November 15, 2011

Broadcasting Board of Governors
International Broadcasting Bureau
Office of Engineering
Cohen Building, Room 4300
330 Independence Avenue, SW
Washington, DC 20237
Attn: Malita Dyson

Dear Ms. Dyson,

Below is our 42nd invoice for contract number BBGCON1808C6700, Accounting Appropriation Data 9568-08-0206-E009701048A.

There are no travel costs. Services rendered include blocking resistance architecture and testing, scalability and promotion and advocacy for the Tor network, and other detailed tasks under 0001 of our contract as confirmed in our status reports to BBG.

Please do not hesitate to email me at andrew@torproject.org or call me at [redacted] if there are any questions.

Invoice 42:

Period	Months	Rate	Cost
09/17/2011 - 10/17/2011	1	$15,000	$15,000

Thank you.
Sincerely,

Andrew Lewman
Executive Director

TorProject Invoice BBG11152011

May 31, 2011

Broadcasting Board of Governors
International Broadcasting Bureau
Office of Engineering
Cohen Building, Room 4300
330 Independence Avenue, SW
Washington, DC 20237
Attn: Malita Dyson

Dear Ms. Dyson,

Below is our thirty-sixth invoice for contract number BBGCON1808C6700, Accounting Appropriation Data 9568-08-0206-E009701048A.

There are no travel costs. Services rendered include blocking resistance architecture and testing, scalability and promotion and advocacy for the Tor network, and other detailed tasks under 0001 of our contract as confirmed in our status reports to BBG.

Please do not hesitate to email me at andrew@torproject.org or call me at [redacted] if there are any questions.

Invoice 36:

Period	Months	Rate	Cost
03/17/2011 - 04/17/2011	1	$15,000	$15,000

Thank you.
Sincerely,

Andrew Lewman
Executive Director

TorProject Invoice BBG05312011

From: Andrew Lewman, Executive Director
To: Kelly DeYoe, program officer, BBG
RE: contract BBGCON1807S6441
Date: May 7, 2011

This report documents progress in April 2011 on contract BBGCON1807S6441 between BBG and The Tor Project.

C 2.0. New releases, new hires, new funding

New Releases

1. On April 8, we released Tor 0.2.2.24-alpha. Tor 0.2.2.24-alpha fixes a variety of bugs, including a big bug that prevented Tor clients from effectively using "multihomed" bridges, that is, bridges that listen on multiple ports or IP addresses so users can continue to use some of their addresses even if others get blocked.

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o Major bugfixes:
  - Fix a bug where bridge users who configure the non-canonical
    address of a bridge automatically switch to its canonical
    address. If a bridge listens at more than one address, it should be
    able to advertise those addresses independently and any non-blocked
    addresses should continue to work. Bugfix on Tor 0.2.0.x. Fixes
    bug 2510.
  - If you configured Tor to use bridge A, and then quit and
    configured Tor to use bridge B instead, it would happily continue
    to use bridge A if it's still reachable. While this behavior is
    a feature if your goal is connectivity, in some scenarios it's a
    dangerous bug. Bugfix on Tor 0.2.0.1-alpha; fixes bug 2511.
  - Directory authorities now use data collected from their own
    uptime observations when choosing whether to assign the HSDir flag
    to relays, instead of trusting the uptime value the relay reports in
    its descriptor. This change helps prevent an attack where a small
    set of nodes with frequently-changing identity keys can blackhole
    a hidden service. (Only authorities need upgrade; others will be
    fine once they do.) Bugfix on 0.2.0.10-alpha; fixes bug 2709.

o Minor bugfixes:
  - When we restart our relay, we might get a successful connection
    from the outside before we've started our reachability tests,
    triggering a warning: "ORPort found reachable, but I have no
```

routerinfo yet. Failing to inform controller of success." This bug was harmless unless Tor is running under a controller like Vidalia, in which case the controller would never get a REACHABILITY_SUCCEEDED status event. Bugfix on 0.1.2.6-alpha; fixes bug 1172.
- Make directory authorities more accurate at recording when relays that have failed several reachability tests became unreachable, so we can provide more accuracy at assigning Stable, Guard, HSDir, etc flags. Bugfix on 0.2.0.6-alpha. Resolves bug 2716.
- Fix an issue that prevented static linking of libevent on some platforms (notably Linux). Fixes bug 2698; bugfix on versions 0.2.1.23/0.2.2.8-alpha (the versions introducing the --with-static-libevent configure option).
- We now ask the other side of a stream (the client or the exit) for more data on that stream when the amount of queued data on that stream dips low enough. Previously, we wouldn't ask the other side for more data until either it sent us more data (which it wasn't supposed to do if it had exhausted its window!) or we had completely flushed all our queued data. This flow control fix should improve throughput. Fixes bug 2756; bugfix on the earliest released versions of Tor (svn commit r152).
- Avoid a double-mark-for-free warning when failing to attach a transparent proxy connection. (We thought we had fixed this in 0.2.2.23-alpha, but it turns out our fix was checking the wrong connection.) Fixes bug 2757; bugfix on 0.1.2.1-alpha (the original bug) and 0.2.2.23-alpha (the incorrect fix).
- When warning about missing zlib development packages during compile, give the correct package names. Bugfix on 0.2.0.1-alpha.

o Minor features:
- Directory authorities now log the source of a rejected POSTed v3 networkstatus vote.
- Make compilation with clang possible when using --enable-gcc-warnings by removing two warning options that clang hasn't implemented yet and by fixing a few warnings. Implements ticket 2696.
- When expiring circuits, use microsecond timers rather than one-second timers. This can avoid an unpleasant situation where a circuit is launched near the end of one second and expired right near the beginning of the next, and prevent fluctuations in circuit timeout values.
- Use computed circuit-build timeouts to decide when to launch parallel introduction circuits for hidden services. (Previously, we would retry after 15 seconds.)
- Update to the April 1 2011 Maxmind GeoLite Country database.

o Packaging fixes:
- Create the /var/run/tor directory on startup on OpenSUSE if it is not already created. Patch from Andreas Stieger. Fixes bug 2573.

o Documentation changes:
- Modernize the doxygen configuration file slightly. Fixes bug 2707.
- Resolve all doxygen warnings except those for missing documentation. Fixes bug 2705.
- Add doxygen documentation for more functions, fields, and types.

2. On April 29, we released Tor 0.2.25-alpha. Tor 0.2.2.25-alpha fixes many bugs: hidden service clients are more robust, routers no longer overreport their bandwidth, Win7 should crash a little less, and NEWNYM (as used by Vidalia's "new identity" button) now prevents hidden service-related activity from being linkable. It provides more information to Vidalia so you can see if your bridge is working. Also, 0.2.2.25-alpha revamps the Entry/Exit/ExcludeNodes and StrictNodes configuration options to make them more reliable, more understandable, and more regularly applied. If you use those options, please see the revised documentation for them in the manual page.

o Major bugfixes:
- Relays were publishing grossly inflated bandwidth values because they were writing their state files wrong--now they write the correct value. Also, resume reading bandwidth history from the state file correctly. Fixes bug 2704; bugfix on 0.2.2.23-alpha.
- Improve hidden service robustness: When we find that we have extended a hidden service's introduction circuit to a relay not listed as an introduction point in the HS descriptor we currently have, retry with an introduction point from the current descriptor. Previously we would just give up. Fixes bugs 1024 and 1930; bugfix on 0.2.0.10-alpha.
- Clients now stop trying to use an exit node associated with a given destination by TrackHostExits if they fail to reach that exit node. Fixes bug 2999. Bugfix on 0.2.0.20-rc.
- Fix crash bug on platforms where gmtime and localtime can return NULL. Windows 7 users were running into this one. Fixes part of bug 2077. Bugfix on all versions of Tor. Found by boboper.

o Security and stability fixes:
- Don't double-free a parsable, but invalid, microdescriptor, even if it is followed in the blob we're parsing by an unparsable microdescriptor. Fixes an issue reported in a comment on bug 2954. Bugfix on 0.2.2.6-alpha; fix by "cypherpunks".
- If the Nickname configuration option isn't given, Tor would pick a nickname based on the local hostname as the nickname for a relay. Because nicknames are not very important in today's Tor and the

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    "Unnamed" nickname has been implemented, this is now problematic
    behavior: It leaks information about the hostname without being
    useful at all. Fixes bug 2979; bugfix on 0.1.2.2-alpha, which
    introduced the Unnamed nickname. Reported by tagnaq.
  - Fix an uncommon assertion failure when running with DNSPort under
    heavy load. Fixes bug 2933; bugfix on 0.2.0.1-alpha.
  - Avoid linkability based on cached hidden service descriptors: forget
    all hidden service descriptors cached as a client when processing a
    SIGNAL NEWNYM command. Fixes bug 3000; bugfix on 0.0.6.

o Major features:
  - Export GeoIP information on bridge usage to controllers even if we
    have not yet been running for 24 hours. Now Vidalia bridge operators
    can get more accurate and immediate feedback about their
    contributions to the network.

o Major features and bugfixes (node selection):
  - Revise and reconcile the meaning of the ExitNodes, EntryNodes,
    ExcludeEntryNodes, ExcludeExitNodes, ExcludeNodes, and StrictNodes
    options. Previously, we had been ambiguous in describing what
    counted as an "exit" node, and what operations exactly "StrictNodes
    0" would permit. This created confusion when people saw nodes built
    through unexpected circuits, and made it hard to tell real bugs from
    surprises. Now the intended behavior is:
      . "Exit", in the context of ExitNodes and ExcludeExitNodes, means
        a node that delivers user traffic outside the Tor network.
      . "Entry", in the context of EntryNodes, means a node used as the
        first hop of a multihop circuit. It doesn't include direct
        connections to directory servers.
      . "ExcludeNodes" applies to all nodes.
      . "StrictNodes" changes the behavior of ExcludeNodes only. When
        StrictNodes is set, Tor should avoid all nodes listed in
        ExcludeNodes, even when it will make user requests fail. When
        StrictNodes is *not* set, then Tor should follow ExcludeNodes
        whenever it can, except when it must use an excluded node to
        perform self-tests, connect to a hidden service, provide a
        hidden service, fulfill a .exit request, upload directory
        information, or fetch directory information.
    Collectively, the changes to implement the behavior fix bug 1090.
  - ExcludeNodes now takes precedence over EntryNodes and ExitNodes: if
    a node is listed in both, it's treated as excluded.
  - ExcludeNodes now applies to directory nodes -- as a preference if
    StrictNodes is 0, or an absolute requirement if StrictNodes is 1.
    Don't exclude all the directory authorities and set StrictNodes to 1
    unless you really want your Tor to break.
```

- ExcludeNodes and ExcludeExitNodes now override exit enclaving.
- ExcludeExitNodes now overrides .exit requests.
- We don't use bridges listed in ExcludeNodes.
- When StrictNodes is 1:
  . We now apply ExcludeNodes to hidden service introduction points and to rendezvous points selected by hidden service users. This can make your hidden service less reliable: use it with caution!
  . If we have used ExcludeNodes on ourself, do not try relay reachability self-tests.
  . If we have excluded all the directory authorities, we will not even try to upload our descriptor if we're a relay.
  . Do not honor .exit requests to an excluded node.
- Remove a misfeature that caused us to ignore the Fast/Stable flags when ExitNodes is set. Bugfix on 0.2.2.7-alpha.
- When the set of permitted nodes changes, we now remove any mappings introduced via TrackExitHosts to now-excluded nodes. Bugfix on 0.1.0.1-rc.
- We never cannibalize a circuit that had excluded nodes on it, even if StrictNodes is 0. Bugfix on 0.1.0.1-rc.
- Revert a change where we would be laxer about attaching streams to circuits than when building the circuits. This was meant to prevent a set of bugs where streams were never attachable, but our improved code here should make this unnecessary. Bugfix on 0.2.2.7-alpha.
- Keep track of how many times we launch a new circuit to handle a given stream. Too many launches could indicate an inconsistency between our "launch a circuit to handle this stream" logic and our "attach this stream to one of the available circuits" logic.
- Improve log messages related to excluded nodes.

o Minor bugfixes:
- Fix a spurious warning when moving from a short month to a long month on relays with month-based BandwidthAccounting. Bugfix on 0.2.2.17-alpha; fixes bug 3020.
- When a client finds that an origin circuit has run out of 16-bit stream IDs, we now mark it as unusable for new streams. Previously, we would try to close the entire circuit. Bugfix on 0.0.6.
- Add a forgotten cast that caused a compile warning on OS X 10.6. Bugfix on 0.2.2.24-alpha.
- Be more careful about reporting the correct error from a failed connect() system call. Under some circumstances, it was possible to look at an incorrect value for errno when sending the end reason. Bugfix on 0.1.0.1-rc.
- Correctly handle an "impossible" overflow cases in connection byte counting, where we write or read more than 4GB on an edge connection in a single second. Bugfix on 0.1.2.8-beta.

