

20100707 FB 5.4.6 and FBtoC 1.4.6

Editor changes:

Two new features mean that you will no longer lose your scripts and style files on updating to new versions of FutureBasic 5.

[1] Scripts now reside in ~/Library/Application Support/FutureBasic/Scripts. When the editor starts it looks for this folder. If the folder does not exist, it is created and the sample scripts are copied from the current editor_support folder.

[2] Style files now reside in ~/Library/Application Support/FutureBasic/Styles. When the editor starts it looks for this folder. If the folder does not exist, it is created and the style files are copied from the current editor_support folder.

FutureBasic 5 Help:

This now includes most of the material formerly contained in the FBtoC Help Book. The latter is largely obsolete.

FBtoC bug fixes and new features:

400	Error	preprocessor bug for comments with quote char
463	Feature	pass comments on to C source
519	Error	Misleading error for missing project
522	Feature	Strip unused FB runtime and C runtime functions when making Xcode project
527	Nicety	Cleaner translation of simple 'if' conditions
535	Nicety	Make Xcode Project should set optimization -O0
538	Feature	Send runtime errors to console.log instead of showing fatal alert
539	Cleanup	Compiler warning from A\$ = "(?)"
540	Cleanup	Warnings from Subs Quick Event Loop.Incl
541	Error	write# stringVar gives strange results
542	Error	'line input #' should terminate on <lf> as well as <cr>
543	Feature	Allow casting e.g. x = (double)y
544	Error	instr() treats chr\$(0) and chr\$(1) alike
545	Feature	Allow 64-bit integer literals such as 1ULL, -1LL
548	Error	'Warn of unused functions' sometimes didn't
549	Error	FSCatalogInfo.permission wrongly defined in Headers
550	Error	LP64 types should have size 8 in static expressions
553	Error	inkey\$ for command line tool not implemented
554	Error	'Use precompiled header' breaks with clang 1.5
555	Feature	Allow static string expression (_foo\$ + "bar") as 'output' filename

New Headers file:

Tlbx CFNumberFormatter.incl

New examples:

FB_5_4_6_Examples/Controls/CustomShapedControl
FB_5_4_6_Examples/Controls/CustomDrawnControl (Quartz)
FB_5_4_6_Examples/CoreFoundation/PrintCFString
FB_5_4_6_Examples/Files/FileObjectPermissions

Updated examples:

FB_5_4_6_Examples/AppleScript/LaunchMailPressSendII
FB_5_4_6_Examples/Controls/CustomDrawnControl (QuickDraw)
FB_5_4_6_Examples/Files/Droplet apps/Accept folder drop
FB_5_4_6_Examples/Files/Droplet apps/FinderInfo
FB_5_4_6_Examples/Files/Droplet apps/FinderInfo replacement
FB_5_4_6_Examples/Games/Spandrel 1.1 (chess)

20100406 FB 5.4.5 and FBtoC 1.4.5

Editor changes:

[1] 'Find in Next File' item (Command-option-G) in Edit menu.
[2] A crash from typing '#if def _someLongConstant' is fixed.

FBtoC bug fixes and new features:

510	Error	edit\$(without closing parenthesis crashes FBtoC
516	Error	Dim syntax error not flagged
521	Error	Function declared as Str63 is unusable
522	Feature	Strip unused FB runtime and C runtime functions during Make Xcode Project
523	Nicety	Insert spaces around '*' in C translation of typed pointer parameters
524	Nicety	Symbolise boolean constants in C translation

525	Nicety	C translation should have NULL instead of (void*)(0)
526	Cleanup	Remove trigraphs and their support
528 #	Feature	Option to build command line tool instead of app
530 #	Feature	Allow 64-bit compilation of command line tool
531	Feature	Bounds checking should work for record fields that are arrays
532	Error	Hang when parsing call to undefined function
533	Feature	Allow dereference of pointer that is a record field and a pointer to another record
537	Cleanup	Remove thousands of obsolete predefined constants

see the 'tool' example below. Also see FB5 Help: Appendix J - Command Line Tools.

Function change:

GetFormattedDateTimeAsString() has been replaced by DateFormatCreateStringWithAbsoluteTime().

Note the difference in parameter order:

```
//toolbox fn GetFormattedDateTimeAsString( CFAbsoluteTime at, CFStringRef formatString ) =
CFStringRef
```

```
toolbox fn DateFormatCreateStringWithAbsoluteTime( CFStringRef formatString, CFAbsoluteTime at ) =
CFStringRef
```

Revised Headers file:

```
Tlxb HIView.incl [fixes definition of HIViewContentInfo]
```

New examples:

```
FB_5_4_5_Examples/Command Line Tool/tool
FB_5_4_5_Examples/CoreFoundation/CFString left, right, mid
FB_5_4_5_Examples/CoreFoundation/CFArray of Dicts Proj
FB_5_4_5_Examples/CoreFoundation/CFStrings in FB console
FB_5_4_5_Examples/Dialogs and Windows/Imageview as window background
FB_5_4_5_Examples/Miscellaneous/CFDateFormatter test
```

Updated examples:

```
FB_5_4_5_Examples/Miscellaneous/DateExample
FB_5_4_5_Examples/CFPrefs Demos/CF string version/Prefs w/Nib & CE
FB_5_4_5_Examples/CoreFoundation/CFAdditions
FB_5_4_5_Examples/Games/Spandrel 1.0 (chess) [replaces RChess 3]
```

20100214 [FB 5.4.4](#) and [FBtoC 1.4.4](#)

Editor changes:

- [1] Document windows are now live-resizing.
- [2] The text of items in the Errors window can now be copied with Command-C.
- [3] A text selection bug is fixed. It occurred when the mouse was dragged into the left margin. (Thanks to Robert C.)
- [4] Navigation arrows in the Help Book now work as expected.

