www.palmcrust.com

Intelligent Frac (iFRAC)

**For Nokia Series 60 , Siemens SX1,
and Nokia Communicator**

User Manual

Version 2.2.2
Author Michael Glickman
February, 2004

Table of Contents

Getting Started

Introduction

Frac is a 3Dpacking (TETRIS−like) game where you just pack rectangularprisms having at least two ribs of same size. A completeboard layer (i.e. no spaces) is discarded, adding points to the scorewith a chance to see obscured board pieces. You can pick up scorefaster by:

♦ Dropping a block before it rests;
♦ Completing several layers at once;
♦ Switching to next speed before the game rules force you to;
♦ Starting game with a non−empty ("dirty") board;

The application can be operated by joystick or arrow keys, numericphone keys, or keyboard according to availability and yourpreferences. It provides a variety of settings to get playinggame more comfortable.

History

FRAC was invented by *Max Tegmark* and *Per Bergland*, two young and talented Swedes who also calledthemselves **Simsalabim Software** . Thegame was apparently named after Mandelbrot fractal, used as thebackground for the original release for Mac in 1990, and later MS DOS(EGA 640x350x16).

I was very frustrated when my new computerhappened tobe too fast for FRAC, and felt a need to do something about that ...which could also be a nice present for Linux community. The 'newgeneration'of FRAC (named **iFrac**, or **Intelligent FRAC**) was releasedin 2000 for Linux svgalib and X11. It supported a range of screenresolutions and colour modes (4 to 32 bpp). Though it was not plannedoriginally,a Windows 95+ port of the game was released in 2001, which happenedto become a kind of Linux rep in Windows world.

This implementation is based on the Palm port of the game released in August 2002 which is in turn derived from Linux (1999) andWindows(2000) releases .

Published with the permission from the original authors.

Symbian OS Releases.

2.2.2 (Feb 2004) :

♦ Fixed to work with N−Gage

2.2.1 (Nov 2003) :
♦ Added a separate release for Seris 60 v 2 (Nokia 6600)

2.2.0 (Nov 2003) :
♦ Support for 16bpp (e.g. Siemens SX1), and 24 display modes
♦ Identification of Siemens SX1 key layout, separate default layout for Siemens SX1
♦ Changes in default settings and default key layout for 3650
♦ Changed logos, fixed documentation typos

2.1.0 (Oct 2003) :
- ◆ Customsound effects
- ◆ A patch for Symbian OS CMdaPlayer bug (Play after Stop does notalways work)
- ◆ "Fuzzy logic" for *%continue* and *%restart* (see Music_File_Names)
- ◆ Test in MusicFiles screen now works OK

2.0.0 (Aug 2003) :

Completely revised. The following features were added or modified:

- ◆ Background music: set up your owntunes !
- ◆ Increased range of customised keys
- ◆ No more penalty for pausing
- ◆ Sound mode and volume can now be controlled while playing, or pausing
- ◆ Optional support for accented characters (like ö, ç, ñ, etc) in user and filenames.
- ◆ New conditions for unregisteredusers
- ◆ Default key actions for Series 60 depend on the phonepad apperence (7650 or 3650)
- ◆ Permanent back lights, or power saving in Demo
- ◆ Bugs fixed:
    - ◊ no longer "sky scrapper" bug mentioned in previous releases
    - ◊ no more "bonus leak" with Down/Drop
    - ◊ back light effects now workwith 3650
    - ◊ notification messages work OK with Series 60 devices
    - ◊ board scan interruption works OKwith Series 80 devices
- ◆ This manual has been revised and rearranged:
    - ◊ a clearer and less tedious presentation;
    - ◊ new chapters and sections are added;
    - ◊ numerous typos have been corrected.
- ◆ Added sound effects.

1.1.1 (Dec 2002) :
- ◆ Fixed to work from a memory card.

1.1.0 (Dec 2002) :
- ◆ Added Nokia Communicator support

1.0.0 (Oct 2002) :
- ◆ Original release (Nokia 7650 only).

Credits.

The background images were created using **xaos 1.22**a real−time fractal zoomer/morpher by *Jan Hubicka* and *Thomas Marsh* Additional image processing: **gimp 1.2.1**by *Spencer Kimbal* , *Peter Mattis* and numerouscontributors. The documentation was prepared using **Netscape7.0** composer and HTMLDOC by *Easy Software Products*. All above development tools were running in **GNU/Linux 2.4**.Unfortunately I can't tell same about Symbian developmenttools, which shamelessly borrowed GCC and other GNU software,but didn't leave a chance of using their native system for development.

