Conduit Development Utilities Guide

Palm OS® Conduit Development Kit for Windows, Version 6.0.1

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Conduit Development Utilities Guide
Document Number 3028-005
May 14, 2004
For the latest version of this document, visit
http://www.palmos.com/dev/support/docs/.

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About This Document

The Palm OS® Conduit Development Kit (CDK) for Windows from PalmSource, Inc. provides everything software developers need to create conduits for Windows. Key to the success of the Palm OS platform, conduits are software objects that exchange and synchronize data between an application running on a desktop computer and a Palm Powered™ handheld.

The *Conduit Development Utilities Guide* describes the CDK utilities that help developers create and debug conduits.

The sections in this introduction are:

Related Documentation

The latest versions of the documents described in this section can be found at

http://www.palmos.com/dev/support/docs/

The following documents are part of the CDK:

Document	Description
Introduction to Conduit Development	An introduction to conduits on the Windows platform. It describes how they relate to other aspects of the Palm OS platform, how they communicate with the HotSync® Manager, and how to choose an approach to conduit development. Recommended reading for developers new to conduits.
C/C++ Sync Suite Companion	An overview of how C API-based conduits operate and how to develop them with the C/C++ Sync Suite.
C/C++ Sync Suite Reference	A C API reference that contains descriptions of all conduit function calls and important data structures used to develop conduits with the C/C++ Sync Suite.
COM Sync Suite Companion	An overview of how COM-based conduits operate and how to develop them with the COM Sync Suite.
COM Sync Suite Reference	A reference for the COM Sync Suite object hierarchy, detailing each object, method, and property.
Conduit Development Utilities Guide	A guide to the CDK utilities that help developers create and debug conduits for Windows.

What this Document Contains

This section provides an overview of the chapters in this document:

- Chapter 1, "Introduction." Summarizes the utilities available in the CDK.
- Chapter 2, "Conduit Wizard." Describes the options available in the Conduit Wizard.
- Chapter 3, "Conduit Configuration Utility." Describes how this developer-only utility enables you to register your conduit with HotSync Manager, edit or delete conduit information, and modify some HotSync Manager settings.
- Chapter 4, "HotSync Manager." Summarizes the versions of HotSync Manager provided in the CDK.
- Chapter 5, "Install Tool Utility." Summarizes the versions of the Install Tool provided in the CDK.
- Chapter 6, "Conduit Inspector Utility." Describes how Conduit Inspector logs status information from HotSync Manager in real time.
- Chapter 7, "User Info Utility." Describes how to add, delete, and modify desktop user information.
- Chapter 8, "Synchronizing with Palm OS Simulator." Describes how to use Simulator to synchronize with HotSync Manager on the desktop computer.
- Appendix A, "Debugging Tips." Offers useful tips about Palm Powered™ handhelds and conduits that can help you while debugging your conduit.

Changes to This Document

This section describes significant changes made in each version of this document, starting with 3028-003 for CDK 6.0.

Document 3028-005 for CDK 6.0.1

Updated the description for manually installing the Conduit Wizard for VC .NET 2003 in "Installing the Conduit Wizard" on page 4.

Document 3028-004 for CDK 6.0

No significant changes since the previous document version.

Document 3028-003 for CDK 6.0

This version of *Conduit Development Utilities Guide* includes the following changes:

- Deleted the chapter describing the ConduitSwitch utility, which is no longer provided in the CDK.
- Deleted the chapter describing how to perform a HotSync operation with Palm OS Emulator. If you need this information, refer to the Knowledge Base or to the documents in CDK version 4.03.
- Updated Chapter 2, "Conduit Wizard," on page 3 to reflect changes in the Conduit Wizard that ships in CDK version 6.0.
- Updated Chapter 3, "Conduit Configuration Utility," on page 11 to reflect changes in the Conduit Configuration utility that ships in CDK version 6.0.
- Updated Chapter 8, "Synchronizing with Palm OS Simulator," on page 49 to reflect changes in Simulator for Palm OS Cobalt.

Additional Resources

- Documentation

  PalmSource publishes its latest versions of this and other documents for Palm OS developers at

  http://www.palmos.com/dev/support/docs/

- Training

  PalmSource and its partners host training classes for Palm OS developers. For topics and schedules, check

  http://www.palmos.com/dev/training

- Knowledge Base

  The Knowledge Base is a fast, web-based database of technical information. Search for frequently asked questions (FAQs), sample code, white papers, and the development documentation at

  http://www.palmos.com/dev/support/kb/

- CDK Feedback

  Use this email address to provide feedback on the CDK: features you would like to see, bug reports, errors in documentation, and requests for Knowledge Base articles.

  cdk-feedback@palmsource.com

Conventions Used in this Document

This guide uses the following typographical conventions:

This style...	Is used for...
`sample`	Literal text such as filenames, commands, code elements such as functions, structures, and so on.
sample	Emphasis or to indicate a variable.
sample	Definition or first usage of a term, menu and menu item names, user-supplied text, window names in UI descriptions.
sample	Hypertext links.

1

Introduction

The Palm OS® Conduit Development Kit (CDK) for Windows includes several indispensable utilities to help developers create and debug conduits for Windows. All but one of these are available regardless of which sync suite you are developing with (the Conduit Wizard is available only in the C/C++ Sync Suite). Table 1.1 summarizes the utilities in the CDK.

Table 1.1 Conduit development utilities

Utility	Path[1]	Comments
Conduit Wizard	Automatically installed in Microsoft Visual Studio .NET, if present.	A Visual Studio .NET wizard that you use to quickly create project and source code files for a functional conduit (for the C/C++ Sync Suite only).
Conduit Configuration Utility	`Bin\CondCfg.exe`	A developer-only application that allows you to register your conduit or notifier with HotSync® Manager and to edit or delete conduit registration information.
HotSync Manager	`Bin\HotSync.exe`	A user application that manages synchronization of data between the handheld and the desktop. CDK versions 6.0 and later include the same version of HotSync Manager that ships in the Palm OS® Desktop software with the same version number.
Install Tool Utility	`Bin\InstApp.exe`	User application that installs Palm OS applications and data on a handheld. The CDK includes Install Tool, which always ships with HotSync Manager.

Table 1.1 Conduit development utilities *(continued)*

Utility	Path[1]	Comments
Conduit Inspector Utility	`Bin\ConduitInspector.exe`	A developer-only application that logs detailed status information from HotSync Manager in real time to help you debug your conduit.
User Info Utility	`Bin\UserInfo.exe`	A developer-only application that adds, deletes, and modifies desktop user information.

1. All utilities are under `<CDK>\Common\Bin`.

Though Palm OS® Simulator is not included with the CDK, Chapter 8, "Synchronizing with Palm OS Simulator," on page 49 describes how to get and how to use this tool to perform HotSync operations instead of using a real handheld.

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Conduit Wizard

The Conduit Wizard enables you to quickly create a C API-based conduit project for Visual C++ .NET. You can then customize the conduit to handle the specifics of your data. The CDK installer automatically installs the Conduit Wizard if you select to install the C/C++ Sync Suite and if Visual Studio .NET (hereafter referred to as VC) is present.

The following topics are described below:

Installing the Conduit Wizard

If you install VC .NET *before* you install the CDK, then the Conduit Wizard is installed automatically along with the rest of the CDK. However, if you install VC .NET *after* the CDK, then you must manually install the Conduit Wizard:

1. Locate the `<CDK>\C++\Win\Samples` folder.

   The CDK installer puts a version of the Conduit Wizard in this folder depending on which version of VC .NET is *not* installed, so that you can manually install it later. (Remember that the installer automatically installs the Conduit Wizard for the version of VC .NET that you do have installed; it puts in the `Samples` folder only the version of the Conduit Wizard that it did not install.)

   The `MSVC.NET 7.0 Wizard` subfolder contains the Conduit Wizard for VC .NET *2002*.

   The `MSVC.NET 7.1 Wizard` subfolder contains the Conduit Wizard for VC .NET *2003*.

2. From the appropriate Conduit Wizard folder described in the previous step, copy the `VCProjects` and `VCWizards` subfolders to the following location:

   For VC .NET 2002:
   `<drive>:\Program Files\Microsoft Visual Studio .NET\Vc7\.`

   For VC .NET 2003:
   `<drive>:\Program Files\Microsoft Visual Studio .NET 2003\Vc7\.`

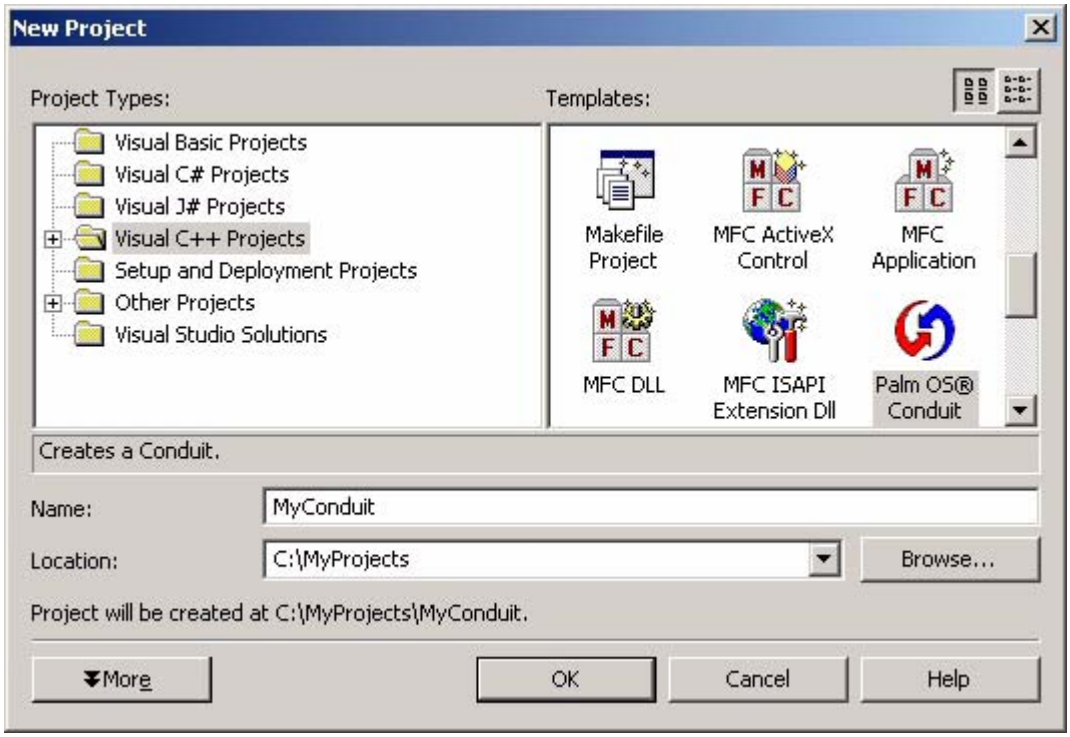
3. Restart VC.

Starting the Conduit Wizard

To access the Conduit Wizard, follow these steps:

1. Start VC and click **File** > **New** > **Project**.
2. Under **Project Types**, click the **Visual C++ Projects** folder to display all the installed C++ project wizards as shown in Figure 2.1.