- Correct the warning displayed when a rendezvous descriptor exceeds the maximum size. Fixes bug 2750; bugfix on 0.2.1.5-alpha. Found by John Brooks.
- Clients and hidden services now use HSDir-flagged relays for hidden service descriptor downloads and uploads even if the relays have no DirPort set and the client has disabled TunnelDirConns. This will eventually allow us to give the HSDir flag to relays with no DirPort. Fixes bug 2722; bugfix on 0.2.1.6-alpha.
- Downgrade "no current certificates known for authority" message from Notice to Info. Fixes bug 2899; bugfix on 0.2.0.10-alpha.
- Make the SIGNAL DUMP control-port command work on FreeBSD. Fixes bug 2917. Bugfix on 0.1.1.1-alpha.
- Only limit the lengths of single HS descriptors, even when multiple HS descriptors are published to an HSDir relay in a single POST operation. Fixes bug 2948; bugfix on 0.2.1.5-alpha. Found by hsdir.
- Write the current time into the LastWritten line in our state file, rather than the time from the previous write attempt. Also, stop trying to use a time of -1 in our log statements. Fixes bug 3039; bugfix on 0.2.2.14-alpha.
- Be more consistent in our treatment of file system paths. "~" should get expanded to the user's home directory in the Log config option. Fixes bug 2971; bugfix on 0.2.0.1-alpha, which introduced the feature for the -f and --DataDirectory options.

o Minor features:
- Make sure every relay writes a state file at least every 12 hours. Previously, a relay could go for weeks without writing its state file, and on a crash could lose its bandwidth history, capacity estimates, client country statistics, and so on. Addresses bug 3012.
- Send END_STREAM_REASON_NOROUTE in response to EHOSTUNREACH errors. Clients before 0.2.1.27 didn't handle NOROUTE correctly, but such clients are already deprecated because of security bugs.
- Don't allow v0 hidden service authorities to act as clients. Required by fix for bug 3000.
- Ignore SIGNAL NEWNYM commands on relay-only Tor instances. Required by fix for bug 3000.
- Ensure that no empty [dirreq-](read|write)-history lines are added to an extrainfo document. Implements ticket 2497.

o Code simplification and refactoring:
- Remove workaround code to handle directory responses from servers that had bug 539 (they would send HTTP status 503 responses _and_ send a body too). Since only server versions before 0.2.0.16-alpha/0.1.2.19 were affected, there is no longer reason to keep the workaround in place.

- Remove the old 'fuzzy time' logic. It was supposed to be used for handling calculations where we have a known amount of clock skew and an allowed amount of unknown skew. But we only used it in three places, and we never adjusted the known/unknown skew values. This is still something we might want to do someday, but if we do, we'll want to do it differently.
- Avoid signed/unsigned comparisons by making SIZE_T_CEILING unsigned. None of the cases where we did this before were wrong, but by making this change we avoid warnings. Fixes bug 2475; bugfix on 0.2.1.28.
- Use GetTempDir to find the proper temporary directory location on Windows when generating temporary files for the unit tests. Patch by Gisle Vanem.

3. On April 10, we released Vidalia 0.2.12. We'd also like to congratulate Tomás Touceda on his first release and thank him for all his work and patience in getting this out!

   o Vidalia's SVN repository has been migrated to Git. All branches but master have been archived for later review, since SVN trunk had changed significantly; they should be reviewed later to determine whether they can and should still be merged. All \version Id headers have been removed since Git does not support Id.
   o As part of the move, Vidalia's Trac is now at:
     https://trac.torproject.org/
     All Trac numbers in Vidalia 0.2.12 and beyond refer to the new Trac entries. The old Trac is archived for posterity at:
     https://trac-vidalia.torproject.org/projects/vidalia
   o Add support for Tor's ControlSocket as an alternative to ControlPort. It can be used for Linux maintainers to build a better default interaction between Tor and Vidalia by just setting the right permissions and file owner on the socket file for the connection. Using ControlSocket means you don't need to worry about authentication methods with ControlPort. Resolves bug 2091.
   o Add a way to edit arbitrary torrc entries while Tor is running. Now Vidalia users have more flexibility for configuring Tor. This change doesn't replace editing torrc directly, because on some systems (like Debian) Tor can't write to its torrc file. Resolves bug 2083.
   o Remove Vidalia's direct dependency on OpenSSL. This dependency had caused Vidalia to fail to run on FreeBSD (due to a bug in the FreeBSD ports collection) and Fedora 14 (due to an incompatibility between OpenSSL and Fedora's SELinux configuration). Resolves bug 2287 and 2611.
   o Restore compatibility with Windows 2000. An update to the MiniUPnPc library had introduced an unnecessary dependency on a system library not included in Windows 2000. Fixes bug 2612.
   o Fix how the advanced message log window displays message updates when messages are coming in too quickly, for example when you're listening

```
    to debug-level messages from Tor. Fixes bug 2093.
  o Add a what's this? link to the bridge option to explain in a more verbose
    fashion what being a bridge involves. Resolves bug 1995.
  o Prompt users to restart Tor after changing the path to torrc. Fixes bug
    2086.
  o Disable the directory port configuration field when configuring a
    bridge. A bridge does not need to operate a separate directory port,
    and operating one can make a bridge easier to detect. Fixes bug 2431.
  o When Vidalia asks Tor for a bridge's usage history before anyone has
    used it, correctly report that no clients have used the bridge recently.
    Previously, it would incorrectly warn that it was unable to retrieve the
    bridge's usage history. Fixes bug 2186.
```

4. On April 6, TAILS 0.7 anonymous operating system was released.

```
  * Hardware support
  - Install foomatic-filters-ppds to support more printers.
  - Give the default user the right to manage printers.

  * Software
  - Deinstall unwanted packages newly pulled by recent live-build.

 -- Tails developers [redacted (b)(6)]  Wed, 06 Apr 2011 22:58:51 +0200

tails (0.7~rc2) unstable; urgency=low

  ** SNAPSHOT build @824f39248a08f9e190146980fb1eb0e55d483d71 **

  * Rebase on Debian Squeeze 6.0.1 point-release.

  * Vidalia: new 0.2.10-3+tails5 custom package..

  * Hardware support
  - Install usb-modeswitch and modemmanager to support mobile broadband
    devices such as 3G USB dongles. Thanks to Marco A. Calamari for the
    suggestion.

  * Misc
  - Website relocated to https://tails.boum.org/ => adapt various places.
  - Configure keyboard layout accordingly to the chosen language for
    Italian and Portuguese.

 -- Tails developers [redacted (b)(6)]  Fri, 25 Mar 2011 15:44:25 +0100

tails (0.7~rc1) UNRELEASED; urgency=low
```

```
** SNAPSHOT build @98987f111fc097a699b526eeaef46bc75be5290a **

* Rebase on Debian Squeeze.

* T(A)ILS has been renamed to Tails.

* Protecting against memory recovery
  New, safer way to wipe memory on shutdown which is now also used when
  the boot media is physically removed.

* Tor
- Update to 0.2.1.30-1.

* Iceweasel
- Add HTTPS Everywhere 0.9.4 extension.
- Better preserve Anonymity Set: spoof US English Browser and timezone
  the same way as the Tor Browser Bundle, disable favicons and picture
  iconification.
- Install AdBlock Plus extension from Debian.
- Add Tor-related bookmarks.
- Support FTP, thanks to FoxyProxy.
- Update AdBlock patterns.
- Disable geolocation and the offline cache.

* Software
- Update Vidalia to 0.2.10-3+tails4.
- Install gnome-disk-utility (Palimpsest) and Seahorse plugins.
- Add opt-in i2p support with Iceweasel integration through FoxyProxy.
- onBoard: fix "really quits when clicking the close window icon" bug.
- Optionally install TrueCrypt at boot time.
- Install laptop-mode-tools for better use of battery-powered hardware.
- Replace xsane with simple-scan which is part of GNOME and way easier
  to use.
- Upgrade WhisperBack to 1.3.1 (bugfixes, French translation).
- Install scribus-ng instead of scribus. It is far less buggy in Squeeze.

* Firewall
- Drop incoming packets by default.
- Forbid queries to DNS resolvers on the LAN.
- Set output policy to drop (defense-in-depth).

* Hardware support
- Install Atheros and Broadcom wireless firmwares.
- Install libsane-hpaio and sane-utils, respectively needed for
  multi-function peripherals and some SCSI scanners.
```

```
  * live-boot 2.0.15-1+tails1.35f1a14
  - Cherry-pick our fromiso= bugfixes from upstream 3.x branch.

  * Miscellaneous
  - Many tiny user interface improvements.
  - More robust HTP time synchronization wrt. network failures.
    Also, display the logs when the clock synchronization fails.
  - Disable GNOME automatic media mounting and opening to protect against
    a class of attacks that was recently put under the spotlights.
    Also, this feature was breaking the "no trace is left on local
    storage devices unless explicitly asked" part of Tails specification.
  - Make configuration more similar to the Tor Browser Bundle's one.
  - GnuPG: default to stronger digest algorithms.
  - Many more or less proper hacks to get the built image size under 700MB.
  - Compress the initramfs using LZMA for faster boot.

  * Build system
  - Run lb build inside eatmydata fsync-less environment to greatly improve
    build time.

 -- Tails developers [redacted]  Fri, 11 Mar 2011 15:52:19 +0100
```

