Když něco rozeberem, tak leda debuggerem

WebExpo 2009 – Praha

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Tak čo rozoberieme?

Bug

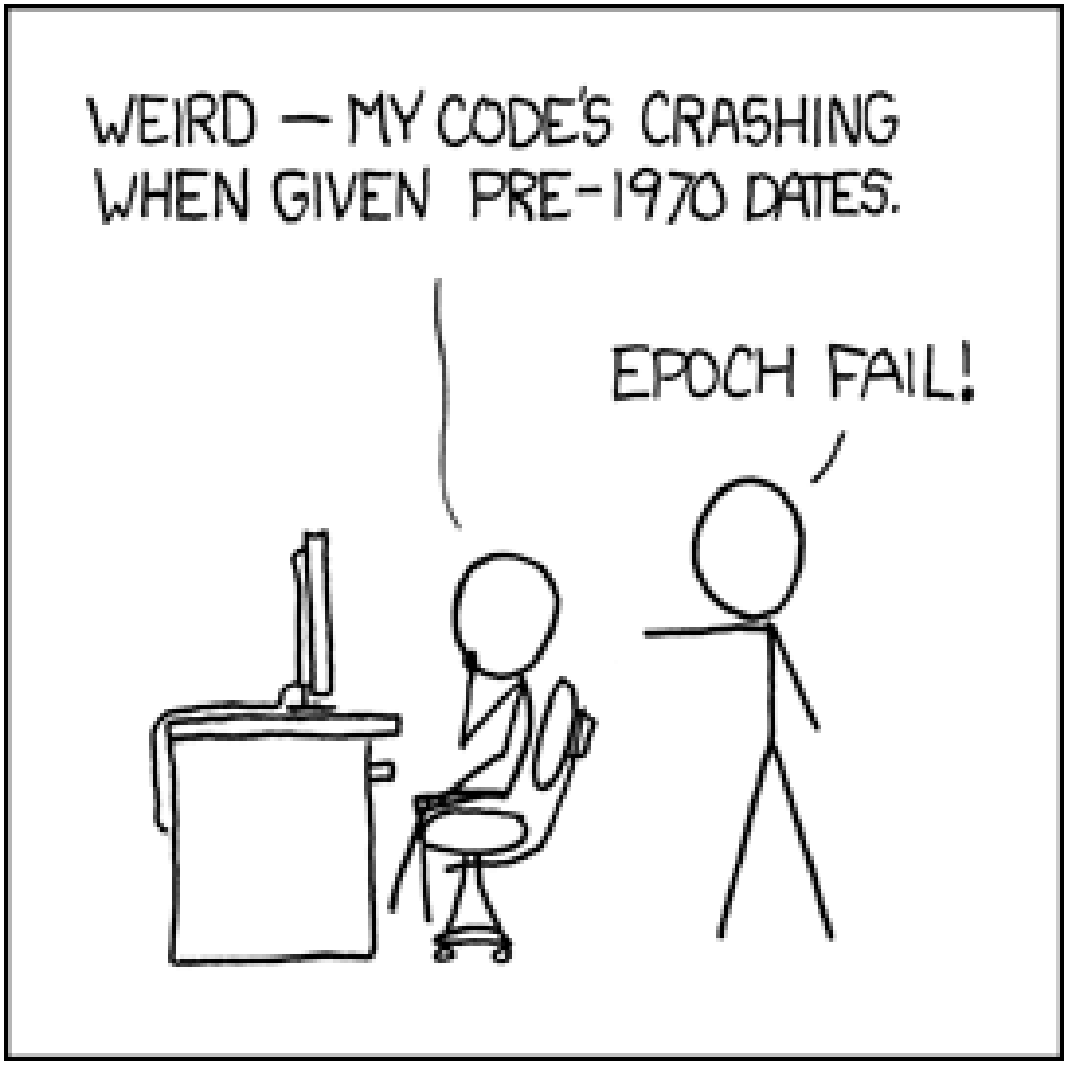
Ladenie

Debuggovanie
(lokálne aj vzdialené)

Bez debuggeru a predsa bezpečne

Zaujímavosti

Bug


WEIRD — MY CODE'S CRASHING WHEN GIVEN PRE-1970 DATES.
EPOCH FAIL!
xkcd

Čím trávi vývojár najviac času?

Ladením.

Debuggovaním.

Facebookom ;-)

Ladíme

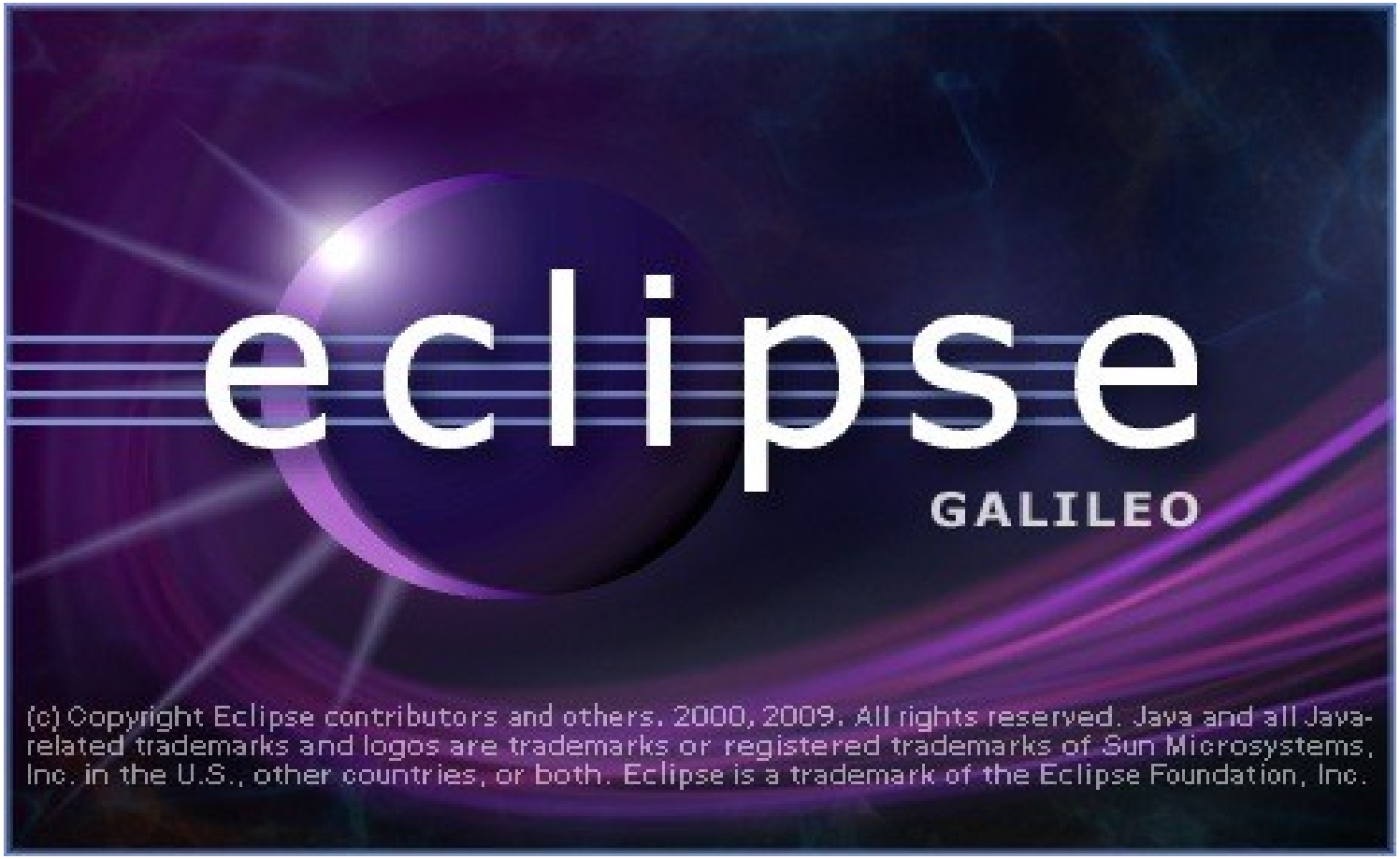
Prvý prístup:

Logujeme.

Debugger

Krok a stop.
Krok a stop.
Krok a stop.

