Part II: Smalltalk Implementations

Each of the versions of Smalltalk is briefly described along with information about the source of the version and extensions provided by various vendors. Please note that the author works for one of these vendors†.

Descriptions of commercial Smalltalk vendors are limited to a brief summary of which versions and what platforms are supported (taken from the vendors WWW sites), what addon products are available from the vendor, and information on obtaining more details.

Descriptions of other addon products are provided by the vendors themselves. If you have such a product and it is either not listed or the listing is not accurate, please notify the editor at the address listed at the front of this FAQ.‡

Descriptions of non-commercial versions of Smalltalk tend to be longer; again, the information is taken from the associated web sites.

The Smalltalk versions listed in this section are:

†. The author works for IBM but is not employed by the group which produces the IBM Smalltalk products.

‡. Please include the following information: vendor name, address, phone, fax, email, web url, etc. For each product include: product name, which Smalltalk does it add to, and a 2-3 line description (not a sales pitch).

ANSI Smalltalk

Frequently Asked Question

2.1 • What is ANSI Smalltalk?

ANSI Smalltalk is an incomplete and as-yet-to-be publicly proposed standard for Smalltalk. For information, see:

URL: `http://www.x3.org/tc_home/x3j20.html`

Frequently Asked Question

2.2 • What does ANSI Smalltalk cover?

The standard is expected to cover the language and base (non-graphics) classes including magnitudes and collections.

Frequently Asked Question

2.3 • What doesn't ANSI Smalltalk cover?

The standard is not expected to cover graphics, windows, or platform dependent functions.

Frequently Asked Question

2.4 • How do I get a copy of the ANSI Smalltalk standard?

There is no standard or publicly available draft at this time. One might be available in 1996.

Digitalk Visual Smalltalk

This section describes the Digitalk products sold prior to the merger with ParcPlace. Separate sections describe the ParcPlace products, and the new products of the merged company.

Frequently Asked Question

2.5 • What is Digitalk Visual Smalltalk?

Digitalk Visual Smalltalk is a series of related Smalltalk systems produced first by Digitalk, Inc., but now by ParcPlace-Digitalk.

Frequently Asked Question

2.6 • Who produces Digitalk Smalltalk?

Digitalk Smalltalk products are produced by ParcPlace-Digitalk.

URL: `http://www.parcplace.com/`

Address: ParcPlace-Digitalk, 999 E. Arques Avenue, Sunnyvale, CA 94086-4593

Phone: Main: 408-481-9090
Sales: 800-759-7272
Tech Support: 800-253-3415, 408-773-7474

FAX: Sales: 408-481-9095

Frequently Asked Question

2.7 • What versions are there of Digitalk Smalltalk?

URL: `http://www.parcplace.com/digitalk/home/vse.html`

Visual Smalltalk versions are available for Windows 3.1, Windows NT and OS/2. Visual Smalltalk contains a visual application building tool. An extended product, Visual Smalltalk Enterprise, adds tools for team development.

Frequently Asked Question

2.8 • What addons are there for Digitalk Smalltalk/V?

ParcPlace-Digitalk

URL: `http://www.parcplace.com/`

PARTS Wrappers (available separately)

Create parts for relational databases, COBOL, CICS, and CASE data models from ADW.

Polymorphic Software, Inc.

See “Tensegrity” in "Polymorphic Software, Inc." and “GF/ST” in "Polymorphic Software, Inc." on page 38.

The Object People

See “TOPLink” in section "Add-on Products for Multiple Vendors" on page 38.

Enfin Smalltalk

“VMARK Enfin Smalltalk” on page 37.

GemStone Smalltalk

GemStone is an object-oriented relational database system. In addition to supporting the commercial Smalltalk systems, it contains a Smalltalk language component as well.

Frequently Asked Question

2.9 • What is GemStone Smalltalk?

Frequently Asked Question

2.10 • Who produces GemStone Smalltalk?

GemStone Smalltalk is produced by GemStone.

URL: `http://www.slc.com/`

GNU Smalltalk

Frequently Asked Question

2.11 • What is GNU Smalltalk?

