e.g. EAN13 uses a different suffix than UPC-A). The “**Item code suffix**” must still be specified in this window. This value should be set to decimal ASCII value 13 (CR).

The Item Code Setup window is only accessible when no file is loaded into the editor, and will apply for all opened files.

WARNING

THE INFORMATION DEFINED IN THIS WINDOW WILL BE SAVED TO A CONFIGURATION SETTINGS FILE (.INI FILE), AND NOT IN THE SAC FILES. IT IS THEREFORE CRUCIAL THAT THE EDITOR IS CONFIGURED THE SAME WAY WHEN AN OLD FILE IS UPDATED.

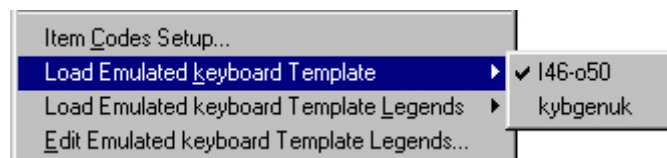
IBM 46xx



Load Emulated Keyboard Template

The Emulated keyboard template is a definition of the target emulation keyboard type. The template consists of three files, a “.kbd” file, a “.lay” file, and a “.bmp” file. All these have to be present in the editor install folder to have access to a template. The “.bmp” file is a bitmap file showing the keyboard as a picture, the “.lay” file describes to the editor where each key is placed and the “.kbd” file describes the stemcodes associated with each key.

When you select this item a sub menu will be displayed showing all available templates, and which one is the current selected one.



Select the desired template. After the template is selected, a legend file must be chosen that matches the newly selected template. If the current legend file does not match, a warning will be shown on the screen. You must then select another, or create one with the Emulated Keyboard Template Legend Editor. (see below).

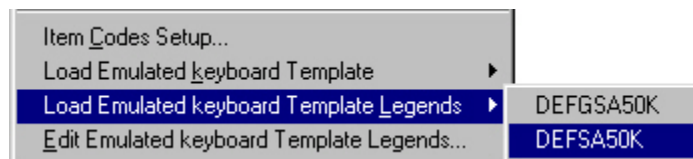
Note: In Windows target platform this menu will not be shown. The Emulated Keyboard Template will be set by default to “Kybgenuk”.

IBM 46xx



Load Emulated Keyboard Template Legends

The Emulated Keyboard Template Legends are the legend text on the keytops of the target emulation keyboard, e.g. the IBM 50 key keyboard. These legends match the setup of the IBM 46xx back office setup. The legends are defined in the “.leg” files, and they are loaded by selecting the template from the sub menu. All available legend files are shown as a submenu, and the current active legend file is ticked on the menu.



Select the desired template legend file. When a template legend file is selected, this has to match the selected template. If the current legend file does not match, a warning will be showed on the screen. You then have to select another, or create one with the Emulated Keyboard Template Legend Editor.

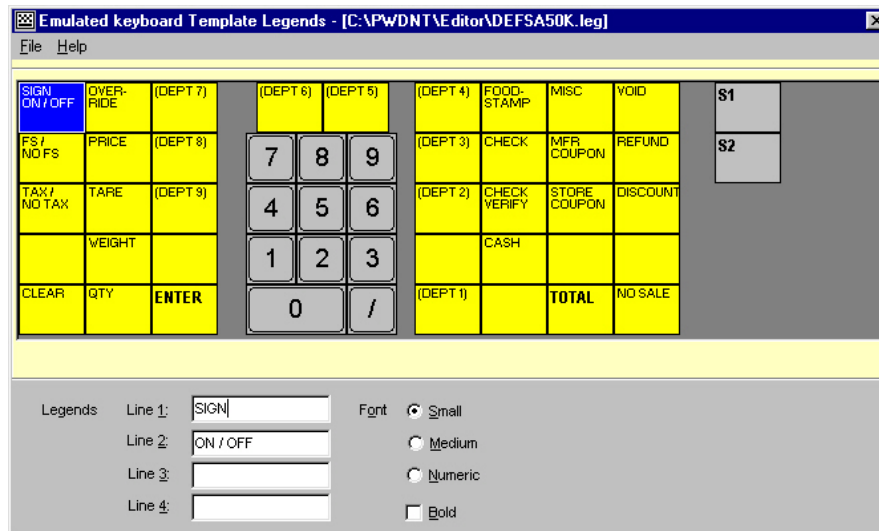
Note: Two legend files are shipped with the SAC Editor: default IBM 50Key for SA and default IBM 50Key for GSA

IBM 46xx



Edit Emulated Keyboard Template Legends

The Emulated Keyboard Template Legend Editor is an editor that allows you to create a new or change an existing legends file. The editor works with the currently selected Emulated Keyboard Template.

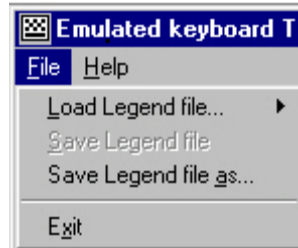


The Emulated Keyboard Template Legend Editor looks very much like the Scancode Editing Window, with some differences. To change a key's legend do the following:

- Select a key by clicking it with the mouse.
- Type the key legend
- Select the font size
- Select if bold face or not
- Repeat for each key

There are certain rules that applies:

- If using the Small font, all four lines may be specified and they appear with line 1 at the top, line 2 under line 1, and so on. The text will be left aligned.
- If using the Medium font, only line 1 and 3 can be specified. Line one will appear in the top half of the key, and line 3 on the bottom half. The text will be left aligned.
- If using the Numeric font (same font as number keypad), only line 1 can be specified, and it will be centred vertically, and horizontally.



The default file will be the file that is currently defined as the Emulated Keyboard Template Legend file. You may also load other files for editing. The local File menu item has the following commands:

- Load Legend file
- Save Legend file
- Save Legend file as

Load Legend file

This menu item has a sub menu showing all available legend files. Select the desired file from the list and edit it. When a file is loaded or saved this file becomes the current Emulated Keyboard Template Legend file, and will be ticked accordingly under the Options menu in the main window.

Save Legend file

This menu item will save the changes to the legend file back to the file.

NB: NO BACKUP FILE IS CREATED!

Save Legend file as


This menu item allows you to save the changed file to a different filename, which will be stored in the editor directory. This feature is useful when you want to create a new legend layout.

If you exit the editor without saving, you will be warned about this but may choose to continue anyway. Note however that the **edited** legend information remains in the editor's memory and will be seen if you use the Edit scancode command. Select another legend file to load this information into memory.

SAC Editor shutdown

To exit the program click on the window close button, or click on the File menu and the Exit option. If there are any open SAC files, you will be asked if you wish to save the changes. If you are editing a graphic from an open SAC file you will not be allowed to close the file until you have finished editing the graphic (first save the graphic using the Graphic Save menu, then close the graphic using the Graphic - Close option).


Opening an existing SAC file

 Open an existing SAC file* by clicking on the open document icon, or by clicking on the File menu and then clicking on the Open option. This opens an explorer window from which you should select the file you require. If you select a valid file it will be opened after a short delay. The program will issue a warning to the user if a SAC version 1 file is chosen. The file will be automatically converted to version 2 (see page 69 for details) if the user continues.

The five most recently used files are shown in the File menu, and can be opened by selecting their name.

* SAC files have the extension *.pkf*

Creating a new SAC file

 Create a new SAC file by clicking on the New document icon, or by clicking on the File menu and then clicking on the New option. This opens a screen asking for the desired console type and the combination of ScreenKey and fixed keys required. This information is stored in the SAC file.



The Keyboard Layout definition Window

In the Keyboard Layout dialog box you first select the desired console type, then, if offered, select the panel combinations (panel combinations are not applicable for every console type).

- **SK-2000 Series [discontinued – legacy support only]**
This console type allows variations of the panel layout. Choose the combination of fixed key panel(s) and ScreenKey panel(s).
The combinations may be from 0-3 panels of 12 ScreenKeys each, and 0-3 fixed key panels of 20 keys each.
- **SK-3000/SK-7000 Series**
This console has one panel of 12 ScreenKeys at the left side and 37 fixed keys to the right.
This console type does not allow variations of the panel layout.
- **SK-5400 Series**
This console has one panel of 12 ScreenKeys and no fixed keys.
This console type does not allow variations of the panel layout.
 - **SK-6000 Series [discontinued – legacy support only]**
This console has two panels of 12 ScreenKeys at the left side and 12 fixed keys to the right.
This console type does not allow variations of the panel layout.

After setting the console configuration, the type of ScreenKeys must be specified for the target console. Two selections must be chosen:

- **Resolution**
Select either LC16 (32x16 pixels) or LC24 (36x24 pixels)
- **Backlight Colors**
Select either RG (red-green) or RGB (red-green-blue) backlighting

Editing more than one SAC file at a time

There can be more than one SAC file open in an editing session. It is not possible to copy key or menu details between the simultaneously open SAC files, although Graphics can be copied between the files.

Saving a SAC file



When a SAC file is open the Save icon is displayed. Click on this icon, or click the File menu then the Save option. If the SAC file is unnamed (i.e. a new SAC file was opened and has not yet been saved) you will be asked for a name and a location to save it under, with an explorer style window. You can also

save the SAC file under a different name if you wish by choosing the 'Save As...' option on the File menu.

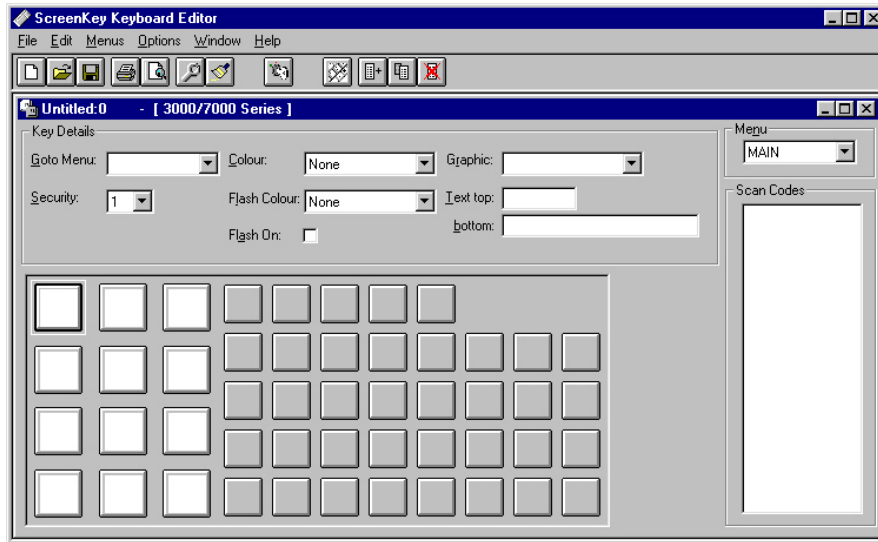
NOTE If a SAC file with the same name already exists, this original file will be saved with an extension .pkb

Understanding the display

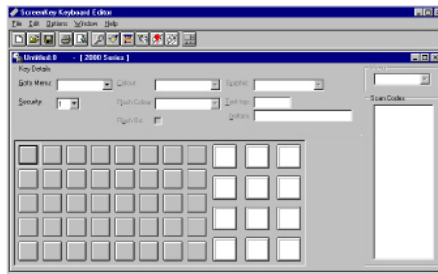
After opening/creating a SAC file, a diagram of its console layout is shown on the screen. This diagram is the Key Details window. The fixed keys are shown smaller than the ScreenKeys, and have a grey key face. The ScreenKeys, which are larger, are initially shown with the imitated LCD screens in a white colour.

