Simple Procedure for Adding Smart BASIC to Xcode

[Current as of November 23, 2016]

Smart BASIC allows you to create genuine iOS applications which can be valid for App Store submission or Ad-Hoc distribution.

Although all iOS applications should be compiled with Xcode, you will not need to write any single line in Objective C language - you will simply compile a template Xcode project together with your smart BASIC program code and any support files such as images or sound files.

Of course you will need an Apple Developer License and knowledge of how to use Xcode for compiling and code signing your applications. But these topics are out of scope of smart BASIC support and should be referred to respective Apple help resources.

This tutorial explains step by step how to create an iOS application from a short example smart BASIC program called Turtle.

1. Copy the following text of the BASIC program below and create a text file named "turtle.txt" from it or open the attached file in Adobe .

```
' Turtle graphics 20141001
' Coded for Smart Basic by Henko
' Slow Turtle modification by Mr.K
' Dutchman added settings, slider and auto-scaling
' Shadow added by Henko (on special request by Mr.K)
'===== settings ======
delay=0.0
shadows=0 ' 1 or 0
direction=1 ' 1=ClockWise, -1=counterCW
bcolor(1,1,0) ' background r,g,b
dcolor(1,0,0) ' drawing color
border=4 ' size of edge
'---------------------
sw=screen_width()
sh=screen_height()
size=min(sw,sh)/2.5
dy=size/20 'offset for slider
t_init(shadows)
count=countvalue
begin:
angle=-direction*360/count
t.s=3*size/count
for i=1 to count
  for j=1 to count ! t_step(angle) ! pause delay ! next j
  t_turn(angle,0)
  next i
```

```
' wait for slider change
wait:
if button_pressed("stop") then end
if slider_changed("count") then
  do ! until slider_changed("count")<>1
  newcount=countvalue
else ! goto wait
endif
if newcount=count then wait
count=newcount
clearcanvas(border)
goto begin
end
def countvalue
countvalue=3+int(18*slider_value("count"))
end def
def t
x=0 ! y=0 ! s=0 ! a=0
end def
def t_move(continue)
dis=continue*t.s ! xdis=dis*cos(t.a) ! ydis=dis*sin(t.a)
t.x+=xdis ! t.y-=ydis
draw line to t.x,t.y
end def
def t_step(angle)
t.a+=angle ! t_move(1)
end def
def t_turn(angle,continue)
t.a+=angle ! t_move(continue)
end def
def bcolor(r,g,b)
.rb=r ! .gb=g ! .bb=b
end def
def dcolor(r,g,b)
.rt=r ! .gt=g ! .bt=b
end def
def clearcanvas(edge)
graphics clear 0,0,0
fill color .rb,.gb,.bb
fill rect edge,edge to 2*.size-edge,2*.size-edge
end def
def t_init(withshadow)
graphics ! graphics clear ! option angle degrees
.xc=.size ! .yc=.size
t.x=.xc ! t.y=.yc ! t.a=0
sprite "turtle" begin 2*.size,2*.size
clearcanvas(.border)
sprite end
option sprite pos central
sprite "turtle" at .sw/2,.sh/2-.dy
sprite "turtle" show
sprite "turtle" begin
iy=.sh/2+.size ! bwidth=.size/4 ! bx=.sw/2+.size-bwidth
slider "count" value 0.5 at .sw/2-.size,iy hsize 2*.size-bwidth
set buttons custom ! draw color 1,1,0 ! fill color 1,0,0
button "stop" title "STOP" at bx,iy-dy size bwidth,dy
draw color .rt,.gt,.bt ! draw size 2
if withshadow then shadow on
draw to t.x,t.y
end def
```

(Original code available for download at viewtopic.php?p=3493#p3493)