GNU Smalltalk is an implementation of Smalltalk provided by the Free Software Foundation, Inc. and subject to its ’copyleft’ license. It is free for individual use. It was written by Steve Byrne.

“GNU Smalltalk attempts to be a reasonably faithful implementation of Smalltalk-80 as described in the ’Blue Book’... . The syntax that the language accepts and the byte codes that the virtual machine interprets are exactly as they appear in the Blue Book.”

Frequently Asked Question

2.12 • How do I get GNU Smalltalk?

GNU Smalltalk can be downloaded from:

URL: `ftp://prep.ai.mit.edu/pub/gnu/`

Address: Free Software Foundation, Inc., 675 Mass Ave., Cambridge, MA 02139, USA

Frequently Asked Question

2.13 • What versions are there of GNU Smalltalk?

GNU Smalltalk runs on Apollo 3000/4000/10000, Atari, DECStation 3100, Encore Multimax, HP 9000, Interactive 386, Sony News 1810, Sun3, Sun4, NeXT, Pyramid, Sequent, SGI Iris-4D, Tektronix 431, and VAX. It is distributed in source form only.

IBM Smalltalk and VisualAge

Frequently Asked Question

2.14 • What are IBM Smalltalk and VisualAge?

IBM Smalltalk† and IBM VisualAge are commercial Smalltalk systems from IBM. VisualAge contains a visual application builder in addition to the Smalltalk development system provided in IBM Smalltalk. Each comes in versions with and without team development tools.

IBM VisualAge Home Page

URL: `http://www.torolab.ibm.com/software/ad/adwrad.html`

IBM VisualAge Fixes FTP Site

URL: `ftp://ps.boulder.ibm.com/ps/products/visualage/fixes/`

Where to get fixes for VisualAge, plus demos and other information.

†. Note that the author of this FAQ works for IBM.

Frequently Asked Question

2.15 • Who produces IBM Smalltalk?

IBM. Contact your local IBM office, or:

URL: `http://www.ibm.com/`

EMail: `askibm@info.ibm.com`
(Within the USA only.)

Phone: 1-800-IBM-3333
International: +1 520 574 4600
(Ask to be connected to the IBM Information Service Center.)

Frequently Asked Question

2.16 • What versions are there of IBM Smalltalk?

IBM Smalltalk comes in versions for OS/2, Windows, and AIX.

Frequently Asked Question

2.17 • What addons are there for IBM Smalltalk or VisualAge?

IBM

URL: `http://www.torolab.ibm.com/software/ad/adwrad.html`

VisualAge provides add-on features, which are sets of prefabricated parts. These include support for:

- Multimedia data and devices that include compact disc players, digital video players, videodisc players, and audio waveform players;
- Communications and transactions access using protocols such as APPC, CPI-C, TCP/IP, NetBIOS, CICS, and EHALLAPI;
- COBOL program integration; and
- AS/400 data and service access.

Polymorphic Software, Inc.

See “Tensegrity” in "Polymorphic Software, Inc." and “GF/ST” in "Polymorphic Software, Inc." on page 38.

The Object People

See “TOPLink” in section "Add-on Products for Multiple Vendors" on page 38.

Other Vendors

IBM maintains a list of vendors with additions to IBM Smalltalk and IBM VisualAge, as well as other related material including books and training.

URL: `http://www.torolab.ibm.com/software/ad/visage/varc/varc.htm`

Little Smalltalk

Frequently Asked Question

2.18 • What is Little Smalltalk?

Little Smalltalk is *not* a Smalltalk-80 system, but is an experiment in building a minimal Smalltalk system. The source code for the interpreter is less than 1800 lines of code. The image consists of less than 4000 objects. It runs in almost no memory, it's reasonably fast, it's easy to understand, easy to modify, and runs on Unix. In order to get such a small Smalltalk to run there were some changes:

- No graphics.
- The user interface is a real-eval-print loop rather than a browser, but it is written in Smalltalk, so it can be changed
- Primitives and cascades are not compatible.
- The standard class hierarchy differs from Smalltalk-80; the basic collections are List, Tree, Dictionary, Array and String.
- The only numbers are large and small integers.

