

QUALCOMM™

Binary Runtime Environment for Wireless™

Creating BREW™ Applications
Using Visual Studio .NET



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Creating BREW™ Applications Using Visual Studio .NET

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Introduction

This document describes two methods for creating Binary Runtime Environment for Wireless™ (BREW™) applications using Microsoft Visual Studio .NET. It covers the following two scenarios:

- Developing a BREW application from scratch using Visual Studio .NET. See [Creating a New BREW Application Using Visual Studio .NET](#) on page 5.
- Converting a BREW application you have already created using Visual Studio 6.0 for use with Visual Studio .NET. See [Converting a Visual Studio 6.0 BREW application to Visual Studio .NET](#) on page 14.

Prerequisites

It is assumed that you already possess a working knowledge of C/C++ and the Microsoft Visual Studio .NET development environment.

For more information

Online information and support is available for BREW application developers. Please visit the BREW Developer web site for details: www.qualcomm.com/brew/developer.

Creating a New BREW Application Using Visual Studio .NET

You can develop BREW applications using either Visual Studio 6.0 or .NET, regardless of the version of BREW or the BREW SDK™ you prefer.

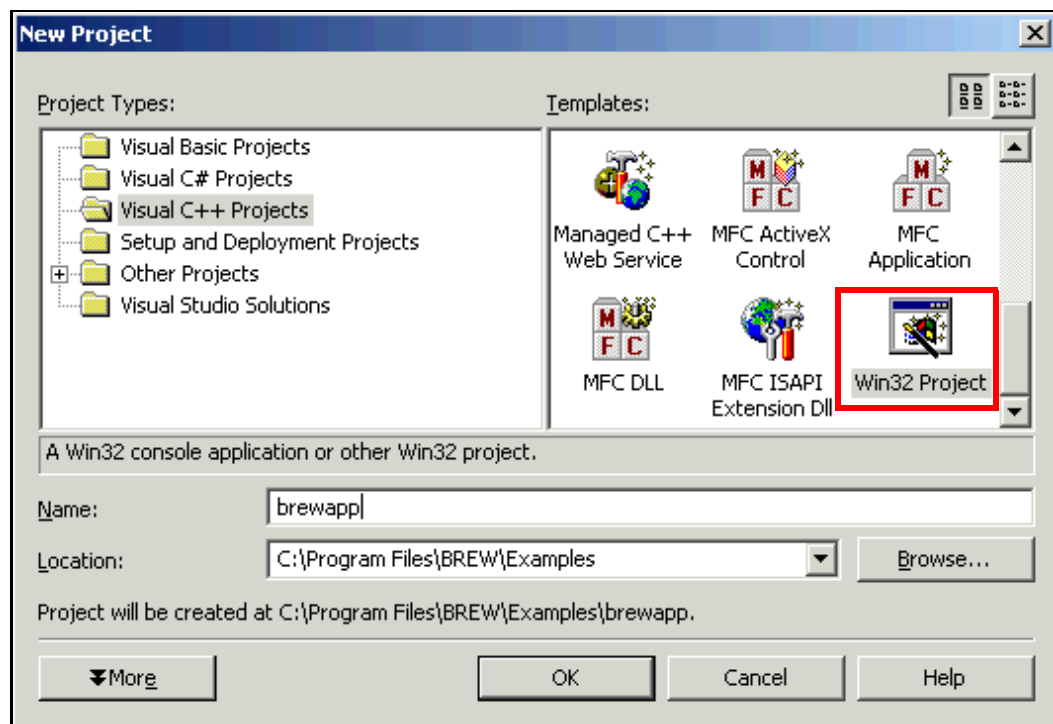
Using Visual Studio .NET for BREW development

The following two procedures describe how to create the Visual Studio .NET project workspace, and how to add your code and other files necessary for all BREW applications.

To create a new Visual Studio .NET project workspace for a BREW application

1. In Visual Studio .NET, click **File > New > Project**.

The New Project window opens.



2. In the Project Types pane, click **Visual C++ Projects**.

3. In the Templates pane, click **Win32 Project**.
4. In the Name field, type the name of the BREW application you are creating.