5. On April 30, TAILS 0.7.1 anonymous operating system was released.

```
Vidalia: new 0.2.12-2+tails1 custom package.

  * Iceweasel
  - Don't show Foxyproxy's status / icon in FF statusbar to prevent users
    from accidentaly / unconsciously put their anonymity at risk.
  - "amnesia branding" extension: bump Iceweasel compatibility to 4.0 to ease
    development of future releases.

  * Software
  - Upgrade Linux kernel to Debian's 2.6.32-33: fixes tons of bugs,
    including the infamous missing mouse cursor one. Oh, and it closes
    a few security holes at well.
  - Install unrar-free.
  - Do not install pppoeconf (superseeded by NetworkManager).
  - Upgrade macchanger to Debian testing package to ease development of
    future Tails releases.
  - Debian security upgrades: x11-xserver-utils (DSA-2213-1), isc-dhcp
    (DSA-2216-1), libmodplug (DSA-2226-1), openjdk-6 (DSA-2224-1).

  * Protecting against memory recovery
```

```
- Add Italian translation for tails-kexec. Thanks to Marco A. Calamari.
- Make it clear what it may mean if the system does not power off
  automatically.
- Use kexec's --reset-vga option that might fix display corruption issues
  on some hardware.

* WhisperBack (encrypted bug reporting software)
- Upgrade WhisperBack to 1.4.1:
  localizes the documentation wiki's URL,
  uses WebKit to display the bug reporting help page,
  now is usable on really small screens.
- Extract wiki's supported languages at build time, save this
  information to /etc/amnesia/environment, source this file into the
  Live user's environment so that WhisperBack 1.4+ can make good use
  of it.

* Miscellaneous
- Fix boot in Chinese.
- Install mobile-broadband-provider-info for better 3G support.
- Add back GNOME system icons to menus.
- tails-security-check: avoid generating double-slashes in the Atom
  feeds URL.
- Remove "vga=788" boot parameter which breaks the boot on some hardware.
- Remove now useless "splash" boot parameter.
- Fix a bunch of i386-isms.
- Pass the noswap option to the kernel. This does not change actual Tails
  behaviour but prevents users from unnecessarily worrying because of
  the "Activating swap" boot message.
- Make use of check.torproject.org's Arabic version.

* Build system
- Enable squeeze-backports. It is now ready and will be used soon.
- Install eatmydata in the chroot.
- Convert ikiwiki setup files to YAML.
```

6. On April 12, Tor Browser Bundle for Windows, version 1.3.22 released.

   ```
   Update Vidalia to 0.2.12
   ```

7. On April 13, Tor Browser Bundle for Windows, version 1.3.23 released.

   ```
   Fix langpack mistake that made Firefox only use English
   ```

8. On April 30, Tor Browser Bundle for Windows, version 1.3.24 released.

   ```
   Update Firefox to 3.6.17
   ```

```
Update Libevent to 2.0.10-stable
Update zlib to 1.2.5
Update OpenSSL to 1.0.0d
```

9. On April 12, Tor Browser Bundle for Linux, version 1.1.7 released.

```
Update Tor to 0.2.2.24-alpha
Update Vidalia to 0.2.12
Update NoScript to 2.1.0.1
```

10. On April 30, Tor Browser Bundle for Linux, version 1.1.8 released.

```
Update Tor to 0.2.2.25-alpha
Update Firefox to 3.6.17
```

11. On April 11, Tor Browser Bunde for OSX, version 1.0.15 released.

```
Update Tor to 0.2.2.24-alpha
Update Vidalia to 0.2.12
Update NoScript to 2.1.0.1
```

12. On April 30, Tor Browser Bundle for OSX, version 1.0.16 released.

```
Update Tor to 0.2.2.25-alpha
Update Firefox to 3.6.17
```

13. On April 4, arm 1.4.2 was released. This one was focused on a full rewrite of the connection panel, improving its maintainability, performance, and (best of all) features. When rendered, the panel's baseline cpu usage is less than half of its previous incarnation, along with providing far more information... http://www.atagar.com/transfer/tmp/armScreenshot-1.4.2.png

```
- Full paths for your currently active Tor circuits
- Identification of the applications attached to your socks, hidden
  service, and control ports
- Identifying exit connections and the common uses for ports they're
  attached to
- Much better accuracy in identifying client and directory connections
- Expanded path information when there's space available (thanks to
  Fabian Keil)
... and many, many more enhancements and fixes. For the full list see:
http://www.atagar.com/arm/releaseNotes.php#1.4.2
Also, thanks to pyllyukko arm is now on slackbuilds.org so there's simple
install options available for:
Debian, Ubuntu, Gentoo, Arch Linux, and Slackware
As always, screenshots and downloads are available from the project's
homepage:
http://www.atagar.com/arm/
```

14. On April 28th, released libevent 2.0.11.

```
BUGFIXES:
 o Fix evport handling of POLLHUP and POLLERR (b42ce4b)
 o Fix compilation on Windows with NDEBUG (cb8059d)
 o Check for POLLERR, POLLHUP and POLLNVAL for Solaris event ports (0144886 Trond Norbye)
 o Detect and handle more allocation failures. (666b096 Jardel Weyrich)
 o Use event_err() only if the failure is truly unrecoverable. (3f8d22a Jardel Weyrich)
 o Handle resize failures in the select backend better. (83e805a)
 o Correctly free selectop fields when select_resize fails in select_init (0c0ec0b)
 o Make --enable-gcc-warnings a no-op if not using gcc (3267703)
 o Fix a type error in our (unused) arc4random_stir() (f736198)
 o Correctly detect and stop non-chunked http requests when the body is too long (63a715e)
 o Have event_base_gettimeofday_cached() always return wall-clock time (a459ef7)
 o Workaround for http crash bug 3078187 (5dc5662 Tomash Brechko)
 o Fix incorrect assertions and possible use-after-free in evrpc_free() (4b8f02f Christopł
 o Reset outgoing http connection when read data in idle state. (272823f Tomash Brechko)
 o Fix subtle recursion in evhttp_connection_cb_cleanup(). (218cf19 Tomash Brechko)
 o Fix the case when failed evhttp_make_request() leaved request in the queue. (0d6622e To
 o Fix a crash bug in evdns server circular list code (00e91b3)
 o Handle calloc failure in evdns. (Found by Dave Hart) (364291e)
 o Fix a memory leak on win32 socket->event map. (b4f89f0)
 o Add a forgotten NULL check to evhttp_parse_headers (12311ff Sebastian Hahn)
 o Fix possible NULL-deref in evdns_cancel_request (5208544 Sebastian Hahn)

PORTABILITY:
 o Fall back to sscanf if we have no other way to implement strtoll (453317b)
 o Build correctly on platforms without sockaddr_storage (9184563)
 o Try to build correctly on platforms with no IPv6 support (713c254)
 o Build on systems without AI_PASSIVE (cb92113)
 o Fix http unit test on non-windows platforms without getaddrinfo (6092f12)
 o Do not check for gethostbyname_r versions if we have getaddrinfo (c1260b0)
 o Include arpa/inet.h as needed on HPUX (10c834c Harlan Stenn)
 o Include util-internal.h as needed to build on platforms with no sockaddr_storage (bbf5
 o Check for getservbyname even if not on win32. (af08a94 Harlan Stenn)
 o Add -D_OSF_SOURCE to fix hpux builds (0b33479 Harlan Stenn)
 o Check for allocation failures in apply_socktype_protocol_hack (637d17a)
 o Fix the check for multicast or broadcast addresses in evutil_check_interfaces (1a21d7b)
 o Avoid a free(NULL) if out-of-memory in evdns_getaddrinfo. Found by Dave Hart (3417f68)

DEFENSIVE PROGRAMMING:
 o Add compile-time check for AF_UNSPEC==PF_UNSPEC (3c8f4e7)

BUGS IN TESTS:
 o Fix test.sh output on solaris (b4f89b6 Dave Hart)
 o Make test-eof fail with a timeout if we never get an eof. (05a2c22 Harlan Stenn)
```

```
 o Use %s with printf in test.sh (039b9bd)
 o Add an assert to appease clang's static analyzer (b0ff7eb Sebastian Hahn)
 o Add a forgotten return value check in the unit tests (3819b62 Sebastian Hahn)
 o Actually send NULL request in http_bad_request_test (b693c32 Sebastian Hahn)
 o add some (void) casts for unused variables (65707d7 Sebastian Hahn)
 o Refactor test_getaddrinfo_async_cancel_stress() (48c44a6 Sebastian Hahn)
 o Be nice and "handle" error return values in sample code (4bac793 Sebastian Hahn)
 o Check return value of evbuffer_add_cb in tests (93a1abb Sebastian Hahn)
 o Remote some dead code from dns-example.c (744c745 Sebastian Hahn)
 o Zero a struct sockaddr_in before using it (646f9fe Sebastian Hahn)

BUILD FIXES:
 o Fix warnings about AC_LANG_PROGRAM usage (f663112 Sebastian Hahn)
 o Skip check for zlib if we have no zlib.h (a317c06 Harlan Stenn)
 o Fix autoconf bracket issues; make check for getaddrinfo include netdb.h (833e5e9 Harlan
 o Correct an AM_CFLAGS to an AM_CPPFLAGS in test/Makefile.am (9c469db Dave Hart)
 o Fix make distcheck & installation of libevent 1 headers (b5a1f9f Dave Hart)
 o Fix compilation under LLVM/clang with --enable-gcc-warnings (ad9ff58 Sebastian Hahn)

FEATURES:
 o Make URI parser able to tolerate nonconformant URIs. (95060b5)

DOCUMENTATION:
 o Clarify event_set_mem_functions doc (926f816)
 o Correct evhttp_del_accept_socket documentation on whether socket is closed (f665924)
 o fix spelling mistake in whatsnew-2.0.txt (deb2f73)
 o Fix sample/http-server ipv6 fixes (eb692be)
 o Comment internal headers used in sample code. (4eb281c)
 o Be explicit about how long event loops run in event.h documentation (f95bafb)
 o Add comment to configure.in to explain gc-sections test logic (c621359)
 o Fix a couple of memory leaks in samples/http-server.c. Found by Dave Hart. (2e9f665)

BUILD IMPROVEMENTS:
 o Use the gcc -ffunction-segments feature to allow gc when linking with static libevent (
 o Add configure options to disable installation, regression tests (49e9bb7 Dave Hart)
```

C.2.1. Design, develop, and implement enhancements that make Tor a better tool for users in censored countries.

Tomás

- Started working on Vidalia-0.3.0-alpha:

```
- Re-integrate breakpad and add support for Linux/OSX, along with a
basic change on what to do with the memdumps.
```

```
- "Finish" the new GUI that is flexible enough to support the plug-in
interface that I plan to start working on pretty soon.
- Change the control password problem approach to something more user
friendly.
- Other changes in the sharing setting to allow explicitly setting a non-exit
relay and other minor changes.
```

- Work on a bootstrap option so that Erinn can build bridge-only portable packages for OSX.
- Fix some certificate problems with "Find Bridges".

Mike

- The blocking request redirect APIs for Google Chrome's WebRequest API landed in the experimental API set just prior to this iteration, so I decided to churn out a prototype of HTTPS-Everywhere for Chrome (2956). This was amazingly simple compared to the Firefox effort.
- Recategorized the Torbutton bugs into two groups: those for the toggle model, and those for the browser model (2952). If you have no idea what this means, read the blog post I wrote about moving towards proving Tor Browser Bundle as our only client software (2960).

C.2.2. Architecture and technical design docs for Tor enhancements related to blocking-resistance.

Karsten

- Extended metrics-db to extract v3 certificates from v3 votes which is necessary to verify the signatures on v3 consensuses without downloading the huge v3 vote tarballs (2786).
- Improved metrics-db to download all server and extra-info descriptors from the directory authorities once per day (2763). Turns out this didn't solve the problem that we're missing rejected descriptors or those that are not referenced in the consensus.
- Added GeoIP database to metrics-web to provide relay snapshots with geo data for Moritz Bartl (2512). Also used the data to add graphs on the number of relays by country.
- Improved the metrics website graph interface to show graphs on estimated user numbers for all countries in the GeoIP database (1636).
- Added a graph on bandwidth by relay flags to the metrics website (1634).
- Worked on the R code to process Torperf's new .mergedata format together with Tom (2687). Looks like we'll have to switch to Python for parsing the new .mergedata format.
- Measured Tor performance with custom circuit build timeouts and guard node selections together with Mike (2686).
- Wrote the first half of a bandwidth scanner specification (2861).
- Finished a first draft of the BridgeDB specification together with Nick (1606).

