macoslib Overview

macoslib is a collection of objects and functions filling the gap between Xojo and OS X. This document describes **only some** of the improvements macoslib brings to your apps.

Automatic multilingual interface: many system-wide items (helper windows, built-in menu items…) are automatically translated according to the System Settings in the *Language and Text* panel. In this document, any text which is not in English (usually it is in French), should be considered as automatically translated by the system. When too discrete, the stress can be put on some translations with a colored ellipse.

The Purpose of macoslib

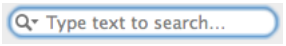
Xojo is mainly focused on being cross-platform, i.e. you can use the same code and generate an application for OS X, Windows or Linux. This is a very good idea but it also means that some features available on only one OS may be dismissed because they have no equivalent on the other OSes.

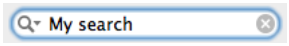
Whenever you want to use some "advanced" features of an OS, you need to use direct system calls through the *declare* statement. The problem is that not everyone has the skill to do that and that is where **macoslib** intervenes, at least for OS X. If you want your application to use the full power of OS X features then **macoslib** can be helpful.

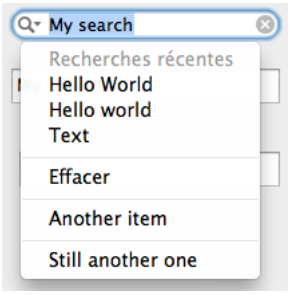
macoslib defines a lot of Carbon and Cocoa objects. Each object has methods and properties which will be directly sent to the system, so you are no longer limited by Xojo. Not only some Xojo classes are extended, but you can also use some classes/controls which are not implemented at all in Xojo.

Controls and Windows

Search Field





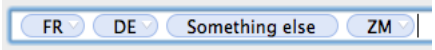


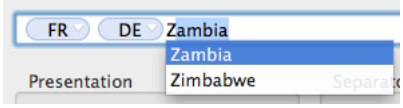
The famous Search Field, with its prompt, the cross icon to delete the text typed and the fully customizable menu.

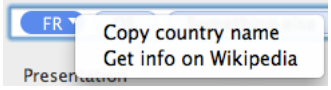
Recent searches can be easily included and there are automatically saved in the preferences file.

There is also a Search Field class for toolbars.

Token Field





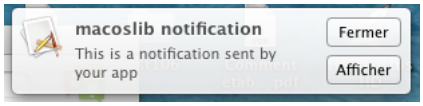


You have been using the Token Field for ages in *Mail.app* without knowing its name. Each value corresponds to a object but it is displayed as an abbreviation. When typing, an autocompletion menu is displayed (middle image). Also, each object can have its own menu (right image).

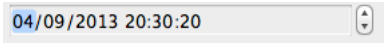
Objects can be rearranged by drag & drop and they natively support copying, pasting, deleting and undo.

User Notifications

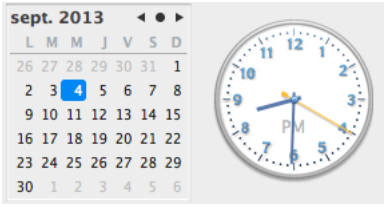
Since OS X 10.8, applications can display user notifications as Growl used to. Such notifications appear in the Notification Center but they can also be postponed, repeated…



Date Picker



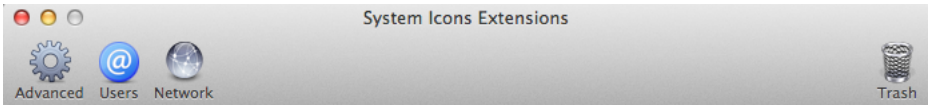
The Date Picker allows you to set a Date and/or a Time very simply and the way OS X does.



Accessing System Icons and Pictures

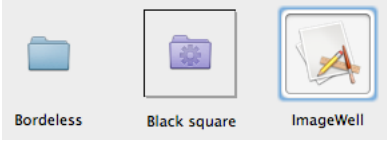
With a single line of code, you can access any system picture. It can be a Finder icon (folder, application...) or icons to be used inside buttons. As an example, the following buttons were created on-the-fly from system icons.

But you also can use those system icons in your Toolbar:



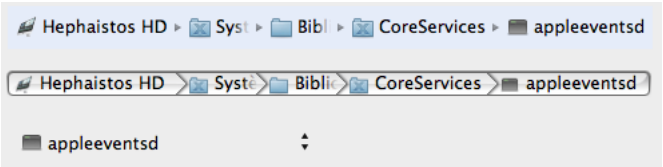
… and using the Image View control to display them

With the Image View control, you get rid off the hassle of painting, scaling or aligning the displayed picture. It has much more fine grained options than Xojo. Also, it can handle automatically the copy/paste/cut commands and the drag&drop operations.



Path Control

When working with the disk hierarchy, it may be a nice user experience to display an interactive path of a FolderItem. Your app is notified when the end-user clicks on one component of the path so you can update the content of your window.



