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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)

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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. The 'Lua files' browser on the left shows 'gd.lua' selected. The main editor window displays the following Lua code:

```
im = gdingfrom( 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 );

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

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

```
! 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



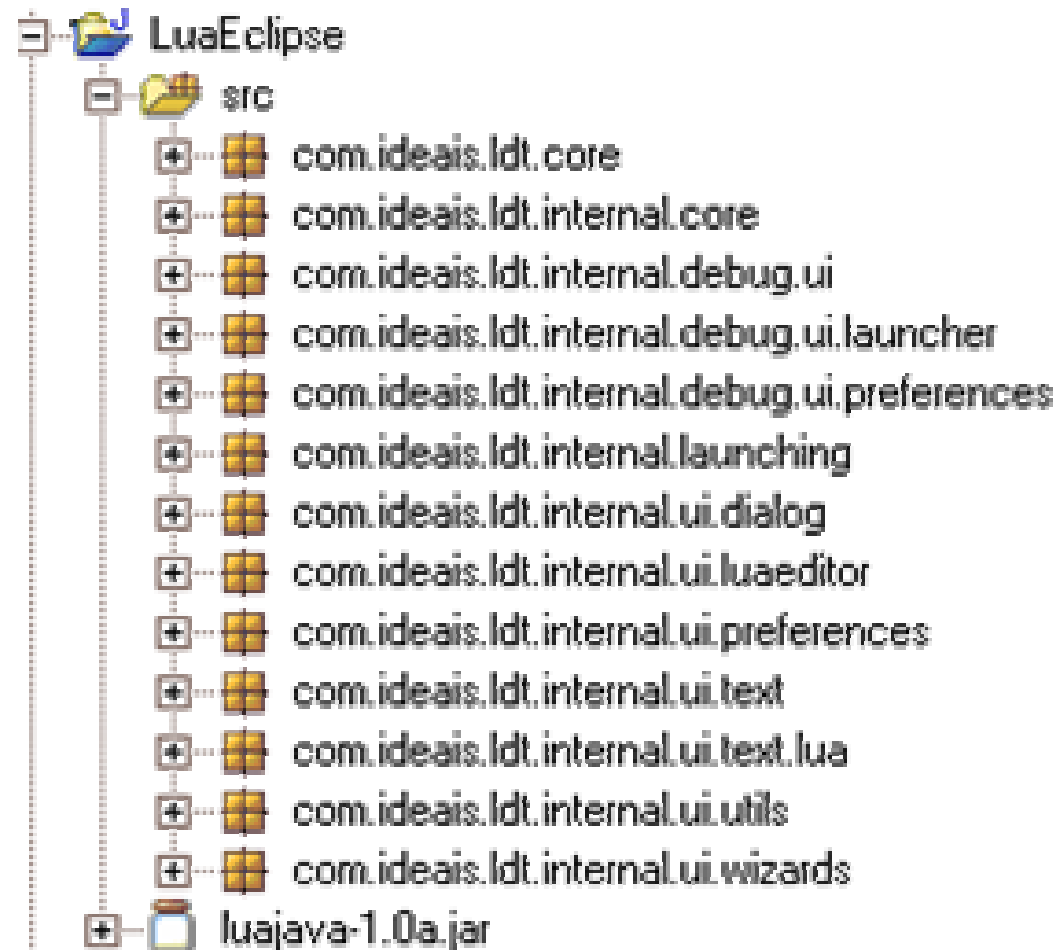
+



=



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

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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

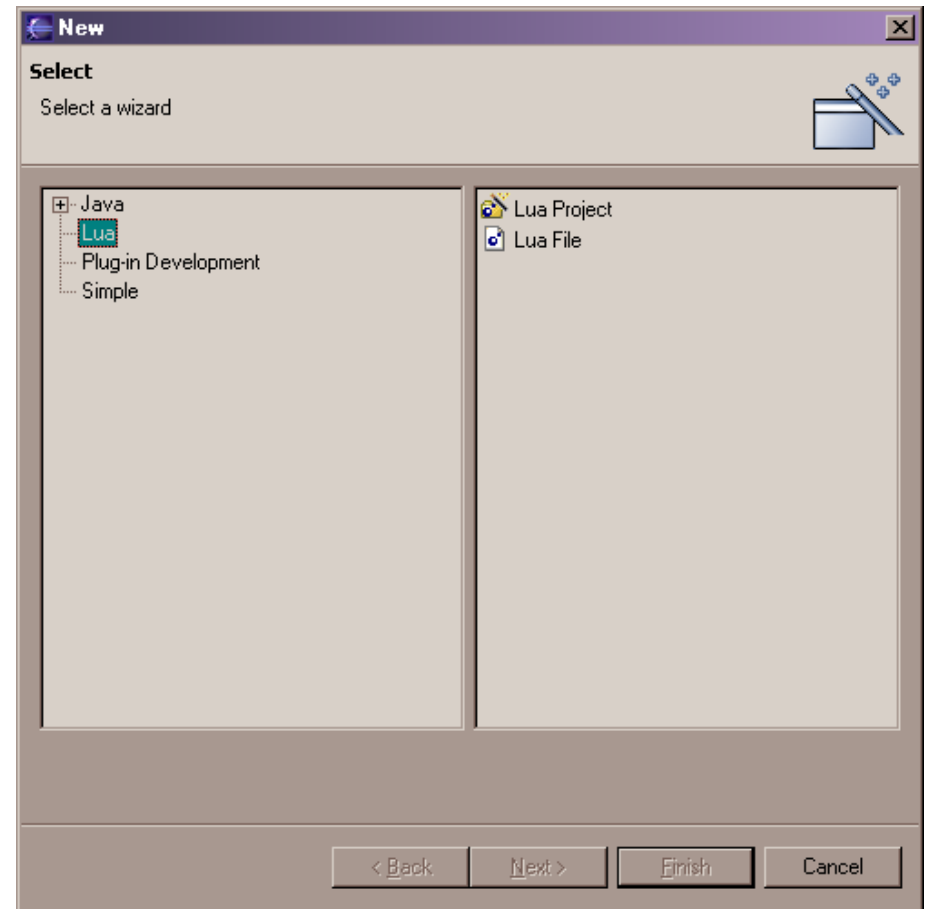
a = [[
fejiefeffefe
efef
fefefef
]]