Special thanks to **Mark Sloan**(UK) and **Enrico Binder** (Estonia) for testing, bug reports, and extremely valuable comments.

Supported Devices: S60 vs S80

This manual is concerned with Symbian OS ports of iFrac. Thefollowing platforms are currently supported:

- ♦ **Series 60**, including **Nokia** ® **7650**, **Nokia 3650**, **Siemens**®**SX1**
- ♦ **Series 60 v2** : **Nokia** 6600
- ♦ **Nokia series 80**, including **Nokia Communicator 9210i and 9290**

The three versions are avaiable as separate packages.

Currently the only difference between Series 60 and Series 60 v2is that the later does not produce an incompatibility warningwhen installed at a Nokia 6600 and other Series 60 v2 devices, thefore we won't differentiate between the two releaseshereafter. Abbreviations S60, and S80 are used for Series60 andSeries80 resp.

The application is also available for the following Java™ (J2ME) platforms (*discussed in aseparate manual*):

- ♦ Nokia series 40 , incl 7210, 6610, 6100(tone).
- ♦ Nokia series 30 with 50MB+ RAM, incl 3410, 3510i (tone)
- ♦ Siemens all Java models (tone)
- ♦ Siemens   S55, SL55, M55 (MIDI sound)
- ♦ Motorola T720, A830 (wave) , i95cl (MIDI)
- ♦ Sony® Ericsson® T610, P800 (wave)
- ♦ Any J2ME device screen size 120x140 or more
- ♦ Any MMAPI compatible device, screen size 176x203 or more

Application Support

The application web page is: htpp://ifrac.palmcrust.com/symb
Send your feedback (comments, bug reports) to Michael Glickman <palmcrust@yahoo.com>

Other links related to iFRAC:

Palm® and compatibles:	http://ifrac.palmcrust.com/palm
Java™ (J2ME) devices:	http://ifrac.palmcrust.com/j2me
Linux™, X11 and Windows:	http://ifrac.palmcrust.com/pc
More software products from us:	http://www.palmcrust.com

Rules

Speed Levels and LevelCount.

While a block is "in the air", it drifts down according to current speed level. Speed level is a number from 1 to 9 shown in the top left or right corner of the screen. The time–out between two consecutive drifts varies from 2.5 sec on level 1 to 0.2 sec on level 9. The speed level increments after a designated number of levels is completed, which for score below 10000 is:

Level	1	2	3	4	5	6	7	8	9
Layers	2	3	4	5	6	5	4	3	2

while number of layers is incremented by 1 with each 10000 of the score.

You can increase level before completing required number of layers, by entering *Next Level* command. Though this does not affect your score immediately, you will pick up score faster, because the remaining layers are completed at a higher speed level thus contributing more to the score.

After completing layers at level 9 the applications rolls back to starting level giving you a chance to relax..

As opposed to speed level, level count is a plain number that always goes up, e.g. level count 10 refers to speed level 1. after a rollover, count 19 refers to speed level 1 after two rollovers. Level count is shown in *Top Scores*.

Scoring.

Maximum Score.

The maximum score is **999999** . Game terminates if your score is over it. Hopefully this will never happen :=)

Score for a landed block.

Every landed (dropped or rested) block adds to score a value shown as Bonus. The bonus starts from 20, and decrements with any down drift, while being unaffected by a move down as a result of Down command.

Score for completed layers.

At speed level 1:

Layers:	1	2	3	4
Points:	100	300	600	1000

For higher speed levels the above numbers are multiplied by a factor:

Level	2	3	4	5	6	7	8	9
Factor	1.125	1.25	1.375	1.5	1.625	1.75	1.875	2

100 points are added to score with each rollover.

Bonus for a non–empty board

If a game starts with a non–empty board, you get an initial bonus depending on the number of "dirty" layers:

Layers	1	2	3	4	5	6	7	8
Bonus	500	1000	1750	3500	4500	6000	8000	10000

Before You Start Playing...