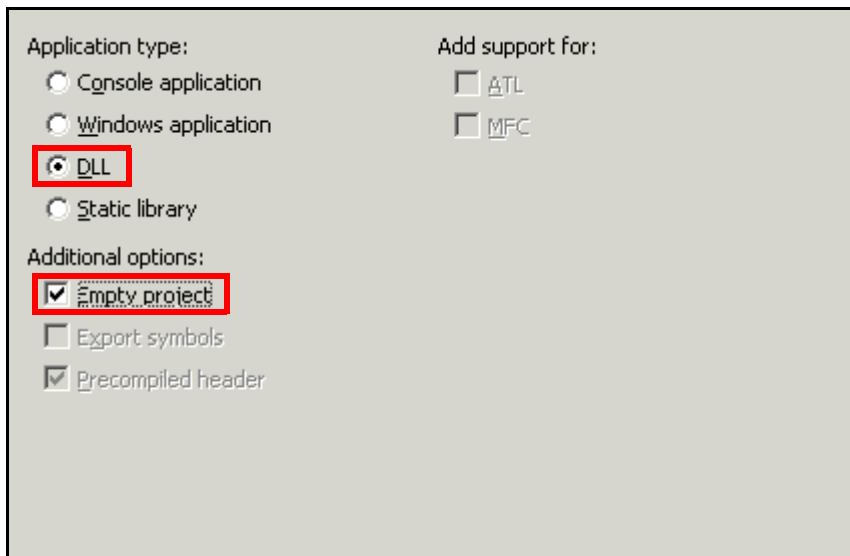
NOTE: The samples in this document use an application called brewapp.

5. In the Location field, type the path to the directory where you want to store the application.
6. Click **OK**.

The Win32 Application Wizard window opens.

7. In the left-hand pane, click **Application Settings**.

The following fields are shown.

