Vidalia: Towards a Usable Tor GUI

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ABSTRACT

Tor is a popular tool for online anonymity that currently does not have a standard graphical user interface. We present Vidalia, an open source, cross-platform GUI for Tor. We discuss some of the design decisions we have made in Vidalia, as well as what we have found users expect in a Tor GUI.

1. INTRODUCTION

Tor [1] is a system designed to allow users to anonymously communicate on the Internet, such as browsing the Web or chatting on IRC. The Tor software itself usually runs in the background as a daemon process on the user's computer and does not have a user interface beyond its log files.

Vidalia was initially developed for a Tor GUI design competition in 2006, and is intended to provide a simple, easy-to-use interface for Tor. We wanted to create an interface that simplifies the process of setting up and managing Tor, and gives interested users the ability to learn more about what their Tor process is doing and where their traffic is going.

Vidalia has been publicly available under the GNU General Public License since March 2006. Based on download statistics, we estimate Vidalia currently has tens of thousands of users. Here we discuss some of the design decisions we have made in Vidalia and some lessons we learned during Vidalia's on-going development.

2. VIDALIA

The Tor software is highly portable and we felt that a viable Tor GUI must also support as many platforms as possible. We chose to develop Vidalia in C++ using the Qt GUI toolkit [2], which enabled us to more easily build a cross-platform application that uses native interface widgets on many platforms and window managers, including Windows, Mac OS X, Gnome and KDE.

Due to space limitations, we have omitted actual screenshots of Vidalia's interface. Instead, interested readers can find current screenshots on our website at `www.vidalia-project.net`.

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2.1 Installation

To simplify installation and configuration of the applications most commonly used in conjunction with Tor, we provide a "bundled" installation package for Windows that includes Vidalia, Tor, Privoxy, and Torbutton pre-configured to work together. Privoxy is an HTTP proxy that can filter out potentially harmful HTML features, such as Javascript. Torbutton is a very simple Firefox extension that lets users quickly enable or disable their Web browser's use of Tor. We also provide a similar bundle for Mac OS X, but it does not currently include Torbutton.

We have not yet had any requests for similar bundled installers on other platforms, likely because users of Linux or other Unix variants often appear to be more comfortable installing and configuring software packages.

2.2 Main Interface

Vidalia launches Tor as a background process and places an onion-shaped icon in the user's system tray or dock that changes color to indicate Tor's status. A green onion indicates Tor is running, a dark onion with a red 'X' indicates Tor is not running, and red or yellow onions represent intermediate states. A tooltip is displayed if the user mouses over the tray icon and gives a text description of Tor's status. The user can click the icon to bring up a menu of additional actions, such as viewing the status of their anonymous connections.

Windows users are accustomed to looking to their system tray for application icons or status indicators. We found the unobtrusive tray icon to be preferable to the large command prompt window that typically appears when Tor is run on Windows without Vidalia[1].

There were, however, several problems with relying on only a tray icon for the primary application interface. Windows tray icons are limited to only 16×16 pixels and it was sometimes difficult for users to identify what Vidalia's tray icon indicated, or even that the icon is an onion. We also found users on platforms other than Windows were not accustomed to looking for an icon in their system's notification area and might not initially notice Vidalia was even running. Some window managers, such as Enlightenment, by default do not have *any* form of a system tray.

[1]Windows NT/2000/XP users can run Tor in the background as a Windows service, but properly configuring Tor as a service is often challenging for novice users.

We recently added a "control panel" dialog that appears when Vidalia is first run. The control panel contains links to other commonly accessed Vidalia features, much like the tray menu. The dialog also displays a larger onion icon to more clearly indicate Tor's status, along with a more detailed text description. On platforms that do have a system tray, the user can optionally start Vidalia with the control panel hidden.

