For fx-9860G Series

fx-9860G
Software Development Kit

Starter's Guide

http://world.casio.com/edu/
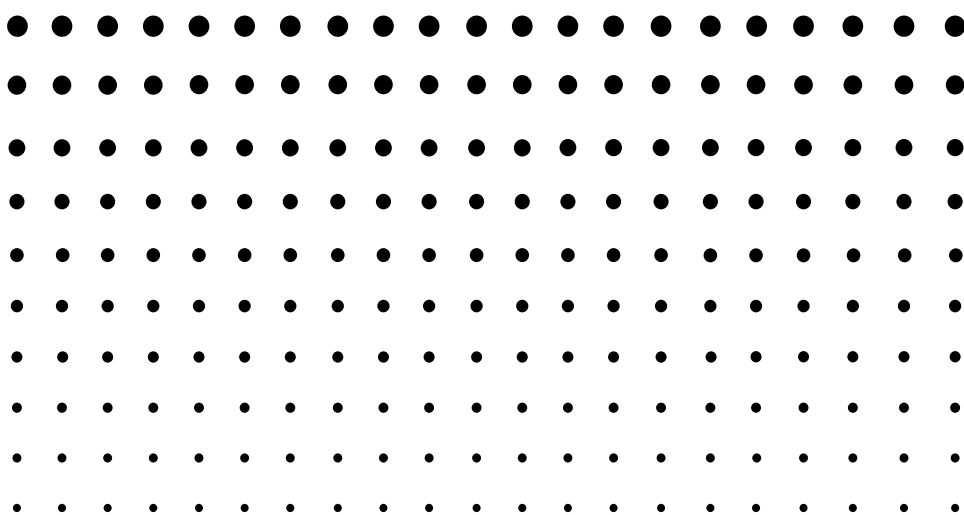
CASIO ®

fx-9860G SDK Starter's Guide

1.Before You Begin

1) This SDK (Software Development Kit) is a tool to make Add-In application. It applies to CASIO
   Graphing Calculator series (fx-9860G / fx-9860G SD / GRAPH 85 / GRAPH 85 SD / As of
   December, 2006) only. No other models are supported.

2) System Requirements
   Operating Systems :
   Windows® 2000/Windows® XP
   Computer :
   Computer with one of the Windows operating systems pre-installed (Excluding computers
   with an upgraded operating system and self-built computers.)
   CPU :
   Pentium® III 800MHz or higher recommended
   Disk Space :
   50MB for installation and uninstall (Installation on Windows 2000 and Windows XP requires
   administrator privileges.)
   Memory :
   RAM to support version of Windows being used.
   Does not include memory required for Operating System.
   Other :
   Video adapter and monitor must support resolution of XGA (1024×768) or higher,
   16 bit or higher system color.

3) It is prohibited to copy or redistribute any part of this SDK; however, you may make
   one copy of the software solely for backup.

4) In no event shall CASIO (CASIO COMPUTER CO.,LTD.) be liable for any damages whatsoever
   arising out of the use or inability to use the SDK software.

5) The contents of this Software Development Kit can be changed without notice to improve it.

6) Windows is a registered trademark of Microsoft Corporation.

7) Pentium is a registered trademark of Intel Corporation.

8) Other unspecified names in this SDK such as CPU, device and product names are either
   registered trademarks or trademarks of their respective developers.

2.Overview

1) Hardware (fx-9860G Calculator)

    CPU   : SH-3 (by RENESAS).

    LCD   : 128 * 64 monochrome full dots.

    SD Card   : "fx-9860G SD" and "GRAPH 85 SD" only.

2) Software

    OS   : CASIO original OS for Graphing Calculator.

3) Limitation of Add-In application

    Program Size   : 500KB (Max)   # Depend on free size of Storage Memories.

    Work Memories   : 32KB (Max)   # Global variables (Max 8KB) and

                                         Stack memories (Max 32KB) share this area.

