Setting up

On Windows

Running Lua Demon requies C++ Redistributables 2017 (vcredist) and the LuaJIT DLL (lua51.dll). This DLL can either be downloaded or compiled yourself and needs to placed in the same directory as the LuaDemon.exe. LuaDemon is currently only available as 64-bit for Windows.

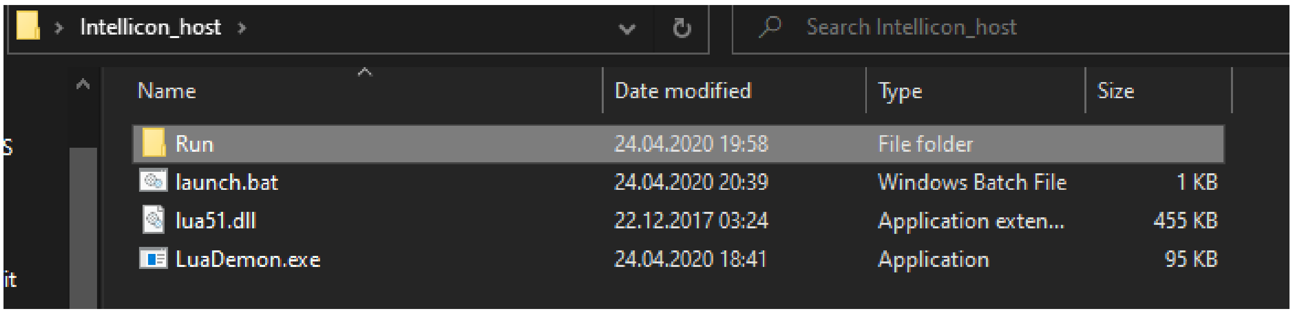
On Linux / Unix / OSX

These systems look for a libluajit-5.1.so.2 which has to be placed in your systems library directory. Copying it to /usr/lib/ works to but is not a reccomended option.

Make sure you are using the right lib file for your system (x86/x64 or ARM).

The given directory MUST contain an init.lua as an entry point!

A typical setup on Windows looks like this:



Name	Date modified	Type	Size
Run	24.04.2020 19:58	File folder	
launch.bat	24.04.2020 20:39	Windows Batch File	1 KB
lua51.dll	22.12.2017 03:24	Application exten...	455 KB
LuaDemon.exe	24.04.2020 18:41	Application	95 KB

```
title Intellicon HOST
.\LuaDemon.exe -dir C:\Users\Florian\Desktop\Intellicon_host\Run\
pause
```

Configuration

To display all available commands simply launch the LuaDemon executable with -help. Available commands are:

- -dir <directory> *required for operation*
  - Sets the working directory for the Lua environment. The LuaDemon process needs permission to read from this directory. The path MUST end with a slash (/). The program will automatically convert backslashes to forward slashes.
  - Using System links or remote directories is untested but may work. File watching and automatic reloading may not work under these circumstances. See the -nofilespy argument to disable them.
- -nofilespy
  - Disables the file watching function. Automatic reloading of Lua files will no longer happen. Use this if it causes instabilites or if file realoading is unwated.
  - It is still possible to manually reload the environment using the Lua function `forceReload()`
- -filespyinterval *(Linux only)*
  - Defaults to 500ms
  - Sets the interval to periodically check files for changes. Lower values will increase resources usage!
- -nodebug
  - Hides the Cyan/Blue debug messages in the console.

Writing Lua for Lua Demon

Lua Demon is built on LuaJIT 2.0.5 and will run any plain Lua code. All classic Lua functions are available without restrictions. LuaDemon is designed not to impair the performance of Lua.

A Lua program must not block at any point and has to exit or finish!

For example a `while true` without an exit/break would mean it would never finish to initialize the Lua environment. Since LuaDemon would never start and initialize, automatic reloading or Hooks would not work.

