The Tcl/Tk Workshop provides a unique opportunity to find out why Tcl is becoming the premier scripting language for Web/Internet applications. Come hear about the latest Tcl/Tk developments and talk to the wizards who are driving the Tcl revolution!

John Ousterhout, Distinguished Engineer, Sun Microsystems
Welcome to the Fifth Annual Tcl/Tk Workshop!

Dear Workshop Attendee:

Like us, you are probably overwhelmed by the sheer volume of new developments surrounding Tcl and Tk. As we prepare for this year’s Tcl/Tk workshop, we are amazed by the quantity and quality of research and development of interest to Tcl/Tk users, developers, and extenders. The best way to keep current on all of these developments is to attend the Fifth Annual Tcl/Tk Workshop, sponsored by the USENIX Association.

The workshop addresses research and development related to Tcl and Tk. Presentations range from technical details of compiler or namespace implementation to interesting and novel extensions, to experience reports from innovative and challenging applications. In addition to formal presentations, Birds-of-a-Feather sessions (BOFs) and Work-In-Progress reports (WIPs) give all attendees an opportunity to share their experiences and influence the future directions of Tcl and Tk.

This year’s workshop includes a full day of tutorials on a range of topics including effective Tcl/Tk programming, building database support into Tcl/Tk applications, building groupware applications in Tcl/Tk, and using declarative programming to simplify Tcl/Tk application development. Plenary sessions include an opening keynote address by Brian Kernighan and an update on Tcl/Tk with creator and champion John Ousterhout. In between, the collection of papers, posters, panels, and informal sessions will provide a range of opportunities for learning about and influencing the future of Tcl and Tk.

Whether you are an experienced Tcl/Tk developer, or are interested in evaluating Tcl/Tk for future use, the Fifth Annual Tcl/Tk Workshop is an event you won’t want to miss.

We look forward to seeing you in July.

Joseph A. Konstan, University of Minnesota
Program Co-Chair

Brent Welch, Sun Microsystems Laboratories, Inc.
Program Co-Chair

PS: Remember to sign up for tutorials early. See pages 4 to 6 for more information.

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Conference Organizers

Program Co-Chairs
Joseph A. Konstan, University of Minnesota
Brent Welch, Sun Microsystems Laboratories, Inc.

Program Committee
Dave Beazley, University of Utah
Mark Harrison, DSC Communications Corporation
Jeffrey Hobbs, University of Oregon
George Howlett, Bell Labs Innovations for Lucent Technologies
Ray Johnson, Sun Microsystems Laboratories, Inc.
Kevin Kenny, General Electric Corporate R & D
Gerald Lester, Computerized Processes Unlimited, Inc.
Don Libes, NIST
John Robert LoVerso, Open Group Research Institute
Michael J. McLennan, Bell Labs Innovations for Lucent Technologies
Brian C. Smith, Cornell University

Visit our web site: http://www.usenix.org
## Important Dates to Remember:

- **Registration Discount Deadline:** June 27, 1997
- **Hotel Discount Deadline:** June 19, 1997

## Program at a Glance

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## Workshop Information

### Discounts and Student Stipends

The USENIX student stipend program covers travel, living expenses, and registration fees to enable full-time students to attend USENIX conferences and workshops. To apply for a stipend, visit the USENIX Web site http://www.usenix.org, read comp.org.usenix, or send email to students@usenix.org.

USENIX offers a discount rate of $75 for Technical Sessions for full-time students. You must include a copy of your current student ID card with your registration. This fee is not transferable.

### Conference Proceedings

One copy of the proceedings is included with your Technical Sessions registration fee. To order additional copies, send email to office@usenix.org or call 510.528.8649.

