# Welcome to Kmax 10.1

Kmax is a cross-platform, Java-based application that will run on Windows, Linux, or Mac OS X. This distribution of Kmax replaces all previous releases except for Kmax on Mac OS X platforms running the PPC processor. There is no upgrade for PPC-based computers. This release has been tested on the Windows 7, Mac OS X 10.10, and Fedora 20, 64-bit platforms.

Installing Kmax

Quick Start:
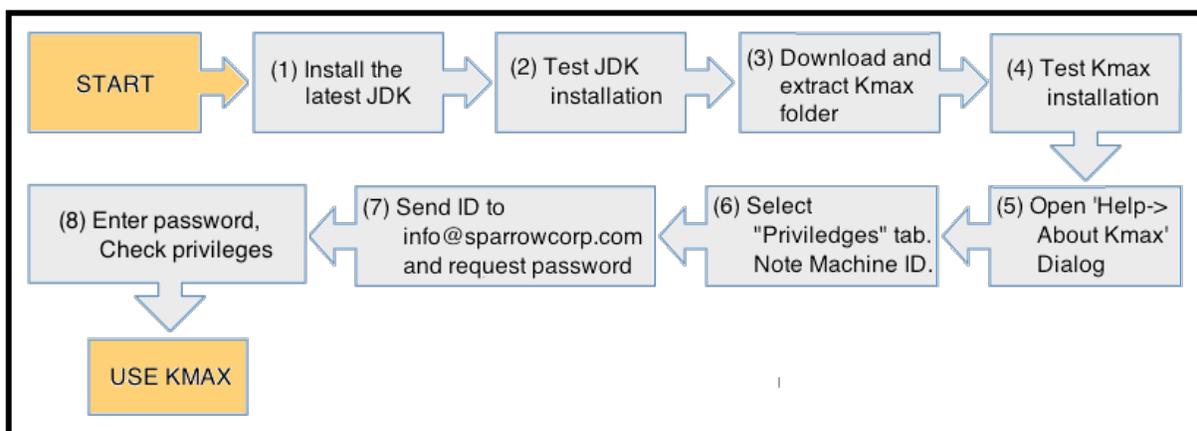
To insure that a computer can run Kmax properly, it should have

an appropriate version of the OS and of the Java JDK installed (see the table below). Other combinations of OS-version and JDK-version may also work. Install OS and Java upgrades according to the instructions provided by the vendor.

OS	OS-Version	JDK-Version
Mac O S X	10.10 or greater	1.8 or greater
Linux	Fedora 20 or greater	1.8 or greater
Windows	7 or greater	1.8 or greater

(1) Java JDK required

The full Java Development Kit (JDK) is required not just the Java Runtime Environment (JRE). The JDK is required to insure that Kmax can find and execute the Java compiler 'javac". Install the Java JDK according to the instructions provided by the Java JDK provider.

(2) Check for correct versions of java and javac

You also need to insure that the correct versions of both java and javac are in the execution path so that both the OS and the Kmax application can find them. To check that Java is properly installed, open a terminal window (or command line tool) and at the user prompt type:

```
$: java -version
```

The system should respond with something similar to:

```
    java version "1.8.0_25"
    Java(TM) SE Runtime Environment (build 1.8.0_25-
b17)
    Java HotSpot(TM) 64-Bit Server VM (build 25.25-b02,
mixed mode)
```

To insure that javac is installed and that it is in the execution path from the command line type:

```
    $: javac -version
```

The system should respond with the version information:

```
    javac 1.8.0_25
```

If either of these tests fail to indicate that jdk version 1.8 is not properly installed, either the full jdk is not installed or the PATH variables do not point to the correct java and javac executables.

Java3D

If you want to use Kmax to view 2D histograms as 3D surfaces you must install the Java3D package on your computer in a directory called "java3d" directory so that Kmax can locate the Java 3D classes.   After you install Kmax, you can determine whether Java 3D is properly installed by selecting the "About Kmax…" item from the Kmax "Help" menu. Select the "System Info" tab on the "About Kmax" dialog and scroll down to the "Java3D Properties:" section. See the "ReadMe_Java3D" file in the "Kmax_Stuff/HelpFiles" directory for more information.

