
S60 3rd Edition SDK for Symbian OS Installation Guide

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S60 platform

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1. Introduction

1.1 About this Installation and Configuration Guide

This document describes what you need to know and do to install the S60 3rd Edition SDK for Symbian OS for C++ ('S60 SDK'). This document explains how to install and configure the S60 SDK for software development with the Metrowerks CodeWarrior IDE. This document also includes instructions on how to verify that your environment is properly configured.

The S60 SDK for Symbian OS enables application development for devices based on the S60 platform using C++. The SDK is based on S60 3rd Edition and Symbian OS 9.1. The SDK includes all key functionality needed for application development (documentation, API reference, add-on tools, emulator, target compiler) excluding the Integrated Development Environment (IDE).

The S60 platform is a complete smartphone reference design. The platform builds on the Symbian operating system Symbian OS, complementing it with a configurable graphical user interface library and a comprehensive suite of reference applications.

1.2 Who Should Read this Guide?

You should read this guide if you plan to install the S60 3rd Edition SDK for Symbian OS for C++.

1.3 Typographical Conventions

Notation	Explanation
<code>Courier</code>	- Text that you enter (as opposed to system prompts and responses) - File paths - Commands - Program code
<i>Italic</i>	- Names of books and documents - New terminology
Bold	Names of Microsoft Windows menus, commands, buttons, and icons
URL link	Active link to an external URL

Table 1: Typographical conventions

2. System Requirements

Before installing the SDK, check that you have the minimum hardware and software requirements listed in this section. With these minimum requirements, you can run the SDK as a standalone application. If you plan to use the SDK with an integrated development environment (IDE), please make sure you have the requirements mandated by the IDE in question.

2.1 Hardware Requirements

2.1.1 Minimum hardware configuration

The minimum hardware configuration for installing and running the SDK is:

- 1 GHz processor (minimum IDE and OS requirement of processor is 500 MHz)
- 512 MB RAM (minimum IDE and OS requirement is 128 MB of RAM)
- 16-bit color
- 1024x768 resolution
- 1 GB free hard disk space
- Microsoft Windows compatible sound card is required for the audio support
- Keyboard and mouse

2.1.2 Supported peripheral hardware

The following peripheral hardware is supported:

Bluetooth cards and dongles:

- TDK BRBLU04
- Brainboxes BL-500
- Casira (HCI BCSP & H4)
- Cards supporting HCI BCSP
- Wrapper for Bluetooth USB dongles (with CSR chipset) at H4 mode.

Infrared devices:

- Extended Systems ESI-9680 RS-232 IR pod (or compatible)

Network cards:

- Ethernet cards that comply with IEEE 802.3 standards (Ndismedium802_3)



Note: See IDE documentation for minimum hardware requirements.

2.2 Software Requirements

The minimum software requirements for installing and running the SDK are listed below.

- Active Perl version 5.6.1 (see section 4.1.1, “ActivePerl installation,” for details)
- Java Runtime version 1.4.2_02 or newer (see section 4.1.2, “Java Run-Time installation,” for details)

The following operating systems are supported:

- Microsoft Windows XP Professional SP2
- Microsoft Windows 2000 SP4

2.3 Additional Installation Requirements

- All installations must be performed using an administrator account. Otherwise, some environment variables may not be set correctly.
- The SDK must be installed in a path that does not contain any whitespace characters.
- SDK, IDE and your project files must be located on the same logical drive as build tools to work correctly in all situations.

3. IDE Configuration

If you plan to use the SDK with an integrated development environment (IDE), please read the documentation for the IDE the IDE in question for specific installation and configuration instructions.

The IDE used must be located on the same logical drive as the SDK. IDEs must be installed on your computer with administrator rights. Otherwise, some environment variable may not be set correctly.

The following IDEs are supported by the SDK:

- CodeWarrior Development Studio for Symbian OS 3.1 (OEM, Professional and Personal)
- Microsoft .NET 2003

4. Installation Steps

4.1 Prerequisites

Before installing the SDK you should have installed and configured:

- Perl (see section 4.1.1, “ActivePerl installation,” for details)
- Java (see section 4.1.2, “Java Run-Time installation,” for details)
- Integrated Development Environment (see chapter 3, “IDE Configuration,” for details)
- All peripherals you are going to use

All installations should be performed with an account that belongs to local administrators group. You should close all other applications before starting the installer.

4.1.1 ActivePerl installation

ActivePerl 5.6.1 or newer is required and must be installed before installing this SDK. You can download ActivePerl from the [ActivePerl](http://www.activestate.com/Products/ActivePerl/) pages (www.activestate.com/Products/ActivePerl/). See ActivePerl documentation for installation instructions.

ActivePerl must be installed on your computer with administrator rights. Otherwise the PATH environment variable is not set correctly.

4.1.2 Java Run-Time installation

Java Run-Time (JRE) 1.4.2_02 or newer is required to use Sisar, AIF Builder, CS Help Compiler, and emulator Preferences.

Java Run-time can be downloaded from <http://java.sun.com/downloads/index.html>. (JRE is included in J2SE.)

JRE must be installed on your computer with administrator rights. Otherwise the PATH environment variable is not set correctly.