### Birds-of-a-Feather Sessions (BoFs)

Do you have a topic that you’d like to discuss with others? Our Birds-of-a-Feather Sessions may be perfect for you. BoFs are very interactive and informal gatherings for attendees interested in a particular topic. Schedule your BoF in advance by telephoning the USENIX Conference Office at 714.588.8649, or email to: conference@usenix.org

### Work-In-Progress Sessions (WIPs)

Do you have a Work-In-Progress that would be of interest to the Tcl/Tk community? We invite you to briefly present your work at one of the WIP sessions which will take place during the Technical Program. Sign up at the registration desk on-site. An overhead projector will be available.

### Commercial Product Demonstrations

Do you have a commercial product related to Tcl/Tk? We invite authors and vendors of Tcl/Tk development tools, Tcl/Tk-based commercial applications, soon-to-be-released applications, and Tcl/Tk-related books to briefly present their products on Tuesday afternoon. Contact the program co-chairs with email to tclchairs@usenix.org to reserve a slot before the conference, or sign up at the registration desk.

### Informal Demonstrations

Attendees are invited to demonstrate Tcl/Tk-related software informally during the Poster Session Wednesday evening, and during conference breaks. We regret that we must ask you to supply your own equipment.
Technology is changing more rapidly than ever before. No matter what your special expertise is, you are expected to stay on top of the latest improvements and do your job. Sign up for tutorials and you will get an immediate payoff from gaining command of the newest developments, and putting them to work immediately.

USENIX tutorials aim to provide the critical information you need. Delivered by experts with hands-on experience, tutorials are practical, intensive, and essential to your professional development.

Our guarantee: If you’re not happy, we’re not happy. If you feel a tutorial does not meet the high standards you have come to expect from USENIX, let us know by the first break and we will change you to any available tutorial immediately.

### Continuing Education Units

USENIX provides Continuing Education Units (CEUs) for a small additional administrative fee. The CEU is a nationally recognized standard of unit of measure for continuing education and training, and is used by thousands of organizations. Each half-day USENIX tutorial qualifies for 0.3 CEUs. You can request CEU credit by completing the CEU section on the registration form. USENIX provides a certificate for each attendee taking a tutorial for CEU credit, and maintains transcripts for all CEU students. **CEUs are not the same as college credits. Consult your employer or school to determine their applicability.**

### Tutorial Overview

Each tutorial runs from 9:00 AM to 12:30 PM or from 1:30 PM to 5:00 PM. Please select one morning and one afternoon tutorial. Sorry, no half-day registrations.

**Monday, July 14**

**Morning Session: 9:00 am - 12:30 pm**
- M1AM Effective Tcl/Tk Programming
  - Michael J. McLennan, Lucent Technologies, Inc.
  - Mark Harrison, DSC Communications Corp.
- M2AM Building Multi-User Applications with GroupKit
  - Mark Roseman, TeamWave Software and University of Calgary

**Afternoon Session: 1:30 pm - 5:00 pm**
- M3PM Database Programming with Tcl/Tk
  - Tom Poindexter, Talus Technologies, Inc.
- M4PM TclProp and OAT: Tools for Declarative Programming
  - Joseph A. Konstan and Alex Safonov, University of Minnesota

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For more workshop information, contact:

USENIX Conference Office
22672 Lambert St., Suite 613, Lake Forest, CA USA 92630
Phone: 714.588.8649  Fax: 714.588.9706
Email: conference@usenix.org  URL: http://www.usenix.org
Office Hours: M-F, 8:30 am-5:00 pm, Pacific Time
M 1AM  Effective Tcl/Tk Programming  
Michael J. McLennan, Lucent Technologies, Inc. and Mark Harrison, DSC Communications Corp.

Who should attend: Programmers and managers using Tcl/Tk to build real-world applications. You should have a working knowledge of Tcl/Tk.

What you will learn: How non-trivial Tcl/Tk programs are put together; system architectures and coding techniques that make Tcl/Tk applications easier to develop and maintain.

Tcl/Tk programming is deceptively simple. You can put together a “Hello, World!” program with just a few lines of code. But when you start to develop serious applications that require a few thousand lines of code, things can get out of hand.