Key Names

The following key names are used in the manual:

Screen buttons	Two keys located just below the screen onSeries 60 phones. Standard Nokia applications typically mark leftscreen button as `Options` , and right screen button as `Back`. Here the buttons are used in a different context. Communicator has four screen buttons located to the right from thescreen numbered from top to bottom: topmost is button 1, lowest isbutton 4.
Arrows	Keys *Left*, *Right*, *Up*and *Down* (Communicator, 3650), or joystickmovement (7650),
OK	3650 and SX1: a key located in the centre ofarrow keypad 7650: pressing joystick down S80: *Enter* key
Numeric keys (S60)	Keys 1, 2, 3, 4, 5, 6,7, 8, 9, 0
Phone keys (S60)	Numeric keys , * and #.
Send	A key with a green handset picture
Shift	A key marked as *Shift* (Communicator), *ABC* (7650), pencil picture (3650), or a thick up arrow(SX1) normally used for changing letter case, though this applicationnot always uses it this way.
Clear (Backspace)	A key marked as **C** ona phone pad or Backspace (<–) on a keyboard, normally usedfor deleting the last entered character.
Application keys	A key used for temporary leaving theapplication ("escape to system") . It looks like a recycle sign onSeries 60 keypads, **End** (akey with **red** handset picture)works similarly. With Communicator device use key bottom screen key.

Main and Other Menus

You start the application with the Main Menu. when youcan:

Start Game	this is what you are most often after
Start Demo	let the computer play itself
Top Scores	view local top scores and score submissiondetails
Configuration	configure game options, customise keys, orregister the application
Information	view help and other information
Quit	you might consider that option as well ...occasionally :=)

To select an option press a phone key with the optionnumber. Alternatively use Up and Down keys (also Buttons 2 and 3 withS80) to highlight an option, and then press Left / Topscreen button, or **OK** to select it.

Right/Bottom screen button quits the application.Shift or Space is used for turning background music off and on.

Other menus (e.g . Configuration, Information indices)work similarly, while Right/Bottom button doesn't quit theapplication, but reverts to the Main Menu

Preferences (Settings, Key Assignment)

A Preference Screen (Settings, Key Assignment) is a list of items whereeach may have one of several predefined values.

As in case of menus, select an item using Up and Down, or entering anitem number, then use Left and Right keys to modifythe value of selected item. You can modify several items and then pressOK, or Left/Top button (labeled *Accept)* toactivate new values. Alternatively you can press Bottom/Rightscreen button (labeled *Cancel*) to discard all changes

Other keys:

Clear or **Menu** – set all values to default.The values won't be accepted untill you press *Accept* button
Send or **Space** –turn background music off/on

Entering Text

You need to enter text at the following screens

Music Files screen
New Top Score
Registration screen

Use Up and Down keys to select an item to edit. *For the edited itema space appears as underline*. Use Left and Right arrows to changecurrent position in the edited text. Clear / Backspace is used fordeleting last character.

If the edited text is case−insensitive, you can enter only capitalletters (e.g. registration code) or only small letters (e.g. music filename) Otherwise you can change letter case using Shift (alldevices) , CapsLock (keyboard) , or [**#]**(phone pad).

Case settings are:

`abc` – low case
`Abc` – auto (S60)
`ABC` – upper case

As usually, with a phone pad (S60) you may needto press a key several times to get the letter you want, and a onesecond timeout is set before the input is accepted. To get anumber, you

need to bypass the letters. Keys **0** and **1**are used for additional characters (space, punctuation marks). Startingfrom v 2.0.0 the application accepts ***accented characters*** (e.g. ö, ç, ñ). As opposed to majority ofother applications, using accented characters with iFrac isoptional, since most of downloaded files (including music files) usestandard ASCII character set. This option applies to input only,therefore you can temporary enable accented characters to enter aparticular name. Using accented characters is specified by *Character Set* option in Settings

Music Files screen

Music Files screen is used for entering musicfile names discussed in details in MusicFile Names section.

File names can be entered as text data. Since Symbian OS treats filenames as case insensitive, all file names are entered inlower case. With a phone pad, a percentage sign % needed for enteringspecial file names (`%none` , `%continue`, `%restart`)can be entered by repetative pressing **1** key.

Each time when you select Music Files screen, the application collectsfile names, including special names, and all supported files in lookupdirectories (see Music FileNames). The list is then sorted alphabetically.

