

EXHIBIT D

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

MIKE HARRIS and JEFF DUNSTAN, individually
and on behalf of a class of
similarly situated individuals

Plaintiff,

v.

COMSCORE, INC., a Delaware corporation

Defendant.

CASE NO. 1:11-cv-5807

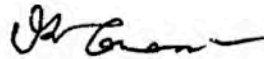
Judge Holderman

Magistrate Judge Kim

EXPERT WITNESS REPORT OF ROBERTO TAMASSIA

I have prepared this Expert Witness Report pursuant to Fed. R. Civ. P. 26(a)(2)(B) for the purpose of summarizing my forthcoming expert opinion testimony to be offered in the above-captioned case.

Dated: November 30, 2012



Roberto Tamassia

Qualifications

I am the Plastech Professor of Computer Science and the Chair of the Department of Computer Science at Brown University. I am also the Director of Brown's Center for Geometric Computing. My research interests include information security, cryptography, analysis, design, and implementation of algorithms, graph drawing and computational geometry. I have published six textbooks and more than 250 research articles and books in the above areas and have given more than 70 invited lectures worldwide. I am an AAAS Fellow and IEEE Fellow, and I have received a Technical Achievement Award from the IEEE Computer Society for pioneering the field of graph drawing. I am listed among the 360 most cited computer science authors by Thomson Scientific, Institute for Scientific Information (ISI). I serve regularly on program committees of international conferences. My research has been funded by ARO, DARPA, NATO, NSF, and several industrial sponsors (including Google, Microsoft, NetApp, and Sun Microsystems). I received my Ph.D. degree in electrical and computer engineering from the University of Illinois at Urbana-Champaign in 1988. My CV is included as an appendix to this report. See Appendix A.

I am being compensated at a rate of \$400 per hour for my work on this matter. I have not testified as an expert witness, either at deposition or trial, in the past four years.

Basis for Opinion

My opinion is based on the following sources of information:

1. Review of selected technical documentation of the comScore software.
2. Inspection of portions of the comScore software related to obfuscation methods. No forensic analysis of the software was performed.
3. A four-hour meeting with comScore executives (Chief Technology Officer, Senior VP of Technology, and Director of Technology) on November 2, 2012 in Reston, VA, where I was given a presentation of the architecture of the comScore software, a technical explanation of the obfuscation methods employed by the software and a demonstration of the software being installed, running, and being uninstalled on a Windows machine. At this meeting, I asked many questions on the design and operation of the software, focusing on the how user information is captured, obfuscated, transmitted and aggregated.
4. Review of court documents, including the Complaint, Answer, and the expert report written by Donald Waldhalm on behalf of the plaintiffs in this case, dated September 17, 2012.
5. Review of portions of the comScore 2011 annual report (SEC form 10-K) related to the technology used by comScore to collect, filter, and store user data.
6. Review of media articles about the comScore software, as listed in the Section entitled Media Sources of this report.
7. A list of the documents I considered while preparing my report is provided in Appendix D.

Opinion

The architecture of the comScore software and the methods employed by the software to handle user information meets commercially viable standards. Overall I believe that the software follows standard practices for protecting sensitive information and explicitly and persistently reveals its presence to the user. Also, uninstalling the software can be easily accomplished.

In particular, it is my opinion that the steps comScore takes to protect and “filter” or refrain from collecting [users' sensitive] data” are reasonable, technically sound, and meet commercially viable standards. See Expert Report of Donald Waldhalm, pg. 5.

At the Class Certification hearing I will be prepared to explain the process by which the comScore software is installed on a user's computer, the operation of the comScore software once installed, how the comScore software obfuscates potentially sensitive user data, how data is transmitted and stored by the comScore software, and how the comScore software can be uninstalled and removed from the user's computer.

The following sections provide more details of my evaluation of the comScore software.

Installation

I was given a demonstration of how a computer user installs the comScore software, specifically the RelevantKnowledge version of it, on a Windows machine in conjunction with the installation of another application downloaded by the user.

It is a standard practice in the software industry to offer two or more software products to a user at one time. For example, the download web page for the Windows version of the popular Adobe Acrobat Reader software (version 11.0) may offer to install at the same time also the Google Chrome browser and the Google Toolbar for Internet Explorer.

Following standard industry conventions, the installation process of the comScore software displayed a dialog box containing Disclosures and a link to the User License Agreement (ULA), and asked the user to explicitly accept the ULA. The ULA makes it clear that the software performs an extensive tracking of the user's computer activities, including access to websites over secure connections, and collection of information about the user's household. The statements in the Disclosures and ULA are in plain language that should be easily understood by users. I did not detect any attempt to deceive the user about the scope of the tracking and information collection activities.

For example, the ULA states in part:

Once you install our application, it monitors all of the Internet behavior that occurs on the computer on which you install the application, including both your normal web browsing and the activity that you undertake during secure sessions, such as filling a shopping basket, completing an application form or checking your online accounts. Our application may also collect information regarding the cookies that exist on your computer. We may use the information we monitor, such as name and address, for the

purpose of better understanding your household demographics; however we make commercially viable efforts to automatically filter confidential personally identifiable information such as UserID, password, credit card numbers, and account numbers. Inadvertently, we may collect such information about our panelists; and when this happens, we make commercially viable efforts to purge our database of such information.

The full text of the ULA is attached to this report as Appendix B.

Additionally, the Disclosures for RelevantKnowledge state, in part:

The information which is monitored and collected includes internet usage information, basic demographic information, certain hardware, software, computer configuration and application usage information about the computer on which you install RelevantKnowledge. We may use the information that we monitor, such as name and address, to better understand your household demographics; for example, we may combine the information that you provide us with additional information from consumer data brokers and other data sources in accordance with our privacy policy. We make commercially viable efforts to automatically filter confidential personally identifiable information and to purge our databases of such information about our panelists when inadvertently collected.

Several examples of the Disclosures presented to users are attached to this report as Appendix C. Based upon my observations of the demonstration, a user cannot download the comScore software without agreeing to the Disclosures and ULA. If a user selects "No" when presented with the dialog box requesting acceptance of the Disclosures and ULA, the comScore installation process does not run. Thus, it appears that all users who successfully install the comScore software have clicked "Yes" and agreed to the Disclosures and ULA. Moreover, every user who provides his or her email address during installation of comScore's software is sent an email that includes the ULA.

Operation

In the demonstration, the running of the comScore software on the machine was persistently indicated to the user by means of a prominent icon in the notification area of the Windows taskbar. This feature constantly reminds the user that the comScore software is running. Clicking on the icon displays further information about the software, provides a link to the ULA, and gives instructions on how to uninstall it.

Uninstallation

Once launched, the uninstallation program appeared to properly remove all components of the comScore software from the machine, including registry keys. Based upon my observations of the demonstration and the documentation I have reviewed, comScore's software can be uninstalled in a manner consistent with other Windows-based software—through the Add/Remove function provided as a part of the Windows operating system.

Obfuscation

The comScore software analyzes web pages accessed by the user and related web form data to detect various types of sensitive data (e.g., credit card number, date of birth). The software uses a computational technique called “regular expressions” to check for the presence of text patterns associated with sensitive data. This approach is efficient and follows standard practice.

Once it is identified, sensitive data is transformed by an obfuscation process that aims to remove detailed information while preserving more general information of statistical significance. For example, social security numbers are completely removed; the month and day are removed from dates of birth (in most cases the year is also removed); and for credit card numbers, only the first seven digits are kept while the remaining eight to nine digits are removed. In addition, the technique of cryptographic hashing is used to map other sensitive data items to numeric values called digests that have the following properties: (1) with very high probability, the digests are uniquely associated with the items; (2) it is computationally infeasible to reconstruct the items from the digests.

Based upon the documentation I have reviewed and the interviews conducted with comScore technical employees, it is my understanding that the obfuscation process is run keeping all data in internal memory, which is the right approach for computational tasks that handle sensitive information. This is because the complete, unobfuscated sensitive data never leaves a user's computer. Examples of the categories of user sensitive data that are obfuscated before leaving the user's computer would include (but not be limited to): social security numbers, credit card numbers, and dates of birth. Overall, I found the detection and obfuscation methods employed, including the use of regular expressions and cryptographic hashing, appropriate and commercially reasonable for the purpose of privacy protection. Moreover, I found the efforts to filter sensitive information out of information collected by the comScore software to meet commercially viable standards.

Data Transmission and Storage

After obfuscation, the sanitized user data is uploaded to the comScore servers, encrypted, and stored in a collection of files and in a database.

The transmission method used for uploading is the same as the page download method employed by the user: data retrieved by the user from a secure (https) connection is uploaded using a secure connection while data originating from a standard (not secured) connection (http) is uploaded via a standard connection. Also, standard data encryption practices and state-of-the-art encryption algorithms are employed (e.g., AES encryption) to protect the user data stored at the servers.

The user data stored at the comScore servers is further reviewed to detect the presence of any sensitive data that may have escaped the obfuscation phase. This detection step is effectively performed by a team of comScore employees who sift through the collected data. Detected items are then subject to manual obfuscation. Also, the detection results are used to improve the algorithms employed client-side by the software to identify sensitive data.

In my opinion, this additional effort to detect obfuscate sensitive data on comScore's servers is commercially viable and protective of the user data considering both the purpose of the comScore software, the security measures in place with respect to comScore's servers, and the nature of the data.

Media Sources

1. About Relevant Knowledge, Ghacks blog post, 2009. URL: <http://www.ghacks.net/2009/05/18/about-relevant-knowledge/>
2. Exclusive: Privacy lawsuit targets comScore, Reuters, 2011. URL: <http://www.reuters.com/article/2011/08/23/us-comscore-lawsuit-idUSTRE77M76O20110823>
3. How ComScore can track your mouse clicks, The Register, 2008. URL: http://www.theregister.co.uk/2008/05/12/inside_comscore/
4. Class action tests commercial use of spyware for target marketing, Faruki Ireland & Cox P.L.L., 2011. URL: <http://businesslitigationinfo.com/data-security/archives/class-action-tests-commercial-use-of-spyware-for-target-marketing/>

APPENDIX A

Curriculum Vitae

Roberto Tamassia

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(November 30, 2012)

Brief Biography

Roberto Tamassia is the Plastech Professor of Computer Science and the Chair of the Department of Computer Science at Brown University. He is also the Director of Brown's Center for Geometric Computing. His research interests include information security, cryptography, analysis, design, and implementation of algorithms, graph drawing and computational geometry. He has published six textbooks and more than 250 research articles and books in the above areas and has given more than 70 invited lectures worldwide. He is an AAAS Fellow and IEEE Fellow and the recipient of a Technical Achievement Award from the IEEE Computer Society for pioneering the field of graph drawing. He is listed among the 360 most cited computer science authors by Thomson Scientific, Institute for Scientific Information (ISI). He serves regularly on program committees of international conferences. His research has been funded by ARO, DARPA, NATO, NSF, and several industrial sponsors. He received the Ph.D. degree in electrical and computer engineering from the University of Illinois at Urbana-Champaign in 1988.

Education

- 88 Ph.D. in Electrical and Computer Engineering, University of Illinois at Urbana-Champaign.
Advisor: Franco P. Preparata. Thesis Topic: "Dynamic Data Structures for Two-Dimensional Searching."
- 84 "Laurea" (M.S.) in Electrical Engineering, University of Rome "La Sapienza."
Advisor: Carlo Batini. Thesis Topic: "Layout Algorithms and Tools."