--[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

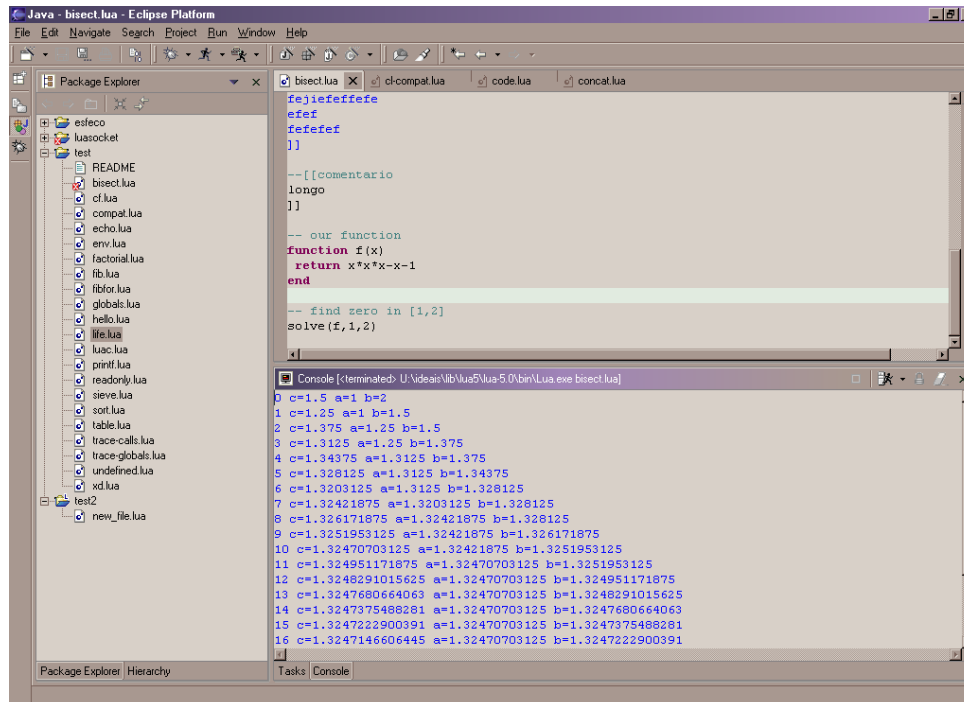
Laucher Configuration

- Installed Interpreters
- Run As Lua Application



Running code

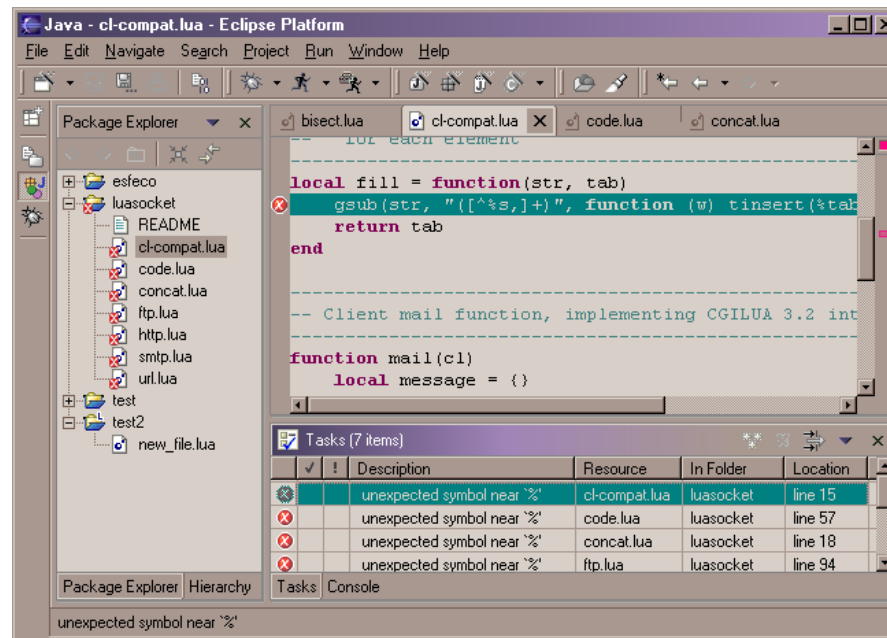
- Separate process
 - `Runtime.getRuntime().exec`
- Standard output is sent to Eclipse Console



```
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
cf-compat.lua
code.lua
concat.lua
fejiefeffefe
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

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- 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?

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