

LISACom 1.0

A serial communications tool for the Apple Lisa Office System. LISACom is a native LOS desktop tool: it opens as a window on the Office System desktop, drives Serial B, dials BBSes through a WiFi modem, and moves files in both directions with XMODEM and YMODEM – including YMODEM batch receive and YMODEM send with exact file sizes. It was written in Lisa Pascal with the Workshop 3.0 toolchain and runs under Lisa Office System 3.1 on real hardware.

Thanks

This tool exists because other people did the hard parts first and shared them.

Alex Anderson-McLeod (alexthecat123) – his LOS Minesweeper is the teaching example this tool's desktop integration was learned from, his LOS Compilation Base image supplied the Workshop environment the tool is built in, and Apple's own ICONEDIT icon editor was recovered from that same image. His LisaFPGA and ESProFile made nightly testing practical.

Tom Stepleton – his lisabbs (public domain) provided LIBPORT and LIBXFER, the working reference for Lisa serial programming and the YMODEM packet logic, and his documentation pointers unlocked the Workshop .TEXT page format and the DC42 checksum quirks. He also corrected an early wrong conclusion about Workshop keyboard handling, publicly and helpfully.

James MacPhail (sigma7) – corrections and hardware wisdom.

The LisaList2 community, bitsavers.org for the Apple manuals, and the **Computer History Museum** for releasing the Lisa Office System source.

Errors are mine, not theirs.

Requirements

- Apple Lisa running Lisa Office System 3.x (developed on 3.1)
- Serial B configured once in Preferences -> Connect Devices (Serial B Connector = Serial Cable); LISACom mounts the port itself each session
- A serial device on Serial B. Developed against a WiRSa WiFi modem (DCE, straight-

through cable, bare CR command endings, hardware flow control disabled with AT&K0 then AT&W)

- For transfers with a PC: any terminal program with XMODEM/YMODEM, such as Tera Term

The five files of an installed tool

LISACom installs as tool number 419306. A complete installation is five files on the boot volume:

{T419306}Obj	the program
{T419306}PHRASE	alerts and menus, built by the Alert tool
{T419306}ICON	the icon file (see Icons below)
{T419306}ICON.BACKUP	spare copy of the icon
{t419306}icon2	second icon file (lowercase t and icon2)

A sixth file, {T419306}data segment, is created by the OS at run time.

Never drag a tool's icon to the Wastebasket: LOS deletes the tool's whole absorbed file set with it, including the invisible phrase file.

Using LISACom

Open the LISACom icon on the desktop. The window shows an 80x24 text pane (font 8, fixed width). The welcome banner reports the version and current line settings. Any key stops a transfer in progress.

The Baud menu

Sets the line speed: 1200 through 38400. The speed takes effect when the port next opens, and the pane reminds you to match it on the other end. 38400 works reliably on Serial B for PC transfers; BBS sessions through the WiRSa run at whatever speed the line was opened at, so set Baud *before* dialing.

Terminal

XModem -> Terminal opens a live terminal on Serial B.

- Apple-. or Apple-Q exits (the line stays open; Hang Up closes it)
- Apple-E toggles local echo
- Apple-L toggles whether RETURN sends CR+LF or CR only

- Backspace/DEL sending is configurable the same way

An ANSI filter strips the escape sequences BBSeS send, so Synchronet and similar boards render as clean text.

Dial and Bookmarks

XModem -> Dial lists your bookmarks by number; pick one and LISACom opens the line, sends the INIT string (if any), waits for the modem to answer, sends the dial command, and drops you in the terminal connected.

Bookmarks live in a file named BBSLIST.TEXT on the boot volume, one entry per line:

```
BAUD 9600
INIT ATZ
NAME 8-Bit Boyz|ATDT bbs.8bitboyz.com:23|fun board
NAME Vertrauen|ATDT vert.synchro.net:23
```

BAUD sets the default speed, INIT is sent before each dial (optional; if the modem answers ERROR, LISACom says so and dials anyway), and each NAME line is name | dial command | optional note. The Bookmarks menu can add, remove, and list entries from the desktop.

Receiving files

Receive a File ... (XMODEM) – classic XMODEM checksum receive. Prompts for the Lisa filename to create.

Receive via YMODEM ... – YMODEM with CRC-16, 128-byte and 1K blocks. The sender supplies the filename and exact size; press RETURN at the Save-as prompt to accept the sender's name, or type a name to override it (the typed name applies to the first file only). Start the send on the other end – plain YMODEM, not YMODEM-G – and LISACom syncs.

YMODEM receive is a **batch** receive: if the sender queues several files, every file is received, each closed at its own end-of-file, and the session finishes with a count. This is how BBS batch downloads work: tag the files, pick YMODEM at the protocol menu, one download.