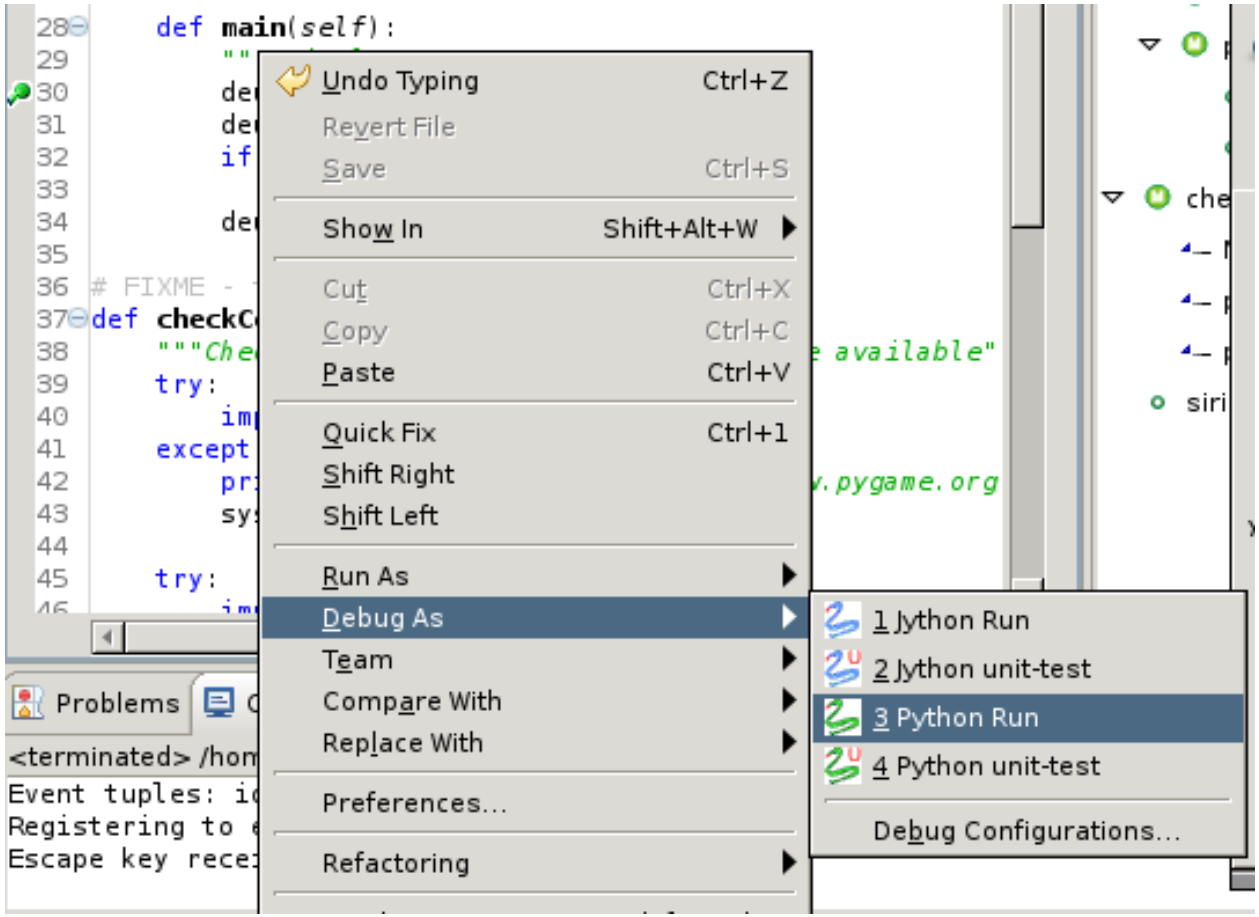
Uvedené príklady z Eclipse



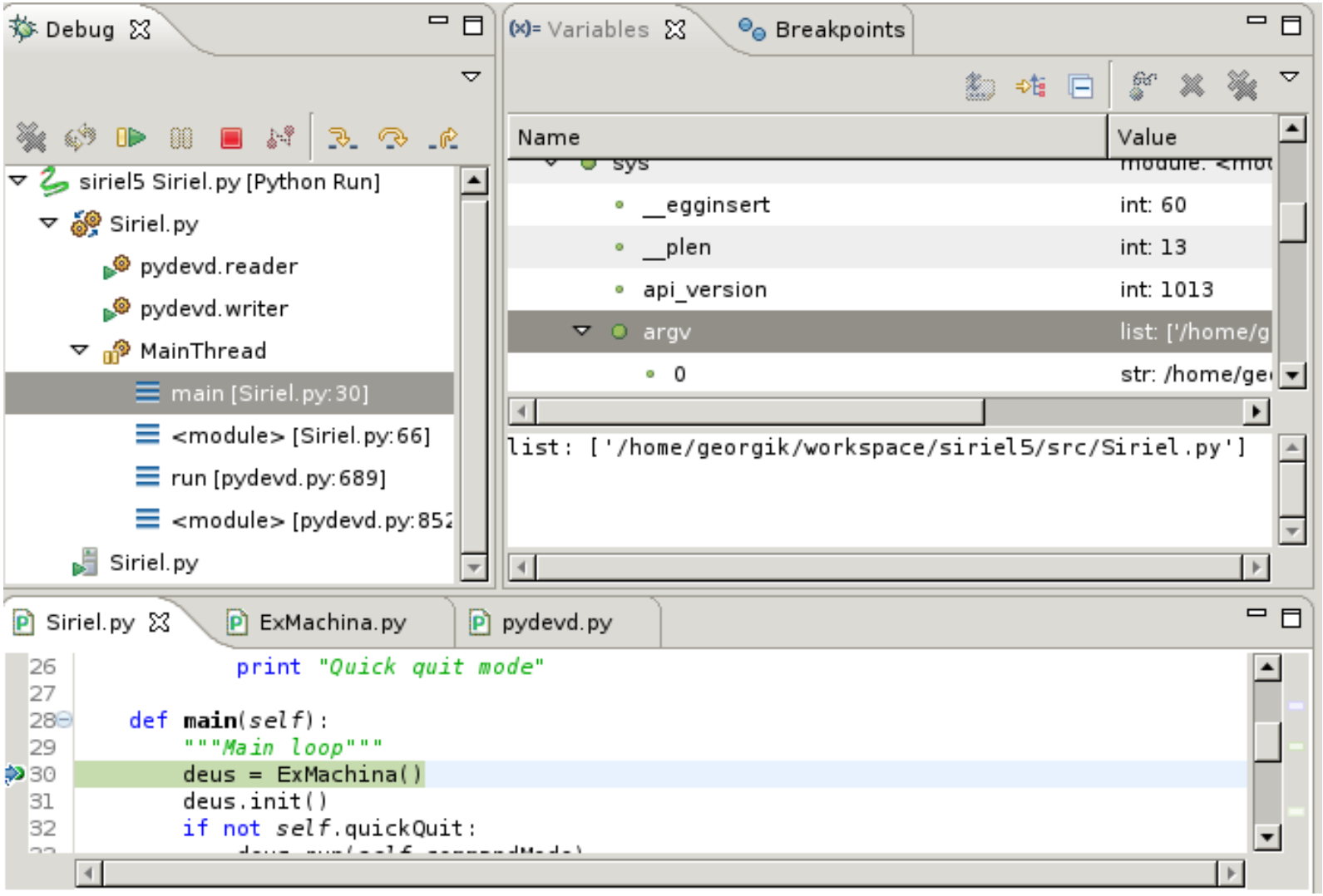
Break point


```
28    def main(self):
29        """Main loop"""
30        deus = ExMachina()
31        deus.init()
32        if not self.quickQuit:
33            deus.run(self.commandMode)
34        deus.done()
```