Above the console display is a collection of boxes, initially blank, which are used to select or enter details about a particular key.

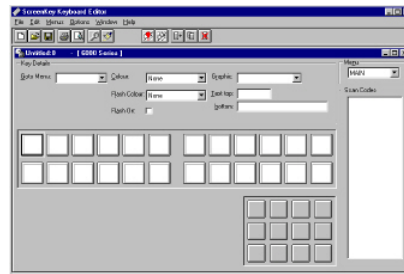
All other windows are accessible from the Key Details window (you may have to select a key to be able to access other windows).



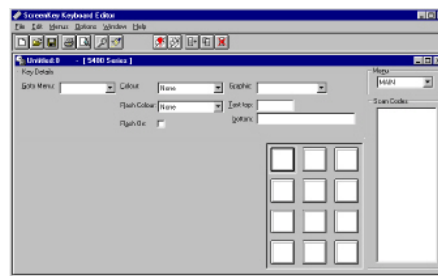
SK-3000/SK-7000 Series



SK-2000 Series



SK-6000 Series



SK-5400 Series

Examples of the main Key Details Window for different console types

What are ScreenKeys ?

ScreenKeys are pushbutton keys that incorporate a small LCD panel. They are capable of displaying text or graphics (a graphic can also be used to represent text) on their face. They can also be illuminated in a variety of backlight colours, pressing a key can cause the menu to change, and one or more keystrokes can be sent to the application program. When you edit a ScreenKey the relevant editing fields are made available. These show the details of the current key being edited. Although there is room on the screen display for selecting graphics and for editing text, you can have one or the other but not both.

Selecting a graphic to display on the ScreenKey erases any previous choice of text. If you want a graphic to be displayed on the ScreenKey you must use the graphics editing screen to create the graphic first. The same graphic can be shown on more than one key. When you select a graphic to be displayed (using the dropdown list), a representation of the graphic will appear on the key button.

What are Fixed keys ?

Fixed keys are similar to the conventional keys on computer keyboards. They cannot display variable graphics or text (they do not have an integrated LCD display). Fixed keys can *goto menu*, insert *scancodes*, and be assigned a *security level*.

Large Keytops

It is possible to combine two or more fixed keys to work as one large key, like an **Enter** key or a **Total** key. The upper left single key in a large key is the active part of the key, the others are inactive. A large key will act as one ordinary fixed key.

There are two ways to define a large keytop:

- Using the mouse

To define a large keytop using the mouse, simply place the mouse pointer outside one of the keys that would be a part of the keytop. Press and hold the left mouse button, move the mouse so the displayed rubber band surrounds the wanted keys, and release the mouse button.

- Using a dialog box



Display the dialog box by clicking on the Make Large Keytop icon, or by clicking on the Option menu and then clicking on the Make Large Keytop option. Select the width and height of the keytop by using the two dropdown menus, and click Ok.

The dialog prevents you from defining an illegal keytop, because it adjusts the width and height choices dynamically to the maximum allowed.

The large key will be displayed as a large button on the screen.

A large keytop can NOT include another large keytop. If you wish to do that, undo the keytop first and then define a new one. It is therefore not possible to make an L-shaped keytop by combining two large keytops.

Normally a large keytop is either one key high and two keys wide, one wide and two high, or two keys high and two wide.

When a large keytop has been defined, the propeSKies for the inactive keys of that large key will be lost, they are not restored if the key is redefined to single keys.



Undo a large keytop by clicking on the Undo Large Keytop icon, or by clicking on the Option menu and then clicking on the Undo Large Keytop option. The previous propeSKies of the inactive parts of the large key will be lost.

*Definition of a Large Keytop **must** always start with the **upper left** button of the keytop, when using the dialog box*

What are menus ?

Associated with ScreenKeys is the concept of menus. A menu allows different text, graphics, or key actions to be present on the same ScreenKey but at different times. When you create a new menu you create a new set of information about the ScreenKeys. Each menu is given a name. If you have 2 menus, there will be 2 sets of information for each ScreenKey, one for the first menu, the other for the second menu. For example, in a supermarket application the top menu may be product type. Pressing a key may access a menu of greengrocery items, and pressing another key may access a further menu of apples.

It follows from this that you need to be able to access each menu, by pressing a key. This is done by the *Goto Menu* dropdown, which contains a list of menus. Selecting a menu from the list causes that menu to be active for the key when pressed.

Both ScreenKey and fixed keys can be assigned a *goto menu*. The fixed keys however are not part of a particular menu, because there would be no way of signalling to the operator the function of the fixed key if it changed. Fixed keys retain the same assigned function for all menus, ScreenKeys do not.

Menus have names. Only the upper case letters (lower case is translated automatically to uppercase), the digits, and the dash and underscore characters are valid, and you can have a maximum of 10 characters. For example 'MYMENU' and 'MENU_1' are valid, but 'MY MENU' isn't (because it has a space in it), or 'VERYLONGMENU' (because its too long). For your ease of use, try to choose meaningful names, and plan your menu structure before you create any menus, defining the *goto menu* keys.

NOTE Certain menu names are reserved and special menu naming conventions apply to define particular menu operations. See pages 51 and 52 for examples of this.

Adding a menu



If the console contains any ScreenKeys there must be at least 1 menu.

When you create a new SAC file, and click on a ScreenKey you will be asked for the first menu name. Although you can cancel this operation, it will be repeated until you enter a menu name. All the details you then enter for the ScreenKeys will be for that first menu.

When you want to create another menu, click on the 'create menu' icon, or click on the Menus menu and the Add Menu option. When you have done this, the current menu will change to be the one you have just created.

Selecting the current menu

Click on the menu selector dropdown on the Key Details window, and choose the menu from the list of created menus. The name in the box is the name of the current menu. This name is repeated in the ScreenKeys surround (see the picture of the key details window).

Deleting a menu



If you delete a menu you delete all the information you have assigned to the ScreenKeys for that menu (references to graphics, but not the graphic itself, text, scancodes, etc.). Click on the delete menu icon, or click on the Menus menu and the Delete Menu option. A list of menus will appear, from which you click on the name of the menu you wish to delete (if you do not want to delete any, click the Cancel button). Click the OK button to delete the menu you chose. You will be warned if the menu is referenced anywhere (i.e. if it is the subject of a *Goto Menu*,

or *Initial Menu*) and be offered the opportunity to cancel. If the menu you deleted was the current one, another menu will be made current (if there are any).

Copying a menu



You can copy a menu (which copies all the information assigned to the ScreenKeys - references to graphics, but not the graphic itself, text, scancodes, etc. from the current menu to a new one). Click on the copy menu icon, or click on the Menus menu and the Copy Menu option. Enter a name for the copy (which must not exist), and click the OK button to copy the current menu.

Editing a ScreenKey or Fixed key

Click (or use the Tab and up/down arrow keys) to highlight a key. The first time you select a ScreenKey (only when using the console), you must press the Spacebar to activate the selection (this is a requisite of Windows keyboard interactions and does not apply to mouse selections). If you clicked on a ScreenKey, and there are no menus defined, you will be asked for a menu name (there must be at least 1 menu if there are ScreenKeys).

Key Details

As the user moves around the console, the details associated with the current key are displayed in the Key Details panel on the screen. Only the *Goto Menu* and *Security* fields are relevant when editing details for a fixed key. All fields are relevant when editing details for a ScreenKey.

Go to Menu

Select the name of the ScreenKey menu to be displayed when this key is pressed. If pressing this key should not update the ScreenKeys display then leave this field blank. The ScreenKey menu must already exist.

Security

Select a number in the range 0 to 4. A key assigned a Security Level value of 0 is always available. If the current security level of the console is less than the security level assigned to a key then that key is inactive.

Graphic (ScreenKeys only)

Select the name of the Graphic to be displayed when this ScreenKey is displayed. Graphics take precedence over text (i.e. if data is entered in both the *Graphic* field and the *Text* field then the graphic will be displayed and the text will be ignored) and the text is not saved. The Graphic must already exist. The *graphics editing window* is used to create graphics (see page 33).

Colour (ScreenKeys only)

The ScreenKey is capable of displaying a range of colours. Select a colour from the dropdown.



NOTE The number of colors shown depends on the target ScreenKey type, i.e. RG or RGB backlighting.

Flash option and Flash Colour (ScreenKeys only)

ScreenKeys may be configured to switch between colours. This feature is typically used to highlight a particular ScreenKey to the operator. The time that each colour is displayed for can be set independently in the *Keyboard Parameters* window (see page 40). If the flash option is not set (there isn't a tick in the box) then the colour setting is ignored.

NOTE These fields are used to other purposes in *Select & confirm* menus, see page 52.

Text (ScreenKeys only)

To display text, (if a graphic is assigned, click on the graphic name in the graphics selection dropdown and press the PC keyboard Delete key), click on the 'Text top' input box, and type in the text for the top line of the key, up to 5 characters are allowed. In the 'bottom' input field, text for the lower line may be entered, again up to 5 characters. The full text will be shown on the key face in the editor in the current colour (up to 10 characters, 5 per line) when you either press the PC keyboard Enter key, or switch editing to another key/edit value (the text will not scroll in the editor).

If text is defined for the 'top' line only, it is displayed in the centre of the ScreenKey display area.

Scancodes

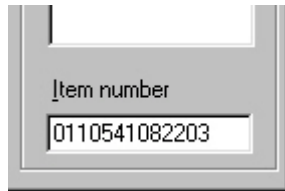


Scancodes are keystrokes that may be inserted into the application program when the ScreenKey or Fixed key is pressed. See page 38 for details. Keystrokes may also be entered as *Item numbers*, which is described below.