The three different styles:
- Standard
- NavigationBar
- PopUp

For folders whose name has been truncated, they automatically expand when the mouse passes over them.

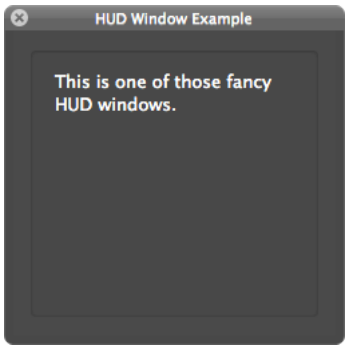
DockTile Badge

Ever wanted to add a badge to your application icon in the Dock like Mail, App Store and many others ? **macoslib** provides such feature and it just takes 2 lines of code.

Windows Extensions

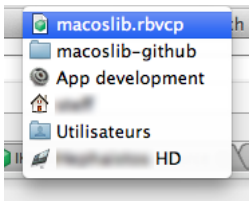
For most apps, windows are the heart of the interaction with the end-user.

The famous HUD (*Heads-Up Display*) is this floating dark gray translucent window everybody wants but it is not available even in the latest Xojo release (2013r2 at the time of writing). **macoslib** lets you create one very easily and it works exactly as any floating window.



Proxy Icon and Menu

The absolute must-have for any document-based window is the so-called proxy icon, i.e. the document icon preceding the title. Not only does it enable the proxy menu to access the folder hierarchy to which the file belongs, but also it allows to drag&drop the file itself either to move/copy it or to create an alias to it. With **macoslib**, you can have all that with a single line of code !



When *right*-clicking or *Ctrl*-clicking on the title, the following menu should appear, listing all the folders in disk hierarchy up to the document file.

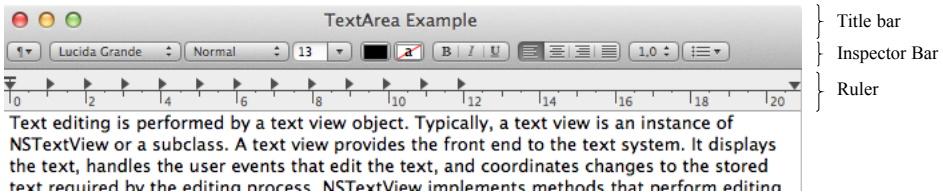
If you select an item, the corresponding folder will be displayed in the Finder.

Full Screen Applications

OS X Lion introduced the concept of full-screen applications which are best used with several workspaces. Clicking on the icon on the right of the title bar brings you to that mode.

Word Processing

You may think that a TextArea is just an area to type some plain text but it is so much more. Actually, a TextArea is what you can find in the TextEdit application. With the extensions provided by **macoslib**, you can display and use both the *"Inspector Bar"* and/or the *"Ruler"* (see below).



Other options include:

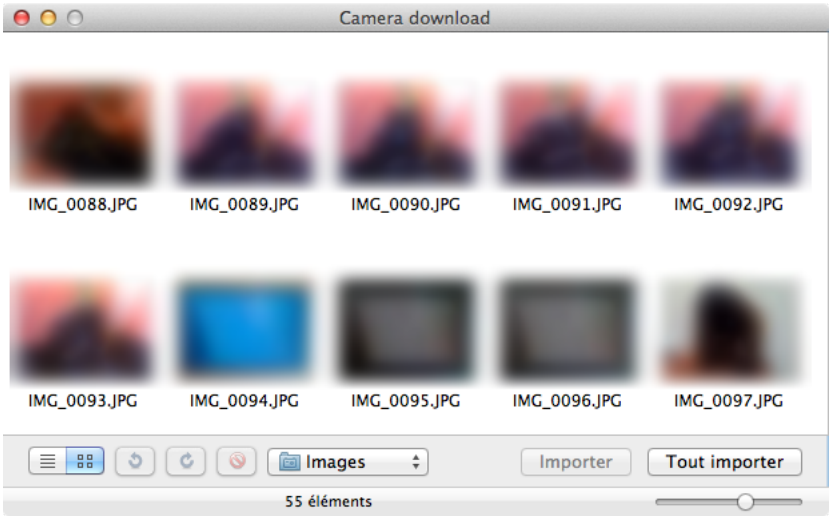
- Inserting lists with customizable prefix
- Inserting tables
- Inserting pictures (if the backend storage allows it)
- Controlling spelling and grammar correction
- Allowing user-defined automatic replacements
- Reading text through Speech
- Inserting links
- Using automatic link and/or data detection
- ... and many other things

Managing Cameras and Scanners

Do you want to transfer photos from/to your camera/iPhone/iPad ? Or do you want to control your scanner (including multifunction printers) to preview and scan a document ? This is pretty easy with **macoslib**. You will get the standard display as in any Apple application (e.g. Preview), including the list of usable hardware locally and/or on the network. As a bonus, the interface is automatically localized per user's choice. See *ImageKit* and *ImageCaptureKit* in **macoslib**.