Roger

- Reviewed proposal 180 (modular transport), and helped push asn and nickm to get obfsproxy into git with a howto: `https://gitweb.torproject.org/obfsproxy.git/blob/HEAD:/doc/tor-obfs-howto.txt`

Nick

- Nick wrote up the status of IPv6 and Tor. `https://blog.torproject.org/blog/ipv6-future-i-hear`.
- Worked with George K (asn) to get obfsproxy refactored and testable. (Now it's testable! You can pull it from git, read its instructions, and go!)
- Roger and nick finished and merged the bug 1090 fix. This is a big deal: it resolves long-standing issues in our node selection logic and gives a sensible, consistent, and not-too-hard-to-explain meaning to the various *Nodes options. We've been working on this for a while, and it's a great relief to finally be done with it.

Christian

- Deployed a new version if BridgeDB. Most importantly, we now serve a Chinese translation via

  `bridges+zh_CN@torproject.org`

  and `https://bridges.torproject.org/zh_CN/`

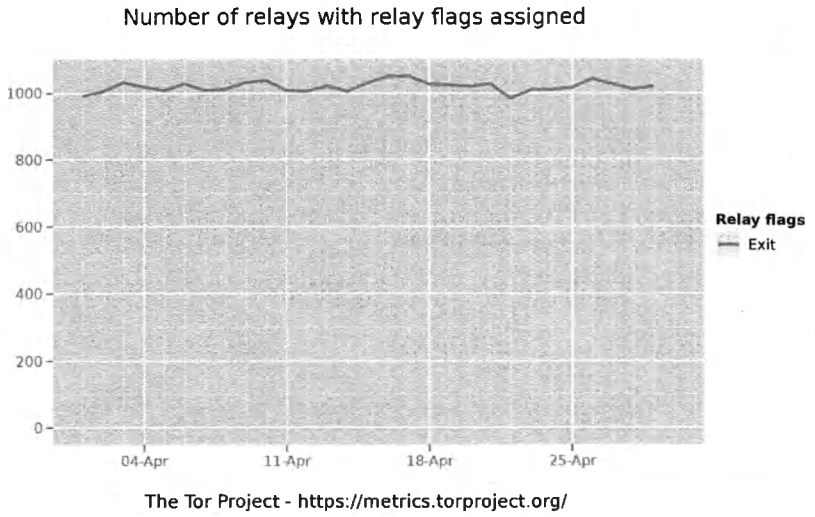
- Wrote a script that emails unallocated Bridges to Chinese activists daily.

C.2.5. Hide Tor's network signature.

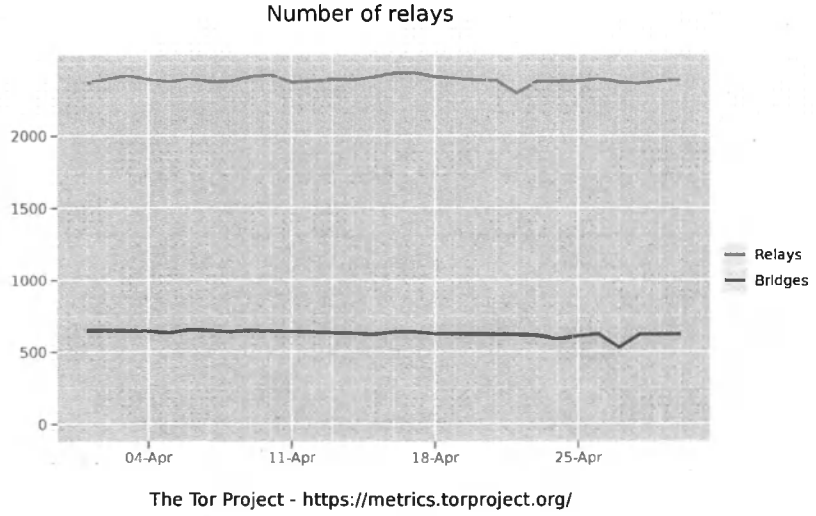
See the updates for pluggable transport and obsproxy in the section above.

C.2.10 Grow the Tor network and user base. Outreach.

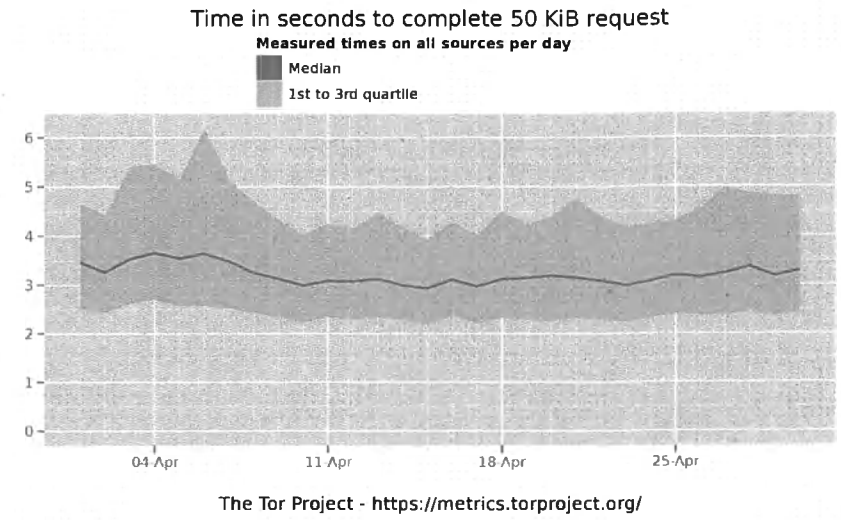
Measures of the Tor Network



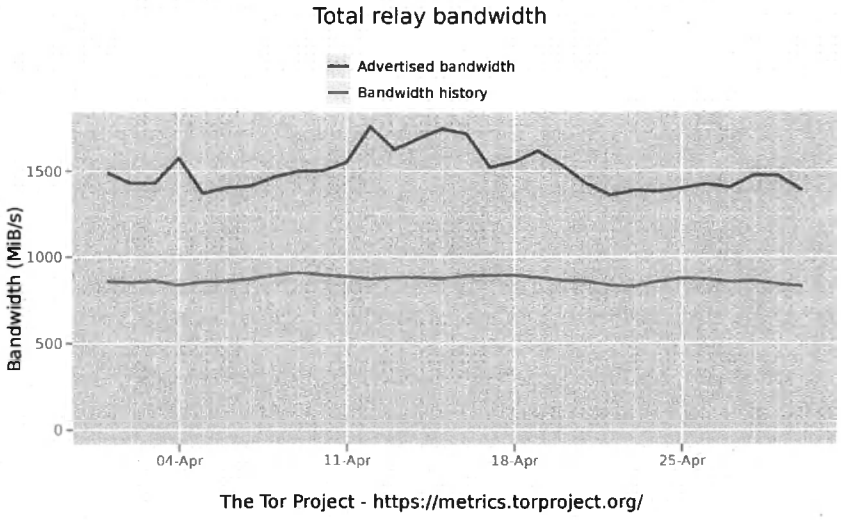
This graph shows the total quantity of exit relays in April 2011. We seem to have kept most of our relays since the bump due to Tunisia and Egypt.



This graph shows the total quantity of relays and the total quantity of bridges in April 2011. We seem to have kept most of our relays since the bump due to Tunisia and Egypt.



This graphs shows how many seconds it took to complete a 50KB download from a standard Tor client. This is an average of all measurements from servers located in Illinois, Massachusetts, and Sweden. Performance remains relatively steady at just under 4 seconds.



This graph shows the total available bandwidth available to clients and how much was actually used throughout the month. The steady-state of relays creates almost 1.5GBps (12.0 Gbps) of bandwidth available.

Outreach and Advocacy

1. Tomas Participated in the Build It! initiative, `https://openhatch.org/wiki/Build_it`. It went really well. We may have picked up a new OS X contributor for Vidalia.

2. Runa attended Security BSides London.

3. Jacob spoke on a panel at "The Future of Internet Freedom: Promoting Abroad...but Losing at Home?", https://www12.georgetown.edu/sfs/rsvp/index.cfm?Action=View&EventID=3324

4. Roger lectured at Berkeley, http://www.ischool.berkeley.edu/newsandevents/events/20110418dingledine.

5. Roger lectured at Stanford for Dan Boneh, http://crypto.stanford.edu/cs294s/.

6. Andrew spoke at the 1st Software And Usable Security Aligned for Good Engineering (SAUSAGE) Workshop, http://www.thei3p.org/events/sausage2011.html.

7. Andrew spoke at "Internet, Dissent and Authoritarianism: Control and Resistance in an Era of Social Media", http://chrchristensen.wordpress.com/2011/04/12/101/.

8. Jacob spoke at LinuxFest Northwest, http://www.linuxfestnorthwest.org/.

9. Jacob spoke at the SHARE conference in Belgrade, Serbia. http://www.shareconference.net/en/

10. Jacob responded to the Freedom House "Leaping over the Firewall" report with "Over the firewall and into the fire", http://advocacy.globalvoicesonline.org/2011/04/14/over-the-firewall-and-into-the-fire/

11. Karen talked to a government agency writing a report for Congress on companies that sell censorship and surveillance technology to Iran.

12. Nick spoke at the usenix LEET workshop about Tor's arms-race with censors. http://www.usenix.org/event/leet11/

13. Erinn gave a talk at the University of Split in Croatia.

C.2.11. Preconfigured privacy (circumvention) bundles for USB or LiveCD.

1. We suspended development and releases of the Tor Instant Messaging Browser Bundle due to security and privacy concerns with the included multi-protocol client called Pidgin. Thankfully the Pidgin team has responded with a number of fixes, http://developer.pidgin.im/ticket/11110, http://developer.pidgin.im/ticket/13928, http://developer.pidgin.im/ticket/13879.

2. Jacob did some investigation into the libpurple leaks in Adium, the Mac OS X chat client: http://trac.adium.im/ticket/15161

C.2.12 Bridge relay and bridge authority work.

1. Runa made some progress on the Tor web interface for the Excito B3 (2791). Getting started was a PITA due to lack of documentation and lots of trying and failing. However, I now have the following: a Tor page that has been added to the main menu, a button to disable or enable Tor, and three text fields that read and display the nickname, contact information and relay port from /etc/tor/torrc.

C.2.13. Scalability, load balancing, directory overhead, efficiency.

Sebastian

- Mostly worked on trying to get 0.2.2.x-blocking bugs fixed or at least reviewed so that others could fix them. The most notorious bugs were 1090, 2704 and 3000.
- Worked on getting Tor tested with more static analysis software, and found the clang analyzer. It is not totally mature yet, but found a couple of issues including real bugs for some configurations. I used it to scan libevent, and provided a few patches to fix them in time for the 2.0.11-stable release. The Tor fixes didn't go in to 0.2.2.x yet, but I hope that they soon will.
- I also ported Tor's configure enhancements for hardening etc over to libevent, which wasn't taken for 2.0.x so I will reroll it for 2.1.x.

Mike

- Worked on some Torperf experiments with Karsten (2958), and reviewed some Firefox source for future patches of Tor Browser (2951). A typo in the Torbutton install.rdf forced me to do a last-minute Torbutton release, which ended up taking 2 days of wall clock time instead of the last-minute that was allocated (3065).

