



LuaEclipse

Lua IDE for the Eclipse Platform

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Lua

- “Lua is a powerful light-weight programming language designed for extending applications. Lua is also frequently used as a general-purpose, stand-alone language.”
- <http://www.lua.org>
- <http://lua-users.org/wiki/>



Eclipse

- “Eclipse is a kind of universal tool platform - an open extensible IDE for anything and nothing in particular.”
- <http://www.eclipse.org>



Motivation

- Lua support for Eclipse users
 - Java/Lua integration
 - C/C++/Lua integration
- Lua IDE for Lua users



Alternatives

- Editor support
 - VIM, SciTE, Emacs, Jed, MED, Nedit, TextPad, etc...
- IDEs
 - LuaDev (Mac OS X)
 - Stella (Mac OS)
 - Titmouse (windows, linux under development)
 - LuaIDE
 - wxLua (wxWindows binding)

Alternatives

The image displays two software interfaces for working with Lua. The top interface is 'hw - LuaIDE v1.0 Beta [break] - [HelloWorld.lua] - [HelloWorld.lua]'. It features a menu bar (File, Project, Debug, Edit, View, Window, Help), a toolbar, a project browser on the left showing 'Project 'hw'' with subfolders 'Lua scripts' and 'HelloWorld.lua', and a main editor window containing the following Lua code:

```
1 loadlib("stdlib.dll");
2
3 test = 123;
4 local kot = "ALA";
5
6 xx = function(msg)
7   print(msg);
8 end
9
10 xx("Hello world");
11
12 io.read(1);
13
```

The bottom interface is 'titmouseVDL (Visual Debugger for Lua) component technology preview (2001-06-22)'. It has a menu bar (File, Edit, Debug, Windows) and a toolbar (New, Open, Save, Find, Debug, Close). The 'Lua files' browser on the left shows 'gd.lua' selected. The main editor window displays the following Lua code:

```
im = gdimgfrom( 150, 100 );
bg = gdcOLOR( im, 0,0,0 );
wh = gdcOLOR( im, 255,255,255 );
red = gdcOLOR( im, 255,100,100 );

rect( im, 10, 50, 80, 40, wh ); -- domecek
gdline( im, 10, 50, 50, 10, wh ); -- strecha
gdline( im, 50, 10, 90, 50, wh );

rect( im, 20, 60, 20, 10, red ); -- okno
rect( im, 45, 30, 10, 10, red ); -- stresni okno
rect( im, 60, 69, 10, 20, red ); -- dvere

--rect( im, 90, 50, 40, 40, wh );
--gdline( im, 50, 10, 130, 50, wh );

--gdimgto( im, 'f:\\im.jpg', 'jpeg' );
gdimgto( im, 'f:\\im.png', 'png' );
```

The status bar at the bottom of the debugger shows 'gd.lua Intact Ln 18, Col 39'. An 'Output' window at the bottom displays the following error message:

```
! expected: last token read ':' at line 19 in string "gd.lua"
Syntax error during pre-compilation.
```

Features

- 0.5
 - Syntax highlight
 - Content Assistant (code completion)
 - Wizards
 - Launcher (code running)
 - Code compiling with markers
- 1.0
 - Integrated documentation
- Free!!!
- Multi-platform (like Lua, Java, LuaJava, Eclipse)

Architecture

- LDT (Lua Development Tools)
 - separate functionality from UI
- LuaEclipse = Eclipse + LDT