Figure 2.1 Starting the Conduit Wizard

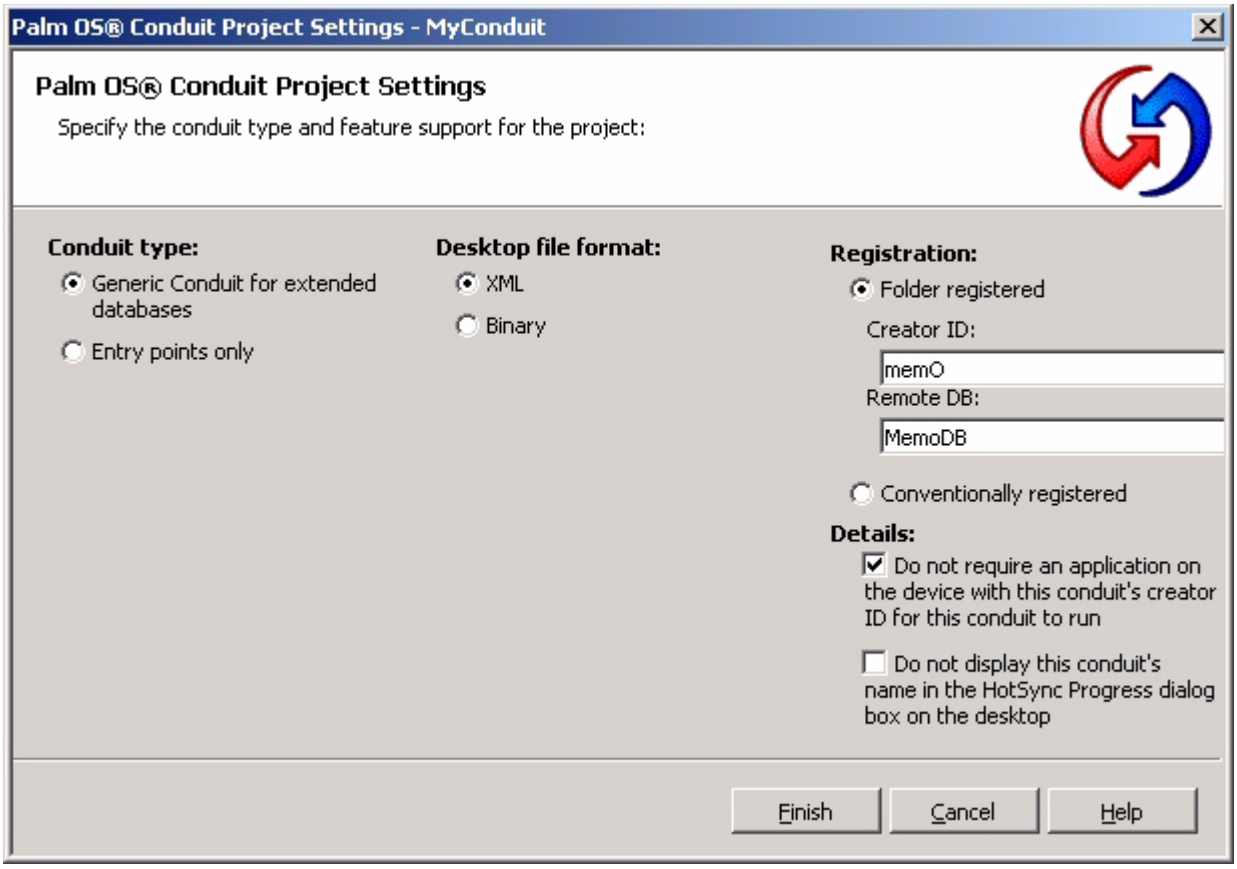


3. Under **Templates**, click **Palm OS® Conduit**.
4. Enter a name and location for your project and click **OK**.

IMPORTANT: Choose your project name carefully, because the Conduit Wizard uses it in filenames and object names. If your project name does not follow the rules for C identifiers, then your project might not compile.

You are then presented with choices to make for the design of your conduit (Figure 2.2). Each choice is described below.

Figure 2.2 Conduit Wizard choices



Choosing the Conduit Code Type

Under **Conduit type**, select the type of conduit source code you want the wizard to generate:

GenericConduit for extended databases	Generates project files and source code based on the C++ Generic Conduit Framework for**extended database**s. The wizard automatically generates the appropriate subclasses, whose names begin with your project name.
Entry points only	Generates project files and source code for only the conduit entry points, which includes no synchronization logic. For more on the conduit entry points, see Chapter 3, "Implementing Conduit Entry Points," on page 17 in the *C/C++ Sync Suite Companion*.

Choosing the Desktop File Format

Under **Desktop file format**, select the format of the desktop file with which your conduit synchronizes. These options are available only if the **Conduit type** is set to **Generic Conduit for extended databases**:

XML	An XML file that is structured to represent any extended database. Use any text or XML editor to easily make and view modifications to this file, without having to develop your own desktop file format and application first. **NOTE:** When you make changes to data in the XML file, be sure to set the "Modified" flag.
Binary	A file created using the Generic Conduit's serialization code.

Choosing the Registration Method

Under **Registration**, select one of the following ways to register your conduit with HotSync Manager:

Folder registered	Specifies that your conduit is registered with HotSync Manager simply by placing your conduit DLL in the `Conduits` folder at install time. You can also specify your conduit's creator ID and the name of the handheld database it synchronizes. These are the values that your conduit passes back to HotSync Manager via the *`pOut`* parameter when it calls your conduit's `GetConduitInfo()` entry point and passes in *`infoType`* = `eRegistrationInfo` at run time. **NOTE:** The Conduit Wizard sets your project's output folder to the system `Conduits` folder. Because your conduit is folder-registered, all you need to do is build it and perform a HotSync operation.
Conventionally registered	Specifies that your conduit will be registered by calling the Conduit Manager API at install time. Your conduit will not provide registration information to HotSync Manager at run time.

Choosing Details

Under **Details**, select one or both of the following options for your conduit's behavior at run time:

Do not require an application on the device with this conduit's creator ID for this conduit to run	HotSync Manager versions earlier than 6.0 run a conduit only if an application with the same creator ID is on the handheld. Choosing this option allows HotSync Manager 6.0 or later to run your conduit regardless. Your conduit passes back 1 when HotSync Manager calls your conduit's `GetConduitInfo()` entry point and passes in *`infoType`* = `eRunAlways`.
Do not display this conduit's name in the HotSync Progress dialog box on the desktop	HotSync Manager versions earlier than 6.0 always display your conduit's name in the **HotSync Progress** dialog box while it is running. Choosing this option informs HotSync Manager 6.0 or later not to display your conduit's name; instead it displays only "Synchronizing." Your conduit passes back 1 when HotSync Manager calls your conduit's `GetConduitInfo()` entry point and passes in *`infoType`* = `eDoNotDisplayInConduitListForUser`.

Generating Your Conduit

When you are satisfied with your choices, click **Finish**. The Conduit Wizard generates your conduit project and source code files. When complete, your new project opens in VC, ready for you to build or to modify.

See Also Chapter 6, "Registering Conduits and Notifiers with HotSync Manager," on page 73,
"Using the Conduit Manager API" on page 104

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Conduit Configuration Utility

This chapter describes how to register a conduit on a PC using the Conduit Configuration (CondCfg) utility. The sections in this chapter are:

NOTE: If your C API-based conduit is folder-registered, you do not need to use CondCfg to register your conduit. CondCfg is used for **conventionally registered conduit**s. For more on conduit registration, see "Registering Conduits and Notifiers with HotSync Manager" on page 73 in the *Introduction to Conduit Development*.

About the Conduit Configuration Utility

Information used by HotSync® Manager to recognize conventionally registered conduits and notifiers is stored on the desktop in a list of **configuration entries**. To modify a conduit's configuration entries programmatically, use the Conduit Manager API as described in "Using the Conduit Manager API" on page 104 of the *C/C++ Sync Suite Companion*. But during conduit development, it is more convenient to use the Conduit Configuration utility.

IMPORTANT: The Conduit Configuration utility is a tool intended for use by developers only; it is not meant for end users to use to install your conduit. CondCfg makes changes to HotSync Manager settings and conduit configuration entries, so you can cause strange behavior on your system if you use it indiscriminately. Do not use this tool unless you are confident that you know what you're doing.

The Conduit Configuration utility allows you to define new conduit entries, to edit existing conduit entries, and to delete conduit information in the conduit configuration entries. You can also do the same for notifiers.

To use the Conduit Configuration utility, run the executable file named `CondCfg.exe`. This program is installed on your hard drive by the CDK installer. The `CondMgr.dll` library that ships with `CondCfg.exe` must be found in the same directory for the utility to work. Do not mix these files with those shipped in different versions of HotSync Manager.

The opening view of the Conduit Configuration utility displays tabs for **User Conduits**, **System Conduits**, **User Notifiers**, and **System Notifiers** (Figure 3.1 on page 13). The buttons along the bottom of the window perform these tasks for each tab:

Add: Registers a new conduit or notifier with HotSync Manager.

Delete: Unregisters an existing conduit or notifier. This does not delete the conduit file, though, only the registration information in the conduit configuration entries.

Details: Displays the **Conduit Information** or **Notifier Settings** dialog box or from which you can view and edit the registration information for the selected conduit or notifier.

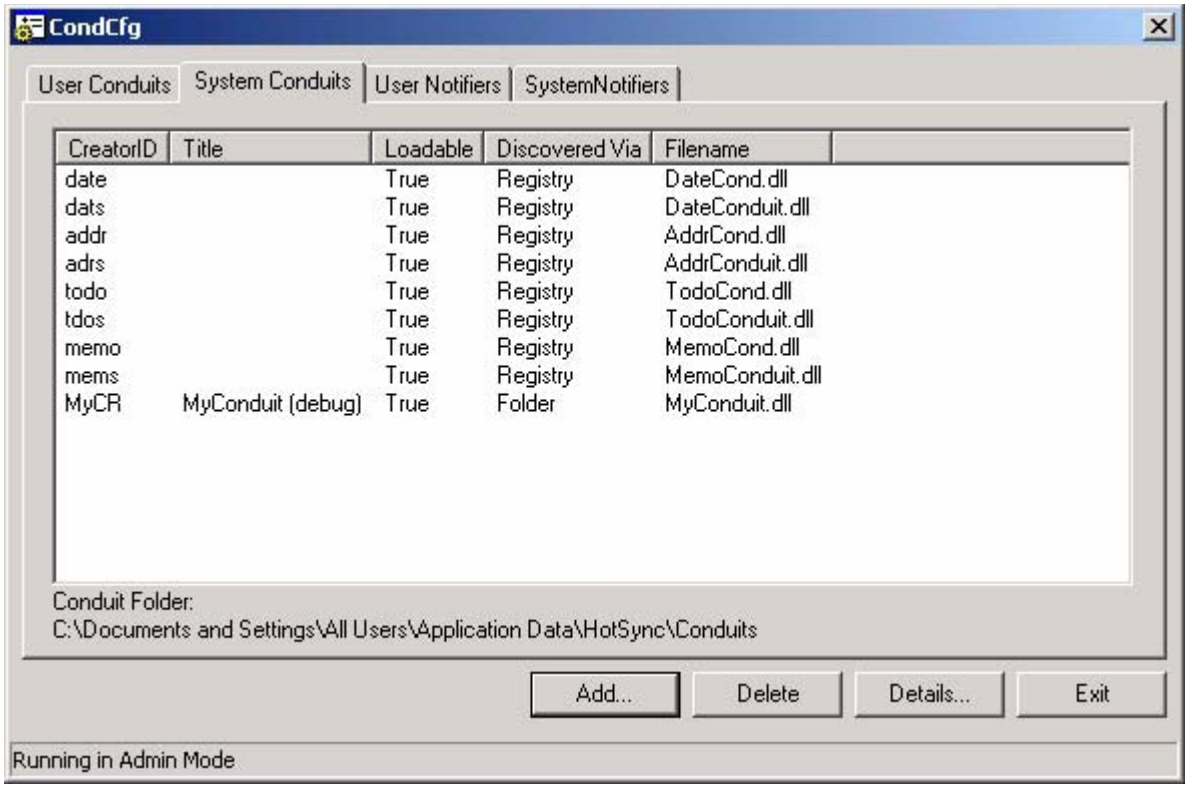
Exit: Quits the Conduit Configuration utility.

