# The (Active) State of Tcl

21th Annual Tcl Conference (2014)

Andreas Kupries

Senior Tcl Developer

ActiveState Software Inc.

**ActiveState®**

Code to Cloud: Smarter, Safer, Faster™

# Agenda

» Introduction

» The Active State

» History of Tcl  What has happened…

» Developments in the Tcl community

# About ActiveState

» ActiveState Software Inc.

> 15 years focusing on open source dynamic languages

> Experience across multiple dynamic languages

> Tcl, Perl, PHP, Python, Ruby, JS

> And platforms

> AIX, HP-UX, Linux, Mac OS X, Solaris, Windows, …

» Assist in the development, management and distribution of dynamic languages

> 97% of Fortune 1000 companies use ActiveState products

» ActiveState Stackato - Enterprise Private PaaS

> (yes, Tcl plays a part)

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# ActiveState Solutions

## Develop.

Development tools for dynamic language programming:

> ActivePerl
> ActivePython
> ActiveTcl
> Komodo IDE
> Perl Dev Kit
> Tcl Dev Kit

## Manage.

Enterprise solutions for dynamic language support, management & compliance:

> Enterprise & Business Editions for ActivePerl, ActivePython & ActiveTcl
> Consulting
> Training
> Commercial Support

## Distribute.

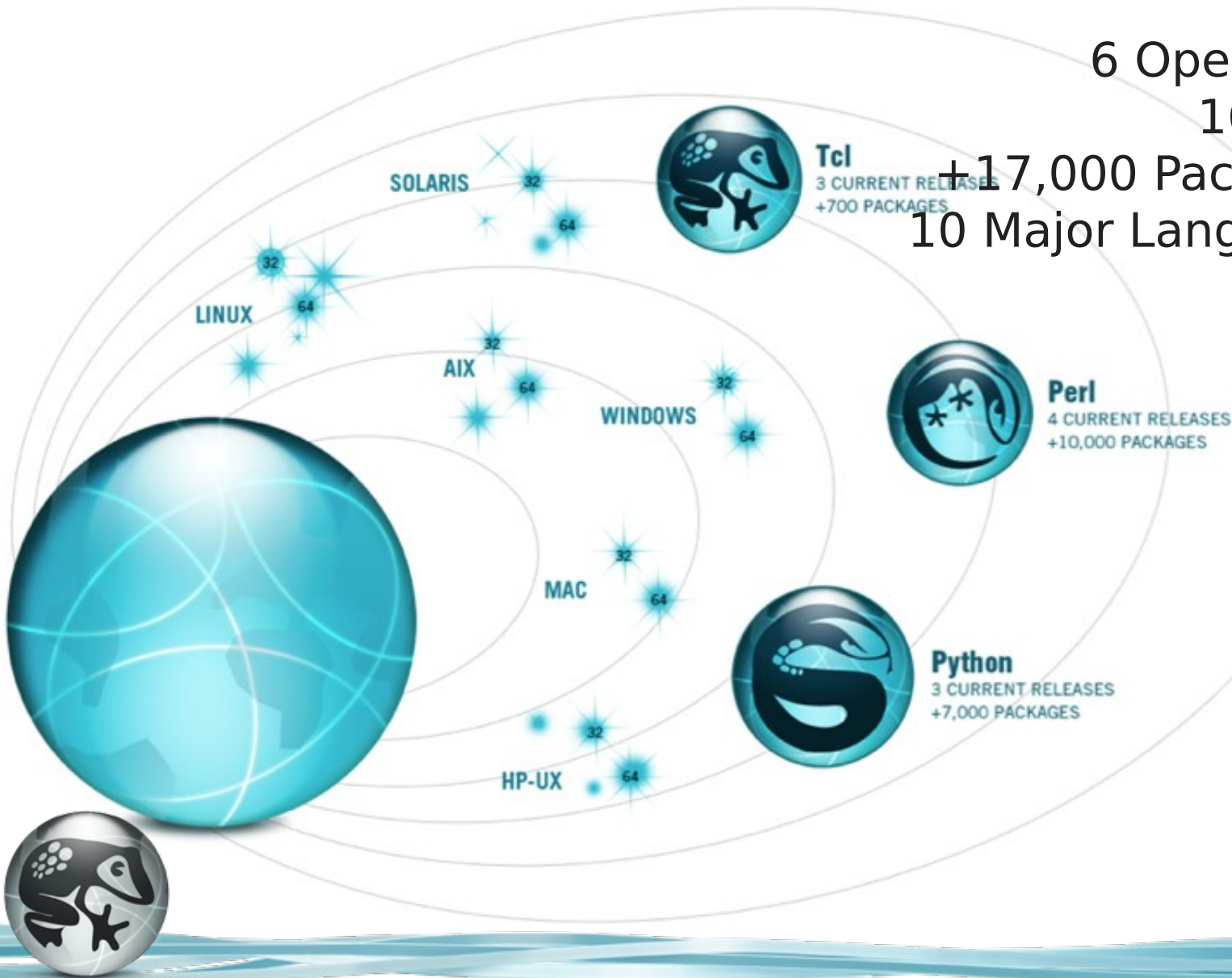OEM solutions to distribute applications with ActivePerl, ActivePython & ActiveTcl.

stackato™

**ActiveState®**
Code to Cloud: Smarter, Safer, Faster™

# We've Got Your Universe Covered

6 Operating Syste...
16 Architectur...
+17,000 Packages/Modul...
10 Major Language Releas...

SOLARIS  32
         64

LINUX  32
       64

AIX  32
     64

WINDOWS  32
         64

MAC  32
     64

HP-UX  32
       64

**Tcl**
3 CURRENT RELEASES
+700 PACKAGES

**Perl**
4 CURRENT RELEASES
+10,000 PACKAGES

**Python**
3 CURRENT RELEASES
+7,000 PACKAGES

**ActiveState**®
Code to Cloud: Smarter, Safer, Faster™

# ActiveTcl online

# ActiveTcl 1-click download

# ActiveTcl 8.4.20.0

» Based on the 8.4.20 Tcl core – **End Of Life**
  › Released June 2013 - on the USB key
» Enhanced with many popular extensions
  › XOTcl, [incr Tcl], TclX, expect, tcllib, tklib, Bwidgets, iwidgets, tktable, tkcon, tile, SQLite, …
  › 300+ packages in all
» Standard batteries-included distribution for Tcl
  › Available for Linux, Mac OS X, Windows
    › HP-UX, AIX, Solaris and older versions in Business Edition
    › Windows and OS X builds are fully threaded
» TEApot code repository via `teacup`
  › Provides new and updated extensions

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# ActiveTcl 8.5.17.0

» The conservative line.