Robert

- Investigated 2401, and determined that the client code's behaviour was correct. The only actual problem that led to that bug report was that the set of relays with the HSDir flag is not sufficiently stable; we need to release a fix for 2649 in a 0.2.2.x release in order to get it running on the non-developer-operated DAs and find out whether it helps.
- While investigating 2401, I found a serious security issue in the hidden service code which made the fact that the client-side hidden service descriptor cache is never cleared (3000) easy to exploit. All users who use a web browser through Tor should upgrade to Tor 0.2.2.25-alpha for the 3000 fix.
- Fixed 1930 (a long-standing reliability bug in the v2 hidden service directory code).
- Designed a way for Tor controllers that want to 'own' a Tor process (ensure that the Tor process ends when its controller does) to do so quite reliably. See 3049.

Nick

- Wrote up a couple of strawman designs for improved onionskin handshakes.
- Did some performance and feasibility testing and research with respect to ECC implementations. Curve25519-donna is looking pretty sweet.
- Did a big chunk of work to clean up Tor's internal Doxygen documentation.
- Finished the pluggable transport proposal and sent it to tor-dev. See `https://gitweb.torproject.org/torspec.git/blob/HEAD:/proposals/180-pluggable-transport.txt` for the full spec.
- Started getting Chutney ready include a network test framework in addition to a test network framework. Chutney is a tool that lets you configure and test a tor network for monitoring and testing. `https://gitweb.torproject.org/nickm/chutney.git/blob/HEAD:/README`.

C.2.14. Incentives work.

Nothing to report.

C.2.15. More reliable (e.g. split) download mechanism.

Nick and Erinn worked to get a thandy package format design finished.

C.2.16. Footprints from Tor Browser Bundle.

Nothing to report.

C.2.17 Translation work, ultimately a browser-based approach.

1. Sebastian, Tomás, and Runa worked on a patch to make the transifex-client verify SSL certificates. The patch works on Debian, but the Transifex developers want to find a solution that works on all systems, including Windows. Sebastian and Runa had a short discussion about the possibility of including the patch ourselves, rather than wait for Transifex to implement and roll out a solution. Once this problem is fixed, it will no longer block 2643.
2. #2811: Runa decided to drop translated manual pages.
3. #2713: Updated translation priorities for resources on Transifex.
4. #2894: Got my own Git repository and fixed translations for Vidalia.
5. #2932: Fixed a bug in the German translation of Vidalia.
6. #2896: Renamed the list of resources on Transifex to make it seem less messy.
7. #2898: Updated the path to gettor.pot on Transifex.

8. #2892: Added and fixed German .wmi files.

9. #2904: Added and fixed German .wmi files.

10. Update translations. (in translation/trunk/projects/torbutton-alpha/po: .tx af ak am arn ast az be bg bn bn_IN bo br bs csb cy da de dz eo eu fa fi fil fo fur fy ga gl gun ha he hi ht hu hy is ja jv ka km kn ko ku kw ky lb ln lo lt lv mg mi mk ml mn mr ms mt nah nap ne nn nso oc or pa pap pms ps sco sk sl so son sq sr st su sv sw ta te templates tg th ti tk uk ur ve wa wo zh_HK zu)

11. pulled updated .po files for Orbot from Transifex (in translation/trunk/projects/orbot/po: af ak am ar arn ast az be bg bn bn_IN ca cs csb cy da dz el eo es et eu fil fr fur ga gl gu gun ha he hi hr ht id is it kn kw lb ln lo lt lv mg mi mk ml mn mr ms mt my nap nb ne nl nn nso oc pa pap pl pms ps pt pt_BR ro ru sco son sw ta te tg th ti tk tr uk ve vi wa zh_CN zh_HK zh_TW zu)

12. updated Orbot translations (in projects/android/trunk/Orbot/res: values-ar values-ca values-de values-es values-fa values-mk values-nl values-pl values-ru values-zh)

13. new and updated translations for the website (in translation/trunk/projects/website/po: ar ar/about ar/docs ar/donate ar/download ar/getinvolved ar/press ar/projects ar/torbutton de de/about de/docs de/getinvolved es/about es/docs es/press es/projects fa/about fa/docs fa/download fa/projects it/about it/docs it/press it/projects my pl_PL/about pl_PL/docs pl_PL/projects ru/about ru/docs ru/press ru/projects zh_CN/about)

September 15, 2011

Broadcasting Board of Governors
International Broadcasting Bureau
Office of Engineering
Cohen Building, Room 4300
330 Independence Avenue, SW
Washington, DC 20237
Attn: Malita Dyson

Dear Ms. Dyson,

Below is our fortieth invoice for contract number BBGCON1808C6700, Accounting Appropriation Data 9568-08-0206-E009701048A.

There are no travel costs. Services rendered include blocking resistance architecture and testing, scalability and promotion and advocacy for the Tor network, and other detailed tasks under 0001 of our contract as confirmed in our status reports to BBG.

Please do not hesitate to email me at andrew@torproject.org or call me at [redacted] if there are any questions.

Invoice 40:

Period	Months	Rate	Cost
07/17/2011 - 08/17/2011	1	$15,000	$15,000

Thank you.
Sincerely,

Andrew Lewman
Executive Director

TorProject Invoice BBG09152011

From: Andrew Lewman, Executive Director
To: Kelly DeYoe, program officer, BBG
RE: contract BBGCON1807S6441
Date: September 15, 2011

This report documents progress in August 2011 on contract BBGCON1807S6441 between BBG and The Tor Project..

New releases, new hires, new funding

New Releases

1. On August 10th, we released a new version of Vidalia, the graphical controller interface for Tor, version 0.2.13.

```
0.2.13  10-Aug-2011
  o Add a way to bootstrap Tor's torrc file (copy the torrc to a given
    directory before Vidalia starts) so that packages such as
    Bridge-by-default portable bundles for OSX don't violate the
    directory structure of the operating system. Fixes bug 2821.
  o Add the proper CA Certificates so that the "Find Bridges" button
    works again. Fixes bug 2835.
  o Update the useful links help page. Fixes bug 2809.
  o Reintegrate Breakpad, and make it available in platforms other than
    Windows. Resolves bug 2105.
  o Fix bandwidth assigned to relays on the Network Map. A lot of relays
    are displaying an erroneous bandwidth and since they are ordered by that
    value in the Network Map, it leads to confusion. Vidalia now
    specifies the bandwidth as the minimum of the three possible values (burst,
    average and observed). Fixes bug 2744.
  o Fix layouts in the configuration panel to make them look seamlessly
    across all platforms.
  o Add -no-remote parameter to Firefox so it allows another instance of
    non-TBB Firefox. Fixes bug 2254.
  o Add the possibility of changing the torrc path while Tor hasn't
    started. Fixes bug 3109.
  o Make the fact that bridges don't need a DirPort setting more clear
    by removing the content of the field when disabling it. Fixes bug 3119.
  o Improve command line parameter handling. Resolves bug 2965.
  o Fix layout in BandwidthGraph to display labels correctly in every
    language. Fixes bug 2500.
```

```
  o Updates README.debs to reflect the change in the packaging now that
    Vidalia uses Git. Fixes bug 3668.
  o Add a way to use the autoconfiguration for ControlPort and
    SocksPort.  Tor can now autoconfigure Control and Socks Ports when
    the default ones are in use. This makes it easier to run several
    different instances of TBB at the same time. Resolves bug 3077.
  o Provide the necessary fields (Control password, ControlPort) to let
    TorButton NEWNYM. Vidalia provides these in env vars when it
    launches the Firefox instance. Resolves bug 2659.
```

2. On August 17th, we released the second and final release candidate for the 0.2.2.x series, Tor 0.2.2.31-rc.

```
Changes in version 0.2.2.31-rc - 2011-08-17
  o Major bugfixes:
    - Remove an extra pair of quotation marks around the error
      message in control-port STATUS_GENERAL BUG events. Bugfix on
      0.1.2.6-alpha; fixes bug 3732.
    - If we're configured to write our ControlPorts to disk, only write
      them after switching UID and creating the data directory. This way,
      we don't fail when starting up with a nonexistent DataDirectory
      and a ControlPortWriteToFile setting based on that directory.
      Fixes bug 3747; bugfix on Tor 0.2.2.26-beta.

  o Minor features:
    - Update to the August 2 2011 Maxmind GeoLite Country database.

  o Minor bugfixes:
    - Allow GETINFO fingerprint to return a fingerprint even when
      we have not yet built a router descriptor. Fixes bug 3577;
      bugfix on 0.2.0.1-alpha.
    - Write several files in text mode, on OSes that distinguish text
      mode from binary mode (namely, Windows). These files are:
      'buffer-stats', 'dirreq-stats', and 'entry-stats' on relays
      that collect those statistics; 'client_keys' and 'hostname' for
      hidden services that use authentication; and (in the tor-gencert
      utility) newly generated identity and signing keys. Previously,
      we wouldn't specify text mode or binary mode, leading to an
      assertion failure. Fixes bug 3607. Bugfix on 0.2.1.1-alpha (when
      the DirRecordUsageByCountry option which would have triggered
      the assertion failure was added), although this assertion failure
      would have occurred in tor-gencert on Windows in 0.2.0.1-alpha.
    - Selectively disable deprecation warnings on OS X because Lion
      started deprecating the shipped copy of openssl. Fixes bug 3643.
    - When unable to format an address as a string, report its value
      as "???" rather than reusing the last formatted address. Bugfix
```

```
on 0.2.1.5-alpha.
```

3. On August 19, updated Tor Browser Bundles.

```
Windows bundle
1.3.27: Released 2011-08-19

    Update Firefox to 3.6.20
    Update Libevent to 2.0.13-stable
    Update HTTPS-Everywhere to 1.0.0development.5

OS X bundle
1.0.23: Released 2011-08-19

    Update Tor to 0.2.2.31-rc
    Update Firefox to 3.6.20
    Update Libevent to 2.0.13-stable
    Update NoScript to 2.1.2.6
    Update HTTPS-Everywhere to 1.0.0development.5
    Remove BetterPrivacy until we can figure out how to make it safe in
    all bundles (see #3597)

Linux bundle
1.1.13: Released 2011-08-19

    Update Tor to 0.2.2.31-rc
    Update Firefox to 3.6.20
    Update Libevent to 2.0.13-stable
    Update NoScript to 2.1.2.6
    Update HTTPS-Everywhere to 1.0.0development.5
    Remove BetterPrivacy until we can figure out how to make it safe in
    all bundles (see #3597)
```

4. On August 21, updated Tor Browser Bundles.

```
Tor Browser Bundle (2.2.31-1) alpha; suite=all
    Update Tor to 0.2.2.31-rc
    Update Firefox to 6.0
    Update Libevent to 2.0.13-stable
    Update NoScript to 2.1.2.6
    Update HTTPS Everywhere to 1.0.0development.5
    Remove BetterPrivacy until we can figure out how to make it safe in
    all bundles (see #3597)
```

5. On August 26th, we released an updated version of Vidalia, 0.2.14.

```
0.2.14  26-Aug-2011
  o Make the AutoPort setting default to false, so that it doesn't
    break backwards compatibility for people that aren't using Vidalia
    inside Tor Browser Bundle.
```