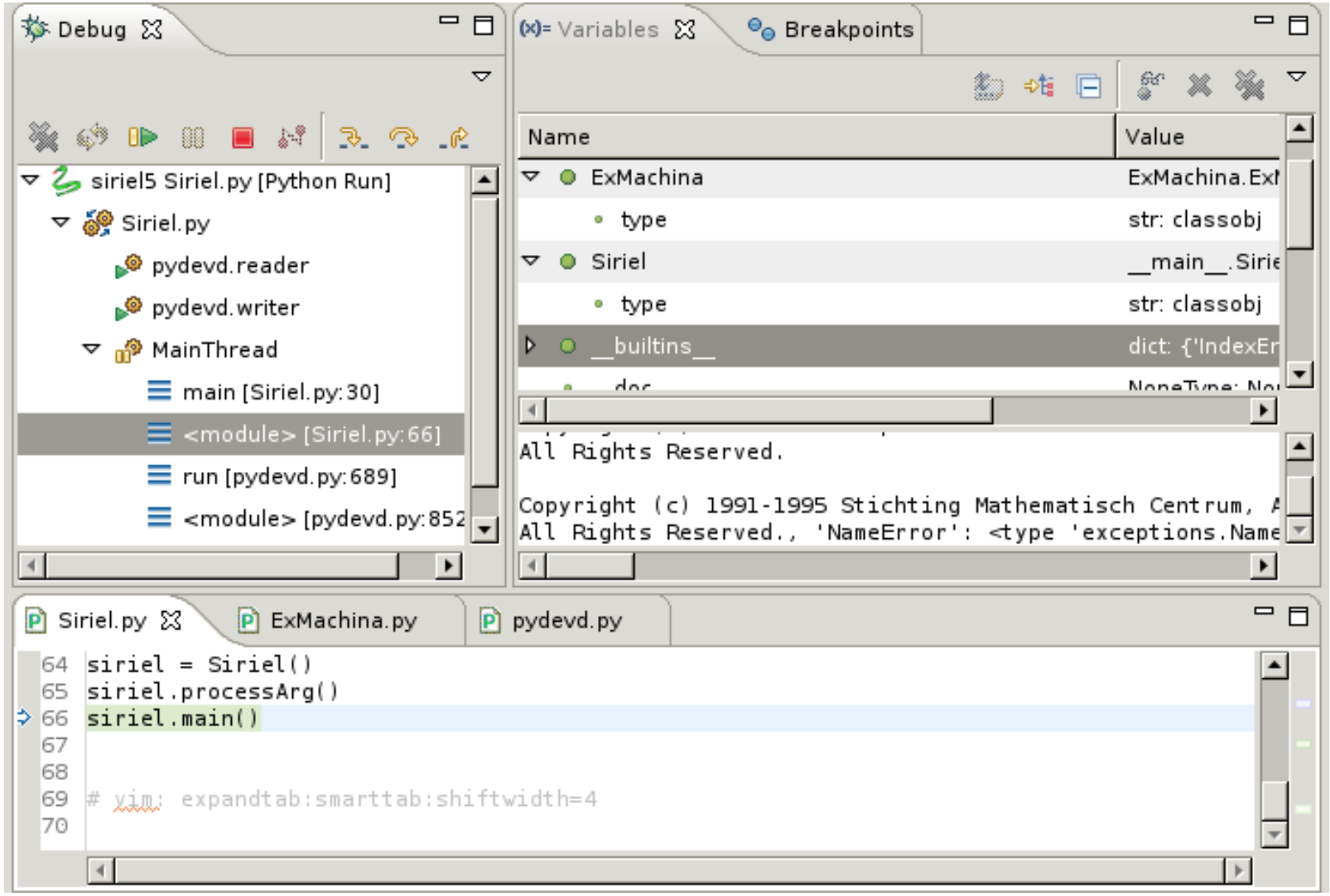
Naštartujeme Debugger



A zastavíme


Debug
siriel5 Siriel.py [Python Run]
Siriel.py
pydevd.reader
pydevd.writer
MainThread
main [Siriel.py:30]
<module> [Siriel.py:66]
run [pydevd.py:689]
<module> [pydevd.py:852
Siriel.py
Variables
Breakpoints
Name
Value
__egginsert
int: 60
__plen
int: 13
api_version
int: 1013
argv
list: ['/home/g
0
str: /home/ge
list: ['/home/georgik/workspace/siriel5/src/Siriel.py']
Siriel.py
ExMachina.py
pydevd.py
print "Quick quit mode"
def main(self):
"""Main loop"""
deus = ExMachina()
deus.init()
if not self.quickQuit:

Prechádzka po stacku



Výhody dobrého debuggera

Zastavenie v mieste break-pointu.

Vizualizácia hodnôt.

Stack trace.

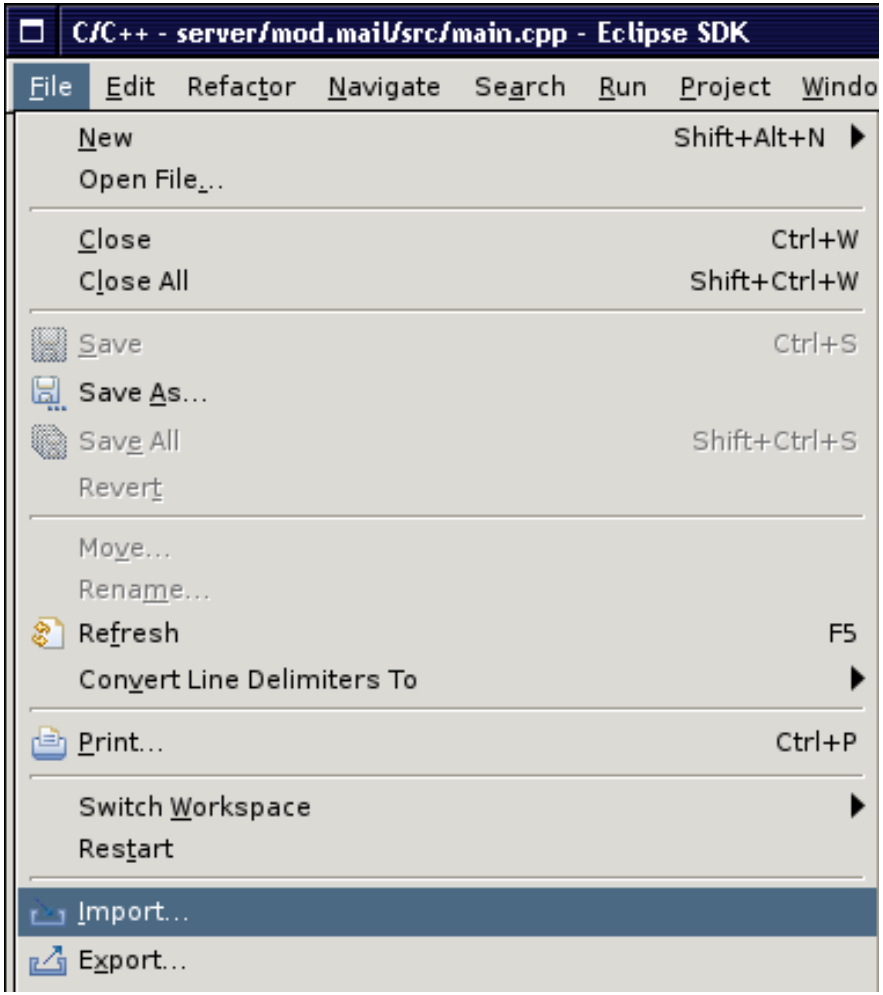
Ladíme lokálnu aplikáciu

Možnosti:

Aplikácia vrámci workspacu.
(videli sme)

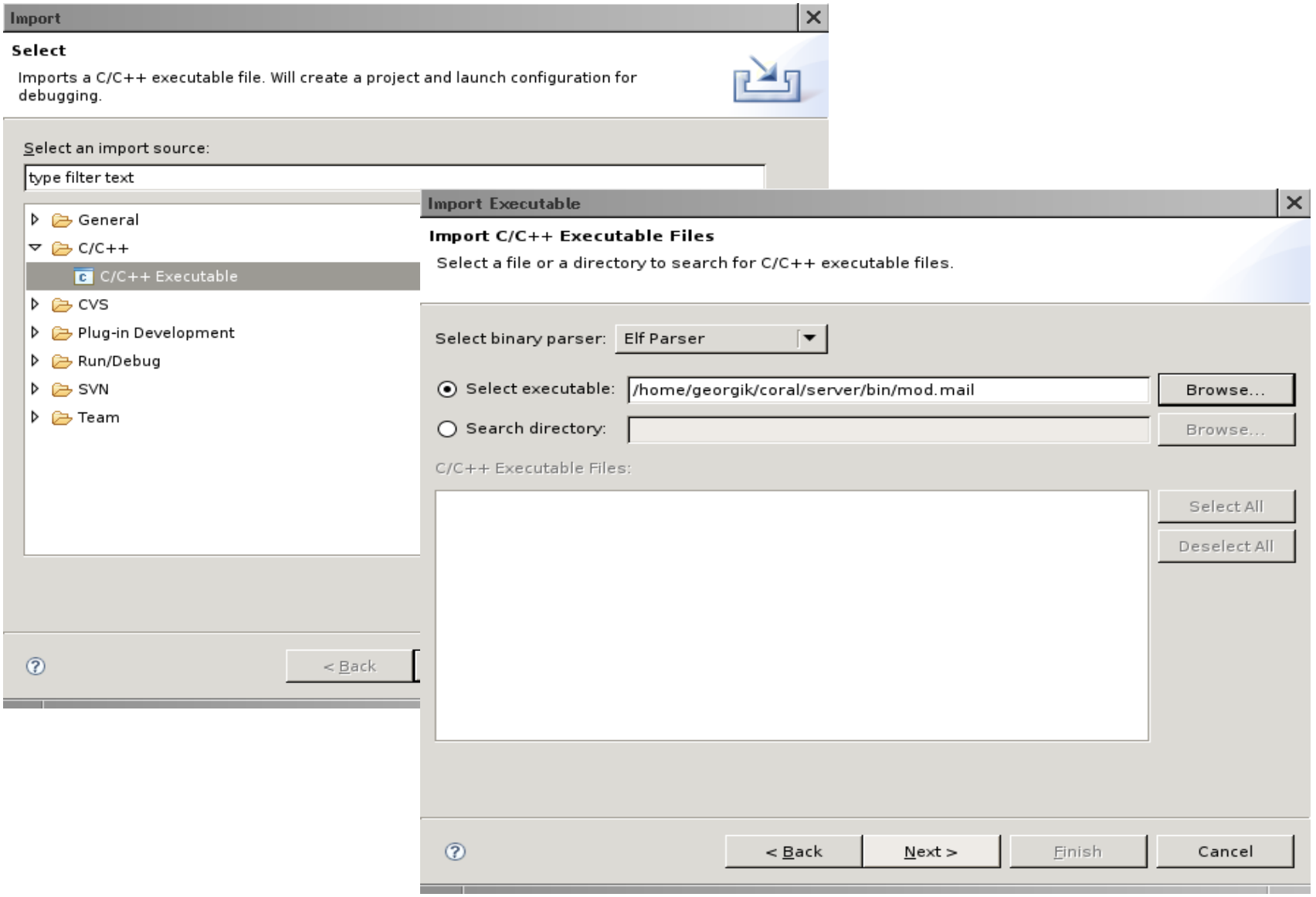
Aplikácia mimo workspace.
(ukážeme si)