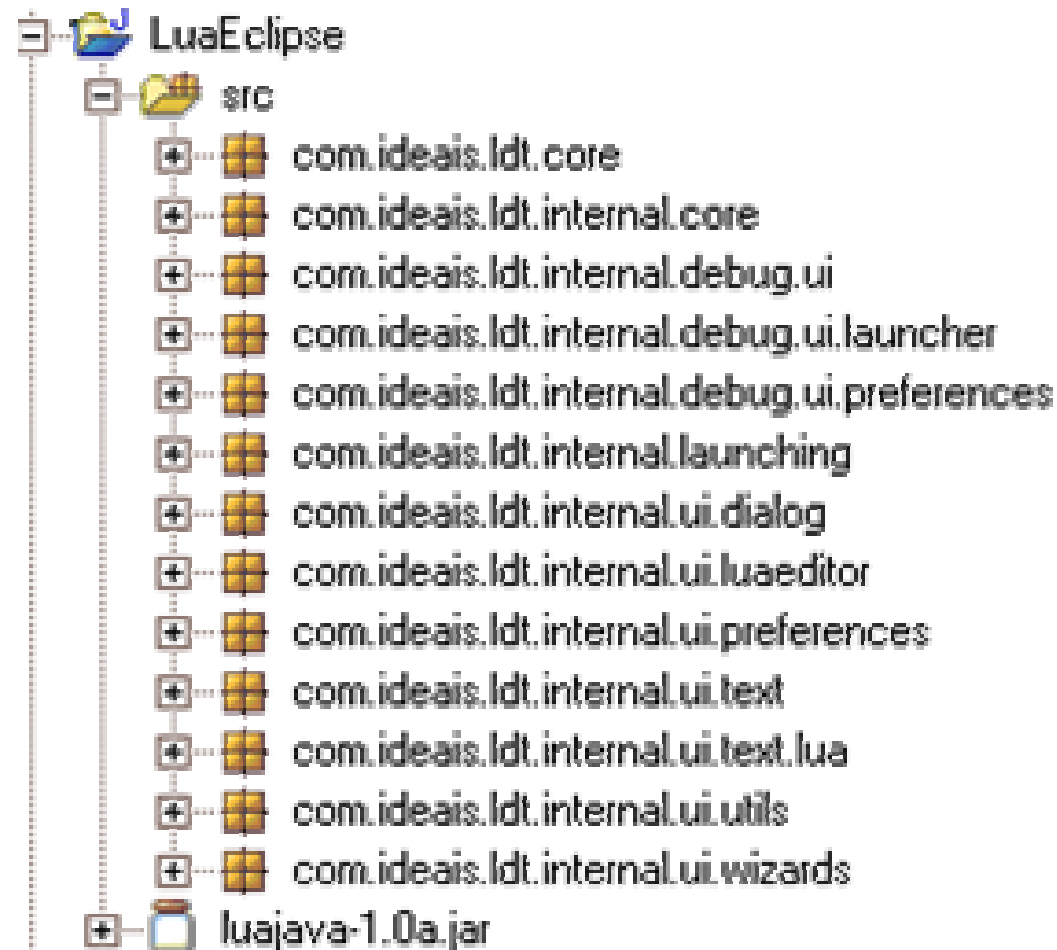
+



=



Implementation














LuaJava

- A script tool for Java. Allows:
 - scripts written in Lua to manipulate components developed in Java
 - run Lua code from Java
 - implement a Java interface using Lua
- <http://www.ideais.com.br/luajava/>
- Not released yet



Extension Points

- +  org.eclipse.core.resources.natures
- +  org.eclipse.team.core.fileTypes
- +  org.eclipse.ui.editors
- +  org.eclipse.ui.newWizards
- +  org.eclipse.ui.projectNatureImages
- +  org.eclipse.ui.preferencePages
- +  org.eclipse.debug.core.launchConfigurationTypes
- +  org.eclipse.debug.ui.launchConfigurationTypeImages
- +  org.eclipse.debug.ui.launchConfigurationTabGroups
- +  org.eclipse.debug.ui.launchShortcuts
- +  org.eclipse.debug.core.sourceLocators

Syntax highlight

- Rule-based lexical analysis
 - Multi-line comment
 - Comment
 - Three types of string (“ ”, ‘ ’, [[]])
 - keywords

```
-- find root of f in the interval [a,b]. needs f(a)*f(b)<0
function solve(f,a,b)
    n=0
    local z,e=bisect(f,a,b,f(a),f(b))
    io.write(string.format("after %d steps, root is %.17g\n",n,z))
end
```