2.3 Network Visualization

The primary interest of most users is in whether or not their application traffic is being anonymized through Tor, but we have found many users are also interested in *where* their traffic is going. To answer both questions, we added a dialog that displays the status of the user's anonymous connections and plots their paths on a map of the world. The network map also makes it clearer to users that Tor differs from a simple one-hop proxy, since they can see the multiple hops their traffic takes as it traverses the Tor network.

A common feature request from users is the ability to customize their paths through the Tor network. For example, some users want to be able to route their traffic through only the highest-bandwidth Tor servers, or force their traffic to appear to originate from a specific country. Tor has a fairly complex algorithm for choosing paths through the network that attempts to balance anonymity, application performance, and network load. Consequently, we decided not to implement features that let users significantly alter Tor's path selection, due to the negative effects they can easily have on the user's anonymity and the Tor network.

2.4 Running a Server

The Tor network is composed of hundreds of servers run by volunteers around the world. We wanted to make it easy for users to contribute to the Tor network by simplifying the process of setting up a Tor server. Vidalia's control panel has a button labeled "Setup Relaying" that takes users to a dialog that helps them set up their own Tor server. Users can then simply click a checkbox labeled "Relay traffic for the Tor network" and Vidalia will configure Tor to act as a server using sensible defaults.

Optionally, users can further define how their server should behave. Users can select the approximate speed of their own network connection and Vidalia will choose a reasonable bandwidth limit for their server. There is also a small set of checkboxes for common Internet services, such as "Websites" and "Instant Messaging", that users can check or uncheck to allow or disallow access to those resources from their server. Vidalia will then set Tor's *exit policy* according to the checkboxes.

2.5 Message Log

Tor's own method of communicating with the user is via log messages, many of which may not make sense to the user. Unfortunately, we find the terse log messages to still be a "necessary evil" since they can provide the best information to developers when users ask for troubleshooting support on Tor's mailing list or IRC channel.

Vidalia attempts to make dealing with Tor's logs a little more palpable for novice users by displaying log messages in a more user-friendly table that can be sorted, searched and filtered based on message severity. Important messages are highlighted depending on their severity, with critical *error* messages appearing in red and less important *warning* messages appearing in yellow. Log messages can also be saved to a file or copied and pasted into other applications, which has been useful for users when they are seeking assistance.

2.6 Internationalization

We have found that good support for multiple languages is an important component of a Tor GUI, since many of Tor's users are not native English speakers. Vidalia currently supports 12 languages in addition to English, and all translations have been contributed by Vidalia users. Designing the interface with translators in mind has also helped us keep the user-visible strings simple and avoid Tor-specific jargon. As an example, the "New Identity" button was initially labeled "New Nym", but "nym" did not translate well to other languages.

3. FUTURE IMPROVEMENTS

3.1 Improved Status Notifications

Recent versions of Tor have the ability to notify GUIs of important status updates, such as when one of the user's applications may be using an unsafe version of the SOCKS protocol that could leak the destination of the application's "anonymous" connection. Currently, such notifications appear only in the message log, which the user may not notice.

We want to make Vidalia aware of these events and be able to present them more prominently to the user, without being too obtrusive. On platforms that support system tray icons, we might have a message bubble appear near the tray icon letting the user know about important Tor status changes or events. For other systems without standard system notification areas, a simple message box will likely have to suffice.

3.2 Tighter Application Integration

While our bundled installation packages make installing and configuring the multiple software packages typically used with Tor nearly trivial, we have found it can be confusing to users *why* each component is useful. Some users mistakenly think Vidalia is the application that actually provides their anonymity, while others do not understand the added security Privoxy can provide.

It may be much simpler from the user's perspective if we combined Vidalia, Tor and Privoxy into a single application. A good first step would be for Vidalia to launch and manage Privoxy, much like it currently does for Tor.

Acknowledgments

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4. REFERENCES

[1] R. Dingledine, N. Mathewson, and P. Syverson. Tor: The second-generation onion router. In *Proceedings of the 13th USENIX Security Symposium*, August 2004.

[2] Trolltech. Qt GUI toolkit. `http://www.trolltech.com/products/qt/`.