Import binárky

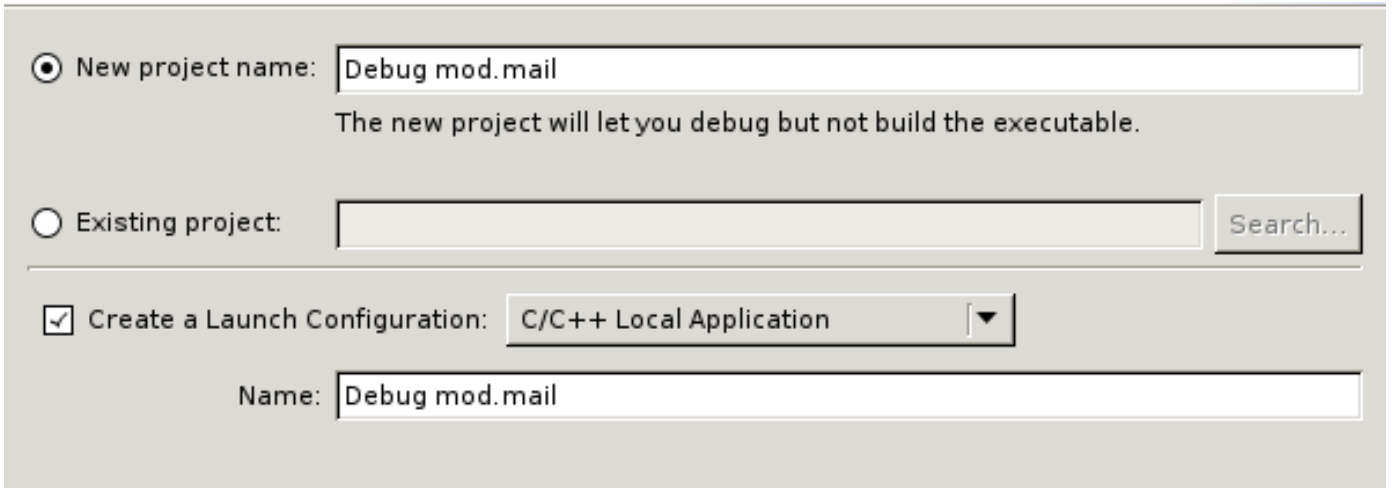


C/C++

Toto ešte zvládneme

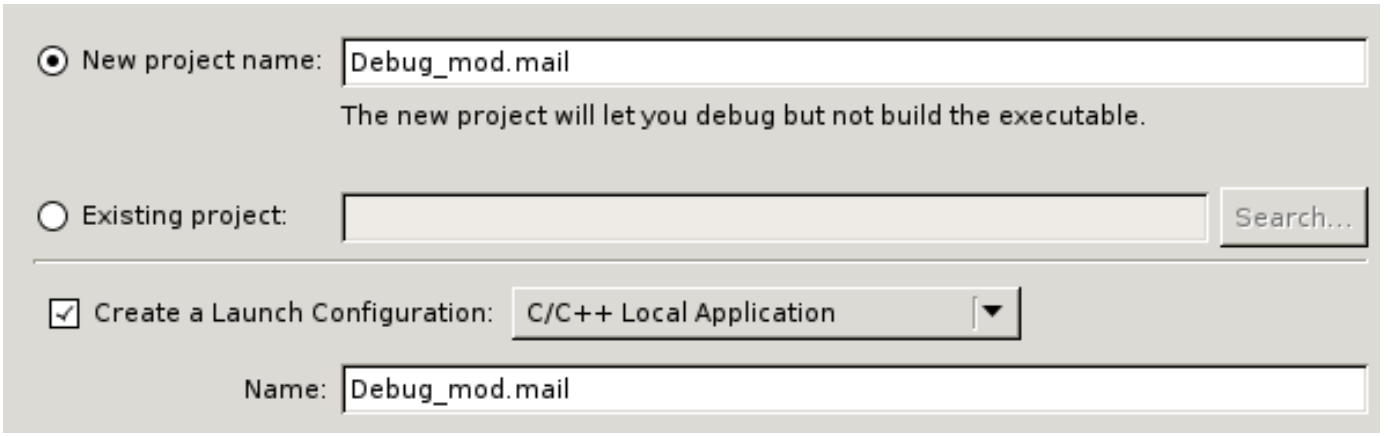


A teraz príde trik – bez medzier!

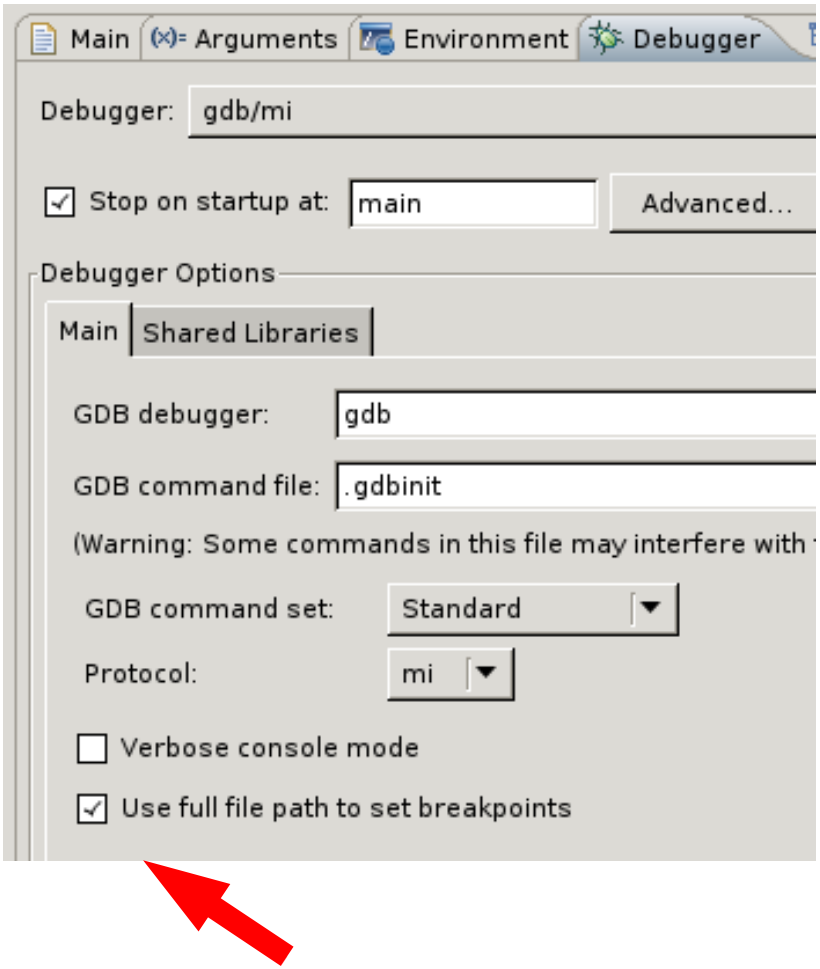


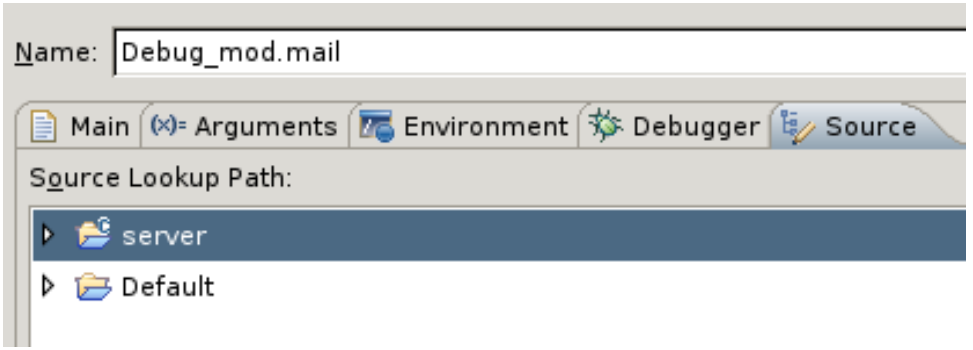
Nesprávne!