—From the web site

In addition, there are Mac and Windows versions available from other parties.

Frequently Asked Question

2.19 • Where can I get Little Smalltalk?

The web page for Little Smalltalk is:

URL: `ftp://ftp.cs.orst.edu/users/b/budd/little/index.html`

The current (version 3) release for UNIX:

URL: `ftp://ftp.cs.orst.edu/pub/budd/small.v3.tar`

The current (version 3) release for the Macintosh:

URL: `ftp://sumex-aim.stanford.edu/info-mac/dev/little-smalltalk-315.hqx`

The version 4 beta for UNIX:

URL: `ftp://ftp.cs.orst.edu/users/b/budd/little`

Windows Little Smalltalk Interface is MS Windows 3.1 application built over the original Little Smalltalk interpreter. Preserving as much as possible from the original interpreter it provides a graphic user interface which makes it much easier to develop programs. The package was developed in the Advanced Programming Lab 2, Department of Computer Science, Technion -- Israel Institute of Technology.

URL: `ftp://ssl.cs.technion.ac.il/pub/Projects/`

The code is mirrored at:

URL: `ftp://ftp.smalltalk.com/pub/little.smalltalk/`

Object Technology International

Frequently Asked Question

2.20 • What is OTI?

Object Technology International Inc. (OTI) is a software engineering company specializing in Smalltalk and other object-oriented technologies. Products include the ENVY product, and IBM Smalltalk. OTI products are sold by other vendors rather than directly by OTI.

Frequently Asked Question

2.21 • Where is OTI?

URL: `http://www.oti.com/`

Address: Object Technology International Inc., 2670 Queensview Drive, Ottawa, Ontario, Canada K2B 8K1

Phone: (613) 820-1200

FAX: (613) 820-1202

EMail: `info@oti.com`

ParcPlace VisualWorks Smalltalk

This section describes the ParcPlace products sold prior to the merger with Digitalk. Separate sections describe the Digitalk products, and the new products of the merged company.

Frequently Asked Question

2.22 • What is VisualWorks Smalltalk?

URL: `http://www.parcplace.com/marketing/products/vwfamily.html`

ParcPlace VisualWorks Smalltalk is a series of related Smalltalk systems produced first by ParcPlace, Inc., but now by ParcPlace-Digitalk.

Frequently Asked Question

2.23 • Who produces VisualWorks Smalltalk?

ParcPlace VisualWorks Smalltalk products are sold by ParcPlace-Digitalk.

URL: `http://www.parcplace.com/`

Address: 999 E. Arques Avenue, Sunnyvale, CA 94086-4593

Phone: Main: 408-481-9090
Sales: 800-759-7272
Tech Support: 800-253-3415, 408-773-7474

FAX: Sales: 408-481-9095

Frequently Asked Question

2.24 • What versions are there of VisualWorks Smalltalk?

VisualWorks runs on the following platforms: MS-Windows, Windows NT, OS/2, Macintosh, SunOS 4, Solaris 2, IBM RS/6000, HP, and Sequent.

Frequently Asked Question

2.25 • What addons are there for ParcPlace VisualWorks?

Applied Reasoning Systems (ARS)

Address: 2840 Plaza Place, Suite 325, Raleigh, NC 27612

Phone: (919)-781-7997

FAX: (919)-781-4414

EMail: `info@arscorp.com`

MI (multiple inheritance)

Adds multiple inheritance to Smalltalk without changing the Virtual Machine.

Parcels & Structured Graphics (P&SG)

Adds full drag & drop (arbitrary images, true double-buffering, feed-back, etc.) Adds structured object graphics (supports transformations, pick-correlation, composition, etc.) and accompanying widgets.

The Dynamic Diagram Framework (DDF)

A Framework for building diagram based applications.

Arbor Intelligent Systems, Inc.

Address: 538 N. Division, Ann Arbor, MI 48104

Phone: (313) 996-4238

FAX: (313) 996-4241

EMail: `info@aisys.com`

URL: `http://ic.net/~aisys`

Arbor Help System 2.0 (v2.5 available 1Q96)

Add context-sensitive on-line help to an application without programming.