4.2 Running the SDK Installer – Typical Installation

This section provides the basic steps for a typical installation of the SDK. By following the steps below you will install the SDK to your PC and be able to start application development.



Note: It is recommended that you follow the steps described in this Section when installing the SDK. However, if you want to:

- use Multiple Emulator Support in your application development
- leave various SDK features out of your installation

please follow the instructions provided in Section 4.3, “Running the SDK Installer – Custom Installation.”

Once you have downloaded the installation package (.zip file) on your PC, installing the S60 SDK takes place through the SDK Installer, that is, the **InstallShield Wizard**. The following will take you through the steps needed to install the SDK.

1. Start the SDK installation by running the installation executable (setup.exe).

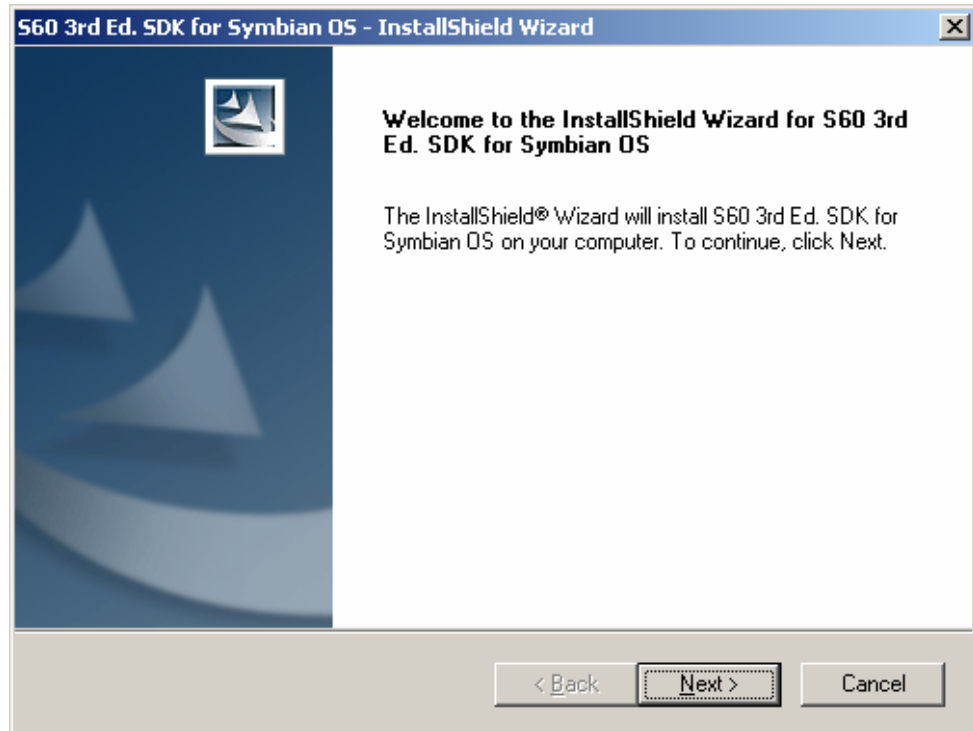


Figure 1: InstallShield Wizard

This panel displays general information about the software to be installed.

2. Click the **Next** button to continue. The **License Agreement** dialog is displayed:

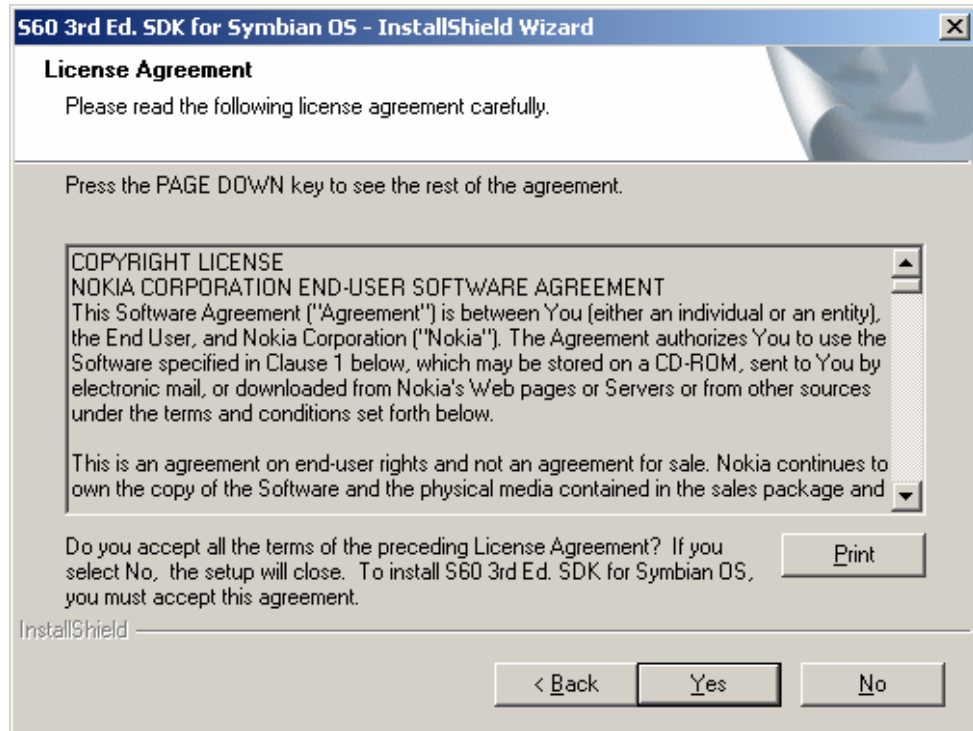


Figure 2: License Agreement

Read the license agreement carefully.