Current Professional Appointments

- 09- Plastech Professor of Computer Science, Brown University
- 07- Chair, Department of Computer Science, Brown University
- 00- Director, Center for Geometric Computing, Brown University

Previous Professional Appointments

- 98–09 Professor of Computer Science, Brown University
- 99–01 Adjunct Professor Department of Computer Science Johns Hopkins University
- 93–98 Associate Professor, Department of Computer Science, Brown University
- 88–93 Assistant Professor, Department of Computer Science, Brown University
- 92 Visiting Associate Professor, Dipartimento di Informatica e Sistemistica, University of Rome “La Sapienza”
- 92 Visiting Associate Professor, Istituto di Analisi dei Sistemi ed Informatica, Italian National Research Council
- 88–89 Affiliated Research Faculty, Computer Learning Research Center, The University of Texas at Dallas
- 86–88 Research Assistant, Coordinated Science Laboratory, University of Illinois at Urbana-Champaign
- 85 Fulbright Grantee, Coordinated Science Laboratory, University of Illinois at Urbana-Champaign
- 84–85 Research Associate, Dipartimento di Informatica e Sistemistica, University of Rome “La Sapienza”

Awards and Honors

- 12- *AAAS Fellow*
- 09- *IEEE Fellow*
- 06- *Highly Cited Researcher in Computer Science*, Thomson Scientific, Institute for Scientific Information (ISI). Listed among the 319 most cited computer science authors worldwide.
- 06 *Technical Achievement Award*, IEEE Computer Society. Citation: “For pioneering the field of graph drawing and for outstanding contributions to the design of graph and geometric algorithms.”
- 06 Award for Technological Innovation, Brown University
- 97–98 Biographee in *Who’s Who in the East*
- 90–92 ACM lecturer
- 87 AICA (Italian Association for Computer Science) Award for Best Research Work in Computer Science, for the paper “On Embedding a Graph in the Grid with the Minimum Number of Bends”
- 85 Fulbright Grantee
- 84 Graduation *cum laude*, University of Rome, “La Sapienza”

Teaching

- 06– CS 166 Introduction to Computer Systems Security (Brown University)
<http://www.cs.brown.edu/courses/cs166/>
- 89–05 CS 252 Computational Geometry (Brown University)
<http://www.cs.brown.edu/courses/cs252/>
- 88–06 CS 16 Algorithms and Data Structures (Brown University)
<http://cs16.net/>
- 92 Computational Geometry (University of Rome)
- 84–85 Data Structures and Pascal Programming (University of Rome)

Consulting to Industry

- 00–03 Algomagic Technologies, Inc.
- 91–93 Arthur Andersen & Co., Chicago, Illinois
- 89 Cadre Technologies, Inc., Providence, Rhode Island
- 88 Digital Equipment Corporation, Colorado Springs, Colorado
- 85 Datamat, S.p.A., Rome, Italy
- 85 ENIDATA, S.p.A., Milan, Italy
- 84 Data Base Informatica, S.p.A., Rome, Italy
- 83 ISDOS, Inc., Ann Arbor, Michigan

Government Review Boards and Committees

- National Science Foundation, panelist and reviewer
- Army Research Office, reviewer
- Natural Sciences and Engineering Research Council of Canada, reviewer
- Ontario Council on Graduate Studies, appraiser
- Australian Research Council, reviewer
- Australian Academy of Science, reviewer
- Italian Ministry of Education, University and Scientific Research, member of Board of Experts

Research Interests

- Information Security
- Cryptography
- Analysis and Design of Algorithms
- Graph Drawing
- Computational Geometry
- Computer Science Education

Research Grants and Corporate Gifts

- 12–17 National Science Foundation, “Moving Objects Databases for Exploration of Virtual and Real Environments,” IIS–1212508, , PI, \$250,000.
- 12–16 National Science Foundation, “Privacy-Preserving Distributed Storage and Computation,” CNS–1228485, PI, \$400,169.
- 12 NetApp, \$40,000
- 10–15 National Science Foundation, “Towards Trustworthy Interactions in the Cloud,” CNS–1012060, PI (with Anna Lysyanskaya and Rodrigo Fonseca), \$1,000,000.
- 10 NetApp, \$40,000
- 09 Google, \$50,000 (with John Tyler)
- 09 NetApp, \$40,000
- 08–11 National Science Foundation, “Algorithms for Graphs on Surfaces,” CCF–0830149, PI, \$199,999.
- 07–10 National Science Foundation, “Trust Management for Open Collaborative Information Repositories: The CalSWIM Cyberinfrastructure,” OCI–0724806 (with Cristina Lopes, Michael T. Goodrich and Stanley Grant), co-PI,\$1,090,465.
- 07–09 National Science Foundation, “Privacy Management, Measurement, and Visualization in Distributed Environments,” IIS-0713403, PI, \$224,995.
- 07 IAM Technology, Inc., \$37,500
- 03–08 National Science Foundation, “Context-Aware Computing with Applications to Public Health Management,” IIS-0324846, \$399,000. (This medium ITR project is in collaboration with Isabel F. Cruz and Peter Scheuermann, and has an overall funding of \$2M.)
- 03–06 National Science Foundation, “An Algorithmic Approach to Cyber-Security,” CCR-0311510, \$100,000.
- 06 IAM Technology, Inc., \$131,000.
- 03–06 National Science Foundation, “The Brown Internet Computing Laboratory,” EIA-0303577 (with Steven P. Reiss, Eliezer Upfal, Maurice Herlihy, and Shriram Krishnamurthi), \$640,000.
- 05 IAM Technology, \$32,500.
- 03–04 Sun Microsystems, \$20,000.
- 03–04 National Science Foundation, “Teaching Data Structures to the Millennial Generation,” DUE–0231202, \$124,999.
- 04 IAM Registry Corporation, \$30,000.
- 03 Sun Microsystems (with Thomas W. Doepfner), \$20,000.
- 01–04 National Science Foundation, “Graph Visualization and Geometric Algorithm Design,” CCR–0098068 (with Michael T. Goodrich), \$400,000.
- 00–03 Defense Advanced Research Projects Agency, “Efficient and Scalable Infrastructure Support for Dynamic Coalitions,” F30602–00–2–0509 (with Michael T. Goodrich and Robert F. Cohen), \$1,497,376.

- 98–02 National Science Foundation, “Geometric Algorithm Design and Implementation,” CCR–9732327, \$230,991.
- 97–03 National Science Foundation, “A Networked Computing Environment for the Manipulation and Visualization of Geometric Data,” Research Infrastructure Grant CDA-97-03080 (with Lawrence B. Wolff et al.), \$1,226,127.
- 99 Microsoft Research, \$8,000.
- 96 Tom Sawyer Software, Inc., \$40,000.
- 95–01 Army Research Office, “Applicable and Robust Geometric Computing” (with P. Agarwal, R. Kosaraju, M. T. Goodrich, F. P. Preparata, and J. S. Vitter), DAAH04–96–1–0013, \$4,484,247.
- 95–98 National Science Foundation, “Graph Drawing,” CCR–9423847, \$225,107.
- 94–95 NATO Scientific Affairs Division, “Algorithms for Graph Connectivity” (with G. Di Battista and A. Kanevsky), \$6,000.
- 93–96 Army Research Office, “High Performance Algorithms for Computational Geometry” (with Jeffrey S. Vitter), DAAH04–93–G–0134, \$65,000.
- 91–94 National Science Foundation, “Algorithmic Issues in High Performance Computing” (with Jeffrey S. Vitter), CCR–9007851, \$346,802.
- 91–93 Army Research Office, “Algorithmic Issues in High Performance Computing” (with Jeffrey S. Vitter), DAAL03–91–G–0035, \$150,000.
- 91–93 Office of Naval Research and Defense Advanced Research Projects Agency, “High-Performance Design Environments” (with E. Charniak, T.W. Doepfner, J. Hughes, P.C. Kanellakis, P.N. Klein, D.P. Lopresti, F.P. Preparata, S.P. Reiss, J.E. Savage, A. van Dam, P. Van Hentenryck, J.S. Vitter, P. Wegner, F.K. Zadeck, and S.B. Zdonik), N00014–91–J–4052, ARPA order 8225, \$2,654,835.
- 91–93 NATO Scientific Affairs Division, “Algorithms for Graph Connectivity” (with G. Di Battista and A. Kanevsky), \$6,708.
- 91 AT&T Foundation, “Parallelism in Instructional Computing,” \$10,000
- 91 Cadre Technologies, Inc., \$10,000
- 89 Cadre Technologies, Inc., \$25,000

Postdoctoral Associates and Research Associates

Bernardo Palazzi (January 2007 – April 2010)

Luca Vismara (May 1996 – December 1997, June 2000 – August 2003)

Michael Shin (February 2002 – May 2002)

David Emory (July 2001 – August 2002)

Andrea Carmignani (February 2001 – July 2001)

Ulrik Brandes (July 1999 – December 1999)

Ashim Garg (January 1986 – August 1997)

Giuseppe Liotta (May 1995 – October 1996)

Maurizio Pizzonia (May 1998 – December 1998)

Graduate Students

Olya Ohrimenko (Ph.D., current)
James Kelley (Ph.D., current)
Duy A. Nguyen (Sc.M., 2012)
Charalampos Papamantou (Ph.D., 2011)
Daniel J. Rosenberg (Sc.M., 2010)
Yash Thakore (Sc.M., 2010)
Juexin Wang (Sc.M., 2010)
Danfeng Yao (Ph.D., 2007)
Nikos Triandopoulos (Ph.D., 2006)
James Baker (Ph.D., on leave)
Galina Shubina (Ph.D., on leave)
Mehmood Ahmad (Sc.M., on leave)
Sean Cannella (Sc.M., 2004)
Stina S. Bridgeman (Ph.D., 2001)
Lixin Pang (Sc.M., 2000)
Sumi Yunsun Choi (Sc.M., 1999)
Baolin Yang (Sc.M., 1998)
Luis D. Lejter (Sc.M., 1997)
Robinson Mason (Sc.M., 1997)
Ashim Garg (Ph.D., 1995)
Yi-Jen Chiang (Ph.D., 1995)
Sairam Subramanian (Ph.D., 1994)
Robert F. Cohen (Ph.D., 1992)
Sumeet K. Singh (Sc.M., 1991)

Steering Committees and Advisory Boards

Graph Drawing Symposium (GD), Steering Committee Founding Member and Chair.

Workshop on Algorithms and Data Structures (WADS), Steering Committee Member.

Electronic Journal of the Argentine Society for Informatics and Operations Research (SADIO),
Advisory Board Member.

Program Committees

ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS), November 2012, Redondo Beach, California.

ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS), November 2011, Chicago, Illinois.

Symposium on Graph Drawing (GD), September 2011, Eindhoven, The Netherlands.

Conference on Email and Anti-Spam (CEAS), September 2011, Perth, Australia.

IEEE Pacific Visualization Symposium (PacificVis), March 2011, Hong Kong

Workshop on Algorithm Engineering and Experimentation (ALENEX), January 2011, San Francisco, California.

ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS), November 2010, San Jose, California.

Conference on Email and Anti-Spam (CEAS), July 2010, Redmond, Washington.

ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS), November 2009, Seattle, Washington.

Symposium on Graph Drawing (GD), September 2009, Chicago, Illinois.

Conference on Email and Anti-Spam (CEAS), July 2009, Mountain View, California.

ACM International Symposium on Advances in Geographic Information Systems (GIS), November 2008, Los Angeles, California.

Conference on Email and Anti-Spam (CEAS), August 2008, Mountain View, California.

Workshop on Algorithm Engineering (WAE), Provincetown, Massachusetts, May 2008.

Symposium on Graph Drawing (GD), September 23–26, 2007, Sydney, Australia.

Conference on Email and Anti-Spam (CEAS), August 2–3, 2007, Mountain View, California.

Workshop on Algorithms and Data Structures (WADS), July 30—August 1, 2007, Ottawa, Canada

IEEE International Conference on Data Engineering (ICDE), April 16–20, 2007, Istanbul, Turkey.

International Workshop on Constraint Programming for Graphical Applications, September 25, 2006, Nantes, France

European Symposium on Algorithms (ESA), September 11–13, 2006, Zürich, Switzerland.

Workshop on Visualization for Computer Security (VizSEC), October 26, 2005, Minneapolis, Minnesota.

Workshop on Algorithm Engineering and Experimentation (ALENEX), January 22, 2005, Vancouver, Canada. (co-chair)

Symposium on Graph Drawing (GD), September 29–October 2, 2004, New York, New York.

Symposium on Graph Drawing (GD), September 21–24, 2003, Perugia, Italy.

Workshop on Algorithms and Data Structures (WADS), July 30—August 1, 2003, Ottawa, Canada

Symposium on Graph Drawing (GD), August 26–28, 2002, Irvine, California.

International Symposium on Algorithms and Computation (ISAAC), November 21–23, 2002, Vancouver, Canada.

Workshop on Algorithms and Data Structures (WADS), August 8–10 2001, Providence, Rhode Island. (co-chair)

Symposium on Graph Drawing (GD), September 20–23, 2000, Colonial Williamsburg, Virginia.

Workshop on Algorithm Engineering (WAE), September 5–8, 2000, Saarbrücken, Germany.

Sixth Annual International Computing and Combinatorics Conference (COCOON), July 26–28, 2000, Sydney, Australia.

Italian Conference on Algorithms and Complexity (CIAC), March 1–3, 2000, Rome, Italy.

6th Workshop on Algorithms and Data Structures (WADS), August 12–14, 1999, Vancouver, Canada. (co-chair)

International Computing and Combinatorics Conference (COCOON '99), July 1999, Tokyo, Japan.

Workshop on Algorithm Engineering and Experimentation (ALENEX), January 15–16, 1999, Baltimore, Maryland.

International Symposium on Algorithms and Computation (ISAAC), December 14–16, 1998, South Korea.

Symposium on Graph Drawing (GD), August 13–15, 1998, Montréal, Canada.

Symposium on Graph Drawing (GD), September 18–20, 1997, Rome, Italy.

5th Workshop on Algorithms and Data Structures (WADS), August 6–8, 1997 in Halifax, Canada. (co-chair)

24th International Colloquium on Automata, Languages and Programming (ICALP), July 7–11, 1997, Bologna, Italy.

Workshop on Orders, Algorithms and Applications (ORDAL), August 5–9 1996, Ottawa, Canada.

Workshop on Advanced Visual Interfaces (AVI), May 27–29, 1996, Gubbio, Italy.

Symposium on Graph Drawing (GD), September 20–22, 1995, Passau, Germany.

