9th Smalltalks - Argentine Conference
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VA Smalltalk Update

John O’Keefe
Chief Technical Officer
Instantiations, Inc.
Agenda

- Company Update
- Current Release Content
- Demo
- Next Release Candidates
- Q&A
Company Updates
VAST remains strong - new technology and users

• Community Outreach
  • Conference/workshop sponsors and participants
    • ESUG, FAST Smalltalks, Camp Smalltalks
• Intense new technology development
  • Upcoming product release
  • New 64-bit VM
• VA Smalltalk Google Group
  • Aggregated on [Smalltalk] http://forum.world.st
  • Old forum content (prior to May, 2011) still available (read only)
• “Videos and Podcasts” pages on website
  • http://www.instantiations.com/resources/st4u_videos.html
  • http://www.instantiations.com/resources/videos.html

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New Release

V8.6.2 available Q4 2015!
V8.6.2 Content
Base Class Libraries

- OSObject symbolic field access
  - Simplifies structure mapping
  - Eliminates manual field offset calculation
  - Handles platform-specific field alignment
  - Handles packed structures
  - Maps Unions
  - Supports 32/64-bit environments
  - Backward compatible
V8.6.2 Content
Base Class Libraries

- Smalltalk namespace query improvement
  - Improved performance of class/global/pool lookup and iteration
- In-memory and stream inflate/deflate
  - Add APIs to use zlib to inflate and deflate data to and from streams (collections, strings, and files)
  - Add APIs to create a Zip archive of files
  - Add APIs to create a Gzip archive of a file
V8.6.2 Contents
Cryptography

• Support for OpenSSL 1.0.0 and above
  • Message Digests
  • Symmetric Ciphers
  • Public/Private key support (RSA, DSA, Diffie-Hellman)
  • Digital Signatures
  • Digital Enveloping
  • Key Agreement
  • MAC
  • Secure RNG
  • High-Performance crypto streams (BIO)
  • Memory management enhancements
  • ASN1 capability enhancements
  • X509 capability enhancements
  • OpenSSL Version Detection

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V8.6.2 Contents
Cryptography

- Uses platform- or user-supplied OpenSSL modules
  - On UNIX, libcrypto and libssl are supplied by the system
  - On Windows, libeay32 and ssleay32 are supplied by the user (for example, download from https://slproweb.com/download/Win32OpenSSL_Light-1_0_2d.exe)
- New native Thread-locking support for OpenSSL static and dynamic locking interfaces
- Extensive examples showing usage of all APIs
V8.6.2 Content
Graphics Framework Improvements

• New PNG file read and write support
• JPEG parser improvements
  • Silently ignore metadata that is not in the proper order
V8.6.2 Content
Development Tools Improvements

• Image startup scripting improvements
  • abt.cnf originally used to setup image parameters using chunk-formatted scripts
    • Function was replaced by declarative abt.ini
  • abt.cnf processing has remained in the product as a mechanism to script operations at image startup
    • but has always been a bit difficult to use since the image is not fully initialized at the time it is run
  • Added capability to designate code chunks to run at either pre-image startup or post-image startup
  • Post-startup code chunks are run after the image is fully operational
    • giving the user freedom to write scripts that use any part of the system, such as GUI components, loaded code, etc.
Optional Virtual Compiler for Class Definitions (On by default)

Problem: Deleting variables from a class definition can leave methods in an inconsistent state if removed variables are still referenced.

Reason: Class Definition and Methods are separate compilation units.

Solution: When saving a class definition, a virtual compiler is run that treats the class definition and methods as a single compilation unit.

- for the purposes of identifying and reporting a class definition that will become inconsistent if the operation takes place.
- If this is identified, the operation will be cancelled.
V8.6.2 Content
Text Editor Improvements

• Updated Scintilla APIs to support displaying embedded NUL characters
  • previously a NUL identified the end of the string and all following characters were ignored
V8.6.2 Content
Workspace Optimizations

• Workspaces did inefficient content management
  • Always collecting up the complete contents of the file into a string for most every algorithm
  • For small documents (i.e. Smalltalk snippets) this didn’t matter
  • For large documents, this creates a lot of garbage and performance issues

• Workspace algorithms now take advantage of our ability to natively interface with Scintilla’s (our editor component) internal character buffer

• File I/O algorithms have been updated for more efficient large document operations
V8.6.2 Content
Multilingual Workspace – Design Goals

• Keep it in Smalltalk
• Provide a first-class editing experience for:
  • Configuration Files
  • System Scripts (Shell or Batch)
  • Web Languages (HTML/Javascript/CSS)
  • C/C++/Assembler for Native Development
  • and of course... SMALLTALK!
• Pluggability: Support for additional languages should be easy to develop and plug-in
Workspaces dynamically adjust their algorithms when a language is specified

- Bracket/Brace Matching
- Code Completion
- Comments
- Code Folding
- Indentation/Tabs
- Syntax Highlighting
- Menus
- Refactorings
- Text Selection
- Word Characters
A workspace has an active “Language Provider”
  - It provides implementation details to the various algorithms