For a discussion of user versus system conduits, see "User- and System-registered Conduits and Notifiers" on page 78 in the *Introduction to Conduit Development*.

Registering and Editing Conduit Information

The **User Conduits** and **System Conduits** tabs list the conduits that are registered for the current Windows user and for the system, respectively. Figure 3.1 shows the **System Conduits** tab, which provides the information described below.

Figure 3.1 Conduit Configuration utility, conduit list



Creator ID: The **creator ID** of the conduit. This is the registration key, for which HotSync Manager does not allow more than one user or system conduit to register. For conventionally registered conduits, this value is stored in the `Creator` configuration entry.

Title: The display name of the conduit, which is stored in the `Name` configuration entry.

Loadable: Indicates whether the Conduit Manager can locate and load the conduit. If this value is "False", HotSync Manager

cannot load the conduit. See "When Your Conduit Doesn't Appear in the Custom Dialog Box" on page 87 in the *C/C++ Sync Suite Companion* for a list of reasons why a conduit is not loadable.

Discovered Via: Indicates whether the conduit is a **conventionally registered conduit** (Registry) or a **folder-registered conduit** (Folder). You cannot use the Conduit Configuration utility to change a folder-registered conduit.

Filename: The full path or just the filename of the conduit DLL, which is stored in the `Conduit` configuration entry. If this is only a filename, the file must be in the HotSync Manager executable directory or in the current user's `PATH`. The filename is always `COMConduit.dll` for COM-based conduits.

Viewing and Editing a Conduit's Settings

To view or edit the information for a registered conduit on your computer, select either the **User Conduits** or **System Conduits** tab. In the list of conduits, click the one you want to view or edit and then click **Details**. The **Conduit Information** dialog box displays, as shown in Figure 3.2.

If you modify any of the field values, the **Apply** button becomes available. You must click the **OK** or **Apply** button to write your changes in the conduit configuration entries on your computer. The **OK** button saves changes to any fields you edited, prompts HotSync Manager to reread all conduit configuration entries, and dismisses the **Conduit Information** dialog box. The **Apply** button does the same but does not dismiss the dialog box. The **Cancel** button dismisses the dialog box without doing anything else.

NOTE: You can view information about a folder-registered conduit, but you cannot edit it.

Figure 3.2 Conduit Information dialog box

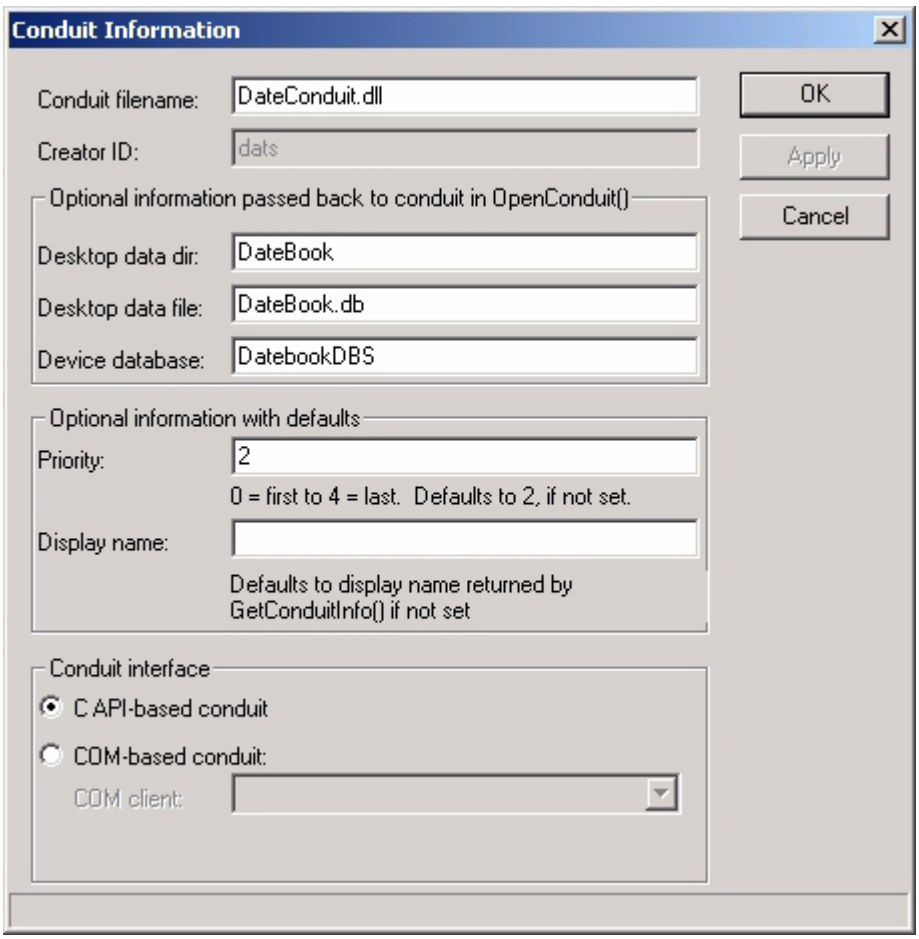


Table 3.1 describes each of the fields in the **Conduit Information** dialog box. You can programmatically access these with the Conduit Manager API. These are described in more detail in Appendix A, "Configuration Entries," on page 175 in the *Introduction to Conduit Development*.

Table 3.1 Conduit Information fields

Field	Config. Entry[1]	Description
Conduit filename	`Conduit`	The full path or just the filename of the conduit DLL. If this is only a filename, the file must be in the HotSync Manager executable directory or in the current user's `PATH`. The filename is always `COMConduit.dll` for COM-based conduits.
Creator ID	`Creator`	The **creator ID** of the conduit. This is the registration key, for which HotSync Manager does not allow more than one user or system conduit to register.
Optional information passed back to conduit in OpenConduit()		
Desktop data dir	`Directory`	The conduit's directory name. This is the name of a subdirectory in the user's directory on the desktop computer (not a fully qualified path). Within each user's directory, each conduit can have a directory for file storage.
Desktop data file	`File`	The name of the desktop file that your conduit synchronizes with the handheld database. Your conduit can synchronize with more than one file, however. Note that this configuration entry can be either a full path and filename, or only a filename. If the value is only a filename, the file can be found in the directory specified by the `Directory` entry.

Table 3.1 Conduit Information fields *(continued)*

Field	Config. Entry[1]	Description
Device database	`Remote`	The name of a handheld database to be accessed by this conduit. This optional entry can be used by conduits that are not hard-coded with specific database names. This value is passed to the conduit to enable it to open the database on the handheld. A conduit can also use this name to create the database on the handheld if the database did not exist before synchronization.
Optional information with defaults		
Priority	`Priority`	The execution priority for this conduit. This value is in the range 0 to 4. If no value is specified, then HotSync Manager uses a default value of 2. HotSync Manager runs conduits with a value of 0 first and those with 4 last.
Display name	`Name`	The display name of the conduit. HotSync Manager displays this string as the name of the conduit in its user interface—for example, in the **Custom** dialog box. If you do not set this entry, HotSync Manager shows the name that your conduit provides when queried.

Table 3.1 Conduit Information fields *(continued)*

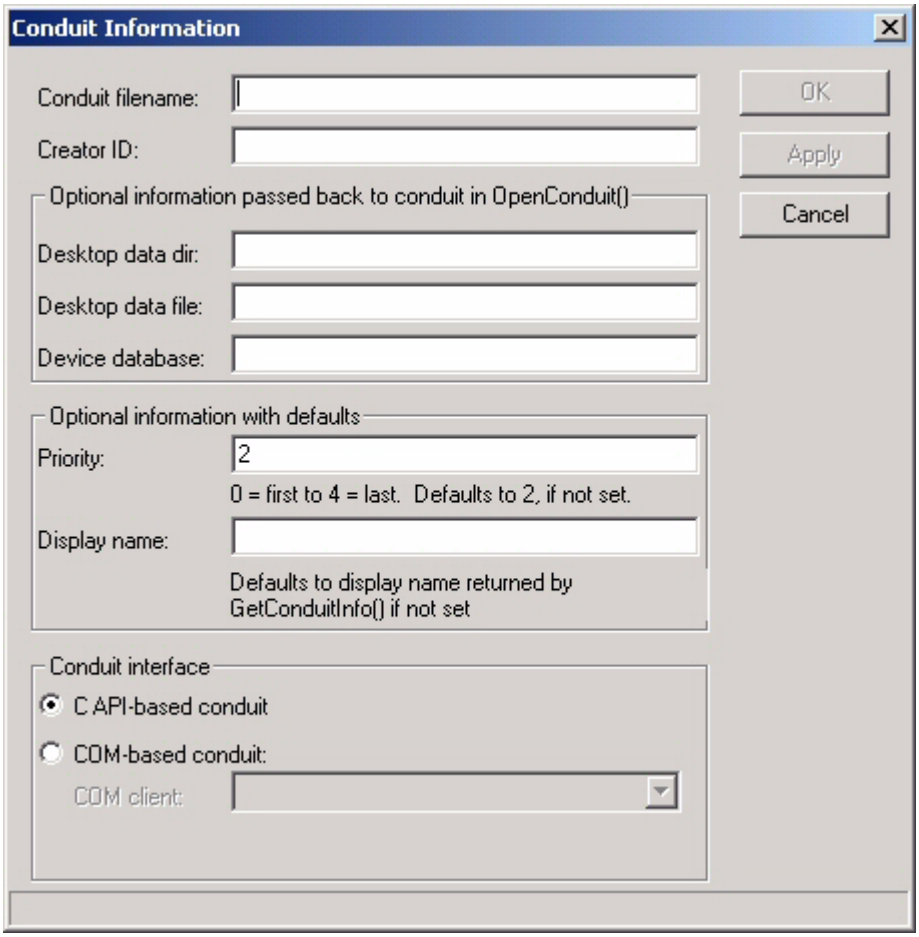
Field	Config. Entry[1]	Description
Conduit interface		
C API-based conduit	—	Specifies that the conduit is a **C API-based conduit**, one developed with the C/C++ Sync Suite.
COM-based conduit **COM Client**	`COMClient`	Specifies that the conduit is a **COM-based conduit**, one developed with the COM Sync Suite. If your conduit is a standard EXE, then **COM Client** is the full path and filename of your client conduit. If you are debugging, then this is the path of your IDE executable—for example, `C:\Program Files\Microsoft Visual Studio .NET 2003\Common7\IDE\devenv.exe`. If your conduit is an ActiveX server, this value is the notification object's ProgID (also called the Programmatic ID)—for example, `SimpleDb.CNotify`.

