

Application Performance Checklist

The following is a brief summary of performance issues that you should check for your application. Some of them are trivial to check and correct (e.g., making your panels be one-shot in IB), other take more work (e.g., scatter loading, optimizing custom drawing routines). For more information about any of these items, look up bold words in Librarian, which can be accessed via the Services menu.

Drawing Performance:

- ___ Best drawing techniques used (**xyshow**, **userpaths**, **NXRectFillListWithGrays()**,^{1/4}).
- ___ All windows are sent **useOptimizedDrawing**: unless this causes incorrect display.
- ___ Efficient PostScript generated by App's custom Views (check using **showps** around **drawSelf::** in gdb).
- ___ **setwindowtype** operator used where appropriate to give better interactive drawing feedback.
- ___ No redundant drawing. (Run app with **-NXAllWindowsRetained**. Solve using **-disableDisplay**, **-displayIfNeeded**).

App Memory Usage:

- ___ All data structures optimized for size, fragmentation and locality. Look for waste by examining your heap nodes with **MallocDebug**. Consider using **zone allocation** for documents and panels.
- ___ Optimized text and data working set for common operations. App is scatter loaded with **link optimization** techniques.

- ___ No leaks show up when using "Leaks" feature of **MallocDebug**.
- ___ **setStringValueNoCopy**: used in place of setStringValue: where appropriate.
- ___ No leaks of kernel objects (ports, open files, vm regions).
- ___ Copy-on-write memory used where possible (memory mapped files, out-of-line data in messages, **vm_copy()** for large regions).

Window Server Memory Usage:

- ___ All windows are deferred (set in Window attribute inspector in Interface Builder).
- ___ **OneShot** windows for almost all windows (set in Window attribute inspector in Interface Builder).
- ___ No windows with alpha channel on screen (check with **Winfo** app).
- ___ No unnecessary window depth promotion. **setpattern** operator used to draw 1/6, 1/2 and 5/6 grays.
- ___ No redundant or unused off-screen bitmaps (run app with **-NXShowAllWindows**).
- ___ No unarchived, but unused windows. (run app with **-NXShowAllWindows**. Create them lazily by moving to separate Interface Builder file.)

Interface Builder:

- ___ One window per IB module. Info panel removed from main interface module.
- ___ No nib sections/files loaded with names, including the one loaded from main() (must use **loadNibSection:owner:withNames:NO**).
- ___ All images added to project instead of in individual IB files. (images load faster, allows sharing of images between .nibs).
- ___ No extra sounds, images or scratch objects in nib files.

__ Pre-2.0-style set* methods for setting outlets removed.

Images:

__ NXImage compression used where applicable.

__ Don't composite with NX_COPY, use NX_SOVER (doesn't allocate alpha channel).