The following additional keys are used:

Phone pad (S60)	Keyboard (S80)	Action
*	Shift+Tab or <	Previous File Name (in alphabetic order)
#	Tab or >	Next File Name (in alphabetic order)
OK	Enter	Resolve: replace entered patten with firstavailable file name following it, see comments below.
Send	Ctrl	Test (playback) on / off.When test is ON, music icon is shown and current file is played. Theplayback automatically changes with getting to next line, or selectinganother file, or stops when special name is selected.

Resolve processes part of the namebefore (excluding) current cursor (highlighted) position. For example,assume the list on file names contains `beachboys.mid` followedby `beatles.mid`. If you enter `beatles`, you get `beatles.mid`only if current cursor is at **l** (beat**l**es),or further. If the cursor is at **t** (bea **t**les),only part 'bea' is processed, therefore `beachboys.mid`is retrieved as a closer match. We believe though this is oftenconvenient, because of no need to clear the rest of edited text. Asopposed to that, *Previous Name* and *Next Name*instructions always process full name.

Information (Help) Screens

Screen buttons:

Left / Top button – bring up next page
Buttons 2 and 3 – scroll current text up / down
Right / Bottom button –back to information index

Arrows:

Up / Down – scroll current text up / down
Left / Right – bring up previous / next page respectively

To scroll faster (up to 9 lines forward or back) use **Send** and `Clear`keys on a phone pad, or keep `Shift` button pressed with `Up`or `Down` on a keyboard.

Playing Game

Game screen appearence

Game screen contains the following fields:

Speed level – top left (S60) or right (S80) corner.

DEMO notice if the application plays by itself.Shown in **yellow** colour innormal mode (back lights are permanent), and in greycolour in power saving mode (back lights turn off after 15 seconds ofno key presses), see Demo for more

Sound mode icon represents current sound mode

	Normal Sound Effects
	Annoying Sound Effects
	Background *Music*
no icon	Sound is *Off*

Below sound icon there is a **volume bar** that representscurrent sound volume.

In case sound is temporary *disabled* (with *Sound off/on*command), icon frame appears grey and volume bar is not shown.

Play board and **Next block** – leave that withoutcomments for now :)

Status information:

Score	Current score
Layers	Number of completed layers
Bonus	Value that will be added to score if the blockdrops right now (see Score for alanded block).
Blocks	Total number of blocks processed from thestartof the game (excluding current).
Remain	Number of layers to complete before the speedlevel advances automatically.
Place	Place of the current score inthe local Top Score list (see Top Scorer).
Pauses (S80)	Number of pauses (includes using Pause modeand escapes to system).

Operating game

While playing a game the arrows and screen buttons andsome predefined keys are used as given by the following diagram:

Series 60	Series 80	Action / Default Action
Left screen button	Screen Button 1	**Next Level**
	Screen Button 3	**Finish game**
Right screen button	Screen Button 4	**Pause**
Arrows *Left*, *Right* , *Up*, *Down*:		**Left**, **Right**, **Back**, **Forward** resp.
	B or **M**	**Sound off/on**
	N	**Turn**

However, most of the operation keys are now customised. Refer to Key Assignment section for thedetails.

Default Series 60 key actions are choosen accoring to keypad type:7650 and 6600 have a 'traditional' rectangular keypad (known asT9), while 3650 place keys circularly, and SX1locates keys at both sides of the screen (two−column keypad)

The default phone/letter key actions for **T9 (rectangular)** keypad and **Communicator** keyboard are:

1 Q Back−left	**2 W** Back	**3 E** Back−right
4 A Left	**5 S** Turn Reverse	**6 D** Right
7 Z Fwd−left	**8 X** Forward	**9 C** Fwd−right
* Ctrl Turn	**0 Menu** Drop	**# Space** Down / Drop

Default phone key actions for **3650 (circular)**keypad:

	1 Turn	**0** Down /Drop	
2Back−left			**9**Back−right
3 Left	***** Back	**#** Forward	**8** Right
4 Fwd−left			**7** Fwd−right
	5 TurnBack	**6** Drop	

Default phonekey actions for **SX1 (two−column)** keypad:

1 TurnBack		**6** Drop
2 Back		**7** Forward
3 Back−left		**8**Back−right
4 Left		**9** Right
5 Fwd−left		**0**Fwd−right
* Turn		**#** Down /Drop

In Demo mode arrow keys and some command actions are used in a specialway. Refer to Demo section for thedetails

Board scan

After compleing a layer in non–Demo mode the application startsscanning board layers. Though it is your only chance to see the hiddenplaces, it is often annoying. You can stop scanning the board atany time by pressing either a screen button, or one ofthe following keys: **Send** ,OK, [*], [0], [#] (Series 60), Space,Enter, Esc (Communicator).