4th Workshop on Algorithms and Data Structures (WADS), August 16–18, 1995, Kingston, Ontario, Canada.

Graph Drawing (GD, DIMACS Workshop), October 10–12, 1994, Princeton, New Jersey. (co-chair)

10th ACM Annual Symposium on Computational Geometry, June 6–8 1994, Stony Brook, New York.

26th ACM Symposium on Theory of Computing (STOC), May 23–25, 1994, Montréal, Canada.

Graph Drawing (GD, ALCOM Workshop), September 25–29, 1993, Paris, France.

3rd Workshop on Algorithms and Data Structures (WADS), August 11–13 1993, Montréal, Canada.

19th Workshop on Graph-Theoretic Concepts in Computer Science (WG), June 16–18, 1993, Utrecht, the Netherlands.

2nd Workshop on Algorithms and Data Structures (WADS), August 14–16, 1991, Ottawa, Canada.

Other Committees

Excursions in Algorithmics: A late festschrift for Franco P. Preparata, October 27–28, 2006 Providence, Rhode Island. Co-organizer.

7th Workshop on Algorithms and Data Structures (WADS 2001), August 8–10 2001, Providence, Rhode Island. Conference Chair.

3rd CGC Workshop on Computational Geometry, October 11–12, 1998, Providence, Rhode Island, Workshop Co-Chair.

Dagstuhl Workshop on Graph Algorithms and Applications, July 27–31, 1998, Dagstuhl, Germany, Workshop Co-Chair.

Working group on Computational Geometry, *ACM Workshop on Strategic Directions in Computing Research*, Cambridge, June 14–15, 1996, Working Group Chair.

Dagstuhl Workshop on Graph Algorithms and Applications, May 11–17, 1996, Dagstuhl, Germany, Workshop Co-Chair.

Graph Drawing (GD '94, DIMACS Workshop), October 10–12, 1994, Princeton, New Jersey, Workshop Co-Chair.

Work Meeting on Graph Drawing, June 3–5 1992, Marino (Rome), Italy, Workshop Co-Chair.

Editorships

96– *Journal of Graph Algorithms and Applications*, editor-in-chief

95–06 *Computational Geometry: Theory and Applications*, editor

96–01 *IEEE Transactions on Computers*, associate editor

Theoretical Computer Science, *Excursions in Algorithmics: A Collection of Papers in Honor of Franco P. Preparata*, vol. 408, no. 2–3, 2008, co-guest editor.

ACM Journal of Experimental Algorithmics, Special Issue on selected papers presented at the *2005 Workshop on Algorithm Engineering and Experimentation*, vol. 12, 2008, co-guest editor.

International Journal of Computational Geometry and Applications, Special Issue on selected papers presented at the *1997 CGC Workshop on Computational Geometry*, vol. 13, no. 1, guest editor.

Journal of Graph Algorithms and Applications, Special Issue on Selected Papers from the *1998 Dagstuhl Seminar on Graph Algorithms and Applications* vol. 5, no. 5, 2001, co-guest editor.

Algorithmica, Special Issue on selected papers presented at the *1996 Dagstuhl Seminar on Graph Algorithms and Applications*, vol. 26, no. 1, 2000, co-guest editor.

Computational Geometry: Theory and Applications, Special Issue on Geometric Representations of Graphs, vol. 9, no. 1–2, 1998, co-guest editor.

Journal of Computer and System Sciences, Special Issue on selected papers presented at the 26th ACM Symposium on Theory of Computing (STOC '94), vol. 55, no. 1, 1997, co-guest editor.

Algorithmica, Special Issue on Graph Drawing, vol. 16, no. 1, 1996, co-guest editor.

Invited Lectures

- 04/12 Stevens Institute of Technology, Hoboken, New Jersey
- 01/12 NetApp, Waltham, Massachusetts
- 06/11 University of Rome Tre, Italy
- 03/11 University of Rome Tre, Italy
- 11/09 CRA-W/CDC Workshop on Computational Geometry, Medford, Massachusetts
- 11/09 Northwestern University, Evanston, Illinois
- 06/09 University of Rome Tre, Italy
- 06/09 University of Milan Bicocca, Italy
- 03/09 University of Rome Tre, Italy
- 12/08 Rutgers University
- 09/08 *Symposium on Graph Drawing*, Heraklion, Greece
- 06/08 Yahoo! Research, Mountain View, California
- 11/07 *NSF Workshop on Algorithms, Combinatorics, and Geometry*, Denton, Texas
- 12/05 University of Rome Tre, Italy
- 03/04 Purdue University
- 12/03 University of Rome Tre, Italy
- 09/03 *European Symposium on Algorithms*, Budapest, Hungary
- 5/02 *NSF/CBMS Regional Research Conference in Mathematical Sciences on Geometric Graph Theory*, University of North Texas, Denton
- 7/99 *VIII Encuentros de Geometria Computacional*, Castellon, Spain
- 12/98 *International Symposium on Algorithms and Computation*, Taejon, Korea
- 10/98 Washington University, St. Louis, Missouri
- 9/98 Worcester Polytechnic Institute, Massachusetts
- 7/98 University of Konstanz, Germany
- 7/98 *DIMACS Program on Network Visualization*
- 6/97 *Workshop on Geometric Computing*, Sophia-Antipolis, France
- 2/97 Purdue University
- 12/96 AT&T Laboratories, Murray Hill, New Jersey

8/96 *Eight Canadian Conference on Computational Geometry*, Ottawa, Canada

8/96 *Workshop on Orders, Algorithms and Applications (ORDAL '96)*, Ottawa, Canada

6/96 *SIAM Discrete Mathematics Conference*, Baltimore, Maryland

12/95 University of Seville, Spain

9/95 *International Workshop on Constraints for Graphics and Visualization*, Marseilles, France

2/95 Tufts University

1/95 University of Rome Tor Vergata, Italy

10/94 *IEEE Symposium on Visual Languages (VL '94)*, St. Louis

7/94 *Workshop on Orders, Algorithms and Applications (ORDAL '94)*, Lyon, France

6/94 *Sixth Australasian Workshop on Combinatorial Algorithms*, Darwin, Australia

6/94 Griffith University, Brisbane, Australia

6/94 University of Newcastle, Australia

4/94 *892nd Meeting of the American Mathematical Society*, Brooklyn, New York

2/94 *Second Italian Conference on Algorithms and Complexity (CIAC '94)*, Rome, Italy

12/93 University of Rome La Sapienza, Italy

10/93 State University of New York at Buffalo

11/92 Dartmouth College

8/92 *Fourth Canadian Conference on Computational Geometry*, St. John's, Newfoundland

7/92 Fujitsu Laboratories, Numazu, Japan

7/92 Fujitsu Laboratories, Tokio, Japan

6/92 University of Rome "Tor Vergata"

5/92 Johns Hopkins University

3/92 International Computer Science Institute, University of California, Berkeley

3/92 *ALCOM Final Project Workshop*, Utrecht, the Netherlands

2/92 Italian National Research Council, Rome

11/91 University of Texas at Dallas

8/91 *ALCOM Summer School on Efficient Algorithm Design*, Aarhus, Denmark

7/91 *Algorithms on Combinatorial Structures: International Symposium*, Curtin University, Perth

6/91 University of Rome, "La Sapienza"

3/91 Texas A&M University

3/91 University of Texas at Austin

12/90 *23rd Midwest Theory Consortium*, Northwestern University

11/90 State University of New York, Stony Brook

11/90 Tulane University
 11/90 Louisiana State University
 11/90 University of Texas at Dallas
 7/90 Italian National Research Council, Pisa
 7/90 University of Rome, “La Sapienza”
 5/90 *Conference on Computer Graphics in Pure Mathematics*, Iowa City
 4/90 *14th Computational Geometry Day*, New York University
 11/89 University of Texas at Dallas
 10/89 *DIMACS Workshop on Geometric Complexity*, Princeton University
 10/89 Columbia University
 7/89 *Australasian Conference on Combinatorics and Computing*, Brisbane
 6/89 University of Passau
 3/89 IBM T.J. Watson Research Center
 11/88 Carleton University
 11/88 University of Texas at Dallas
 10/88 Dartmouth College
 7/88 University of Rome, “La Sapienza”
 5/88 University of Michigan
 4/88 University of Texas at Dallas
 3/88 University of Ottawa
 12/87 Italian National Research Council, Rome
 7/87 University of Rome, “La Sapienza”
 2/87 McGill University
 6/86 University of Rome, “La Sapienza”
 10/85 University of Illinois at Urbana-Champaign

Professional Societies

American Association for the Advancement of Science (AAAS), Fellow

Association for Computing Machinery (ACM)

Institute of Electrical and Electronic Engineers (IEEE), Fellow

Patents

R. Tamassia and N. Triandopoulos, *Efficient Content Authentication In Peer-To-Peer Networks*, United States Patent no. 7,974,221, 2011.

M. T. Goodrich and R. Tamassia, *Efficient authenticated dictionaries with skip lists and commutative hashing*, United States Patent no. 7,257,711, 2007.

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4. M. T. Goodrich and R. Tamassia, *Data Structures and Algorithms in Java, Fifth Edition*, Wiley, 2010.
5. M. T. Goodrich and R. Tamassia, *Data Structures and Algorithms in Java, Fourth Edition*, Wiley, 2005.
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APPENDIX B



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[About Us](#) [Privacy Policy and ULA](#) [Contact Us](#) [FAQs](#)

Your opinion is helping to shape
the future of the Internet!

[We self-certify compliance with](#)



Join RelevantKnowledge, support the independent development of software, and add a tree to our planet for free! RelevantKnowledge is part of a market research community with millions of participants who are interested in voicing their opinions through surveys and in influencing which products and services are offered on the Internet. Panelists allow their online browsing, hardware and application usage, and purchasing behavior (including content of visited web pages) to be passively collected and used as part of anonymous research reports that pinpoint what is popular with consumers. The information you contribute is used by comScore, Inc., a globally-recognized market research authority on Internet and general economic trends, whose data are routinely cited by major media outlets such as the New York Times, the Wall Street Journal, and CNN. The data are extensively used by the largest Internet services companies and scores of Fortune 500 companies to improve their online offerings. We thank you for your participation in this community by supporting independent software developers and by sponsoring the planting of a tree on your behalf.

The protection of your privacy is one of our top priorities. While voluntary participation in our program will allow us to send you periodic surveys and track information about your online activities such as where you surf and the transactions that you make, the personally identifiable information you provide to us will NOT be used by us, or anyone with whom we do business, to advertise or market products or services to you!

About Our Trees for Knowledge Campaign

Worldwide carbon dioxide emissions have more than doubled over the last 10 years, and too much carbon dioxide in the atmosphere may be one of the major causes of global warming. But planting trees can help reduce the effects of carbon dioxide. That's why comScore has partnered with Trees for the Future to establish our Trees for Knowledge campaign. Since 1988, Trees for the Future has helped thousands of communities in Central America, Africa, and Asia improve their livelihoods and their environment by planting nearly 50 million trees. Working with Trees for the Future, we have donated millions of trees on behalf of members of our research community, so that we are not only improving the Internet, we're improving the environment as well.

PRIVACY POLICY, USER LICENSE AGREEMENT, AND PATENT NOTICE

Before joining our program, enjoying the benefits of this program, and installing our application, you must review and agree to the terms and conditions below and provide and obtain consent to this agreement from anyone who will be using the computers on which you install this application. By installing our application, you agree to be bound by this privacy policy & user license agreement, including the storage of the market research information provided by you on our computer systems in the United States.

Requirements for participation:

In order to participate in this program, you must:

- Be at least 18 years of age and capable of entering into a binding agreement;
- Be the parent or legal guardian of anyone under 18 having access to such computer;

- Own or control the computers that you allow to be configured to use this system;
- If your household subscribes to a TV service, be the TV service subscriber for your household, or be authorized to enter into this agreement on behalf of that TV service subscriber;
- Not be employed or related to an individual employed by an unaffiliated market research company; and
- Acknowledge and agree to allow the software to operate as described herein, including allowing the software to automatically upgrade provided that any such upgrades do not change the functionality of the software beyond what is described in this privacy policy and user license agreement.

Please note: many companies restrict the installation of software onto work computers. Before you install this software onto a work computer, please check your company's software installation policy.

What information is collected?

Basic Demographic Information: When you sign up for this program, we may obtain your contact information and some basic demographic information about you using a questionnaire, information from companies through which you obtained or inquired about this program, or the application that you install onto your computer and allow to track your Internet usage.

Survey response information: Once you agree to participate in this program, we may notify you of survey opportunities through e-mail, pop-ups, toast windows, U.S. mail, and other means. If you elect to participate in a survey, we require that you provide complete and accurate information about yourself and your household. The survey opportunities that we provide to you may be related to other information that we collect. For example, we may provide you with a survey asking you about the quality of your user experience at a particular website.

Computer hardware, software, and other configuration information: Our application may collect general hardware, software, computer configuration and application usage information about the computer on which you install our application, including such data as the speed of the computer processor, its memory capacities and Internet connection speed. In addition, our application may report on devices connected to your computer and your network, such as the type of printer or router you may be using.