» Based on the 8.5.17 Tcl core
  › Preview on the USB key
  › Includes VFS Explorer (`tclvfse`) from Tcl Dev Kit

» Distributed with fewer extensions
  › Can utilize the 8.4 extension set
    › Some extensions need different binaries for 8.5 (e.g. itcl)
  › 90+ packages - the rest available via `teacup`

» Available for Linux, Mac OS X, Windows
  › HP-UX, AIX, Solaris and older versions in Business Edition

  › All builds are fully threaded

    › Most known pthread/fork issues solved since 8.5.15

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# ActiveTcl 8.6.3.0

» The stable line, now the 1-click Download

» Based on the 8.6.3 Tcl core
  › Preview on your USB key
  › Also has VFS Explorer (`tclvfse`)

» Similar to ActiveTcl 8.5 extension set
  › Adds new core modules for TDBC, trofs

» Mac OS X architecture change
  › Was x86-ppc "universal" with Carbon
  › Now x86-x64 with Cocoa
  › teapot understands both architectures

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# The TEApot

» Binary code repository à la ActivePerl's PPM

» Fully populated for ActiveTcl platforms

» Makes use of Tcl module system

> Allows zip archives with special teapot.txt

» Repository is web visible, but rough

» 902 packages available (886 in 2013)

» Includes sources for many packages

» Downloads index – local searches

» Integrated with TclApp package searching (TDK 5)

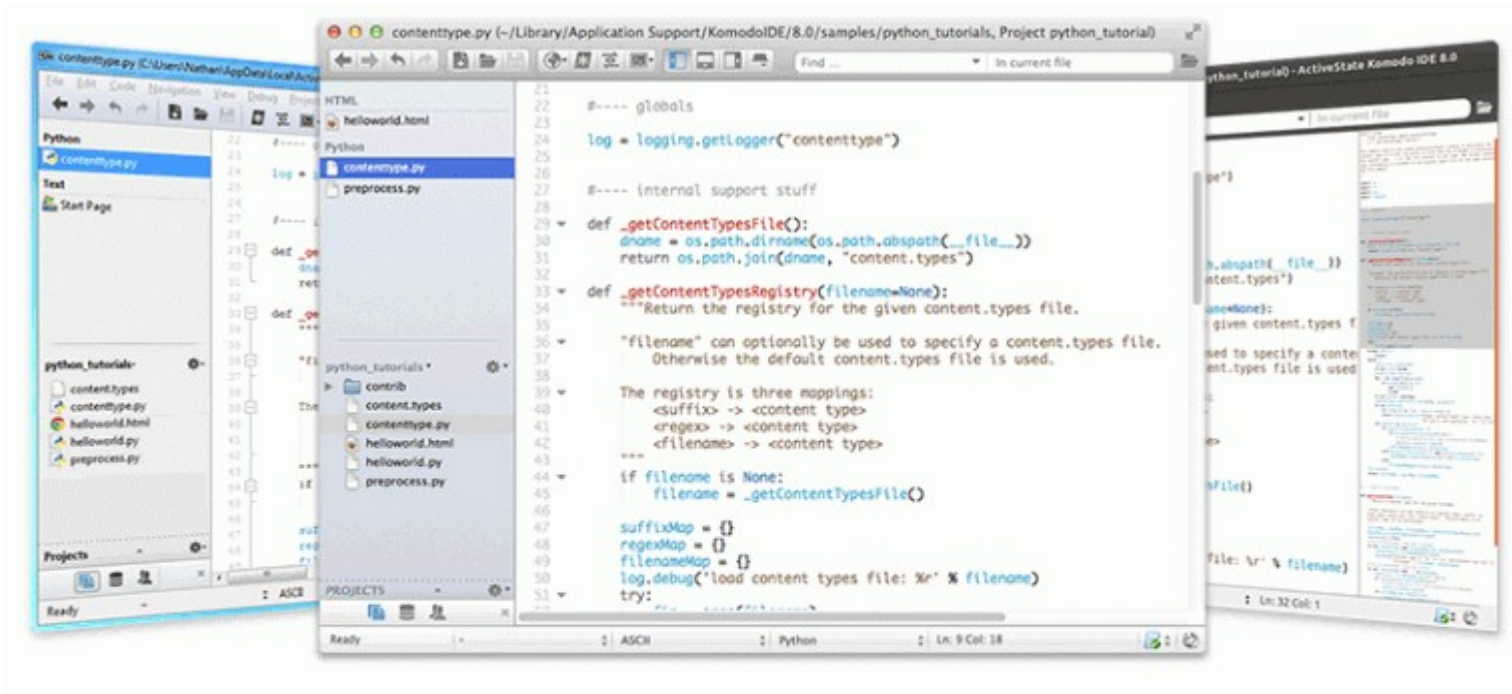**ActiveState**®
Code to Cloud: Smarter, Safer, Faster™

# Tcl Dev Kit 5

» All the essential Tcl tools for development
  › **Debugger**: source-level debugger with GUI
  › **Checker**: find errors without running application
    › Will even recommend better code
  › **TclApp**: create single-file executables of Tcl apps
    › Supports multi-architecture starkits, x-platform starpacks
  › **Compiler**: protect your source code
  › And more (code coverage, hotspots, inspector, ...)
  › Version independent from ActiveTcl

» 5.4 latest version
  › 8.6 support
  › Preview on your USB key
  › Several bug fixes, improved OS X support

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

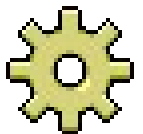# ActiveState 2014

# Komodo 8

» Professional IDE for dynamic languages
  › Professional IDE features
  › Integration with Tcl Dev Kit
  › Unique Tcl editing features
    › Also supports Perl, Python, PHP, Ruby, JS and more
  › Cross-platform (Windows, Linux, & OS X)
  › Integration with Stackato private PaaS
» Komodo 8.5 released Sept 2013
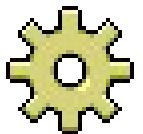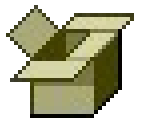
**ActiveState**®
Code to Cloud: Smarter, Safer, Faster™
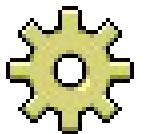
# Komodo 8 Features

» All the great features to expect in a great IDE ....

