

Installing the **Livescribe™ Platform SDK**

Livescribe™ Platform SDK
Version 1.5

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Introduction

This section describes the development platforms supported by the Livescribe Platform SDK, as well as some issues pertaining to developers on particular platforms. It also contains some important notes and warnings that developers should keep in mind.

Notes and Warnings

As you start your first Livescribe smartpen application, please keep the following notes and restrictions in mind.

Do Not Distribute Livescribe Binaries

The Livescribe Platform SDK includes development tools for generating application resources, installing penlets to and uninstalling penlets from the smartpen. You may freely use these tools while developing penlets, but the *Livescribe Developer License Agreement* prohibits you from distributing these tools to your customers.

The Livescribe online store will be the venue for sale and distribution of your penlets to smartpen users. Please post questions on specific binaries to the Livescribe Developer Forums and the Developer Team will provide answers.

Expect Continued Support of Current API

The Livescribe Platform exposes a Java API for developing smartpen applications. You can depend on the packages and classes already exposed will continue to be supported in the future. Upcoming releases of the SDK will contain new packages and classes to support additional functionality without disturbing the existing API. Any removal of APIs will follow standard Java deprecation procedures.

Contents of the SDK

The Livescribe Platform SDK includes the Livescribe Platform API, documentation, sample code, and a set of development tools. The official IDE for penlet development is Eclipse plus custom plugins for Eclipse created by Livescribe. The Livescribe API and all tools are immediately accessible from within Eclipse, once the plugins are installed.

Plugins and Features

An Eclipse *feature* is a package of one or more Eclipse plugins. Livescribe publishes Eclipse features that contain the plugins you need for developing penlets and paper products. When you see the word *feature*, remember it is a specialized term in Eclipse and refers to a group of plugins that are installed, uninstalled, and managed as a group.

Directory Structure of the SDK

The Livescribe Platform SDK 1.5 has the following directory structure:

- **Docs**
Directory sub-tree containing documentation for the Livescribe Platform SDK.
- **EclipsePlugins**
Zip archive that contains Livescribe custom Eclipse features. Each feature consists of Eclipse plugins created by Livescribe to provide specialized functionality for penlet and paper product development.
- **EclipseFullInstall**
Zip archive that contains a full distribution of Eclipse with Livescribe custom Eclipse features already installed.
- **Resources**
In the **audio** subdirectory, you will find WAV files for the sounds that Livescribe uses in its own penlets. To ensure consistency across all applications on the smartpen, third-party developers should include these audio files in their penlet projects, as needed.
In the **penletsdk** directory, you will find tools to help compile penlets outside of Eclipse.
Mac users will also have a **PenCommService** directory containing the installer for the smartpen communication service.
- **Samples**
Sample projects. For more samples, go to <http://www.livescribe.com/developer>. In the Developer Forums, find **Sample Code & Docs & FAQs**.
- **Platform_SDK_RelNotes_x_x_x.pdf**

Release Notes for the current Platform SDK release.

Setting up the IDE

The basic environment for developing penlets and paper products consists of:

- Eclipse
- Eclipse plugins from Livescribe
- JDK (Java Development Kit)
- Ghostscript (optional)
- **Windows Users:** Livescribe Smartpen Emulator (optional)

In addition, to create background images for your paper product, you will need a graphics authoring tool that produces EPS files. Two excellent choices are Adobe's Illustrator and the open source program Inkscape.

Hardware and Software Requirements

Penlet and paper product development requires the following hardware and software:

- PC running Windows XP SP2/SP3, Windows Vista, or Windows 7
- Intel-based Mac running Mac OS® X 10.6 or later.
Current restrictions for Mac development: You should not run Livescribe Desktop at the same time as your Mac Eclipse development environment.
- A USB connection to a Livescribe smartpen. Alternatively, use the Livescribe Smartpen Emulator.
- The Livescribe smartpen driver and smartpen communication software.
Installing Livescribe Desktop automatically installs these for you. To develop penlets, you need Livescribe Desktop version 2.0 or higher and smartpen firmware version 2.4 or higher. Install Livescribe Desktop from:
<http://www.livescribe.com>.
- Eclipse v3.4 (Ganymede) or higher.
- The Java Development Kit (v1.6 or higher; also known as JDK 6).
- Ghostscript (optional).

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- **Windows Users:** Livescribe Smartpen Emulator 0.9.24 or higher (optional). Required for deploying penlets and their AFDs to the emulator and debugging them on the emulator.