This tutorial draws upon the lessons learned from writing thousands of lines of Tcl/Tk code. It describes design paradigms and coding techniques that make it easier to build Tcl/Tk applications. Topics include:
- How to handle data structures in Tcl
- How to package Tcl/Tk code into reusable libraries
- How to communicate with other processes
- How to implement client/server architectures
- How to use “safe” interpreters
- How to deliver Tcl/Tk applications that are easy to configure and install

More than anything else, you will learn techniques that will help make your Tcl/Tk projects a success.

Michael McLennan has been a Tcl/Tk enthusiast since 1992 and has taught more than 40 courses on Tcl/Tk. He is co-author of Effective Tcl/Tk Programming and Tcl/Tk Tools. He also developed [incr Tcl], an object-oriented extension of Tcl/Tk, and many other extensions and applications, including the cover application for John Ousterhout's book, Tcl and the Tk Toolkit. He is currently a Distinguished Member of Technical Staff at Bell Labs Innovations for Lucent Technologies, Inc.

Mark Harrison heard John Ousterhout speak at the Winter 1991 USENIX Conference and wrote his first Tk program during the next speaker's presentation. He is co-author of Effective Tcl/Tk Programming and editor of Tcl/Tk Tools. His first book, The Usenet Handbook, was selected by UNIX Review as one of the best books of 1995. He is currently a senior architect for intelligent network systems at DSC Communications Corporation. When pressed, he modestly admits to being the world’s most enthusiastic Tcl programmer.

M 2AM  Building Multi-User Applications with GroupKit  
Mark Roseman, TeamWave Software and University of Calgary

Who should attend: Tcl/Tk programmers interested in multi-user applications (groupware) and how to quickly build them using GroupKit. No prior experience with groupware is assumed, but you do need to know how to program in Tcl/Tk.

What you will learn: You will gain exposure to GroupKit, a Tcl/Tk extension for building multi-user applications, such as shared whiteboards, meeting tools, and network games.

This tutorial introduces GroupKit, a Tcl/Tk extension used in the groupware community. Besides letting you build stand-alone groupware applications, its API is used to create applets for the TeamWave Workplace system.

Groupware is a novel and fun application domain that is gaining popularity, and Tcl/Tk is particularly well-suited to building groupware. GroupKit can let you easily take your single-user programs and turn them into groupware. Topics include:
- An introduction to groupware applications and concepts
- A walk-through of a simple GroupKit application
- GroupKit primitives: remote procedures, events, environments
- Groupware-specific user interface widgets
- Issues in groupware usability

Mark Roseman is founder and president of TeamWave Software, Ltd., which develops TeamWave Workplace, a cross-platform Internet groupware environment based on Tcl/Tk. He is also the creator of GroupKit, developed at the University of Calgary.
Who should attend: Programmers planning to develop database applications in Tcl/Tk. You should have a working knowledge of Tcl/Tk. Experience with SQL and database systems is helpful, but not required.

What you will learn: How to build database applications in Tcl/Tk by utilizing database extensions.

The Tcl database extensions Sybctl and Oratcl (representing extensions to two of the most popular relational databases from Sybase and Oracle) are explored in detail, from simple query/insert/update/delete to using advanced features such as executing stored procedures and BLOBs (Binary Large Objects). Other topics include:

- Requirements for using Tcl database extensions
- Dealing with error situations and server feedback
- Accessing meta data, data about result sets
- Transaction semantics
- Common Tcl/Tk programming patterns
- Database administration scripts
- Using Sybctl/Oratcl sample programs, Wisqlite and Wosql
- Compiling and building the Sybctl/Oratcl extensions
- Review of other Tcl database extensions

Tom Poindexter has authored and maintains the Sybctl and Oratcl Tcl database extensions. He has been developing Tcl-based database applications for telecommunications clients since 1992, and has over 18 years experience in software design and programming. He is also a contributing author of Tcl/Tk Tools, an upcoming O'Reilly & Associates publication. When not hiking or skiing, Tom writes robot simulation games in C and Tcl. He is president of Talus Technologies, Inc., a software consulting company.