6. On August 27th, we released a new stable Tor, version 0.2.2.32.

```
The Tor 0.2.2 release series is dedicated to the memory of Andreas
Pfitzmann (1958-2010), a pioneer in anonymity and privacy research,
a founder of the PETS community, a leader in our field, a mentor,
and a friend. He left us with these words: "I had the possibility
to contribute to this world that is not as it should be. I hope I
could help in some areas to make the world a better place, and that
I could also encourage other people to be engaged in improving the
world. Please, stay engaged. This world needs you, your love, your
initiative -- now I cannot be part of that anymore."

Tor 0.2.2.32, the first stable release in the 0.2.2 branch, is finally
ready. More than two years in the making, this release features improved
client performance and hidden service reliability, better compatibility
for Android, correct behavior for bridges that listen on more than
one address, more extensible and flexible directory object handling,
better reporting of network statistics, improved code security, and
many many other features and bugfixes.

https://www.torproject.org/download/download

Changes in version 0.2.2.32 - 2011-08-27
  o Major features (client performance):
    - When choosing which cells to relay first, relays now favor circuits
      that have been quiet recently, to provide lower latency for
      low-volume circuits. By default, relays enable or disable this
      feature based on a setting in the consensus. They can override
      this default by using the new "CircuitPriorityHalflife" config
      option. Design and code by Ian Goldberg, Can Tang, and Chris
      Alexander.
    - Directory authorities now compute consensus weightings that instruct
      clients how to weight relays flagged as Guard, Exit, Guard+Exit,
      and no flag. Clients use these weightings to distribute network
      load more evenly across these different relay types. The weightings
      are in the consensus so we can change them globally in the future.
      Extra thanks to "outofwords" for finding some nasty security bugs
      in the first implementation of this feature.

  o Major features (client performance, circuit build timeout):
    - Tor now tracks how long it takes to build client-side circuits
```

over time, and adapts its timeout to local network performance. Since a circuit that takes a long time to build will also provide bad performance, we get significant latency improvements by discarding the slowest 20% of circuits. Specifically, Tor creates circuits more aggressively than usual until it has enough data points for a good timeout estimate. Implements proposal 151.
  - Circuit build timeout constants can be controlled by consensus parameters. We set good defaults for these parameters based on experimentation on broadband and simulated high-latency links.
  - Circuit build time learning can be disabled via consensus parameter or by the client via a LearnCircuitBuildTimeout config option. We also automatically disable circuit build time calculation if either AuthoritativeDirectory is set, or if we fail to write our state file. Implements ticket 1296.

o Major features (relays use their capacity better):
  - Set SO_REUSEADDR socket option on all sockets, not just listeners. This should help busy exit nodes avoid running out of useable ports just because all the ports have been used in the near past. Resolves issue 2850.
  - Relays now save observed peak bandwidth throughput rates to their state file (along with total usage, which was already saved), so that they can determine their correct estimated bandwidth on restart. Resolves bug 1863, where Tor relays would reset their estimated bandwidth to 0 after restarting.
  - Lower the maximum weighted-fractional-uptime cutoff to 98%. This should give us approximately 40-50% more Guard-flagged nodes, improving the anonymity the Tor network can provide and also decreasing the dropoff in throughput that relays experience when they first get the Guard flag.
  - Directory authorities now take changes in router IP address and ORPort into account when determining router stability. Previously, if a router changed its IP or ORPort, the authorities would not treat it as having any downtime for the purposes of stability calculation, whereas clients would experience downtime since the change would take a while to propagate to them. Resolves issue 1035.
  - New AccelName and AccelDir options add support for dynamic OpenSSL hardware crypto acceleration engines.

o Major features (relays control their load better):
  - Exit relays now try harder to block exit attempts from unknown relays, to make it harder for people to use them as one-hop proxies a la tortunnel. Controlled by the refuseunknownexits consensus parameter (currently enabled), or you can override it on your relay with the RefuseUnknownExits torrc option. Resolves bug 1751;

```
    based on a variant of proposal 163.
  - Add separate per-conn write limiting to go with the per-conn read
    limiting. We added a global write limit in Tor 0.1.2.5-alpha,
    but never per-conn write limits.
  - New consensus params "bwconnrate" and "bwconnburst" to let us
    rate-limit client connections as they enter the network. It's
    controlled in the consensus so we can turn it on and off for
    experiments. It's starting out off. Based on proposal 163.

o Major features (controllers):
  - Export GeoIP information on bridge usage to controllers even if we
    have not yet been running for 24 hours. Now Vidalia bridge operators
    can get more accurate and immediate feedback about their
    contributions to the network.
  - Add an __OwningControllerProcess configuration option and a
    TAKEOWNERSHIP control-port command. Now a Tor controller can ensure
    that when it exits, Tor will shut down. Implements feature 3049.

o Major features (directory authorities):
  - Directory authorities now create, vote on, and serve multiple
    parallel formats of directory data as part of their voting process.
    Partially implements Proposal 162: "Publish the consensus in
    multiple flavors".
  - Directory authorities now agree on and publish small summaries
    of router information that clients can use in place of regular
    server descriptors. This transition will allow Tor 0.2.3 clients
    to use far less bandwidth for downloading information about the
    network. Begins the implementation of Proposal 158: "Clients
    download consensus + microdescriptors".
  - The directory voting system is now extensible to use multiple hash
    algorithms for signatures and resource selection. Newer formats
    are signed with SHA256, with a possibility for moving to a better
    hash algorithm in the future.
  - Directory authorities can now vote on arbitary integer values as
    part of the consensus process. This is designed to help set
    network-wide parameters. Implements proposal 167.

o Major features and bugfixes (node selection):
  - Revise and reconcile the meaning of the ExitNodes, EntryNodes,
    ExcludeEntryNodes, ExcludeExitNodes, ExcludeNodes, and Strict*Nodes
    options. Previously, we had been ambiguous in describing what
    counted as an "exit" node, and what operations exactly "StrictNodes
    0" would permit. This created confusion when people saw nodes built
    through unexpected circuits, and made it hard to tell real bugs from
    surprises. Now the intended behavior is:
```

. "Exit", in the context of ExitNodes and ExcludeExitNodes, means
  a node that delivers user traffic outside the Tor network.
. "Entry", in the context of EntryNodes, means a node used as the
  first hop of a multihop circuit. It doesn't include direct
  connections to directory servers.
. "ExcludeNodes" applies to all nodes.
. "StrictNodes" changes the behavior of ExcludeNodes only. When
  StrictNodes is set, Tor should avoid all nodes listed in
  ExcludeNodes, even when it will make user requests fail. When
  StrictNodes is *not* set, then Tor should follow ExcludeNodes
  whenever it can, except when it must use an excluded node to
  perform self-tests, connect to a hidden service, provide a
  hidden service, fulfill a .exit request, upload directory
  information, or fetch directory information.

Collectively, the changes to implement the behavior fix bug 1090.

- If EntryNodes, ExitNodes, ExcludeNodes, or ExcludeExitNodes
  change during a config reload, mark and discard all our origin
  circuits. This fix should address edge cases where we change the
  config options and but then choose a circuit that we created before
  the change.
- Make EntryNodes config option much more aggressive even when
  StrictNodes is not set. Before it would prepend your requested
  entrynodes to your list of guard nodes, but feel free to use others
  after that. Now it chooses only from your EntryNodes if any of
  those are available, and only falls back to others if a) they're
  all down and b) StrictNodes is not set.
- Now we refresh your entry guards from EntryNodes at each consensus
  fetch -- rather than just at startup and then they slowly rot as
  the network changes.
- Add support for the country code "{??}" in torrc options like
  ExcludeNodes, to indicate all routers of unknown country. Closes
  bug 1094.
- ExcludeNodes now takes precedence over EntryNodes and ExitNodes:
  if a node is listed in both, it's treated as excluded.
- ExcludeNodes now applies to directory nodes -- as a preference if
  StrictNodes is 0, or an absolute requirement if StrictNodes is 1.
  Don't exclude all the directory authorities and set StrictNodes to 1
  unless you really want your Tor to break.
- ExcludeNodes and ExcludeExitNodes now override exit enclaving.
- ExcludeExitNodes now overrides .exit requests.
- We don't use bridges listed in ExcludeNodes.
- When StrictNodes is 1:
  . We now apply ExcludeNodes to hidden service introduction points
    and to rendezvous points selected by hidden service users. This
    can make your hidden service less reliable: use it with caution!

```
    . If we have used ExcludeNodes on ourself, do not try relay
      reachability self-tests.
    . If we have excluded all the directory authorities, we will not
      even try to upload our descriptor if we're a relay.
    . Do not honor .exit requests to an excluded node.
  - When the set of permitted nodes changes, we now remove any
    mappings
    introduced via TrackExitHosts to now-excluded nodes. Bugfix on
    0.1.0.1-rc.
  - We never cannibalize a circuit that had excluded nodes on it, even
    if StrictNodes is 0. Bugfix on 0.1.0.1-rc.
  - Improve log messages related to excluded nodes.

o Major features (misc):
  - Numerous changes, bugfixes, and workarounds from Nathan Freitas
    to help Tor build correctly for Android phones.
  - The options SocksPort, ControlPort, and so on now all accept a
    value "auto" that opens a socket on an OS-selected port. A
    new ControlPortWriteToFile option tells Tor to write its
    actual control port or ports to a chosen file. If the option
    ControlPortFileGroupReadable is set, the file is created as
    group-readable. Now users can run two Tor clients on the same
    system without needing to manually mess with parameters. Resolves
    part of ticket 3076.
  - Tor now supports tunneling all of its outgoing connections over
    a SOCKS proxy, using the SOCKS4Proxy and/or SOCKS5Proxy
    configuration options. Code by Christopher Davis.

o Code security improvements:
  - Replace all potentially sensitive memory comparison operations
    with versions whose runtime does not depend on the data being
    compared. This will help resist a class of attacks where an
    adversary can use variations in timing information to learn
    sensitive data. Fix for one case of bug 3122. (Safe memcmp
    implementation by Robert Ransom based partially on code by DJB.)
  - Enable Address Space Layout Randomization (ASLR) and Data
    Execution
    Prevention (DEP) by default on Windows to make it harder for
    attackers to exploit vulnerabilities. Patch from John Brooks.
  - New "--enable-gcc-hardening" ./configure flag (off by default) to
    turn on gcc compile time hardening options. It ensures that signed
    ints have defined behavior (-fwrapv), enables -D_FORTIFY_SOURCE=2
    (requiring -O2), adds stack smashing protection with canaries
    (-fstack-protector-all), turns on ASLR protection if supported by
    the kernel (-fPIE, -pie), and adds additional security
```

related warnings. Verified to work on Mac OS X and Debian Lenny.
- New "--enable-linker-hardening" ./configure flag (off by default) to turn on ELF specific hardening features (relro, now). This does not work with Mac OS X or any other non-ELF binary format.
- Always search the Windows system directory for system DLLs, and nowhere else. Bugfix on 0.1.1.23; fixes bug 1954.
- New DisableAllSwap option. If set to 1, Tor will attempt to lock all
current and future memory pages via mlockall(). On supported platforms (modern Linux and probably BSD but not Windows or OS X), this should effectively disable any and all attempts to page out memory. This option requires that you start your Tor as root -- if you use DisableAllSwap, please consider using the User option to properly reduce the privileges of your Tor.

o Major bugfixes (crashes):
- Fix crash bug on platforms where gmtime and localtime can return NULL. Windows 7 users were running into this one. Fixes part of bug 2077. Bugfix on all versions of Tor. Found by boboper.
- Introduce minimum/maximum values that clients will believe from the consensus. Now we'll have a better chance to avoid crashes or worse when a consensus param has a weird value.
- Fix a rare crash bug that could occur when a client was configured with a large number of bridges. Fixes bug 2629; bugfix on 0.2.1.2-alpha. Bugfix by trac user "shitlei".
- Do not crash when our configuration file becomes unreadable, for example due to a permissions change, between when we start up and when a controller calls SAVECONF. Fixes bug 3135; bugfix on 0.0.9pre6.
- If we're in the pathological case where there's no exit bandwidth but there is non-exit bandwidth, or no guard bandwidth but there is non-guard bandwidth, don't crash during path selection. Bugfix on 0.2.0.3-alpha.
- Fix a crash bug when trying to initialize the evdns module in Libevent 2. Bugfix on 0.2.1.16-rc.