1. The items in this column link to the conduit configuration entry that is set in this field for a conventionally registered conduit. For a folder-registered conduit, this information is not stored in the configuration entries, but is instead returned by the conduit itself when HotSync Manager queries it.

Registering a New Conduit

To register a new conduit on your computer, select either the **User Conduits** or **System Conduits** tab and click **Add**. The **Conduit Information** dialog box displays, as shown in Figure 3.3. Enter at least the required information (**Conduit filename** and **Creator ID**) and click **OK** or **Apply** to apply your changes to HotSync Manager. See Table 3.1 on page 16 for a description of all the fields.

Figure 3.3 Registering a new conduit



Unregistering a Conduit

To unregister a conduit on your computer, select either the **User Conduits** or **System Conduits** tab, select a conduit, and click **Delete**. The Conduit Configuration utility requests confirmation before it deletes.

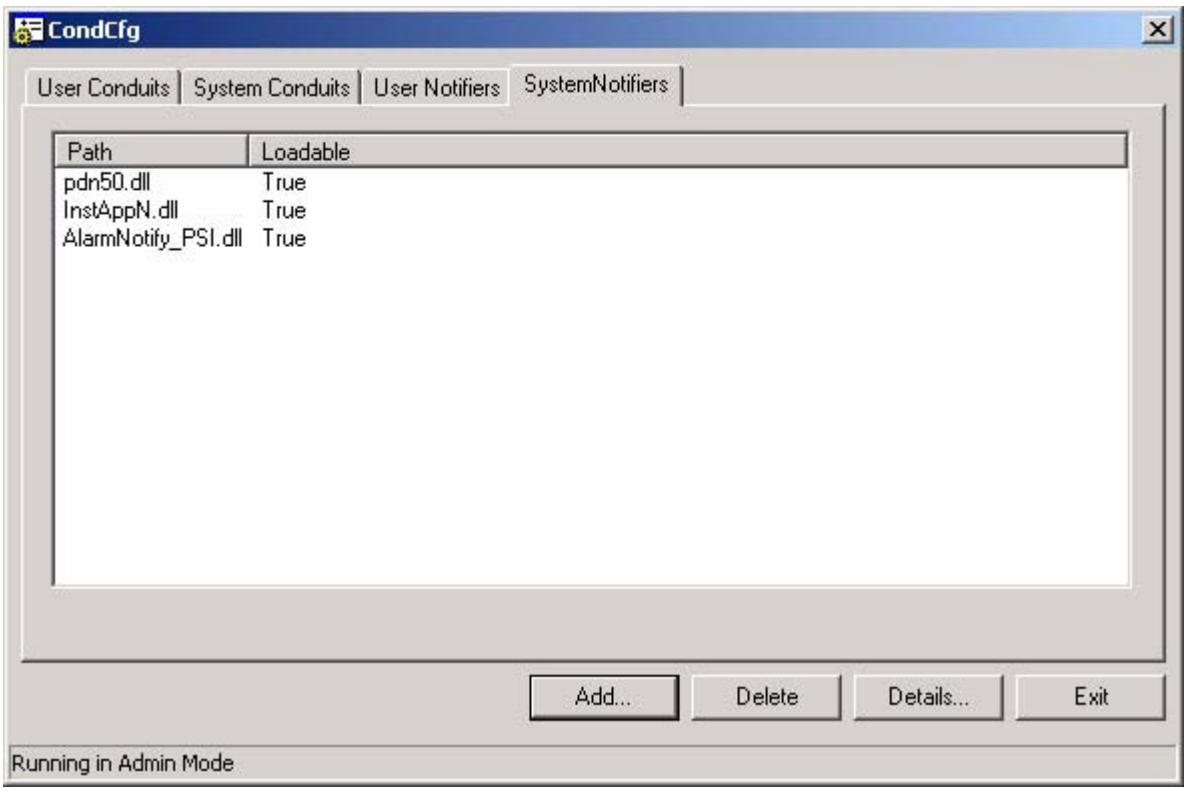
NOTE: When you unregister a conduit, information for the selected conduit is deleted from the configuration entries on your computer, but the conduit DLL is not deleted.

Note that you cannot unregister a folder-based conduit in this manner. Instead, you must remove it from the `Conduits` folder.

Registering and Editing Notifier Information

The **User Notifiers** and **System Notifiers** tabs list the **notifier**s that are registered for the current Windows user and for the system, respectively. Figure 3.4 shows the **System Notifiers** tab, which provides the information described below.

Figure 3.4 Conduit Configuration utility, notifier list



Path: The full path or just the filename of the notifier DLL, which is stored in one of the `HotSync Manager\NotifierN` configuration entries. If this is only a filename, the file must be in the HotSync Manager executable directory or in the current user's `PATH`.

Loadable: Indicates whether the Notifier Install Manager can locate and load the notifier. If this value is "False", it cannot load the notifier. See "When Your Conduit Doesn't Appear in the Custom Dialog Box" on page 87 in the *C/C++ Sync Suite Companion* for a list of reasons why a conduit is not loadable, which are largely the same for a notifier.

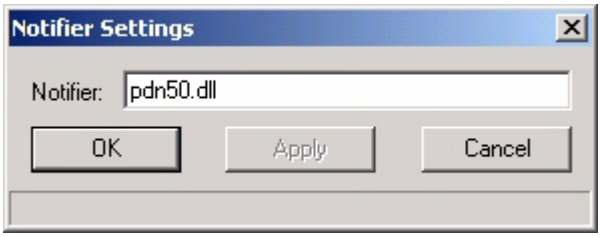
Viewing and Editing Notifier Settings

To view or edit the settings for a registered notifier on your computer, select either the **User Notifiers** or **System Notifiers** tab. In the list of notifiers, click the one you want to view or edit and

then click **Details**. The **Notifier Settings** dialog box displays, as shown in Figure 3.2.

This dialog box shows the only setting available for a notifier, which is the path or filename of the notifier DLL. You can change this value and click **OK** or **Apply** to write your change in the configuration entries on your computer. CondCfg then prompts HotSync Manager to reread all configuration entries, and dismisses the **Notifier Settings** dialog box.

Figure 3.5 Notifier Settings dialog box



Registering a New Notifier

To register a new notifier with HotSync Manager, select either the **User Notifiers** or **System Notifiers** tab and click **Add**. The **Notifier Settings** dialog box displays, as shown in Figure 3.5. Enter a path or filename and **OK** or **Apply** to add it to the configuration entries on your computer.

Unregistering a Notifier

To unregister a notifier on your computer, select either the **User Notifiers** or **System Notifiers** tab and click **Delete**. The Conduit Configuration utility requests confirmation before it deletes.

NOTE: When you unregister a notifier, information for the selected notifier is deleted from the configuration entries on your computer, but the notifier DLL is not deleted.

4

HotSync Manager

The HotSync® Manager application oversees synchronization operations between a handheld and a desktop computer. It is responsible for invoking each conduit registered with it on the desktop computer. For details about the HotSync process, refer to Chapter 7, "Understanding the HotSync Process," on page 85 of the *Introduction to Conduit Development*. To learn about using HotSync Manager, see the end-user documentation that ships with the handheld.

The sections in this chapter are:

Debugging Features in HotSync Manager

HotSync Manager version 6.0 or later ships in both the CDK and the Palm OS® Desktop software with the same version number. CDK version 4.03 shipped with a special developer-only build of HotSync Manager that differed from the end-user build. With HotSync Manager version 6.0 and later, the same build ships in both the CDK and in the Palm OS Desktop software.

HotSync Manager version 6 has the following features that can help you while you are debugging your conduit:

- Built with no Microsoft Foundation Classes (MFC) so that it works with conduits compiled in Release or Debug mode. When you are debugging conduits, you do not need to run a special debug version of HotSync Manager as in earlier versions of the CDK.
- Sends debugging messages to the Conduit Inspector utility described in Chapter 6, "Conduit Inspector Utility," on page 29.

- Resets the HotSync Manager executable path that is stored in the HotSync Manager configuration entries (`Core\HotSyncPath`) to the current working directory. Each time you launch HotSync Manager, it sets this path to that of the executable you launched. This feature helps you easily switch between the HotSync Manager executable in the CDK directory and the one in the Palm OS Desktop directory, if you have both installed.

HotSync Manager and its support DLLs are in `<CDK>\Common\Bin`.

Using Command-line Options for HotSync Manager

You can launch HotSync Manager with a number of command-line options that are useful for debugging your conduits, as described in Table 4.1.

Table 4.1 HotSync Manager command-line options for debugging

Option	HotSync Manager Version	Description
`-c`	3.0 or later	HotSync Manager connects to the handheld, obtains the user name, and then immediately disconnects without synchronizing. You can use this to debug the communications connection.
`-d`	3.0 or later	Overwrites the conduit configuration entries with the default settings for the default conduits. Versions 6.0 and later of HotSync Manager also rebuild configuration entries to be compatible with user- and system-registered conduits. Be aware that rebuilding these settings removes your existing conduit configuration settings and that these new HotSync settings are not compatible with older versions of HotSync Manager.

Table 4.1 HotSync Manager command-line options for debugging *(continued)*

Option	HotSync Manager Version	Description
`-L1`	3.0 or later	Adds additional communications information, including the CPS connection rate. Does not include all of the messages generated by the -v option, so it is often useful to use the two in combination. For example: "`-v -L1`."
`-L2`	3.0 or later	This option includes all of the information generated by the -L1 option and adds a trace of all the communications packets sent between the desktop computer and handheld. Note that there is a 32 byte limit for long packets. You can also use this in combination with the `-v` option; for example, "`-v -L2.`"
`-r`	All	Repopulates any missing configuration entries with the default settings for the default conduits.
`-v`	All	Specifies verbose mode, which causes HotSync Manager to generate a liberal amount of progress status statements into the log during synchronization operations.
`-ic`	All	Launches the Conduit Inspector Utility and sends it real-time status messages.

To use these options, you need to launch HotSync Manager from the Windows **Run** dialog box or at a command prompt. You can combine the `-ic` and `-v` options with either the `-L1` or `-L2` options. For example, to combine the `-ic`, `-v` and, `-L1` options, enter the following command in the Run dialog box:

```
hotsync.exe -ic -v -L1
```

NOTE: If HotSync Manager is already running on your system, you need to exit the program first and then restart it by typing the command line into the **Run** dialog box.

Location of the HotSync Log File

The HotSync log file is named `HotSync.log` and is normally generated in the user's directory. This remains true when you add the verbose (`-v`) debugging option.

However, if you add the `-L1` or `-L2` debugging options, HotSync Manager generates the log in the folder that holds all of the HotSync users' folders for the current Windows user's, which is the value set in the `Core\Path` configuration entry—for example, `C:\Documents and Settings\<WindowsUserName>\My Documents\Palm OS Desktop`. This log file is also named `HotSync.log`.

NOTE: Using the `-v`, `-L1`, or `-L2` options with HotSync Manager can cause the log file to become quite large.

5

Install Tool Utility

The Install Tool utility enables users to install Palm OS® applications on their handhelds from the desktop computer. The CDK ships with the Install Tool utility, a standard part of the HotSync Manager software installation. For more information about this utility, see the Install Tool online help—`<CDK>\Common\Bin\InstApp.hlp`.