> Code refactoring

> Code collaboration (Google Docs for code)

> Multi-system preferences synchronization

> Stackato integration

> Major UI updates

> Code profiling

> Though only PHP and Python right now

> And much more ...

> Messages panel, updated toolbars, find enhancements, faster core

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# ActiveTcl Pro Studio

» Professional Tools for Tcl Developers
  › Tcl Dev Kit
  › Komodo IDE
  › Safari Bookshelf online books
    › Popular Tcl titles available
  › Includes major upgrades and support

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™
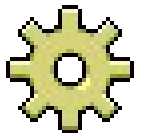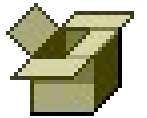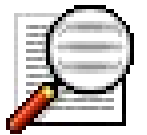
# ActiveState and Tcl

» ActiveState provides the Tcl community with…

> Improvements to open source Tcl core
>> 2 Tcl core team members on staff

> Host of the Tcl Developer Xchange [www.tcl.tk]

> Enterprise support infrastructure
>> ActiveTcl Business and Enterprise Editions

> Professional services for Tcl

> High quality development tools
>> **ActiveTcl**: batteries-Included free distribution
>> **Komodo IDE**: professional IDE with extensive Tcl support
>> **Tcl Dev Kit**: essential tools for Tcl programmers
>> **ActiveTcl Pro Studio**: Bundle with Tcl Dev Kit, Komodo IDE, Safari Online

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl Recipes on ActiveState Code

# History of Tcl

1. **Tcl created** as general-purpose command/scripting language by John Ousterhout

4. **Scriptics formed**:
   - Evolve and extend Tcl platform
   - Create development tools

7. **ActiveState** introduces Tcl support and services

| 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | ... |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|

6.0 Sept    7.0 Sept    7.4 July    7.6 Oct    8.0 Aug    8.1 Apr    8.3 Feb    8.4 Sept

8.2 Aug

8.3.5 EOL Oct

2. **Open source distributions** from U.C. Berkeley:
   - Easy GUIs under Unix
   - Extensible applications

5. **Tcl Core Team** formed (August)

6. **Scriptics/Ajuba Acquired** by Interwoven (Nov)

3. **Tcl enhanced at Sun Microsystems**:
   - Windows, Macintosh ports
   - Web/Internet support
   - Java support

8. **ActiveState acquired** by Sophos (Sept)

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Recent History of Tcl

**ActiveState Publishes Dynamic Languages Whitepaper (July)**

**ActiveState Becomes Independent From Sophos (Feb)**

8.5a1 Mar

8.5a3 June

8.5a5 Oct

8.5.0 ??

| 2004 | 2005 | 2006 |
|------|------|------|

...

9.0 ??

**11th Tcl Conference (Oct) New Orleans**

**12th Tcl Conference (Oct) Portland**

**13th Tcl Conference (Oct) Chicago**

8.4.7 July

8.4.11 June

8.4.14 Oct

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# More Recent History of Tcl

8.5b1 Sep    8.5.0 Dec    8.6a1 Apr    8.6b1 Dec    8.6b22    8.6.0 !!

| 2007 | 2008 | 2009 | 2010 | … |

9.0 ??

14<sup>TH</sup> Tcl Conference
(Sep) New Orleans

15<sup>TH</sup> Tcl Conference
(Oct) Manassas

17<sup>TH</sup> Tcl Conference
(Oct) Chicago

8.4.16 Sep    8.4.19 Apr    8.5.5 Oct    8.5.9 Sept

8.6a3 Oct

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Very Recent History of Tcl

8.4.20 June

8.6b2 Oct

8.6b3 Sept

8.6.0 Dec

8.6.1 Sept

8.7 ??

| 2011 | 2012 | 2013 |
| --- | --- | --- |

...

9.0 ??

18th Tcl Conference
(Oct) Manassas, VA

19th Tcl Conference
(Nov) Chicago

20th Tcl Conference
(Sept) New Orleans

8.5.10 July

8.5.13 Nov

8.5.15 Sept

**ActiveSt**
Code to Cloud: Smarter, Safer,

# Status as of Tcl'2013

» September 23-27 in New Orleans

» Tcl/Tk 8.5 was standard stable version

  › 8.5.15 available at the conference

    › 8.5.12 in OpenSuSE 12.3, 8.5.13 in Fedora 19;
      8.5.9 in OS X 10.8

    › 8.5 in SLE11 and RHEL6 (8.4 in RHEL5)

  › 7 years since 8.5.0 release (Dec 2007)

  › 8.4 still common in conservative environments

    › Last core 8.4 release done June 2013 – **End Of Life**

» 8.6 development long in the tooth

  › 8.6.1 ready for the conference

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Status as of Tcl'2014

» November 10-14 in Portland, OR

» Tcl/Tk 8.6 is standard stable version

> 8.6.1 in OpenSuSE 13.1 (Dec 2013);
8.6.2 in OpenSuSE 13.2 (Nov 2014);
8.5.14 in Fedora 19;
8.5.9 in OS X 10.9

> 8.5 in SLE11 and RHEL6 (8.4 in RHEL5)

> Just shy 2 years since 8.6.0 release (Dec 2012)