For a key, the scancodes can be edited by clicking on the scancodes icon, or by selecting the Options menu 'Edit Scancodes' option.

Item numbers and Barcodes

The Item Number field can be disabled/removed from the **Options/Item Codes Setup** menu item.



Item numbers are defined as a series of numbers followed by a suffix. Barcodes are defined as Item numbers. How Item numbers are handled is different for the two platforms supported, Windows and IBM-46xx.

An Item number will always consist of numbers only. They may be entered after selecting the edit field called **Item number** in the lower right corner, or after selecting a ScreenKey or a fixed key. The Item numbers may be entered by pressing the number keys, or by using a barcode scanner. A barcode scanner may be a "keyboard wedge" type or an RS-232 type, see page 15 for more information.

The barcodes and item number will not show any suffix in the Item number field. The suffix (typically the Enter code) is defined in the **Options/Item Codes Setup** window, page 15.

Windows



Windows as target platform

When designing SAC files for a Windows target platform, the item codes are treated as standard scancodes. These will be shown in the Scan Codes list, but since they are Item numbers the scancode edit template (Edit scancodes command) will not be accessible. To redefine an Item number, the user has to clear the Item number first. Double clicking in the Item number field to select it and pressing the Del key may do this.

IBM 46xx



IBM 46xx as target platform

When designing SAC files for an IBM 46xx target platform, the item codes are treated as ASCII values, and marked as Barcodes. **The supported barcode types are dependent on the particular ScreenKey console and IBM 46xx terminal configuration.** The barcode data is uploaded to the IBM terminal via the barcode

device channel if available (as if sent from a scanner itself) or may be converted to stemcodes and uploaded via the keyboard device channel if a barcode channel is not available. The actions taken by the console depend on the console model and its configuration.

The numbers will NOT be shown in the Scan Codes list, since they are not Stemcodes. Stemcodes, which are defined with the scancode edit template, are always sent through the normal keyboard channel. The scancode edit template (Edit scancodes command) will not be assessable when a barcode/Item number is assigned to a specific key. To redefine a barcode, the user has to clear the barcode first. Double clicking in the Item number field to select it and pressing the Del key may do this.

Printing



You can print out a copy of any open SAC file, including menus and graphics. You can only do this from the Key Details window. To print directly, click on the printing icon, or by clicking on the File menu and choosing the Print option. This will print the SAC file to the default printer. Click the Cancel button (which appears whilst printing) to stop the printing.

You can change the printer options including the default printer (before printing) by clicking on the File menu 'Print Setup' option. Make the desired changes, then click the OK button to save them, or the Cancel button to abort changes.



If you want to see what the printout will look like, click on the print preview icon, or by clicking on the File menu and choosing the 'Print Preview' option. This shows the printout as it will appear when printed. You can use this to check that you have entered everything before you print it. You can change the zoom scale to magnify the view, and use the scroll bars to move about the printout, and you can also resize the window (with AutoZoom). From this window you can setup the printer, and print the SAC file to the default printer. Click the Cancel button (which appears whilst printing) to stop the printing.

Unreferenced menus and graphics

All ScreenKey menus that have been set up should be referenced. They may be referenced by a key (see the *Goto Menu* field in the *Key Details* window, page 28) or by the Initial Menu (see the *Initial Menu* field in the *Keyboard Parameters* window, page 40).

In the same way, all defined graphics should be referenced by a key (see the *Graphic* field in the *Key Details* window, page 28).

The editor expects all graphics and menus to be referenced and views any unreferenced items as being an error in the SAC file. The editor issues a warning when saving a file if graphics/menus are unreferenced.

The maximum number of graphics that may be defined is 512.

Menu Walk-Through

You can use the menu walk-through feature to test the connection between the menus. Holding down the Ctrl-key, while you select a ScreenKey, will display the menu defined in the *Goto Menu* dropdown list. Select a ScreenKey by clicking on it or press the Spacebar.

When you hold down the Ctrl key while in a ScreenKey panel (in Walk-Through mode), the *Goto Menu* text will be highlighted in red colour. When you then select the ScreenKey, the menu defined as a *Goto Menu* will be displayed. This way you may go through the whole menu hierarchy as if it was running on the ScreenKey console.

The Menu Walk-Through works as if the menu specified by the Goto Menu field was selected from the Menu dropdown list.

Graphics

Editing/Creating a graphic

The graphics editing window is a separate window within the SAC Editor and is used to create, modify, and edit graphics. A graphic is a pattern of dots (LCD pixels) which is shown on the face of a ScreenKey (you cannot show a graphic on a fixed key). Graphics are stored in the SAC file, and may be assigned to one or more ScreenKeys by using the graphics selection list available when editing the ScreenKey.



To show the graphics-editing window (when you are editing a SAC file), click on the graphics icon, or click on the Options menu and the Graphics option.

The graphics window shows a grid of cells representing the dots on the ScreenKey, and various controls below this. There are 4 ways to define a graphic using these controls, (which may be combined if desired). These are:

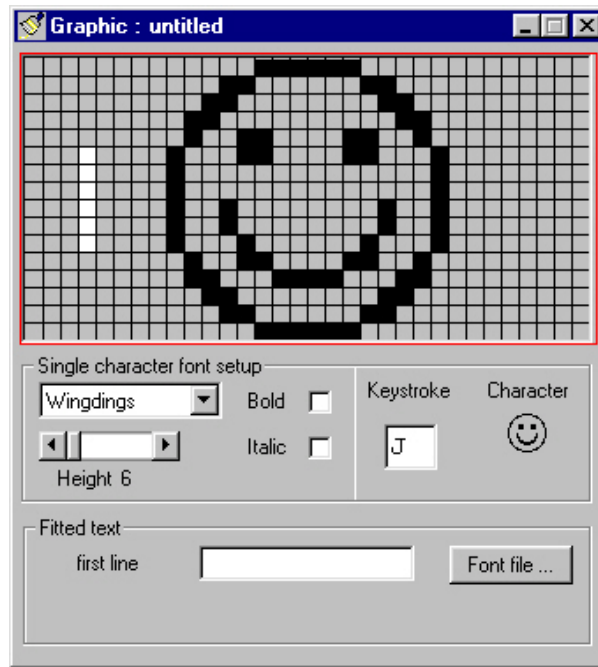
- Setting individual squares of the grid
- Using characters/symbols from the TrueType fonts installed with your copy of Windows.
- Enter as text and have the Editor convert to a graphic. The conversion, TEXT2GRAPHIC, is based on a built in font that the user can modify. See ScreenKey Technical Reference Manual for details.
- Import BMP or JPEG files created with another package.

These are explained in turn.

Setting individual squares of the grid

The mouse pointer is used to set individual squares of the grid. Press the left button to set a square (turn it black), and the right button to clear it (turn it off).

To fill a block of grid squares, simply hold down the left mouse button and drag the pointer until the desired block is outlined. On releasing the mouse button the block will be filled. The right mouse button can be used in the same way to clear a block.



The Graphics window

NOTE If LC24 resolution ScreenKeys were selected as the target the Graphics window will show 36 pixels across and 24 pixels down.

Using TrueType font characters

Windows comes with a selection of TrueType fonts. These include plain and fancy characters, and various symbols (see the picture of the graphics window above). The first set of controls below the grid (in the 'single character font setup' box) is used to select a TrueType font, and to set its characteristics.

To the right of the dividing line in the box is a test area. When you have selected a font (using the dropdown list), you can set the cursor to the keystroke box (click the mouse in the box, or use the tab key until the inset cursor appears in the box), and see approximately what the graphic will look like. (In the example shown, the font Wingdings is a symbol font. The letter J corresponds to the symbol for a happy face.)

When you have selected the font details (font, height, bold, italic) you need to set the position where the desired character(s) will appear in the grid. The highlighted vertical bar on the grid shows where the character will appear. The height of this bar is the height of the character (set with the Height slider bar), and the position is the leftmost point of the character. You can set the base position of the vertical bar by holding the shift key down and clicking on a mouse button while the mouse

cursor is pointing at a grid cell. If the base position is too close to the top of the grid the actual base position may be modified from the one you choose.

You can now type the chosen characters into the grid, by pressing the desired keys. Make sure the grid is the input area by using the tab key until a red border surrounds the grid.

If you make a mistake, press the Ctrl and Z keys, or use the Edit menu Undo option to undo the change.

Fitting text onto the graphic

The third method uses an internal font and/or user defined font to compress text so that it fits onto the grid. You can have 1 or 2 lines of fitted text. (The font selectors in the box below the grid do not apply to this option). To use this option, first load any user defined fonts by clicking on the 'Font File' button, and using the explorer style file selector to choose the font file (see ScreenKey Technical Reference Manual for details of the format of these files). You must do this each time you open the graphics editor if you wish to use a user-defined font. Then type the desired text you wish to appear on the first line, and press the Enter key. The text will then be fitted (if possible) onto the grid, and shown vertically centred on the grid. If you require a second line of text, type it into the 'Second line' box.

Import BMP or JPEG file

The last method allows you to directly import a graphic created in another application. You can import Windows BMP or JPEG files. These files should match the ScreenKey resolution (32x16 or 36x24) and should be monochrome (black and white) images. In the graphic drop-down menu, select 'Import' and browse to the desired file. The import routine will automatically try to use the selected file in the ScreenKey resolution and will import the image as black and white regardless of its color settings.

If you make a mistake

When you make a change to the content of a graphic, it is possible to undo the last change. To do so, press the Ctrl and Z keys, or click the Edit menu Undo option. If you repeat these key/mouse strokes the change will be redone.

"Loading Fonts" message

It is not always necessary to load all fonts to the 'Single character font setup' list, if single characters are not used. If the PC has a lot of fonts installed, this will take some

time, each time the Graphic window is opened. Therefore these fonts are only loaded if they are needed. They will be loaded if the font list is selected, a character is typed in the 'Graphics grid', or a key is pressed while in the 'Keystroke' field.

Saving a graphic

Having produced a graphic it must be saved to a SAC file before it can be assigned to one or more ScreenKeys. You can save the graphic to any open SAC file.

To save the graphic if it is unnamed, or if you wish to save it under a different name, choose the Graphic menu 'Save As..' option. Enter a suitable name for the graphic (try to make it meaningful), and select a SAC file to save the graphic to. You cannot save a graphic to a SAC file that does not contain any ScreenKeys (there wouldn't be any point).

To save the graphic under the same name, use the Graphic menu Save option.

The graphics-editing window title-bar shows the name of the graphic.