Arbor Inspector 1.0

Smalltalk Version: VW 2.0

An enhanced inspector which manages multiple inspector views in a single window using a hierarchical display.

Arbor Utilities 1.0 (Available 1Q96)

A collection of over fifty functions and utilities for manipulating files, browsing code and constructing fonts as well as providing animated cursors, text style dialog and a sophisticated color picker.

Crafted Smalltalk

Address: 19 Tilley Ave., Newport, RI 02840

Phone: (401) 846-6573

EMail: `traymond@pcix.com`

URL: `www2.pcix.com/~traymond/`

Smalltalk Professional Debug Package

An enhanced debugger with breakpoints and watchpoints, class breakpoints and watchpoints for variable reference and message received, management of watch windows, debugger skip-to-caret into and out of blocks, debugger temporary breakpoints and watchpoints, user modifiable software probes, synchronized Browser and Debugger code views, and more.

Neurex

Address: 5717 Phelps Luck Drive, Columbia, MD, 21045

Phone: 410-997-4213

FAX: same

EMail: `kotwell@charm.net`

URL: `N/A`

NeuroCraft

Which Smalltalk: VisualWorks 2.5

NeuroCraft is a Neural Network toolkit and application framework. It is based on backpropagation for generating derivatives of arbitrary mathematical models, and includes several calibration techniques, including recursive least squares (as multiple extended kalman filters) and conjugate gradients. It specializes in user-configurable multi-network paradigms for solving forecasting and optimization problems.

Objectivity, Inc.

Address: 301B East Evelyn Ave, Mountain View, CA 94041-1530

Phone: (415) 254-7100

FAX: (415) 254-7171

EMail: `info@objectivity.com`

URL: `http://www.objectivity.com`

Objectivity/Smalltalk

Which Smalltalk: VisualWorks 2.0

Provides transaction and concurrency safe persistence for objects in a distributed, high-performance OODB. Supports large numbers of concurrent users and up to terabytes of data.

Objectsoft Home Page

URL: `http://www.webcom.com/~objsoft/`

Objectsoft's VisualKit 1.5 and VisualKit Professional

Additional functionality for the standard VisualWorks GUI framework.

ParcPlace-Digitalk

URL: `http://www.parcplace.com/marketing/products/vwfamily.html`

VisualWorks Advanced Tools

Tools for code analysis tools, performance optimization tools, static analysis tools, time and allocation profilers, and expanded browsers.

VisualWorks Business Graphics

A data presentation tool for building and incorporating business graphics into VisualWorks applications.

VisualWorks Database Connect

Access to relational databases(DB2/Oracle7/SYBASE) from within the VisualWorks environment.

VisualWorks DLL & C Connect

Tools for calling C code and invoking code in Dynamic Link Libraries.

VisualWorks ReportWriter

Tools for creating reports from database and system tables, Smalltalk development classes, and selected file formats.

ENVY/Developer

ENVY/Developer is a team programming, version control, and configuration management tool.

VisualWave

VisualWave is an object-oriented application development environment for building live applications on the World Wide Web.

Polymorphic Software, Inc.

See “Tensegrity” in "Polymorphic Software, Inc." and “GF/ST” in "Polymorphic Software, Inc." on page 38.

The Object People

See “TOPLink” in section "Add-on Products for Multiple Vendors" on page 38.

University of Illinois Smalltalk Group

See “HotDraw” in section "Add-on Products for Multiple Vendors" on page 39 and “Refactoring Browser” in section "Add-on Products for Multiple Vendors" on page 39.

ParcPlace-Digitalk Smalltalk

This section describes the Smalltalk products resulting from the merger between Digitalk and ParcPlace. Separate sections describe the products of ParcPlace and Digitalk prior to the merger.

Frequently Asked Question

2.26 • What is ParcPlace-Digitalk Smalltalk?

The Smalltalk systems described in this section are the new ’merged’ products incorporating technology of both Digitalk and ParcPlace Systems. These products have not been released.