Received filenames are made Lisa-safe automatically: path prefixes are stripped, a Lisa catalog name may contain only one period (anything after a second one folds to _), and characters LOS does not allow – including - , which is the LOS pathname delimiter – become _ .

Received files land at their exact size. The two-step habit is still recommended for

build sources: receive to a scratch name, then File-Mgr Copy to the destination, so a dead transfer cannot damage the only copy.

Sending files

Send a File ... (XMODEM) – XMODEM checksum send. Prompts for a filename, or RETURN browses the disk catalog with a paged picker (a number sends that file, Q stops).

Send via YMODEM ... – same picker, but the file goes with its name and its exact byte count in the YMODEM header, so the receiver truncates away the transfer padding and lands the file at its true size. / in Lisa filenames is sent as _ for the PC's benefit. On the PC: File -> Transfer -> YMODEM -> Receive in Tera Term (set the transfer folder first under Additional settings so you know where files land).

List and Delete

List Files shows the boot volume catalog with free space; Delete a File removes one after confirmation. Clear Screen empties the pane.

Building from source

Three source files build the tool:

LMX/MAIN.TEXT	the program
LMX/GLOBALS.TEXT	shared state, menu constants, the text pane unit
LMX/ALERTS.TEXT	alert text and menu definitions (Alert tool input)

Menus are matched by position, so GLOBALS and ALERTS must always change together; a build that mixes versions will either fail to compile or dispatch menu items wrongly. When in doubt, send all three.

Two file-format rules matter when sources travel by YMODEM:

1. Workshop .TEXT files are **paged**: a 1024-byte header page, then 1024-byte pages in which no line crosses a page boundary. A raw text file will not compile. Run `fmt_text.py` (on the PC) over the source and send its output.
2. Line endings are **bare CR** (0x0D). LF anywhere renders as illegal characters in the Editor and breaks the compile.

The build itself, on the Lisa:

1. Receive the formatted source(s) with LISACom, then File-Mgr Copy each to its LMX/

slot

2. From the Workshop main menu: `R then <LMX/MAKE` (the leading `<` is required). The exec compiles all three, links, stages the files, runs the Alert tool, and re-registers the tool with InstallTool

3. Boot the Office System

MAKE only rewrites `{T419306}Obj` and `{T419306}PHRASE` ; the icon files survive every rebuild.

Icons

Tool icons are 1024-byte files holding a Mac-style font strike: four 48x32 cells (Document Icon, Tool Icon, and their masks). Do not build them by hand – Apple's own **ICONEDIT** (recoverable from the LOS Compilation Base image; copy to ICONEDIT.OBJ and run with `R ICONEDIT` in the Workshop) edits them natively, previews all the Reg/Hilite/Ghost states, and writes a correct file.

The one rule ICONEDIT will not enforce for you: the **mask must be the solid filled silhouette** of the icon, painted by hand in the Mask pane. "Data to Mask" copies the line art instead of filling it, which makes the icon vanish when clicked. Watch the Hilite preview while painting: correct is your art in reverse video.

A malformed icon file is not cosmetic. One caused Level 7 bus errors and corrupted copies whenever the Filer serialized the tool to a floppy.

Distributing on floppy

With correct icons, the tool duplicates to a floppy normally (Duplicate is the copy; dragging is a move), runs from the floppy, and copies onto another Lisa's drive. The "Lisa will have to shut down the tool before it can be copied" prompt is normal LOS behavior – the OS keeps the tool's process resident and must stop it to serialize the files.

Troubleshooting

- **Endless `x<x<` garbage in the terminal** – baud mismatch, or a wedged serial path after switching the port between devices. Match speeds first; if garbage persists at every speed, power-cycle the serial hardware chain and reopen the port.
- **MAKE_FILE ecode 1282 on receive** – the destination name contains a hyphen. `-` is the LOS pathname delimiter and is not legal in catalog names (this code is absent

from the published OS error tables; its documented siblings are 1023 and 1171). LISACom 1.0 substitutes _ automatically for sender-supplied names; typed names are your own responsibility.

- **Compiler reports Error 15 / Error 41 with garbage as line 1** – the source file is missing its page format or carries LF line endings. See Building from source.
- **A tool copied to floppy will not run and the drive stalls** – check the icon file first. See Icons.

History

LISACom grew out of a July 2026 project to run new software natively under the Lisa Office System, starting from Alex Anderson-McLeod's LOS Minesweeper as the worked example. It began life as "LISA XModem Util", a Workshop program that replaced a floppy-shuttle workflow for moving source code; by 1.0 it had become a desktop tool that dials real BBSes, downloads batches, and sends its own next version to the PC. Everything in this README was verified on a Lisa 2/10 and a LisaFPGA in August 2026.

Bugs and ideas: post to LisaList2.