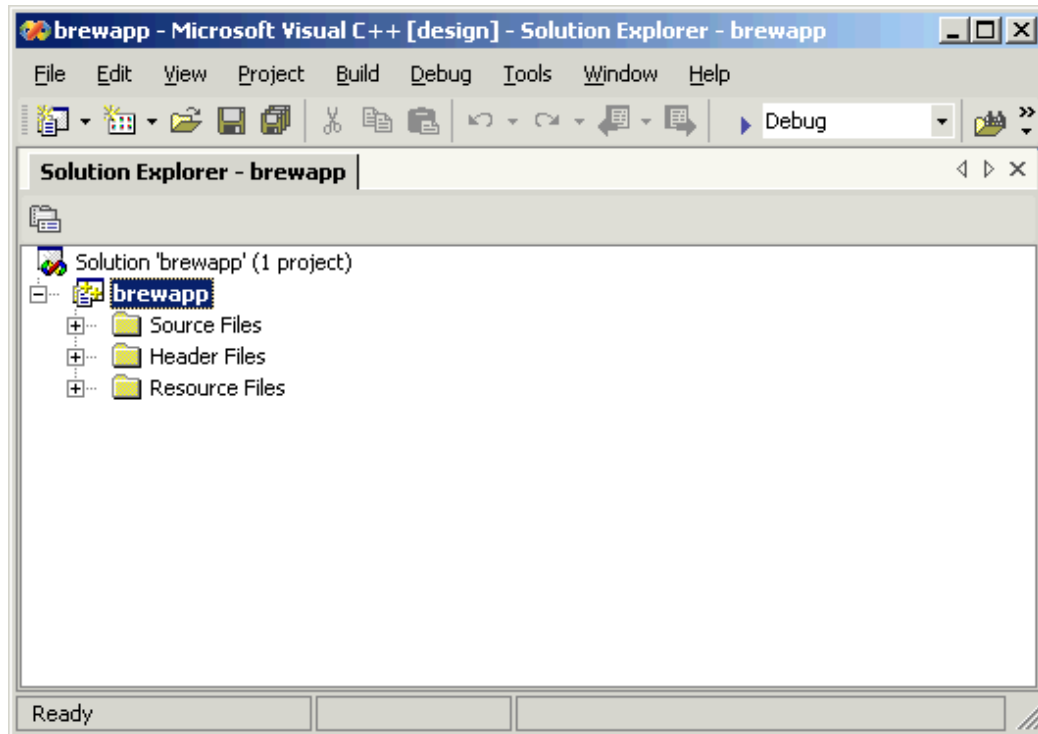


8. Make the following entries.

Section	Select
Application type	DLL
Additional options	Empty project

9. Click **Finish**.

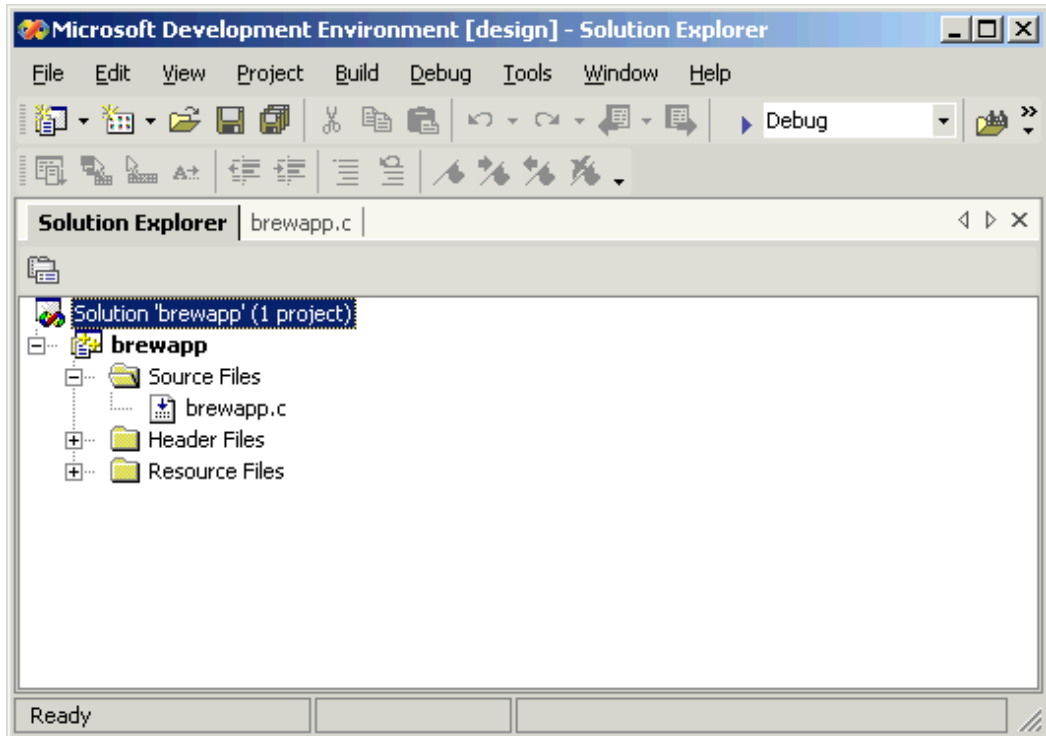
The Visual Studio .NET window shows your new application workspace.



