Hidden Gems in Cincom Smalltalk™

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#ESUG16

Agenda
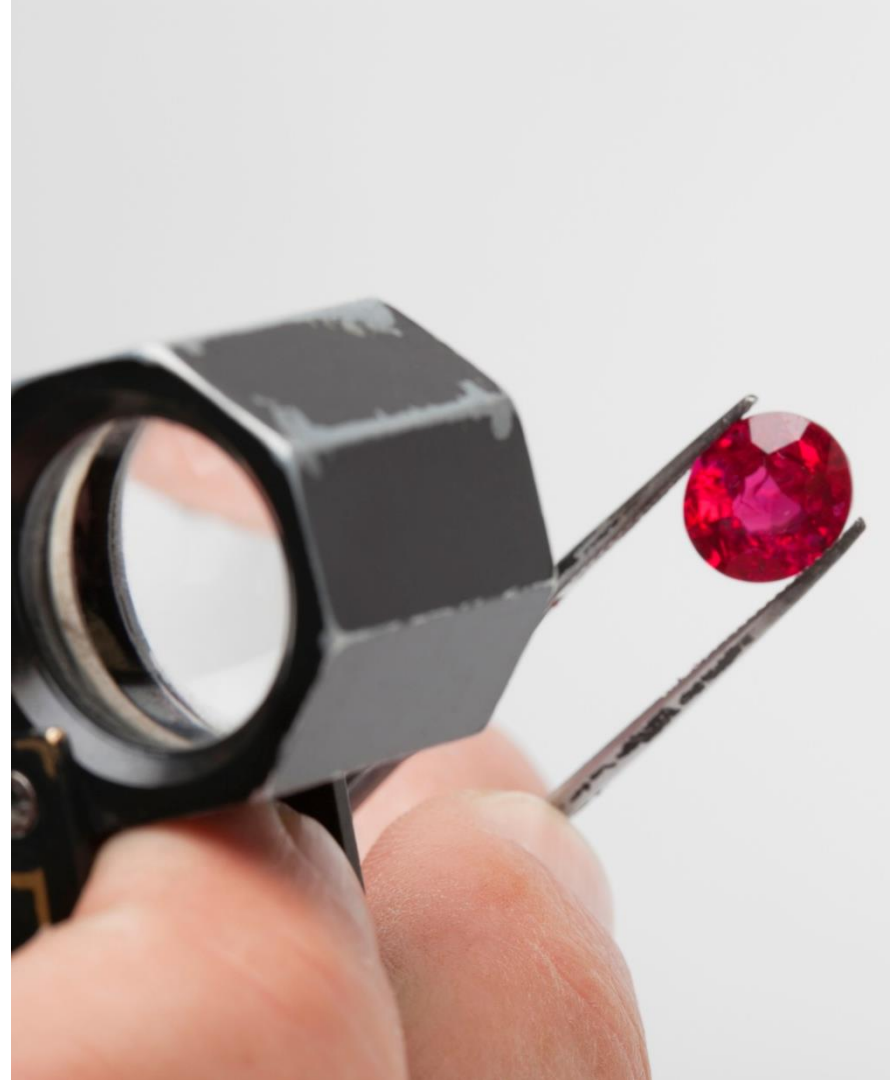- Cincom Talks

Hidden Gems
- Browser
- Code
- Collection
- Framework
- Store
- Loader

Cincom Smalltalk Talks

- Cincom Smalltalk Roadmap

- Hidden Gems in Cincom Smalltalk

- New Native Windows UI possibilities in Next Generation Cincom® ObjectStudio®