Pluggability is all well and good...but isn’t creating support for a new language hard?
  - **Answer**: No, it’s not - that’s because you won’t be doing most of the work

Scintilla provides language support for 100+ languages
  - Handles Syntax Color Highlighting
  - Handles Code Folding

For more language specific features, you override some simple methods that provide default assumptions
  - Currently only 6 methods for you to override - 4 of them are simple 1 liners, the other 2 are easy to implement
V8.6.2 Content
Multilingual Workspace - Example

```php
<?php
    echo "Hello World!";
?>

    <div id="footer" class="clear">
        <ul>
            <li><a href="company/contact-us.html" title="">Contact Us</a></li>
        </ul>
    </div>

    <div id="google_translate_element"></div>
    <script>
        function googleTranslateElementInit() {
            new google.translate.TranslateElement({
                translate.google.com/translate_a/element.js?cb=google_translate_element:
                " -->&copy; 2013 Instantiations";
            });
        }
    </script>
```
• Updated source code compression functions
  • Compression reduces source code size by up to 50%
  • Now cross-locale and cross-platform
  • Requires 8.6.2 library access prims for full function
    • 8.6.2 image and 8.6.2 prims – GOOD, new function
    • 8.6.1 or earlier image and 8.6.2 prims – OK, old function
    • 8.6.2 image and 8.6.1 or earlier prims – BAD, Transcript warning at startup
V8.6.2 Contents
Secure Communications

- Secure Socket support updated to use new crypto function
  - Removed old crypto and ssl native libraries on all platforms
  - Default SSL Protocol is TLS (same as SSLv23 with SSLv2 excluded)
  - Deprecated Insecure protocols (SSL version 1-3)
- SST HTTPS support updated to use new crypto support
V8.6.2 Contents
Seaside and Grease

• New port levels available
  • Grease 1.2.0
  • Seaside 3.2.0
• Support for HTTPS connections
• Some small bug fixes
• Configuration maps identify the Metacello package version used for the port:
  • ConfigurationOfGrease-JohanBrichau.311
  • ConfigurationOfSeaside3-JohanBrichau.268
V8.6.2 Contents
SQLite

- Added transaction control support: BEGIN, COMMIT, and ROLLBACK
- Added support for Host Variables
V8.6.2 Contents

GLORP

• GLORP port updated to 8.1-7
  • Was 7.10.1-3 in V8.6.1
  • Bug fixes
  • Added support for SQLite

• GLORP Test port updated to 8.1-5
  • Added support for SQLite

• New features for SQLite Glorp and SQLite Glorp Testing
V8.6.2 Contents

Installers

- New installers for AIX
  - Based on standard Unix package managers
    - RPM format installed using the RPM package manager
  - Much faster than the old GUI installers
- Installers have simple to use install/uninstall scripts which run from the command line
  - Scripts can upgrade from 8.6.0 and 8.6.1
  - Scripts can run the importer tool to update an 8.6 manager
**V8.6.2 Contents**

**Environments Management Tool**

- **Early validation**
  - Installation and environments content validated before any processing is attempted
- **Enhanced support for multiple installations**
  - Can create environments for all versions of VA Smalltalk
V8.6.2 Content Documentation

- ENVY/QA added to online library
- Many small updates
V8.6.2 Content
New Platforms

- Windows 10
- Fedora 22
- Ubuntu 15.04
Looking to the Future
Future Releases

• Release schedule is about once a year
  • Depends on volume of content
  • Current content information in Product Roadmap
    • http://www.instantiations.com/products/roadmap.html
• Content based on requirements from:
  • Direct customer interactions
  • Forums
  • Support cases
  • Internals
Next Release
Candidate Items

• Internationalization
  • Unicode/UTF-8 (including VM and system APIs)
    • Based on International Components for Unicode (ICU) module

• Web interface
  • Seaside 3.x
  • Continuation support

• Middleware
  • Postgres
  • NOSql (Voyage/MongoDB or ???)
  • TCPIP V6
Next Release
Candidate Items

- GUI Look-and-Feel
  - Common Widgets Application Window framework
    - Useful for SUnit, Seaside, and Roassal
  - Windows Common Controls
    - TreeView improvements
  - GTK replaces Motif on UNIX platforms

- Server
  - Easy to use server farms
Next Release
Candidate Items

• Development Tools
  • Improved code library access over WAN
  • Revamped Changes Browser
  • New Code Merge Engine

• Performance and Scalability
  • Incremental garbage collection
  • 64-bit Smalltalk (Dino2)
How Do You Get VA Smalltalk?

- Download evaluation copy
- Buy development licenses
- Download development build
  - Announced in VA Smalltalk Google Group
- Be a committer on an Open Source project
  - http://www.instantiations.com/company/open-source.html
- Work for an educational institution
  - http://www.instantiations.com/products/academic-license-program.html
Contact us

- General information
  - info@instantiations.com
- Sales
  - sales@instantiations.com
- Support
  - support@instantiations.com
- Me
  - john_okeefe@instantiations.com
Thank you for your attention

Questions?