To add necessary files and complete the BREW project

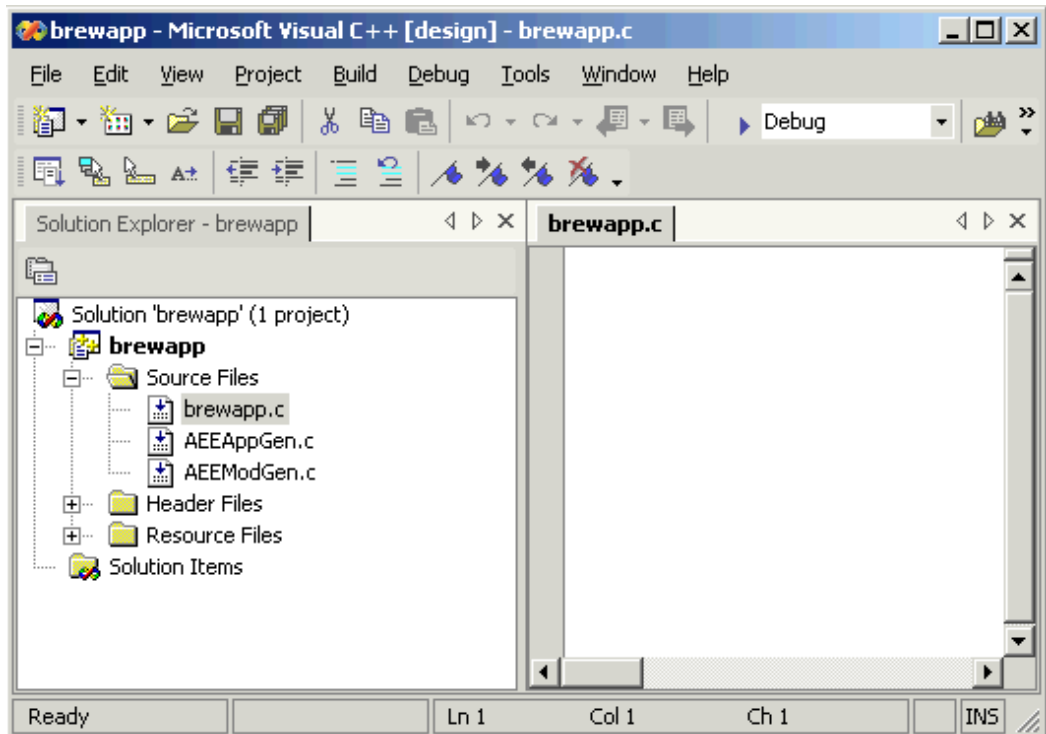
1. Create a new text file and save it as <projectname>.c.
2. Right-click in the Visual Studio .NET window, and click **Add > Add Existing Item** from the shortcut menu.
3. Navigate to where you saved the <projectname>.c file and click **Open**.

The workspace shows the new source file.



4. Click **Project > Add Existing Item**, navigate to the src directory in the BREW SDK installation path, and open AEEAppGen.c and AEEModGen.c.

The project now looks similar to the following screen capture.



5. Add the following code to the <projectname>.c file you created. Replace all occurrences of <Your Application's ClassID> with the AEECLSID_xxxx of your application, and <projectname> with the name of your project.

```
#include "AEEAppGen.h"           // Applet interface definitions
#include "<projectname>.bid"      // applet class ID

static boolean <projectname>_HandleEvent(IApplet * pi, AEEEvent
    eCode, uint16 wParam, uint32 dwParam);

int AEEClsCreateInstance(AEECLSID ClsId, IShell * pIShell,
    IModule * po, void ** ppObj)
{
    *ppObj = NULL;

    if(ClsId == <Your Application's ClassID>)
    {
        if(AEEApplet_New(sizeof(AEEApplet), ClsId, pIShell, po,
            (IApplet**)ppObj, (AEEHANDLER)<projectname>_HandleEvent,
            NULL) == TRUE)
        {
            // Add your code here.....
            return (AEE_SUCCESS);
        }
    }
    return (EFAILED);
}

static boolean <projectname>_HandleEvent(IApplet * pi, AEEEvent
    eCode, uint16 wParam, uint32 dwParam)
{
    switch (eCode)
    {
        case EVT_APP_START:

            // Add your code here.....
            return(TRUE);
        case EVT_APP_STOP:

            // Add your code here.....
    }
}
```

```

        return TRUE;
    default:
        break;
    }
    return FALSE;
}

```

6. Replace the comment lines with your BREW application-specific source code.

NOTE: Before compiling your BREW application, it is important that you use the following procedure to configure Visual Studio .NET for BREW application development.

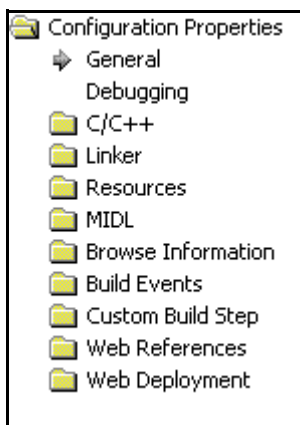
Setting Visual Studio .NET configuration properties

Now that you have created the base code for your project, you need to modify a few of its configuration properties.

To configure Visual Studio .NET for BREW application development

1. In the left-hand pane, right-click **<projectname>** and click **Properties** in the shortcut menu.

The Property Pages window opens. The left-hand pane of the Property Pages window, shown below, allows you to select the types of Visual Studio .NET properties you can configure.