If you are editing a named graphic, it is not possible to close the SAC file to which it belongs until the graphic is closed, or another graphic is opened, or the graphics editing window is closed.

Opening an existing graphic

You can open an existing graphic from any open SAC file by selecting the Graphic menu Open option. Choose the SAC file, and the graphic from the dropdown lists.

Loading an existing graphic

You can load the contents of an existing graphic from any open SAC file by selecting the Graphic menu Load option. Choose the SAC file, and the graphic from the dropdown lists. This option lets you take a copy of an existing graphic to change it without changing the original.

Copying a graphic

You can take a copy of a graphic at any stage by using the Graphic menu Copy option, or by pressing the Ctrl and C keys. You can then insert this copy (paste it) into another graphic by using the Graphic menu Paste option, or by pressing the Ctrl and V keys.

Deleting a saved graphic

You can delete an open saved graphic by the Graphic menu Delete option. If you delete a graphic, all references to it in all menus of its SAC file are removed. You will be asked to confirm before deleting it. You cannot undo a delete operation.

Closing an open graphic

If you have been editing a graphic, and wish to create a new one, the close option can be used. This blanks the grid so you can start afresh. Select the Graphic menu Close option.

Renaming a saved graphic

You can rename a graphic by selecting the Graphic menu Rename option. Type in the new name. You cannot rename a graphic to the name of an existing saved graphic in the same SAC file, and you cannot rename across SAC files.

Exporting a saved graphic

The SAC Editor is a very useful tool for software and firmware developers working with ScreenKeys. The SAC Editor can be used to generate ScreenKey graphics and as a ScreenKey graphic repository. Saved graphics can be exported to individual files in a variety of different ways

Binary Compiled: binary files with ScreenKey pixel data natively formatted for the ScreenKey LCD screen

Binary Uncompiled: binary files with ScreenKey pixel data arranged in an easy to read structure, i.e. top-left to bottom-right of LCD screen

'C' Source Compiled: ascii file listing graphic data as a 'C' language source array with ScreenKey pixel data natively formatted for the ScreenKey LCD screen

'C' Source UnCompiled: ascii file listing graphic data as a 'C' language source array with ScreenKey pixel data arranged in an easy to read structure, i.e. top-left to bottom-right of LCD screen

Scancodes

Scancodes are keystrokes that can be sent to the application when a fixed key or ScreenKey is pressed, and when certain other operations are performed (e.g. swipe a credit card in the magnetic card reader). What these keystrokes do is entirely dependent on the application being run. For example, a supermarket application may require a name of a fruit, and a ScreenKey displaying a picture of an apple may send the keystrokes 'A', 'P', 'P', 'L', 'E', 'Enter', or an *Item number*, say '4', '7', '1', '1', Enter" (Item number 4711).

As you move around the console, the Scan Code details associated with the current key, if any, are displayed in the Scan Codes list.

The scancodes display is a picture of a PC keyboard, or an IBM POS keyboard, called the "Emulated keyboard", with a numbered 'spreadsheet like' grid display to its right which shows the defined scancodes, and their associated keystrokes. There are 3 ways to enter scancodes:

1. By clicking on the picture of the appropriate key
2. By pressing the corresponding key on the PC keyboard. This applies to the alphanumeric keys only, a-z and 0-9. Their corresponding scancodes will be entered automatically. The feature is available for faster entering of numbers and words. Note that the Enter key has a special function in Windows, and has to be entered by clicking on the Enter key on the template.
3. By clicking on the 'Edit' button, and manually typing in the hexadecimal value of the scancode. The scancode that will be edited is that on the highlighted row of the grid. You are advised NOT to use this option unless you understand the nature of scancodes in detail!

Windows



Some keys on the template are 'shift-keys' (Shift, Ctrl and Alt), and some are 'Lock-keys (Caps Lock). These all behave like expected, and the state is shown beneath the keyboard by highlighting the field describing the key with a green background.

IBM 46xx



Some of the IBM POS keyboards have a Ctrl-key. These also behave as expected, the same way as for the QWERTY keyboard, but in addition their templates have a **Sticky**-checkbox. If this is checked, the control key will NOT be released the next time a key is pressed, it will remain in down position until it is pressed again, or the checkbox is unchecked. The user should verify that the required emulated IBM POS keyboard is supported by the ScreenKey console firmware.

You may assign up to 20 scancodes to a key.

You must complete the editing of scancodes for a key, and exit the scancodes window (by clicking the OK button to save changes or the Cancel button to abort changes) before performing any other operation.

See page 30 for how to enter Item numbers and Barcodes.

Keyboard Operation Parameters



Clicking on the parameters icon, or clicking on the Options menu Parameters option will bring up the keyboard operation parameters window. Various ScreenKey console features are controlled from this screen.

You must complete the editing on this screen before you can return to the *Key Details* window. When you have finished editing the values, click the OK button to save any changes, or Cancel to ignore changes.

Initial Menu

The ScreenKeys menu specified here is displayed on the ScreenKeys when the ScreenKey console is first connected. This field is mandatory if there are any ScreenKeys. You must have created the menu first (using *Add Menu* (page 27), or *Copy Menu* (page 28) choices on the main *Key Details* window if necessary).

Enable keypress beep

Setting this field (clicking on it, so a tick mark appears) enables the keypress beep feature, whereby when a key is pressed on the ScreenKey console an audible click is emitted.


Enable Sleep Mode and Sleep Time Out Delay

After a specified period of ScreenKey console inactivity (i.e. no user input) the ScreenKeys will go to sleep, and the ScreenKey colour changes to OFF. For example, if you want the ScreenKey console to go to sleep after 5 minutes of inactivity then set the *Enable Sleep Mode* parameter and the *Sleep Time Out Delay* parameter to 5400 (5 * 60 * 18). The limit is 9999 (or just over 9 minutes).

Flash On Delay and Flash Off Delay

There is an option to “flash” the ScreenKeys (see the Key Details). These parameters control the speed of this flash. The ScreenKey is shown with the normal colour for *Flash On Delay* time and with the *Flash Colour* (see the Key Details) for *Flash Off Delay* time.

For example, setting *Flash On Delay* to 9 and *Flash Off Delay* to 18 will show the normal colour for half a second and the flash colour for one second. The limit is 9999 (or just over 9 minutes).

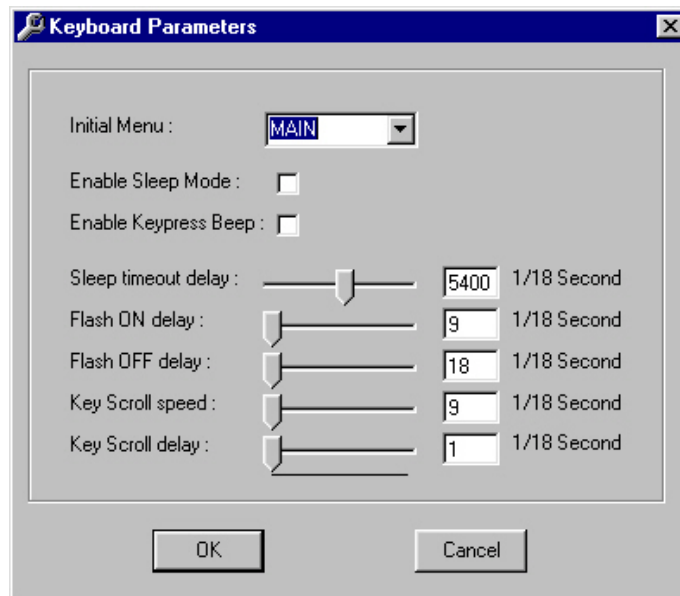
Legacy 
Consoles only

Key Scroll Speed and Key Scroll Delay

There is an option to scroll text across the ScreenKey (see the Key Details window). The speed and delay parameters control the scroll. The text is displayed on the ScreenKey, and after the *Key Scroll Delay* time the text starts to scroll across the ScreenKey. The *Key Scroll Speed* controls the speed of scrolling.

For example, setting *Key Scroll Delay* to 1080 (60 seconds x 18/sec) and *Key Scroll Speed* to 2 will start the scroll one minute after the text was first displayed on the ScreenKey and at a rate of one shift every ninth of a second.

The limit is 9999 (or just over 9 minutes).



The keyboard operations parameters window

Modelock



2000
3000
7000
consoles only

The Mode Lock device (security key) on the ScreenKey console is used to implement a Security Levels feature (i.e. it can disable the console). The Mode Lock can also return keystrokes to the controlling application and/or update the ScreenKeys menu.

The Mode Lock key is available on the SK-2000, SK-3000 and SK-7000 series consoles only.

The Current Security Level is set by the Mode Lock.

When the current security level is less than that of the ScreenKey's security level the ScreenKeys are dimmed (colour set to OFF) to indicate that they are inactive. Fixed keys may also be set inactive but there is no way to indicate this visually. When an inactive key is pressed it will beep as normal but no action will be taken (the ScreenKey and Fixed key security levels are set by clicking on the appropriate key and setting the security level).

ScreenKey Console On/Off feature

Consider setting the security level for all keys to at least 1 (this is set by default when you create a new SAC file). The effect is that when the Mode Lock is in the OFF position (the key is turned anticlockwise as far as it will go) all keys are inactive and in any other position all keys are active.

Disable Security Level Feature

There are two ways to disable the modelock security level feature:

1. Make sure the 'Modelock Security active' box is not ticked in the modelock-editing window.

IBM 46xx



With the SK-3510/SK-7510 consoles the Mode Lock is mandatory, it is not possible to turn the 'Modelock Security active' box off.

2. For each key, set the *Security* field in the Key Details window to zero (see page 28). This effectively disables the modelock since all keys are active no matter what position the mode lock is in.

The former is recommended, because it is easier to set, and can be turned on and off at will without affecting (and having to edit) the security level of each key).

The Modelock editing window



Clicking on the modelock icon, or clicking on the Options menu Modelock Settings option will bring up the modelock settings window.

You must complete the editing on this screen before you can return to the *Key Details* window. When you have finished editing the values, click the OK button to save any changes, or Cancel to abort changes.

Settings that affect all Modelock positions

Mode Lock Security active

If this box is ticked, the security level feature is enabled. If it is not ticked, all modelock settings are ignored, and all keys function irrespective of their assigned security level. With the SK-3510/SK-7510 consoles the Mode Lock is mandatory.