TV and Mobility Data: Your TV Data includes items such as the channels and programs you watch and record, when the TV and set-top box are turned on and off, the on-demand programming you order, the interactive TV applications you use and other similar information. Your Mobility Data includes information about your use of your mobile device, such as the type and configuration of your mobile phone, the websites you visit on your device, the date and time of those visits and use, as well as other similar information.

Your agreement to participate on this panel includes your agreement that we may collect your TV Data and Mobility Data directly from your TV and Mobility service providers and you expressly authorize those service providers to supply that information to us on your behalf. You also agree that we may integrate that information with the other data you provide us and that we obtain about you as part of this research community.

Internet usage information: Once you install our application, it monitors all of the Internet behavior that occurs on the computer on which you install the application, including both your normal web browsing and the activity that you undertake during secure sessions, such as filling a shopping basket, completing an application form or checking your online accounts. Our application may also collect information regarding the cookies that exist on your computer. We may use the information that we monitor, such as name and address, for the purpose of better understanding your household demographics; however we make commercially viable efforts to automatically filter confidential personally identifiable information such as UserID, password, credit card numbers, and account numbers. Inadvertently, we may collect such information about our panelists; and when this happens, we make commercially viable efforts to purge our database of such information.

Our application will review the content of all web pages you visit and select e-mail header information from web based emails. We may provide our clients with information allowing them to verify the context and location in which their content was displayed on individual web pages. In addition to information collected through our application, we may also collect data about your Internet use from third-parties, including search engines, email providers, social networks and other application service providers whose Internet sites you visit.

How is the information collected?

This application monitors your Internet usage by transmitting to our servers information about the web pages that you visit and the actions that you take.

while online.

Consequently, the software may communicate with our servers while you are connected to but not browsing the Internet. Such communications could include the transmission of collected data as outlined in this privacy policy, or it could include incoming instructions for our software. For example, our servers need to tell our software about survey opportunities, so that we can provide you with invitations where you can take a survey in exchange for sweepstake entries, cash, or other prizes.

In addition, we may ask for information about you using surveys, for which participation is completely voluntary. We may also combine the information that you provide us with information obtained from other sources (such as consumer preference reporting companies, credit reporting agencies and companies that collect TV viewing information) using confidential matching procedures. In these cases, we will: (i) provide a data match processor with only the personal information necessary to perform a match and, infrequently, to assist us performing statistical analyses; (ii) establish procedures and legal obligations that prohibit use of the information received for any other purpose or disclosure of this information to anyone else; and (iii) require destruction of the received information after completion of the match and analysis. You also agree that we may use the information we have collected from you to identify your use of search engines, email providers, social networks and other application service providers whose Internet sites you visit. Your agreement to this policy shall serve as your consent to allow us to request data about your online activities from these third-parties and to combine that information with the information that you provide us directly or through the software.

You further agree that we may use third party service providers to obtain other on-line data, TV viewing, or mobile usage information and that we may integrate such data with the data that you provide us as part of this research community, provided that the acquisition and processing of such information adheres to the privacy principles included in this privacy policy and user license agreement.

The software will collect information on the types of applications you use and general statistics on how you use them. So, for instance, you may open a word processor, and our software would collect information on what type of word processing software that you are using, and how long the word processor was open, but it would not have any knowledge of what was typed in the word processor.

Your information is stored in the United States where our central database is operated. The data protection and other laws of other countries may differ from those of the United States. Your information may be processed outside of the United States, provided that the data protection laws of such processing location affords similar if not more protections than those afforded in the United States for the processed data.

How is the collected information used?

Market Research Reports: Applying concepts similar to those used by television-rating services, we use the information collected through our application and your survey responses, combined with information from other sources, to make statistically-based projections about current and future Internet user behavior and, more generally, to extrapolate data about potential economic trends. For certain commercial customers, we may provide individual-level information. We make this data available so that these customers may enhance their own understanding of Internet usage and online commercial trends. In all cases, we make commercially viable efforts to automatically filter confidential personally identifiable information such as UserID, password, credit card numbers, and account numbers from the data being provided.

Our customers use our market research reports to: (i) modify online services and offerings; (ii) make more effective use of online data to understand both online and offline commercial behavior; and (iii) discern general economic trends and the business performance of specific entities for a wide range of business purposes including, but not limited to, identifying financial investment opportunities and understanding the value and interest in certain business enterprises.

By Service Providers: From time to time, we may share your contact information with those third parties who help us deliver this program to you (for example, companies that administer incentive programs). When we do this, we provide only the necessary information for the service provider to perform its assigned function, and we contractually prohibit the use or disclosure of this information to anyone else unless you authorize it.

As Required by Law: In rare cases, and as is done by any other business, if we are compelled to disclose certain information through a valid legal process such as a court order, subpoena, or a search warrant, we would do so. However, we would comply by providing only the minimum information necessary.

How is the information secured?

Safeguards: We have implemented a variety of safeguards (including physical, digital, and legal protections) focused on ensuring that the information collected through this program is protected from unauthorized use, modification, or disclosure. For example, any secure information collected by our application is encrypted before it is sent to our servers. Moreover, our employees are subjected to periodic evaluation and investigation, are contractually restricted on their use and access to personally identifiable information, and are educated and retrained as needed on internal security policies and procedures.

If you would like to access, modify, and/or request deletion of the personally identifiable profile information submitted by you as part of this program, you may complete a support form on our website, or e-mail our support staff at the e-mail address provided below.

Does the application use cookies?

We do not use our cookies to store or acquire data about you; however, we do use cookies to assist us in conducting occasional diagnostic tests to ensure that our system is functioning correctly.

What privacy commitments are made relating to specific participant benefits?

Please refer to our program's web site, which lays out the privacy commitments that we make for the various participant benefits we offer. The terms of these commitments are incorporated into this agreement. Please note that each incentive program may have its own set of rules applicable to that particular offering; these rules are made available to you before you choose to participate.

What if I wish to stop participating in this program?

Resignation: You may resign at any time by contacting us at the support address listed below or by selecting the "Terminate all Services" link from the Members section on your panel's web page (where applicable).

Removing our Application: You may remove our application using the Windows Add/Remove Programs function (known as "Programs and Features" in Vista and Windows 7). Alternatively, you may e-mail our support staff at the e-mail address provided below and request removal instructions. Please be sure to follow this same removal procedure on all of the computers from which you wish to remove this application. Removing the application will stop tracking of your online browsing and purchasing behavior, but unless you resign from all services in accordance with the procedure stated above, you may be contacted for administrative purposes or for special participant opportunities. After you remove our application from a computer, all settings we have made to your computer will be deactivated.

Use of Third Party Programs to Remove our Software: Please note that use of third party programs to remove this application may cause instability in your system and to your Internet connection. We reserve the right to repair any of its settings that are partially removed, to minimize potential instability. In fact, our software will inspect itself and make repairs when necessary. This action is not done to try and stop you from uninstalling our software, it is only done to assure that our software is operating properly on your computer and does not cause technical problems. This ability to upgrade or repair corrupted files in no way impedes your ability to delete the program. Once the program has been uninstalled through the Windows Add/Remove Programs function, the application will be removed, so that no updates or repairs may be made. So, should you wish to resign, we ask that you use the instructions provided above.

Stop Participating in Surveys: You may contact us at the support address listed below to alter how you receive, or to completely stop receiving, surveys; or you can edit your survey preferences at the Members section on your panel's web page (where applicable).

Please note: we may continue to use information collected prior to resignation, but all such information remains fully subject to, and governed by, the agreement effective at the time of your resignation.

What is the policy regarding children?

All persons installing this application must be at least 18 years old and must be the parent or legal guardian of any minor that may use a computer with this application installed. However, all household Internet behavior may be used by us in developing the statistical projections. This program complies with all applicable U.S. data gathering rules, including the Children's Online Privacy Protection Act (COPPA).

How will I be notified of changes to this Agreement?

If we change our practices in how we handle personally identifiable information, or if we materially change other aspects of our program, including but not limited to any changes to the scope or nature of incentives provided, we will post these changes on our website, and the changes will be effective immediately upon such posting. If you do not agree with any of the changes, you may remove our application as described above.

What are my obligations as a participant?

As a participant, you agree to:

- Allow this program to collect and use information obtained from you and related to you and your household's Internet use as described in this agreement;
- Make reasonable efforts to ensure that any other person who uses such computers and uses the TV services available to your household is aware of and agrees to the terms of this agreement;
- Accept automatic changes to your system settings that are made solely to ensure compatibility between your computer system and this program and periodic software upgrades;
- Receive administrative e-mails, including e-mails sent to: (i) inform you about upgrades, or issues related to basic program/application function or disruptions; (ii) provide notification about awards and special participant opportunities; (iii) request updated demographic information or information regarding usage of the application; and
- Regularly visit and review the agreement posted on this website, so that you are aware of any changes made to this agreement.

As a participant, you agree not to:

- Use this program in any way that: (i) harms or harasses others; (ii) violates any federal, state or local laws or ordinances; (iii) violates or infringes on the rights of any third parties including, but not limited to, copyright, trademark, patent, trade secret, rights of privacy or publicity or other proprietary right; or (iv) interferes with or disrupts this program;
- Attempt to reverse engineer, decompile, or disassemble the program;
- Sign up for more than one account; and
- Attempt to defeat or circumvent our application, it being your responsibility to remove this application as instructed in this agreement or express by an authorized service representative.

What is our commitment to participants?

We commit to making commercially reasonable efforts to do the following:

- Only use information obtained from or about you as described in this agreement;
- From time to time, commission the services of third parties to verify that this program is keeping its privacy commitments to you; and
- Provide customer support when you experience problems with this program, on the condition that you provide requested information about the problems experienced and the conditions of your computer environment, and agree to take reasonable efforts to follow the instructions supplied by our support staff.

Patent Notice

Our application incorporates and implements patented technologies. For more information visit <http://www.comscore.com/patents>.

What are the other legal terms and conditions of participating in this program?

Governing Law: You agree that any dispute or claim arising out of this program or agreement shall be settled by binding arbitration in Fairfax County, Virginia under the American Arbitration Association Rules. The proceedings shall be conducted and all evidence shall be offered in the English language.

Regardless of any law to the contrary, any claim against us must be filed within one year of the time such claim arose, otherwise such claim will be barred forever. We agree that regardless of any law to the contrary, that the arbitrator shall have no authority to award, punitive or exemplary damages against any party to this agreement.

Notwithstanding the above, we may apply to any court of competent jurisdiction for a temporary restraining order or other interim relief, as necessary without breach of this agreement and without abridgment of the powers of the arbitrator.

THIS AGREEMENT SHALL BE GOVERNED BY THE LAWS OF THE COMMONWEALTH OF VIRGINIA, WITHOUT REGARD TO CONFLICTS OF LAWS PROVISIONS AND SUCH LAW SHALL BE APPLIED BY THE ARBITRATOR TO THE MERITS OF ANY DISPUTE OR CLAIM. FOR ANY NON-ARBITRAL ACTION OR PROCEEDING ARISING OUT OF OR RELATED TO THIS PROGRAM OR THIS AGREEMENT, SOLE AND EXCLUSIVE JURISDICTION SHALL RESIDE WITH THE APPROPRIATE STATE COURT LOCATED IN FAIRFAX COUNTY, VIRGINIA OR FEDERAL COURT LOCATED IN ALEXANDRIA, VIRGINIA.

While this program is available on the Internet to international users, the program is and remains a U.S. offering and all use of the information collected and shall remain subject to U.S. law and practice. International users must take this into account and should consult their local laws and independently determine whether participation is desired given these facts.

TMRG, Inc., complies with the U.S.-EU Safe Harbor Framework and the U.S.-Swiss Safe Harbor Framework as set forth by the U.S. Department of Commerce regarding the collection, use, and retention of personal information from European Union member countries and Switzerland. TMRG, Inc. has certified that it adheres to the Safe Harbor Privacy Principles of notice, choice, onward transfer, security, data integrity, access, and enforcement. To learn more about the Safe Harbor program, and to view TMRG, Inc.'s certification, please visit <http://export.gov/safeharbor/>.

Fraud: Any attempt by a participant to undermine the legitimate operation of the panel is a violation of criminal and civil laws and should such an attempt be made, TMRG, Inc. reserves the right to seek damages from any such respondent to the fullest extent permitted by law. Multiple accounts are not permitted; participants are limited to signing up for a maximum of one account.

Third Party Rights: This agreement shall not create any rights or remedies in any parties other than the parties to the agreement and no person shall assert any rights as a third party beneficiary under this agreement.

Assignment: You may not assign this agreement or any rights or obligations under this agreement without our prior written approval.

Waiver: The failure of us to exercise or enforce any right or provision of the Agreement shall not constitute a waiver of such right or provision.

Severability: If any provision of this agreement is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. In any event, the remaining provisions shall be enforced.