Frequently Asked Question

2.27 • Who produces ParcPlace-Digitalk Smalltalk?

ParcPlace-Digitalk Smalltalk products are produced by ParcPlace-Digitalk.

URL:	`http://www.parcplace.com/`
Address:	999 E. Arques Avenue, Sunnyvale, CA 94086-4593
Phone:	Main: 408-481-9090 Sales: 800-759-7272 Tech Support: 800-253-3415, 408-773-7474
FAX:	Sales: 408-481-9095

Frequently Asked Question

2.28 • What versions are there of ParcPlace-Digitalk Smalltalk?

None at this time.

Frequently Asked Question

2.29 • What addons are there for ParcPlace-Digitalk Smalltalk?

None at this time.

QKS SmalltalkAgents

Frequently Asked Question

2.30 • What is QKS Smalltalk/Agents?

Quasar Knowledge Systems, Inc. (QKS) SmalltalkAgents is a Smalltalk-dialect and development system. While very similar to Smalltalk, the language and class libraries differ in many details.

Frequently Asked Question

2.31 • Who produces QKS Smalltalk/Agents?

Quasar Knowledge Systems, Inc.

URL:	`http://www.qks.com/`
Address:	Quasar Knowledge Systems, Inc., 9818 Parkwood Dr., Bethesda, MD 20814
Phone:	Sales: 1-800-296-1339 Support: 301-530-4853 International: +1 301 530 4853
FAX:	1-301-530-5712
EMail:	Sales and ordering info: `sales@qks.com` International contact info: `international@qks.com` QKS technical support: `support@qks.com`

Frequently Asked Question

2.32 • What versions are there of QKS Smalltalk/Agents?

“Macintosh 68k edition is available now. Macintosh Universal edition (for 68k and PPC development) will be available in Q1 of 1996. Windows edition will be available in Q2 1996."

Frequently Asked Question

2.33 • What addons are there for QKS Smalltalk/Agents?

SELF Smalltalk

Frequently Asked Question

2.34 • What is SELF/Smalltalk?

"The Self 4.0 Smalltalk system comprises a translator, written in Self, which translates Smalltalk code to Self code, and a set of Smalltalk classes. Most of the Smalltalk classes are based on those included in GNU Smalltalk 1.1.1. There are 'core' classes for collections and magnitudes, but little else; this is not intended to be an industrial-strength Smalltalk system. The Self 4.0 Smalltalk System has been built for several purposes:

- to provide a freely-available system that may be used to teach Smalltalk,
- to hearten Smalltalk programmers to the prospect of learning Self by demonstrating the linguistic proximity of Self to Smalltalk, and
- to showcase Self 4.0's adaptive optimization technology."

—From the web site

Frequently Asked Question

2.35 • Where can I get SELF/Smalltalk?

SELF-Smalltalk

URL: `http://self.smli.com/release/smalltalk.html`

Self Itself

URL: `http://self.smli.com/`

Frequently Asked Question

2.36 • What versions of SELF/Smalltalk are there?

Self currently runs on SPARC-based Sun workstations running SunOS 4.1.x, Solaris 2.3, or Solaris 2.4.

Smalltalk-X

Frequently Asked Question

2.37 • What is Smalltalk-X?

“Smalltalk/X is a new and complete implementation of the Smalltalk language and consists of both an integrated environment for program development and a stand-alone smalltalk compiler, generating true machine code. Its features are:

- Language syntax and semantic compatible to the industry standard;
- a comprehensive library of basic classes, including lightweight processes and exception handling;
- many user interface widget classes offering parametrized view styles; and
- an integrated programming environment including browsers, monitors and symbolic debugger for efficient program development.”

“ST/X is a product of Claus Gittinger, Development & Consulting. Packaging and distribution is performed by independent distributors. A free (somewhat stripped down) version for educational use is also available via FTP from various sites.”

—From the web site

Frequently Asked Question

2.38 • Where can I get Smalltalk-X?

URL: `http://www.informatik.uni-stuttgart.de/stx/stx.html`

Frequently Asked Question

2.39 • What versions are there of Smalltalk/X?