Prefix scancodes

If any prefix scancodes are defined, they will be sent before any scancodes defined for the modelock setting when the modelock key is turned. If you wish to set the Prefix scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Suffix scancodes

If any suffix scancodes are defined, they will be sent after any scancodes defined for the modelock setting when the modelock key is turned. If you wish to set the Suffix scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Settings for individual Modelock positions

To set the individual position details, first decide on your security structure. For each security level that you intend to use, create a modelock setting. To do this, click on the appropriate security level in the key position list. These levels go from 0 to 4 as the modelock key is turned clockwise. You will be asked if you wish to create the modelock setting if it does not already exist. If you subsequently decide you did not want a modelock setting for the current key position, click the Delete button.

You can set (optionally) any of the following details:

Scancodes

If any scancodes are defined, they will be sent when the modelock key is turned to this position. If you wish to set the scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Goto Menu

Turning the key to a certain position can cause a different menu to be activated on the ScreenKeys. If you wish to set this, choose a menu from the dropdown list. You must have already created the menu using *Add Menu* (see page 27), or *Copy Menu* (see page 28) whilst in the main Key Details window.

IBM 46xx

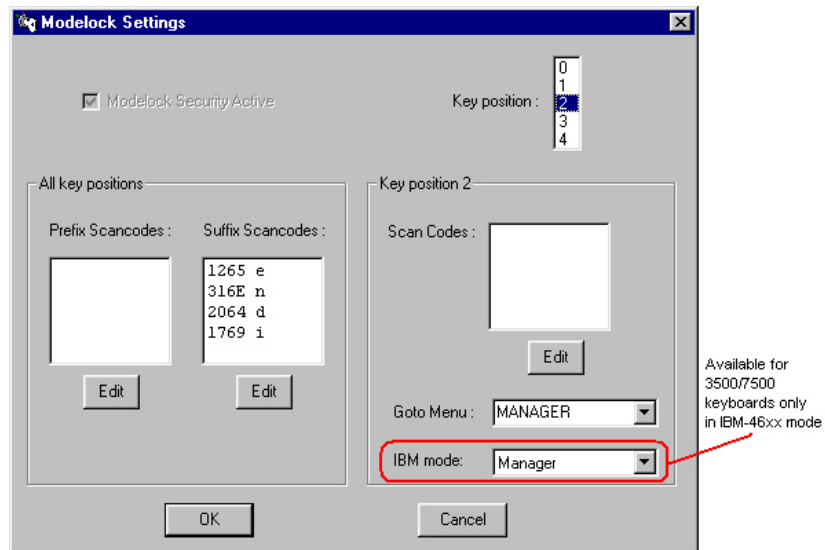


IBM 46xx mode

The IBM 46xx system has special modes associated with the Mode Lock key. These modes vary with the different consoles, and may be:

- System
- Inactive
- Operator
- Manager

These modes may be assigned to each mode lock position, in addition to scancodes and goto menus. This selection list will only be visible when editing a SK-3000/SK-7000 console file (although they are only applicable to the IBM 46xx versions of these consoles, i.e. the SK-3510 and SK-7510).



The modelock editing window

Magnetic Card Reader (MCR)



2000
7000
consoles only



Clicking on the MCR icon, or clicking on the Options menu 'MCR Settings' option will bring up the MCR settings window. All details relevant to the operation of the MCR in the ScreenKey console are set here.

If your ScreenKey console does not possess an MCR you do not have to set any of these details. The SK-3510/SK-7510 consoles (IBM46xx platforms) may be equipped with a Magnetic Card Reader, but the SAC file does NOT handle the settings for these.

Windows



Magnetic cards (credit, debit, store, etc.) can have more than one track. You can choose whether one or more tracks are returned when the card is swiped through the MCR, and how, and in what format the data is returned.

You must complete the editing on this screen before you can return to the *Key Details* window. When you have finished editing the values, click the Close button.

Settings that affect all MCR tracks

MCR active

Setting this field (clicking on it, so a tick mark appears) enables the MCR. If it is not set, you cannot set any of the following options, and the MCR will not read card details.

LUHN check

Setting this field (clicking on it, so a tick mark appears) enables the LUHN (account number check digit calculation) check feature.

Return multiple tracks

Setting this field (clicking on it, so a tick mark appears) enables the return multiple tracks feature. When more than one track is read successfully by the console and this option is set, all the tracks read are returned to the application program. If this option is not set, and more than one track is read, the track with the lowest preference is returned (e.g. if tracks with 2nd preference and third preference are read then the track with second preference is returned).

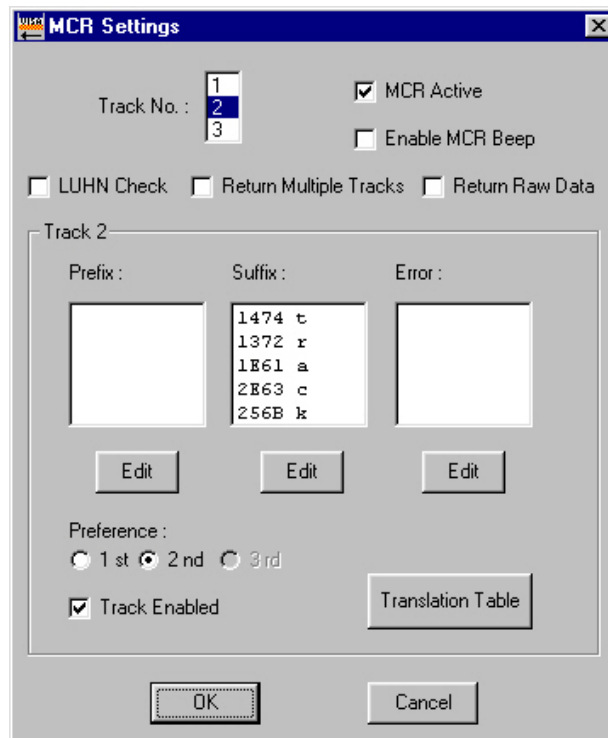
Legacy



Consoles only

Return raw data

Setting this field (clicking on it, so a tick mark appears) enables the return raw data check feature if set data read from the card is not translated. If not set, the data is translated into scancodes using the translation table specific to each track.



MCR settings window

Settings for individual MCR tracks

To set the individual track details click on the appropriate track number in the track list. You will be asked if you wish to create the track details if it does not already exist. If you subsequently decide you did not want a track, click the Delete button.

You can set (optionally) any of the following details:

Track enabled

Setting this field (clicking on it, so a tick mark appears) enables the track. If it is not set, you cannot set any of the following options, and the MCR will not send

any of the details (scancodes, etc.) for this track. A track that is not enabled will have its preference demoted automatically in favour of those tracks that are enabled.

Track preference

Track preference applies only when the Return multiple tracks option is not set, and the track with the best preference is sent. There are 3 potential preference settings, but you may not be able to set the preference (e.g. if there is only one enabled track its preference is automatically set to first, and you cannot set it). When available, click on the desired preference, and the preference of any other track will be readjusted. A track that is not enabled will have its preference demoted automatically in favour of those tracks that are enabled.

Prefix Scancodes

If any scancodes are defined, they will be sent before the track data is returned if the track has been successfully read and if it is of appropriate preference. If you wish to set the scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Suffix Scancodes

If any scancodes are defined, they will be sent after the track data is returned if the track has been successfully read and if it is of appropriate preference. If you wish to set the scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Error Scancodes

If any scancodes are defined, they will be sent if the track was not successfully read and this was the only track to be returned. Error scancodes are not sent if the Return Multiple Data option is set and at least one track was successfully read. If you wish to set the scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Translation table

Each track has a translation table that converts the track data into scancodes before sending them to the application, when the track is read, and the *Return raw data* option is not set. If it is necessary to change this table, click on the 'Translation Table' button and set the scancodes in the *scancode-editing* window (see page 38). The table is of fixed length, and a scancode for each translation item is required.

Error settings



2000

5400

6000

7000

consoles only

Windows

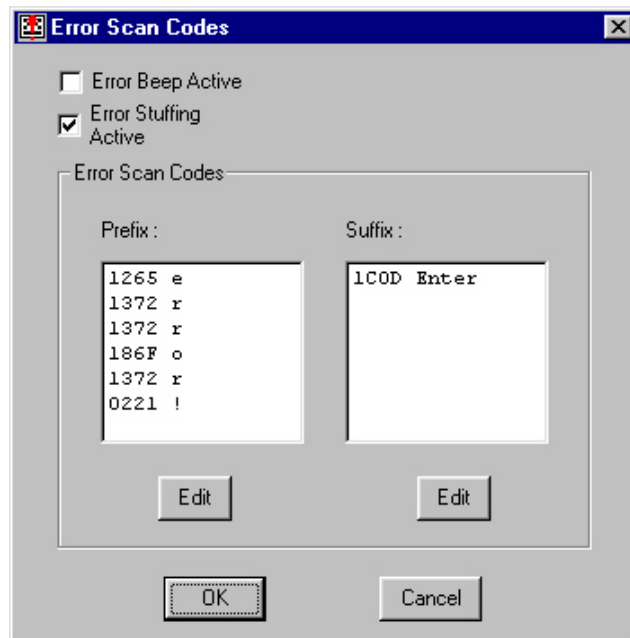


The error settings are used to inform the end user, or the application, that an error has occurred in the operation of the ScreenKey console. An error may be caused by a communications malfunction, a problem in the console, a problem in the way the application talks to the console, or a problem in the SAC file. The error settings window is used to set the nature of this notification.



Clicking on the error settings icon or clicking on the Options menu 'Error Parameters' option will bring up the Error settings window. All details relevant to error settings in the ScreenKey console are set here.

You must complete the editing on this screen before you can return to the *Key Details window*. When you have finished editing the values click the Close button.



Error Settings window

Error Beep active

If this box is ticked, the console will emit a noise when an error occurs.

Error Stuffing active

Setting this field (clicking on it, so a tick mark appears) enables error stuffing. An explanatory error message (preceded by the *prefix scancodes* if any, and followed by the *suffix scancodes* if any) will be sent to the application when this option is set (the error message is sent as scancodes).

Prefix scancodes

If any prefix scancodes are defined, they will be sent before any error message if the *Error Stuffing Active* option is set. If you wish to set the Prefix scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

Suffix scancodes

If any suffix scancodes are defined, they will be sent after any error message if the *Error Stuffing Active* option is set. If you wish to set the Suffix scancodes, click on the Edit button and set the scancodes in the *scancode-editing* window (see page 38).

B A C K M E N U

BACK Menu



IBM 46xx



Windows SAC
Engine Control
only

Purpose

When providing users with a series of product look-up tables, or in situations where the user may jump to a particular menu out of sequence with the current transaction, it can be very useful to provide a **BACK** capability. That is, when the **BACK** key is pressed, the user is returned to the previous menu without having that menu explicitly declared in the SAC design.