> 8.4 still common in very conservative environments

> Last core 8.4 release done June 2013 – **End Of Life**

» 8.6 development continuing

> 8.6.2 ready for the conference, 8.6.3 in RC

» Tcl 9 development has somewhat begun, slow in coming

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl Core Team

» Formed in August 2000 with 14 charter members
  › Elected by community vote
  › Collectively manage development of the core
  › Now at 16 active members

| John Ousterhout | Jeff Hobbs | Brent Welch |
|---|---|---|
| Donal Fellows | Andreas Kupries | Karl Lehenbauer |
| D. Richard Hipp | Jan Nijtmans | George Howlett |
| Mark Harrison | Jim Ingham | Don Porter |
| Mo DeJong | Kevin Kenny (2001) | Miguel Sofer (2004) |
| Joe English (2005) | Daniel Steffen (2007) | Jos Decoster (2012) |
| Alex Ferrieux (2012) | Brian Griffin (2012) | Steve Landers (2012) |

# TCT: TIP Initiatives

» TIP page for Tcl
    http://tip.tcl.tk/

» TIPs are intended to guide and document development on the core

  › They focus on new or changing features, not bugs
  › Voted on by the TCT following community discussion using the TYANNOTT process

» Current TIP count: 432

  › Divided into process, informational & project TIPs

» TCT discussion is open on the public mailing list:
    tcl-core@lists.sourceforge.net

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl TIPs
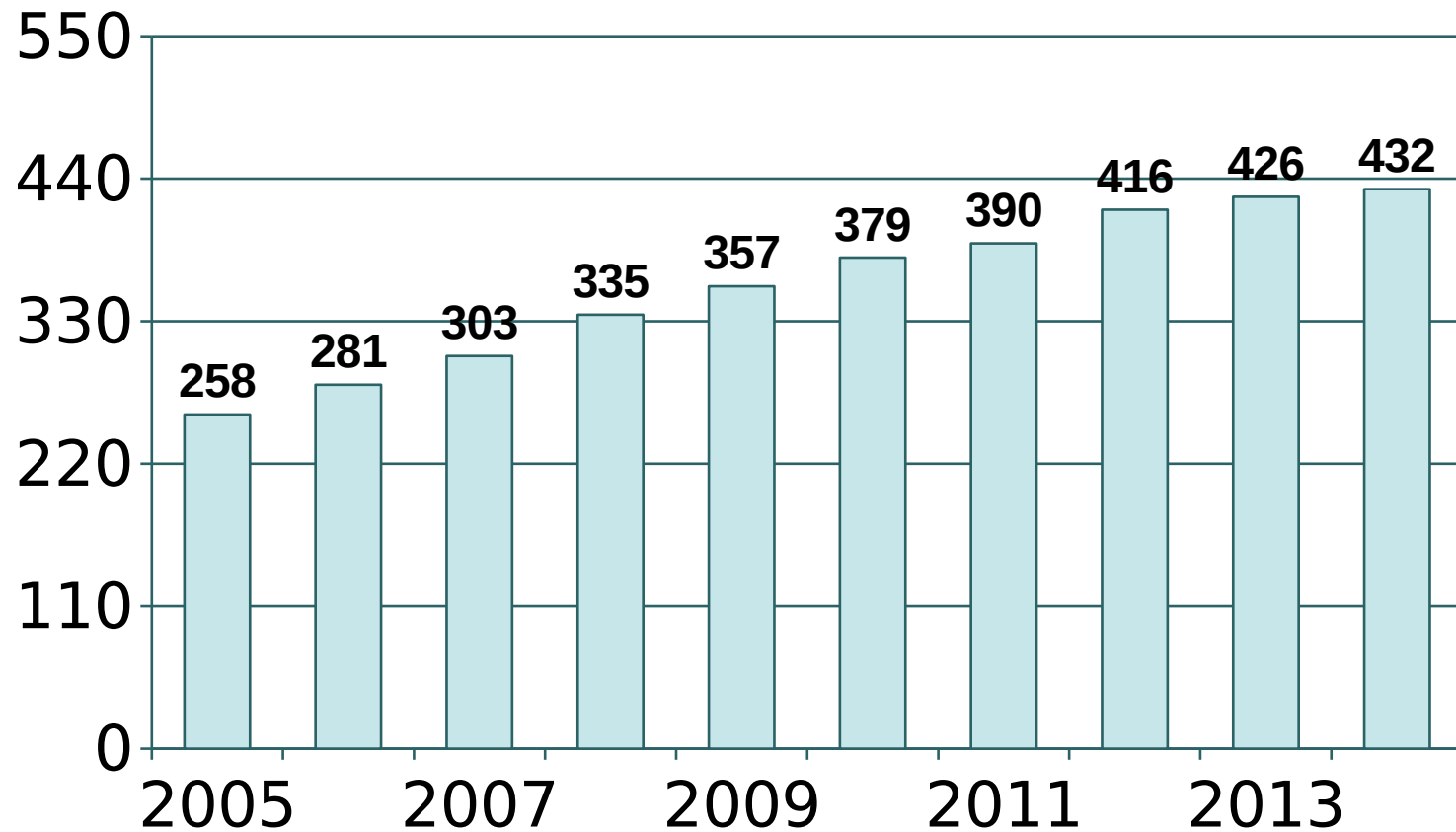
# Tcl/Tk Maintainers

» **Tcl/Tk maintainers are separate from the TCT**

» Maintainers oversee a specific area of the core, as defined in TIP #16 (Tcl) and TIP #23 (Tk)

» They assist, but are not solely responsible for, fixing bugs and adding docs in their area

» They are responsible for reviewing code and approving code changes to their area

» Open to anyone willing to learn the core

» New volunteers always welcome

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# The Maintainers…

## Tcl (TIP #24):

| Daniel Steffen | Jeff Hobbs | Don Porter | Donal Fellows | Jim Ingham |
|---|---|---|---|---|
| Jan Nijtmans | Mo DeJong | Rolf Schroedter | Kevin Kenny | Miguel Sofer |
| Vince Darley | Andreas Kupries | Pat Thoyts | Joe Mistachkin | Pavel Goran |
| Lloyd Lim | Acacio Cruz | Alex Ferrieux | Colin McCormack | Zoran Vasiljevic |