The free versions include: Solaris 2.4, Linux 1.1.59, Irix 5.2, Ultrix (MIPS) 4.4, and NextStep 2.1.

VMARK Enfin Smalltalk

Frequently Asked Question

2.40 • What is Enfin Smalltalk?

ENFIN Smalltalk is the Smalltalk language component of the Object Studio development environment.

Frequently Asked Question

2.41 • Who produces Enfin Smalltalk?

URL:	`http://www.vmark.com/`
Address:	VMARK Software, Inc. 50 Washington Street, Westboro, MA 01581-1021
Phone:	(508) 366-3888 Technical Support: 1-800-729-3553
FAX:	(508) 366-3669 Technical Support: (508) 389-8750

Frequently Asked Question

2.42 • What versions are there of Enfin Smalltalk?

Enfin Smalltalk supports Windows, OS/2, AIX, Solaris, and HP-UX.

Frequently Asked Question

2.43 • What addons are there for Enfin Smalltalk?

Add-on Products for Multiple Vendors

Some add-on products apply to several vendor's Smalltalk systems. The descriptions for these products are here; a reference to them is given under the appropriate vendors.

Polymorphic Software, Inc.

See "Tensegrity" in "Polymorphic Software, Inc." and "GF/ST" in "Polymorphic Software, Inc." on page 38.

Polymorphic Software, Inc.

Address: 1091 Industrial Rd., Suite 220, San Carlos, CA 94070, USA

Phone: (415)592-6301

FAX: (415)592-6302

EMail: `75010.3075@compuserve.com`

URL: `http://www.polymorphic.com` (Effective approximately 15Jan96)

Tensegrity

Which Smalltalk: Smalltalk/V for Win16, Win32, OS/2; Visual Smalltalk 3.x, VisualWorks 2.x, IBM Smalltalk 3.x (Q196)

Tensegrity is a persistent object framework for single-user and multi-user applications. It provides transparent persistence, has an advanced transaction model, garbage collection, and collection extensions. No per-seat runtimes. Partial source. ENVY versions available.

GF/ST

Which Smalltalk: Visual Smalltalk 3.x, VisualWorks 2.x, IBM Smalltalk 3.x

GF/ST is a framework for direct manipulation graphical applications, where objects are displayed and manipulated directly by end users. Use it to supplement standard lists and menus with visual construction and editing. Comes with a Visual Inspector, numerous examples, full source, no runtime charges. ENVY and TEAM/V versions available.

The Object People

Address: 885 Meadowlands Dr., Suite 509, Ottawa, Ontario, Canada, K2C 3N2

Phone: (613) 225-8812

FAX: (613) 225-5943

EMail: `info@objectpeople.on.ca`

URL: `www.objectpeople.on.ca`

TOPLink

Which Smalltalk: VisualWorks, Visual Smalltalk, VisualAge/IBMST

Smalltalk-RDBMS interface. Maps between the object and relational models so neither has to be force-fit to the other. Full support for object identity, inheritance, stored procedures, partial reads, etc.

University of Illinois Smalltalk Group

Address: 1304 W. Springfield Ave, Champaign, IL 61801

Phone: (217) 244-0431

EMail: `brant@cs.uiuc.edu`

URL: `http://st-www.cs.uiuc.edu/`

HotDraw

URL: `http://st-www.cs.uiuc.edu/users/brant/HotDraw/`

Which Smalltalk: ObjectWorks R4.1; VisualWorks 1.0, 2.0, & 2.5.

HotDraw is a framework for structured, 2D drawing editors. It can be used to create many different editors from case tools to object inspectors.

Refactoring Browser

EMail: `droberts@cs.uiuc.edu, brant@cs.uiuc.edu`

URL: `http://st-www.cs.uiuc.edu/users/brant/Refactory/`

Which Smalltalk: Visualworks 2.0 and 2.5.

The Refactoring Browser replaces the standard system browser in ParcPlace VisualWorks. It provides context-sensitive browsing tools, behavior preserving program manipulations, and many other useful features. Also included is lint tool that checks for many common bugs.