2. In the left-hand pane, click **Configuration Properties**, then click **General** under the C/C++ folder.

The following fields are shown.

Additional Include Directories	"C:\Program Files\BREW\inc"
Resolve #using References	
Debug Information Format	Program Database for Edit & Continue (/ZI)
Compile As Managed	Not using managed extensions
Suppress Startup Banner	Yes (/nologo)
Warning Level	Level 3 (/W3)
Detect 64-bit Portability Issues	No
Treat Warnings As Errors	No

3. Make the following entries.

Field	Make this entry
Additional Include Directories	The path to the BREW include files
Detect 64-bit Portability Issues	No

4. In the left-hand pane, click **Preprocessor** under the C/C++ folder.

The following fields are shown.

Preprocessor Definitions	DLL;BREWAPP_EXPORTS;AEE_SIMULATOR
Ignore Standard Include Path	No
Generate Preprocessed File	No
Keep Comments	No

5. In the Preprocessor Definitions field, add AEE_SIMULATOR.

- In the left-hand pane, click **Precompiled Headers** under the C/C++ folder.

The following fields are shown.

Create/Use Precompiled Header	Not Using Precompiled Headers
Create/Use PCH Through File	
Precompiled Header File	

- In the Create/Use Precompiled Header field, select **Not Using Precompiled Headers**.
- In the left-hand pane, click **Advanced** under the C/C++ folder.

The following fields are shown.

Calling Convention	__cdecl (/Gd)
Compile As	Default
Disable Specific Warnings	
Force Includes	
Force #using	
Show Includes	No
Undefine Preprocessor Definitions	
Undefine All Preprocessor Definitions	No

- In the Compile As field, select **Default**.
- In the left-hand pane, click **Linker**, then click **General** under the Linker folder.

The following fields are shown.

Output File	brewapp.dll
Show Progress	Not Set
Version	
Enable Incremental Linking	Yes (/INCREMENTAL)
Suppress Startup Banner	No
Ignore Import Library	No
Register Output	No
Additional Library Directories	

11. In the Output File field, make sure the output is generated in the same directory where your code is stored.

12. Click **OK**.

The Property Pages window closes.

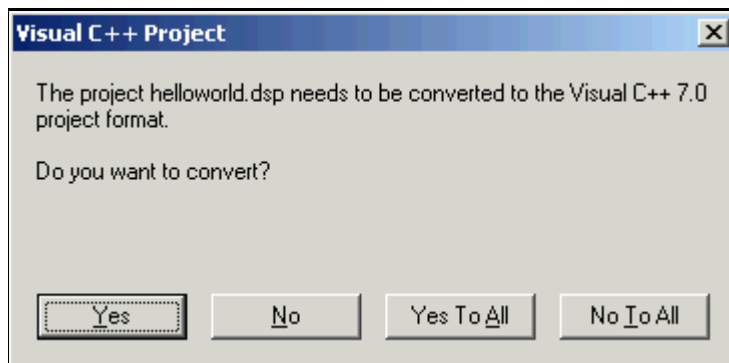
Converting a Visual Studio 6.0 BREW application to Visual Studio .NET

You can convert any BREW application that you developed using Visual Studio 6.0 to the Visual Studio .NET environment with no loss of features or functionality.

To convert a Visual Studio 6.0 BREW application to Visual Studio .NET

1. In Visual Studio .NET, click **File > Open > Project**, and select an existing project workspace (DSW).

A dialog box similar to the following opens.



The dialog box shown above opened when the helloworld sample application was first opened in Visual Studio .NET.

2. Click **Yes**.

Visual Studio .NET automatically converts the application to Visual C++ 7.0 (.NET) format.

NOTE: If your Visual Studio 6.0 project compiled and linked correctly before the conversion to Visual C++ 7.0 (.NET) format, it should also compile and link correctly after the conversion. You are not required to change any project settings to accomplish this. The BREW Emulator will still recognize the binary and the end-user experience will be the same, regardless of the new development environment.



NOTE: All sample applications shipped with the BREW SDK (up to version 2.x) contain Visual Studio 6.0 project workspaces only.

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