Indemnity: You agree to defend, indemnify and hold our company and our affiliates, officers, directors, and employees harmless from and against any and all claims, losses, damages, liabilities and costs including without limitation, reasonable attorney's fees, arising out of or relating to your breach of this Agreement or misuse of this program.

Disclaimers of Warranty: YOU ACKNOWLEDGE THAT THIS PROGRAM AND ALL SOFTWARE, CHANGES TO YOUR COMPUTER, FUNCTIONS, MATERIALS AND INFORMATION MADE AVAILABLE AS PART OF THIS PROGRAM ARE PROVIDED 'AS IS.' OUR COMPANY, ITS SERVICE PROVIDERS, AND AFFILIATES DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

UNDER NO CIRCUMSTANCES WILL OUR COMPANY, ITS SERVICE PROVIDERS OR AFFILIATES BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES THAT RESULT FROM THE USE OF, OR INABILITY TO USE, THE PROGRAM, EVEN IF WE HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES RESULTING IN ANY WAY FROM THIS PROGRAM. THE TERMS OF THIS SECTION WILL SURVIVE ANY TERMINATION OF THIS AGREEMENT. IN JURISDICTIONS WHICH RESTRICT LIMITATION OF LIABILITY OR DISCLAIMER OF WARRANTY PROVISIONS, OUR COMPANY'S LIABILITY WILL BE LIMITED TO THE GREATEST EXTENT PERMITTED BY LAW. THIS LIMITATION WILL APPLY REGARDLESS OF THE FAILURE OF THE ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

Third Party Products and Services: We neither endorse nor accept responsibility for any third party materials accessed through the Internet.

ENTIRE AGREEMENT: This Agreement constitutes the entire agreement between sponsor and you with respect to the subject matter contained in the Agreement.

This Agreement is effective as of October 13, 2011.

Whom can I contact if I have additional questions?

The program sponsor is TMRG, Inc., a Delaware, U.S.A. corporation. If you have any questions about the above Privacy Statement & User License Agreement, our practices or your interactions with this site and this program, you may contact the program sponsor at:

privacy@tmrginc.com
Privacy Office
11950 Democracy Drive
Suite 600
Reston, VA 20190

For any support issues, please contact: support@tmrginc.com.

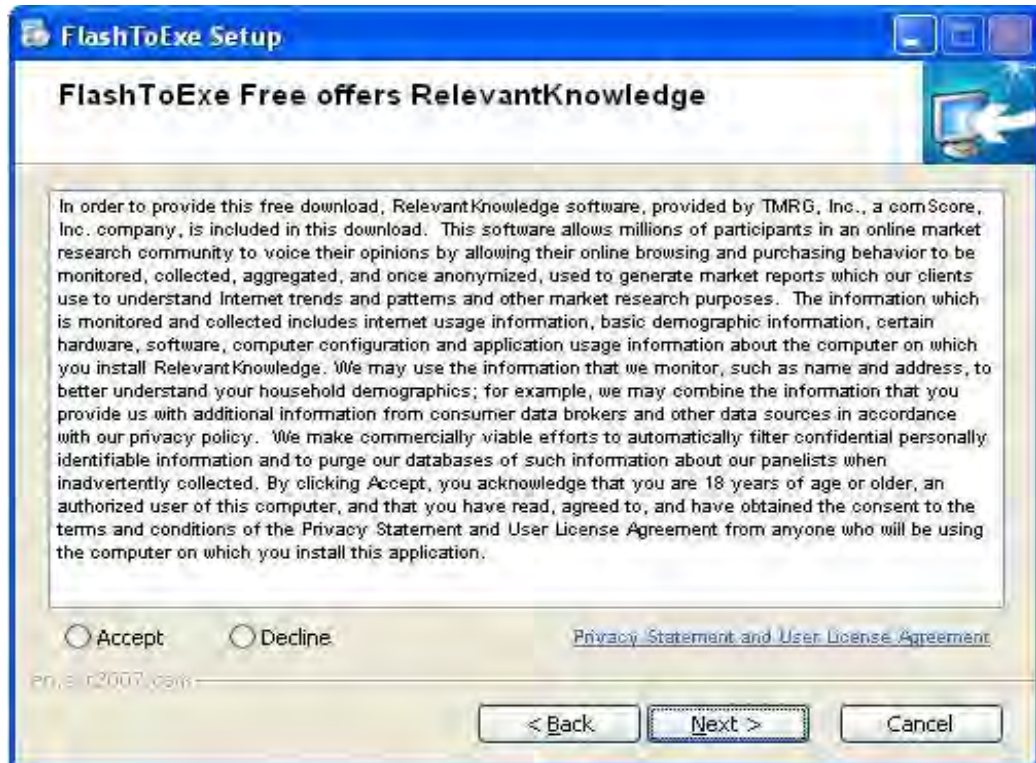
LP 1142

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APPENDIX C

Exhibit A

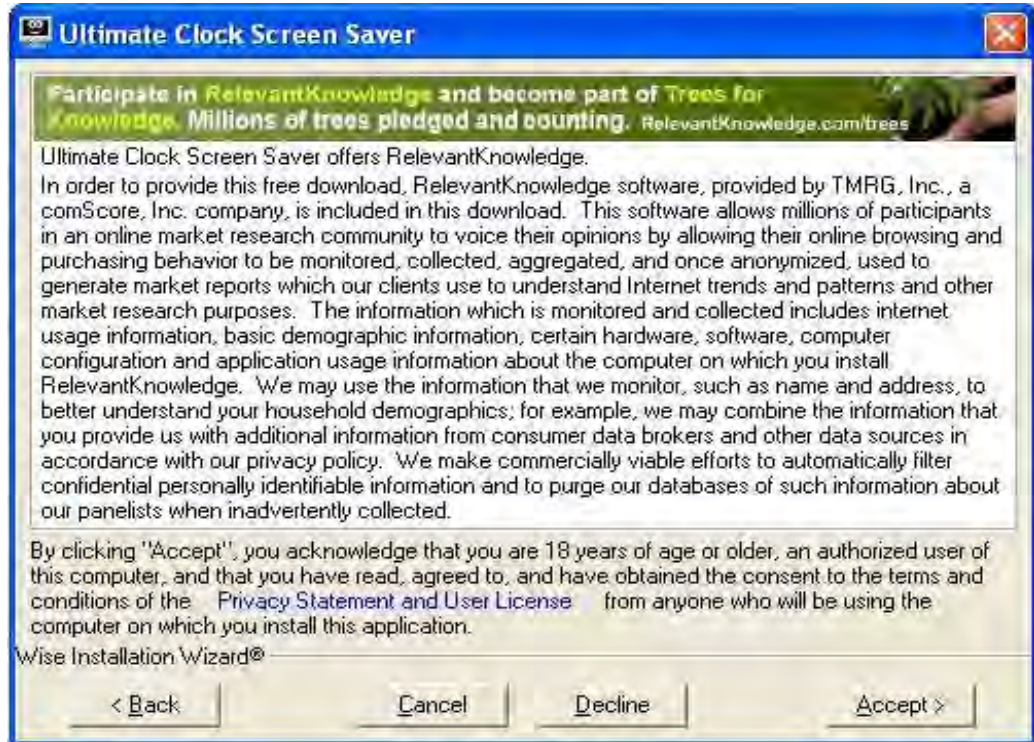
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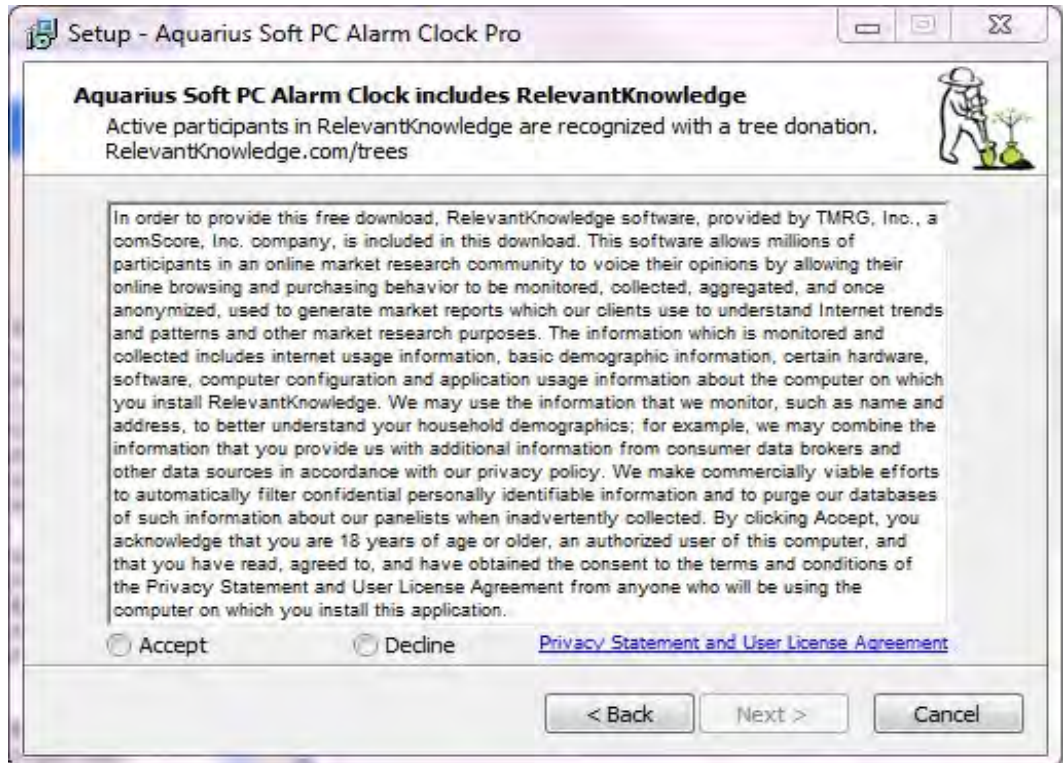
Acez



