Codegen

(Code Generator)

User Guide

version 1.0

May 7, 2023

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Document Revision History

Doc Revision Number	Date	Description
1.0	May 7, 2023	Initial relase

Table of Contents

List of Terms

List	Description
TestDrive	TestDrive Profiling Master (https://testdrive-profiling-master.github.io/)
Lua	Lua script language (Wiki, Homepage)

1. Introduction

'*codegen*' supports the following functions.

- Microsft WORD/Excel manipulation
- Git manipulation
- Lua code encryption & decription

1.1 Libraries in use

- Lua 5.4.6 (https://lua.org)
  - Lua basic libraries (https://www.tutorialspoint.com/lua/lua_standard_libraries.htm)
  - LuaFileSystem (https://lunarmodules.github.io/luafilesystem)
  - hook.lua (https://github.com/vallentin/hook.lua)
- LuaRocks package manager (https://luarocks.org)
- LuaBridge 3.0 (https://github.com/kunitoki/LuaBridge3)
- minizip (https://github.com/zlib-ng/minizip-ng)
- SSL(https://github.com/openssl/openssl)
- libgit2 (https://github.com/libgit2/libgit2
- libz (https://www.zlib.net)
- argtable3 (https://github.com/argtable/argtable3)
- pugixml (https://github.com/zeux/pugixml)
- ncurses (https://invisible-island.net/ncurses)
- qrencode (https://github.com/fukuchi/libqrencode)
- Clipper2 (https://github.com/AngusJohnson/Clipper2)

1.2 Command line

```
> codegen

Code generator for TestDrive Profiling Master. v1.0 (build #166 date : Jun 20 2024)
Usage: codegen  [--help] [-e|--encrypt] [-d|--decrypt] [--trace] [-k|--key=key_code]
lua_file ...

      --help                display this help and exit
  -e, --encrypt             Encrypt Lua script file
  -d, --decrypt             Decrypt Lua script file
      --trace               Enable traceback on Lua script
  -k, --key=key_code        Set key code for Encrypt/Decrypt
  lua_file                  Lua script file
```

1.2.1 Run a Lua file

To simply run the lua file, run the following command.

```
> codegen lua_file
```

However, in the case of an encrypted lua file, you must enter the encryption key to run it.

```
> codegen -k key_code lua_file
```

Also, to pass an argument to lua_file, it must be written after the lua file name.

```
> codegen lua_file arguments ...
```

1.2.2 Encrypt Lua file

To encrypt a lua file with a specific key value, run the command below.

```
> codegen -k key_code -e lua_file
```

1.2.3 Decrypt Lua file

To decrypt the encrypted lua file again, run the command below.

```
> codegen -k key_code -d lua_file
```

NOTE: However, if the password begins with the '@~' character, decryption is not possible and only execution is allowed.

1.3 Package managing

codegen provides the LuaRocks environment. You can enter luarocks directly as a command, or use the [`codegen lib`] command. Additionally, a modified [`require`] Lua fuction is provided to enable automatic installation.

NOTE: For more information, see '2.1.2. Require Lua package library'.

1.4 License

The source code implemented in codegen complies with the BSD license, and individual scripts or derivative works created by users are entirely owned by the user.

2. Global functions

Prototype	Type	Description
LOGI(string)	Function	
LOGE(string)	Function	
LOGW(string)	Function	
exec(string)		
run(string)		
Sleep		

2.1 Require OS & Lua libraries

2.1.1 Require OS package library

Checks the OS libraries or packages installed in OS and ensures that they are installed automatically if not installed.

Implement as follows using the [`os.require`] function.

```
os.require("mingw-w64-ucrt-x86_64-opencv")  -- == os.require_library("opencv")
os.require("git")   -- Verify installation of "git", and try to install if not
```

NOTE: The library you install must be the UCRT(Universal C RunTime) version. If you use the [`os.require_library`] function, prefix "mingw-w64-ucrt-x86_64-" is automatically added to the library name.

If you want to find the package name to install, search with [`pacman -Sl`] command.

```
> pacman -Sl | grep opencv
clangarm64 mingw-w64-clang-aarch64-gst-plugin-opencv 1.24.5-3
clangarm64 mingw-w64-clang-aarch64-opencv 4.10.0-2
clangarm64 mingw-w64-clang-aarch64-python-opencv 4.10.0-2
mingw64 mingw-w64-x86_64-gst-plugin-opencv 1.24.5-3
mingw64 mingw-w64-x86_64-opencv 4.10.0-2
mingw64 mingw-w64-x86_64-python-opencv 4.10.0-2
ucrt64 mingw-w64-ucrt-x86_64-gst-plugin-opencv 1.24.5-3
ucrt64 mingw-w64-ucrt-x86_64-opencv 4.10.0-2 [installed]
ucrt64 mingw-w64-ucrt-x86_64-python-opencv 4.10.0-2 [installed]
clang64 mingw-w64-clang-x86_64-gst-plugin-opencv 1.24.5-3
clang64 mingw-w64-clang-x86_64-opencv 4.10.0-2
clang64 mingw-w64-clang-x86_64-python-opencv 4.10.0-2
```

2.1.2 Require Lua package library

Checks the module packages installed in Lua and ensures that they are installed automatically if not installed.