3. After reading (and accepting) the license agreement, click **Yes** to continue. The **Setup Type** dialog is displayed:

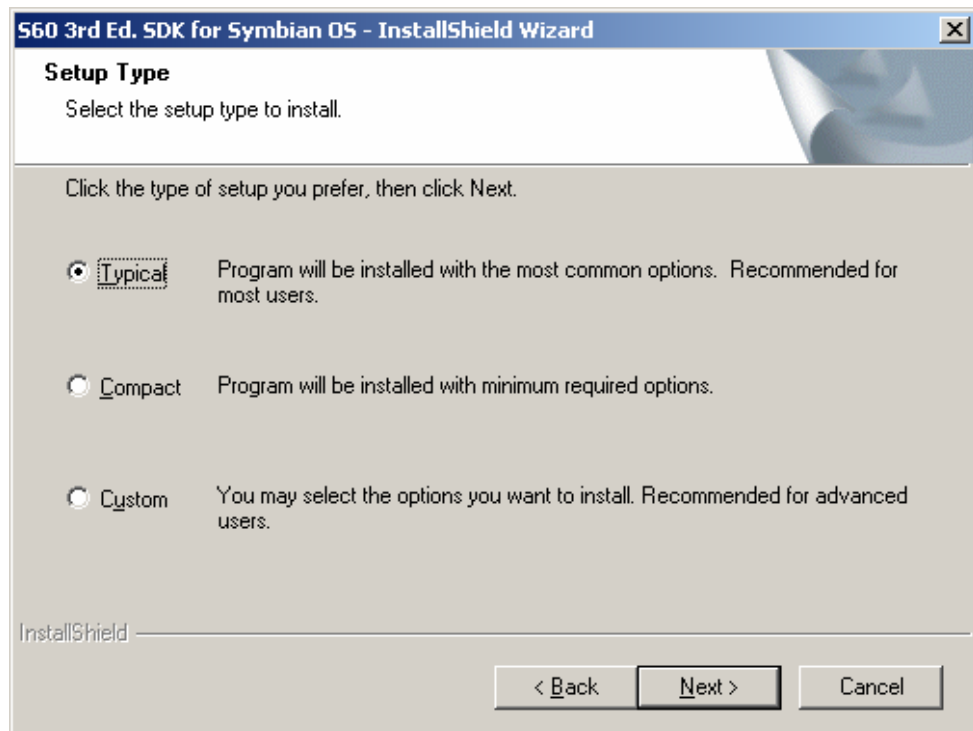


Figure 3: Setup Type

4. Select the setup type that you want to install ('Typical' is recommended) and click **Next** to continue. The **Choose Destination Location** dialog is displayed:

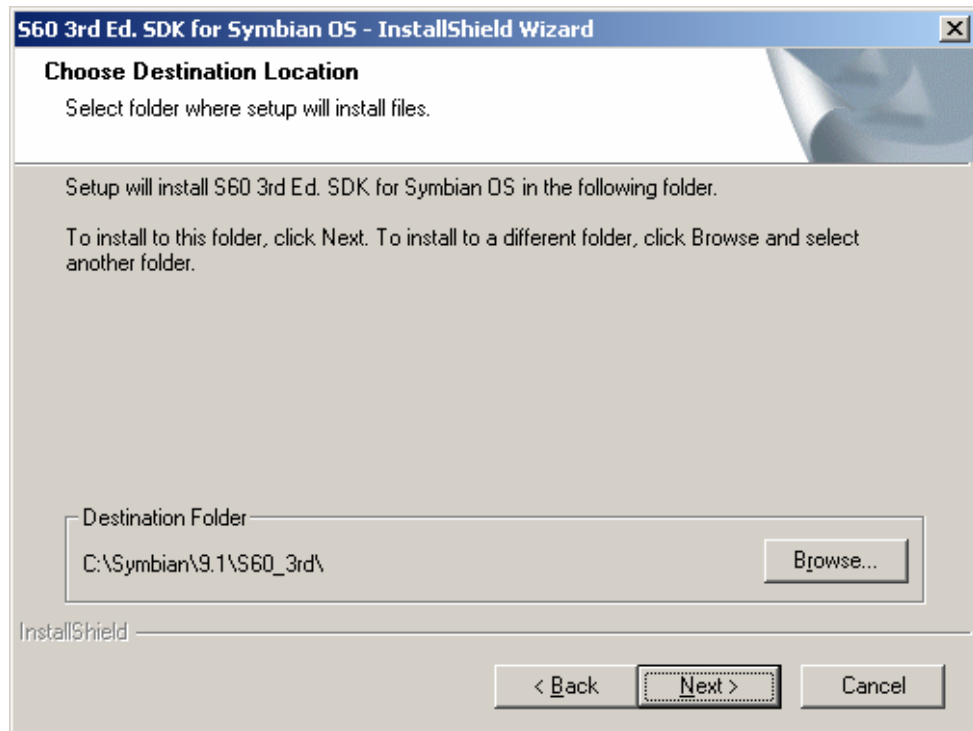


Figure 4: Choose Destination Location

If you do not want to install the SDK to the proposed default directory (C:\Symbian\9.1\S60_3rd\) you can browse the installation directory by clicking the **Browse** button. The installation directory should not contain spaces.