Reloading and Hotloading

LuaDemon fully supports Hotloading of Lua. You can reload as many times as you want without increasing memory usage or CPU time. It cleans up the old Lua instance while keeping all global variables (stack/heap is unchanged). Reloading is triggered by file changes in the given directory. A reload may also be triggered manually from inside Lua by calling `forceReload()`. This behaviour may be changed by adding `-nofilespy` to the launch parameters (manual reloads still work).

Keep this in mind when creating hooks or when using global data – You may have to clean up to avoid interference with old data.

Note for Linux users: The FileSpy on Linux uses inotify(). This means it will not see any file changes or updates made to files created in the directory after the program startup. On program startup is recursively seeks trough the directory tree. It only sees changes made by the local system – if the files are changed remotely (by FTP, SMB,or on a NAS...), nothing will happen. Some editors use swap files when saving, this can lead to multiple unitentional reloads. LuaDemon reacts when a file is modified and then closed but it cannot differentiate what or if something changed. Some editors seem to be saving completely randomly. Multiple subsequent reloads do not affect the Lua state negatively, however your Lua program should be written with this in mind.

Available Global Lua Functions and Variables

LuaDemon exposes some global functions to the Lua environment. Not all functions or variables are available on all systems and configurations. Check first in Lua before using them.

`nil` means the function returns nothing or expects no arguments

`nil include(string RelativePath)`

Allows inclusion of other Lua files. The path is relative to the file its being called in. Exception safe. If the specified file is unavailable it will do nothing but output a warning to the console.

`nil forceReload(nil)`

Will force the Lua environment to reload all Lua files the same way a file change would. Global Lua data is preserved after a reload. Keep in mind you may cause a soft-lock if used recursively so avoid using it outside of debug applications.

LuaDemon Libraries

LuaDemon adds several libraries to Lua:

- - File
  - For basic file handling
- - Network
  - Used for TCP/UDP network communication
- - Serial
  - Used for Serial (COM) Port communication
- - Std (global)
  - General utility functions
- - Think
  - Basic timing hooks and functions

Some library functions may behave differently on different architectures and OS. Some functions may not be available on all operating systems.

Note that the Network and Serial libraries work by polling.

Library: Serial (serial.)

Basic communication for serial ports. Ports are reffered to in Lua by their name.

(ex: "COM4")

Name	Arguments	Return	Description
Discover *(Windows only)*	**nil**	**nil**	Returns a list of all available serial ports.
Open	**string Port, number Speed=9600, number Bytesize=8, number Stopbits=1**	**bool true**	Opens and initiates a serial port.
Send	**string Port, var Data**	**string Data**	Sends complete string. (null characters in string will be sent)
Receive	**string Port, function Callback(nil)**	**nil**	Calls the function whenever a new byte is received on that port. Only one callback per port.
Available	**string Port**	**string Data**	Returns
Read	**string Port**	**string Data**	Reads a file and returns its contents
ReadAll	**string Port**	**string Data**	Reads a file and returns its contents
ListOpen	**nil**	**string Data**	Returns a lua table listing all active ports.

Library: File (file.)

A very basic but useful file IO class.

Name	Arguments	Return	Description
readAll	**string FileName**	**string Data**	Reads a file and returns its contents
writeAll	**string Filename**, **string Data**, **bool NoOverwrite**=**true**	**nil** (**bool true**)	Writes string to a file and closes it. Returns true if unsuccessful. Save to use with large files.

Lua Net library (udp.)

The UDP library adds a new pseudo type: "**socket_udp**". This object points to an internal socket. You may use tostring() on this type.

Overview

Name	Arguments	Return	Description
dumpUDP	**string IP, short Port, string Data**	**bool Success**	sends a UDP packet
open	**short Port, bool reuseOnReload, function Callback(string Data, string IP)**	**socket_udp**	Opens new UDP socket and returns it
close	**short Port**	**nil**	Closes a socket
close	**socket_udp Port**	**nil**	Closes a socket
list	**nil**	**socket_udp[]**	Returns a table with all active/open sockets