Pause and Summary

You can pause a game by entering Pause command, orpressing Right / Bottom screen button. As opposed to pressing anapplication key ("escape to system") this doesn't leave theapplication,but brings you a pause screen where you can either terminate the game,ore resume it after a while.

Summary screen appears after a game terminates and *Summaryafter game* is enabled in Settings

The following pages are shown:

Game status information about current game and soundsettings:

>   Pause count (includes using Pause mode and escapes tosystem)
>   Total duration of the game and "pure duration" – time spent on movingblocks
>   Average time spent on a block
>   Number of blocks: total and dropped
>   Total score and "pure score" (accumulated bonus) – score obtained forplacing blocks
>   Average bonus per block
>   Position of current score in the local score table
>   Current sound settings (can be modified – see below)

Block statistics: number of blocks of each type appearedso far

Score table: top scores (before current game)

>   Current page changes in regular tile interval, while youcan also force changing page forward and backward

>   While opening Pause/Statistics screen, sound is **suspended.** Using *Sound status* action, you can set status toone of the following:

>>   **Suspended (S)** – no sound while pausing, but resumed after leaving Pause mode.
>>   **Disabled (D)**– no sound in Pause mode and after leaving it
>>   **Enabled** – sound right now !

>   You can control pause mode using the following keys:

S60 Key	S80 Key	Action
Left		Go to previous display page.
Right		Go to next display page
Up		Increase sound volume
Down		Reduce sound volume
[*]	Tab	Sound mode
[#]	Space or Menu	Sound status
OK	Enter	Back to game (Pause only)
Send	Esc	Terminate game

Any key *not listed* in the above table and configured for *Soundoff/on* , *Sound mode*, *Volume Up* and *VolumeDown* operates in Pause according to its configuration (*Soundon/off* acts are S*ound status*).

New Top Score

If you reached a top score, you can either discard your result, orsave it in the Local Score Table, to be seen later in *Top Scores* screen. Before savingthe score, you may change scorer name. *Scorer name must benon−empty* .

To save the new top score, press *Accept* screen button, alternatively press *Discard* screen button toavoidsaving your score.

Demo

Demo (demonstration) is a self play mode using arather silly logic (probably the only part that remained completetyunchanged since very first Linux release) for placing blocks. Itmight be useful for someone who is completely new to the game, as wellas good for presentation ... and testing. When a demo finishes(it happens more often then you might expect), a summary screen appears for few seconds (even if summary screen is disabled in Settings), andthen a new demostarts. You can get out of Demo mode by pressing *Pause* or *Quit*. Note that *Pause* command does not really pause ademo, whereas you can always pause using "escape to system".

In Demo mode you obviously can't control current block, insteadyou can use arrow keys to control sound options:

Arrow key	Action
Left	Change sound mode
Right	Sound off / on
Up	Volume Up
Down	Volume Down

Turn and *Turn Reverse* commandsare used to toggle **power saving** mode. By default (**permanentlights**) back lights are always on, which is good for presentationbut flattens your batteries and is not healthy for the screen. If youwant to leave the application in Demo mode for a while, switch to powersaving mode by pressing a key assigned to *Turn* or *TurnReverse*action – as a result of that **DEMO** notice changes colour from **yellow**to grey to indicate power saving, and theback lights turn off after no more that 15 seconds. To get back topermanent lights mode press the key again.

The following key actions operate as usually in demo mode : *Next level*, *Sound on/fff*, *Sound mode*, *Volume Up/Down*, *Quit* .

Score Tables

Local Score Table and Top Scoresscreen.