FBtoC bug fixes:

414	Nicety	'Make Xcode Project' leaves stray .proj in build/NewProjectTemplate/
513	Error	Mouse clicks in compositing window with FB Events and 'on mouse' vector not detected
514	Error	Orphan 'case' statement not identified as error
515	Error	Xcode project template not deleted after Xcode project created
517	Error	mki\$ function can return wrong values
518	Error	edit\$(ef) crashes if the field has not been created
520	Error	Linker warning shows as pseudo error

New date\$ and time\$ functions:

These are now implemented via Core Foundation. They can optionally retrieve both the date and time in one call, and format it in almost any conceivably useful way. See FutureBasic 5 Help for details. The runtime code for date\$/time\$ may be called directly to format any date/time (not just the current one). See DateExample below.

New examples:

```
FB_5_4_4_Examples/Miscellaneous/DateExample
FB_5_4_4_Examples/Miscellaneous/DockTileBadge
FB_5_4_4_Examples/Files/EnumerateDirectory
FB_5_4_4_Examples/Files/Alias demo
FB_5_4_4_Examples/Text/CFAdditions
```

FB_5_4_4_Examples/Text/CFAdditions/CFScanner

Updated examples:

FB_5_4_4_Examples/Nib to FB wndNum & btnNum

FB_5_4_4_Examples/App with icon

FB_5_4_4_Examples/Games/RChess_3.0 [replacing RChess_3.0a2]

20091221 FB 5.4.3 and FBtoC 1.4.3

Important Changes for 5.4.3 (note: minor bug fixes and other internal fixes are not shown):

<u>Type</u>	<u>Description</u>
-------------	--------------------

New	new xib format support added. This is the newer XML nib used in Xcode.
-----	--

New	BeginCCode, BeginCFunction, BeginCDeclaration and EndC are improved methods for including C source directly..
-----	---

Many examples & documentation updated to use the new BeginCCode BeginCFunction BeginDeclaration keywords.

New	.c, .h, .m files are now selectable in "Add to project" file dialog.
-----	--

New	_FBConsoleWndNum constant allows Console window customization .
-----	---

The user may modify the default window in useful ways, for instance:
include "ConsoleWindow"

window _FBConsoleWndNum, "My tall debug stuff", (5,47)-(500, system(_scrnHeight) - 5)

See new console application demo in Examples/Games

Fix	open "A" and open "R" now create the file if it did not exist.
-----	--

Fix	Menu items ending with '!' or '^' or '<' or '/' no longer crash the app.
-----	--

Fix	Linker errors are now passed to editor
-----	--

New examples:

FB_5_4_3_Examples > CarbonEvents > EventMonitorTarget

FB_5_4_3_Examples > Games > RChess_3.0a2

20091107 FB 5.4.2 and FBtoC 1.4.2

This release is being made early, because of the severity of bug #506 (introduced in 5.4.1).

Editor is unchanged.

Bug-fixes and minor features in FBtoC 1.4.2:

323	Error	input "prompt"; x does not work in console mode
-----	-------	---

422	Error	'dim as long a\$' should be an error
-----	-------	--------------------------------------

467	Error	gCntr = edit\$(1) should work for > 255 chars
-----	-------	---

471	Error	missing ''' gives bad C code
-----	-------	------------------------------

484	Error	bad C code from @"\"
-----	-------	----------------------

493	Error	str\$("should be translation error")
-----	-------	--

498	Nicety	include "ConsoleWindow" (alternative to include "FBRuntime.incl")
-----	--------	---

499	Error	str\$(fpNum) and 'print fpNum' give different results
-----	-------	---

500	Error	prevent clang Universal build with <10.5 deployment
-----	-------	---

501	Error	in Console Window, 'print fpNum' ignores gFBFloatMaxDigits
-----	-------	--

502	Error	can't access 3D array in record
-----	-------	---------------------------------

503	Error	prevent array declaration with >4 dimensions
-----	-------	--

506	Error	can't type upper-case letters in edit fields
-----	-------	--

New examples:

FB_5_4_2_Examples > Calculations > fast sin() and cos()

FB_5_4_2_Examples > Calculations > Expression Evaluator

FB_5_4_2_Examples > Calculations > Measurement of code performance

20091021 FB 5.4.1 and FBtoC 1.4.1

Main changes in FB 5.4.1

[1] Warnings for a common mistake: forgetting to assign a return value (end fn = someValue) to a function whose value is used elsewhere in the program.

```
local fn bar
dim as OSStatus err
err = _paramErr
end fn // oops, should have '= err'
```

```
dim as OSStatus err
err = fn bar
if ( err != _noErr ) then stop "bar() failed" // oops, never get here
```

```
?? Warning: Returned value of bar() is always 0 in line 9 of test.bas
?? Warning: Function should have explicit return value: bar()
```

[2] Choice of compiler. Build settings window has a pop-up menu with four options.