2. Download smart BASIC SDK for Xcode from the following location:

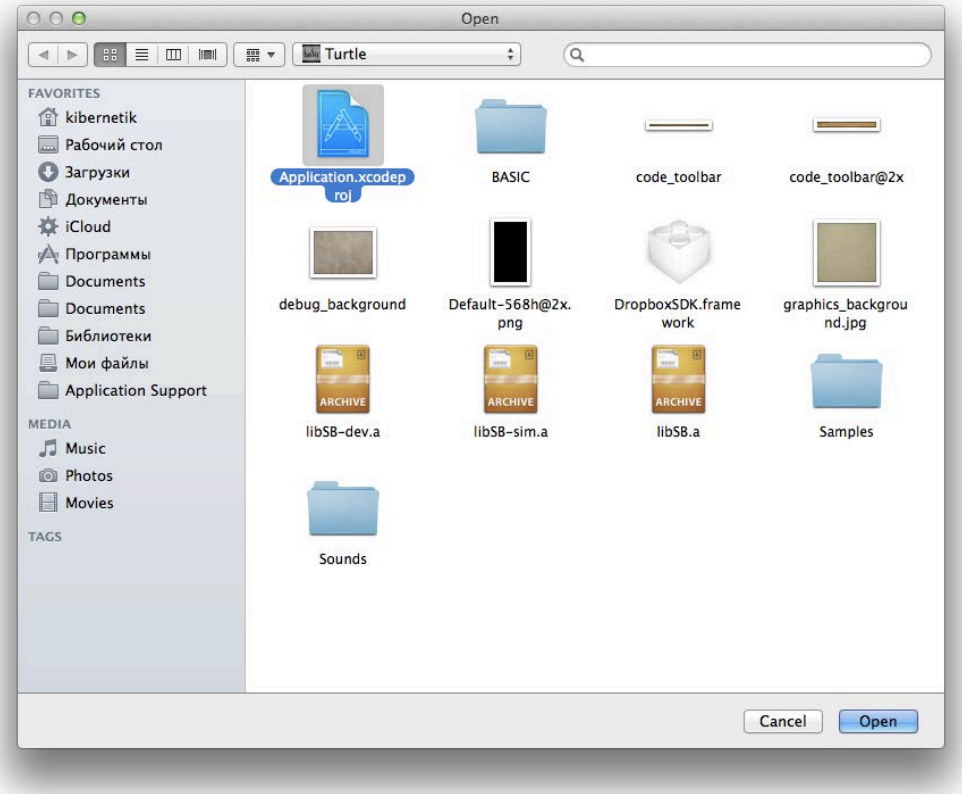
   http://kibernetik.pro/BASIC%20SDK.zip

3. Decompress the contents of the zip file. There will be a single folder named “BASIC SDK” containing several files and folders. This folder is your template folder for all future program projects.

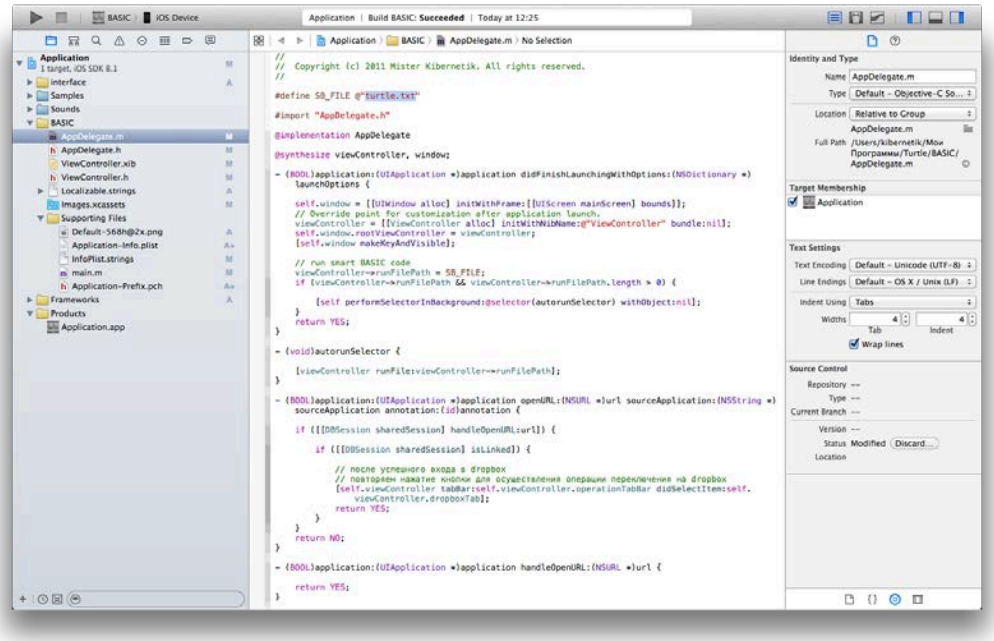
4. Rename the template folder name from "BASIC SDK" to "Turtle" for this example.