Upgrading From Earlier Versions of the SDK

Users of Livescribe Platform SDK versions 1.x, should upgrade as follows:

- Install the latest Livescribe plugins (features). See [Updating Plugins in SDK 1.5](#).
- **Mac Users:** Run the PenCommService installer to get the latest version.

Users of Livescribe Platform SDK versions 0.9.1 and below should not attempt to upgrade. Starting over with a clean installation is recommended. See [Installation Instructions \(Mac and Windows\)](#).

Two Options for Installing Livescribe Plugins

The Livescribe Platform SDK supports installation of our Eclipse *features* (which are groups of related plugins) in two ways. You may choose the one that suits your development needs.

Eclipse with Livescribe Plugins Already Added

If you do not have Eclipse installed on your computer already, you can choose to quickly install Eclipse and Livescribe Eclipse features (plugins). The Livescribe Platform SDK includes a zip file with the full distribution of Eclipse and the Eclipse features. You merely decompress the zip archive on your file system and you are ready to start developing for the Livescribe Platform. See [Installing Eclipse and Livescribe Plugins Together](#).

Livescribe Plugins Only

On the other hand, you may already be using Eclipse for other kinds of Java development. If so, you can add the capability to develop Livescribe penlets and paper products to your existing Eclipse distribution. The Livescribe Platform SDK includes a zip file that contains just Livescribe Eclipse features (plugins). In Eclipse terms, this zip file is an *update site*. Start your existing Eclipse and use the Install

New Software functionality to install the Livescribe plugins. See [Adding Livescribe Plugins to Existing Eclipse](#).

Mac OS X: Installation Notes

To install the Platform SDK for Eclipse on Mac OS X, follow the instructions at Installation Details for Mac and Windows. Pay special attention to paragraphs flagged with **Mac Users**. The main Mac-specific notes concern the following:

- Installing the PenComm Service. Mac users must install the PenComm Service manually by running
`SDKInstallDir/Resources/PenCommService/PenCommServiceInstaller.pkg`,
where `SDKInstallDir` is the folder to which you unzipped the Livescribe Platform SDK archive. This step is part of [Downloading the Livescribe Platform SDK](#).
- Installing Ghostscript. Mac users who wish to install Ghostscript as the rasterizer will find the following web site tailored to their needs:
<http://www.macwrite.com/critical-mass/ghostscript-mac-os-x>

Windows: Installation Notes

To install the Livescribe Platform SDK for Eclipse on Windows, follow the instructions at Installation Details for Mac and Windows. Pay special attention to paragraphs flagged with **Windows Users**. The main Windows-specific notes concern the following:

- Installing 32-bit JDK on 64-bit Windows. You must install the 32-bit version of the JDK. Accept the default directory path, which will install the JDK in `Program Files (x86)\Java`. Do not install the JDK in Windows XP Mode (if you have Windows 7 with that option). See [Installing the JDK](#).
- Installing 32-bit Ghostscript on 64-bit Windows. If you are using Ghostscript as your rasterizer, install the 32-bit version of Ghostscript. Accept the default directory path, which will install the Ghostscript in `Program Files (x86)\gs`. Do not install the JDK in Windows XP Mode (if you have Windows 7 with that option). See [Installing Ghostscript](#).

Installation Details for Mac and Windows

This section applies to both the Mac and Windows platforms. Details specific to a platform are prefixed **by Mac Users** or **Windows Users**.

1. [Downloading the Livescribe Platform SDK](#).
2. [Installing the JDK](#).
3. One of the following:
 - [Installing Eclipse and Livescribe Plugins Together](#).
 - [Adding Livescribe Plugins to Existing Eclipse](#).
4. [Installing Ghostscript](#).

Downloading the Livescribe Platform SDK

Installing the Livescribe Platform SDK to your file system consists of downloading the SDK zip file from the Livescribe web site and then unzipping it on your computer. In addition, you may choose to download the Livescribe Smartpen Emulator at this time. A PDF titled *The Livescribe Smartpen Emulator User Guide* is included in the Livescribe Smartpen Emulator download.

1. Go to <http://www.livescribe.com/developer>.
2. If you have not done so already, register as a Livescribe Developer by clicking the **Register** button in the lower left-hand panel. Once you have registered, click the **Log In** button in the upper right and enter your developer e-mail address and password.

The first time you log in as a developer, you'll see a **Download** link. Click the link and read the Livescribe Developer License Agreement. Click the button entitled **I Agree** at the bottom the page and then click the SDK link on the page that follows.