- gcc 4.0 is the default.
- gcc 4.2 is available on 10.5 and 10.6. It cannot build apps to run on 10.3 or 10.4.
- clang is available on 10.6 only. Very fast but somewhat flaky. Best used for development only (change to gcc 4.0 for release build).
- clang (analysis) performs static analysis of your code, giving interesting warnings; nothing is actually compiled.

Minor changes in Editor 5.4.1:

[1] The menu item Project > Remove Item has been deleted.
[2] Bug-fixes in the following areas: text drawing, menus, Find/Replace window.

Bug-fixes and minor features in FBtoC 1.4.1:

```
476 edit field with filter fn receives Cmd-chars
486 default MinOS deployment 10.4; remove 10.2 target from UI
490 >1-dimension array parameter wrongly translated
492 warn of unused fn prototypes as well as unused fns
494 allow fn instead of def and usr function calls
495 deprecate usr and def function calls
496 terabyte file access; lof(), loc() and rec() return SInt64
497 implement open "N" to give shared access
```

New examples:

```
FB_5_4_1_Examples > Graphics > QuickDraw > Image dithering
FB_5_4_1_Examples > Graphics > QuickDraw > Ray Tracing
FB_5_4_1_Examples > Graphics > CoreGraphics > CGGlyphs
```

[20090729 FutureBasic 5.3 and FBtoC 1.3](#)

Issues arising during beta testing of the editor have been resolved. Thanks to all who reported bugs.

Notable changes from FB 5.2:

1. Universal binary editor runs native on Intel.
2. Editor's Build Log shows progress of translation and subsequent build steps.
3. Editor doc windows are useable when toolbar hidden.
4. Editor has Help Book that in part describes FB5, not FB4.
5. New icons for editor, FBtoC, and FB documents (log out/in to see).
6. Find/Change window is resizeable.
7. Source code text is drawn with the casing in which it was typed.
8. New projects have extension .fbproj.

Note that FutureBasic 5.3 editor requires FBtoC 1.3 and vice versa; you can't mix and match with earlier versions.

Bug fixes and minor features in FBtoC:

```
421 Error setting gFBQuit true in DoDialog() doesn't quit
443 Error unhelpful error msg from malformed _constant
444 Error string[pointer] should be translation error
445 Error *.m files not copied during Make Xcode Project
446 Error string stack bug from 'input z'
447 Feature 'Hide on suspend' preference checkbox
448 Error Objective-C source files become *.m.m
450 Error flag missing commas in argument list
452 Error 'Bad case statement' error could force recompilation
453 Feature allow constants to start with numeral
455 Error nested index with 'Check array bounds' gives various bugs
456 Feature change 'Use DWARF' radio button to 'Put line # in app'
```

```
457 Error      .c, .m and .h files could open in FB when double-clicked
458 Error      edit$( btnNum ) returns nothing if text len > 255
459 Feature    Save Log As...
460 Nicety     'More warnings' should not include -Wunused-parameter
462 Feature    @"some
string" --> CFSTR( "some
string" )
464 Error      output window wrong for _btnClick in floating window
470 Nicety     explicit error for protoype illegally in local fn
```

New Headers files:

```
Util_CFUN.incl
Util_Nib.incl
```

New examples:

```
FB_5_3_Examples > Carbon in Cocoa
FB_5_3_Examples > Graphics > CoreGraphics (Quartz) > AceOfHearts, ImageMask and ColorMask
FB_5_3_Examples > Files > Accept folder drop
```

Some old kludgy declarations in Toolbox CFDate.incl have changed to match the official Apple declarations:

```
CFGregorianDateIsValid()
CFGregorianDateGetAbsoluteTime()
CFAbsoluteTimeGetGregorianDate()
CFAbsoluteTimeAddGregorianUnits()
CFAbsoluteTimeGetDifferenceAsGregorianUnits()
```

[20090625 Beta version \(beta 03 \) of Universal FB Editor Available](#)

-----Overview-----

The FBtoC team is pleased to announce beta testing for a new universal binary version of the FB Editor. The beta editor is a conversion of the older editor (included with the 'FB_5_2_Package') and thus retains most of the old editor's basic design and functionality. Many of the changes are internal to facilitate a universal binary build but some features were upgraded. Please note: Even though there are many proposed (but not implemented yet) upgrades (many internal) to this new UB editor, the team believes putting a Universal editor in the hands of the FB community is a higher priority than waiting for a 'finished' product. Even though it seems unlikely Apple will remove support of Rosetta in OS X 10.6, they have yet to clarify if it will be included, so having a universal binary editor protects the FB community for now.

-----Changes-----

- (1) Feature: Look up of Apple toolbox calls in Xcode Docs by highlighting the call and using either the contextual menu or the help menu to initiate.
- (2) Bug fix: High level project level disclosure arrow (flipper) showed only "File" label when project closed & re-opened
- (3) Bug fix: Warnings and errors from gcc are mishandled by showDblClickedError() as reported by Andy P. and RC.

-----Installation-----

- (1) Unzip the executable which is named 'FutureBasic_5_3beta' ---do NOT rename
- (2) Put it in the same folder(which is typically 'FB_5_2_Package' for the current release of FB5) as your current 'FutureBasic 5' application.
- (3) Launch 'FutureBasic_5_3beta' instead of 'FutureBasic 5'

Notes:

- (a) The beta editor requires FB5 and does not support FB4 or older FB releases
- (b) The beta editor is built with debugging symbols turned on to provide more debugging information in the event of a failure. The included debugging symbols increase the size of the executable but should not otherwise impact operation.