6

Conduit Inspector Utility

Conduit Inspector is a developer utility that does the following:

- logs detailed status information from HotSync® Manager in real time
- opens a conduit DLL and reports its response to conduit entry points and important API calls
- saves and prints real-time log files for you to review later

When developers complete a conduit and wish to test and debug it, they run HotSync Manager and use Visual Studio or another IDE to step through their code. However, this debugging process works only if HotSync Manager successfully loads the conduit. A conduit might not load for many reasons: the conduit is not associated with an application on the handheld, HotSync Manager cannot find the conduit DLL, and so on. None of these causes are indicated in the HotSync log. But Conduit Inspector's **HotSync Realtime Log** provides much more information, which can help you track down the cause of the problem more quickly.

This chapter covers the following tasks you can perform with Conduit Inspector:

Starting Conduit Inspector

You can run Conduit Inspector either with or without HotSync Manager. However, the way you start it differs, as described below.

Starting Conduit Inspector without HotSync Manager

You can run Conduit Inspector *without* HotSync Manager, but Conduit Inspector cannot display any real-time status messages. By itself, you can use Conduit Inspector to open a conduit or view previously saved log files, as described in "Saving, Opening, and Printing Log Files" on page 41.

To start Conduit Inspector alone, double-click the `ConduitInspector.exe` file in `<CDK>\Common\Bin`.

Starting Conduit Inspector with HotSync Manager

Conduit Inspector can display real-time status messages *only* when you start it with the HotSync Manager that ships with the CDK. To start Conduit Inspector *with* HotSync Manager, launch HotSync Manager at the command line with the `-ic` switch:

```
hotsync.exe -ic
```

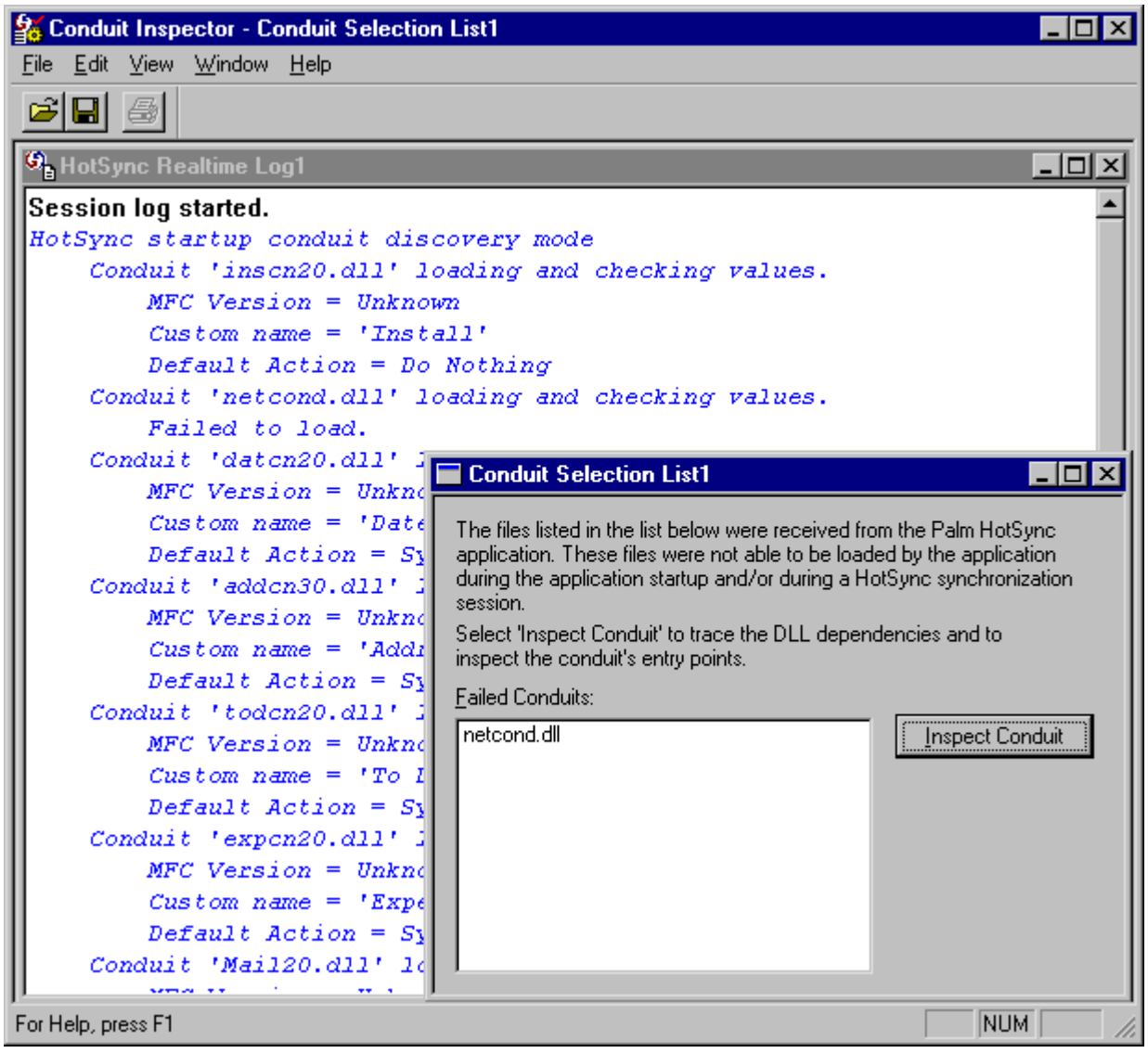
This switch enables HotSync Manager to launch Conduit Inspector and to send it real-time status messages. When Conduit Inspector starts (see Figure 6.1), Conduit Inspector displays a **HotSync Realtime Log** window and can also display a **Conduit Selection List** to show you if any conduits did not load.

NOTE: You can combine the `-ic` switch with any other HotSync Manager command-line switches shown in "Using Command-line Options for HotSync Manager" on page 24. All extra messages that these switches cause HotSync Manager to send to the HotSync log also appear in Conduit Inspector's log windows.

The typical use of Conduit Inspector is with HotSync Manager while debugging your conduit from within your development environment. For a walkthrough of building and debugging a

sample C API-based conduit, Appendix A, "Quick Start: Using Visual C++ .NET to Build a Conduit," on page 171 in the *C/C++ Sync Suite Companion*.

Figure 6.1 Starting Conduit Inspector with HotSync Manager



Viewing Log Messages from HotSync Manager

Conduit Inspector logs messages from HotSync Manager in real time, both when HotSync Manager starts and during a HotSync operation.

Viewing Real-time Log Messages at Startup

To view log messages at startup, start HotSync Manager as described in "Starting Conduit Inspector with HotSync Manager" on page 30. When Conduit Inspector starts, it automatically displays a **HotSync Realtime Log** window like the one shown in Figure 6.2.

Figure 6.2 HotSync Real-time Log at startup

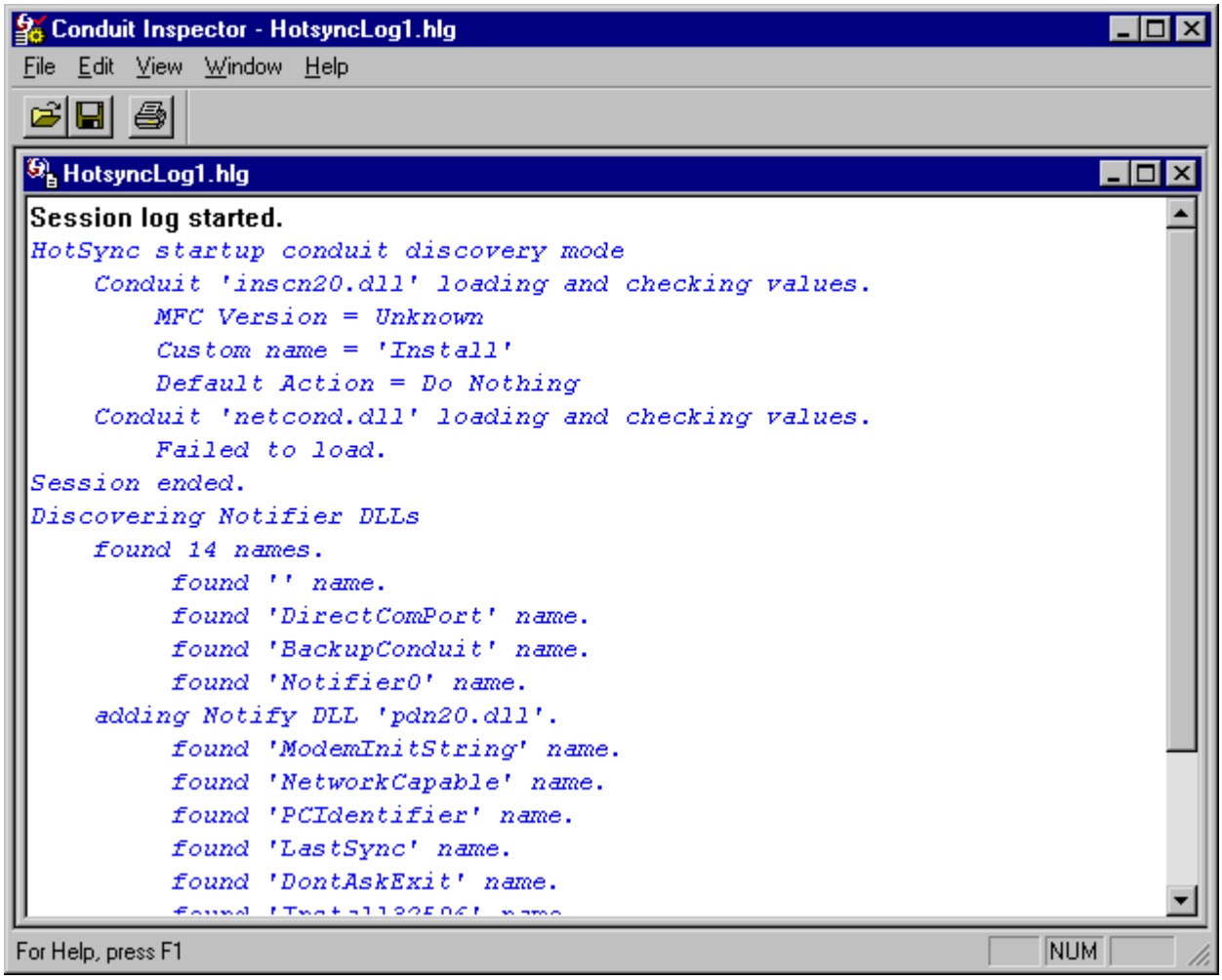


Table 6.1 describes these messages. Note that items inside angle brackets (< >) represent data specific to each conduit.

Table 6.1 HotSync Real-time Log messages at startup

Message	Description
`Session log started.`	
`HotSync startup conduit discovery mode`	Conduit discovery begins.

`  Conduit '<conduit filename>' loading and checking values.`
`    MFC Version = <version number>`
`    Custom name = '<conduit name>'`
`    Default Action = <sync action>`
- or -
`    Failed to load.`
	HotSync Manager attempts to load each installed conduit and, if it succeeds, displays the results of the `GetConduitInfo` call. If it fails, Conduit Inspector displays a a **Conduit Selection List**. See "Opening a Conduit File" on page 39.