(3) Download and Install Kmax

Download the latest version of Kmax from the Sparrow website (www.sparrowcorp.com). The Kmax distribution downloads as a zip archive. Unzip the Kmax_Stuff folder and place it in any convenient location.   If you are installing a new version over an older copy of Kmax, be careful not to overwrite files in the Kmax Folder that were added or edited since the last installation.

(4) Test/Run Kmax

The default way to run the Kmax application is to execute the Kmax.jar from the command line. Open a terminal window or shell tool and 'cd' to the Kmax_Stuff folder (e.g. cd ~/Kmax_Stuff) and execute the command:

```
$: java -jar Kmax.jar
```

On Mac OS X, to set the Mac OS application name, you can also use:

```
$: java -Xdock:name="Kmax" -jar Kmax.jar
```

On Windows, you can also try:

```
$: javaw -jar Kmax.jar
```

On Mac OS X you can also double-click the Kmax.app icon to start Kmax. Mac users should note that on some systems double-clicking the Kmax.app icon may not set the 'current user

directory' correctly. On Linux, you can double-click Kmax_Linux.sh. On Windows, you can double-click the Kmax_Win.lnk. (Linux and Windows users may need to edit the Kmax_Linux.sh or Kmax_Win.lnk files to insure that the paths to the java executables are correct for their platforms.)

If Kmax fails to start, the most frequent problems are that Java JDK is not properly installed or the path variables are incorrect. If Kmax starts but cannot compile toolsheets, either the JDK is not properly installed , or javac is not in the execution path. Make sure that the PATH variable includes the directory path to javac. Also check to see that you have appropriate file permissions to access and execute `java` and `javac`.

(5,6,7) The Kmax password dialog

The first time that Kmax executes in a user account, the "About Kmax" dialog box is displayed with the "License" tab selected. Read the license agreement. If you do not accept the license agreement, cancel the dialog and remove the Kmax software from your system. If you accept the license agreement, you may click "OK" to run Kmax in demonstration mode. If you have purchased a license or have requested an evaluation license for Kmax, click the "Privileges" tab and note the Machine ID. You will need the Machine ID to request a password from Sparrow. You may also select the "System Info" tab and copy the entire contents of that window and send it to Sparrow. This information includes the machine ID and can be used to identify the details of your installation should you require technical support from Sparrow in the future. Send the Machine ID or the

"System Info" to support@sparrowcorp.com and request a password. Enter this password in the "Privileges" tab of the "About Kmax" dialog and click OK to enable your Kmax license. If you are installing a Kmax upgrade with the same major version and already have a valid license on your computer, you will not need to request another password since the license will still be valid. If you are moving the Kmax application to another computer or to another user account, you will need to run Kmax for the first time, record your new machine ID, and request a new password from SPARROW as described above.

Other required drivers and libraries

The Kmax distribution package includes natively-compiled code modules that Kmax uses to connect computer interfaces to external devices. This native code is platform specific and often depends on libraries or device drivers provided by the manufacturer of the external device. The availability of these modules depends on the quality of support available from the manufacturer of the device, and thus not all devices are supported on all platforms. Please contact the device manufacturer or Sparrow Corporation (support@sparrowcorp.com) to determine if your specific device is supported.

If you have a SCSI device that you plan to use with Kmax on a Windows-based computer, you will need to use an Adaptec compatible SCSI interface host adapter and install the ASPI drivers from Adaptec. To download and install the ASPI drivers

for Adaptec cards, go to "http://www.adaptec.com/" and follow the links to download the ASPI drivers for your platform. Make sure that you read the installation instructions. If you board is not from Adaptec, check with the vendor regarding ASPI support.

If you plan to use a USB device, the Kmax driver may require the libusb 1.0 library. Download and install the latest version available for your operating system. Make sure that all path variables are set so that the shared library can be found at runtime. If OS path variables are not set correctly, unpredictable results may occur.