    Heap Memories   : 48KB (Max)

4) Tools

    C Compiler   : HITACHI C Compiler (by RENESAS)

    PC Emulator   : CASIO original

3.Installed Files/Directories

The default installation directory for the CASIO fx-9860G SDK is:

C:\Program Files\CASIO\fx-9860G SDK

4.Installing the SDK

To install the CASIO fx-9860G SDK follow these steps:

1. Download the SDK to the location of your choice.
2. Double click on the downloaded file to begin the installation process.
3. After agreeing to the terms and conditions of the License Agreement, follow the on screen instructions to install the SDK.

5.Uninstalling the SDK

To uninstall the CASIO fx-9860G SDK follow these steps:

1. Display the Windows Control Panel.
2. Click [Add/Remove Program].
3. On the list of applications that appears, select "fx-9860G Software Development Kit".
4. Click the [Add/Remove] button. This will display the program maintenance wizard.
5. Click the [Yes] button. This completes the uninstall operation.

6.How to Use (Quick Reference)

This is a quick reference guide to using the SDK. Please refer to the Help file of SDK for a detailed explanation and the debugging method. (On the [Help] menu, please select [Help].)
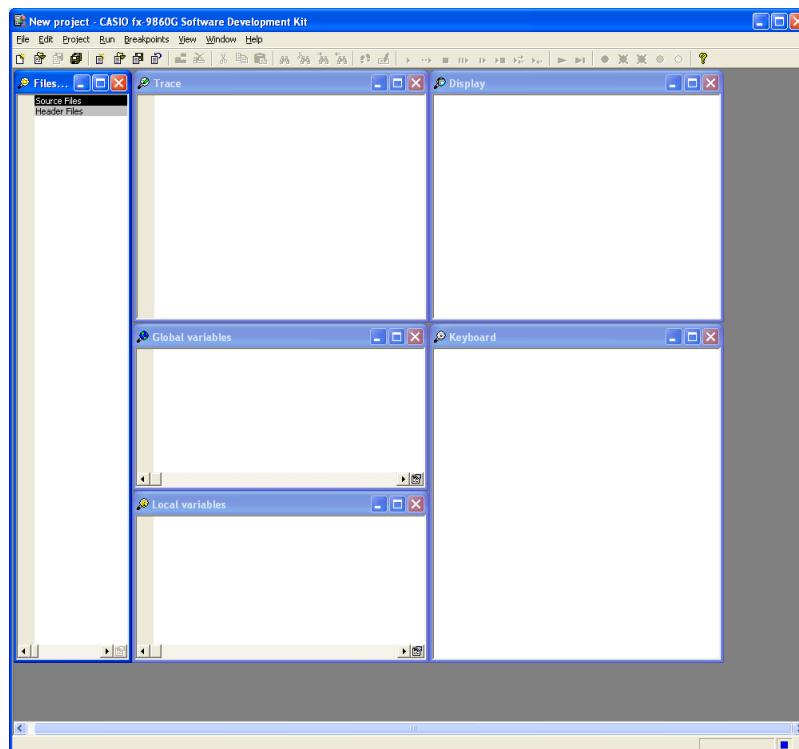
A display of your PC and the following examples might be different according to the resolution of the screen.