`    ...`	Repeats for each installed conduit.
`Session ended.`	Conduit discovery ends.
`Discovering Notifier DLLs`	Notifier DLL discovery begins.
`  found <number of named entries> names.` `    found '<info entry name>' name.`	HotSync Manager looks for all notifier DLLs amongst the names of other information entries.
`    ...`	Repeat for every information entry.
`    found 'Notifier<#>' name.` `  adding Notify DLL '<notifier filename>'.`	If it finds a notifier DLL, HotSync Manager adds it to the list of notifiers to call during a HotSync session.

Viewing Real-time Log Messages During a HotSync Session

To view real-time log messages during a HotSync synchronization session, start HotSync Manager as described in "Starting Conduit Inspector with HotSync Manager" on page 30. Then perform a typical HotSync operation—that is, put the handheld in the cradle and press the HotSync button. Immediately, Conduit Inspector begins displaying messages from HotSync Manager in real time. These messages are of two types:

- HotSync Log messages (black text)—the same messages HotSync Manager writes to the HotSync Log.
- HotSync Real-time Log messages (blue, italic text)—extra information that HotSync Manager sends only to Conduit Inspector.

NOTE: "Using Command-line Options for HotSync Manager" on page 24 lists several HotSync Manager command-line switches that add extra information to the HotSync Log. You can combine any of them with the `-ic` switch. The extra information that these switches generate also appears in Conduit Inspector's HotSync Realtime Log windows. In this way you can use Conduit Inspector to log all messages HotSync Manager can generate.

When the HotSync session starts, Conduit Inspector automatically displays another **HotSync Realtime Log** window and logs messages like those shown in Table 6.1. Note that items inside angle brackets (< >) represent information that can vary.

Table 6.2 HotSync Real-time Log messages during a HotSync session

Message	Description
`Session log started.`	
`<Sync Manager calls>`	
`...`	
`HotSync operation started`	A HotSync Log message.

Table 6.2 HotSync Real-time Log messages during a HotSync session *(continued)*

Message	Description
`attempting to load Notify DLL '<filename>'.`	HotSync Manager tries to load the notifier DLL it found at startup.
`calling Notify DLL '<filename>' with method 'HS_Notify' code <ncode>, userid <user ID>.`	HotSync Manager calls the notifier with the `HS_Notify` API function.
`<Sync Manager calls>`	
`...`	
`Device Database List Information`	HotSync Manager begins to compile a list of all the applications on the handheld.
`Index <number>, Database Info` `Name: <m_Name>, Type: <m_DbType>, Creator <m_Creator>, CardNum <m_CardNum>, Flags <m_DbFlags>`	For each application on the handheld, HotSync Manager retrieves database name, type, creator ID, card number, and flags—which are all data members of an object in Sync Manager's `CDbList` class).
`Task created and marked pending`	If the database on the previous line requires synchronization or backup, HotSync Manager marks it as a pending task.
`...`	The previous two lines repeat for each application on the handheld.
`Associating databases from the DBList with synchronization jobs.`	For each of the tasks it created above, HotSync Manager associates a database with it.

Table 6.2 HotSync Real-time Log messages during a HotSync session *(continued)*

Message	Description
`Backup job added: Name: <m_Name>, Type: <m_DbType>, Creator <m_Creator>, CardNum <m_CardNum>, Flags <m_DbFlags>`	If the task is to backup a database, HotSync Manager logs this message, indicating the same info about the database as it logged above.
`Job <m_Creator> added database: Name: <m_Name>, Type: <m_DbType>, Creator <m_Creator>, CardNum <m_CardNum>, Flags <m_DbFlags>`	If the task is to synchronize a database, HotSync Manager logs this message, indicating the same info about the database as it logged above.
`...`	Either of the previous two messages repeats for each task.
`Current conduit: Name: <conduit filename>, Creator ID <creator ID>`	HotSync Manager begins running each task it created above, logging the conduit's filename and creator ID.
`Found task and attempting to load conduit.`	If HotSync Manager finds the conduit, it logs this message.
`<Sync Manager calls>`	HotSync Manager logs the Sync Manager calls that the conduit makes.
`...`	
`OK <Conduit Name>`	If the conduit completes successfully, HotSync Manager passes this HotSync Log message to Conduit Inspector.
`...`	The preceding messages repeat for each task.

Table 6.2 HotSync Real-time Log messages during a HotSync session *(continued)*

Message	Description
`Adding pending jobs to the backup job list.`	HotSync Manager compiles a list of the pending backup jobs.
`  added pending job: Creator <creator ID>`	
`...`	Repeats previous message for each backup job.
`<Sync Manager calls>`	
` Backing up db <db name> to file <full path>`	HotSync Manager generates this HotSync Log message for each backup job.
`<Sync Manager calls>`	
`...`	Repeats for each backup job.
`OK System`	HotSync Manager logs this HotSync Log message when it completes all backup jobs.
`<Sync Manager calls>`	
`  calling Notify DLL '<filename>' with method 'HS_Notify' code 2, userid <user ID>.`	HotSync Manager calls the notify DLL it identified at the beginning of the process—this time to indicate the HotSync operation is complete.
`HotSync operation complete`	HotSync Manager logs this HotSync Log message.
`Session ended.`	The HotSync operation is complete.

Opening a Conduit File

To open a conduit, select **File** > **Open** and choose a conduit DLL file. Alternatively, if Conduit Inspector displays a **Conduit Selection List** upon startup (Figure 6.1), you can open any conduit in that list by selecting the conduit filename and clicking **Inspect Conduit**. By either of these methods, opening a conduit with Conduit Inspector does two things:

- displays a conduit **Inspection Log**, which includes information extracted from the conduit DLL
- launches the Microsoft Dependency Walker (`Depends.exe`) application that comes with Visual C++

Displaying a Conduit Inspection Log

When you open a conduit, Conduit Inspector displays a conduit Inspection Log as shown in Table 6.3. Conduit Inspector extracts this information from the conduit DLL itself.

Table 6.3 Conduit Inspection Log

Message	Description
`Searching through the conduits accessed by Conduit Manager for this conduit.`	HotSync Manager uses the Conduit Manager API to compare this conduit name to the names of the installed conduits.
`  This conduit is associated with CreatorID: '<creator ID>'.`	If it finds a match, HotSync Manager logs the creator ID that the conduit is associated with.
`Checking conduit settings...`	

Table 6.3 Conduit Inspection Log *(continued)*

Message	Description

`Conduit supplied '<conduit name>' when called by the GetConduitName() entry point.`
 	
`Conduit supplied '<conduit name>' as the Conduit name when called with the GetConduitInfo() entry method.`
	HotSync Manager logs the conduit name returned by both the `GetConduitName` and the `GetConduitInfo` entry points.

`Conduit supplied '<MFC version>' as the MFC Version when called with the GetConduitInfo() entry point.`	HotSync Manager logs what your `GetConduitInfo` entry point returns when it is asked for the MFC version.
`Conduit supplied '<sync type>' as the default action when called with the GetConduitInfo() entry point.`	HotSync Manager logs the conduit's default action (see the description of the eSyncTypes enum for more on each sync types.)
`Checking for entry points...`	HotSync Manager calls all entry points and logs whether the conduit supports them.

`Required entry points...`
`Entry point OpenConduit() is <supported/unsupported>.`
`Entry point GetConduitVersion() is <supported/unsupported>.`
`Entry point GetConduitName() is <supported/unsupported>.`
`Recommended entry points...`
`Entry point ConfigureConduit() is <supported/unsupported>.`
`Entry point CfgConduit() is <supported/unsupported>.`
`Entry point GetConduitInfo() is <supported/unsupported>.`
`Searching for 'File Linking' entry points...`
`Entry point ConfigureSubscription() is <supported/unsupported>.`
`Entry point SubscriptionSupported() is <supported/unsupported>.`
`Entry point UpdateTables() is <supported/unsupported>.`
`Entry point ImportData() is <supported/unsupported>.`	

Launching Dependency Walker

Dependency Walker (`Depends.exe`) is a diagnostic tool that you can use to determine which program files are required to run a particular program or load a particular DLL, like your conduit. Dependency Walker ships with Microsoft Visual C++.

If it finds Dependency Walker installed, Conduit Inspector launches Dependency Walker automatically when you open a conduit with Conduit Inspector. Use Dependency Walker to determine which external modules your conduit DLL calls.

Saving, Opening, and Printing Log Files

Conduit Inspector generates two types of log files: a HotSync Real-time Log (HLG) file and a conduit Inspection Log (RTF) file. For both of these log files, Conduit Inspector can:

- Save—select **File** > **Save As** and provide a filename.
- Open—select **FIle** > **Open** and choose a log file to open.
- Print—Click on the log window you want to print and select **File** > **Print**.

Conduit Inspector saves both log files in Rich Text Format (RTF), though only the Inspection Log is saved with a `.rtf` file extension.

7

User Info Utility

The User Info utility enables developers to easily add, delete, or modify desktop user information. User Info calls the User Data API to access this information in the users data store.

IMPORTANT: The User Info utility is a tool intended for use by developers only; it is not meant for end users to use. Instead create your own installer or desktop application that calls the User Data API. The CDK includes source code for such a sample application, UserDataApp, in `<CDK>\C++\Win\Samples\UserDataApp`.

For details on the User Data API, see Chapter 16, "User Data API," on page 1009 in the *C/C++ Sync Suite Reference*.

This chapter covers the following topics:

Starting User Info

User Info can run either as a Windows application with a UI or as a command-line console application that writes the information in the users data file to a text file.

To start User Info, enter

```
UserInfo [-s <filename>]
```

`-s <filename>`
: Starts User Info as a console application, writes all users' data to the text file named `filename`, then exits.

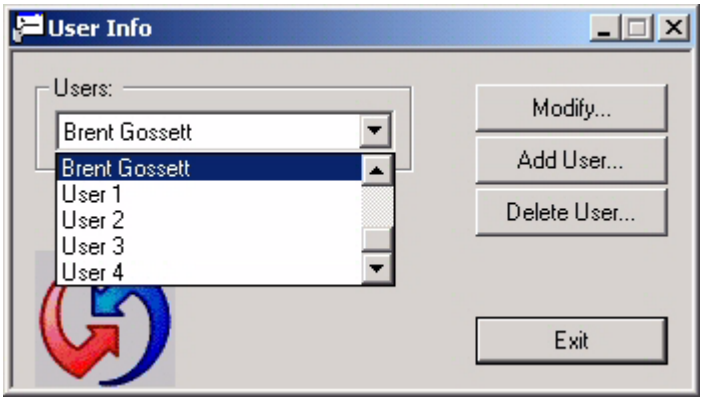
Started with no switch, User Info displays its user interface as shown in Figure 7.1. The remainder of this section describes how to use the User Info UI.

Using User Info

The opening view of the User Info utility displays a popup list of currently installed users, which is shown in Figure 7.1. This dialog box also provides the gateway to the top-level operations of this utility:

- **Add User** allows you to add a new user, as described in "Adding a New User" on page 45.
- **Modify** displays the information of the selected user. From this dialog box, you can the user name, directory, and other information stored in the users data file, as described in "Viewing or Modifying User Information" on page 45.
- **Delete User** allows you to delete an existing user, as described in "Deleting a User" on page 48.
- **Exit** quits the User Info utility.