The **BACK** menu feature allows SAC designers to create self-contained menu subsets that can be executed from anywhere in the SAC processing loop.

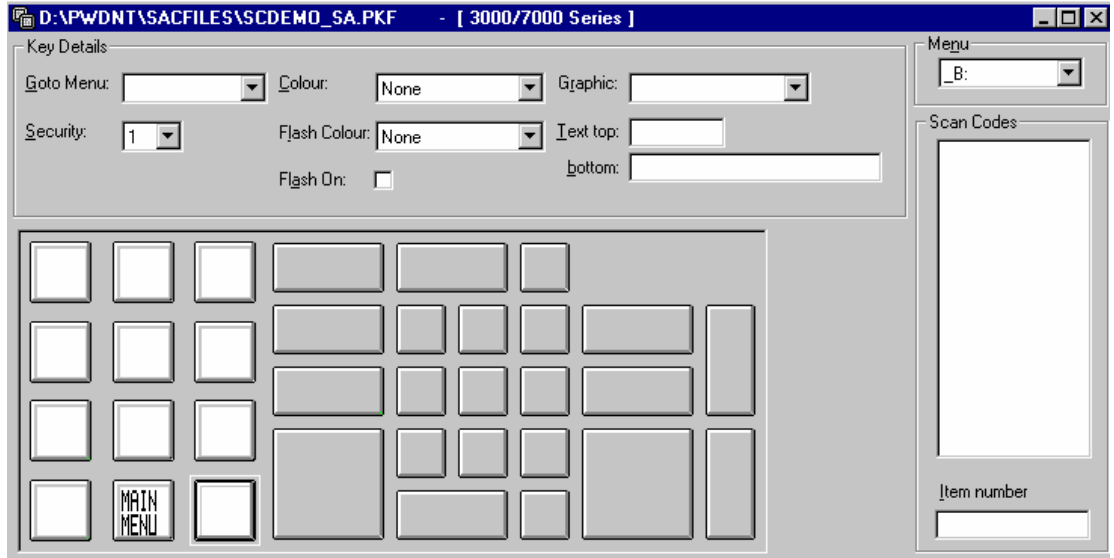
Creating and using a BACK menu

To use this feature, the menu designer must create a menu called **_B:**. It does not matter what this menu contains, as it will never be displayed. It is only created because the Editor will not allow goto menus to undefined menus.

Tip:

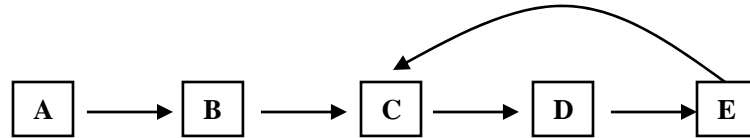
*Leave all ScreenKeys on the **_B:** menu but declare one as a Main Menu key pointing to the Main Menu. This is useful to maintain navigation with the Editor whilst designing the menu.*

When a SAC menu wishes to use the feature, simply declare a key with the goto menu pointing to the menu _B:.

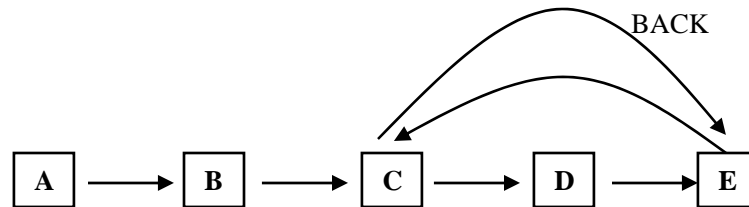


For example:

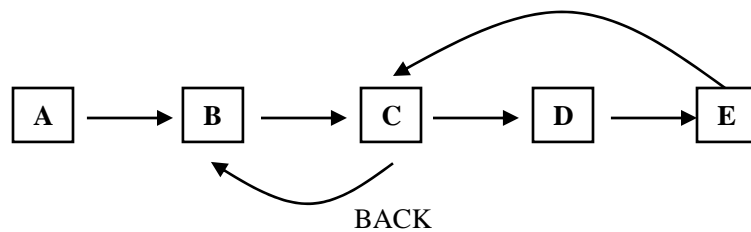
A user presses keys to trigger a sequence of menu displays A -> B -> C -> D -> E -> C:



If the operator presses the BACK key when on menu C at the end of the chain, this will return the ScreenKey display to menu E:



If the operator presses the BACK key when on menu C at the third step end of the chain, this will return the ScreenKey display to menu B:



The use of the BACK feature is therefore 'context sensitive'. It returns the operator to the **last** displayed menu.

The BACK feature maintains a list of the last TEN menus only.

S E L E C T & C O N F I R M M E N U S

Select & Confirm Menus



IBM 46xx only

What are Select & Confirm Menus?

Select & Confirm menus are ‘special’ menus that operate differently to ‘normal’ SAC menus when displayed on the console.

Keypress processing is handled slightly differently in these menus. Particular keys are declared as *Selection* keys with alternate backlight colours. The backlight colour of a *Selection* key is toggled when pressed to indicate if the item is selected or not. Scan codes for the **selected** keys are only uploaded when a *Confirm* key is pressed.

This feature might be used when an operator should be presented with a list of multiple choices, the final selection of which may always be different. It would be wasteful to have to create a SAC menu for each possible combination of selections. Select & confirm menus provide an element of dynamic selections into the SAC file design.

Creating Select & Confirm Menus

Select & Confirm menus are created in the SAC Editor in the same manner as standard SAC menus.

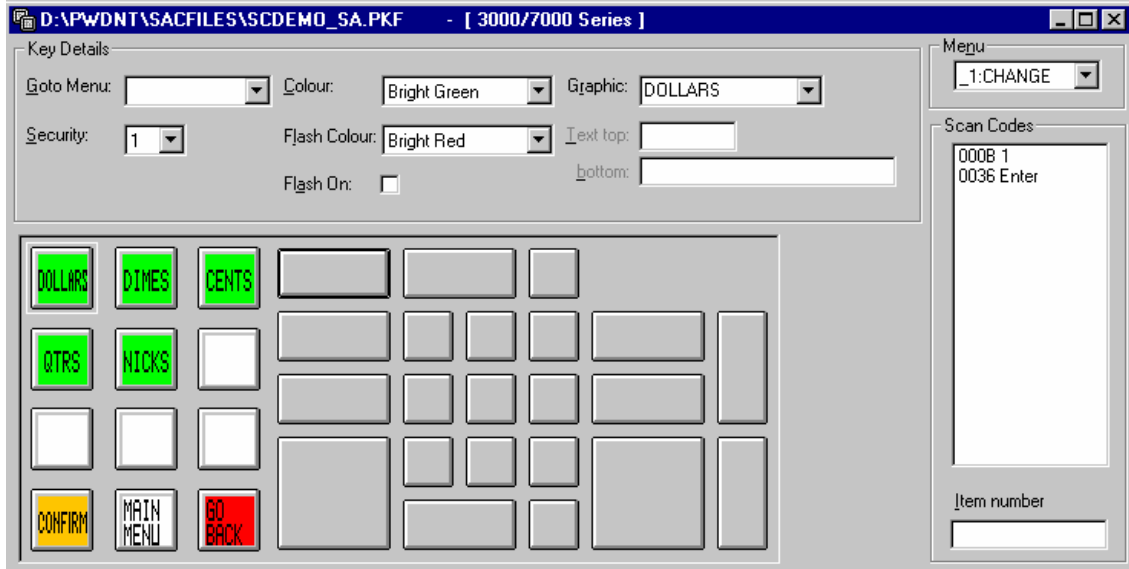
Note:

S&C menus are an implementation of ‘special’ menus requiring non-standard handling and are identified using a generic menu name framework.

All S&C menus are identified by their menu name having the three-letter prefix **_1:**. The remainder of the menu name can be assigned as normal.

Note:

S&C menus are defined as type 1 using this naming convention. There is scope to declare further non-standard or special purpose menus using `_n`: where `n` defines the menu type identifier. No other menus are defined at this stage. SKI reserves



the right to add new menu names in future product releases.

The following example menu is created with the name **`_1:CHANGE`**

There is no limit to the number of S&C menus supported. The SK-7510 will automatically handle all menus beginning with `_1`: as S&C menus.

Examples:

- | | |
|------------------------|-----------------|
| <code>_1:CHANGE</code> | S&C menu |
| <code>CHANGE</code> | Normal SAC menu |
| <code>_1:MAINT</code> | S&C menu |
| <code>MAINT</code> | Normal SAC menu |

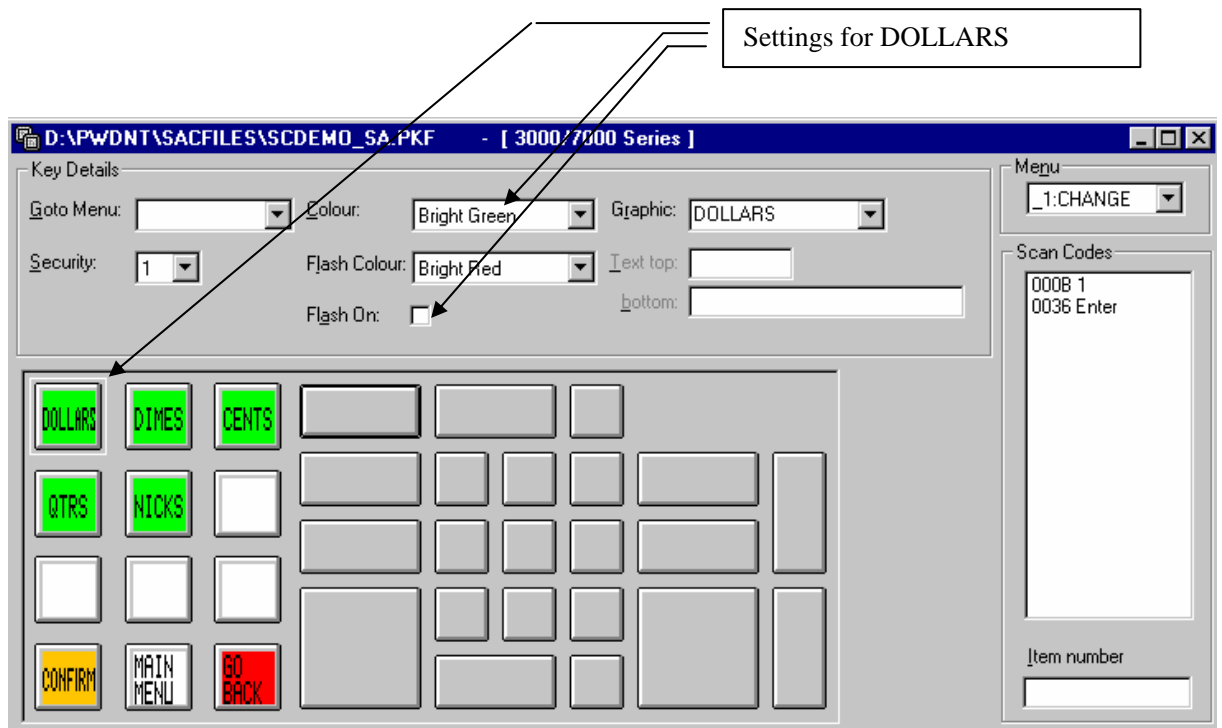
Defining Selection Keys and Colours

Selection keys are displayed with an initial *unselected* colour. This colour is toggled with an alternative colour when the key is *selected*.