Installing Kmax Drivers

Kmax drivers are jar files containing classes that implement the I/O methods that Kmax uses to communicate with external devices. The drivers are located in architecture-specific folders in the Kmax Extensions folder. The folder hierarchy is designed so that Kmax can locate drivers that are compatible with the architecture of the current platform and OS.

Current folders for 64-bit drivers include:

Linux-amd64
MacOSX
Windows-amd64

(DEVELOPER NOTE: AMD64 is the name that AMD gave to their new 64 bit architecture when it was first proposed. It is the 64-bit version of x86 instruction set and is sometimes referred to

as x86-64, x86_64, and x64. The original specification was created by AMD and so we use "-amd64" to label folders that provide 64 bit Kmax drivers. The AMD64 (x86-64) specification is distinct from the Intel Itanium (formerly IA-64) architecture, which is not compatible on the native instruction set level with the x86 architecture.)

Kmax Documentation

The Kmax reference manual is provided as a set of HTML files and may be read using any web browser. The manual can be accessed from the Kmax Help menu. Keep the Kmax Manual folder in the same folder as the Kmax application and bookmark the Kmax.html home page in your browser for easy access. While the manual will be a valuable reference, the best way to learn how to design and build toolsheets is to explore the toolsheet examples provided with the Kmax distribution.

Important Compatibility Information

Java 1.6.0_26 image format not backward compatible

The Java 1.6.0 JDK/JRE (version 1.6.0_26 and above) introduced an image storage format that is no longer compatible with earlier versions used by Kmax. Kmax version 9.2 picture widget s used the older image storage format. Therefore, **Kmax** toolsheets containing Picture widgets which were last saved in JDK/JRE versions prior to 1.6.0_26 will not open properly when Kmax is running in JRE versions 1.6.0_26 and above.

As of Kmax version 9.3, the Kmax toolsheet format has been updated to accommodate this change to image storage formats. Only the picture widget format has changed, so toolsheets that do not contain picture widgets are fully backward/forward compatible.

In order to use toolsheets with picture widgets which were saved with Kmax 9.2 and the older JDK/JRE, picture widgets will have to be removed. First open the toolsheet in an older JDK/ JRE version with Kmax version 9.2.3 (or below) and clear all picture widget images. Save the toolsheet without the images. The toolsheet can now be opened with Kmax version 9.3 and above in JDK/JRE 1.6.0_26 and above. The images may now be imported back into the pictures widgets and the toolsheet saved. This newly saved toolsheet will be fully forward compatible.

Note that Kmax 9.3 and above cannot open toolsheets (that have images) saved with versions of Kmax prior to version 9.3.

Command Sequence Language (CSL) no longer supported

Kmax distributions since version 8.x use Java methods to define runtime behavior and cannot run older toolsheets based on Command Sequence Language (CSL). The CSL scripts in older toolsheets must be replaced with the equivalent java methods.

Other Known Issues and Problems

When running the Kmax.app package on Mac OS X, the current working directory is not correctly set. It is set properly double-

clicking the Kmax.jar file or when executing Kmax.jar from the command line.

On Mac OS X, the vertical labels on histogram axes are not not drawn properly. This is a java issue specific to the Mac. The labels draw properly on Windows and Linux platforms.

Java3D is no longer installed in the JDK/JRE directory. See the "ReadMe_Java3D" document or the information provided with the Java3D download for more information. Java3D on the Mac now requires the JOGL libraries. Java3D on Linux has a bug that causes Kmax histogram surfaces to flicker as they are rotated or zoomed. Kmax 3D viewer windows may not load properly on multiple screen systems if the Kmax application is not on the main screen.

Animated GIFs imported into Kmax pictures sometimes hang Kmax on Mac OSX.

If the Kmax application does not close properly, it may sometimes leave a temporary folder in the same directory as the toolsheet. After Kmax is closed these folders may be deleted. Do not delete these temporary folders while Kmax is running.

Slashes or colons in directory or file names may produce unexpected effects, since they are used as file (directory) separators on some platforms. Spaces may also produce unexpected effects.

Drag and drop is not yet supported. Double-clicking a toolsheet document (.tlsh) will not open the Kmax application on

Windows or Linux platforms.

Check Sparrow's website often for the most current Kmax information.