## Tk (TIP #30):

| Daniel Steffen | Jeff Hobbs | Don Porter | Donal Fellows | Jim Ingham |
|---|---|---|---|---|
| Jan Nijtmans | Mo DeJong | Kevin Griffin | George Smith | Allen Flick |
| Vince Darley | Peter Spjuth | Frédéric Bonnet | Miguel Bañón | Todd Helfter |
| Lloyd Lim | Chengye Mao | Ben Riefenstahl | Joe English | |

## Very open for new recruits …

# ActiveTcl Downloads
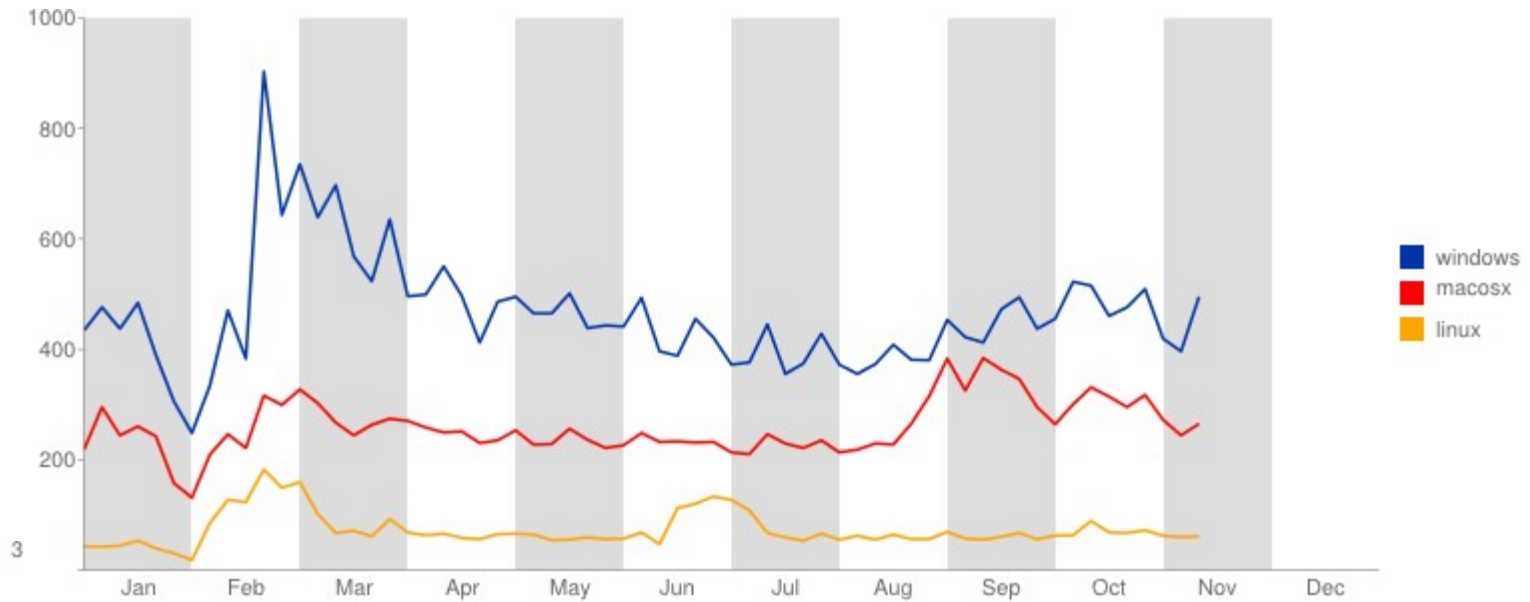
# AT Downloads by Platform



Year 2013

Year 2014

# Core Dev – http://core.tcl.tk/tcl/reports
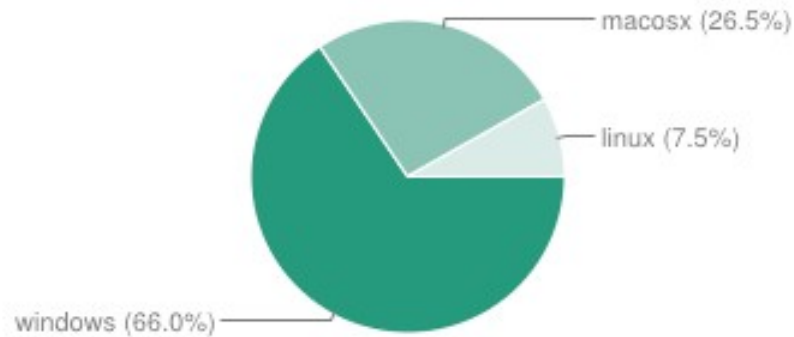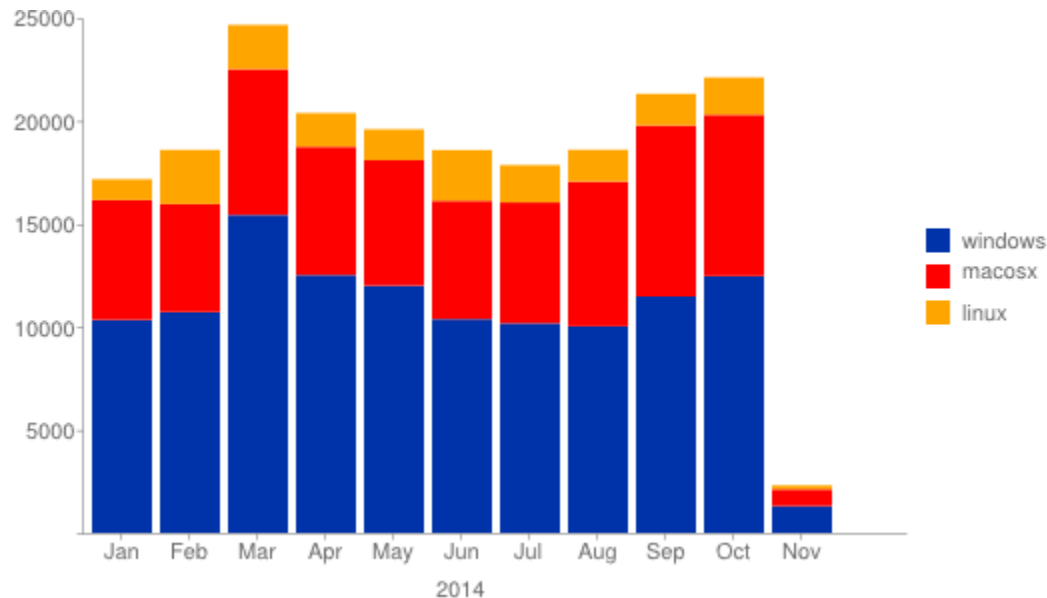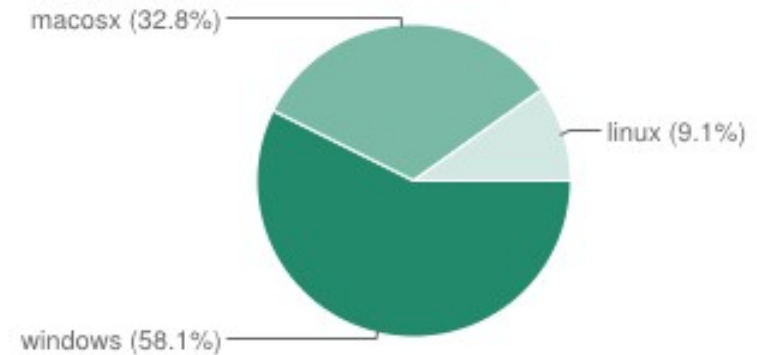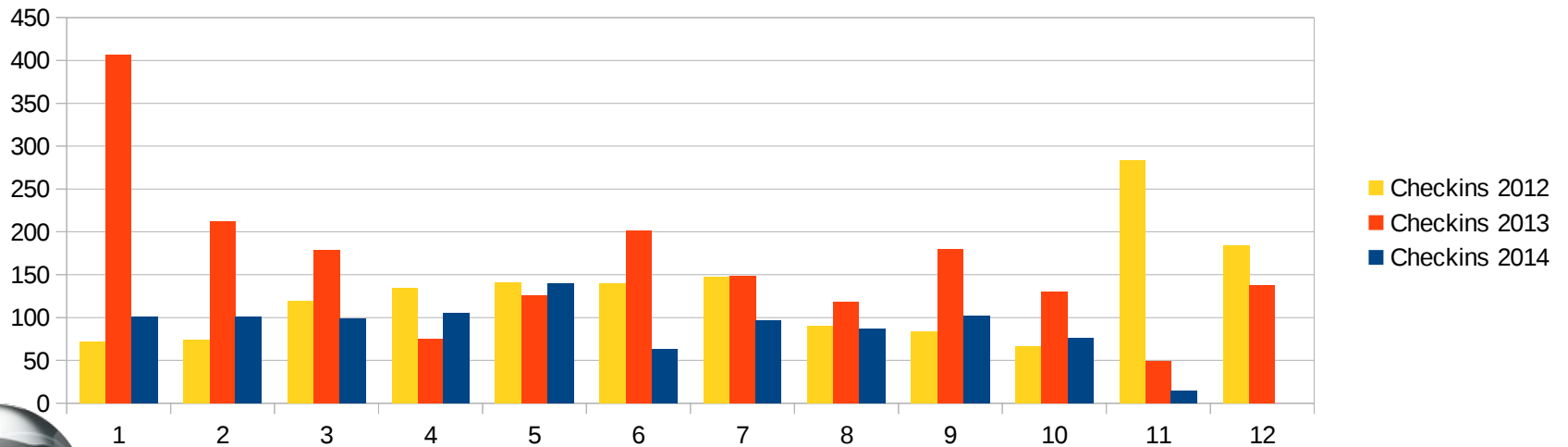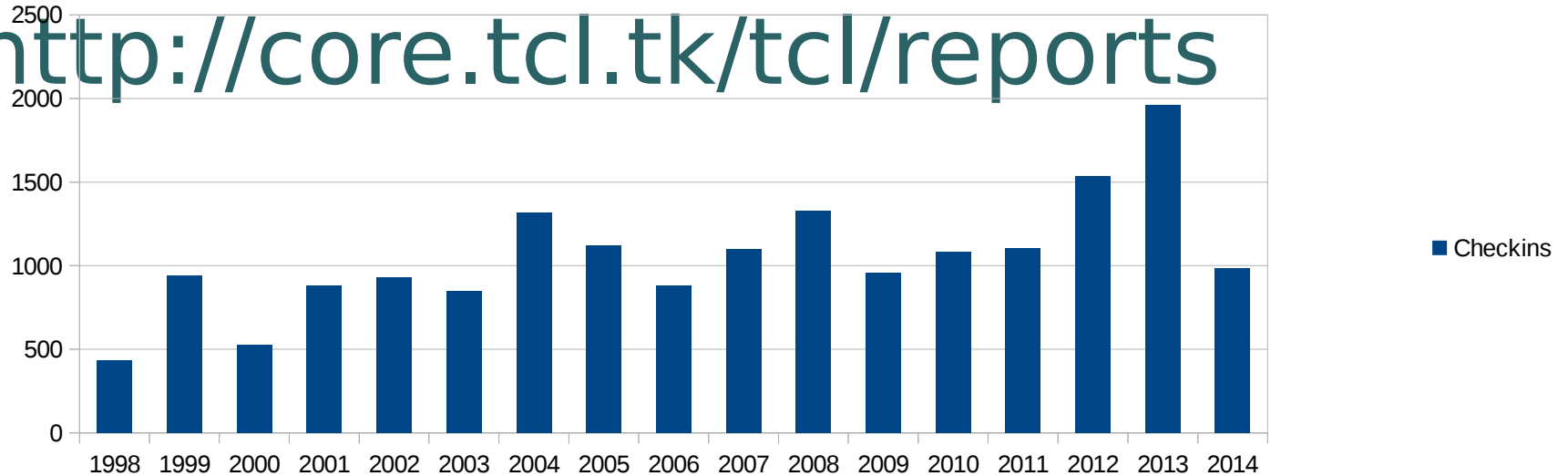
# AT Downloads by Version