Figure 7.1 User Info: Users List

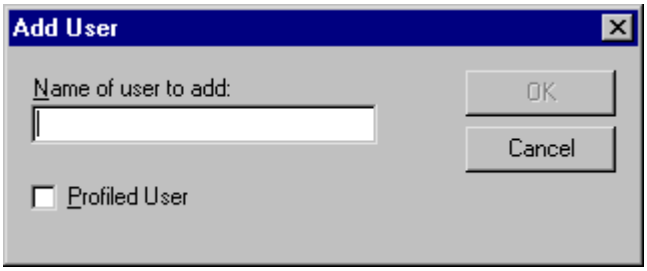


Adding a New User

To add a new user, click the **Add User** button. The **Add User** dialog box displays as shown in Figure 7.2. From this dialog, you can name a new user and specify whether the user is a profiled user.

IMPORTANT: After you add a new user, you cannot change whether the user is created with a user profile not.

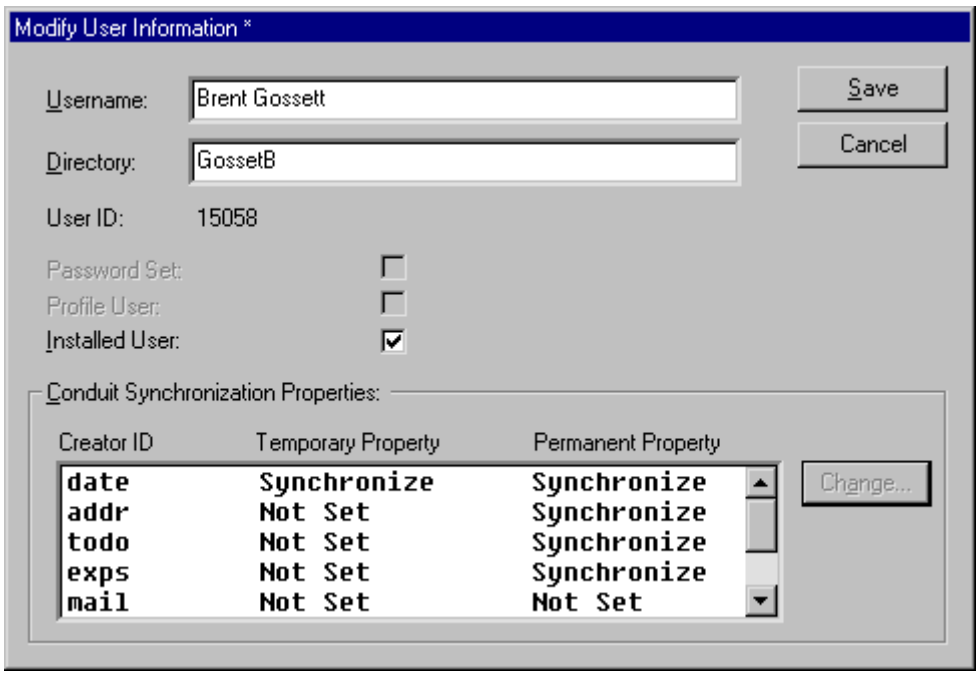
Figure 7.2 User Info: Add User



Viewing or Modifying User Information

To view or modify the settings for a user, select the user from the Users list and click the **Modify** button. The **Modify User Information** dialog displays as shown in Figure 7.3.

Figure 7.3 User Info: Modify User Information



The **Modify User Information** dialog box displays (and allows you to edit most of) the following information:

Username: The name of the user.

Directory: The user's directory name, not the full path.

User ID: The corresponding user's user ID. You cannot edit the user ID because it is automatically generated internally by the User Data API.

Password: Indicates whether the user has set a password on the handheld. You cannot change this property.

Profile User: Indicates whether the user's handheld was first synchronized with the desktop using a user profile. Note that you can set this flag only in the **Add User** dialog; it cannot be edited here.

Installed User: Indicates whether the user is an installed user. You can also change this property here.

Conduit Synchronization Properties: This list shows the installed conduits for the specified user and the following properties for each:

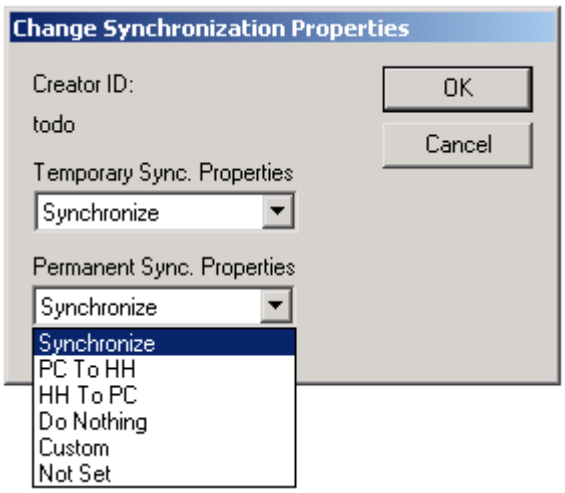
Creator ID: The unique identifier that associates a conduit with an application on the handheld.

Temporary Property: The temporary synchronization property for each conduit. This property is valid only for the next HotSync® operation. It reverts to the permanent property for subsequent operations.

Permanent Property: The permanent synchronization property for each conduit.

To change the temporary or permanent synchronization properties, click the **Change** button. The **Change Synchronization Properties** dialog box displays as shown in Figure 7.4.

Figure 7.4 User Info: Change Synchronization Properties



The options for both temporary and permanent synchronization properties are:

- **Synchronize**—perform a mirror-image synchronization.
- **PCtoHH**—overwrite the handheld database with the data from the desktop.
- **HHtoPC**—overwrite the desktop data with the database from the handheld.

- **DoNothing**—do not exchange data between the handheld and the desktop.
- **Custom**—perform a custom action.
- **Not Set**—unset the synchronization properties, as if the user has never clicked HotSync Manager's **Custom** > **Change** option.

Deleting a User

To delete a user, select the user name from the **Users** list and click **Delete User**. The **Delete User Confirmation** dialog box displays; click **Yes** to delete the user.

8

Synchronizing with Palm OS Simulator

Palm OS® Simulator enables you to debug your conduit without a handheld connected to your desktop computer. Simulator is Palm OS Cobalt or Palm OS Garnet, recompiled for a desktop processor instead of the ARM-based processor of Palm Powered™ handhelds.

Palm OS Simulator consists of the following:

- The executable file: `PalmSim.EXE`
- A ROM file
- The DLLs required by the ROM file.

The ROM file is specific to Palm OS Simulator; the ROM file is not the same as ROM files used with Palm OS Emulator. ARM-native PRCs are embedded in this ROM file.

Simulator behaves like a Palm Powered™ handheld. You can install applications, perform a HotSync® operation, reset, and perform automated testing of your conduit.

To download and learn more about Palm OS Simulator, visit:

http://www.palmos.com/dev/tools/simulator/

The remainder of this chapter describes two ways to configure Simulator to synchronize with the desktop:

After you configure Simulator to synchronize and confirm it is working, debugging a conduit using Simulator is performed in a similar manner to debugging a conduit with an actual handheld.

Configuring Simulator for Serial Connection

Using Simulator to synchronize via a serial connection is very much like using an actual handheld to synchronize via the serial port. Simulator is configured to use one serial port (acting like the handheld serial port) on the Windows computer while HotSync Manager is configured to use a second serial port. The two serial ports are physically connected together with a null modem cable.

Required Hardware and Software

The following is required to configure Simulator for synchronization via serial connection:

- Palm OS Simulator
- CDK 6.0 or later, *or* Palm OS® Desktop software version 6.0 or later.
- Windows 2000 or XP computer with two available serial ports, one for HotSync Manager and one for Simulator.
- Any Palm OS Cobalt ROM file (this procedure depicts the ROM file that ships with Simulator, but Palm Powered handheld manufacturers may provide their own).
- A null modem serial cable compatible with the serial port connections on your computer.

Assumptions

The following steps assume:

- You have successfully installed Simulator and a suitable ROM file.
- You are familiar with the operation of Simulator to load and run Palm OS applications.
- You have successfully installed the CDK *or* the Palm OS Desktop software, including HotSync Manager.
- The two serial ports on your computer are configured for COM1 and COM2.
- Correct operation of the serial ports has been confirmed by using a Palm Powered handheld to synchronize on each serial port. In other words, configure HotSync Manager to use COM1, connect a cradle (serial interface) to COM1 serial port, and verify proper HotSync operation. Repeat for the other serial port and COM2.

Procedure

To configure Simulator for synchronization via serial connection, perform the following steps:

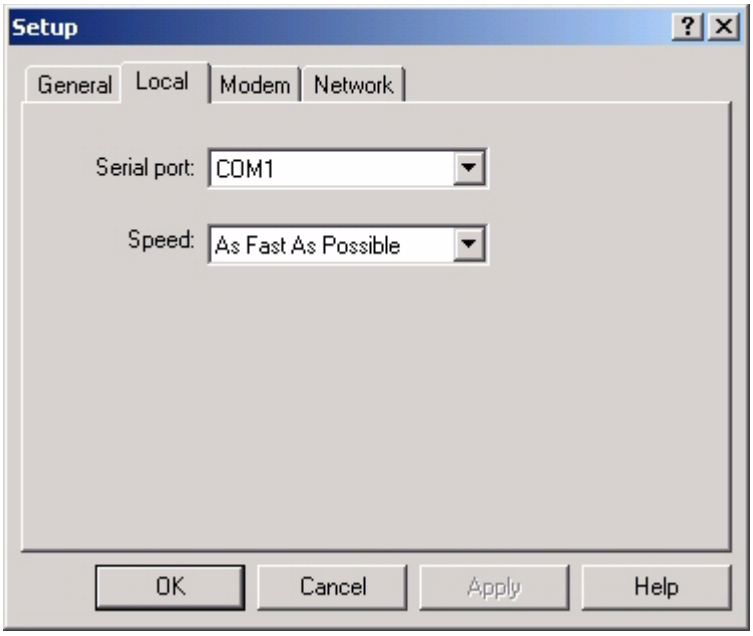
1. Ensure HotSync Manager is running on the desktop computer.
2. Ensure that HotSync Manager is configured for **Local** synchronization.

   Click the HotSync Manager icon in the Windows taskbar and ensure that HotSync is configured for **Local** synchronization. (A check mark next to a menu item indicates which options are enabled.) Note: other synchronization methods such as **Network** or **Local USB** can also be enabled.

3. Configure HotSync Manager to use COM1 (see Figure 8.1).

   Click the HotSync Manager icon in the Windows taskbar and select **Setup**. Select the **Local** preferences tab and ensure the **Serial Port** selection is set for **COM1**. The baud rate can be set to **As fast as possible**, but some PCs require the speed to be set to a slower speed. If you have difficulty synchronizing, try selecting a slower speed.