5. Click **Next** to continue.

The **Start Copying Files** dialog is displayed:

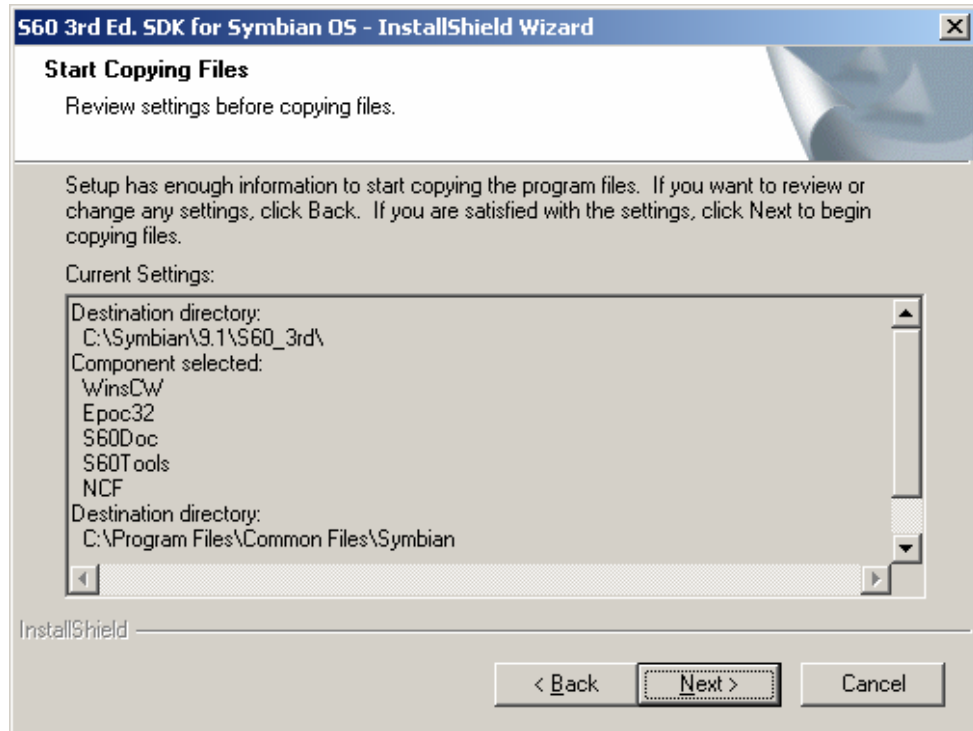


Figure 5: Start Copying Files

6. Check the installation settings in the **Start Copying Files** dialog. Accept them by clicking **Next**. (If you want to modify them, click **Back** and modify the settings as needed.)

The InstallShield Wizard starts installing the SDK.

The **Setup Status** dialog displays the installation status:

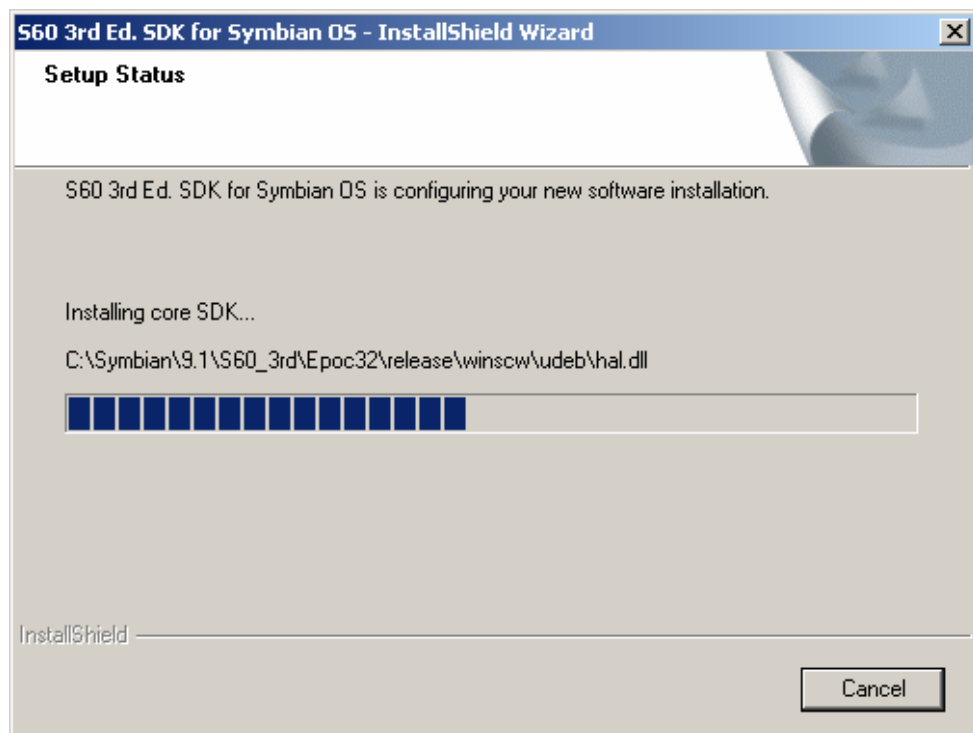
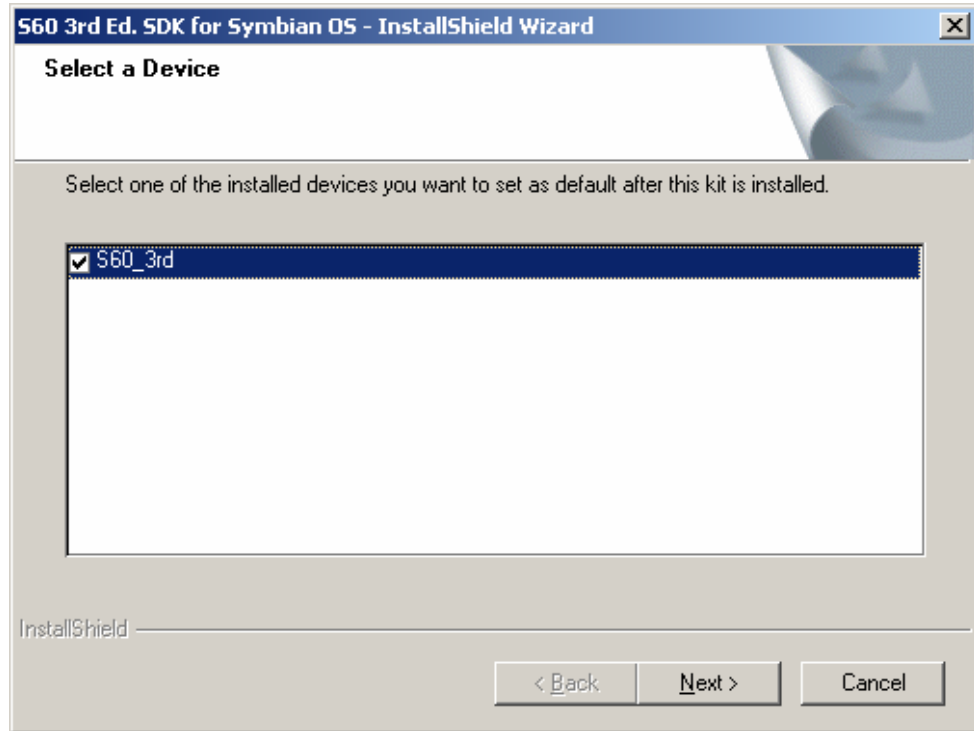


Figure 6: Setup Status

7. If you already have other SDKs installed on your PC, the InstallShield Wizard will prompt you to select one of them as the default SDK. Select the appropriate SDK in the following dialog and click **Next**.

**Figure 7: Select a Device**

8. To complete the installation, click **Finish** in the following dialog that appears:

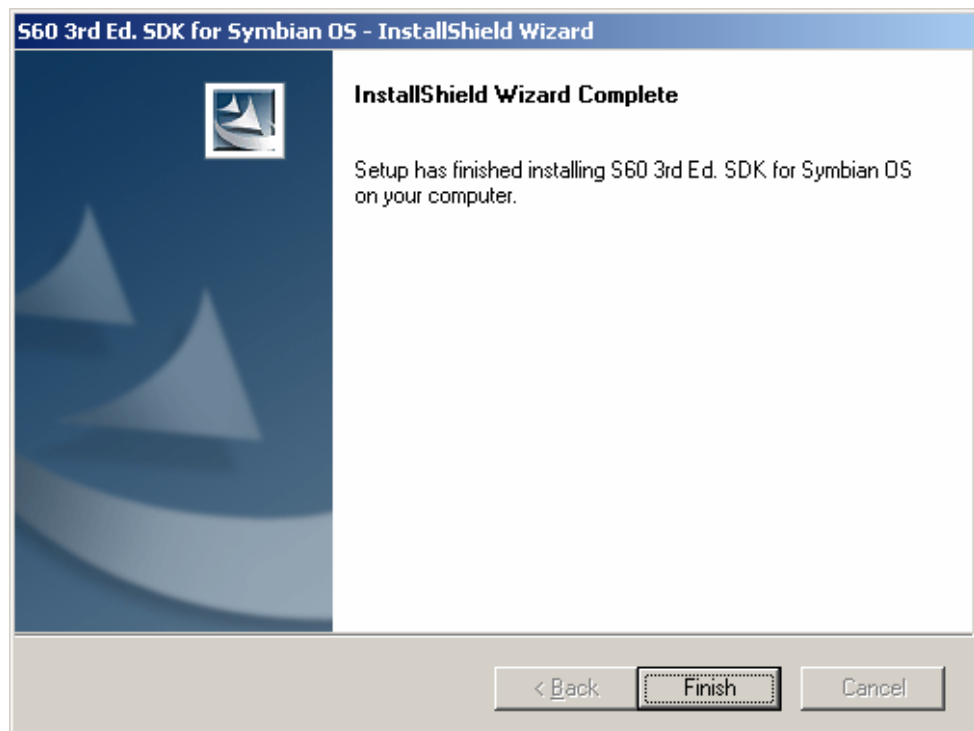


Figure 8: Installation complete

You need to restart your computer before you can use the SDK. Use the radio buttons in the dialog to select whether you want to restart your computer now or later.