6-1.Start the fx-9860G SDK application
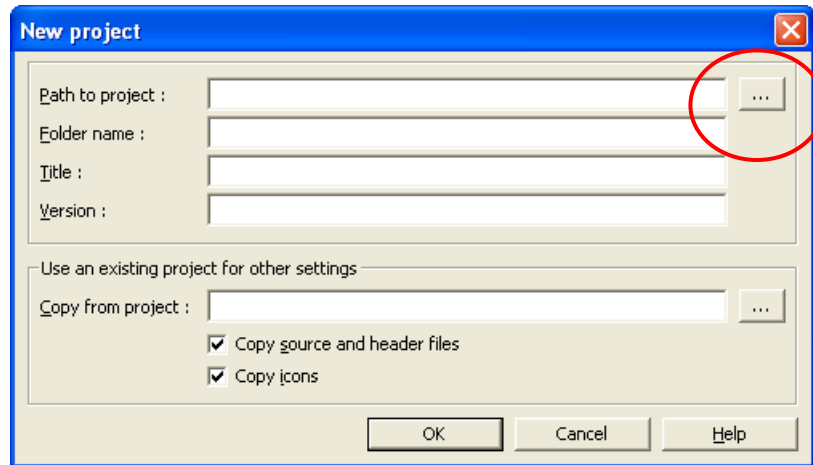
1) Click the following icon on Desk Top on your PC.
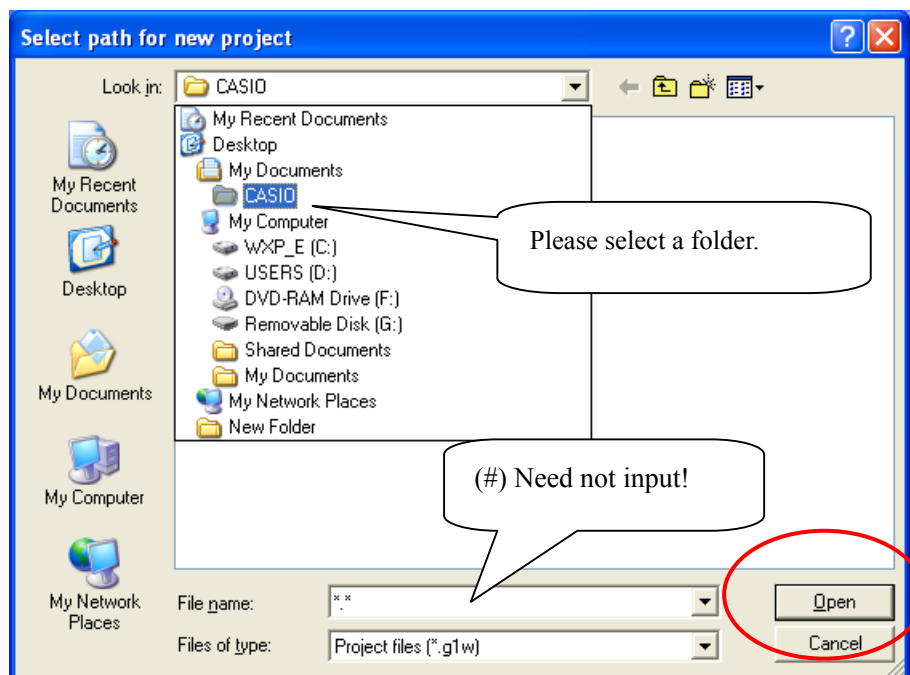

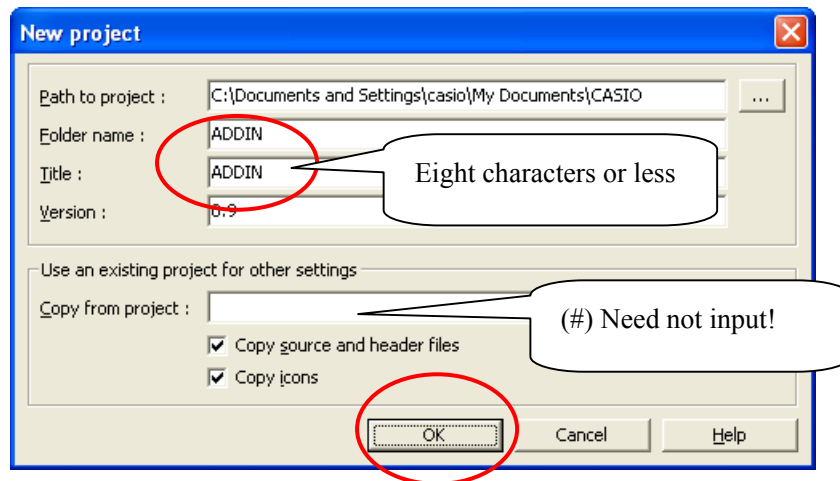2) Now you can start an SDK application.

6-2.Creating a new project

1) From the [Project] menu, choose [New]. The New project dialog box appears.

2) Push the […] button. The following dialog box appears.

