

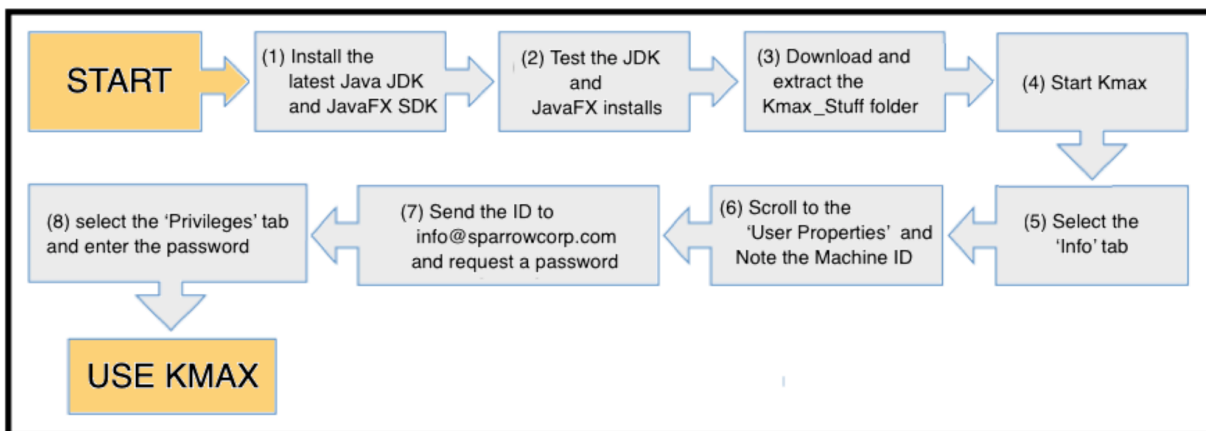


## Welcome to Kmax version 11.3

Kmax is a cross-platform, Java-based application that will run on Windows, Linux, or MacOS. This release has been tested on the Windows 10, MacOS 10.15, and Fedora 32, 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, the Java JDK and the JavaFX SDK 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.

| <b>OS</b> | <b>OS-Version</b>    | <b>JDK-Version</b> | <b>JavaFX-Version</b> |
|-----------|----------------------|--------------------|-----------------------|
| MacOS     | 10.15 or greater     | 15.0 or greater    | 15.0 or greater       |
| Linux     | Fedora 32 or greater | 15.0 or greater    | 15.0 or greater       |
| Windows   | 10 or greater        | 15.0 or greater    | 15.0 or greater       |

### **(1) Java JDK and JavaFX SDK 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’ as well as the jre. Download and install the desired version of the Java jdk to an appropriate location on the computer. Set the ‘JAVA\_HOME’ environment variable to point to ‘.../java/jdk-[ver]’ folder. Then download and install the corresponding version of the JavaFX sdk. Set the ‘PATH\_TO\_FX’ environment variable to point to ‘.../javaFX-sdk-[ver]/lib’ folder.

To set the ‘JAVA\_HOME’, ‘PATH\_TO\_FX’, and ‘KMAX\_STUFF’ environment variables on MacOS or Linux enter these commands in the terminal window for the current session :

```
$: export JAVA_HOME=/path/to/java/jdk-[ver]
$: export PATH_TO_FX=/path/to/javafx[ver]/lib
$: export KMAX_STUFF=/path/to/Kmax-Stuff
```

To set them permanently for a MacOS user, enter the commands in the `‘.bash_profile’` or other file that is `‘sourced’` at login.

To set them permanently for a Linux user, enter the commands in the `‘/etc/environment’` or other file that is `‘sourced’` at login.

To set the environment variable on Windows go to the system `‘Environment Variables’` dialog and input the information.

The `‘path’` variable may also need to be edited to provide the path to `‘${JAVA_HOME}/bin’` so that the system can find the `.exe` and `.jar` files that the system need to run Kmax.

Restart the computer (or `‘source’` the file) to cause the system to set the variables. Use the `‘echo’` command from a terminal window to check that the environment variables are properly set. For example on MacOS or Linux:

```
$: echo ${KMAX_STUFF}
```

MACOS NOTES: When the Kmax-Stuff folder is downloaded to a Mac computer, the `“Kmax-Mac.command”` may not open Kmax properly due to MacOS security settings. You should still be able to open Kmax with the `‘.command’` file without changing these settings by holding down the control key as you click on the file then select open. It will prompt you again to confirm that you want to open the file. From then on, the `“Kmax-Mac.command”` file will no longer be blocked.