Local Store Table keeps 10 best results for thecurrentdevice stored in local data base. To view Local Score Table, select *TopScores* from the Main Menu,

The following information is displayed:

S60:

>Position – a number from 1 to 10
>Name (max 3 characters)
>Level count (see Speed Levelsand Level Count).
>Score
>Date in the default format

S80:

>Position – a number from 1 to 10
>Name (max 30 characters)
>Level count (see Speed Levelsand Level Count).
>Level–layers – starting level and number of "dirty" layers separated bya hyphen(–)
>Score
>Date in the default format

World–Wide Score Table andSubmission Detailsscreen

If your score is at least 10000, not less than 1.5 theoriginal score (in case you start the game with initial bonus, e.g.non–empty board at start), and among top 3 of your personal top scores(i.e. top scores stored on the current device), you are given a codefor submitting your result to the World–Wide Score Table. In order tosucceed, the result should be among 30 world top scores. You don't needto be a registered user for score submission.

The submission details (date, score and code) are stored in thelocal data base. To overview this information, select *Top Scores*from the Main Menu, and then press *Submission Details* (Left or Top) screen button. You can press the button again to get beckto Top Scores. Right or Botton screen button brings up Main Menu.

Starting from version 1.1.0, you can additionally **store fullsubmission URL** (host name, user name, score and code) outsideapplication data base . On S60 the URL is stored as a Notepad memo,while with S80 a link is placed on the Desk. When using full submissionURL, you don't need to type in the data, however you still have achance to disguise your name, or enter additional information (email,location, etc). As a disadvantage, you haveto spend time on deleting the memo, or link. Storing full submissionURL can be enabled, or disabled with **WW info in Notepad**,or **WW submission links** in Configuration / Settings.

Configuration

The Configuration menu item is available from themain menu.

It provides the sub−menu having the following items:

- ◆ Settings
- ◆ Key Assignment (2 items)
- ◆ Registration Screen

The features are discussed later in this chapter.

Settings

To settings select *Configuration* from the MainMenu, and then choose *Settings*.

Feature	Default	Description
Starting speed	1	Enable starting game from a higher level Alsoapplies to demo. If starting level ishigher than 1, the lower levels will also be skipped during arollover. See Speed Levels and LevelCount. and Scoring
Starting layers	0	Enable starting game from a non−empty board. Also appliesto demo mode. See Scoring
Summary after game	Enabled	Whether on not to show Summary Screen after a game
Auto−repeat rate	Normal	How long a key has to be kept pressed, before its actionis repeated. Three rates are accepted: **Slow** (the longesttimeout), **Normal** and **Fast.** For *Down/Drop*action, auto−repeat rate affects thetime a key needs to be kept pressed, before the block isdropped
WW info in Notepad (S60)	Enabled	Whether or not to store full submission URL as a Notepadmemo. See World Wide Score and SubmissionDetails for more informations.
WW submission links (S80)	Enabled	Whether or not to store full submission URL as a link onthe Desk. See World Wide Score andSubmission Details for the details.
Sound mode	Normal	**Off** great for playing at work :) **Normal** generate sound for the followingevents: *layer release*, *new level*, *gameended,* and *new top score* **Annoying** in addition to "normal" events,generate sound for *block drift down*, *block drop* and *blockstop*. **Music** background music, no sound effects
Sound volume	Average	**Low** 1/4 of maximum volume **Average** 1/2 of maximum volume **High** 1/2 of maximum volume **Extreme** guess
Back light	Enabled	If enabled, and your device has back lights, the screenwill flash

effects		while changing speed level.
Input device (S80)	Auto	If your device has a keyboard, you might pretend not havingit. This silly feature is left for purely nostalgic reasons and mightprobably go in the next edition. Available values: **Phone** assume there are only numeric keys (inparticular, for **Keys** entering a letter you need to press a key several times) **Keyboard** assume keyboard is present **Auto** check hardware for a keyboard, or assumekeyboard when a letter key is pressed
Character set (S60)	Standard	**Standard** use standard ASCII characterset **Extended** use standard ASCII and localcharacters (see <u>Entering Text</u>)

Key Assignment

Functionality of customised keys can be set up using thefollowing screens:

Series 60:
> **Configuration**/**Numeric Keys** fornumeric keys
> **Configuration/Other Keys** for otherkeys: [*], [#], OK, **Send**,Shift, Clear

Series 80:
> **Configuration**/**Letter Keys**for left letter keys: Q W E A S D Z X C
> **Configuration/SpecialKeys** for   Esc, Tab, Ctrl, Shift, Space, Menu, Enter,Backspace.

Be warned that some keys (Ctrl, Shift) do not generateauto−repeat events and are not recommended to be used for blockmovement, Down/Drop, or another action that depends onauto−repeat.