Content Assistant

- Use of LuaJava
- Online Lua evaluation of expressions
- Use of static LuaState
- Images show data types
 - table, function, string, numbers
- Can be activated anytime, anywhere

```
io.write(string.format("after %d steps, root
io|
end

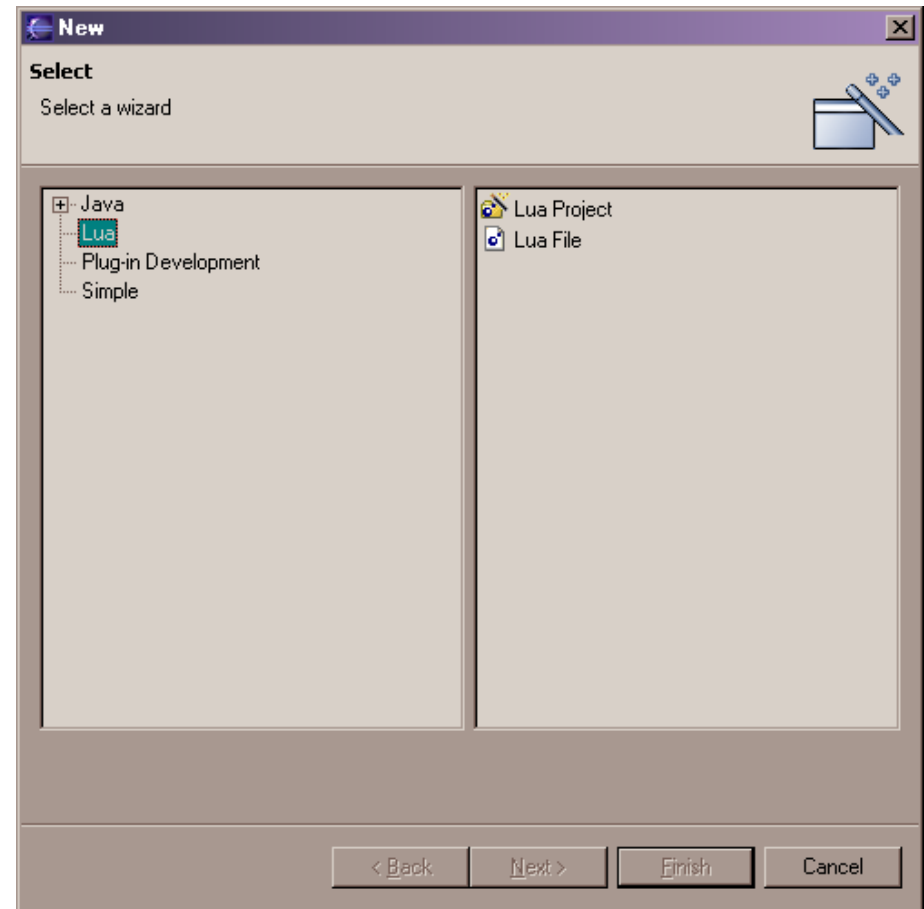
a = [[
fejiefeffefe
efef
fefefef
]]

--[comentario
longo
]]
```

```
io.write(string.format("after %d steps, ro
s
e
f setfenv
f setmetatable
a string
f
e
f
]
-
1
]]
```

Wizards

- Lua Project
- Lua File



Launcher

- Use LuaJava?
- Use of external Lua interpreter
- Several interpreters due to Lua extension nature
 - Lua
 - LuaSocket
 - LuaCOM
 - MyLuaInterpreter
- No standard full featured Lua binaries (LuaCheia)
- Configurable Lua Interpreter