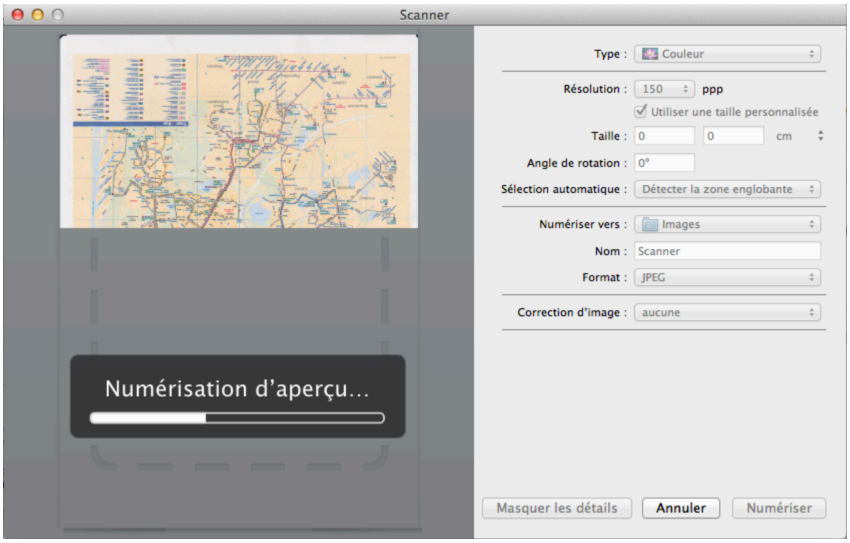
On the left, an example list of available devices (you can select a view by icons). *"NO NAME"* is an old camera with 40 items in it and it can be ejected right from your application, *"iPhone"* is obviously my iPhone with 55 photos and the *Canon MP240 Series* is a multifunction printer (here the scanner part is proposed).

For any camera/iDevice, either local or networked, you can access the contents of the device with several presentations (here a presentation by icons) and import one or more items. Also you can delete some items if your application and the device allows it.



This example shows a (blurred) part of my iPhone's content. The whole interface is automatically translated.

As a developer, you can choose to propose different features to the end-users: rotating pictures, deleting selected ones, choosing the destination folder for importation, …



For a scanner or multifunction printer, you can access the standard scanner window (here, a snapshot of the window while it is acquiring the document preview).

Note that the full interface is translated. You can also select which values can be changed by end-users.

What You can't See

Many classes and controls provide invisible features (but the best is always behind the scene !).

Like the Finder

There are many cases where we would like to do things “like the Finder”. Here are a few ways to achieve that:

Formatting Files Size

macoslib can format files size like the Finder. The result is 100% conform to Finder with OS X 10.8 and later but there is a compatibility layer to ensure that it also works on previous versions of OS X.

Sorting Filenames

You have noticed that the Finder sorts filenames by interpreting numerical values as numbers instead of treating them alphabetically. Also, it can handle accented characters from different languages. **macoslib** has all the tools you need to propose the same behavior to your end-users.

Bonjour

If you are a Mac user, you must know Bonjour, a cross-platform technology to detect all the services available on the local network. For example, many printers implement it so they are automatically detected and configured by your Macintosh.

With **macoslib**, it becomes easy to detect any printer or service over the network, but also to advertise your own service.

Bonjour is also available on Windows or on Linux through different packages (Avahi is the most common. You can find it at http://www.avahi.org).

Files

There are several file properties that cannot be accessed through Xojo.

Access Control List (ACL)

The Access Control List (aka ACL) is a way to have a fine grained control over file/folder access, and it is prioritary over simple UNIX-like permissions. **macoslib** allows you to access/modify/delete ACLs.

Extended Attributes

Each file can have extended attributes. For example, OS X uses extended attributes to store the Resource Fork, Finder data or Quarantine data (i.e. all the stuff to warn you that a file has been downloaded from the internet ans ask you if you want to open it).

But you can also add anything as Extended Attribute, depending on what you need.

System Notifications

You may be interested in being informed whenever a system-wide event occurs like a new disk being mounted or ejected, the user having changed the Finder labels, an application being launched or terminated and so on. **macoslib** can do that for you.

Filesystem Events (FSEvents)

Each time a file or folder is created/modified/deleted, a new entry is created in the FSEvent (aka *FileSystem Event*) database. It allows you to know what is happening or what happened since the last time your application quit.

Speech

Speech synthesizing was quite limited before Lion but now, it is multilingual and supports high-quality voices. **macoslib** offers a fine-grained control over the voices, volume, rate and all the events associated with speech synthesis.

ResourceFork

While Xojo abandonned ResourceFork, it is still used in OS X. **macoslib** proposes a replacement for that.