3) Please select a folder, and push the [Open] button. When the following dialog box appears, input the information of the Add-In application.
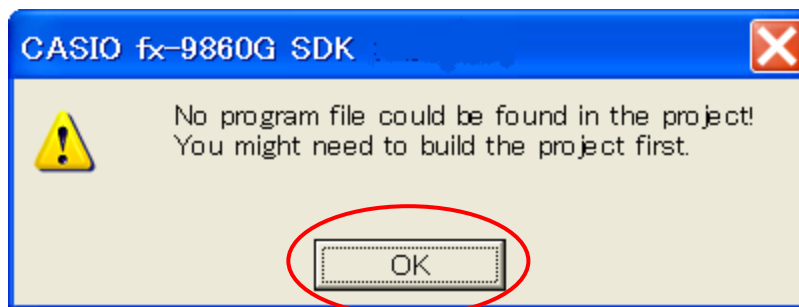
Folder name : Creates a new folder for your project under the "Path to project".

Title   : The name of your project.

Version   : Version of Add-In application

4) Push the [OK] button.

5) Push the [OK] button. This brings you to the environment of the default project.

6-3.Sample files and output files

If you created a new project in Step 6-2, you will be able to use the default files and folders.
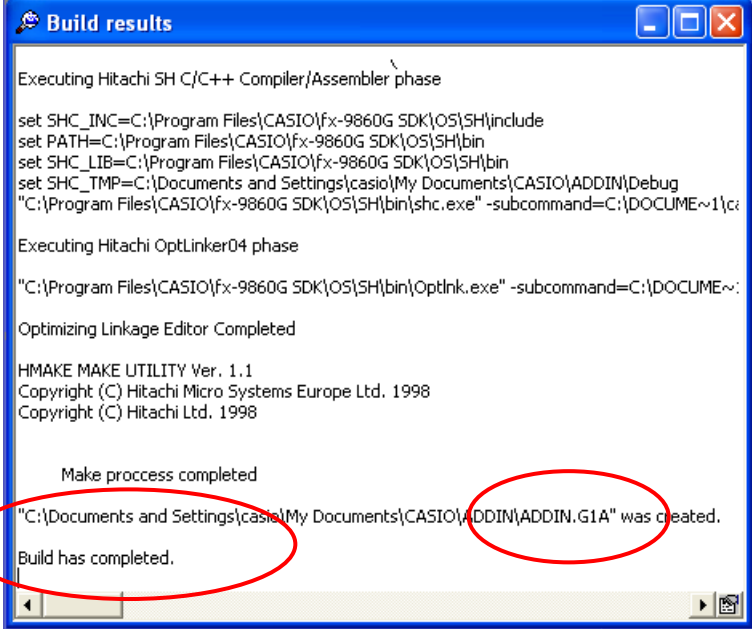
The following explains most of them.

(1) [Title].g1w   : Control file that manages the project of Add-In application.

                (#)Do not edit this file. It is updated automatically.

(2) [Title].c   : Sample source file for Add-In application.

(3) MainIcon.bmp   : Sample bitmap file of Main Menu icon.

               (#) Please edit it in your bitmap file editor.

                  This is a monochrome file. Don't change type and size.

(4) eActivityIcon.bmp   : Sample bitmap file of eActivity strip icon.

               (#) The same as item (3).

(5) [Title].G1A   : This is an output file. It is an Add-In application for Calculator.

6-4.Build the project

1) Select [Project]-[Build], to start the "Build Phase".

The Compiler and Linker output messages to "Build results window".

2) If a line contains an error message, click on that line.　The file will open so the error can be corrected.