A1 Software



AquariusSoft
-Test Bundle in QA



* As of 10/3/2011: In QA and will roll out once it is approved

ASoftwarePlus



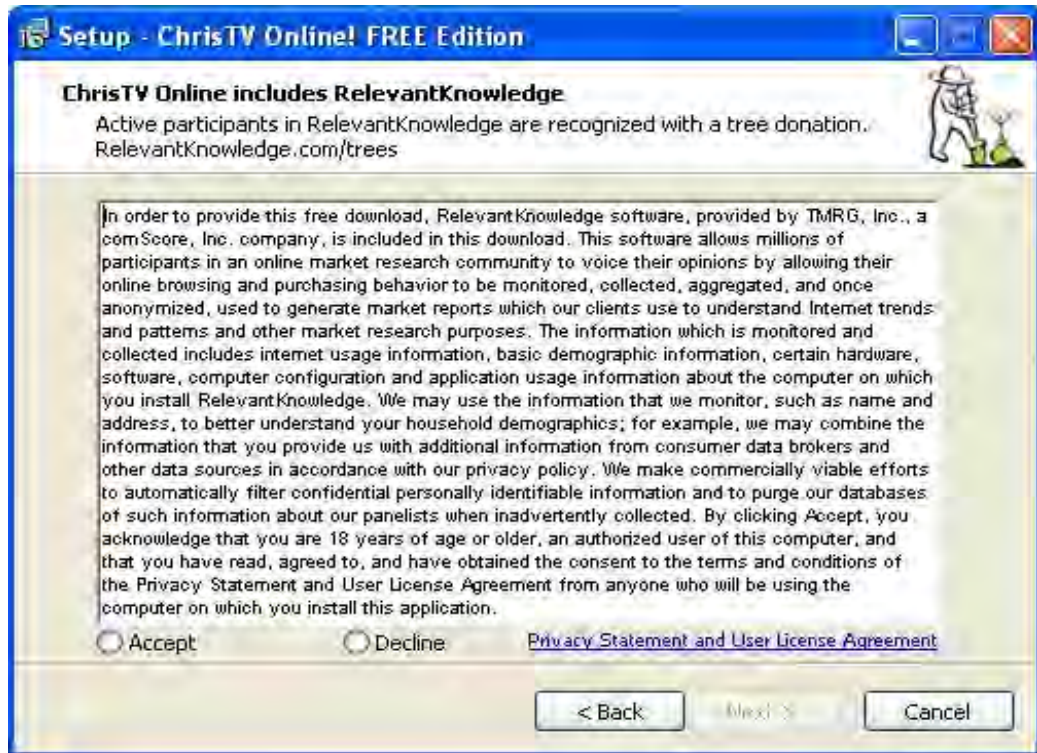
Beneton Software



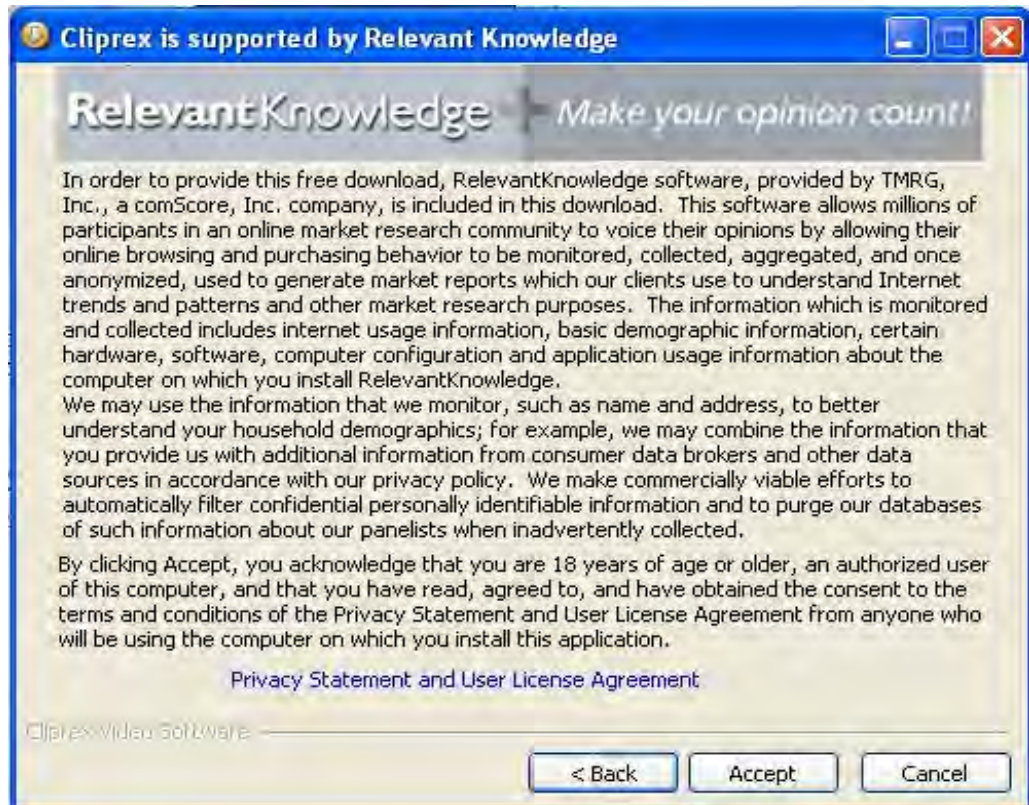
Chit Chat



ChrisPC



Cliprex



Data & Files



Digital Liquid



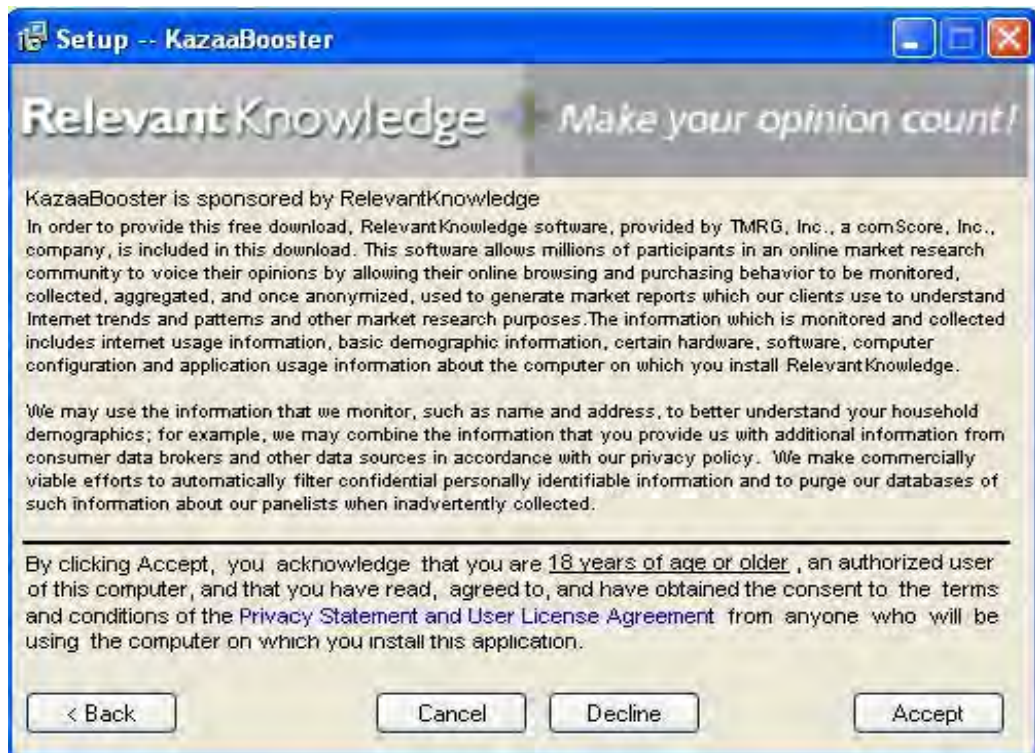
DMS



EIPC



EtExchange



Falco Software



FileSubmit

5248.zip Setup

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In order to provide this free download, RelevantKnowledge software, provided by TMRG, Inc., a comScore, Inc. company, is included in this download. This software allows millions of participants in an online market research community to voice their opinions by allowing their online browsing and purchasing behavior to be monitored, collected, aggregated, and once anonymized, used to generate market reports which our clients use to understand Internet trends and patterns and other market research purposes. The information which is monitored and collected includes internet usage information, basic demographic information, certain hardware, software, computer configuration and application usage information about the computer on which you install RelevantKnowledge.

We may use the information that we monitor, such as name and address, to better understand your household demographics; for example, we may combine the information that you provide us with additional information from consumer data brokers and other data sources in accordance with our privacy policy. We make commercially viable efforts to automatically filter confidential personally identifiable information and to purge our databases of such information about our panelists when inadvertently collected.

By clicking **Accept**, you acknowledge that you are 18 years of age or older, an authorized user of this computer, and that you have read, agreed to, and have obtained the consent to the terms and conditions of the [Privacy Statement and User License Agreement](#) from anyone who will be using the computer on which you install this application.

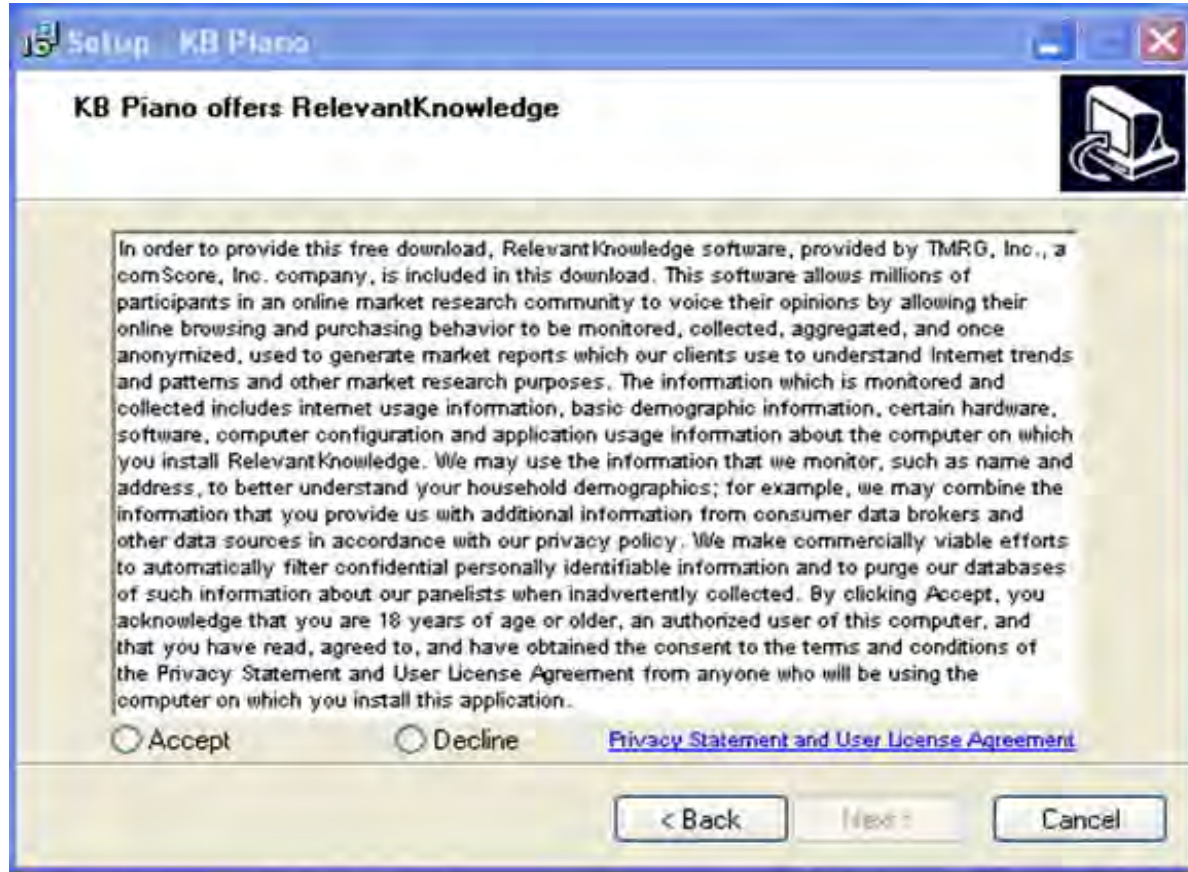
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FreakyBurn



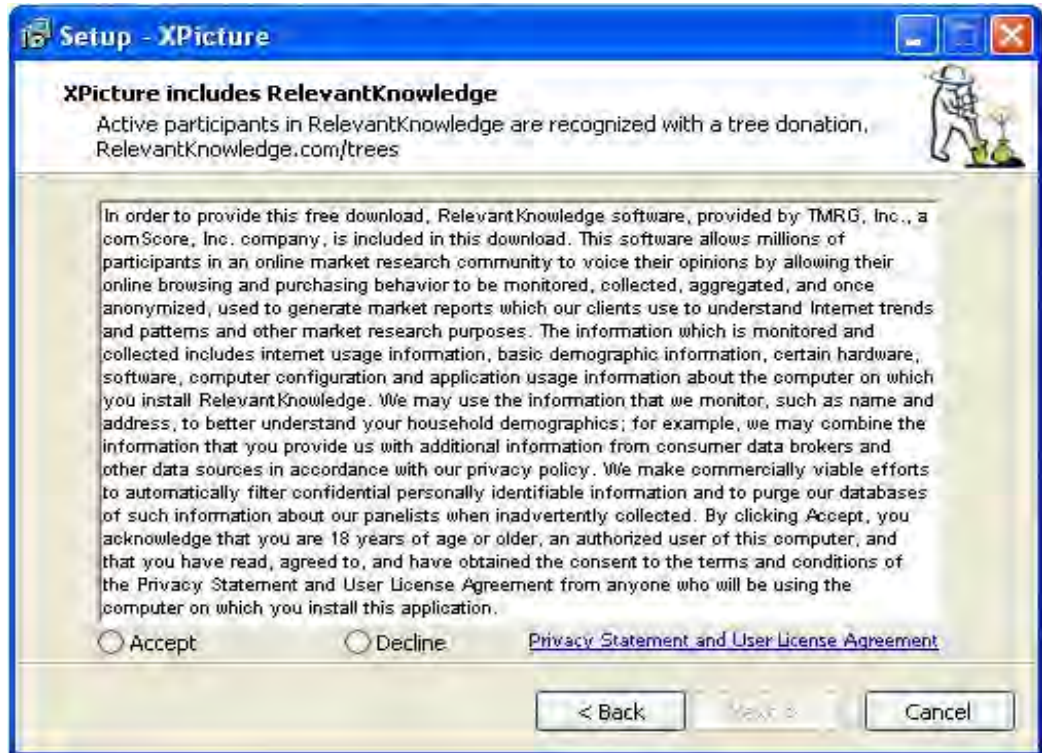
Freeway





* Screenshot taken from last QA submission

Goztun



GuitarFX
- Waiting for test bundle



* As of 10/3/2011: In QA and will roll out once it is approved

Guppy Games



Personal Shopper Setup

Relevant Knowledge
Active participants in RelevantKnowledge are recognized with a tree donation. RelevantKnowledge.com/trees

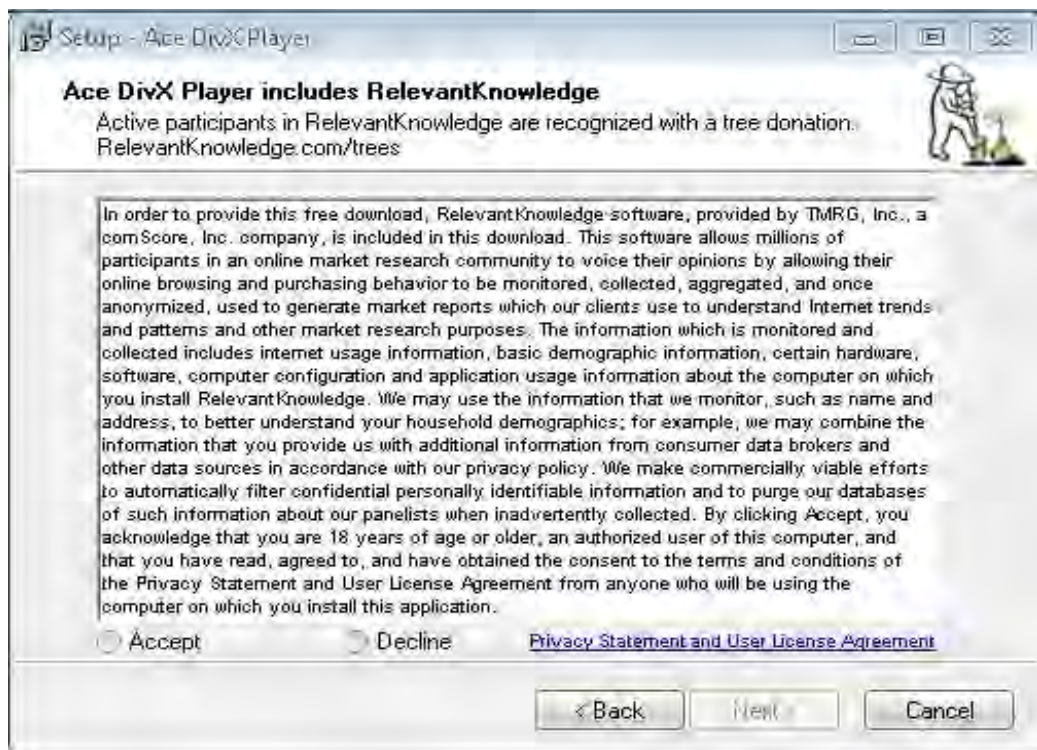
+2,617,058
trees and counting...