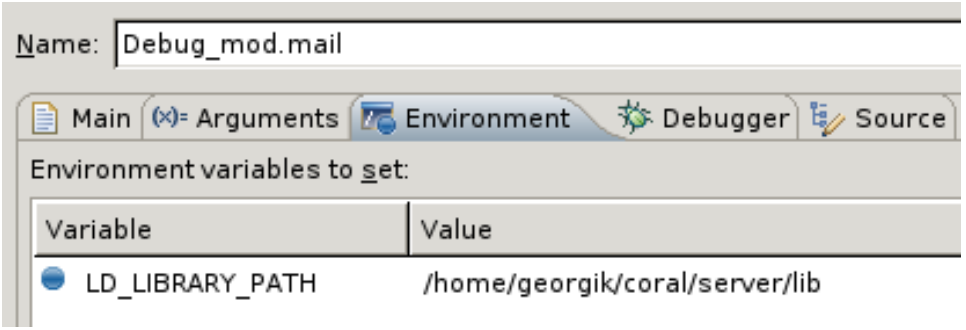
Správne



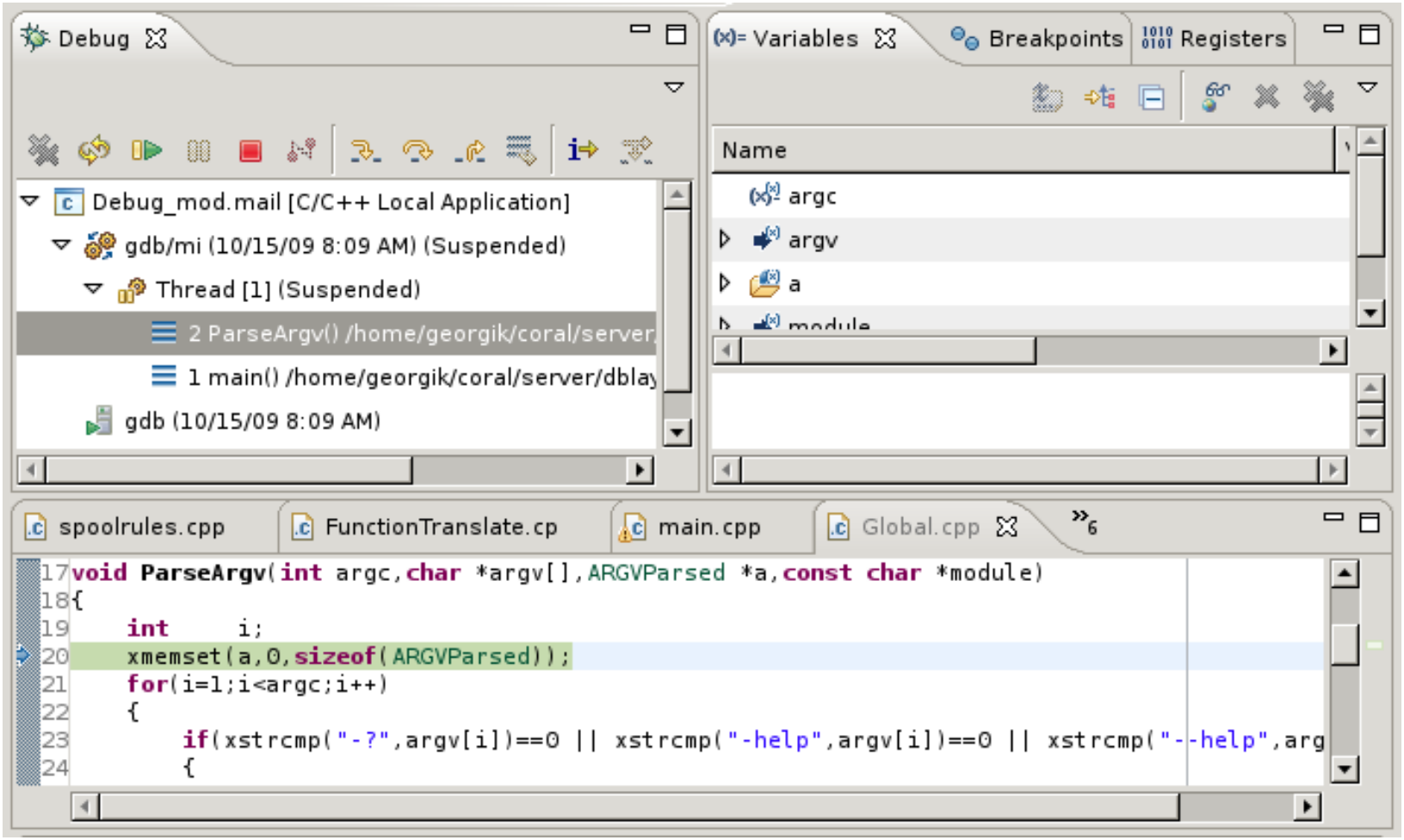
Drobnosti pred štartom







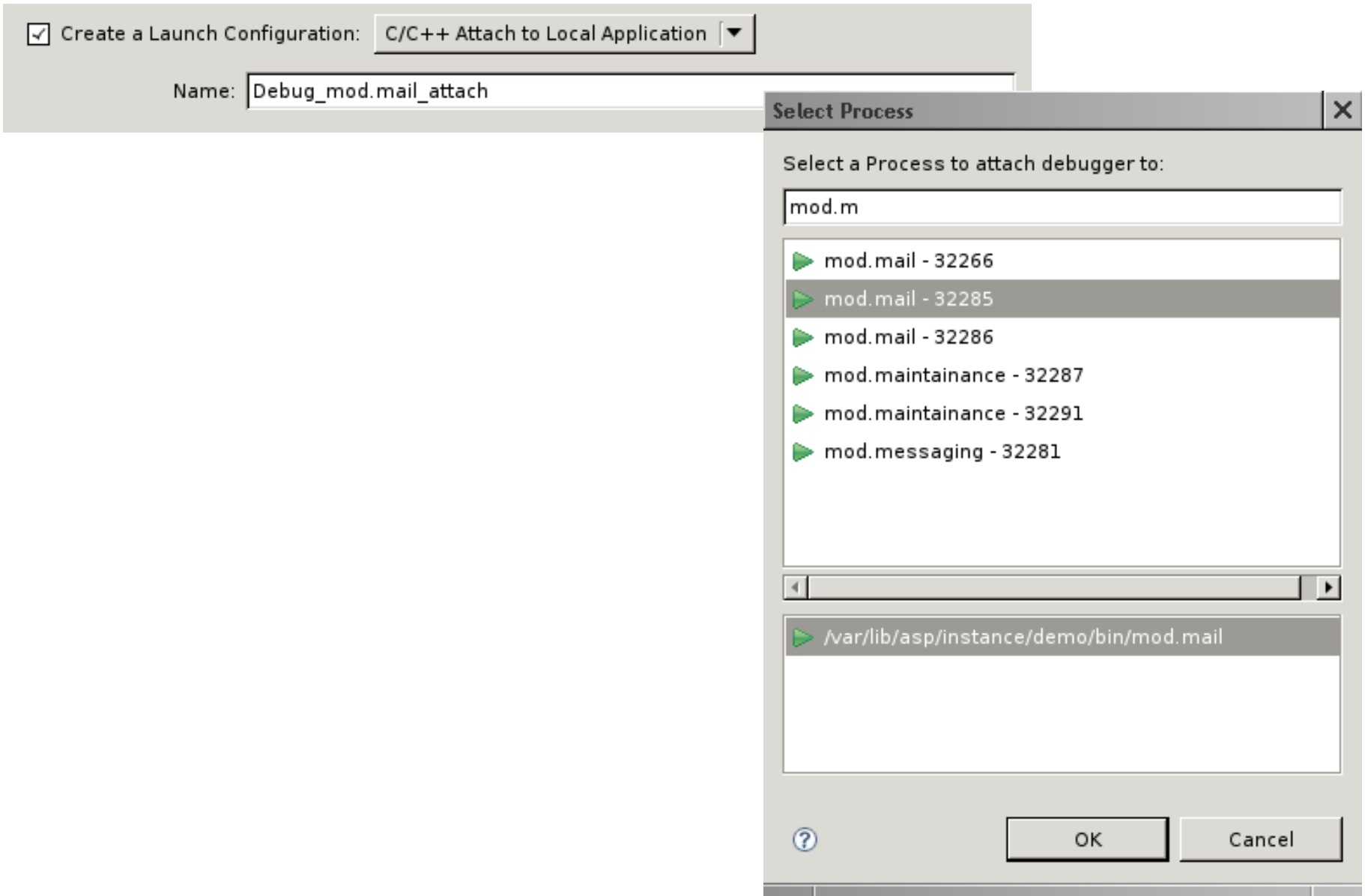
Debug – lokálna aplikácia



Čo z bežiacimi aplikáciami?

Pripojíme sa na aplikáciu.

Pripojenie k bežiacenu procesu



Čo s aplikáciami na serveri?

Väčšina debuggerov podporuje vzdialené pripojenie.