6-5.Run your program

1)   From the [Run] menu, choose [Run]. This starts the Emulator.
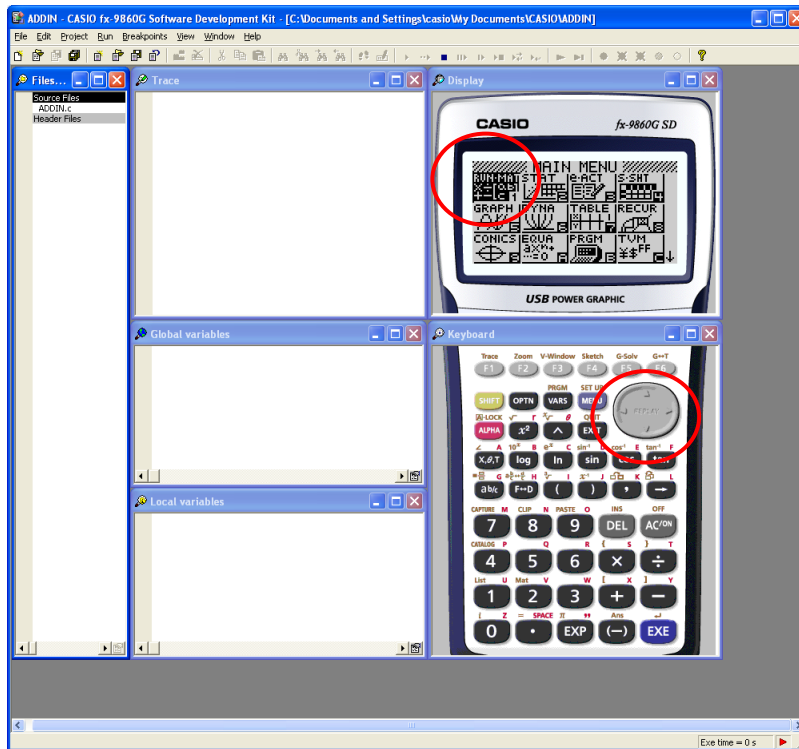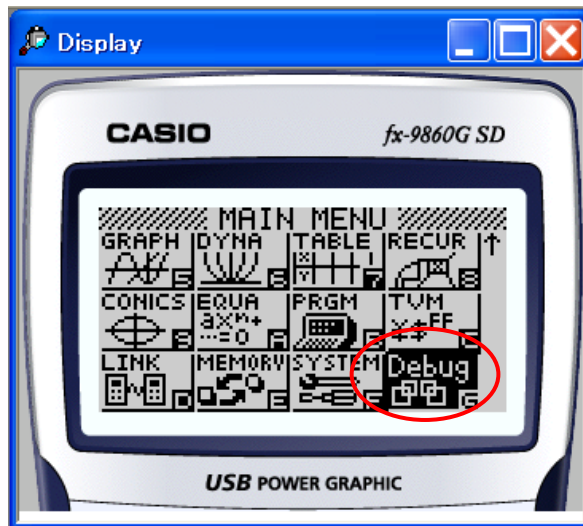

2) Use the cursor key of the Emulator's "Keyboard window" to highlight the "G" icon
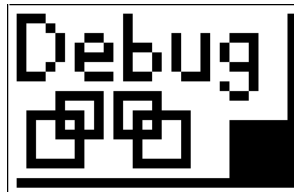   (example : Debug) .

3) Then press the EXE key. This starts the Add-In application that you made.