o Major bugfixes (stability):
- Fix an assert in parsing router descriptors containing IPv6 addresses. This one took down the directory authorities when somebody tried some experimental code. Bugfix on 0.2.1.3-alpha.
- Fix an uncommon assertion failure when running with DNSPort under heavy load. Fixes bug 2933; bugfix on 0.2.0.1-alpha.
- Treat an unset $HOME like an empty $HOME rather than triggering an assert. Bugfix on 0.0.8pre1; fixes bug 1522.
- More gracefully handle corrupt state files, removing asserts

in favor of saving a backup and resetting state.
  - Instead of giving an assertion failure on an internal mismatch on estimated freelist size, just log a BUG warning and try later. Mitigates but does not fix bug 1125.
  - Fix an assert that got triggered when using the TestingTorNetwork configuration option and then issuing a GETINFO config-text control command. Fixes bug 2250; bugfix on 0.2.1.2-alpha.
  - If the cached cert file is unparseable, warn but don't exit.

o Privacy fixes (relays/bridges):
  - Don't list Windows capabilities in relay descriptors. We never made use of them, and maybe it's a bad idea to publish them. Bugfix on 0.1.1.8-alpha.
  - If the Nickname configuration option isn't given, Tor would pick a nickname based on the local hostname as the nickname for a relay. Because nicknames are not very important in today's Tor and the "Unnamed" nickname has been implemented, this is now problematic behavior: It leaks information about the hostname without being useful at all. Fixes bug 2979; bugfix on 0.1.2.2-alpha, which introduced the Unnamed nickname. Reported by tagnaq.
  - Maintain separate TLS contexts and certificates for incoming and outgoing connections in bridge relays. Previously we would use the same TLS contexts and certs for incoming and outgoing connections. Bugfix on 0.2.0.3-alpha; addresses bug 988.
  - Maintain separate identity keys for incoming and outgoing TLS contexts in bridge relays. Previously we would use the same identity keys for incoming and outgoing TLS contexts. Bugfix on 0.2.0.3-alpha; addresses the other half of bug 988.
  - Make the bridge directory authority refuse to answer directory requests for "all descriptors". It used to include bridge descriptors in its answer, which was a major information leak. Found by "piebeer". Bugfix on 0.2.0.3-alpha.

o Privacy fixes (clients):
  - When receiving a hidden service descriptor, check that it is for the hidden service we wanted. Previously, Tor would store any hidden service descriptors that a directory gave it, whether it wanted them or not. This wouldn't have let an attacker impersonate a hidden service, but it did let directories pre-seed a client with descriptors that it didn't want. Bugfix on 0.0.6.
  - Start the process of disabling ".exit" address notation, since it can be used for a variety of esoteric application-level attacks on users. To reenable it, set "AllowDotExit 1" in your torrc. Fix on 0.0.9rc5.
  - Reject attempts at the client side to open connections to private

IP addresses (like 127.0.0.1, 10.0.0.1, and so on) with
a randomly chosen exit node. Attempts to do so are always
ill-defined, generally prevented by exit policies, and usually
in error. This will also help to detect loops in transparent
proxy configurations. You can disable this feature by setting
"ClientRejectInternalAddresses 0" in your torrc.
- Log a notice when we get a new control connection. Now it's easier
for security-conscious users to recognize when a local application
is knocking on their controller door. Suggested by bug 1196.

o Privacy fixes (newnym):
- Avoid linkability based on cached hidden service descriptors:
forget all hidden service descriptors cached as a client when
processing a SIGNAL NEWNYM command. Fixes bug 3000; bugfix on 0.0.6.
- On SIGHUP, do not clear out all TrackHostExits mappings, client
DNS cache entries, and virtual address mappings: that's what
NEWNYM is for. Fixes bug 1345; bugfix on 0.1.0.1-rc.
- Don't attach new streams to old rendezvous circuits after SIGNAL
NEWNYM. Previously, we would keep using an existing rendezvous
circuit if it remained open (i.e. if it were kept open by a
long-lived stream, or if a new stream were attached to it before
Tor could notice that it was old and no longer in use). Bugfix on
0.1.1.15-rc; fixes bug 3375.

o Major bugfixes (relay bandwidth accounting):
- Fix a bug that could break accounting on 64-bit systems with large
time_t values, making them hibernate for impossibly long intervals.
Fixes bug 2146. Bugfix on 0.0.9pre6; fix by boboper.
- Fix a bug in bandwidth accounting that could make us use twice
the intended bandwidth when our interval start changes due to
daylight saving time. Now we tolerate skew in stored vs computed
interval starts: if the start of the period changes by no more than
50% of the period's duration, we remember bytes that we transferred
in the old period. Fixes bug 1511; bugfix on 0.0.9pre5.

o Major bugfixes (bridges):
- Bridges now use "reject *:*" as their default exit policy. Bugfix
on 0.2.0.3-alpha. Fixes bug 1113.
- If you configure your bridge with a known identity fingerprint,
and the bridge authority is unreachable (as it is in at least
one country now), fall back to directly requesting the descriptor
from the bridge. Finishes the feature started in 0.2.0.10-alpha;
closes bug 1138.
- Fix a bug where bridge users who configure the non-canonical
address of a bridge automatically switch to its canonical

address. If a bridge listens at more than one address, it should be able to advertise those addresses independently and any non-blocked addresses should continue to work. Bugfix on Tor 0.2.0.3-alpha. Fixes bug 2510.
- If you configure Tor to use bridge A, and then quit and configure Tor to use bridge B instead (or if you change Tor to use bridge B via the controller), it would happily continue to use bridge A if it's still reachable. While this behavior is a feature if your goal is connectivity, in some scenarios it's a dangerous bug. Bugfix on Tor 0.2.0.1-alpha; fixes bug 2511.
- When the controller configures a new bridge, don't wait 10 to 60 seconds before trying to fetch its descriptor. Bugfix on 0.2.0.3-alpha; fixes bug 3198 (suggested by 2355).

o Major bugfixes (directory authorities):
- Many relays have been falling out of the consensus lately because not enough authorities know about their descriptor for them to get a majority of votes. When we deprecated the v2 directory protocol, we got rid of the only way that v3 authorities can hear from each other about other descriptors. Now authorities examine every v3 vote for new descriptors, and fetch them from that authority. Bugfix on 0.2.1.23.
- Authorities could be tricked into giving out the Exit flag to relays that didn't allow exiting to any ports. This bug could screw with load balancing and stats. Bugfix on 0.1.1.6-alpha; fixes bug 1238. Bug discovered by Martin Kowalczyk.
- If all authorities restart at once right before a consensus vote, nobody will vote about "Running", and clients will get a consensus with no usable relays. Instead, authorities refuse to build a consensus if this happens. Bugfix on 0.2.0.10-alpha; fixes bug 1066.

o Major bugfixes (stream-level fairness):
- When receiving a circuit-level SENDME for a blocked circuit, try to package cells fairly from all the streams that had previously been blocked on that circuit. Previously, we had started with the oldest stream, and allowed each stream to potentially exhaust the circuit's package window. This gave older streams on any given circuit priority over newer ones. Fixes bug 1937. Detected originally by Camilo Viecco. This bug was introduced before the first Tor release, in svn commit r152: it is the new winner of the longest-lived bug prize.
- Fix a stream fairness bug that would cause newer streams on a given circuit to get preference when reading bytes from the origin or destination. Fixes bug 2210. Fix by Mashael AlSabah. This bug was introduced before the first Tor release, in svn revision r152.

- When the exit relay got a circuit-level sendme cell, it started reading on the exit streams, even if had 500 cells queued in the circuit queue already, so the circuit queue just grew and grew in some cases. We fix this by not re-enabling reading on receipt of a sendme cell when the cell queue is blocked. Fixes bug 1653. Bugfix on 0.2.0.1-alpha. Detected by Mashael AlSabah. Original patch by "yetonetime".
- Newly created streams were allowed to read cells onto circuits, even if the circuit's cell queue was blocked and waiting to drain. This created potential unfairness, as older streams would be blocked, but newer streams would gladly fill the queue completely. We add code to detect this situation and prevent any stream from getting more than one free cell. Bugfix on 0.2.0.1-alpha. Partially fixes bug 1298.

o Major bugfixes (hidden services):
- Apply circuit timeouts to opened hidden-service-related circuits based on the correct start time. Previously, we would apply the circuit build timeout based on time since the circuit's creation; it was supposed to be applied based on time since the circuit entered its current state. Bugfix on 0.0.6; fixes part of bug 1297.
- Improve hidden service robustness: When we find that we have extended a hidden service's introduction circuit to a relay not listed as an introduction point in the HS descriptor we currently have, retry with an introduction point from the current descriptor. Previously we would just give up. Fixes bugs 1024 and 1930; bugfix on 0.2.0.10-alpha.
- Directory authorities now use data collected from their own uptime observations when choosing whether to assign the HSDir flag to relays, instead of trusting the uptime value the relay reports in its descriptor. This change helps prevent an attack where a small set of nodes with frequently-changing identity keys can blackhole a hidden service. (Only authorities need upgrade; others will be fine once they do.) Bugfix on 0.2.0.10-alpha; fixes bug 2709.
- Stop assigning the HSDir flag to relays that disable their DirPort (and thus will refuse to answer directory requests). This fix should dramatically improve the reachability of hidden services: hidden services and hidden service clients pick six HSDir relays to store and retrieve the hidden service descriptor, and currently about half of the HSDir relays will refuse to work. Bugfix on 0.2.0.10-alpha; fixes part of bug 1693.

o Major bugfixes (misc):
- Clients now stop trying to use an exit node associated with a given destination by TrackHostExits if they fail to reach that

exit node.
Fixes bug 2999. Bugfix on 0.2.0.20-rc.
- Fix a regression that caused Tor to rebind its ports if it receives SIGHUP while hibernating. Bugfix in 0.1.1.6-alpha; closes bug 919.
- Remove an extra pair of quotation marks around the error message in control-port STATUS_GENERAL BUG events. Bugfix on 0.1.2.6-alpha; fixes bug 3732.

o Minor features (relays):
- Ensure that no empty [dirreq-](read|write)-history lines are added to an extrainfo document. Implements ticket 2497.
- When bandwidth accounting is enabled, be more generous with how much bandwidth we'll use up before entering "soft hibernation". Previously, we'd refuse new connections and circuits once we'd used up 95% of our allotment. Now, we use up 95% of our allotment, AND make sure that we have no more than 500MB (or 3 hours of expected traffic, whichever is lower) remaining before we enter soft hibernation.
- Relays now log the reason for publishing a new relay descriptor, so we have a better chance of hunting down instances of bug 1810. Resolves ticket 3252.
- Log a little more clearly about the times at which we're no longer accepting new connections (e.g. due to hibernating). Resolves bug 2181.
- When AllowSingleHopExits is set, print a warning to explain to the relay operator why most clients are avoiding her relay.
- Send END_STREAM_REASON_NOROUTE in response to EHOSTUNREACH errors. Clients before 0.2.1.27 didn't handle NOROUTE correctly, but such clients are already deprecated because of security bugs.