Aplikácia to neprežila

Post-mortem analýza

Zostal len jej obraz: coredump

Ukladanie pádov Apache

Do konfigurácie pridať:

CoreDumpDirectory /tmp/

Rýchla analýza coredumpu

```
┌─(georgik@traper:pts/6)──────────────────────────────────────────────────────(/tmp)─┐
└─(10:43: )── ulimit -c unlimited                                        ──(Št,okt15)─┘
┌─(georgik@traper:pts/6)──────────────────────────────────────────────────────(/tmp)─┐
└─(10:44: )── xeyes&                                                     ──(Št,okt15)─┘
[1] 532
┌─(georgik@traper:pts/6)──────────────────────────────────────────────────────(/tmp)─┐
└─(10:44: )── pkill -3 -f xeyes                                          ──(Št,okt15)─┘
[1]  + quit (core dumped)  xeyes
┌─(georgik@traper:pts/6)──────────────────────────────────────────────────────(/tmp)─┐
└─(10:44: )── gdb /usr/bin/xeyes core                                    ──(Št,okt15)─┘
(no debugging symbols found)
Core was generated by `xeyes'.
Program terminated with signal 3, Quit.
#0  0xb802f424 in __kernel_vsyscall ()
(gdb) bt full
#0  0xb802f424 in __kernel_vsyscall ()
No symbol table info available.
#1  0xb7dbd42b in poll () from /lib/i686/cmov/libc.so.6
No symbol table info available.
#2  0xb7fdb2f7 in _XtWaitForSomething () from /usr/lib/libXt.so.6
No symbol table info available.
#3  0xb7fdc75b in XtAppNextEvent () from /usr/lib/libXt.so.6
```

Módy debuggera

Spustenie lokálnej aplikácie.

Pripojenie k lokálnemu procesu.

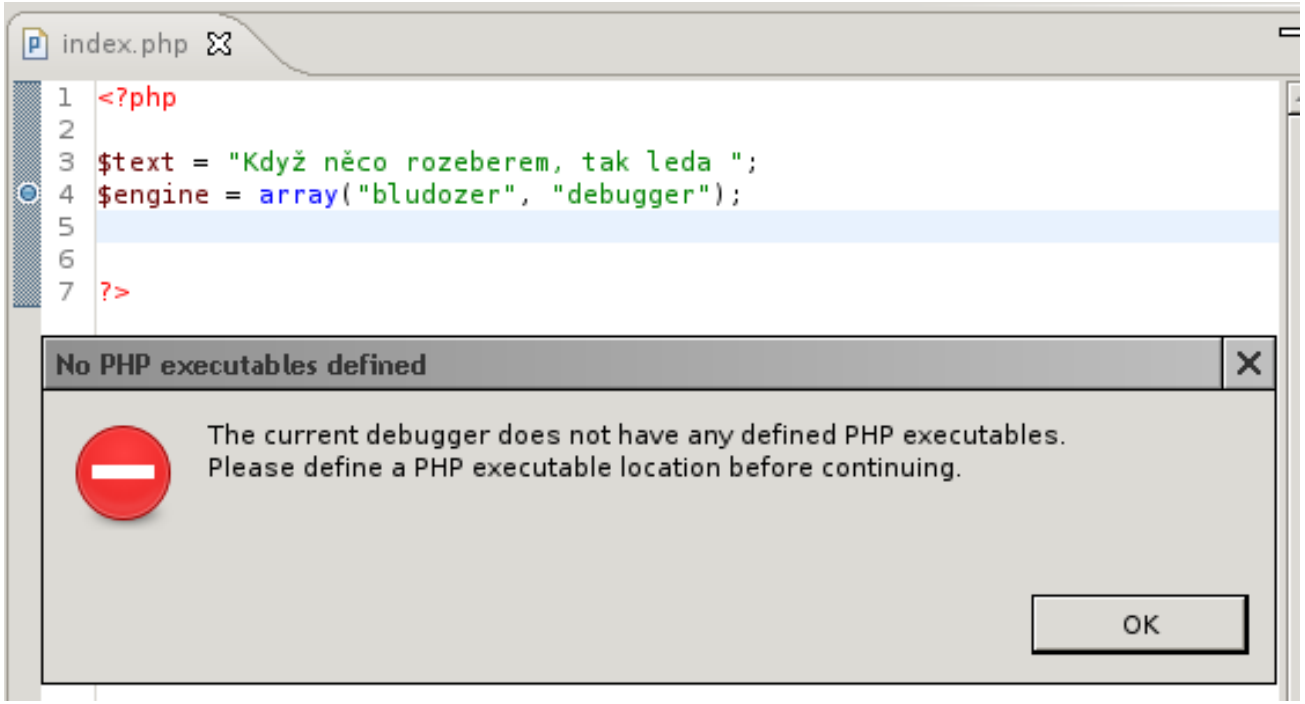
Pripojenie k vzdialenému procesu.

Post-mortem.

Debugujeme PHP

Eclipse + PHP Development Tools

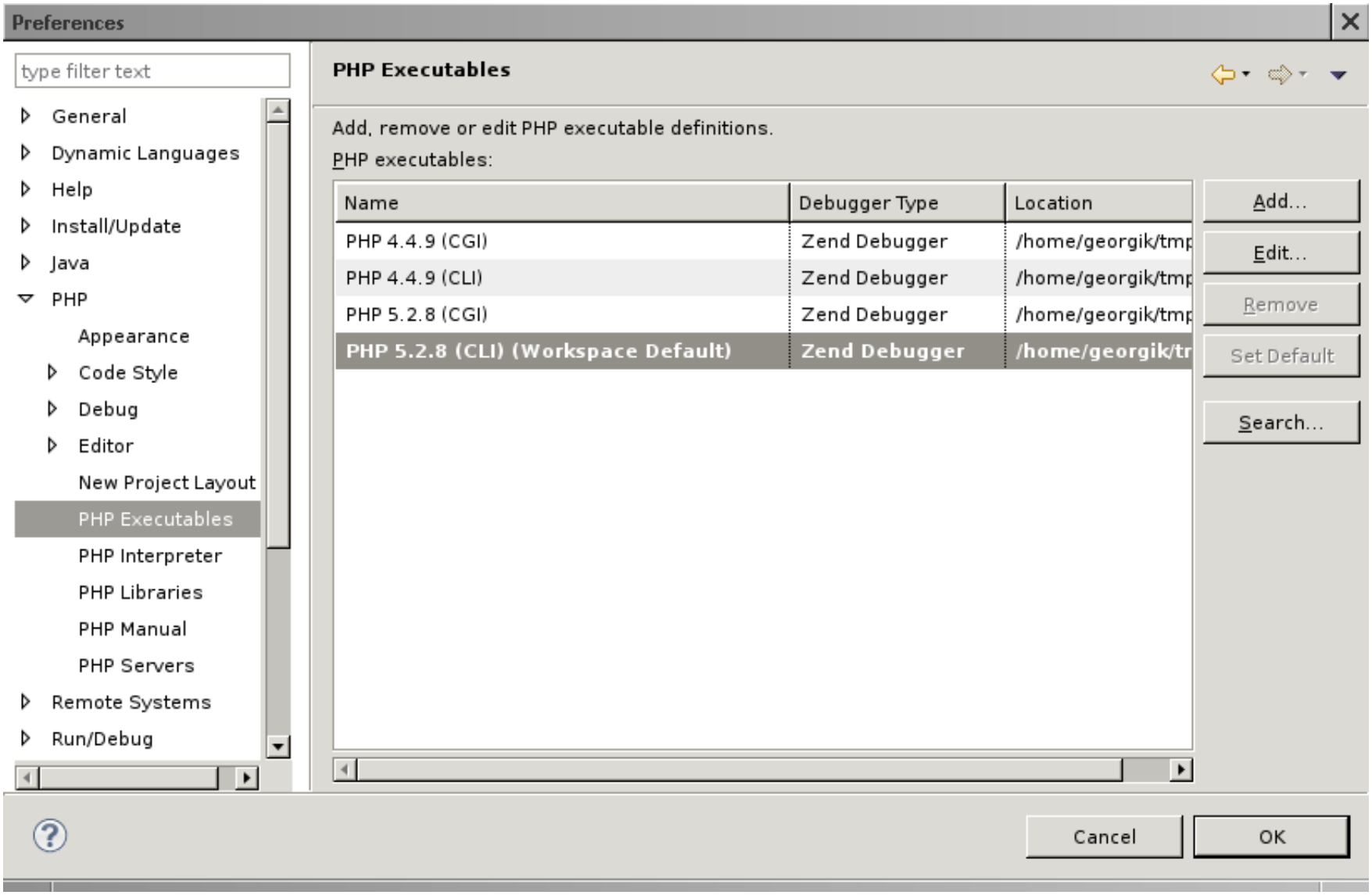
Eclipse for PHP Developers (138 MB)
Tools for PHP developers creating Web applications, including PHP Development Tools (PDT), Web Tools Platform, Mylyn and others. More...
Downloads: 80,849