Figure 8.1 HotSync Manager Local settings



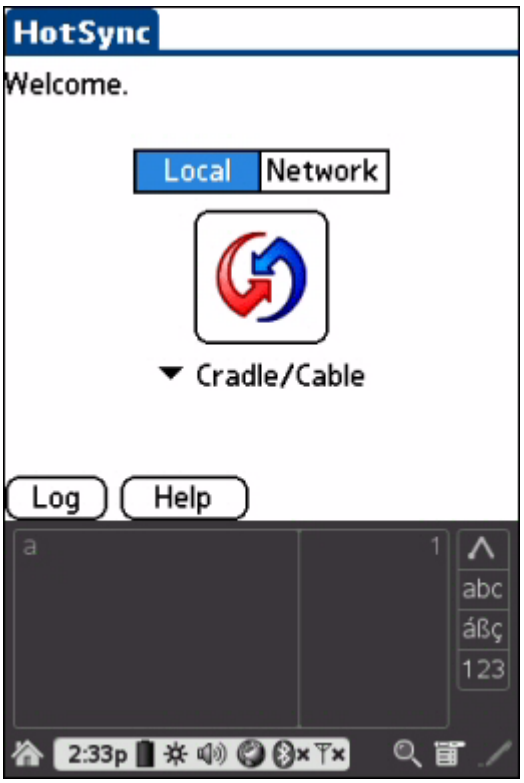
4. Start Simulator on the desktop computer.
5. Disable the serial link time-out.

   Launch the HotSync client application in Simulator. Press and hold the Page Up button on the keyboard and simultaneously click the top-right corner of the screen. An alert displays "DLServerWaitForever is ON" to indicate this time-out is disabled. This is useful for long sessions of debugging your conduit, during which HotSync Manager would otherwise assume the connection has been lost and terminate.

6. Configure Simulator to use COM2.
   a. Right-click on Simulator and then from the menu, click **Settings** > **Communication** > **Communication ports**.
   b. Select the **FFUART** port.
   c. Click **Edit**.
   d. Ensure that the **Transport Type** is set to **Standard RS-232** and it is **Bound** to **COM2** (or whatever port is not set in HotSync Manager in step 3).
7. Connect a null modem cable from the COM1 port to the COM2 port.
8. In Simulator, start the HotSync client application. To initiate a HotSync operation, click the **Local** button and then click the HotSync icon (see Figure 8.2).

NOTE: Simulator prompts you to choose a user or create a new user. It is highly recommended that you create a new user solely for use with Simulator.

Figure 8.2 Simulator HotSync client application



If configured correctly, a HotSync operation now begins between the Simulator “handheld” and HotSync Manager on the desktop computer.

Configuring Simulator for Network Connection

Using Simulator to synchronize via network connection is very much like using an actual handheld to synchronize via network HotSync connection. Simulator is configured to use a network port (acting like a network HotSync connection) on the Windows computer while HotSync Manager is configured to accept a network HotSync connection.

Required Hardware and Software

The following is required to configure Simulator for synchronization via network connection:

- Palm OS Simulator
- CDK 6.0 or later, *or* Palm OS® Desktop software version 6.0 or later.
- Windows 2000 or XP computer with two available serial ports, one for HotSync Manager and one for Simulator.
- Any Palm OS Cobalt ROM file (this procedure depicts the ROM file that ships with Simulator, but Palm Powered handheld manufacturers may provide their own).

Assumptions

The following steps assume:

- You have successfully installed Simulator and a suitable ROM file.
- You are familiar with the operation of Simulator to load and run Palm OS applications.
- You have successfully installed the CDK *or* the Palm OS Desktop software, including HotSync Manager.

Procedure

To configure Simulator for synchronization via network connection, perform the following steps:

1. Ensure that HotSync Manager is running on the desktop computer.
2. Ensure that HotSync Manager is configured for **Network** synchronization.

   Click the HotSync Manager icon in the Windows taskbar and ensure that it is configured for **Network** synchronization. (A check mark next to a menu item indicates which options are enabled.) Note: other synchronization methods such as **Local**, **Local USB**, or **Modem** can also be enabled.
3. Start Simulator on the desktop computer.
4. Disable the serial link time-out.

   Launch the HotSync client application in Simulator. Press and hold the Page Up button on the keyboard and simultaneously click the top-right corner of the screen. An alert displays "DLServerWaitForever is ON" to indicate this time-out is disabled. This is useful for long sessions of debugging your conduit, during which HotSync Manager would otherwise assume the connection has been lost and terminate.
5. Configure Simulator to redirect SocketLib calls.

   Right-click on Simulator and click **Settings** > **Communications** > **Redirect SocketLib Calls to Host TCP/IP** to redirect the SocketLib calls to the host machine's TCP/IP stack.
6. Configure Simulator's **FFUART** port to **TCP/IP**.
   a. Right-click on Simulator and then click **Settings** > **Communications** > **Communication ports**.
   b. Select the **FFUART** port.
   c. Click **Edit**.
   d. Ensure that the **Transport Type** is set to **TCP/IP** and that **Bound to** is set to **localhost:9**. Simulator restarts if you need to change communications settings.

7. In Simulator, start the HotSync client application. To initiate a HotSync operation, click the **Network** button and then click the HotSync icon (see Figure 8.2).

NOTE: Simulator prompts you to choose a user or create a new user. It is highly recommended that you create a new user solely for use with Simulator.

Figure 8.3 Starting a network HotSync operation

If configured correctly, a HotSync operation now begins between the Simulator "handheld" and HotSync Manager on the desktop.

TIP: To prevent the HotSync client in Simulator from timing out during a long session of debugging your conduit, disable the serial link time-out as described in Table A.2 on page 61.

A

Debugging Tips

This appendix includes tips about Palm Powered™ handhelds and conduits that can help you while debugging your conduit.

Using Shortcut Numbers

Palm OS® responds to a number of "hidden" shortcuts for debugging your programs. You generate each of these shortcuts by drawing characters on your handheld, or by drawing them in Palm OS Simulator, if you are using that for debugging your conduit.

To enter a shortcut number, follow these steps:

1. On your handheld, or in the Simulator program, draw the shortcut symbol. This is a lowercase, cursive "L" character, drawn as follows:

2. Next, tap the stylus *once*, to generate a dot (a period).

3. Next, draw a number character in the number entry portion of the handheld's text entry area. Table A.1 shows the different shortcut numbers that you can use.

   For example, to disable the automatic power-off feature of the handheld, enter the following sequence:

 .3

Table A.1 Shortcut numbers

Number	Description	Notes
3	The handheld's automatic power-off feature is disabled.	You can still use the handheld's power button to power it on and off. You must perform a soft reset to exit this mode.
4	Displays the user's name	
5	Erases the user's name and User ID.	**IMPORTANT:** When the handheld is next synchronized after using this shortcut, HotSync® Manager thinks that it has never been synchronized before. This means that records will be duplicated unless you first perform a hard reset (press the reset button while holding the power key).
6	Displays the ROM build date and build time.	

NOTE: Many of the debugging shortcuts leave the handheld in a mode that requires a soft reset. To perform a soft reset, press the reset button, usually on the back of the handheld.

Disabling Time-outs

There are two time-outs that you can disable when debugging your conduits. Table A.2 provides a summary of each time-out.

Table A.2 Disabling time-outs on the handheld

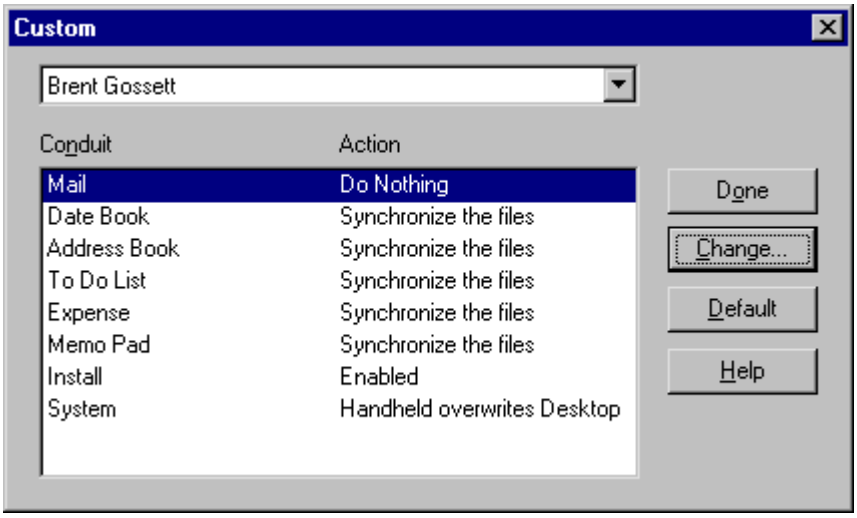
Time-out Type	How to Disable	Reason to Disable
Automatic power-off	Use shortcut number 3, as described in Table A.1.	If you are stepping through your code and the handheld powers down, you lose your debugging session.
Serial link	Launch the HotSync client application on the handheld. **Palm OS versions 3.0 and later:** Press and hold the scroll-up button on the handheld and simultaneously tap in the top-right corner of the screen. **Palm OS versions 2.x and earlier:** Press and hold the scroll-up *and* scroll-down buttons on the handheld and simultaneously tap in the top-right corner of the screen. An alert displays "DLServer Wait Forever is ON" to indicate this time-out is disabled. Repeat to re-enable.	If you are stepping through your code while synchronizing, HotSync Manager thinks the connection has been lost and terminates. Note that you cannot disable this time-out on some handheld models with the Palm™ Universal Connector.

Disabling Other Conduits

To speed up your debugging efforts, you can disable all of the other conduits without uninstalling them. To disable a conduit, follow these steps:

1. Click the HotSync Manager icon and then click **Custom**.
2. Select the conduit you want to disable. Figure A.1 shows selecting the Mail conduit for disabling.

Figure A.1 Selecting a conduit to disable

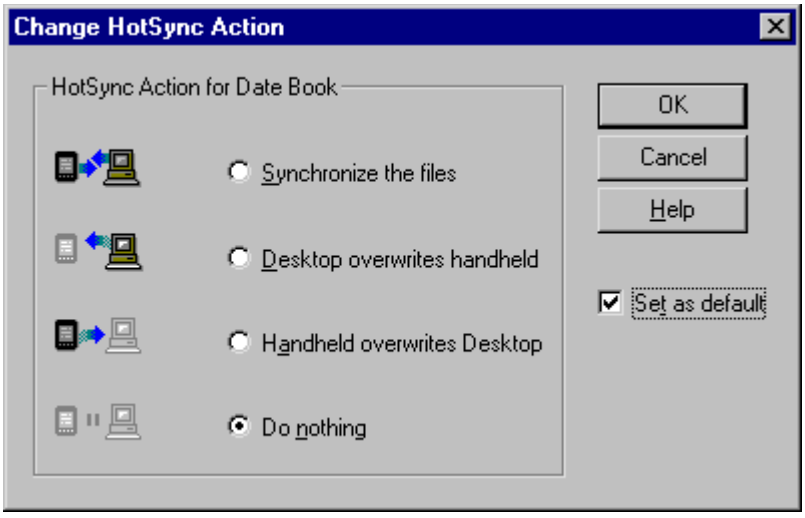


3. Click **Change**.
4. Click **Do Nothing**, as shown in Figure A.2.
5. Select the **Set As Default** check box, as shown in Figure A.2. This ensures that **Do Nothing** will remain effective until you unset the option.
6. Click **OK**.

Perform these steps for each of your installed conduits.

IMPORTANT: Remember to reset each conduit after you've completed your debugging.

Figure A.2 Changing the conduit action to “Do Nothing”



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