The selected and unselected colours are defined **for each ScreenKey** using the Editor's *Colour (Unselected)* and *Flash Colour (Selected)* properties.

The *Flash On* property **must be UNCHECKED**. When pressed, the key colour changes to the *Flash Colour*, indicating that the key is now *Selected*.

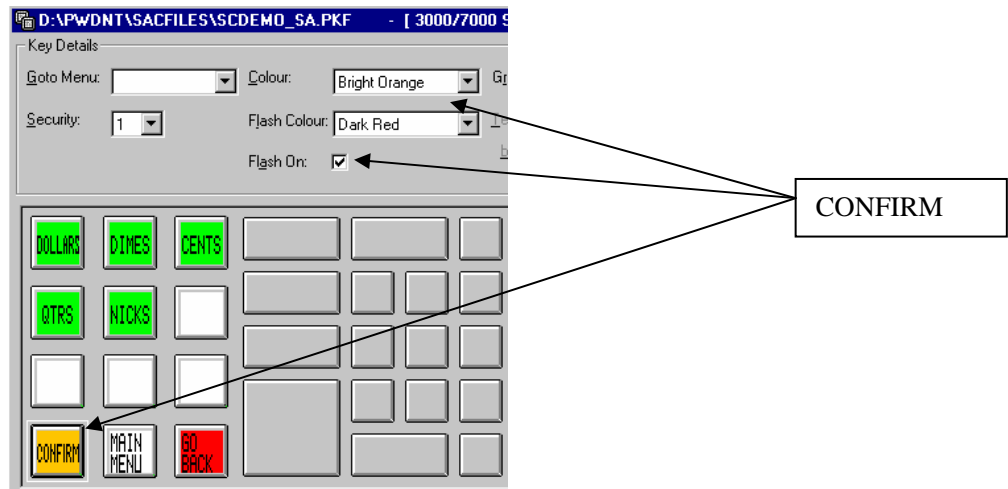
For example:



Selection keys **must not have a Goto Menu function defined.**

Non-selection keys may be defined and the *Flash On* property can be used to activate the ScreenKey flashing function.

For example:



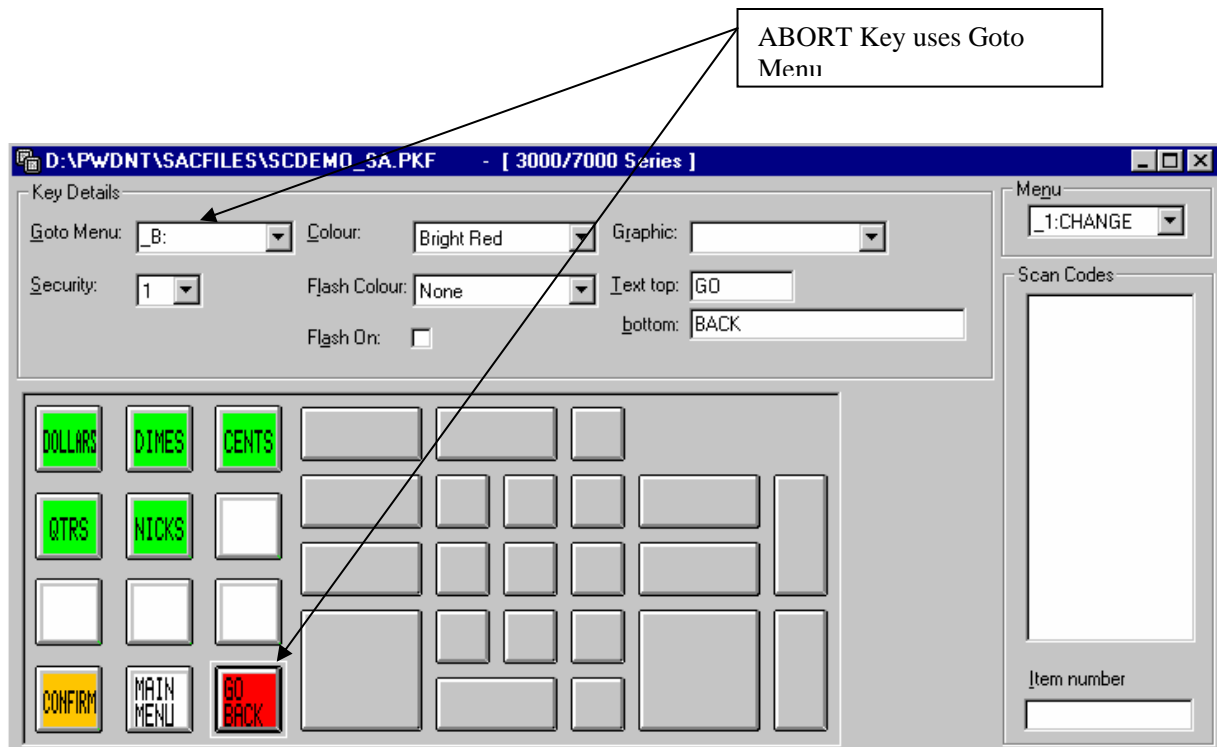
Ending an S&C Menu

The chosen selections from an S&C menu are only uploaded to the terminal when the operator presses the *Confirm* key (see below for how to define the *Confirm* key).

To abort the S&C menu without uploading the chosen selections, a Goto Menu key must be provided. This can be either a fixed key or a ScreenKey.

The menu that is displayed next from the Goto Menu key is not relevant. Jumping to any menu during an S&C menu automatically **cancels and aborts** the selection process.

The following example shows how an abort key is provided as part of the S&C menu:



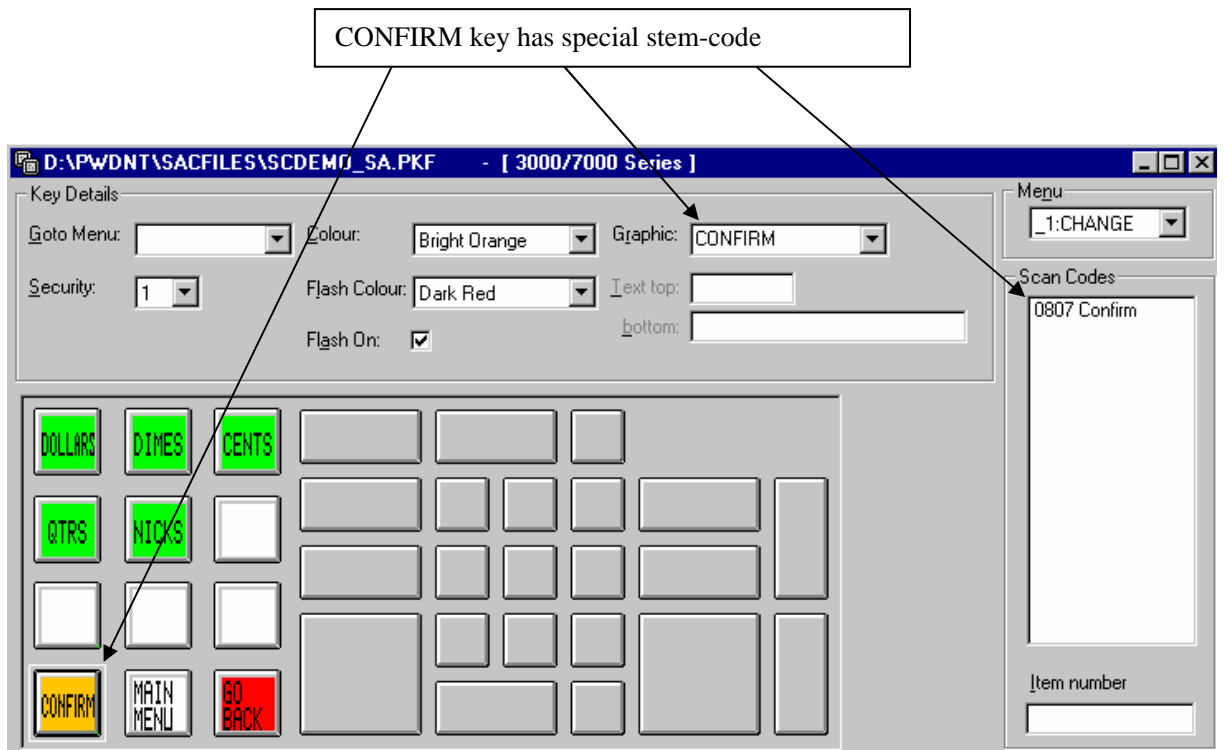
These keys are termed **Action** keys (i.e. with goto menu propeSKies assigned). They are handled exactly as ordinary SAC menu keys; i.e. if defined with flash colour then they will flash as expected, otherwise they will display the colour defined in the SAC menu. Pressing an **action** key ends the S&C menu handling. The **action** key colour will **not be changed**. If the key has stem-codes assigned then these will be uploaded to the terminal.