Note: During subsequent log ins with your developer account, you will already be on the developer welcome page. In the right-hand column, the Downloads node should be opened. (If not, click the Downloads link.) Then use the appropriate links to download the Livescribe Platform SDK (Windows or Mac) and the Livescribe Smartpen Emulator (Windows).

3. Save the download(s) to your computer. They are zip archives.

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4. Unzip the Livescribe Platform SDK archive to a folder on your computer file system.

Remember the location of the Livescribe Platform SDK. You will need it when you install the Livescribe plugins.

5. **Mac Users:** You must install the Livescribe PenComm Service manually. Double-click on the installer package at

`SDKInstallDir/Resources/PenCommService/PenCommServiceInstaller.pkg`

The name `SDKInstallDir` is the folder to which you unzipped the archive.

6. **Windows Users:** You may also unzip the Livescribe Smartpen Emulator archive to a folder on your file system. The unzipped archive contains a manual titled *The Livescribe Smartpen Emulator User Guide*. Please consult it for information on installing and using the emulator.

Installing the JDK

Install JDK 6 or above. The latest version is called the Java SE Development Kit.

1. Go to <http://www.java.sun.com>
2. Click the **Java SE** link and then the **Downloads** tab.
3. Download **JDK 6 Update X** (where X is the latest update number).
Note: You must install the Java Development Kit (JDK). The Java Runtime (JRE) alone will not suffice.
- **64-bit Windows Users:** You must install the 32-bit JDK. Install it directly on your computer's file system by accepting the default directory path, which is `X:\Program Files (x86)\Java` (where X is the letter of the drive you wish to use.) The JDK will automatically run in Compatibility Mode. Do not install the 32-bit JDK in Windows XP Mode (if your version of Windows 7 has that option.)
4. **Windows Users:** Verify that the JAVA_HOME system environment variable is set to the path of the JDK:

On 32-bit Windows the path might be: `C:\Program Files\Java\jdk1.6.0_21`

On 64-bit Windows the path might be:

`C:\Program Files (x86)\Java\jdk1.6.0_20`

Installing Eclipse and Livescribe Plugins Together

Your first option is to install Eclipse 3.5.2 with the Livescribe Eclipse features (groups of plugins) already added. This is the simplest and fastest way to set up your Eclipse IDE for penlet and paper product development. One zip file contains a full distribution of Eclipse 3.5.2, including the pre-installed Livescribe Eclipse features.

1. In the Livescribe Platform SDK, go to

`EclipseFullInstall\platformSDK14win32.zip`

2. Unzip the file. For instance, on Windows you might unzip it to:

`C:\eclipse3.5.2`

Eclipse does not use an installer program. Simply unzip the Eclipse distribution to the desired location on your file system.

Important: Do NOT include a space in the path of your Eclipse installation, or in the path of your Eclipse workspace. A path with spaces in it will prevent you from deploying your penlets to the smartpen from Eclipse.

3. Find the `eclipse.exe` file on your file system and launch Eclipse.

Windows Users: The installation process does not create an icon in the Windows Start menu. You must open Windows Explorer, navigate to the appropriate folder, and run `eclipse.exe`.

Mac Users: The installation process does not install an icon in the dock. You must navigate to the appropriate folder on your file system and run `eclipse.exe`.

Adding Livescribe Plugins to Existing Eclipse

Your second option is to add Livescribe Eclipse features (groups of plugins) to your existing Eclipse distribution. This option assumes that you have Eclipse already installed.

Important: Do NOT include a space in the path of your Eclipse installation, or in the path of your Eclipse workspace. A path with spaces in it will prevent you from deploying your penlets to the smartpen from Eclipse.

If you find your Eclipse has become corrupted or is not the right version, you can download the latest Eclipse distribution for free from <http://www.eclipse.org>.

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Note: After installing Eclipse, run it at least once before trying to add any plugins. It is best to have an internet connection the first time you launch Eclipse, so that standard functionality from providers such as Eclipse.org and Mylyn can be updated automatically.