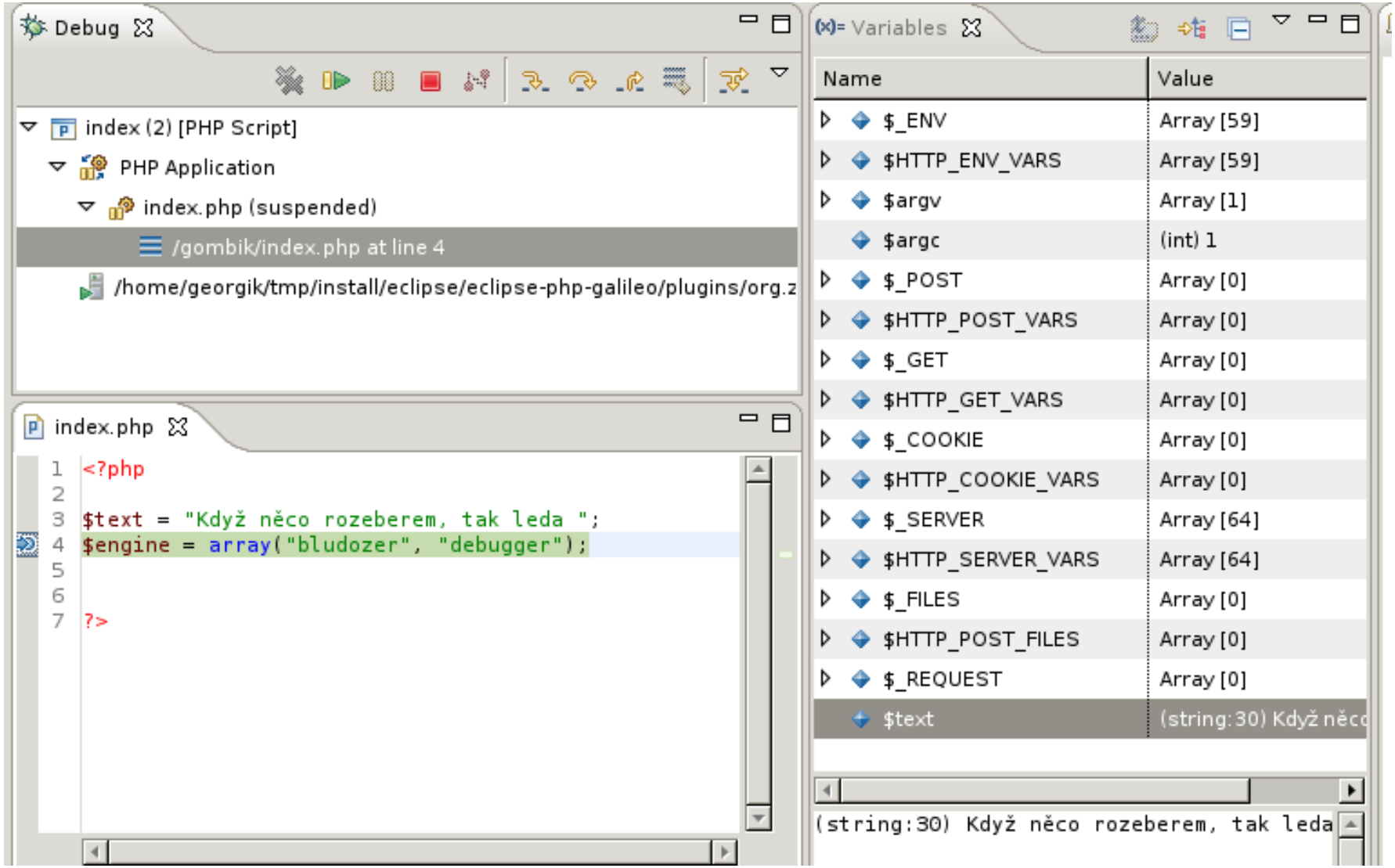
Pozor!
Neobsahuje
Zend Debugger

Dá sa získať z:
http://www.zend.com/community/pdt

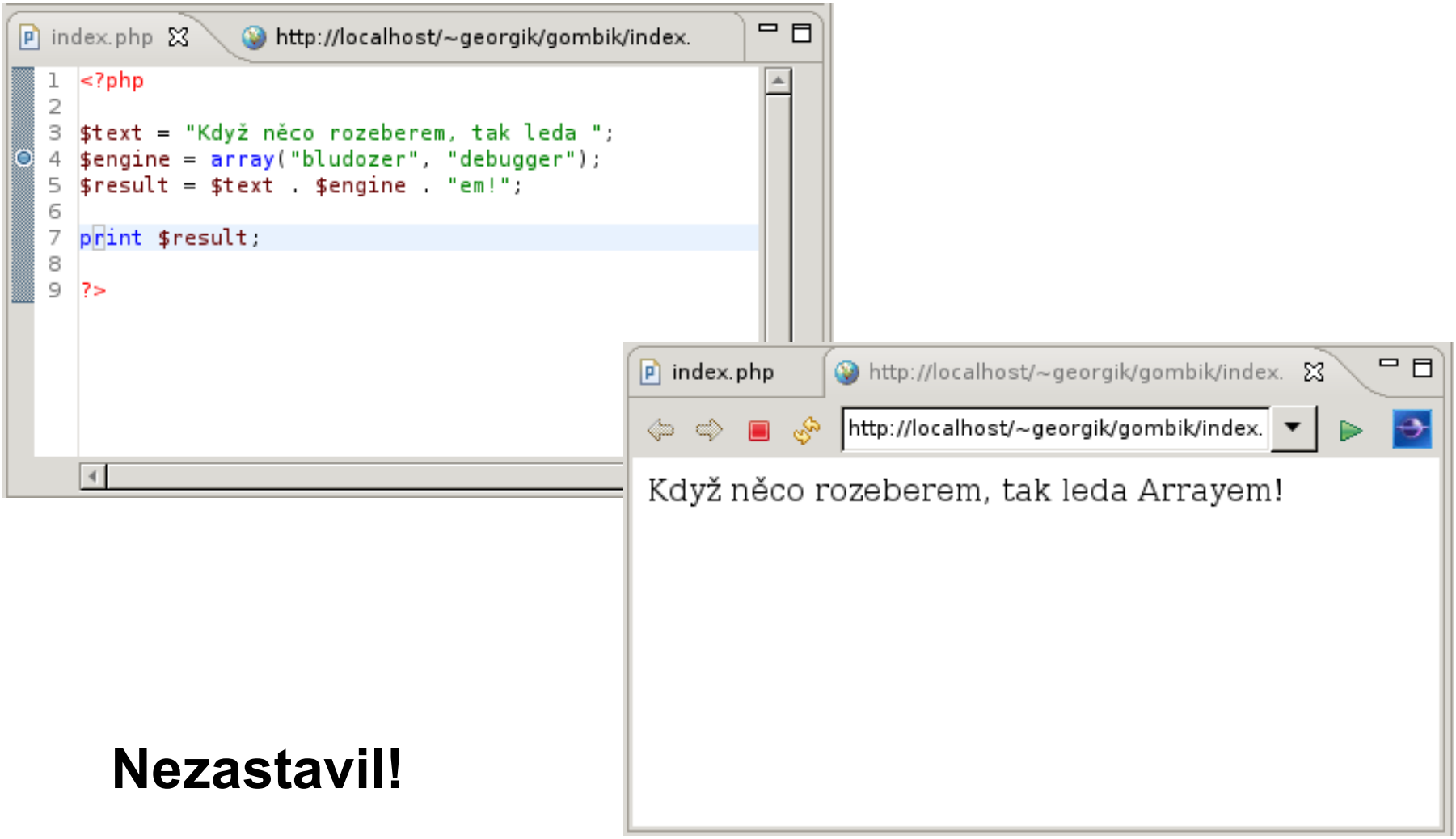
PHP Zend Debugger



Debug as PHP script



Skúsme čo na to Apache

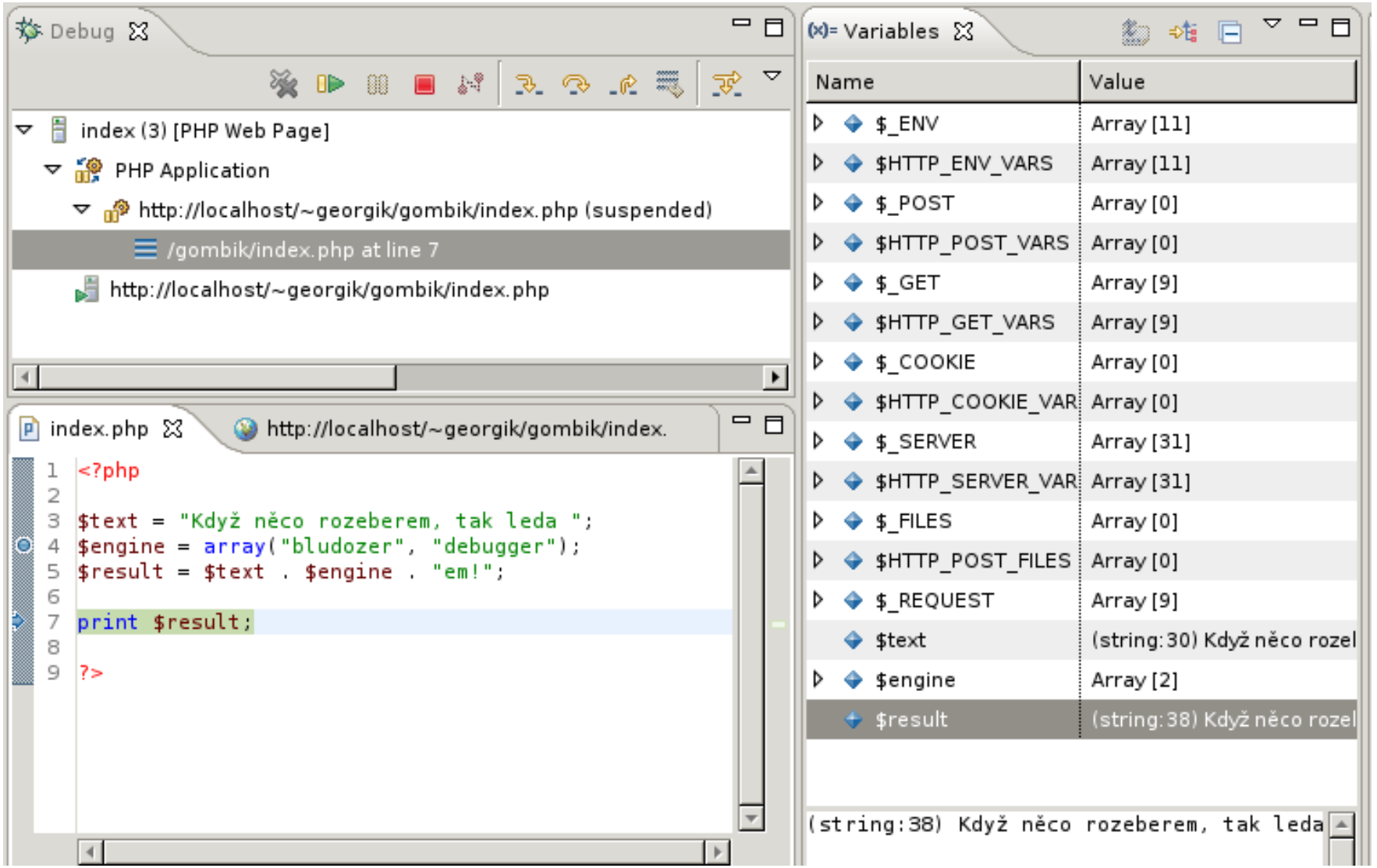


Nezastavil!

Drobná úprava v php.ini

zend_extension=/home/g.../ZendDebugger.so
zend_debugger.allow_hosts=127.0.0.1
zend_debugger.expose_remotely=always
zend_debugger.connector_port = 10013

Pohoda s PHP


Debug
index (3) [PHP Web Page]
PHP Application
http://localhost/~georgik/gombik/index.php (suspended)
/gombik/index.php at line 7
http://localhost/~georgik/gombik/index.php
index.php
http://localhost/~georgik/gombik/index.
1 <?php
2
3 $text = "Když něco rozeberem, tak leda ";
4 $engine = array("bludozer", "debugger");
5 $result = $text . $engine . "em!";
6
7 print $result;
8
9 ?>
Variables
Name
Value
$_ENV
Array [11]
$HTTP_ENV_VARS
Array [11]
$_POST
Array [0]
$HTTP_POST_VARS
Array [0]
$_GET
Array [9]
$HTTP_GET_VARS
Array [9]
$_COOKIE
Array [0]
$HTTP_COOKIE_VAR
Array [0]
$_SERVER
Array [31]
$HTTP_SERVER_VAR
Array [31]
$_FILES
Array [0]
$HTTP_POST_FILES
Array [0]
$_REQUEST
Array [9]
$text
(string:30) Když něco rozel
$engine
Array [2]
$result
(string:38) Když něco rozel
(string:38) Když něco rozeberem, tak leda

Debugger - zhrnutie

Debuggovať ide všetko!

Len konfigurácia nástrojov nemusí byť okamžite zrejmá.

Čím trávi vývojár najviac času?

Ladením.

Debuggovaním.

Facebookom ;-)

Zmena paradigmy

Zkuste to bez debuggeru!

Milý Marconi!

- Jára Cimrman,
průkopník v hodu HDD do dálky

Odstránenie debuggovania

Riešenie je jednoduché!

Kód bez chýb!

Unit testy

Kód rozdelíme.

Napíšene automatizované testy.

Mňáá to zdržuje!

„Písanie testov zdržuje od reálneho kódu.“

„Musím rýchlo písať kód, šéf chce po mne funkcie“

„Testy som vypol, lebo neustále padali.“

OMG !

Vývojár si neuvedomuje, že

nepísaním testov:

Predražuje svoju prácu.

Oneskoruje dodávku produktu.

Poškodzuje ostatných vo firme.

Znižuje možnosť ďalšieho rozšírenia produktu.

Neposkytuje dokumentáciu k svojmu kódu.

PHPUnit - je to tak jednoduché!