5. Copy the text file "turtle.txt" that you created in step #1 to the template folder "Turtle/Samples" folder.

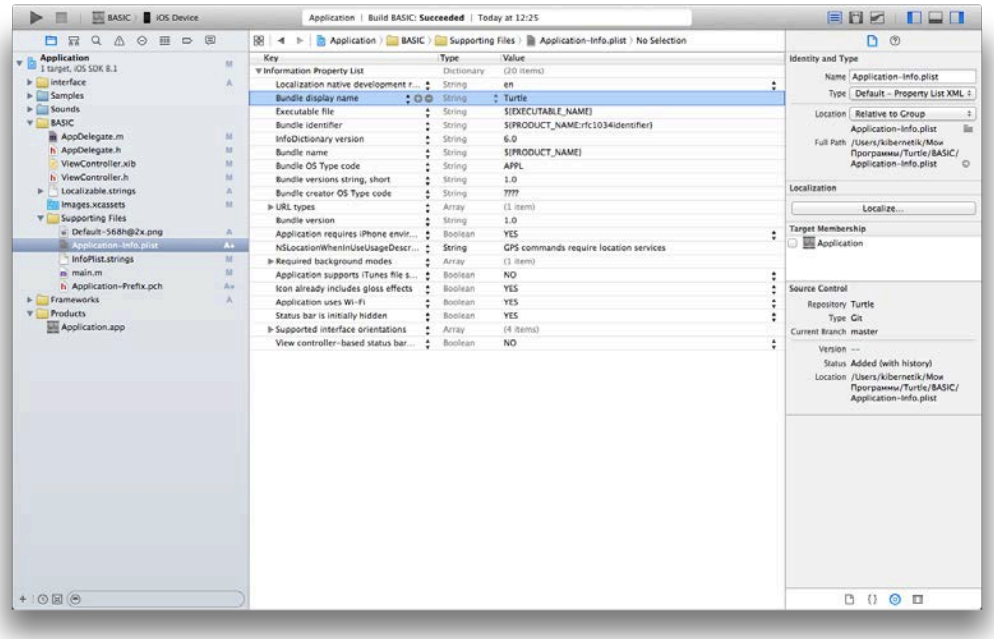
6. In Finder, open the template project in Xcode by double-clicking the file named “Application.xcodeproj” in the newly renamed Turtle template folder.



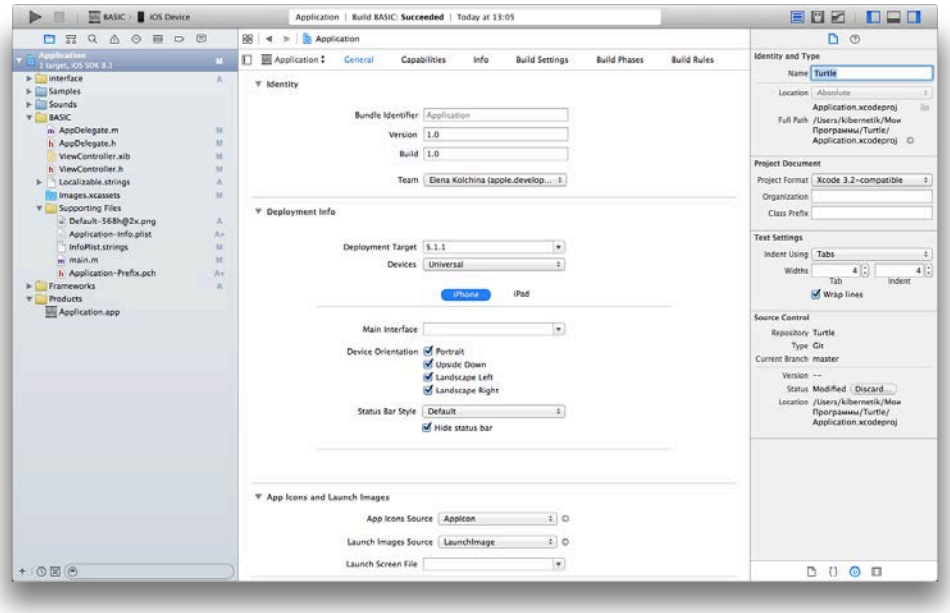
7. In Xcode, select the file "BASIC/AppDelegate.m" and enter the filename “turtle.txt” inside the empty quotes for the line “define SB_FILE @...”



