Unleash the power of Delphi debugger

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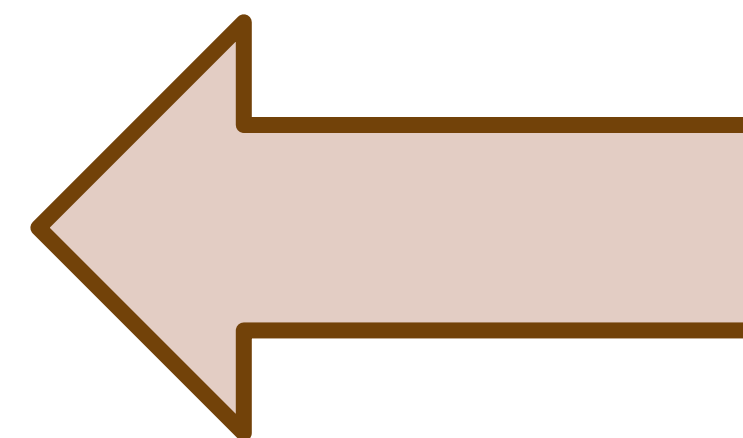
About me

o Pascal programmer since 1984 (HiSoft pascal on ZX Spectrum)

o First contact with Borland: Turbo Pascal 3 (on CP/M)

o Programming highly responsive 24/7 applications since 1997

o Writer: The Delphi Magazine, Blaise Pascal, Monitor (Slovenia)

o Blogger: http://thedelphigeek.com

o Contact me: http://primoz.gabrijelcic.org

Debugging

Basics

o F9   Run with debugging

o Shift+Ctrl+F9   Run without debugging

o Ctrl+F2   Program reset

o F4   Run to current position

o F8   Step over

o F7   Trace into

o Shift+F7   Trace to next source line

o Shift+F8   Run until return

o F5   Toggle breakpoint

o Shift+F5   Enable/disable breakpoint

Settings / Project Options

o Project, Options, Delphi Compiler, Compiling
  ◦ Optimization
  ◦ Debug information
  ◦ Use debug .dcu's
  ◦ Selective Debugging Expert by Uwe Raabe
    http://www.uweraabe.de/Blog/2015/05/08/selective-debugging/

o Delphi Compiler, Linking
  ◦ Debug information
  ◦ Include Remote Debug symbols

Settings / IDE Options

o Tools, Options, Debugger Options
  ◦ General
  ◦ Event log

o F1!

Breakpoints

Properties: Enabled

o Enabled
  ◦ Shift-F5

Properties: Condition

o Condition
- ◦ slow
- ◦ code
- ◦ DebugBreak(condition)
  - ◦ https://github.com/gabr42/GpDelphiUnits

Properties: Pass count

o Pass count
  ◦ slow
  ◦ Narrowing down reproducible problems

Side effects: Break

o Break

Side effects: Log message

o Log message

Side effects: Eval expression

o Eval expression
  ◦ OutputDebugString
  ◦ Loggers (CodeSite …)
  ◦ Log to console
    ◦ GpConsole

Side effects: Log call stack

o Log call stack
  ◦ Full
  ◦ Partial

Groups

o Group

o Enable group

o Disable group

o manual toggle

Threads

o Properties, Thread

o Freeze all other threads

o Thaw all threads

Exceptions

o Tools, Options
  ◦ Debugger Options
  ◦ Embarcadero Debuggers
  ◦ Language Exceptions

o Ignore subsequent exceptions

o Handle subsequent exceptions

o ExceptionClass

Hardware breakpoints

- Address
  - Code execution
  - Can be set on read-only memory

- Data
  - Data access

- Limited number
  - DR0 … DR3

- Disabled on program restart

Tips and tricks [1]

o Run until return

o Moving a breakpoint
  ◦ with mouse
  ◦ Options, Line number

o Moving execution point
  ◦ with mouse
  ◦ Set next statement
  ◦ "repeat last statement"

Tips and tricks [2]

o Call stack breakpoints

o DLL import breakpoints

o Disable/enable all

Debugging remotely

Remote debugger

o Platform Assistant [PAServer]

o Remote Debugger [rmtdbgXXX.exe]
  ◦ Firewall!

Evaluate & Watch

Evaluating expressions

o Ctrl+F5   Add watch

o Ctrl+F7   Evaluate/Modify

o Alt+F5,
Ctrl+Shift+click   Inspect

Evaluate / Watch

- Ctrl+F5   Add watch

- Ctrl+F7   Evaluate/Modify

- Alt+F5,
  Ctrl+Shift+click   Inspect

Optimizer

- DontOptimize

```
procedure DontOptimize(var data);
begin
  // do nothing
end;
```

- GpStuff

Q & A