Once your computer has been restarted, the SDK is fully installed. You can verify this through the Windows **Start** menu by, for example, opening the SDK Help by selecting **Start > Programs > S60 Developer Tools > 3rd Edition SDK > SDK Help**.

More detailed instructions on how to verify the SDK installation that you have just performed are provided in Section 4.4, “Verifying SDK Installation.”

4.3 Running the SDK Installer – Custom Installation

While the typical installation described above installs the SDK with all basic features, you may want to perform a custom installation if you want to:

- o use Multiple Emulator Support in your application development
- o choose which SDK features to include in or leave out of your SDK installation.

This section describes the needed steps for a custom installation and describes the various optional SDK features that you can select for inclusion or leave out of your SDK installation.

1. Perform steps 1 to 3 of the typical installation, as described in Section 4.2, “Running the SDK Installer – Typical Installation” above. The **Setup Type** dialog is displayed:

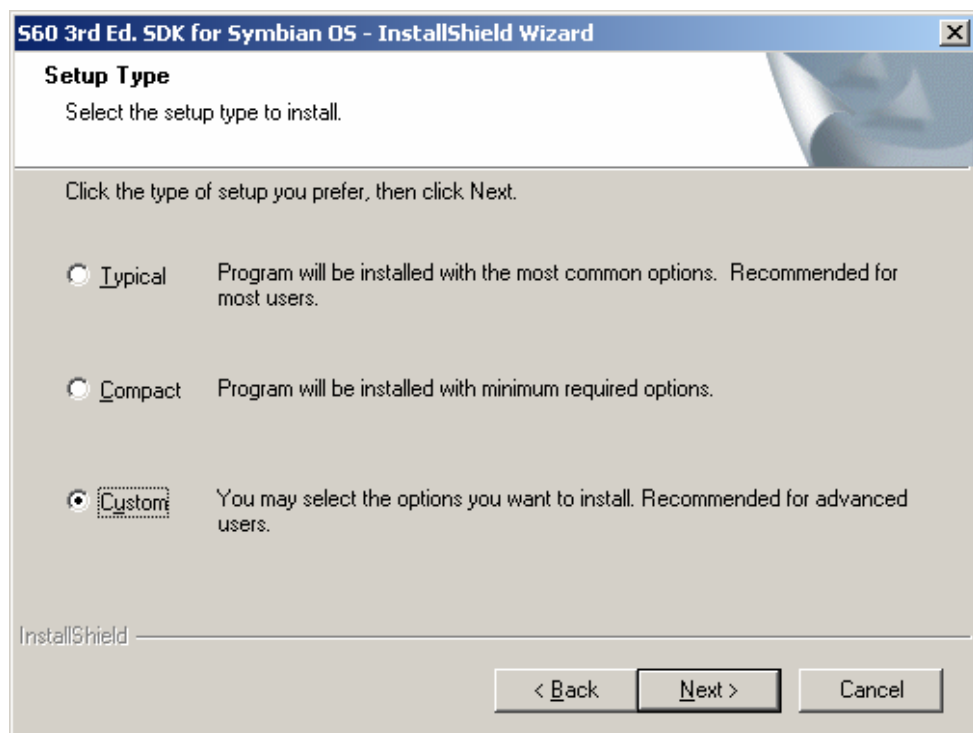


Figure 9: Setup Type

2. In the **Setup Type** dialog which appears, select **Custom** as the setup type and click **Next** to continue. The **Select Features** dialog is displayed:

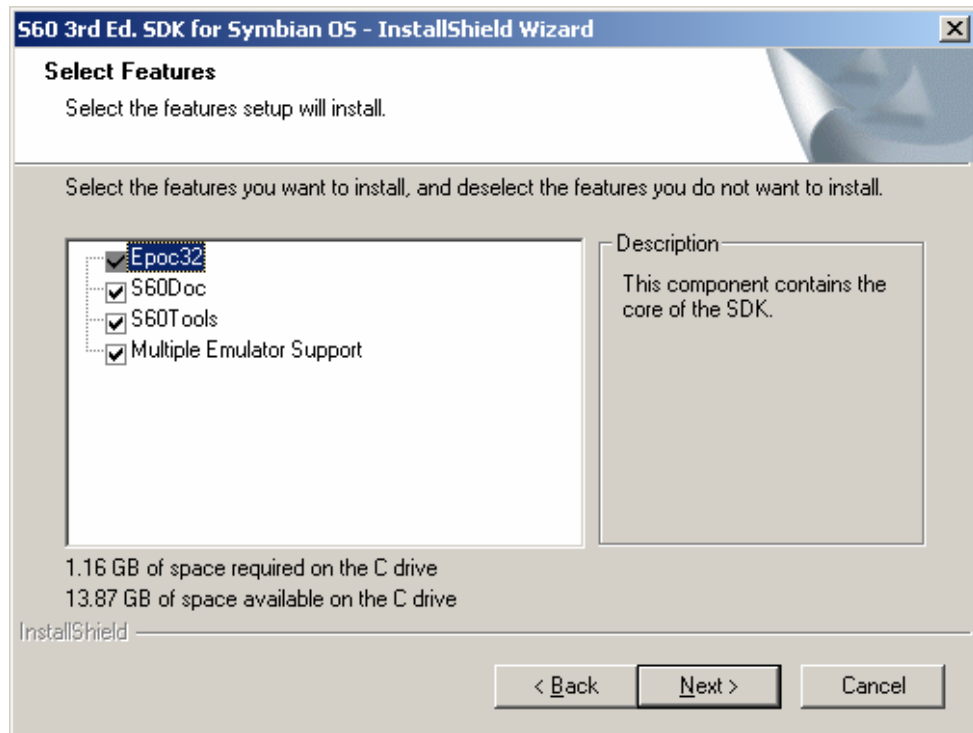


Figure 10: Select Features

You can select various features to be included in or left out of your SDK installation in this dialog by clicking the appropriate check boxes with your mouse. The optional features are:

- Epoc32 – This component contains the core of the SDK.
 - S60Doc - This component contains the S60 SDK documentation (including the Symbian Developer Library).
 - S60Tools - This component contains various S60 SDK specific tools.
 - Multiple Emulator Support - This component installs a second run-time instance of the S60 emulator
3. Once you have select the features you want to include in you SDK installation, click **Next** and perform steps 4 to 8 of the typical installation, as described in Section 4.2, “Running the SDK Installer – Typical Installation” above.

Once your computer has been restarted, the SDK is fully installed with the features you selected in the **Select Features** dialog. You can verify this through the Windows **Start** menu by, for example, opening the SDK Help by selecting **Start > Programs > S60 Developer Tools > 3rd Edition SDK > SDK Help**.

More detailed instructions on how to verify the SDK installation that you have just performed are provided in Section 4.4, “Verifying SDK Installation.”

4.4 Verifying SDK Installation

Once you have installed the SDK and example applications, you can verify that your environment is properly configured.



Note: To be able to verify the installation according to the instructions provided here, you will need to have access to the *Hello World Basic* example application. Example application are delivered with the SDK and installed by default to <S60 SDK installation directory>\S60Ex\

4.4.1 Verifying command line tools

To check that SDK command line tools function correctly, you can go through the following sequence:

1. Open the Command Prompt.
2. Set the S60 3rd Edition SDK for Symbian OS for C++ as the default device with the `devices` command:


```
devices -setdefault @S60_3rd:com.nokia.S60
```
3. Go to the directory that contains the *Hello World Basic* example application. In a default installation it can be located with the `cd` command:


```
cd C:\Symbian\9.1\S60_3rd\S60Ex\helloworldbasic
```
4. Use the `cd` command to go to the `group` directory:


```
cd group
```

The `group` directory contains the `bld.inf` and `helloworldbasic.mmp` files.
5. Enter the `bldmake bldfiles` command. This generates the necessary build directories.
6. Enter the `abld build` command.

The build script starts the `make` command that will both compile and link the application for the emulator.
7. If your environment has been set up correctly, the build goes through without errors and you can run the *Hello World Basic* application in the emulator by issuing the `epoc` command. (Notice that it may take a while for the emulator to open.)

The emulator starts and displays the application grid. To verify that the *Hello World Basic* application has been properly compiled and can be run on the emulator, do the following:

- Use the five-way navigation key of the emulator to navigate to the **Installed** folder in the emulator's application grid.
- Open the **Installed** folder by clicking the center of the five-way navigation key.
- Once the **Installed** folder has been opened, use the five-way navigation key to locate the **Hello World Basic** application icon.
- Open the *Hello World Basic* application by clicking the left soft key under **Options** and by selecting **Open** from the list of menu options that are displayed.

Locating and opening the *Hello World Basic* application in the emulator's application grid means that the application has been compiled and can be

run on the emulator. In other words, the command line tools of your SDK installation are OK.

4.4.2 Verifying IDE Configuration

To check that the SDK functions correctly with an IDE, you can go through the following sequence (the IDE used in this example is CodeWarrior).

1. Start the CodeWarrior IDE.
2. Select **File > Import Project from .mmp file** from the main menu bar.
A dialog opens displaying all SDKs installed on your computer.
3. Select `s60_3rd` from the list and click **Next** to proceed.
The **MMP File Selection** dialog opens.
4. Locate the `.mmp` file for the *Hello World Basic* example application by opening a file selection dialog by clicking the **Browse** button.
5. Once you have selected the `helloworldbasic.mmp` file click **Finish** to import the project to the CodeWarrior IDE.
CodeWarrior IDE opens the project.
6. Build the project for the emulator by selecting **Project > Make** in the CodeWarrior IDE main menu bar or by pressing the **F7** key.
7. Run the *Hello World Basic* application in the emulator by selecting **Project > Run** in the CodeWarrior IDE main menu bar or by pressing the **CTRL** and **F5** keys.