For this, you can use a modified [`require`] function.

When using the Lua original [`require`] function, the following error may occur if the requested package does not exist.

[Source : test.lua]

```
local socket = require("socket")
```

[Console]

```
> codegen test.lua
module 'socket' not found:
        no field package.preload['socket']
        no file 'D:/Project/TestDrive/bin/msys64/ucrt64\share\lua\5.4\socket.lua'
        no file
'D:/Project/TestDrive/bin/msys64/ucrt64\share\lua\5.4\socket\init.lua'
        no file 'D:/Project/TestDrive/bin/msys64/ucrt64\lib\lua\5.4\socket.lua'
        no file 'D:/Project/TestDrive/bin/msys64/ucrt64\lib\lua\5.4\socket\init.lua'
        no file '.\socket.lua'
        no file '.\socket\init.lua'
        no file 'D:/Project/Profiles/Common/bin/codegen/lib/socket.lua'
        no file 'D:/Project/TestDrive/bin/msys64/ucrt64\lib\lua\5.4\socket.dll'
        no file 'D:/Project/TestDrive/bin/msys64/ucrt64\lib\lua\5.4\loadall.dll'
        no file '.\socket.dll'
        no file 'D:/Project/Profiles/Common/bin/codegen/lib/socket.dll'
```

If you specify the package name in the second parameter of [`require`] function, it will be automatically installed as follows if it does not exist.

[Source : test.lua]

```
local socket = require("socket", "luasocket")
```

NOTE: The module name and its package name may be different.

[Console]

```
> codegen a.lua
*I: Try to install required 'luasocket' Lua package, please wait... Done.
```

To find the installable Lua package name, search with the [`codegen lib search 'PACKAGE_NAME'`] command.

```
> codegen lib search luasocket
Warning: falling back to wget - install luasec to get native HTTPS support

luasocket - Search results for Lua 5.4:
===========================================

Rockspecs and source rocks:
---------------------------

lua-resty-luasocket
   1.1.2-1 (rockspec) - https://luarocks.org
```

```
   1.1.2-1 (src) - https://luarocks.org
   1.1.1-1 (rockspec) - https://luarocks.org
   1.1.1-1 (src) - https://luarocks.org
   1.1.0-1 (rockspec) - https://luarocks.org
   1.1.0-1 (src) - https://luarocks.org
   1.0.1-1 (rockspec) - https://luarocks.org
   1.0.1-1 (src) - https://luarocks.org
   1.0.0-1 (rockspec) - https://luarocks.org
   1.0.0-1 (src) - https://luarocks.org

luasocket
   3.1.0-1 (rockspec) - https://luarocks.org
   3.1.0-1 (src) - https://luarocks.org
   3.0.0-1 (rockspec) - https://luarocks.org
   3.0.0-1 (src) - https://luarocks.org
   3.0rc1-2 (rockspec) - https://luarocks.org
   3.0rc1-2 (src) - https://luarocks.org
   3.0rc1-1 (rockspec) - https://luarocks.org
   3.0rc1-1 (src) - https://luarocks.org
   2.0.2-4 (rockspec) - https://luarocks.org
   2.0.2-4 (src) - https://luarocks.org
   2.0.2-3 (rockspec) - https://luarocks.org
   2.0.2-3 (src) - https://luarocks.org
   2.0.2-2 (rockspec) - https://luarocks.org
   2.0.2-2 (src) - https://luarocks.org
   2.0.2-1 (rockspec) - https://luarocks.org
   2.0.2-1 (src) - https://luarocks.org
   2.0.1-3 (rockspec) - https://luarocks.org
   2.0.1-3 (src) - https://luarocks.org
   2.0.1-2 (rockspec) - https://luarocks.org
   2.0.1-2 (src) - https://luarocks.org

luasocket-lanes
   3.0-3 (rockspec) - https://luarocks.org
   3.0-3 (src) - https://luarocks.org
   3.0-1 (rockspec) - https://luarocks.org
   3.0-1 (src) - https://luarocks.org

luasocket-unix
   2.0.2-2 (rockspec) - https://luarocks.org
   2.0.2-2 (src) - https://luarocks.org
   2.0.2-1 (rockspec) - https://luarocks.org
   2.0.2-1 (src) - https://luarocks.org
```

NOTE: To see the names of all installable Lua packages, use the [`codegen lib search --all`] command.