1. Verify that you have a connection to the internet. Updating of plugins in Eclipse sometimes requires internet access.
2. Launch Eclipse. (Navigate to your `ECLIPSE_HOME` folder and launch the executable directly.)
3. Select **Help > Install New Software**.
On the Available Software page of the wizard, click **Add**.
4. In the Add Repository dialog, click **Archive**.
5. In the Repository Archive dialog, browse to
`SDKInstall\EclipsePlugins\platformSDK14updatesite.zip`, where *SDKInstall* is the folder in which you unzipped the Livescribe Platform SDK archive. Select the zip file and click **Open**.
6. In the Add Repository dialog, click **OK**.
7. On the Available Software page, a new Livescribe update site should automatically appear in the list box. Select the check box for the new Livescribe Platform SDK update site. Click **Next**.
8. On the Install Details page, verify the Details section for each Livescribe features. There should be no errors or problems described in Details. Click **Next**.
9. On the Review Licenses page, select the **I accept the terms of the license agreement** option. Then click **Finish**.
The features will be installed.
10. Click **Restart Now** to restart Eclipse.
11. When Eclipse launches, you may have to select your workspace. Then click **OK**.
12. Livescribe Penlet perspective should be showing. If not, select **Window > Open Perspective > Penlet**. Then click **OK**.

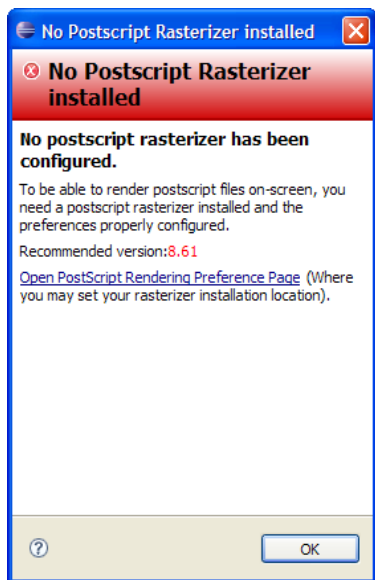
Installing Ghostscript

Ghostscript is an open source project that includes a RIP (Raster Image Processing) engine that can be used as a Postscript and PDF viewer. You will need Ghostscript, or a similar program, in order to render images onscreen in the Paper Design perspective. Ghostscript is available as a free download. You will not need Ghostview

Windows Users: Go to <http://www.ghostscript.com> for a list of download sites.

Mac Users: Go to: <http://www.macwrite.com/critical-mass/ghostscript-mac-os-x>

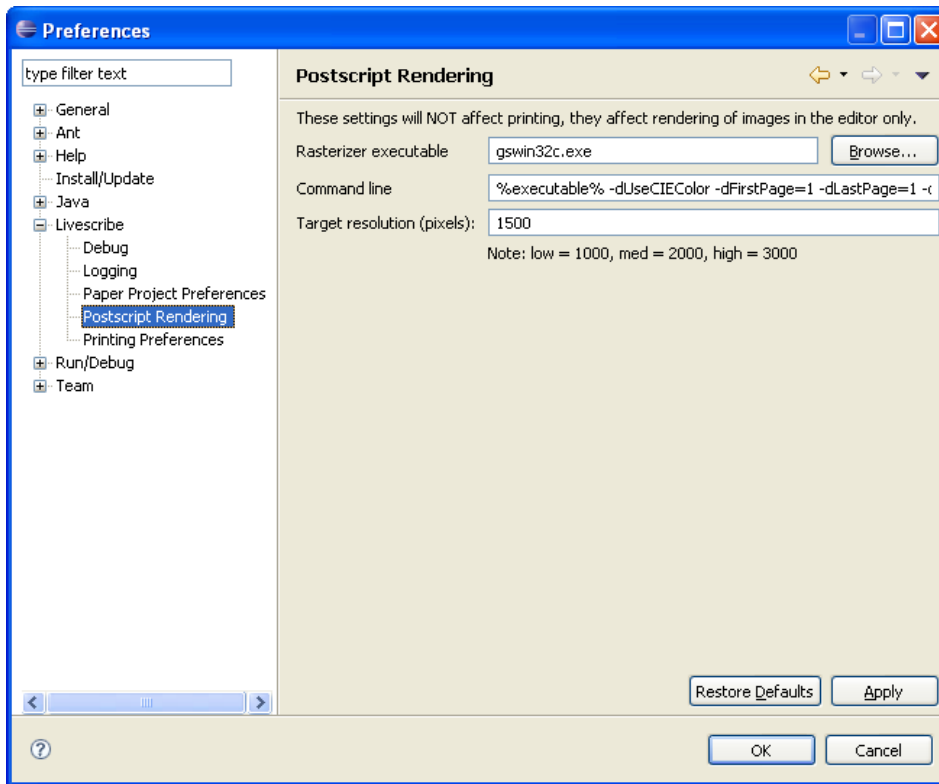
If you do not have Ghostscript installed, you will see the following error message when you try to view an image in the canvas:



To configure the Paper Designer to work with Ghostscript:

1. Install Ghostscript by copying the distribution files to a convenient location on your file system.
2. In Eclipse, go to
Window > Preferences > Livescribe > Postscript Rendering

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3. In the Preferences dialog, specify values that the Paper Designer should use to launch the Ghostscript executable (or your favorite rasterizer).