Easy to learn to write.
Easy to write.
Easy to read.
Easy to execute.
Quick to execute.
Isolated.
Composable.

Príklad z PHPUnit

```php
<?php
require_once 'PHPUnit/Framework.php';

class StackTest extends PHPUnit_Framework_TestCase
{
    public function testPushAndPop()
    {
        $stack = array();
        $this->assertEquals(0, count($stack));

        array_push($stack, 'foo');
        $this->assertEquals('foo', $stack[count($stack)-1]);
        $this->assertEquals(1, count($stack));

        $this->assertEquals('foo', array_pop($stack));
        $this->assertEquals(0, count($stack));
    }
}
?>
```

Spustenie testu

```
┌─(georgik@traper:pts/10)──────────────────────────────────────────────────────(/tmp)─┐
└─(1:14:59: )── phpunit test.php                                          ──(Št,okt15)─┘
PHPUnit 3.4.1 by Sebastian Bergmann.

.

Time: 1 second

OK (1 test, 5 assertions)
```

Statická analýza kódu

```
<?php
$fh = fopen($myFile, 'r');
print fread($fh);
fclose($fh)
?>
```

Security hole

RATS

```
┌─(georgik@traper:pts/10)──────────────────────────────────────────────(/tmp)─┐
└─(15:13:2)── rats -l php security-hole.php ──────────────────────(Št,okt15)─┘
Entries in perl database: 33
Entries in python database: 62
Entries in c database: 336
Entries in php database: 55
Analyzing security-hole.php
security-hole.php:2: High: fopen
Argument 1 to this function call should be checked to ensure that it
does not
come from an untrusted source without first verifying that it contain
s nothing
dangerous.

Total lines analyzed: 6
Total time 0.000150 seconds
39999 lines per second
```

http://www.fortify.com/security-resources/rats.jsp

Švajčiarský nožík - NetCat

test.txt:
GET /index.html HTTP/1.1
Host: localhost
Connection: close
prázdny riadok

nc localhost 80 <test.txt

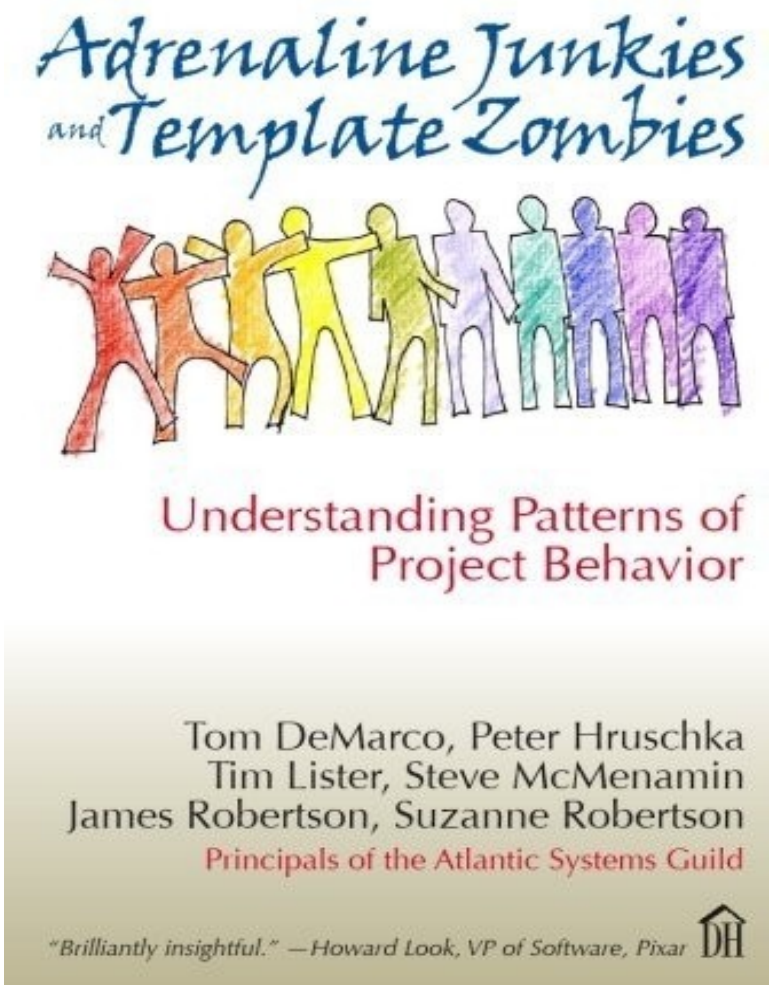
Pár zaujímavostí

Software Engineering Radio

http://www.se-radio.net

Adrenaline Junkies and Template Zombies

Vzory správania
v projektoch



Priestor na otázky.

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Ďakujem za pozornosť!

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