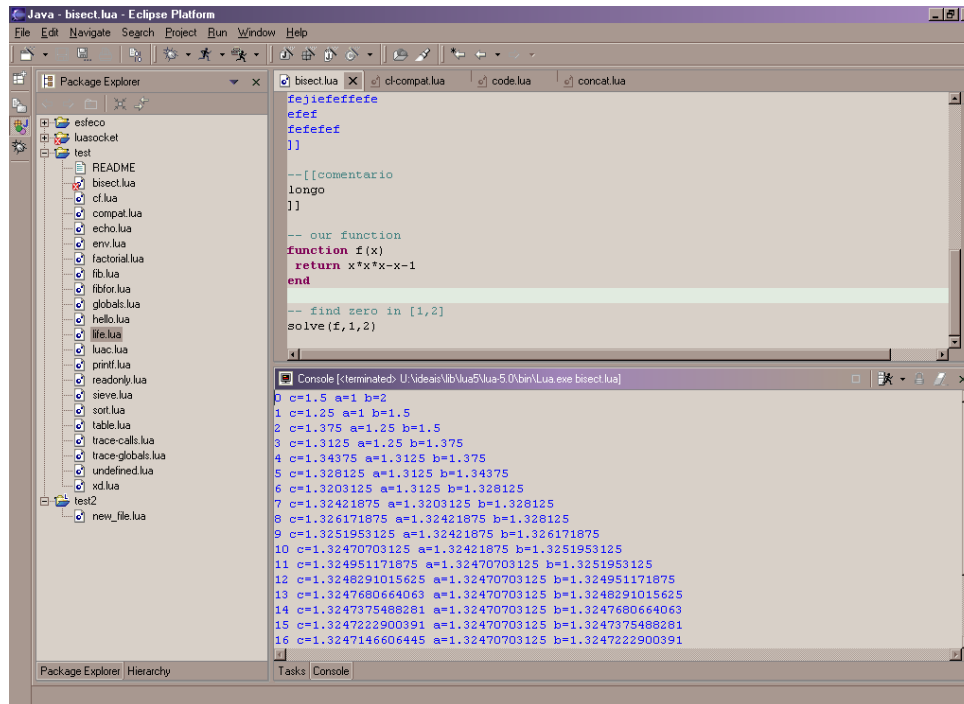
Laucher Configuration

- Installed Interpreters
- Run As Lua Application



Running code

- Separate process
 - `Runtime.getRuntime().exec`
- Standard output is sent to Eclipse Console



```
Java - bisect.lua - Eclipse Platform
File Edit Navigate Search Project Run Window Help

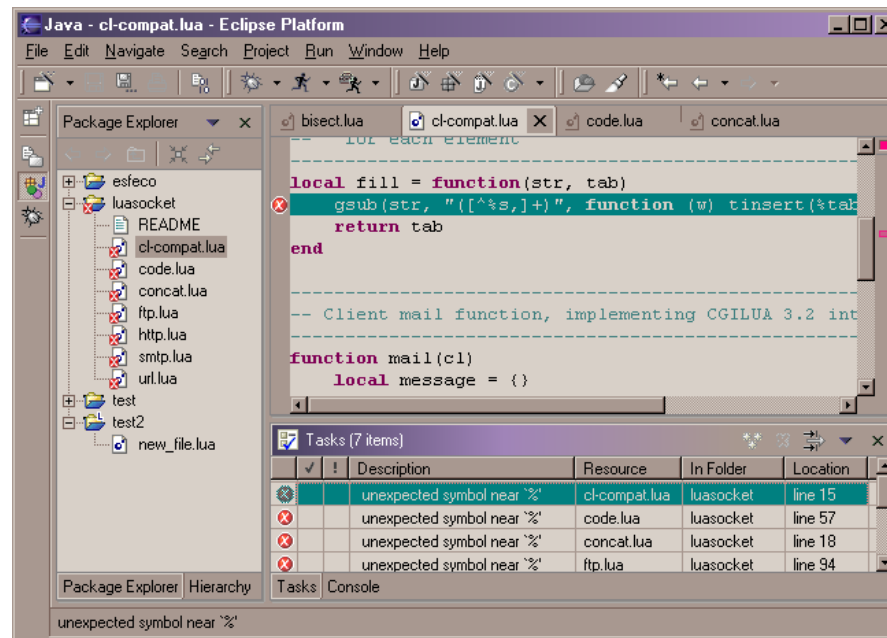
Package Explorer
  esfecio
  luasocket
  test
    README
    bisect.lua
    cf.lua
    compal.lua
    echo.lua
    env.lua
    factorial.lua
    fib.lua
    fibfor.lua
    globals.lua
    hello.lua
    life.lua
    luac.lua
    printf.lua
    readonly.lua
    sieve.lua
    sort.lua
    table.lua
    trace-calls.lua
    trace-globals.lua
    undefined.lua
    xd.lua
    test2
    new_file.lua

bisect.lua
fejiefefeefe
efef
fefefef
]]
--[comentario
longo
]]
-- our function
function f(x)
return x*x*x-x-1
end
-- find zero in [1,2]
solve(f,1,2)

Console [terminated: U:\ideais\lib\lua5\lua-5.0\bin\Lua.exe bisect.lua]
0 c=1.5 a=1 b=2
1 c=1.25 a=1 b=1.5
2 c=1.375 a=1.25 b=1.5
3 c=1.3125 a=1.25 b=1.375
4 c=1.34375 a=1.3125 b=1.375
5 c=1.328125 a=1.3125 b=1.34375
6 c=1.3203125 a=1.3125 b=1.328125
7 c=1.32421875 a=1.3203125 b=1.328125
8 c=1.326171875 a=1.32421875 b=1.328125
9 c=1.3251953125 a=1.32421875 b=1.326171875
10 c=1.32470703125 a=1.32421875 b=1.3251953125
11 c=1.324951171875 a=1.32470703125 b=1.3251953125
12 c=1.3248291015625 a=1.32470703125 b=1.324951171875
13 c=1.3247680664063 a=1.32470703125 b=1.3248291015625
14 c=1.3247375488281 a=1.32470703125 b=1.3247680664063
15 c=1.3247222900391 a=1.32470703125 b=1.3247375488281
16 c=1.3247146606445 a=1.32470703125 b=1.3247222900391
```

Compiling/Markers

- IResourceChangeListener
- Code is “compiled” using LuaJava
- Capture compile error, not runtime error
- Error message is parsed to create marker



Future features

- Content Tip
- Content Format
- Runtime Content Assistant
- Debugger



Distribution

- LDT source code
- LDT binaries (Windows and Linux)
- LDT + Eclipse = LuaEclipse
- LDT + Eclipse + JRE

- Sourceforge

- Features
- Online update
- Branding



References

- The Java™ Developer's Guide to Eclipse (book)
- <http://www.eclipse.org>
 - Online documentation
 - Articles
 - Mailing lists
- JDT source code (Java Development Tools)
- RDT source code (Ruby Development Tools)

Contact

- <http://www.ideais.com.br/luaeclipse/>
- <http://www.sourceforge.net/projects/luaeclipse/>
- tuler@ideais.com.br
- Questions?