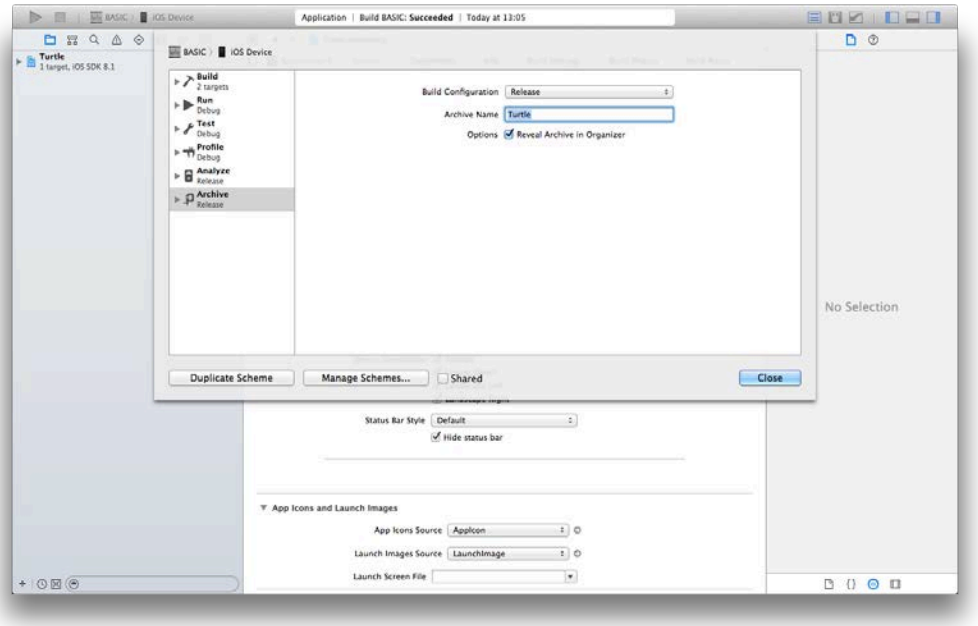
8. In the file "BASIC/Supporting Files/Application-Info.plist", change the value for "Bundle display name" from the default "Application" to "Turtle".



9. Update the project Name field from the default "Application" to "Turtle".



10. Select the Xcode menu item **Product > Scheme > Edit Scheme...** and in the Archive section, update the default name "Application" to "Turtle".



11. Finally, compile the project by selecting from the Xcode menu **Product > Build**. This will save all of your settings, compile the code and run it in the selected simulator.

You can now do anything you want with your application; compile it for App Store submission, for Ad-Hoc distribution or test it in the iOS simulator.

NOTES:

1) The template project "BASIC SDK" contains two libraries;

"libSB-dev.a" for running on iOS devices
"libSB-sim.a" for running on the iOS Simulator

However, the library name used in the project is "libSB.a". In the project folder, all three files are included. The "libSB.a" file is a duplicate of the "libSB-sim.a" file. So, with this file, the project will be compiled to run on the simulators only.

Once you are ready to compile for distribution, you will need to rename the "libSB-dev.a" file to "libSB.a" (replacing the existing one) and then recompile.

2) This procedure was tested using the latest Xcode version 8.1 (8B62) running on macOS Sierra.

3) Xcode 8.1 does not support compiling code for iOS versions older than 8.0. To do so, you must install a separate previous version of Xcode. You can run multiple copies of Xcode on the same computer.

The bulk of this tutorial was copied from the forum entry entitled “Adding smart BASIC to Xcode Tutorial” on the Mr. Kibernetik Software forum at http://kibernetik.pro/forum/viewtopic.php?f=34&t=726 dated Oct 27, 2014. Subsequent edits, updates and PDF conversion by Scott A. Rossell.