[20090619 Beta version 02 of Universal FB Editor Available](#)

-----Overview-----

The FBtoC team is pleased to announce beta testing for a new universal binary version of the FB Editor. The beta editor is a conversion of the older editor (included with the 'FB_5_2_Package') and thus retains most of the old editor's basic design and functionality. Many of the changes are internal to facilitate a universal binary build but some features were upgraded. Please note: Even though there are many proposed (but not implemented yet) upgrades (many internal) to this new UB editor, the team believes putting a Universal editor in the hands of the FB community is a

higher priority than waiting for a 'finished' product. Even though it seems unlikely Apple will remove support of Rosetta in OS X 10.6, they have yet to clarify if it will be included, so having a universal binary editor protects the FB community for now.

-----Fixes for Beta 02-----

[1] Crash at startup on PowerPC Mac in fn AddToTLBXList

The crash was the primary reason for releasing another beta so soon after the first beta.

[2] Compile info window doesn't show *.c files

[3] Match compile info format from FB 5.2

[4] Various changes to help menu to reinstate "Apple Web Reference" & other functionality

It is now possible to highlight an Apple toolbox call in the editor window and do a find on Apple's developer site by selecting "Apple Web Reference"

[5] Wrong fn name at top of editor window

[6] Initialize fn name and line info fields on doc open

[7] Re-opening a project should make the PM window front

[8] Help menu should allow access to miscellaneous files

[9] horiz scroll bug

[10] Compile Info window elides some <cr>s

-----Installation-----

(1) Unzip the executable which is named 'FutureBasic_5_3beta' ---do NOT rename

(2) Put it in the same folder(which is typically 'FB_5_2_Package' for the current release of FB5) as your current 'FutureBasic 5' application.

(3) Launch 'FutureBasic_5_3beta' instead of 'FutureBasic 5'

Notes:

(a) The beta editor requires FB5 and does not support FB4 or older FB releases

(b) The beta editor is built with debugging symbols turned on to provide more debugging information in the event of a failure. The included debugging symbols increase the size of the executable but should not otherwise impact operation.

-----Reporting Bugs-----

Post to the FB list with the subject: 'FB Editor: yourBug'

To speed the bug reporting process, please include basic environmental information with the bug post. For example, my post would start:

Intel iMac running OS X 10.5.7

-----[20090617 Beta version of Universal FB Editor Available](#)-----

-----Overview-----

The FBtoC team is pleased to announce beta testing for a new universal binary version of the FB Editor. The beta editor is a conversion of the older editor (included with the 'FB_5_2_Package') and thus retains most of the old editor's basic design and functionality. Many of the changes are internal to facilitate a universal binary build but some features were upgraded. Please note: Even though there are many proposed (but not implemented yet) upgrades (many internal) to this new UB editor, the team believes putting a Universal editor in the hands of the FB community is a higher priority than waiting for a 'finished' product. Even though it seems unlikely Apple will remove support of Rosetta in OS X 10.6, they have yet to clarify if it will be included, so having a universal binary editor protects the FB community for now.

-----Regarding Beta Status-----

Please note: this editor is a ***** BETA *****. This should NOT be interpreted as 'release'. There are identified unfixed bugs and new bugs/failures are possible. Proceed accordingly with saving your work, backups etc.

-----Changes-----

(1) Mac Intel users will generally notice a lot more zip because of the native executable. Speed increases for opening files (via double clicks on projects/files and via open dialogs) is particularly noticeable for me.

(2) The Find/Change dialog was improved and now works more reliably. Also, the Find/Change window is resizable.

(3) The split window (index on left) help window is used to display help. The content of help has been revamped to reflect FB5 instead of older FB, but is not complete and a work in progress.

Other help manuals used to be available on the help window but are not in this version. Again, in progress.

(4) Several broken features in the old editor were fixed. For example, quadruple click on a long if now correctly highlights the entire structure from long if to end if. This also works for similar Start/End structures like while/wend, local fn/end fn etc.

-----Installation-----

- (1) Unzip the executable which is named 'FutureBasic_5_3beta' ---do NOT rename
- (2) Put it in the same folder(which is typically 'FB_5_2_Package' for the current release of FB5) as your current 'FutureBasic 5' application.
- (3) Launch 'FutureBasic_5_3beta' instead of 'FutureBasic 5'

Notes:

- (a) The beta editor requires FB5 and does not support FB4 or older FB releases
- (b) The beta editor is built with debugging symbols turned on to provide more debugging information in the event of a failure. The included debugging symbols increase the size of the executable but should not otherwise impact operation.

20090612 FutureBasic 5.2 and FBtoC 1.2

Editor is unchanged.

Bug fixes in FBtoC:

431	Closed	string stack bug from 'open "0", 1, name, @parFSRef'
432	Closed	'include "foo.c"' could give bad C code
433	Closed	log window shrinks each time FBtoC is launched
435	Closed	out-of-order menu items become spacers
436	Closed	hang from 'if 1 then pen 1 else pen 2'
437	Closed	Overlong path to project file should give helpful error
438	Closed	allow 16 parameters in function definitions
439	Closed	array bounds error translating 'for i=1to 6'
441	Closed	spurious translation error from 'stop fSpec.name'
442	Closed	stale gcc warning shown by editor

New feature:

p.0@ dereferences a pointer to a 64-bit integer (like p.0& for 32 bit)

New examples:

FB_5_2_Examples > Graphics > OpenGL > OpenGLTestBed
FB_5_2_Examples > Graphics > QuickDraw > (de)convolve img
FB_5_2_Examples > Miscellaneous > SortDescriptor

20090321 FutureBasic 5.1.5 and FBtoC 1.1.10

Editor changes:

- [1] An unsaved standalone file can now be built and run (Command-R); see note 1 below.
- [2] Compile Info window shows progress of both translation and compilation.