Year 2013
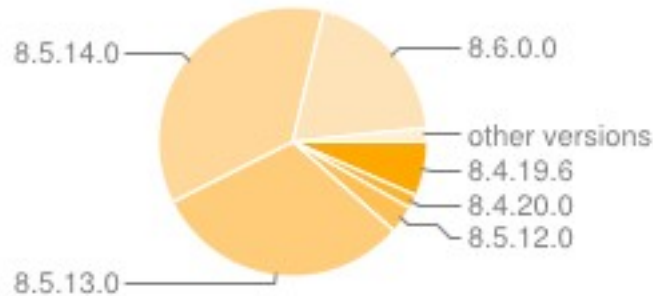
Year 2014
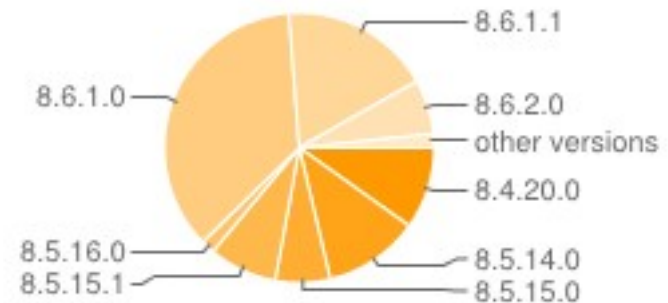
Since 2006
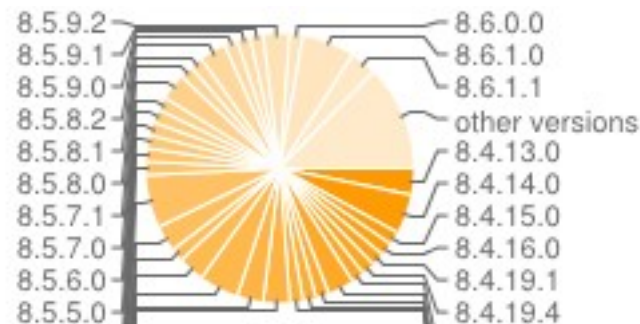
# In the Community…

» The Tcl Developer Xchange:
  › **http://www.tcl.tk/** aka **http://tcl.ActiveState.com/**
  › Official home page for Tcl and Tk
  › Formal front-end, downloads, advocacy, history, …

» ~~Tcl-URL! continues to provide weekly news:~~
  › ~~Posted weekly on news:comp.lang.tcl~~
  › ~~Or subscribe: **tcl-announce@listserv.activestate.com**~~

» The Tcl'ers Wiki has 40,700 pages now:
  › **http://wiki.tcl.tk/**
  › Wiki chat has constant traffic, HTTP and IRC bridges
  › Community contributed and maintained
    › Primary discussion forum

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl'ers Wiki Page Growth
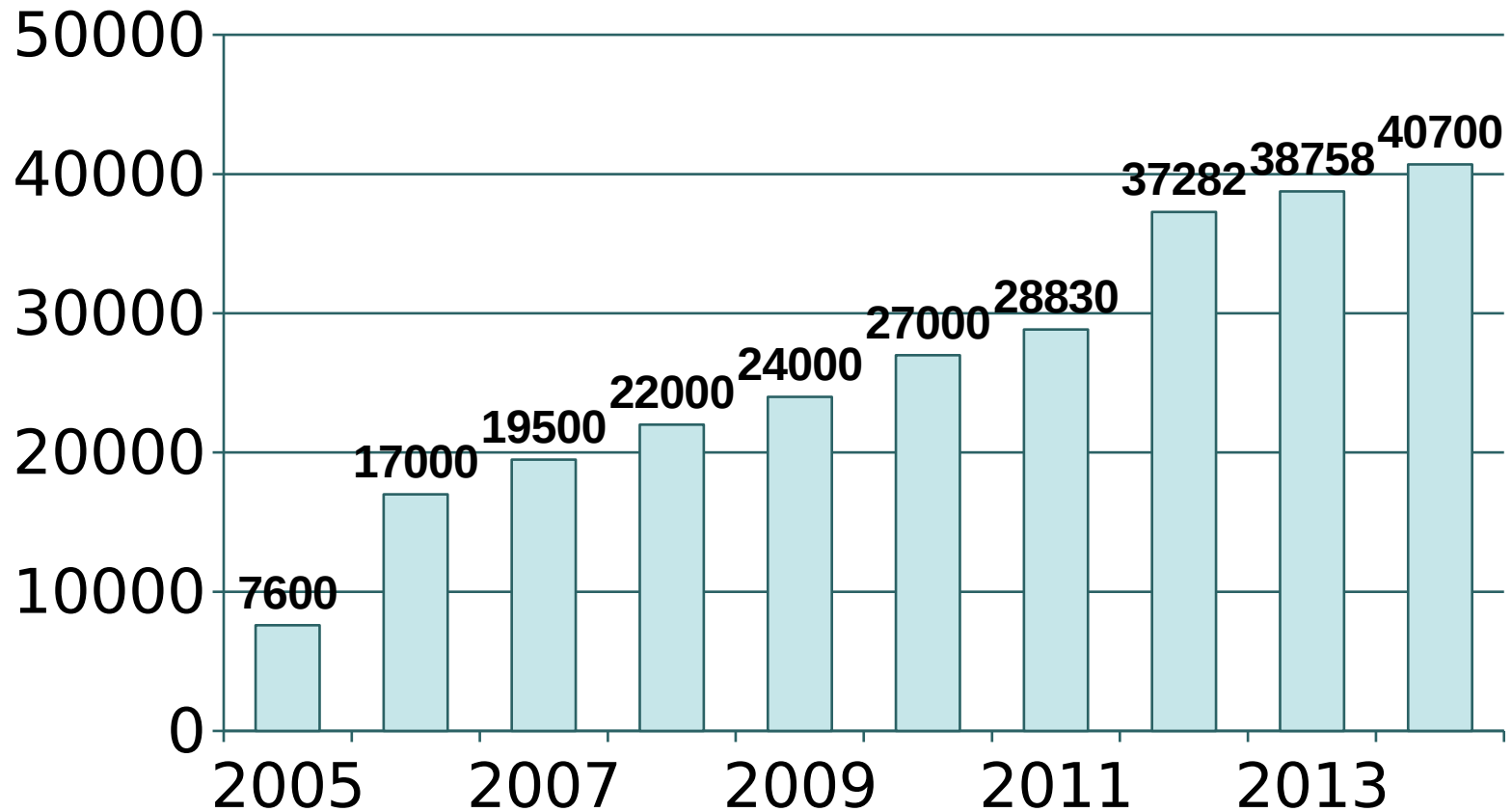
# Tcl/Tk Sources Online