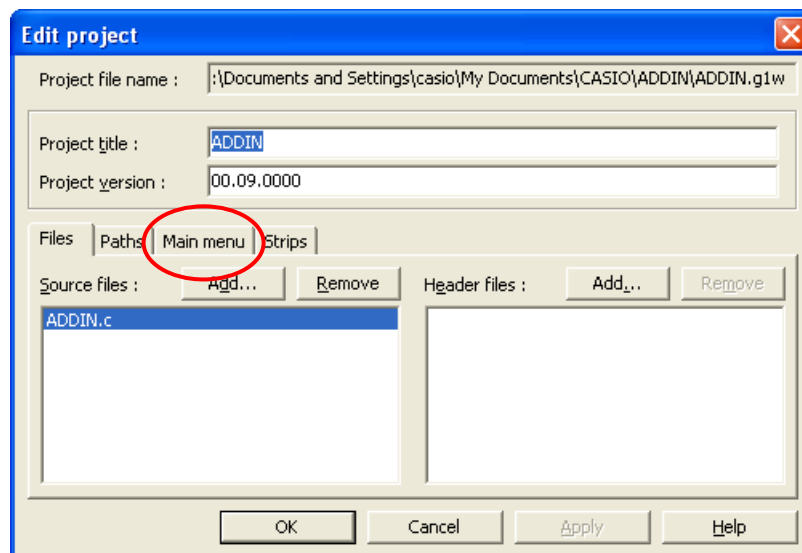4) This is a display of the default program.
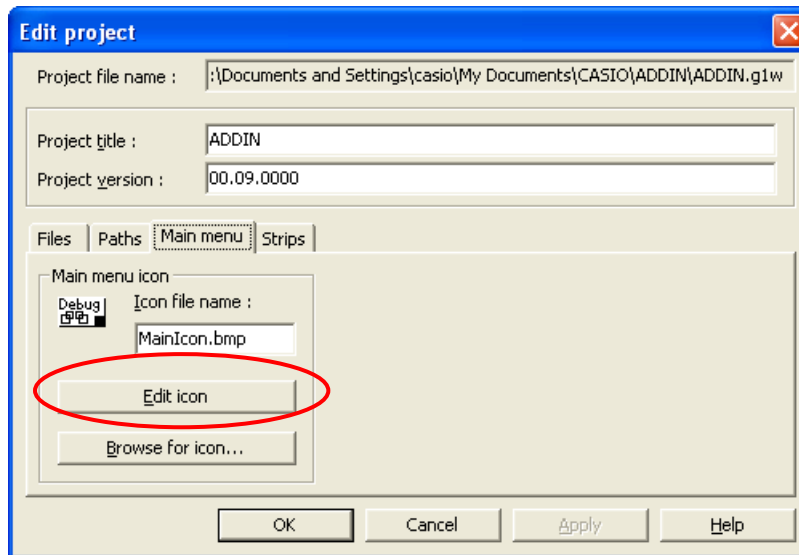

6-6.How to edit icon (bitmap) of the Main Menu

The icon below is the default icon. You can edit it.

1) Select [Project]-[Edit] to open the following window.

2) Select the [Main menu] tab.

3) Push the [Edit icon] button to open the bitmap data file. It is a black-and-white image with a size of 30 * 19 pixels.

7.Difference between the fx-9860G Calculator and Emulator

This section explains the differences between fx-9860G Calculator functions and fx-9860G SDK Emulator functions.

(1) Built-In applications

Calculator:

All applications work.

Emulator:

Only the eActivity, MEMORY and SYSTEM applications work. The following messages appear when you do an operation not being supported by the Emulator.

(2) MEMORY and eActivity applications (SD Card access)

    Calculator:

      You can save data on the SD card or can read data.

    Emulator:

      You can access the file of PC by the same operation as the access to the SD card on the Calculator.

      It can be used to open files saved on your computer or save files on your computer.

(3) Add-In applications

    Calculator:

      All Add-In applications work.

    Emulator:

      The Add-In applications that CASIO offers do not operate on the Emulator.

8.Postscript

(1) C++ programming language :

This SDK supports the C programming language. For C++ functions, it is able to build the project including the C++ functions, does not support the debugging of C++ functions.

(2) Programming of Add-In applications :

Please do not directly access hardware (ports, address, others) because if the Calculator's OS is updated the Add-In applications might not operate.

(3) The behavior of Add-In application :

The behavior of Add-In application may be different on the Calculator than on the Emulator.
Please confirm the Add-In application's operation on the Calculator.

(4) Font size :

The size of the dialogs in the SDK is based on the standard font size in the display properties. If you select a larger font, some texts in the dialogs might be cut. The dialogs will still work, but it can be difficult to understand some of the texts. Therefore, please use the standard font size.

(5) Folder path :

If any of the errors listed below occurs, please make sure that you use only the characters A to Z, 0 to 9, spaces, hyphens ("-"), and underline ("_") in the folder path and file name of the project:

- "Source file not found" error is displayed in the Build Results window.
- "Error opening the editor file" popup is displayed when double-clicking on the line where the compilation errors are displayed in the Build Results window.

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