Windows Users: Your values might be similar to these:

- **Rasterizer executable:**

C:\Program Files\gs\gs8.64\bin\gswin32c.exe

OR

C:\Program Files (x86)\gs\gs8.64\bin\gswin32c.exe

- **Command line:** %executable% -dUseCIEColor -dFirstPage=1 -dLastPage=1 -dEPSCrop -dSAFER -dBATCH -dNOPAUSE -r%resolution%x%resolution% -dNOPLATFONTS -sDEVICE=pngalpha -dBackgroundColor=16#ffffff -dDOINTERPOLATE -dTextAlphaBits=4 -dGraphicsAlphaBits=4 -q "-sOutputFile=%output%" "%input%"
- **Target resolution:** 1500 pixels. (For a discussion of target resolution, see the "Target Resolution" section in *Developing Paper Products*.)

4. **Windows Users:** Add the Ghostscript path (or the path to your favorite rasterizer) to the PATH environment variable. You can do this in the System Variables of the System dialog. For instance, in this case, you would add:

C:\Program Files\gs\gs8.64\bin OR c:\Program Files (x86)\gs\gs8.64\bin

64-bit Windows Users: The 64-bit version of Ghostscript is not currently supported. If you are running 64-bit Windows, you must install the 32-bit version of Ghostscript. Install it directly on your computer's file system by accepting the default directory path, which is `X:\Program Files (x86)\gs` (where X is the letter of the drive you wish to use.) Ghostscript will automatically run in Compatibility Mode. Do not install the 32-bit JDK in Windows XP Mode (if your version of Windows 7 has that option).

Do not forget to include the location of your 32-bit Ghostscript distribution in your PATH environment variable.

Updating Livescribe Plugins (Features)

You can keep your Livescribe Eclipse plugins up-to-date by installing the latest update site. Livescribe uses *archive* update sites to update Livescribe Eclipse plugins. With this approach, the simplest method for acquiring updates is to download the latest version of the Livescribe Platform SDK from the Livescribe web site. Then invoke the Install New Software wizard and navigate to the update site in the Livescribe Platform SDK on your file system. The update site is packaged as a zip file and contains all the Livescribe plugins.

Note on Eclipse Terminology: A container of related plugins is called a *feature*. Related features released by the same company are grouped in an *update site*. Archive update sites are packaged as zip files.

When Livescribe has a new version of one or more plugins, we will create a new zip file (update site) and include it in the latest download of the Livescribe Platform SDK.

Updating Plugins in SDK 1.5

1. **Mac Users:** Install the latest PenCommService included in the SDK.
2. Verify that you have a connection to the internet. Updating of features (plugins) in Eclipse sometimes requires internet access, even if the zip file of the targeted plugins is saved on your computer's file system.
3. Launch Eclipse and select **Help > Install New Software** to launch the Install wizard.
On the **Available Software** page of the wizard, click **Add**.
4. In the Add Repository dialog, click **Archive**.

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5. In the Repository Archive dialog, browse to `SDKInstall\EclipsePlugins\platformSDK14updatesite.zip`, where *SDKInstall* is the folder in which you unzipped the Livescribe Platform SDK archive. Select the zip file and click **Open**.
6. In the Add Repository dialog, click **OK**.
7. On the Available Software page, a new Livescribe update site should automatically appear in the list box. Select the check box for the new Livescribe Platform SDK update site. Then click **Next**.
8. On the Install Details page, the Details section should state that your Livescribe feature(s) are already installed, so an update will of those features will be performed instead. Click **Next**.
9. On the Review Licenses page, select the **I accept the terms of the license agreements** option. Then click **Finish**.
10. Click **Yes** to restart Eclipse.
11. When Eclipse launches, you may have to select your workspace. Then click **OK**.
12. Livescribe Penlet perspective should be showing. If not, select **Window > Open Perspective > Penlet**. Then click **OK**.

Setting Eclipse Logging Preferences

The Livescribe Eclipse plug-in uses the Apache log4j framework to enable logging at runtime without modifying your application binary. In Eclipse, you can control logging preferences using the **Window > Preferences > Livescribe > Logging** page. On this page, you can specify a custom configuration file for your logging preferences. You can also specify console and file appending properties. To learn more about this framework, and the properties you can set, go to the Apache website: <http://logging.apache.org/log4j/>.