Joseph A. Konstan has spent over nine years researching issues in user interface programming, including declarative programming. He is an award-winning instructor whose industrial short courses and conference tutorials have been well-received by students of all backgrounds. He is an assistant professor of computer science.

Alex Safonov’s research on advanced scientific visualization led him to explore declarative programming, and he is the creator of the OAT trace extension and the latest version of TclProp. Alex has lectured on declarative programming and is a recipient of the Best Paper award from the Fourth Annual Tcl/Tk Workshop. He is a PhD candidate at the University of Minnesota.

Who should attend: Software developers with experience implementing graphical user interfaces, either in Tk or another high-level toolkit. No prior experience with declarative programming is assumed.

What you will learn: How to simplify the implementation of complex interfaces by using declarative programming techniques.

This tutorial introduces TclProp and OAT, tools that Tcl/Tk developers can use to support declarative programming. Declarative programming is a technique in which programmers specify what they want to happen rather than how they want it to happen. The resultant programs are easier to understand, modify, and maintain. For example, using TclProp and OAT, a programmer can specify when buttons and menu items are active or inactive. Similarly, it is possible to implement constraints among canvas items to ensure proper size and layout.

You will learn from complete, practical examples that illustrate the use of declarative programming. Real-world exercises ensure that you can start using TclProp and OAT right away.

After completing this tutorial, you will be able to identify applications that can be simplified by using declarative programming. Use TclProp to enforce relationships among application values; and use OAT to extend declarative programming into Tk widgets, canvas items, and their own objects.
USENIX Membership Information

**USENIX is the UNIX and Advanced Computing Systems Association**

Since 1975, USENIX has brought together the community of developers, programmers, system administrators, and architects working on the cutting edge of the computing world.

USENIX conferences have become the essential meeting grounds for the presentation and discussion of the most advanced information on new developments in all aspects of advanced computing systems.

USENIX and its members are dedicated to:
- Problem-solving with a practical bias
- Fostering innovation and research that works
- Communicating rapidly the results of both research and innovation
- Providing a neutral forum for the exercise of critical thought and the airing of technical issues

**Enjoy Great Membership Benefits**

As a member of USENIX, you receive:
- Access to papers from USENIX conferences and symposia proceedings
- Free subscription to *;login*; the Association’s bi-monthly magazine
- Discounts on registration for technical sessions at all USENIX conferences and symposia
- PGP Key signing service (available at most conferences)
- Special subscription rates to the periodicals *Linux Journal*, *UniForum Monthly*, *UniNews*, and the annual *UniForum Open Systems Products Directory*
- Discount on all publications and software from PrimeTime Freeware
- Discount on software from BSDI, Inc.
- Right to vote on matters affecting the Association, its bylaws, election of its directors and officers
- Right to join Special Technical Groups such as SAGE

SAGE is dedicated to the recognition and advancement of system administration as a profession. To join SAGE, you must be a member of USENIX.

The USENIX Association
2560 Ninth Street, Suite 215
Berkeley, CA 94710
Phone: 510.528.8649
Fax: 510.548.5738
Email: office@usenix.org
URL: http://www.usenix.org
Mailserver: email to info@usenix.org
The body of your email message should say: “send catalog”.

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**THANK YOU**

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**EMAIL conference@usenix.org FOR MORE INFORMATION**
**Technical Program**