- Development and Features of the new Cincom ObjectStudio Launcher

- Cincom Smalltalk Protocols - New Features and Tools

- Rapid Application Development with AppeX and Google Chrome Developer Tools
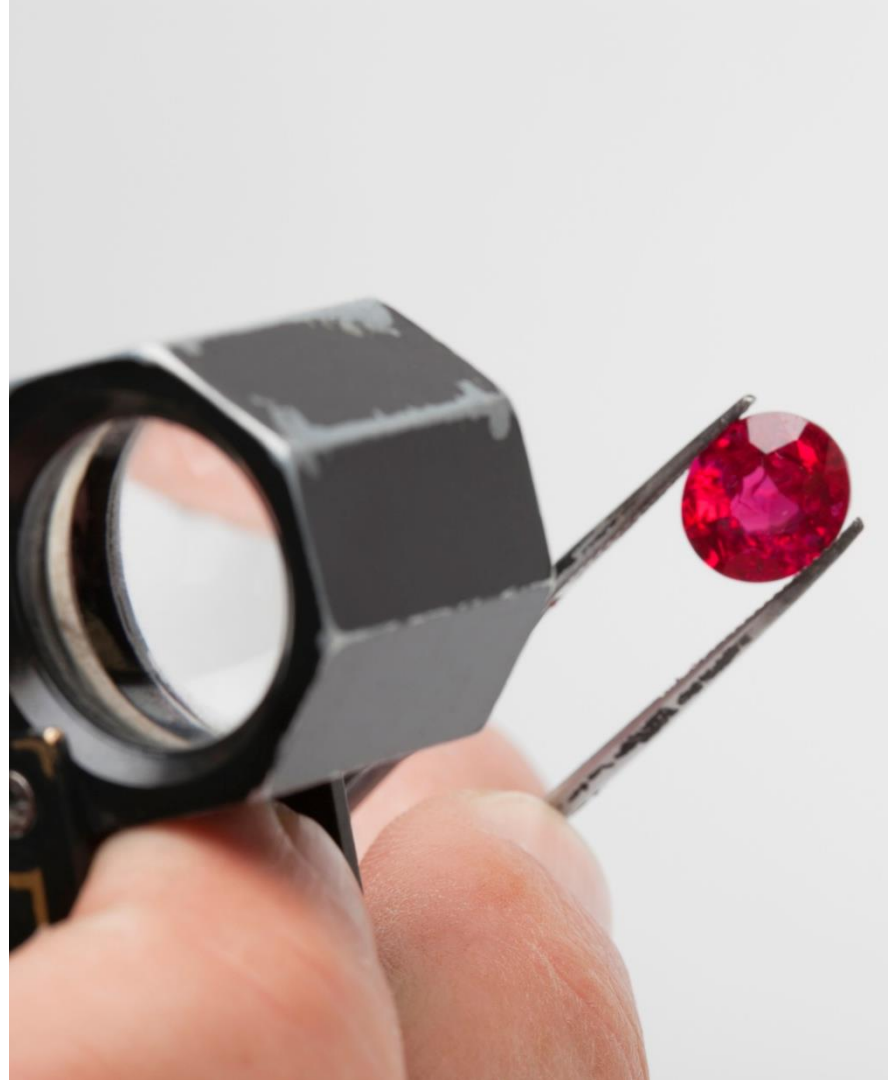
- More XP-rience

What are Hidden Gems?

Hidden Gems are useful techniques or product capabilities that may not be obvious
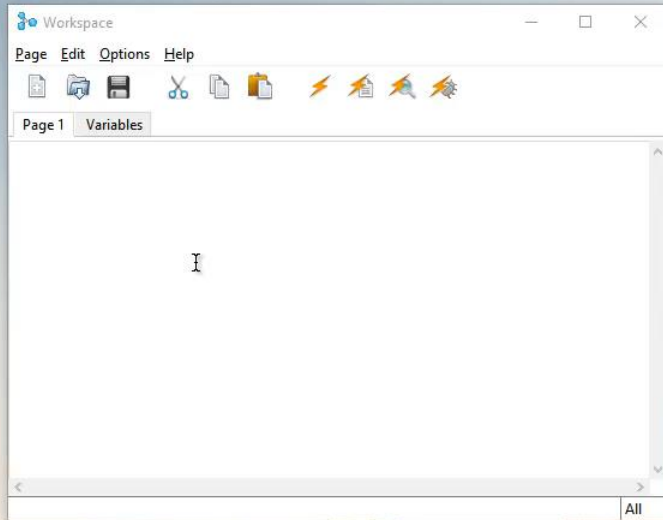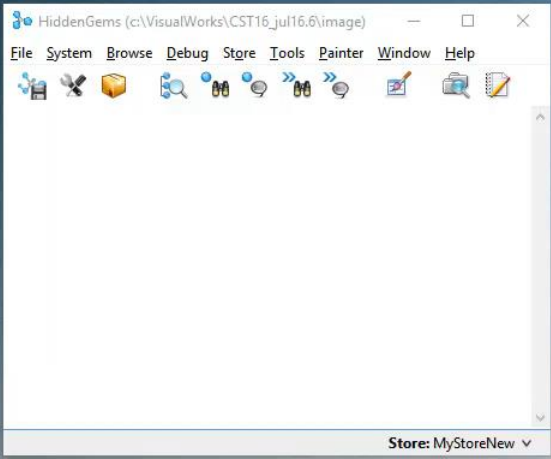
Hidden Gems