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GustoSoft



Setup - Ace DivX Player

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KC Software




King Sedco



Leawo

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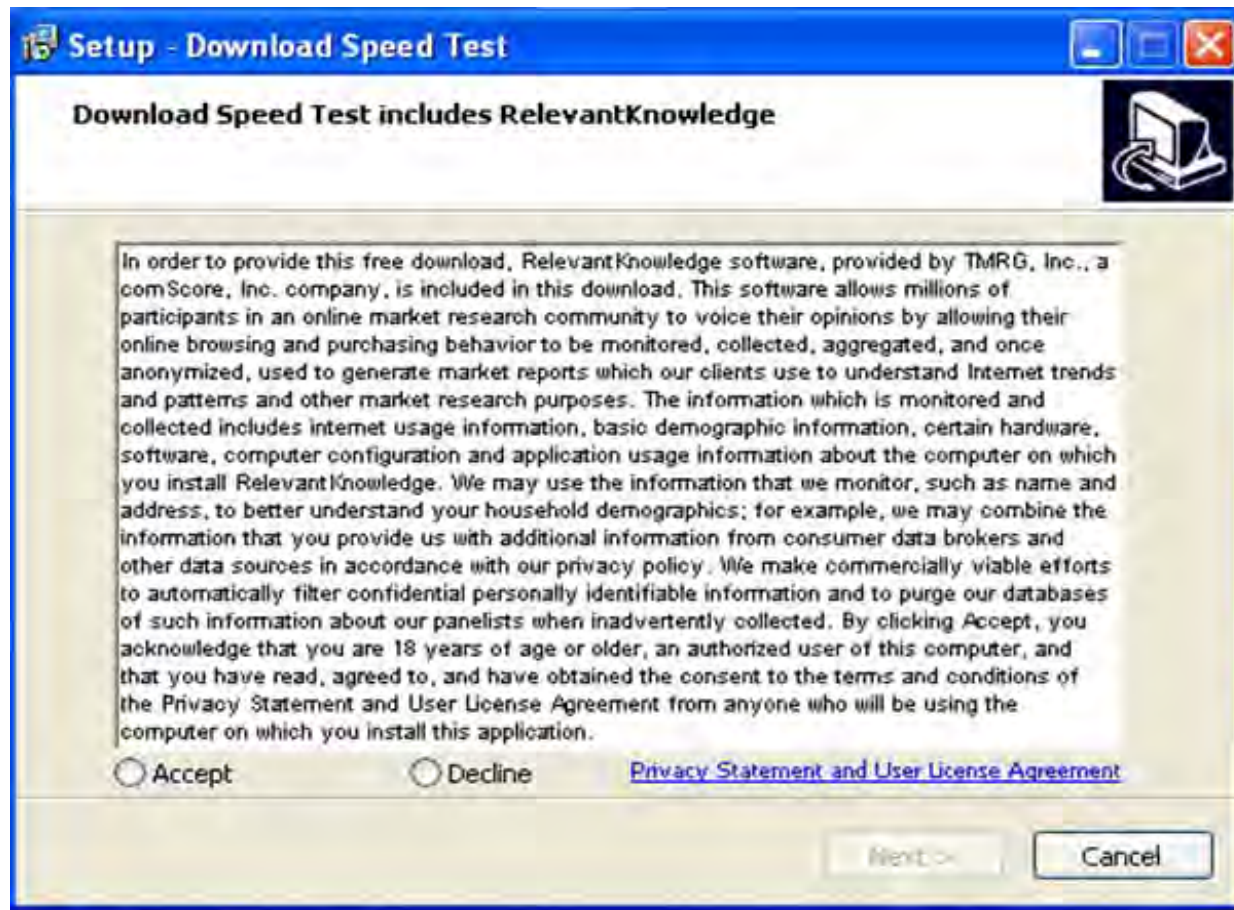