**Tuesday, July 15, 1997**

**TUESDAY, July 15**

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| 9:00am - 10:30am | Opening Remarks / Best Paper Awards  
Joseph A. Konstan, *University of Minnesota* and  
Brent Welch, *Sun Microsystems Laboratories*  
**Keynote**  
Experience with Tcl/Tk and Some Alternatives  
Brian Kernighan, *Bell Laboratories*  
There are really only two problems in computing: machines are too hard to use, and they are too hard to program. People who build graphical user interfaces get to share the pain on both of these accounts.  
During the past five years, I have worked on nearly a dozen graphical user interface projects, building a variety of interfaces with both mainstream and unknown tools, and in several cases creating versions of the same interface with alternative tools.  
Although it is not perfect, Tcl/Tk remains my personal favorite, the tool of choice for such programming. In this talk, I will discuss experiences with Tcl/Tk and alternatives, and illustrate some things that work well and a few that don’t. I will also attempt to draw some lessons for designers of languages, systems, and user interfaces.  
Brian Kernighan is the head of the Computing Structures Research Department at Bell Laboratories where his current research activities are in user interfaces and application-oriented programming languages. He has worked in the areas of combinatorial optimization, design automation, document preparation, and programming languages. He is the co-author of several computer science books, including *The Elements of Programming Style*, *Software Tools*, and *The C Programming Language*. Brian received his PhD from Princeton. |
| 10:30am - 11:00am | Break |
| 11:00am - 12:15pm | Applications 1  
**Tcl in AltaVista Forum**  
David Griffin, *AltaVista Internet Software Inc.*  
**Dashboard: A Knowledge-Based Real-Time Control Panel**  
De Clarke, *UCO/Lick Observatory, UCSC*  
**Caubweb: Detaching the Web with Tcl**  
John Robert LoVerso and Murray S. Mazer, *Open Group Research Institute* |
| 12:15pm - 2:15pm | Lunch (on your own) |
| 2:15pm - 3:30pm | Implementation Issues  
**Jacl: A Tcl Implementation in Java**  
Ioi K. Lam and Brian C. Smith, *Cornell University*  
**A Typing System for an Optimizing Multiple-Backend Tcl Compiler**  
Forest Rouse and Wayne Christopher, *IECM CFD Engineering*  
**Tc1OSAScript—Exec for the Mac**  
Jim Ingham, *Lucent Technologies* and Raymond Johnson, *Sun Microsystems* |
| 3:30pm - 4:15pm | Break |
| 4:15pm - 5:10pm | Retrospective  
**Redesigning Tcl-DP**  
Mike Perham, Brian C. Smith, Tibor Janosi, and Ioi K. Lam, *Cornell University*  
**Writing a Tcl Extension in Only Seven Years**  
Don Libes, *NIST* |
| 5:10pm - 6:00pm | Works-In-Progress / Product Demonstrations |
| 7:00pm - 9:00pm | Workshop Dinner |
Wednesday, July 16
9:00am – 10:15am

**Tcl Programming Models**

*Simple Multilingual Support for Tcl*
Henry Spencer, SP Systems

*Assertions for the Tcl Language*
Jonathan Cook, New Mexico State University

*Extending Traces with OAT: An Object Attribute Trace Package For Tcl/Tk*
Alex Safonov, Joseph A. Konstan, John V. Carls and Brian Bailey, University of Minnesota

10:15am – 10:45 am

**Break**

10:45am – 12:15pm

**Sun Tcl/Tk Update**
John Ousterhout, Sun Microsystems Laboratories
John Ousterhout will provide an update on the Tcl/Tk work going on at Sun Microsystems, including developments over the last year and plans for the next year or two. As usual, he will collect audience input on how Tcl and Tk should evolve. John will also describe the new Sun business group that will be selling Tcl tools, applications, and support.

12:15pm – 2:15pm

**Workshop Lunch**

2:15pm – 3:30pm

**Multimedia and Graphics**

*A Tk OpenGL Widget*
Claudio Esperanca, Universidade Federal do Rio de Janeiro, Cidade Universitaria

*The ImageTcl Multimedia Algorithm Development System*
Charles B. Owen, The Dartmouth Experimental Visualization Laboratory

*Nsync – A Constraint Based Toolkit for Multimedia*
Brian Bailey and Joseph A. Konstan, University of Minnesota

3:30pm – 4:15pm

**Break**

4:15pm – 5:05pm

**Development**

*Managing Tcl’s Namespaces Collaboratively*
Don Libes, NIST

*PtTcl: Using Tcl with Pthreads*
D. Richard Hipp, Hwaci Corporation

5:10pm – 6:00pm

**Works-In-Progress**

Thursday, July 17
9:00am – 10:30am

**Panel: Tcl/Tk—Taking Over the World or Fading Into Oblivion?**
Panel Organizer: Michael J. McLennan, Bell Labs Innovations for Lucent Technologies

Tcl/Tk is at a crossroads. Down one path is incredible success fueled by cross-platform support, a Web plug-in, and a byte code compiler. Down the other is obsolescence, where things like Java and VBscript will take its place. How do we get Tcl/Tk to move forward? What will it take to achieve success?