Bug fixes in FBtoC 1.1.10:

426	Closed	inkey\$ does not return
427	Closed	val&("01") and val&(" 1") should return 1
428	Closed	spurious error from 'if...then edit\$(1) = "" else stop'
429	Closed	'text' statement with no parameters hangs FBtoC
430	Closed	Tlbox glu.incl could not be included

New example:

FB_5_1_5_Examples > Text > HITextView+FontPanel > HITextView
An HITextView with the FontPanel allows multistyled text with shadow, colour, double-underline and other eye-candy.

Note 1:

This is a normal Run in every way, except that the various files required by FBtoC are in your TemporaryItems folder, which (in OS X 10.5) is somewhere like /private/var/folders/88/88AKX+F62RWmd++8ZOxBkU+++TI/TemporaryItems.

20090216 FutureBasic 5.1.4 and FBtoC 1.1.9

Editor 5.1.4 changes

1. Scripts '#if 1/#endif' and '#if 0/#endif' fixed.

FBtoC 1.1.9 changes

-
1. Typed functions without a suffix are allowed, for example
local fn Name as Str255
end fn = "Ann"
 2. FB4 kludges removed from toolbox declarations (see below).
 3. The setting 'Use precompiled header' works for universal builds.
 4. The build system determines which pieces of a large program need to be compiled, and compiles only those pieces.

Bug fixes

415	Closed	Make Xcode Project wrongly quotes/escapes nib names
417	Closed	dropping file on FBtoC spoils log window position
420	Closed	Allow files with no OSType to be opened.
424	Closed	input # bug
425	Closed	record # should set file mark when extending

FB4 kludges removed

The Carbon C definition of these five functions includes a 64-bit parameter, which in FB4 had to be split into two 32-bit halves:

```
HUIViewFindByID()  
HUIViewSetID() // rarely used  
CreateMouseTrackingRegion()  
HUIViewNewTrackingArea()  
HUIViewChangeFeatures() // rarely used
```

You will have to change your code from, for example:

```
fn HUIViewFindByID( fn HUIViewGetRoot( w ), myHUIViewID.signature, myHUIViewID.id, @myView ) // old  
syntax
```

to the simpler correct form:

```
fn HUIViewFindByID( fn HUIViewGetRoot( w ), myHUIViewID, @myView ) // FB5.1.4 syntax
```

[20090109 FutureBasic 5.1.3 and FBtoC 1.1.8](#)

Editor 5.1.3 is unchanged from 5.1.2.

FBtoC 1.1.8 changes:

'on FinderInfo fn Xxxx' implemented [see [FB_5_1_3_Examples > Files > FinderInfo](#)]
The Headers file Util_CE.incl has been extensively commented for easier use.

New Headers files and examples:

Util_EUTCKeyFilter.incl	[see FB_5_1_3_Examples > Text > EUTC Key filter]
Util_Toolbar.incl	[see FB_5_1_3_Examples > Carbon Toolbar > The easy way]
Tlxb HITheme.incl	[see FB_5_1_3_Examples > Controls > HITheme_demos]
Tlxb CoreText.incl	[see FB_5_1_3_Examples > Text > CoreText xxxx]

CoreGraphics headers changes

The special FB4 syntax for a handful of CG functions (CGRectMake, CGRectOffset, CGContextGetCTM ...) has been discarded. You will need to change the way you call these functions in your source code. For example:

```
fn CGRectMake( r, 0.0, 0.0, 10.0, 20.0 ) // old FB4 syntax  
r = fn CGRectMake( 0.0, 0.0, 10.0, 20.0 ) // new FB5 syntax similar to C
```

Additions to the CG headers:

```
CGDataProvider.incl  
CGError.incl  
CGFont.incl  
CGGradient.incl  
CGPath.incl  
CGPDFArray.incl  
CGPDFDictionary.incl
```

CGPDFDocument.incl
CGPDFObject.incl
CGPDFPage.incl
CGPDFStream.incl
CGPDFString.incl

The FB4 'local fn' wrappers have been removed from all CoreGraphics functions. This change makes 'fn' optional when calling CG procedures (functions that do not return a value).

```
fn CGContextFillRect( ctx, r ) // 'fn' formerly required; now optional
CGContextFillRect( ctx, r ) // new simpler syntax
```

Bug-fixes:

370 button statements uncheck a checked checkbox
404 scroll button mishandles Rect param at creation
406 key chars with high bit set are negative in _evKeys dialog event
409 I-beam cursor persists after click in FBtoC Log window
410 gcc error from struct/record field named 'index'
412 gcc error from pi if prefs 'Allow dim a#,a\$,a%"
413 val&() should return 0 if first char is alphabetic

[20081117 FutureBasic 5.1.2 and FBtoC 1.1.6](#)

Important change in HandleEvents

The default behaviour of HandleEvents is now to block (i.e. not return) unless an event is dispatched.