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Linkular



* Screenshot taken from last QA submission

MediaProSoft



MP4 Player



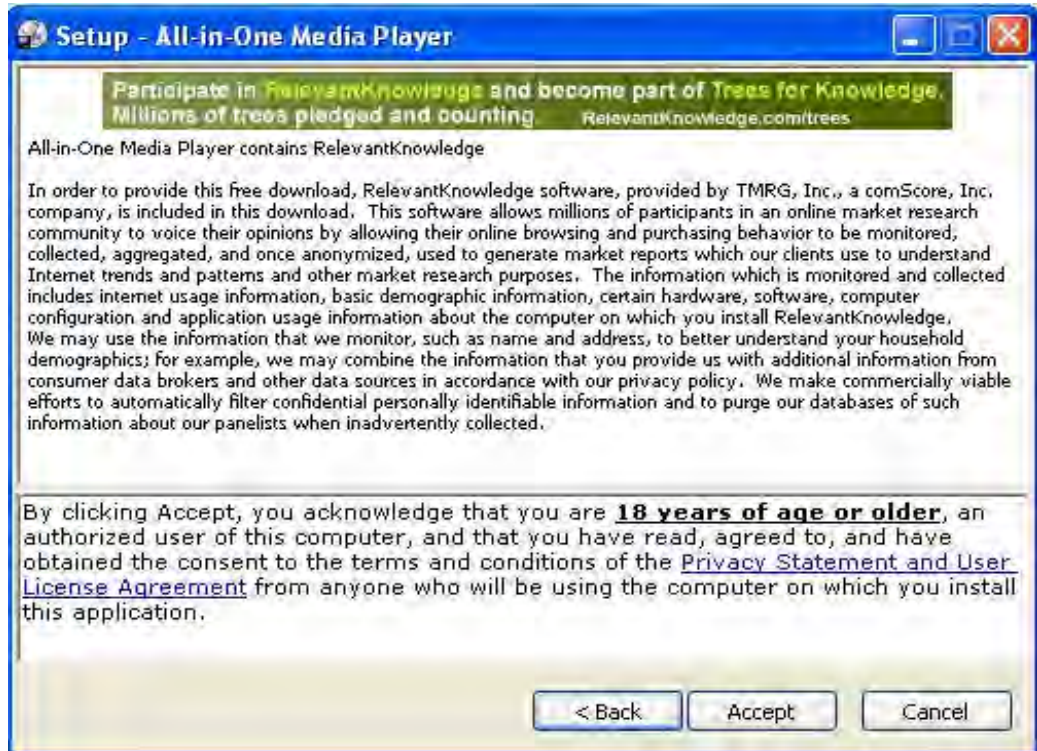
NeoSoft



Network467



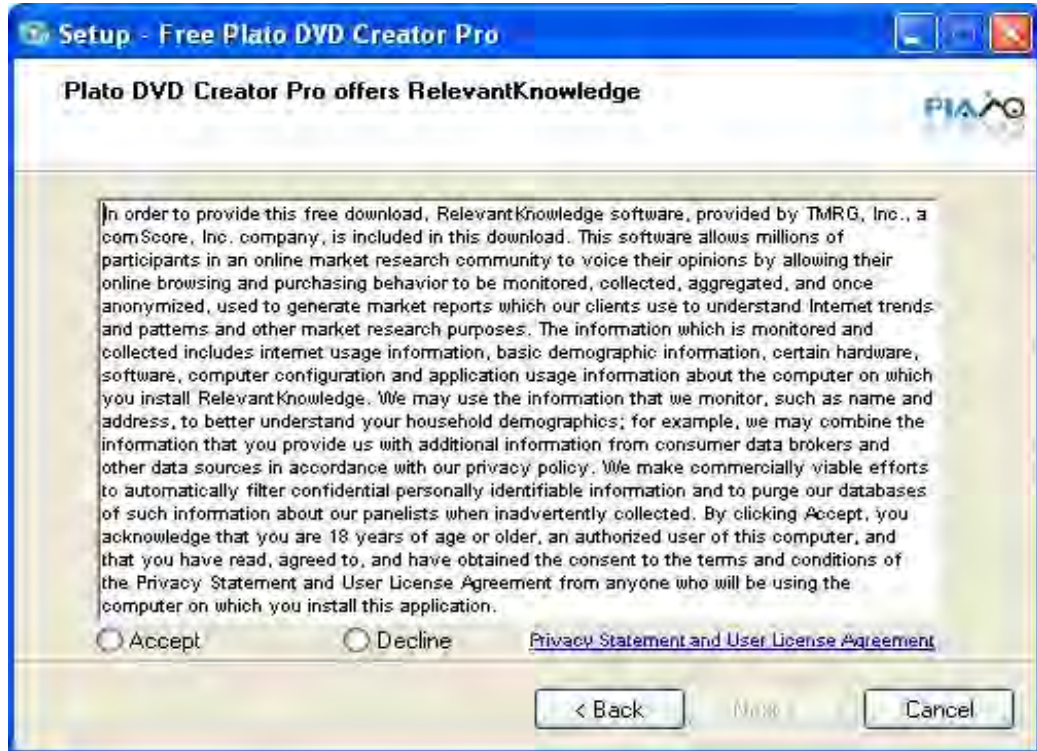
NPS Software



OurScreenSavers

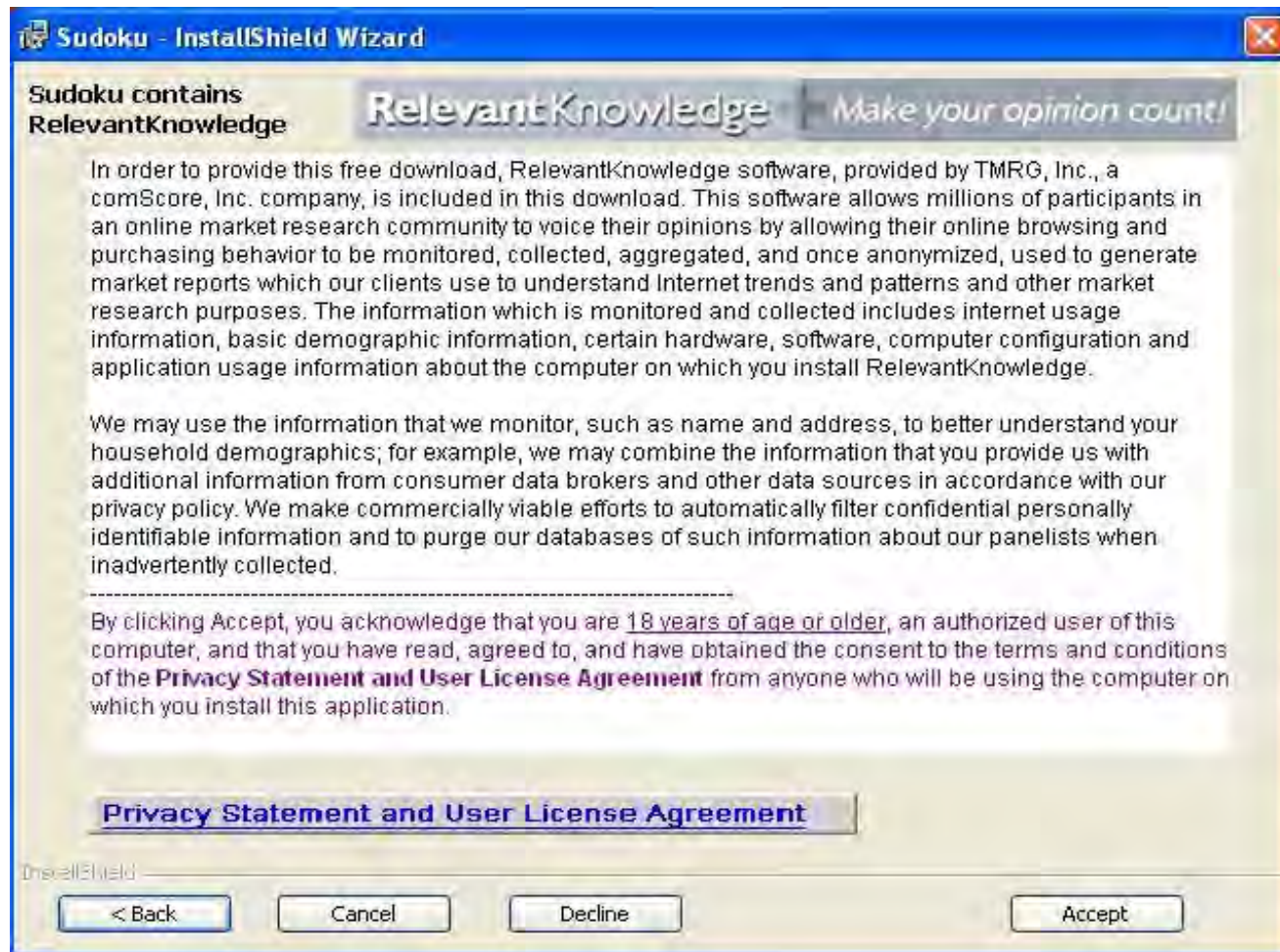


Plato

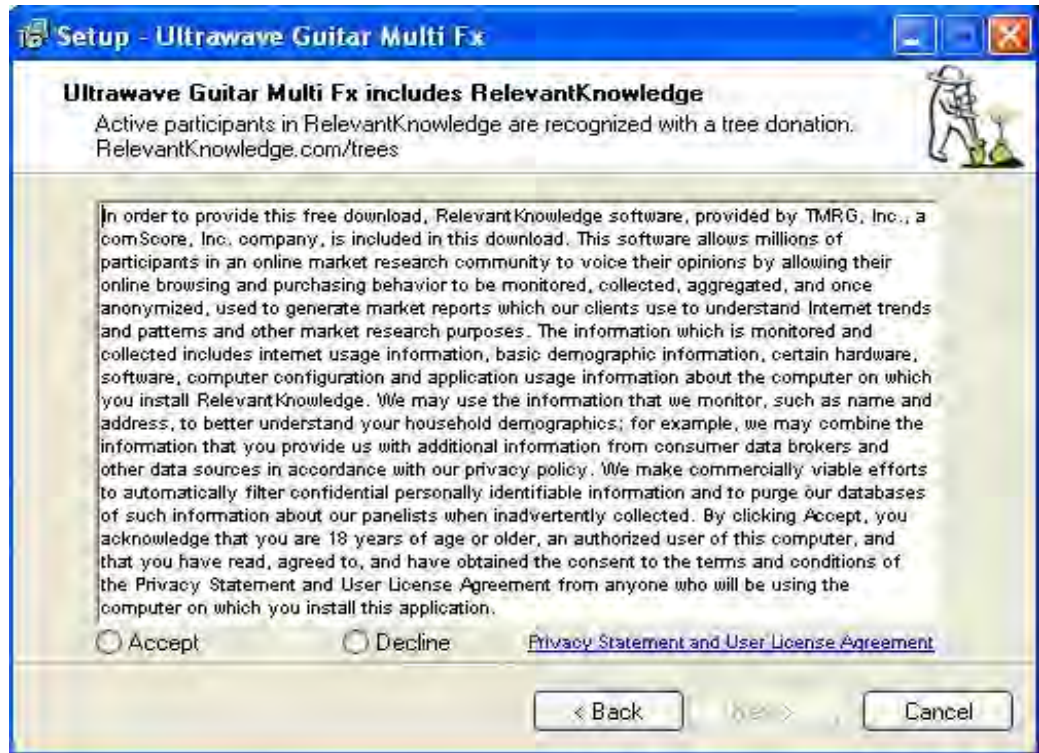


RisingResearch

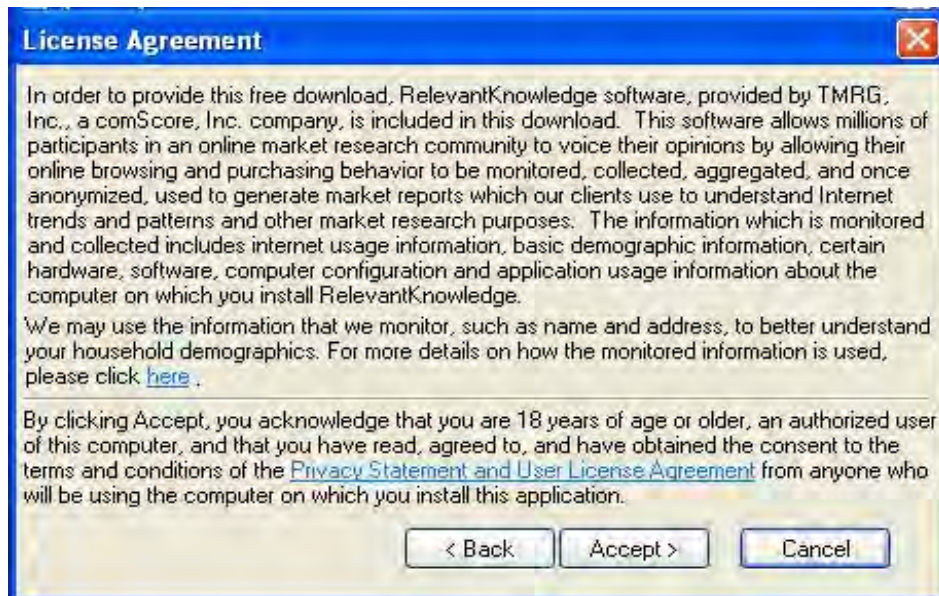




UltraWave Guitar

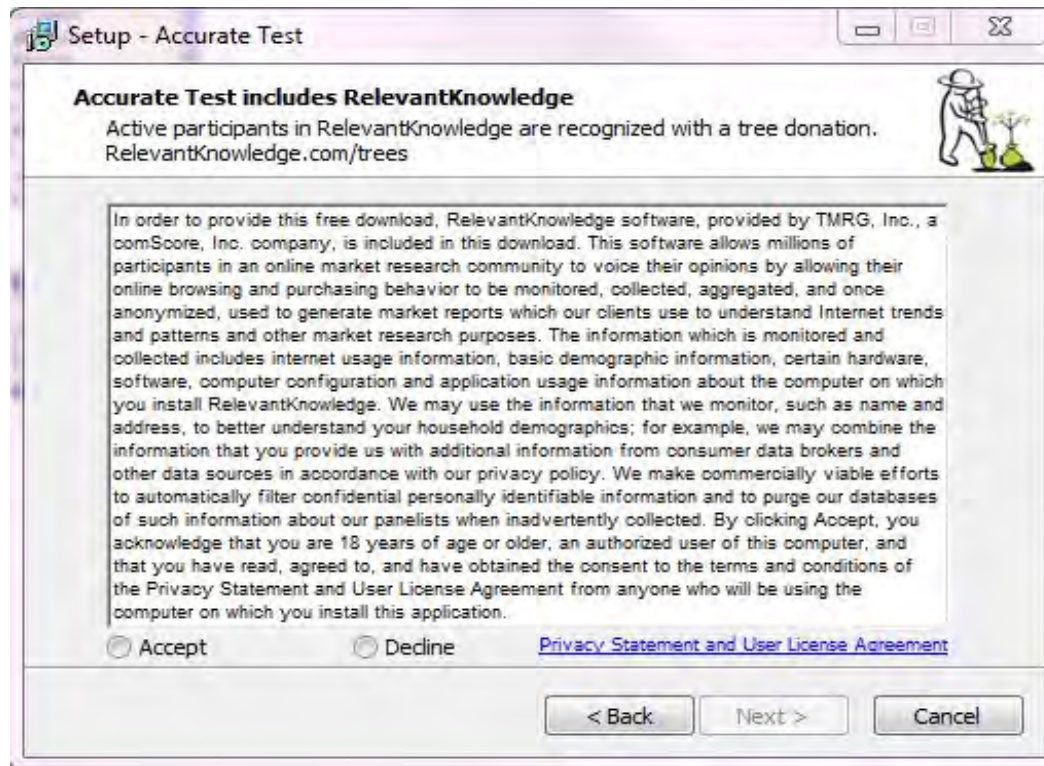


Whitepaw



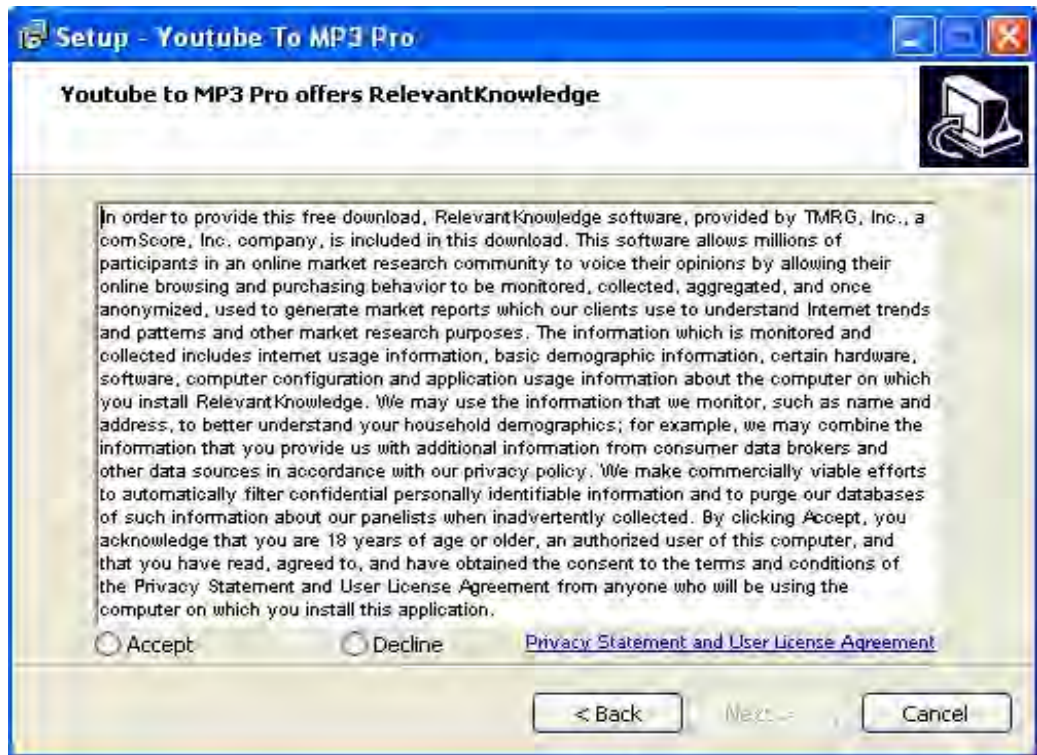


WordOfMouth
- Test Bundle in QA



* As of 10/3/2011: In QA and will roll out once it is approved

Ytmp3Pro



ZXT



PremierOpinion

Cyzeal



Morpheus



Traffic



APPENDIX D

MATERIALS CONSIDERED

Complaint filed August 23, 2011 (Dkt. No. 1)
Answer filed December 13, 2011 (Dkt. No. 59)
Expert Report of Don Waldhalm dated September 17, 2012
RelevantKnowledge Privacy Policy and User Licensing Agreement, accessed Oct. 25, 2012, available at http://www.relevantknowledge.com/RKPrivacy.aspx (Appendix B)
Content ID Data Structure, CS0015963
ContentID XML Format Specification section from comScore wiki, CS0015898-CS0015919
Fuzzification Rules sections from comScore wiki, CS0015929-CS0015943
comScore Media Metrix Blueprint
Sample Disclosure Dialog Boxes (Ex. A to comScore's Supplemental Response to Harris's First Set of Interrogatories) (Appendix C)
About Relevant Knowledge, Ghacks blog post, 2009, available at: http://www.ghacks.net/2009/05/18/about-relevant-knowledge/
Exclusive: Privacy lawsuit targets comScore, Reuters, 2011, available at: http://www.reuters.com/article/2011/08/23/us-comscore-lawsuit-idUSTRE77M76O20110823
How ComScore can track your mouse clicks, The Register, 2008, available at: http://www.theregister.co.uk/2008/05/12/inside_comscore/
Class action tests commercial use of spyware for target marketing, Faruki Ireland & Cox P.L.L., 2011, available at: http://businesslitigationinfo.com/data-security/archives/class-action-tests-commercial-use-of-spyware-for-target-marketing/
Installation process for the Beneton Movie GIF software, available at: http://benetonsoftware.com/Beneton_Movie_GIF.php
comScore source code
2011 comScore Annual Report (SEC Form 10-K), available at http://ir.comscore.com/sec.cfm?SortOrder=Type%20Ascending&DocType=&DocTypeExclude=&Year=