Tip:

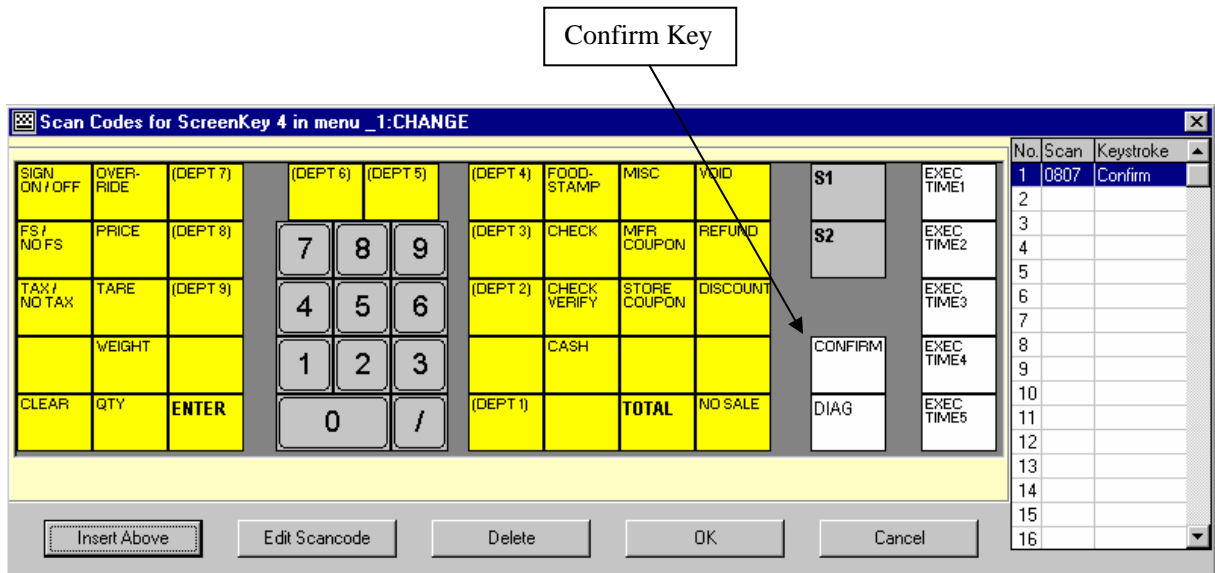
As fixed keys are ACTIVE during S&C menus, operators may press the numeric keys before aboSKIng the S&C menu. It is useful to add the CLEAR stem-code to the ABORT key.

Defining the CONFIRM Key

The *Confirm* key is defined using a new special purpose key in the Editor. It is created as normal, i.e. key text or graphic, colour, flashing, etc, but is assigned a special stem-code:



The Confirm stem-code is assigned in the normal manner from the Editor screen:



Special Notes

The following topics must be considered when using Select & Confirm menus.

1. Fixed Keys

The fixed key panel remains active during S&C menu processing. This can cause difficulties for the operator if they press a fixed key that uploads stem codes that are somehow incompatible with the S&C menu. For example, the operator could total and cash out a transaction whilst still in the S&C menu if these keys are available on the fixed key panel. Mostly this will not be a problem.

The reason for leaving the fixed keys active is that the CLEAR key must be available in case the operator/SAC file generates an error requiring the operator to press CLEAR. Typically, CLEAR is a fixed key.

2. Modelock Operations

The Modelock can be operated as normal during S&C menu processing. S&C menus may be created with different security levels assigned to the menu ScreenKeys. When the Modelock is in a lesser security position then relevant ScreenKeys are made disabled and their colour is turned off. If the Modelock position is changed when an S&C menu is displayed, the S&C menu is reset and selections already made are discarded.

If a modelock position is set to generate a goto menu, this action causes the S&C menu to be aborted.

If a modelock position includes stem codes then these are immediately uploaded to the terminal as per the fixed key operations.

3. Goto Menu API Commands

When a Goto Menu API command is received whilst an S&C menu is displayed, the API menu name is entered into the list of previous menus as the **last menu**.

If the user then aborts the S&C menu using the BACK menu feature (_B:), then the API supplied menu is displayed. If an explicit menu is used to abort (or Confirm) the S&C menu then that menu is displayed and the API menu remains in the menu history list.

Updating Editor to Support Select & Confirm Menus

Previous releases of the Editor for IBM 46xx platforms (version 2.54 and earlier) do not provide a *Confirm* key selection in the stem-code assignment window.

Newer versions of the Editor install the following replacement files to the Editor install directory with *Confirm* key defined:

- I46-O50.BMP Graphic with *Confirm* key placement on 50-Key keyboard
- I46-O50.LAY Matching layout file for 50-Key keyboard
- I46-O50.KBD Stem-code assignment for each 50-Key position

However, it may be necessary to update the *legend* files (*.LEG). This process can be done manually.

Notepad or another text editor can be used to update the legend files. Open **each** legend file and find the following line:

```
43, " ", " ", " ", " ", " ", S
```

Insert the line below **after** line 43 shown above:

```
44, "CONFIRM", " ", " ", " ", " ", S
```

The remaining lines in the file now have incorrect offsets that must be adjusted. Run through the remainder of the file incrementing each line offset (the first number in the line) by one. The last line should have an offset of 56.

For example:

A legend file without *Confirm* key defined would look like:

```

42, "", "", "", "", S
43, "", "", "", "", S
44, "EXEC", "TIME4", "", "", S
45, "CLEAR", "", "", "", MB
46, "MODIFY", "TICKET", "", "", S
47, "TOTAL", "", "", "", MB
48, "0", "", "", "", N
49, "/", "", "", "", N
50, "ENTER", "", "", "", MB
51, "QTY", "", "", "", MB
52, "", "", "", "", S
53, "", "", "", "", S
54, "DIAG", "", "", "", M
55, "EXEC", "TIME5", "", "", S

```

After amending this file with Notepad, to add the *Confirm* key it should look like:

```

42, "", "", "", "", S
43, "", "", "", "", S
44, "CONFIRM", "", "", "", S
45, "EXEC", "TIME4", "", "", S
46, "CLEAR", "", "", "", MB
47, "MODIFY", "TICKET", "", "", S
48, "TOTAL", "", "", "", MB
49, "0", "", "", "", N
50, "/", "", "", "", N
51, "ENTER", "", "", "", MB
52, "QTY", "", "", "", MB
53, "", "", "", "", S
54, "", "", "", "", S
55, "DIAG", "", "", "", M
56, "EXEC", "TIME5", "", "", S

```

 APPENDIX A

Documentation Control

A.1 Change Control

This document is the responsibility of the author and is subject to formal change control after the initial approved release (i.e. issue 1.0).

A.2 Abbreviations Used/Terms of Reference

MCR	Magnetic Card Reader
Menu	A Menu is a collection of ScreenKey records that are treated as a single unit.
Non-Scanned Items	Non-scanned items are items that are sold in a retail outlet which do not have a bar code assigned to them
PC	Personal Computer.
POS	Point of Sale--the cash register in a shop.
SAC	ScreenKey Active Control
Scan Code	A scan code consists of 2 bytes--usually 1 byte for the ASCII value and 1 byte for the keyboard position code.
Stemcode	The IBM 46xx term for a keystroke code.
IBM 46xx	IBM Point Of Sale terminal system running either General Sales Application (GSA) or supermarket Application (SA).

A.3 Historical Change Reference

Issue	Date	Author	Changes Made
1.0	12/03/99	B. Liane	Initial Release
1.1	08/02/01	M. McDonnell	Add S&C Menu support Major revamp of content
1.2	15/03/04	M. McDonnell	Rewrite for SK-7000 features
1.3	15/12/05	M. McDonnell	Update for LC24 and RGB support

1.4 30/11/06 M. McDonnell Update for graphic import/export

A.4 Change Summary

- 1.0 This Document used to be part of PWDUM001.DOC (Windows 95) and PWDUM003.DOC (Windows NT), which also included the emulator and technical references.
- 1.1 Add new section that describes Select & Confirm menu setup for use with IBM 46xx systems.
Add new section for BACK menu feature
Completely revamp text, rewrite sections on IBM 46xx target platform
- 1.2 Rewrite for SK Interfaces, include features of SK-7000
- 1.3 Update information to include details on added support for LC24 and RGB backlighting from 3.0 onwards
- 1.4 Add info on BMP/JPG import and export of graphics to binary and 'C' source files

 APPENDIX B

Automatic File Conversion

When the Editor loads a Version 1.00 data file, it automatically converts the file format to Version 2.00. The file is subsequently saved as a Version 2.00 file. The user is informed when Automatic File Conversion is being performed.

Version 1.00 Data File

This is the file format used by the original DOS version of this system. The SAC Editor never created version 1.00 Data files.

Version 2.00 Data File

This is the file format used by the original Windows version of this system and later DOS versions. Windows can automatically convert from version 1.00 to version 2.00.

Converting 1.00 to 2.00

1. Security Levels: Mode Lock security is set to inactive by default when converting from a version 1.00 data file—the Mode Lock Security settings in the version 1.00 file are ignored.
2. There is no ASCII2SCANCODE record in version 1 files so the default table is used—see the ASCII2SCANCODE record layout for details.
3. There is no MCR information in version 1.00 files.
4. Colour Codes: The SAC Editor limits the allowed colours to those in the following table...

None	0
Dark Red	1
Bright Red	5
Dark Green	2
Bright Green	10
Dark Orange	3
Bright Orange	7
Greenish Orange	14
Reddish Orange	9

The DOS ScreenKey File Editor (the DOS equivalent of the SAC Editor) allows all Colours in the range 0 to 15. So, the converted file may contain colour codes that

cannot be entered using the SAC Editor. No warning is given when Colour Codes outside those allowed by the SAC Editor are read in from a version 1.00 file or a version 2.00 file written by the DOS ScreenKey File Editor.

A P P E N D I X C

Error Messages

SAC Editor Error Messages

The Editor will communicate with the user via the use of pop up message boxes. These message boxes may be for information only, warnings about the validity of the current operation and for error reporting. The following is a list of the more commonly encountered errors. There may be other error conditions that arise as a result of the program fault conditions. As a general rule these errors are usually accompanied by an error number which you should report to customer support.

File: <Filename> does not exist

The SAC file does not exist. Check spelling and/or path.

Error : opening file

Unable to open SAC file for binary access.

Error : reading file <reason>

The editor has encountered a problem whilst reading the SAC file. The reason field gives the precise area of the problem.

Error : writing file <reason>

The editor has encountered a problem whilst saving the SAC file. The reason field gives the precise area of the problem

Error : not a ScreenKey file (SAC)

The editor has determined that the file supplied is not a valid ScreenKey console SAC file.

Error : wrong version

The SAC file supplied has a version number that is incompatible with this release of the SAC Editor.

Error : corrupt file <reason>

The SAC file supplied is corrupt. The reason field specifies the precise area of the problem.

Error : memory allocation <reason>

The Editor is unable to store all data specified in SAC file. The reason field specifies the precise area of the problem

Error : invalid number format, should be either NUMBERFORMAT = HEX or NUMBERFORMAT = DECIMAL

Invalid number format encountered while reading font definition in the Graphic editor.

Error : invalid offset format, should be OFFSET = <number> invalid font definition, should be 20 comma separated numbers

Invalid offset format encountered while reading font definition in the Graphic editor.