It is no longer necessary (but is harmless), to suppress null events with:
poke long event - 8, 0xFFFFFFFF // no null events

The original behaviour of returning 30 times a second, if required for old polling code, can be restored by:

```
poke long event - 8, 2 // null events every 2 ticks, like FB4
do
fn PollForSomething
HandleEvents
until gFBQuit
```

Editor (FutureBasic 5.1.2) changes

Fixes to text display in the Errors window.
A bug has been fixed that caused the cursor to change to an arrow over the Scripts Palette even when the latter was hidden.

FBtoC 1.1.6 changes

-
1. Default behaviour of HandleEvents changed.
 2. The rarely-used 'system' statement is no longer equivalent to 'end'. Please change your code to use 'end'.
 3. The 'menu' statement now allows an optional 5th parameter (commandID).
 4. New/revised Headers files: Tlxb CFBase.incl, Tlxb CFString.incl, Tlxb CFArray.incl, Tlxb CFData.incl, Tlxb CFDate.incl, Tlxb CFNumber.incl. These header files are more complete than previously; if you get redefined function errors for your own CFxxxx declarations, just comment out your declarations.
 5. New Headers file: Util_Containers.incl [for use see [FB_5_1_2_Examples > Containers > Util_Containers example](#)].
 6. New Headers file: Util_Toolbar.incl [for use see [FB_5_1_2_Examples > Carbon Toolbar > Toolbar Example](#)].
 7. [FB_5_1_2_Examples > Sorting](#) [FB3/FB4 CD examples updated for FB5]
 8. build_temp folders created by FBtoC are excluded from Time Machine backups.

Bug fixes

390 Closed left\$\$, mid\$\$, right\$\$ give _zTrue when comparing chars
391 Closed mid\$\$ (c, 1) gives "comma expected error"
392 Closed scrollbar of console app lacks down-arrow
393 Closed garbled error from proc "NoSuchFunction"
394 Closed prHndl..prInfo.rPage fields are byte-reversed on Intel
396 Closed default edit field is _framedNoCR instead of _framed
398 Closed can't access 2-D array inside record

399 Closed def apndstr has endian bug (on Intel)
401 Closed crash from print after front window closed
402 Closed 'Array bounds error' alert shows as 'Quit'

20081020 FutureBasic 5.1.1 and FBtoC 1.1.5

Editor (FutureBasic 5.1.1) changes

-
1. Script Palette replaces Script submenus.
 2. Project window has Headers button, which opens the Headers folder in the Finder.

FBtoC 1.1.5 changes

-
1. New File menu item: Make Xcode Project.
 2. New feature and setting: Warn of unused functions.
 3. Domain and folder type constants (`_kUserDomain`, `_kApplicationSupportFolderType...`) are now defined.
 4. New Headers file `Util_CE.incl` provides a simplified method to implement Carbon Events in your code; for demos see `FB_5_1_1_Examples > CarbonEvents`.

Bug fixes

314	Closed	make strings in *.c runtime localizable
378	Closed	elided error message from include library "NoSuchFile"
381	Closed	editor ignores some translation errors
382	Closed	aliased source file prevents translation of main
383	Closed	editor's Stop button does not affect build by FBtoC
384	Closed	I-beam cursor stays after click in Prefs 'More gcc options'
385	Closed	unusable <code>CreateMouseTrackingRegion()</code> in <code>Tltx CarbonEvents.incl</code>
386	Closed	'picH = picture' gives translation error
387	Closed	<code>_useWFont</code> fails for some appearance buttons

20090924 FutureBasic 5.1 and FBtoC 1.1.4

Important change in FBtoC

Until now, the build process would automatically copy every nib (*.nib) from the source folder into the built app package. This greedy and surreptitious copy risked the inadvertent inclusion of files like "OldRubbish.nib" and "embarrassingly bad.nib". Now, nibs are ignored unless specified in an 'include resources' statement or in the editor project window (see below).

This means that every project or standalone file that uses a nib interface needs modification. The most straightforward fix is to add a line of code resembling this:
`include resources "main.nib"`
for each nib used by your project.

Editor (FutureBasic 5.1) changes

-
1. New menu items give better integration with FBtoC

20080912 FutureBasic 5 and FBtoC 1.1.3

The FutureBasic 5 editor is FBtoC-only as previously discussed.

After downloading the FB 5 package, please double-click `FBtoC.app` then click Open in the "downloaded from the Internet" warning dialog. Otherwise this dialog may interfere with your first Run from the editor.

20080722 FBtoC 1.1.2

1.1.2 build 140

Two helpful additions:

- [1] `VAList` - Variable number of function arguments support and examples added
- [2] `FBSHELL` - Basic program shell with more modern nib and carbon events

Bug Fixes:

362	Closed	140	Error	if 1 then	does not produce FBtoC error message
363	Closed	140	Error	menu 127, 1, <code>_disable</code>	does not work in FBtoC

364 Closed 140 Error Menu cmd keys don't auto repeat when created with FB menu statement
366 Closed 140 Error Record# should extend fork size without error

20080618 FBtoC 1.1.1

New Features:

- (1) The new NavDialog function, an FBtoC-only option, is similar to the FB Files\$ keyword but provides substantially more functionality. NavDialog offers new functionality via Navigation Services but the details are hidden in the C runtime, so it is easy to call NavDialog (and several other NavDialogxxxxxx helper functions). Several resources are available for learning to use NavDialog(). They are:
- (a) The demos - see Examples/Files/NavDialog_Demos,
 - (b) FBtoC help - see Language Enhancements
 - (c) Browsing the NavDialogxxxxxx functions in FilesDollarFunction.c and some new FSRef / CFURL helpers in FileHandling.c (both in the build_goodies folder)
- (2) FBtoC now uses NavDialog(_kNavDialogChooseFile + _kNavDialogSheet,...) internally.
- (3) FBtoC Help for include statement revised
- (4) Internal AppleScript arrangements simplified for debugging in Xcode

Bug Fixes:

246 Closed PM sheets beep in FBtoC-built app
359 Closed Appearance button btnNum, _activeBtn did nothing
360 Closed NavDialog sheets retract at once

Closed files\$(_FSRefSave,...) now returns parent folder ref always
361 Closed open "O", 1, s, @fsRef fails if fsRef is parent folder but file exists
362 Closed Architecture: Current Mac should disable OS min/max pop-ups

20080525 FB 4.4.3

The change most folks will appreciate is the ability to compile directly with either the FBtoC translator/gcc compiler or with the FB compiler. It is available now on the command menu.

Download FB 4.4.3 here

New Features for FutureBASIC 4.4.3 (aka: changes since 4.4.2)

4.4.3 (24 May 2008)

[1] Command menu has Run [FBtoC]

Note: if you're planning to use the new Run [FBtoC] command from within the FB Editor, please refer to the "Connecting to FBtoC" document for one-time setup steps.

[2] Obsolete 680x0 and FAT items removed from command menu

[3] New Headers files, matching FBtoC:

Subs FloatByteSwapping.incl

Tlxb AppleHelp.incl

Util_AppleHelp.incl

[4] Rntm Appearance.incl update fixes little-arrows-wrong-way-counting

[5] Subs Appearance Btns.Incl update supports viewsize for scroll bars.

[6] Subs Compiler.Incl update suppresses double-beep when adding too much text to an edit field.

[7] Subs Graphics.incl fixed for PPC compile.

[8] Definition of CFStringAppendPascalString corrected in Tlxb CFString.incl.

[9] FB Compiler v4.6 no longer emits "Warning: Your source code is ignoring the result of this toolbox function".

Special note for OS X 10.5 users

Before using FB 4.4.3 for the first time, locate the new FB Compiler.app in the Finder (the path is: FB_pkg_4_4_3/FB Extensions/Compiler/FB Compiler.app) and launch it by double-clicking its icon. If an alert appears ("FB Compiler.app is an application which was downloaded from the Internet. Are you sure you want to open it?"), click the Open button.

P.S. Currently, the 4.4.3 version is only available in English.

20080524 FBtoC 1.1

New features:

[1] files\$ supports _FSRefFolder and _CFURLRefFolder as alternatives to _FSSpecFolder.

See Examples > Files > open/files\$ FSSpec/FSRef/CFURLRef

[2] MakeIntoFBWindow() has been improved to handle tracking controls correctly (scroll bars, little-arrows and sliders, both live and non-live).

The improvements required the code to be moved to the C runtime instead of being user FB code.

See Examples > Nib to FB wndNum & btnNum > Nib demo.bas

See also NibToFB.incl in the same folder, in which MakeIntoFBWindow() is now declared:

```
toolbox MakeIntoFBWindow( WindowRef w, SInt32 wNum )
```

The syntax `fn MakeIntoFBWindow(wRef, wNum)` is unchanged.

[3] FBtoC can now be invoked from the FutureBASIC editor (v4.4.3 whose release is expected soon).

New Header files:

Tlxb AppleHelp.incl and Util_AppleHelp.incl

Bug fixes:

```
355 Closed files$( _FSSpecFolder,...) should produce no-name variant FSSpec
356 Closed nib sliders and little-arrows don't send dialog events
357 Closed edit$( n ) = "ABC" blows string stack
358 Closed 'input #1, longvar' gives 0 for -ve number strings
```

This procedure converts a nib-based window and its controls to behave as though created programmatically with 'appearance window' and 'appearance button' statements. After a call to MakeIntoFBWindow(), the window has an FB wNum and its controls have FB btnNums, and generate FB dialog events.

20080508 FBtoC 1.0.9

The 1.0.9 release of FBtoC (English only) repairs some important bugs.

The French localization, already outdated in 1.0.8, became severely dysfunctional in 1.0.9 and has been temporarily removed.

Bug fixes:

```
351 Closed 'input #fileID, stringVar, singleVar, doubleVar' gives null string and 0s
352 Closed 'on mouse fn DoMouse' interferes with button handling
353 Closed little-arrows and sliders should give correct FB dialog events
354 Closed 'edit field' blows string stack
```

20080424 FBtoC 1.0.8

New special constant `_forLoopsAlwaysExecutedAtLeastOnce`:

```
for j = 1 to 0
  print "Never get here"
next
override _forLoopsAlwaysExecutedAtLeastOnce = _true
for j = 1 to 0
  print "Do get here (legacy FB behaviour)"
next
```

Division symbols:

```
/ and double-backslash: always mean the same thing (integer division if appropriate)
\                          always means force floating point division
```

Bug fixes:

```
345 Closed close box doesn't close window
347 Closed performance issue with container += string + string
348 Closed crash from edit$( 1, _maxInt, _maxInt ) = "a"
349 Closed performance issue with hex$()
```

20080327 FBtoC 1.0.7

New feature:

- for/next loops may be executed zero times

```
for j = 1 to 0
  print "Never get here"
next
```

New examples:

Examples > Calculations > Counting for 1 second

Examples > CoreGraphics (Quartz) > CGBitmap demo

New documentation:

Build system caching.rtf [a file in the FBtoC_1.0.7 folder]

Bug fixes:

```
284   Closed   can't assign a string const to another
327   Closed   'print myUInt64Var/1024/1024/1024' prints 0
336   Closed   line continuation bug
337   Closed   def open "TYPE" does nothing
338   Closed   default file type should be 'TEXT'
339   Closed   crash from 'print test.r.left'
342   Closed   some labels become illegal C code
344   Closed   wrong number of decimal places sometimes printed
```

Open bugs:

```
314   Open     make strings in *.c runtime localizable
323   Open     input "prompt"; x does not work in console mode
343   Open     gcc error from pointer.offsetConst$ arg to toolbox Str255 param
```

20080307 FBtoC 1.0.6

New feature:

- menu item "Move build_temp to Trash"

New examples:

Examples > Mandelbrot set

Examples > Carbon Toolbar > Toolbar.proj

Bug fixes:

```
077 Closed fix the 'as pointer/Handle to type' mess
212 Closed crash when global var 'err' is used (OS X 10.4)
216 Closed app gets generic icon if project name contains '&'
329 Closed 'stop' decrements the string stack
330 Closed 'picture' statement can crash in OS X 10.2.8
331 Closed gcc error from global vars j0, j1, jn, y0, y1, yn
332 Closed Template error if FB-built app is in source directory
333 Closed spurious error from 'long color' inside 'long if' block
334 Closed error: 'index' redeclared as different kind of symbol
```

Notes:

With bug #077 closed, you can now write code like this:

```
'-----
#define MyFunkyType as Handle to Rect

begin record DemoRec
dim as MyFunkyType h1, h2
dim as pointer to Rect p1, p2
end record

dim as DemoRec myFunkyVar

myFunkyVar.h1 = fn NewHandle( sizeof( Rect ) )
myFunkyVar.h1..top = 99
'-----
```

which was impossible in FB owing to bugs (that remained unfixed throughout the compiler's entire lifespan).

FBtoC also fixes this related FB bug:

```
'-----
dim myPtrToSpec as .FSSpec
print "Should be 4 because it's pointer:", sizeof( myPtrToSpec )
'-----
```

20080222 FBtoC 1.0.5

New features:

- French localization of FBtoC
- simplified debugging with Xcode, via menu item File > Debug Last App

New example:

Examples > Debug > DemoCrash

DemoCrash crashes at the line:
poke address, value.

When run under Xcode's debugger, the crashing code and variable values are shown

20080205 FBtoC 1.0.4

New features:

on edit fn MyDoEdit

tekey\$ function

support for localization of string literals

New example:

Localizable strings

Bugs fixed:

304 Closed int(1/3*100) evaluates as 0

306 Closed print #fileID spc(10) prints nothing to file

307 Closed comma-tabling and tab() broken for print #fileID

308 Closed remember Finder-dropped file for 'Open Last File' command

310 Closed pos(fileID) returns nonsense

311 Closed closing a _scrollVert button makes window(_width) off by 1

313 Closed close box should not close window if 'on dialog fn

DoDialog' is in effect

318 Closed text statement can't be followed by a colon

319 Closed gcc warning from picture statements

320 Closed inc() / dec() can't be applied to record fields

20080129 FBtoC 1.0.3

Updated Headers file:

CFIndex.incl

Bugs closed:

279 Closed _scrollVert and _scrollHoriz scroll buttons not fully working

301 Closed custom-sized string vars can wrongly be Str255

302 Closed button value can't be set with 'appearance button...'

303 Closed files\$(_FSSpecFolder...) returns invalid FSSpec

20080126 FBtoC 1.0.2

Updated Headers file:

CFIndex.incl

New feature:

_scrollVert and _scrollHorz scroll buttons can now be created. They resize automatically with the window. But the apparent window size (from window(_width) etc) is not yet adjusted for presence of scroll bars.

Bugs closed:

283 Closed problems from source file with long name

293 Closed allow drag and drop from Finder

296 Closed 'input' gets character on key-up

297 Closed DIM 4 MTBold% should be a translation error

298 Closed _wndRefresh, _wndActivate FB events not received

299 Closed 'unterminated comment' gcc error for some division expressions

300 Closed FB dialog handler signals _evKey instead of _evCmdKey

20080116 FBtoC 1.0.1

Now implemented:

page lprint, read dynamic, write dynamic, scroll

New section in FBtoC Help:

Byte order

Headers files now available:
Subs AppleScript.incl, Tlbx CFByteOrder.incl

Bugs closed:

285 Closed 'window 1' resets print position to top left
287 Closed 'on mouse' disabled
289 Closed printed text wrongly split over several lines
292 Closed built app has old creation date
294 Closed last member of STR# resource not retrieved
295 Closed crash from input "test"; x

20080102 FBtoC 1.0

Changes since preview 1a126:

Translates 'on timer fn DoTimer'
SInt64 and UInt64 are now integer types, not records

Bugs closed:

265 'dim dynamic' fails for custom-sized string array
281 custom-sized string vars can't be suffixed with '\$'
282 allow kEventRawKeyRepeat to reach fn DoDialog as _evKey