- Know a great hidden gem?
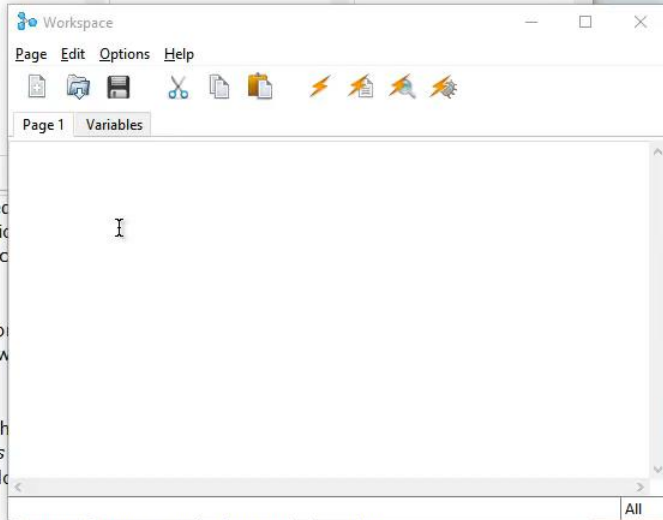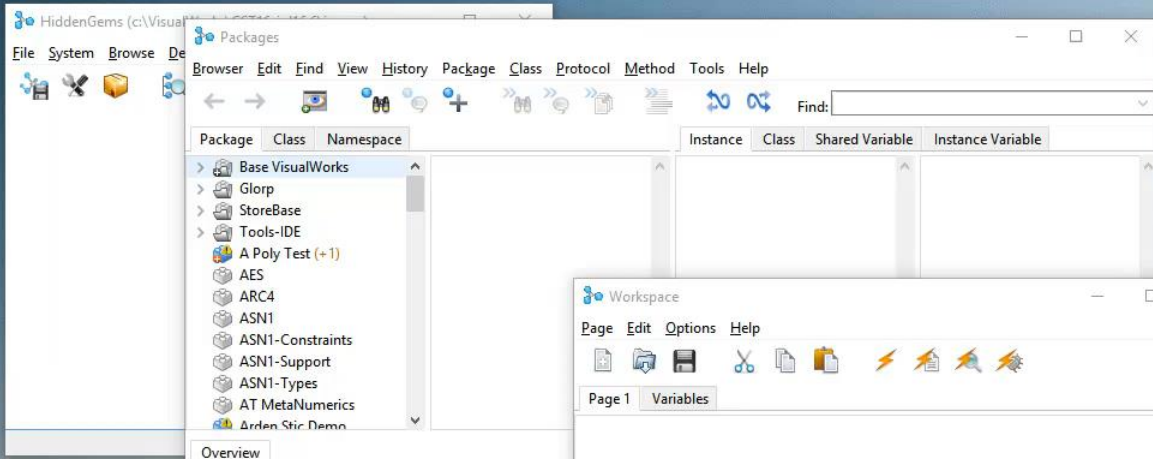
- Share!

  - Credit happily given to those suggesting!

Hidden Gems – Browser1

- Sizing

- Spawn

- Hidden Tabs

- Browser in context (New!)