10:30am – 11:00am

**Break**

11:00am – 12:15pm

**Applications 2**

*A Tcl-Based Self-Configuring Embedded System Debugger*
Dale E. Parson, Paul Beatty, and Bryan Schieder, Bell Labs Innovations for Lucent Technologies

*GenNM Sim, The Agent Simulator*
Udi Margolin, Ilana Gani-Naor, and Raz Rafaeli, Milestone Software & Systems, Ltd.

*The Tycho User Interface System*
Christopher Hylands, Edward A. Lee, H. John Reekie, University of California, Berkeley

12:15pm – 12:45pm

**Closing Remarks and Town Meeting**

The Tcl/Tk Workshop Technical Program is organized by a volunteer committee. The town meeting is an opportunity to provide feedback on the workshop, to suggest ideas for next year’s workshop, and to volunteer to help organize future workshops.
Tutorial Program Fees (July 14)
Early registration fee (until June 27)
  Tutorial program* $335
  CEU credit $ 15
After June 27, add $50 to the Tutorial fee
*NOTE: Select one AM and one PM tutorial. Sorry, no half-day registration allowed.

Tutorial registration fee includes
- Admission to the tutorials you select
- Printed and bound tutorial materials for your selected courses
- Lunch

Technical Sessions Fees (July 15-17)
Early registration fee (until June 27)
  Member* $340
  Non-member** $410
Members and Non-members: After June 27, add $50 to the Technical Sessions fee
  Full-time student $ 75
  (copy of student ID required)
* The member fee applies to current individual members of USENIX, Euro Open national groups, JUS and AUUG.
** Join USENIX or renew your membership. Pay the non-member technical sessions fee and just check the USENIX membership box on the registration form to renew your existing membership or receive a one-year individual association membership.

Technical Sessions registration fee includes
- Admission to all Technical Sessions
- Copy of workshop proceedings
- Admission to the workshop Luncheon and Dinner

Payment by check or credit card must accompany the registration form. Purchase orders, vouchers, telephone, and email registrations cannot be accepted.

Hotel Discount Reservation Deadline: Thursday, June 19, 1997
USENIX has negotiated special rates for workshop attendees at the Tremont House Hotel. Contact the hotel directly to make your reservation. Please mention USENIX to get the special rate. A one-night room deposit must be guaranteed on a major credit card. To cancel your reservation, you must notify the hotel at least 24 hours before your planned arrival date.

Tremont House Hotel
275 Tremont Street
Boston, Massachusetts 02116-5694
Toll Free: 800.331.9998
Local Telephone: 617.426.1400
Reservation Fax: 617.482.6730
Single/Double Occupancy $125.00 (plus state and local taxes, currently at 9.7%)

Note: Requests for hotel reservations made after the deadline will be made on a space- and rate-available basis only.

Discount Airfares
Special airline discounts will be available for USENIX attendees. Please call for details:
JNR, Inc.
Toll Free in US and Canada: 800.343.4546
Telephone: 714.476.2788

Airport To Hotel Transportation
Logan International Airport is approximately three miles from the hotel. City Transportation provides daily shuttle service every 30 minutes from 6:30 am until 10:30 pm to the Tremont House Hotel and other downtown hotels. Catch the shuttle outside the baggage claim area at the island with signs for “Greater Boston Hotels”. It currently costs $7.50 one way. Reservations are not required. Taxi service is approximately $14.