» Fossil won the DVCS debate – Do vs. Talk

» Home for Tcl core sources

> **http://core.tcl.tk/**

> Hosted by Roy Keene

» Has history back to Tcl 8.0 (full CVS import)

> Only 8.5+ branches are "open"

> 9.0 branch opened November 2012 (during Tcl'19)

» Revision control and Ticket systems are used

> Ticket system switch over from sf.net in June 2013

» Wiki now used to record notes on Tcl internals

» Managed by select Tcl/Tk maintainers

» Hosts Tcl/Tk and some near core extensions

# Tcl/Tk Dev Online

» SourceForge is for developers
  › Yes, parts are still on SourceForge …
    **http://tcl.sourceforge.net/**
  › Mailing lists
  › File server
    › Has Tcl sources back to Tcl 2.1
  › Developer web pages
» Managed by TCT and Tcl/Tk maintainers
» Used by many other Tcl extensions and apps

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl @ SourceForge

## Welcome to Tcl/Tk @ SF

This is the *source code release* home for Tcl (Tool Command Language) and the Tk toolkit.

The TEA (Tcl Extension Architecture) sample extension and Thread extension are part of the SF Tcl project.

Tcl / Tk project resources at SF:

- File Distributions Get all source releases!
- Mailing Lists

## And elsewhere:

- Source Code Repositories Track the changes as they happen!
- Tcl Bug Tracker
- Tk Bug Tracker
- The Tcl'ers Wiki
- Tcl Developer Xchange
- comp.lang.tcl newsgroup
- ActiveTcl binaries from ActiveState

SF Tcl | SF Tk

SOURCEFORGE.NET
Hosted by

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl in Fossil

# Tcl Developer Xchange

# Tcl'ers Wiki



Welcome to the Tclers Wiki!

wiki.tcl.tk

**Recent changes**
Help
WhoAmI/Logout
Random page

Search

Getting started
  What is Tcl?
  What is Tk?
  Getting Tcl/Tk
  Getting help
  Learning Tcl
  Tcl Dev Xchange
  About the Wiki

Community
  Advocacy
  Conferences
  Chat, news, lists
  History
  Humor
  People
  Tcl websites

Reference
  Companies
  Getting help
  Online books
  Online tutorials
  Manual pages
  Tcl roadmap
  Acronyms

Tcl software
  Applications
  The Tcl core
  Development tools
  Documentation
  Extensions
  Toys and games

Tcl in the wild
  Major applications
  Businesses
  Education
  Engineering

**Aloha!!** Thanks for visiting the **Tcler's Wiki**

This is a collaboratively-edited area on the web, dedicated to the Tcl programming language and its extensions, including the Tk graphical toolkit.

**What is Tcl?**

Tcl is a simple-to-learn yet very powerful language. Its syntax is described in just a dozen rules, but it has all the features needed to rapidly create useful programs in almost any field of application - on a wide variety of international platforms

**What is Tk?**

Tk is a graphical toolkit for Tcl. It allows you to develop graphical applications that run on Windows, Linux, MacOS X and many other platforms. And not just from Tcl - Tk can be used from many languages including C, Ruby, Perl, Python and Lua.

**Tcl Community News**

- The Twentieth Annual Tcl/Tk Conference (aka Tcl2013) will take place Sep 23-27 2013 in New Orleans, Louisiana, USA.

- Prepare yourself early for next year's Google Summer of Code.
  **Add your idea** to our GSoC Idea Page

- The 11th European Tcl/Tk User Meeting (aka EuroTcl 2013) was held July 6-7 2013 in Munich, Germany.

- Tcl/Tk 8.6.0 Released!

  The Tcl Core Team is pleased to announce the 8.6.0 releases of the Tcl dynamic language and the Tk toolkit. We would like to express our gratitude to all those who submit bug reports and patches. This information is invaluable in enabling us to identify and eliminate problems in the core. Tcl/Tk 8.6.0 sources are freely available as open source from the Tcl Developer Xchange.

  Also check the Tcl/Tk 8.6 highlights and changes.

**Recent changes to this wiki**

Sep 23, 2013  Tcl chatroom chrestomathy
              everything is a list
              Implement MSCHAPv2 Protocol(RFC2759)
Sep 22, 2013  KK
              Poor Yorick
              View all recent changes...

| | | Advocacy |
| --- | --- | --- |
| What is Tcl? | | Conferences |
| What is Tk? | | Chat, news, lists |
| Getting Tcl/Tk | | History |
| Getting help | Community | Humor |

**ActiveState**
Code to Cloud: Smarter, Safer, Faster™

# Tcl/Tk 8.4

» 8.4.20 released June 2013
  › **Final release** of the 8.4 branch – **END OF LIFE**
  › 8.5 is now considered the **conservative** line
  › 8.6 is now considered the **stable** line

# Tcl/Tk 8.5

» First release after almost 4 years in development
  › 8.5a1 released March 2004
  › 8.5.0 final December 2007
  › 8.5.13 released November 2012
  › 8.5.15 released September 2013
  › 8.5.16 released August 2014
  › 8.5.17 released November 2014

» 8.5 is 99.99% backwards compatible with 8.4 at the Tcl level, now the stable line.