- Forward / Backwards   (New!)

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HiddenGems (c:\VisualW...)

File System Browse De...

Packages

Browser Edit Find View History Package Class Protocol Method Tools Help

Find: _____

Package | Class | Namespace

Instance | Class | Shared Variable | Instance Variable

- Base VisualWorks
- Glorp
- StoreBase
- Tools-IDE
- A Poly Test (+1)
- AES
- ARC4
- ASN1
- ASN1-Constraints
- ASN1-Support
- ASN1-Types
- AT MetaNumerics
- Arden Stic Demo

Overview

The *System Browser* presents a structured
browsing classes and their method definiti
organized into packages or browse a spec
are defined in each selected class.

As the principal programming tool in Cinco
packages, classes, and name spaces, as w
library.

For complete documentation, start with th
Editing Smalltalk Code" in the *VisualWorks*
http://www.cincomsmalltalk.com/main/do

Tutorials are also available to illustrate the System Browser and other tools in action:
http://www.cincomsmalltalk.com/main/developer-community/tutorials

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Workspace

Page Edit Options Help

Page 1 | Variables

All

HiddenGems (c:\VisualN...\SGT16 i MS C\...

File System Browse De...

Bro...

Pa...

Code components connected to: MyStore

Browser Edit Find View Class Method Tools Help

Find:

Package | Class | Namespace

Instance | Class | Shared Variable | Instance Variable

A Poly Test (+1)
Arden Stic Demo
Demo extensions
GarminFit
K-Means Demo
PolycephalyExample
ProgressGrid
ProgressGridDemo
QuantModelDemo
Swimming
Tetris
Triangle
TriangleII

Overview

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Workspace

Page Edit Options Help

Page 1 | Variables

All

Hidden Gems – Browser2

- Zoom

- Delimiters

- Fonts

- Settings

- Workspace

Hidden Gems – Code Shortcuts

- Iterator shortcut

- Sorting

- Logic

Hidden Gems – Iterator Shortcut

evenNumbers := (1 to: 10) select:[:ea | ea even].

squared := (1 to: 10) collect:[:ea | ea squared].

Hidden Gems – Iterator Shortcut

evenNumbers := (1 to: 10) select:[:ea | ea even].

squared := (1 to: 10) collect:[:ea | ea squared].

evenNumbers := (1 to: 10) select: #even.

squared := (1 to: 10) collect: #squared.

'hello world' collect: #asUppercase

- Use with do:, select:, reject:, collect:, etc

- One argument, one message

Hidden Gems – Sorting

When the objects know how to compare themselves

sortedNumbers := myNumbers asSortedCollection.

sortedNumbers := myNumbers sort.

Hidden Gems – Sorting

For more specific sorts:

employees asSortedCollection:[:a :b | a lastname

and subSorts:

    employees asSortedCollection:[:a :b |

       a lastname = b lastname

           ifTrue:[a firstname <= b firstname]

           ifFalse:[a lastname <= b lastname]

Hidden Gems – Sorting

Same as last slide, but simpler

employees sorted: #lastname ascending.

employees sorted: #lastname ascending, firstname ascending.

Hidden Gems – Logic

x isNil ifTrue: [aBlock].

x isNil ifTrue: [aBlock] ifFalse:[aBlock].

Hidden Gems – Logic

x ifNil: [aBlock].

x ifNil: [nilBlock] ifNotNil: [notNilBlock].

x ifNotNil: [aBlock].

x ifNotNil: [notNilBlock] ifNil: [nilBlock]

Hidden Gems – Collections

Treap

- What is it?

- Where can I find it?

- What does it do?

- Where should I use it?

- Are there any drawbacks?

Hidden Gems – Treap

allClasses := Core.Object allSubclasses.

classDict := IdentityDictionary new.

allClasses do:[:cl | classDict at: cl name put: cl allInstances size.].

classTreap := Treap new.

allClasses do:[:cl | classTreap at: cl name put: cl allInstances size.   ].

node := classTreap nodeAtKey: 'OrderedCollection' ifAbsent: [].

node next

Hidden Gems – Frameworks

MatriX / Poly for MapReduce

MapReduce is a popular and effective technique used to apply concurrency to problems often involving large amounts of data, in order to improve performance.