Parking/Local Transportation
Boston parking is scarce and expensive; currently the Tremont is charging $20/day. Consider using the “T”, Boston’s subway. It links all sections of the city and nearby communities. The fare is just $.85 one way and it runs from 5:00 am to 12:45 am. The New England Medical Center Stop on the Orange Line is just across the street from the Tremont House Hotel and the Boylston Street Stop on the Green Line is 2 blocks north.

Points of Interest
Founded over 350 years ago, Boston has a rich tradition of education, history, arts, and high technology. Boston is an historical city with diverse and interesting attractions including:
- Faneuil Hall/Quincy Market
- Historic Sites: Freedom Trail, Paul Revere House, Boston Red Sox/Fenway Park
- New England Aquarium

Have a Question?
For more information, please contact us:
USENIX Conference Office
22672 Lambert Street, Suite 613
Lake Forest CA 92630
Phone: 714.588.8649
Fax: 714.588.9706
Email: conference@usenix.org
URL: http://www.usenix.org
Office hours:
8:30 am – 5:00 pm Pacific Time

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Registration Form
Fifth Tcl/Tk Workshop, July 14–17, 1997

The address you provide will be used for all future USENIX mailings unless you notify us in writing.

Name First Last
First Name for Badge Member Number
Company / Institution
Mail Stop Mail Address
City State Zip Country
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Email Address (1 only please)
WWW

Tutorial Program
Select one AM and one PM tutorial. Sorry, no half-day registration allowed.

Monday, July 14, 1997
M 1AM Effective Tcl/Tk Programming
M 2AM Building Multi-User Applications with GroupKit
M 3PM Database Programming with Tcl/Tk
M 4PM TclProp and OAT: Tools for Declarative Programming

Tutorial Program Fees (Monday, July 14)
Tutorial program for one day................................. $335.00 $_______
CEU credit (optional), see pg. 4 .......................... $15.00 $_______
Late fee applies if postmarked after
Friday, June 27, 1997..................................... Add $50.00 $_______

Technical Session Fees (Tuesday–Thursday, July 15–17)
Current member fee................................................ $340.00 $_______
(Appplies to individual members of USENIX, EurOpen
national groups, J US, and AUUG)
Non-member fee* ................................................... $410.00 $_______
*Join or renew your USENIX membership, AND
attend the conference for the same low price. Check here: 

Late fee applies if postmarked after
Friday, June 27, 1997..................................... Add $50.00 $_______
Full-time student** fee, pre-registered
or on-site ..................................................................... $75.00 $_______
Full-time student** fee including USENIX
membership fee....................................................... $100.00 $_______
**Students: Attach a photocopy of current student ID

TOTAL DUE $_______

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Attendee Profile
Please help us serve you better. By answering the following questions, you help us plan our activities to meet members' needs. All information is confidential.
1. I do not want to be on the attendee list.
2. I do not want my address made available for other than USENIX mailings.
3. I do not want USENIX to email me notices of Association activities.

What is your affiliation (check one):
academic commercial gov't R&D

What is your role in the purchase decision (check one):
final specify recommend influence no role

What is your primary job function (check one):
system/network administrator consultant academic/researcher
developer/programmer/architect system engineer
technical manager student security webmaster

How did you first hear about this meeting (check one):
USENIX brochure newsgroup/bulletin board login:
Web from a colleague magazine

What publications or newsgroups do you read related to Tcl/Tk?

Payment must accompany this form
Payment (U.S. dollars only) must accompany this form. Purchase orders, vouchers, email, and telephone registrations cannot be accepted.

Payment enclosed. Make check payable to USENIX Conference.
Charge to my: VISA MasterCard American Express Discover

Account No. Exp. Date

Print Cardholder's Name
Cardholder's Signature

Please complete this registration form and return it along with full payment to:
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Fifth Tcl/Tk Workshop
The Only Conference by and for Tcl/Tk Users and Developers

July 14–17, 1997
Tremont House Hotel
Boston, Massachusetts

4 Easy Ways for More Information:
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Please pass this along to a colleague.