The following tables lists actions that can be assigned to anycustomised key. For the default key assignment refer to <u>Operating game</u>section.

Key action	Description
Not used	No use – no comments
Back−Left, **Back**, **Back−Right,** **Left**, **Right**, **Forward−Left**, **Forward**, **Forward−Right**	Move current block horizontally in specifieddirection. If a diagonal move cannot be implemented, the block willmove along a non−blocked subdirection if available, e.g. Back−Left acts as Left if back movement is impossible but the way leftis open, or as Back in the opposite situation.
Turn, **Turn Reverse**	Turn current block in one of two possibledirections: if block dimensions are v1 x v2 x v3, you can geteither v2 x v3 x v1, or v3 x v1 x v2 depending on the choosendirection. Note that since at least two of v1, v2, v3 are same, thereare no more than 3 possible orientations (determined by position of theodd value in the triplet).
Down	

	Move current block down without decerementingbonus (see Scorefor a landed block)
Drop	Drop current block – this will add currentbonus to the score and bring up next block
Down/Drop	A short–time press is equivalent to **Down**, if pressed for longer (causing auto–repeat) acts as **Drop.**
Pause	Pause a game, where you can check status,control sound mode and volume. While in pause mode you can eitherterminate the game, or continue after a while.
Quit	Terminate the game
Sound off/on	Temporary disable or re–enable sound. Thisdoes not affect settings.
Sound mode	For sound mode optionsrefer to Settings.
Volume Up/Down	Increase/decrease volume (with roll over). Forvolume values refer to Settings.

Music File Names

To play background music set soundmode to music in `Configuration/Settings`. iFrac doesn't come with music files: you need to suply your own,but only ones you like the best :)

Files names are entered and stored without apath. Apart for an obvious convenience for users who have a vagueidea of what a path is, this approach has another (probably moreimportant advantage): you can freely copy a file from phone memory toyour memory card, or to another appropriate directory without need tomodify the music file configuration. As a disadvantage, your shouldavoid having same file name in different locations.

You can set a file for each speed level, Main Menu and other non–gamescreen, New Top Score screen. Music is automatically resumed after a 3second time–out.. In the game you can turn music on and off usingSound off/on command.

Instead of a real file name, you can enter a special file name, startedwith % (actually you don't need to code the whole name, just one letterafter % will do) . The following special names are accepted:

Special Name	Description
%continue	Just leave it as it is. Music (if any) willgo on [*] This allows splitting same music file between several consecutivelayers.
%none	Stop music if needed, don't playanything
%restart	Start playing last file (if any)from beginning [*]

[*] Starting fromversion 2.1.0 processing of special names for a higher starting levelis a slightly more complex. When you start a game with level more than1 and file name for the starting level is *%continue* or *%restart,* the

application looks backward to find the file (or silence) thatwould be played for that level, in case of starting from level 1.

For example, suppose the following file names are specified:

```
Intro: MusicIntro.mid
Lev1:  Music1.mid
Lev2:  %continue
Lev3:  %continue
```

If a game starts from level 3, version2.1.0 plays Music1.mid, while version 2.0.0 continues playing MusicIntro.mid.

MIDI format is a definite advantage, unless your device has problemsplaying it. Other Symbian OS standard audio formats (like amr, or wav)are also supported, but may overload the system, therefore are notrecommended. To enable music files, simply copy them to Sound Filesdirectory onyour memory card, or phone memory. With 3650 / SX1 you may find moreapporpriate to use Digital subdirectory of Sound Files instead. Alsoyou might prefer to create a separate subdirectory of Sound Files namedNiFrac to be used exclusively by this application.

Entering file names is discussed in Music_Files_screen section.

If you are familiar with Symbian OS file system, this is the listof lookup directories in the order of preference:

```
\Sounds\NiFrac
\Nokia\Sounds\NiFrac
\Sounds\Digital
\Nokia\Sounds\Digital
\Sounds
\Nokia\Sounds
\System\Sounds\Digital
\System\Sounds
```

According to Symbian OS design (whether or not we like it),for each path drive C: is processed first, then all additional storage(including memory cards), and finally ROM drive.

Custom Sound Effects

Now you can also have custom sound effects (SFX), thoughyou mightfind it less convenient then music files specification.