MapReduce is named after the functional programming functions map and reduce.

The ***map*** function apples a function to each element in a list and ***reduce*** aggregates or combines the results.

Hidden Gems – Frameworks

MatriX / Poly for MapReduce

The **map** function apples a function to each element in a list and **reduce** aggregates or combines the results.

In Smalltalk

collect:

fold:

Hidden Gems – MatriX / Poly for MapReduce

```
wordCountFor: fileString

    | words |

    words := self parseFile: fileString.

    words := words collect:[:word | word select:[:char | char isAlphabetic] ].

    words := words reject: #isEmpty.

    ^words asBag.
```

Hidden Gems – MatriX / Poly for MapReduce

```
reduce: wordCounts

    "Combine the wordCounts and create a Dictionary summary"

    | aggregatedWords finalCounts |

    aggregatedWords := wordCounts fold:[:counts :newCounts | newCounts
valuesAndCountsDo:[:word :n | counts add: word withOccurrences: n]. counts ].

    finalCounts := Dictionary new.

    aggregatedWords valuesAndCountsDo:[:word :count | finalCounts at: word put: count].

    ^finalCounts
```

Hidden Gems – MatriX / Poly for MapReduce

```
runExampleLocal

	"self runExampleLocal"

	| files wordCounts summary results |

	files :=self myFiles.

	wordCounts :=  files collect:[:fileStr | self wordCountFor: fileStr ].

	summary := self reduce: wordCounts.

	results := summary associations sort: #value descending.

	(results first: 100) do:[:ea |Transcript cr; show: ea key; tab; show: ea value printString ].
```

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Hidden Gems – MatriX / Poly for MapReduce

```
runExample

    "self runExample"

    | files vms wordCounts summary results |

    files :=self myFiles.

    vms := MatriX.VirtualMachines new:3.

    wordCounts := [vms do:[:fileString | MapReduceExample wordCountFor: fileString] with:
files] ensure:[vms release].

    summary := self reduce: wordCounts.

    results := summary associations sort: #value descending.

    (results first: 100) do:[:ea |Transcript cr; show: ea key; tab; show: ea value printString ].
```

Hidden Gems – Store

Store API

Hidden Gems – Store API

Blessings:

- Development

- ToReview

- Released

Hidden Gems – Store API

Blessings:

- Ready for Alpha

- Alpha

- Ready for Beta

- Beta

- Ready for Production

- Production

Hidden Gems – Store API

Programmatically update your image

session := StoreLoginFactory currentStoreSession.

pkgs := (Registry allPackagesWithNewerInDBIn: session)
    asSortedCollection: [:a :b | a name < b name].

pkgs do:[:pkg | pkg versions first loadSrc].

Hidden Gems – Loader

VisualWorks – loader

Great for having multiple versions installed

VisualWorks XL – 4 byte loader

Great for having multiple versions *and* development versions installed

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Hidden Gems – Loader

VisualWorks – loader

.ini

82 00 c:\VisualWorks\vw8.2\bin\win\vwnt.exe

82 128 c:\VisualWorks\vw8.2\bin\win64\vwnt.exe

81 00 c:\VisualWorks\vw8.1\bin\win\vwnt.exe

81 128 c:\VisualWorks\vw8.1\bin\win64\vwnt.exe

Hidden Gems – Loader

VisualWorksXL – 4 byte loader

.ini

82 00 00 00 C:\VisualWorks\VW8.2\bin\win\vwnt.exe?C:\VisualWorks\VW8.2

82 128 00 00 C:\VisualWorks\VW8.2\bin\win64\vwnt.exe?C:\VisualWorks\VW8.2

Hidden Gems – Loader

VisualWorksXL – 4 byte loader

Using VisualWorksXL

1) Move to a neutral place

2) Set the image properties to use VisualWorksXL to open it

3) Edit configuration file

- Signature

- Vm path

- Installation path

Questions?

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Thank You!

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