To verify that the *Hello World Basic* application has been properly compiled and can be run on the emulator, please refer to step 8 in the previous Section, 4.4.1, "Verifying command line tools."

Locating and opening the *Hello World Basic* application in the emulator's application grid means that the application has been compiled and can be run on the emulator. In other words, the IDE configuration of your SDK installation is OK.

4.5 Configuring the Emulator

Once the SDK has been installed, you need to configure Bluetooth, IrDA and Ethernet for the emulator. For detailed instructions on how to do this, please refer to the **Emulator Guide** in the SDK Help. The SDK Help can be opened through the Windows Start menu by choosing **Start > Programs > S60 Developer Tools > 3rd Edition SDK > SDK Help**.

5. Uninstalling the S60 SDK

To uninstall the SDK, do the following:

1. In the Windows **Start** menu, go to **Start > Settings > Control Panel**.
2. In the Control Panel double click the **Add/Remove Programs** icon.
3. In the **Add/Remove Programs** window, click the S60 SDK program in the list of currently installed programs.
4. With the S60 SDK program selected, click **Change/Remove**. The **InstallShield** window opens.
5. In the **InstallShield** window, click the **Remove** radio button and click **Next**.
6. When prompted to confirm that you really want to uninstall the SDK, click **Yes**.
7. Once the SDK has been removed from your PC, InstallShield informs you of this: Click **Finish** to exit the InstallShield application.



Note: Always uninstall the SDK through the **Add/Remove Programs** application, as described above. Do not attempt to uninstall the SDK manually in, for example, the Windows Explorer.

However, if you have used the emulator prior to uninstalling the SDK there may remain some SDK-related files and folders in the `C:\Symbian\9.1\S60_3rd\` directory even after removing the SDK through the **Add/Remove Programs** application. These files and folders need to be removed manually by, for example, deleting them in the Windows Explorer.

6. Multiple SDKs on the Same Computer

Since Symbian OS 7.0s all S60 SDKs have supported the devices mechanism to handle multiple SDK installations on same computer. The `devices` command replaced the `EPOCROOT` environment variable used by SDKs based on Symbian OS 6.0 and 6.1.

6.1 Devices Basics

The `devices` command is used to change between different SDKs tool chains. All SDK commands, such as `bldmake` `bldfiles` use the devices mechanism to query location of include files, link libraries and required SDK tools. To get a list of installed SDKs, or "devices", enter the following command in the command prompt:

```
C:\>devices
```

A list of installed SDKs is displayed, for example:

```
S60_2nd_FP2_CW:com.nokia.series60
S60_2nd_FP3_CW:com.nokia.series60 - default
S60_3rd:com.nokia.S60
```

The default device is indicated with `- default`. In the above case the default device is `S60_2nd_FP3_CW:com.nokia.series60`. This device is the one that is used when you call Symbian OS SDK commands such as `epoc`. To switch between devices, use the `- setdefault` option of the `devices` command:

```
C:\ devices -setdefault @S60_3rd:com.nokia.S60
```

Notice, that `@` is part of the command.

You can verify that the default device has been changed by listing all devices with the `devices` command:

```
C:\>devices
```

The list of installed SDKs is displayed with the new default device:

```
S60_2nd_FP2_CW:com.nokia.series60
S60_2nd_FP3_CW:com.nokia.series60
S60_3rd:com.nokia.S60 - default
```

To view information about any of the installed SDK devices, the `devices -info` option can be used:

```
C:\>devices -info @S60_3rd:com.nokia.S60
Device: S60_3rd:com.nokia.S60
Root is C:\Symbian\9.1\S60_3rd\
Tools path is C:\Symbian\9.1\S60_3rd\S60Tools
```

This information is utilized by Symbian commands. When, for example, the `epoc` command is executed, a stub command is launched at `C:\Program Files\Common Files\Symbian\tools`. The command uses the path information stored by the `devices` command to launch the actual emulator at `<Tools_path>\Epoc32\release\wins\udeb\epoc.exe`.



Note: When building a software project with multiple SDKs, please note the following. After you have changed the device, remember to regenerate your IDE project and/or makefiles by using the `bldmake bldfiles` and `makmake project.mmp <type>` commands. See documentation for `makmake` and `abld makefile` in the **SDK Help > Symbian Developer Library** for more information.

If you wish to use Symbian OS 6.1 based SDKs, you may manually add it to devices using the `-add` command line option. See devices command documentation for details. Note that SDKs based on Symbian OS 6.0 are not fully compatible with devices as both the GCC target compiler and resource compiler implementation have changed since Symbian OS version 6.0.

7. Further Information

Once you have installed the SDK, you can find information on how to use the SDK from the SDK Help. You can open the SDK Help from the Windows **Start** menu by selecting **Start > Programs > S60 Developer Tools > 3rd Edition SDK > SDK Help**.

For late-breaking information, please refer to the **Release Notes**, which you can open directly from the Installation Package (*ReleaseNotes.txt*)