When the .command file is initially copied to a MacOS system the .command file may not have the 'execute' permission set. The permissions may be changed in a terminal window by changing to the Kmax-Stuff folder and entering the 'chmod' command (u means current user):

```
$: chmod u+x Kmax-Mac.command
```

LINUX NOTES: When the Kmax-Linux.sh file is initially copied to a Linux system the .sh file may not have the 'execute' permission set. The permissions may be changed in a terminal window by changing to the Kmax-Stuff folder and entering the 'chmod' command (a means all users):

```
$: chmod a+x Kmax-Linux.sh
```

Also the system may not know to execute the script as opposed to editing it. To cause the system to execute the script, Go to a 'File Manager' window and click the dropdown menu. Select the 'Preferences' item. In the 'Preferences' dialog, click the 'Behavior' tab and then select the 'Run them' item under the 'Executable Text Files' section. Now you should be able to double-click the Kmax-Linux.sh file to start Kmax.

WINDOWS NOTES: When the Kmax-Win.lnk file is first copied to a windows system, execution of the lnk file may be blocked. Unblock the execution by opening the properties dialog and un-clicking the checkbox.

The Windows OS does not always handle spaces in file paths in a

consistent manner. File paths may need to be enclosed in quotations. It may also be helpful to use the %ProgramFiles% environment variable to reference the path to the “Program Files” directory to avoid the problem. Environment variables in the Windows OS are not case-sensitive.

## **(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 "14.0.1" 2020-04-14
Java(TM) SE Runtime Environment (build 14.0.1+7)
Java HotSpot(TM) 64-Bit Server VM (build 14.0.1+7,
mixed mode, sharing)
```

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 14.0.1
```

If either of these tests fail, either the java JDK is not properly

installed or the environment variables are not properly set up. Ensure that the `JAVA_HOME`, `PATH_TO_FX`, `PATH_TO_FX` and `path` variables point to the correct locations.

### **(3) Download and Install Kmax**

Download the latest version of Kmax from the Sparrow website ([www.sparrowcorp.com](http://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 convenience files: `Kmax-Win.lnk`, `Kmax-Linux.sh`, `Kmax-MacOS.command` are provided to allow the `Kmax.jar` file to be run just by double-clicking the convenience file for the local system. The Kmax application can also be started by executing the `Kmax.jar` directly 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 -p $PATH_TO_FX --add-modules=javafx.controls,javafx.swing -jar Kmax.jar
```

(-p is shorthand for --module-path)

On MacOS or Linux, you can also run Kmax by executing the `Kmax-Linux.sh`, or `Kmax-MacOS.command` shell scripts.

Open a terminal window, cd into the Kmax-Stuff folder, and then type:

```
$: sh /path/to/scriptfile
```

On Windows, you can use:

```
$: java -p %PATH_TO_FX% --add-modules=javafx.controls,javafx.swing -jar Kmax.jar
```

On Windows, you can also double-click the Kmax-Win.lnk. (This works as long as the environment variables JAVA\_HOME, PATH\_TO\_FX, and KMAX\_STUFF are all properly defined.)

Users may want to edit the Kmax-MacOS.command, Kmax-Linux.sh or Kmax-Win.lnk files to insure that the paths to the java executables are correct for their platforms. On Windows, the environment variables may need to be put in quotation marks if the paths have spaces in their file names.

If Kmax fails to start, the most frequent problems are that either the Java JDK or the JavaFX SDK is not properly installed or the environment variables are incorrect. If Kmax starts but cannot compile toolsheets check to see that javac is 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.

## **(5,6,7,8) The Kmax password dialog**

The first time that Kmax executes in a user account, the Kmax “Welcome Window” is displayed. Read the license agreement. If you do not accept the license agreement, quit the application and remove the Kmax software from your system. If you accept the license agreement, you may click “Demo” 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 “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 “Info” text to [support@sparrowcorp.com](mailto:support@sparrowcorp.com) and request a password. Enter this password in the “Privileges” tab of the “Welcome” window and click ‘Update’ 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](mailto:support@sparrowcorp.com)) to determine if your specific device is supported.

If you plan to use a USB device, the Kmax driver module 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 the OS path variables are not set correctly, unpredictable results may occur.

## **Installing Kmax Driver Modules**

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. If you want to add a driver to the Kmax environment, make sure that the driver files are placed in the appropriate folder for the system architecture.

Current folders for 64-bit drivers include:

Linux-amd64

MacOS

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 with the native instruction set of the x86 architecture.)

## Kmax Documentation

The Kmax reference manual is provided as a set of HTML and image files and may be read using any web browser. The manual can be accessed from the Kmax Help menu. Keep the HelpFiles folder in the same folder as the Kmax application and bookmark the KmaxManual.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

**Kmax v10 toolsheets can be opened with Kmax v11 and above**

While the v10 toolsheets can be opened, they may require modifications in order to compile and run. Most of these

modifications are a result of replacing java swing with the javaFX components. See the 'ReadMe-Legacytoolsheets' file for more information.

## Other Known Issues and Problems

If the Kmax application does not close properly, it may sometimes leave temporary folders in the same directory as the toolsheets that were open at the time Kmax closed. 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 in file names may also produce unexpected effects.

Double-clicking a Kmax.jar will NOT open the Kmax application.

Double-clicking a toolsheet document (.ktlsh) will NOT open the Kmax application.

-----  
-----

Check the SparrowCorp website often for the most current Kmax information.