

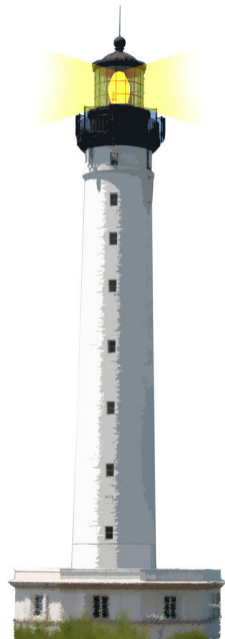
Debugging in Pharo

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<http://www.pharo.org>



What You Will Learn

- The system is alive: Communicate with it
- The debugger is your best friend
- Don't be afraid of it



Debugging

MessageNotUnderstood: DiceHandle>>self

Bytecode ▾

Stack

- ▶ Proceed ◀ Restart ▶ Into ▶ Over ▶ Through + Create ▾
- DiceHandle(Object)>>doesNotUnderstand: #self
- DiceHandle>>+ (selected)
- DiceHandleTest>>testSumming
- DiceHandleTest(TestCase)>>performTest
- [self setUp: self performTest: | in DiceHandleTest(TestCase)>>runCase in Block: [self setUp

Source

Where is? ✎ Browse ✓ Accept ✗ Cancel

```
+ aDiceHandle
  | handle |
  handle := self class new
  self dice do: [ :each | handle addDice: each ].
  aDiceHandle dice do: [ :each | handle addDice: each ].
  ^ handle
```

Type	Variable	Value
	self	a DiceHandle
parameter	aDiceHandle	a DiceHandle
attribute	dice	an OrderedCollection(a Dice (20) a Dice (20))
temp	handle	nil

Debugging

- Closing the debugger does not solve bugs
- The debugger is your best friend
 - communicate with objects of the context
 - check state
 - send messages to specific objects
 - compile code on the fly
 - continue without restarting from scratch

Watch the videos and practice



Simple Trace

Transcript show: 'x = ', x printString

- used when you don't have tools
- often inefficient
- we can do better



Defining a Breakpoint

...
Halt now.

Halt now (or self halt)

- pause the program
- invoke the debugger



Single-Shot Halt

...
`Halt` once.

To enable it, evaluate

`Halt enableHaltOnce`

Halt once, if enabled :

- pauses the program
- opens a debugger
- disables itself



Halt After n Iterations

Halt onCount: 10



Conditional Halt

- if: aSelector stops when invoked from a aSelector
- if: aBlock stops if the block evaluates to true

faces will stop only when invoked from printString

```
Dice >> faces
```

```
...
```

```
Halt if: #printString
```

Conditional Halt

The parameter passed to `if:` can be a test name too:

```
Dice >> faces
```

```
...
```

```
Halt if: #testLargeDice
```

`faces` will stop only when invoked from `testLargeDice`



Create Your Own Breakpoints

- now, once, onCount: and if: are methods in Halt class
- you can add your own methods, e.g.,

```
Halt class >> between: minTime and: maxTime  
  (Time current  
   between: minTime asTime  
   and: maxTime asTime)  
   ifTrue: [ self signal ]
```

```
Dice >> faces
```

```
...
```

```
Halt between: '00:00' and: '02:00'
```

faces will halt only between midnight and 2am.

What You Should Know

- The debugger is a powerful tool
- You should communicate with objects
- Breakpoints are powerful and customizable



A course by



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