Currently *.wav* is the only supported format for SFXfiles, and file names are predefined:

File Name	Description
ifr_down.wav	Block drifts down after a timeout
ifr_drop.wav	Block is dropped with *Drop* command
ifr_fall.wav	Block stops (can't move down)

ifr_flash.wav	Flashing completed layers before release
ifr_level.wav	New speed level
ifr_ended.wav	Game ended
ifr_newScore.wav	New top score

You don't need to provide all custom files: the apllication will use its own sound effect, if a corresponding userfile is unavailable. It is recommended to avoid using files with duration longer than 0.2 sec as *ifr_down.wav,* or longer than 0.4 sec as *ifr_drop.wav ifr_fall.wav* or *ifr_flash.wav*.

As in case of music, you can place an SFX file in any directory used for storing .wav files (i.e. *Sound Files*, or its *Digital* subdirectory) in phone memory, or memory card, however there are additional requirements:
- ♦ all files must be located in same directory (in particular, you can either store *all* SFX files in a memory card, or *all* SFX files in the pnone memory, but not mix them)
- ♦ any other sound file directory should not contain a *.wav* file name starting with **ifr_**

If you add / remove a custom SFX file, you need to restart the application to activate the changes.

Registration screen

To bring up registration screen select `Configuration/ Register` . Same screen appears after an unregistered copy starts.

The registration screen allows entering registration details: user name and registration code. The registration is discussed in Registration chapter. Refer to Entering Text section for details regarding entering text. Press left screen button to save the registration details, or right screen button to postpone the registration.

A registered copy does show registration screen at start, while `Configuration / Register` brings up an information window with User Name, Registration Date, and related links..

Registration

Advantages of Registration

We would be happy to make iFrac free of charge(and get rid of this annoying section in the manual), but unfortunatelyyour financial situation depends much on it :). Even though it isn'tfree, we believe our prices are cheap and affordable.

As mentioned in the introduction the conditions for an unregistereduser are now different. The application will always roll over fromlevel 9 to starting level, ... but you need to reach level 9 first :=)

When a game starts, and unregistered versionselects a number between staring speed level and 9 (i.e. the last level number) as *cut−off level* . Once the game speed level getsover the cut−off level, the game terminates. You might be lucky enoughto get 9 as the cutt−off level in which case the game will neverterminate prematurely !

If you read the above lines carefully, you havenoticed that your chance to get 9 as the cut−off level increases withstarting speed level. In particular if you start from speed level 9 ...well, as you probably guessed, this "breach" is deliberate and meant tocomfort someone who might argue that new conditions are tighter thanprevious: now you have a back way, while you didn't have any before. Bythe way, you still can submit your World Wide score without needto register !

The registered copy skips registration screen atstart, shows `Licensed to`<username> and does not show   `UNREGISTERED`during a game.

And the last (but definitely not least) :
If you are comfortable with a unregistered copy, you mayalso consider registration, to support our effort in creating firstclass software for Palm and mobile phones running alternativeplatforms, and in particular encourage further iFrac development.

Where and how.

You can purchase the product from the following sites:

> http://www.softwaremarket.nokia.com
> http://www.handango.com
> http://www.mobile2day.de
> http://www.smartsam.de

While registering the product, you will have toquote the ***user name*** . This name will appear as *Licenced to* name. You will be given a code (referred to as *registrationcode*), that you will have to enter along with the user name(see Register). *The registration code forthe given user name is valid for all future releases of the application..*
The code consists of 12 capital letters or number.*It may include letters* **O** *and* **I** *, butnever numbers* 0 *or* 1. To enter the registration code,select   `Configuration` from the

mainmenu, then choose `Register` sub–item.You will have to restart the application to activate the registration code.

If you purchased version 1 ...

The registration code code for version 1 isincompatible, however ...

If your version 2 copy is registered for version1, itwill still operate as a registered copy, as long as you don't set SoundModeto Music, while when Sound Mode is Music, it will work as ununregistered copy. You can always change Sound Mode to Music, ornon–Music using Settings screen so that theapplication will change its behaviour accrodingly, but you can't changeSound Mode from non–Music to Music during a game.

In order to upgrade from v1 to v2 for a discountedprice send us an email and quote your user name and current (v1–compatible) registration code. Once you get a new code, set Sound Modeto Music (so that the copy becomes unregistered) and enter registrationdetails in the usual way.