o Minor features (network statistics):
- Directory mirrors that set "DirReqStatistics 1" write statistics about directory requests to disk every 24 hours. As compared to the "--enable-geoip-stats" ./configure flag in 0.2.1.x, there are a few improvements: 1) stats are written to disk exactly every 24 hours; 2) estimated shares of v2 and v3 requests are determined as mean values, not at the end of a measurement period; 3) unresolved requests are listed with country code '??'; 4) directories also measure download times.
- Exit nodes that set "ExitPortStatistics 1" write statistics on the number of exit streams and transferred bytes per port to disk every 24 hours.
- Relays that set "CellStatistics 1" write statistics on how long cells spend in their circuit queues to disk every 24 hours.
- Entry nodes that set "EntryStatistics 1" write statistics on the

rough number and origins of connecting clients to disk every 24 hours.
  - Relays that write any of the above statistics to disk and set "ExtraInfoStatistics 1" include the past 24 hours of statistics in their extra-info documents. Implements proposal 166.

o Minor features (GeoIP and statistics):
  - Provide a log message stating which geoip file we're parsing instead of just stating that we're parsing the geoip file. Implements ticket 2432.
  - Make sure every relay writes a state file at least every 12 hours. Previously, a relay could go for weeks without writing its state file, and on a crash could lose its bandwidth history, capacity estimates, client country statistics, and so on. Addresses bug 3012.
  - Relays report the number of bytes spent on answering directory requests in extra-info descriptors similar to {read,write}-history. Implements enhancement 1790.
  - Report only the top 10 ports in exit-port stats in order not to exceed the maximum extra-info descriptor length of 50 KB. Implements task 2196.
  - If writing the state file to disk fails, wait up to an hour before retrying again, rather than trying again each second. Fixes bug 2346; bugfix on Tor 0.1.1.3-alpha.
  - Delay geoip stats collection by bridges for 6 hours, not 2 hours, when we switch from being a public relay to a bridge. Otherwise there will still be clients that see the relay in their consensus, and the stats will end up wrong. Bugfix on 0.2.1.15-rc; fixes bug 932.
  - Update to the August 2 2011 Maxmind GeoLite Country database.

o Minor features (clients):
  - When expiring circuits, use microsecond timers rather than one-second timers. This can avoid an unpleasant situation where a circuit is launched near the end of one second and expired right near the beginning of the next, and prevent fluctuations in circuit timeout values.
  - If we've configured EntryNodes and our network goes away and/or all our entrynodes get marked down, optimistically retry them all when a new socks application request appears. Fixes bug 1882.
  - Always perform router selections using weighted relay bandwidth, even if we don't need a high capacity circuit at the time. Non-fast circuits now only differ from fast ones in that they can use relays not marked with the Fast flag. This "feature" could turn out to be a horrible bug; we should investigate more before it goes into a stable release.

- When we run out of directory information such that we can't build circuits, but then get enough that we can build circuits, log when we actually construct a circuit, so the user has a better chance of knowing what's going on. Fixes bug 1362.
- Log SSL state transitions at debug level during handshake, and include SSL states in error messages. This may help debug future SSL handshake issues.

o Minor features (directory authorities):
- When a router changes IP address or port, authorities now launch a new reachability test for it. Implements ticket 1899.
- Directory authorities now reject relays running any versions of Tor between 0.2.1.3-alpha and 0.2.1.18 inclusive; they have known bugs that keep RELAY_EARLY cells from working on rendezvous circuits. Followup to fix for bug 2081.
- Directory authorities now reject relays running any version of Tor older than 0.2.0.26-rc. That version is the earliest that fetches current directory information correctly. Fixes bug 2156.
- Directory authorities now do an immediate reachability check as soon as they hear about a new relay. This change should slightly reduce the time between setting up a relay and getting listed as running in the consensus. It should also improve the time between setting up a bridge and seeing use by bridge users.
- Directory authorities no longer launch a TLS connection to every relay as they startup. Now that we have 2k+ descriptors cached, the resulting network hiccup is becoming a burden. Besides, authorities already avoid voting about Running for the first half hour of their uptime.
- Directory authorities now log the source of a rejected POSTed v3 networkstatus vote, so we can track failures better.
- Backport code from 0.2.3.x that allows directory authorities to clean their microdescriptor caches. Needed to resolve bug 2230.

o Minor features (hidden services):
- Use computed circuit-build timeouts to decide when to launch parallel introduction circuits for hidden services. (Previously, we would retry after 15 seconds.)
- Don't allow v0 hidden service authorities to act as clients. Required by fix for bug 3000.
- Ignore SIGNAL NEWNYM commands on relay-only Tor instances. Required by fix for bug 3000.
- Make hidden services work better in private Tor networks by not requiring any uptime to join the hidden service descriptor DHT. Implements ticket 2088.
- Log (at info level) when purging pieces of hidden-service-client

state because of SIGNAL NEWNYM.

o Minor features (controller interface):
  - New "GETINFO net/listeners/(type)" controller command to return a list of addresses and ports that are bound for listeners for a given connection type. This is useful when the user has configured "SocksPort auto" and the controller needs to know which port got chosen. Resolves another part of ticket 3076.
  - Have the controller interface give a more useful message than "Internal Error" in response to failed GETINFO requests.
  - Add a TIMEOUT_RATE keyword to the BUILDTIMEOUT_SET control port event, to give information on the current rate of circuit timeouts over our stored history.
  - The 'EXTENDCIRCUIT' control port command can now be used with a circ id of 0 and no path. This feature will cause Tor to build a new 'fast' general purpose circuit using its own path selection algorithms.
  - Added a BUILDTIMEOUT_SET controller event to describe changes to the circuit build timeout.
  - New controller command "getinfo config-text". It returns the contents that Tor would write if you send it a SAVECONF command, so the controller can write the file to disk itself.

o Minor features (controller protocol):
  - Add a new ControlSocketsGroupWritable configuration option: when it is turned on, ControlSockets are group-writeable by the default group of the current user. Patch by Jérémy Bobbio; implements ticket 2972.
  - Tor now refuses to create a ControlSocket in a directory that is world-readable (or group-readable if ControlSocketsGroupWritable is 0). This is necessary because some operating systems do not enforce permissions on an AF_UNIX sockets. Permissions on the directory holding the socket, however, seems to work everywhere.
  - Warn when CookieAuthFileGroupReadable is set but CookieAuthFile is not. This would lead to a cookie that is still not group readable. Closes bug 1843. Suggested by katmagic.
  - Future-proof the controller protocol a bit by ignoring keyword arguments we do not recognize.

o Minor features (more useful logging):
  - Revise most log messages that refer to nodes by nickname to instead use the "$key=nickname at address" format. This should be more useful, especially since nicknames are less and less likely to be unique. Resolves ticket 3045.
  - When an HTTPS proxy reports "403 Forbidden", we now explain

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    what it means rather than calling it an unexpected status code.
    Closes bug 2503. Patch from Michael Yakubovich.
  - Rate-limit a warning about failures to download v2 networkstatus
    documents. Resolves part of bug 1352.
  - Rate-limit the "your application is giving Tor only an IP address"
    warning. Addresses bug 2000; bugfix on 0.0.8pre2.
  - Rate-limit "Failed to hand off onionskin" warnings.
  - When logging a rate-limited warning, we now mention how many messages
    got suppressed since the last warning.
  - Make the formerly ugly "2 unknown, 7 missing key, 0 good, 0 bad,
    2 no signature, 4 required" messages about consensus signatures
    easier to read, and make sure they get logged at the same severity
    as the messages explaining which keys are which. Fixes bug 1290.
  - Don't warn when we have a consensus that we can't verify because
    of missing certificates, unless those certificates are ones
    that we have been trying and failing to download. Fixes bug 1145.

o Minor features (log domains):
  - Add documentation for configuring logging at different severities in
    different log domains. We've had this feature since 0.2.1.1-alpha,
    but for some reason it never made it into the manpage. Fixes
    bug 2215.
  - Make it simpler to specify "All log domains except for A and B".
    Previously you needed to say "[*,~A,~B]". Now you can just say
    "[~A,~B]".
  - Add a "LogMessageDomains 1" option to include the domains of log
    messages along with the messages. Without this, there's no way
    to use log domains without reading the source or doing a lot
    of guessing.
  - Add a new "Handshake" log domain for activities that happen
    during the TLS handshake.

o Minor features (build process):
  - Make compilation with clang possible when using
    "--enable-gcc-warnings" by removing two warning options that clang
    hasn't implemented yet and by fixing a few warnings. Resolves
    ticket 2696.
  - Detect platforms that brokenly use a signed size_t, and refuse to
    build there. Found and analyzed by doorss and rransom.
  - Fix a bunch of compile warnings revealed by mingw with gcc 4.5.
    Resolves bug 2314.
  - Add support for statically linking zlib by specifying
    "--enable-static-zlib", to go with our support for statically
    linking openssl and libevent. Resolves bug 1358.
  - Instead of adding the svn revision to the Tor version string,
```

report the git commit (when we're building from a git checkout).
- Rename the "log.h" header to "torlog.h" so as to conflict with fewer system headers.
- New --digests command-line switch to output the digests of the source files Tor was built with.
- Generate our manpage and HTML documentation using Asciidoc. This change should make it easier to maintain the documentation, and produce nicer HTML. The build process fails if asciidoc cannot be found and building with asciidoc isn't disabled (via the "--disable-asciidoc" argument to ./configure. Skipping the manpage speeds up the build considerably.

o Minor features (options / torrc):
- Warn when the same option is provided more than once in a torrc file, on the command line, or in a single SETCONF statement, and the option is one that only accepts a single line. Closes bug 1384.
- Warn when the user configures two HiddenServiceDir lines that point to the same directory. Bugfix on 0.0.6 (the version introducing HiddenServiceDir); fixes bug 3289.
- Add new "perconnbwrate" and "perconnbwburst" consensus params to do individual connection-level rate limiting of clients. The torrc config options with the same names trump the consensus params, if both are present. Replaces the old "bwconnrate" and "bwconnburst" consensus params which were broken from 0.2.2.7-alpha through 0.2.2.14-alpha. Closes bug 1947.
- New config option "WarnUnsafeSocks 0" disables the warning that occurs whenever Tor receives a socks handshake using a version of the socks protocol that can only provide an IP address (rather than a hostname). Setups that do DNS locally over Tor are fine, and we shouldn't spam the logs in that case.
- New config option "CircuitStreamTimeout" to override our internal timeout schedule for how many seconds until we detach a stream from a circuit and try a new circuit. If your network is particularly slow, you might want to set this to a number like 60.
- New options for SafeLogging to allow scrubbing only log messages generated while acting as a relay. Specify "SafeLogging relay" if you want to ensure that only messages known to originate from client use of the Tor process will be logged unsafely.
- Time and memory units in the configuration file can now be set to fractional units. For example, "2.5 GB" is now a valid value for AccountingMax.
- Support line continuations in the torrc config file. If a line ends with a single backslash character, the newline is ignored, and the configuration value is treated as continuing on the next line. Resolves bug 1929.

o Minor features (unit tests):
  - Revise our unit tests to use the "tinytest" framework, so we
    can run tests in their own processes, have smarter setup/teardown
    code, and so on. The unit test code has moved to its own
    subdirectory, and has been split into multiple modules.
  - Add a unit test for cross-platform directory-listing code.
  - Add some forgotten return value checks during unit tests. Found
    by coverity.
  - Use GetTempDir to find the proper temporary directory location on
    Windows when generating temporary files for the unit tests. Patch
    by Gisle Vanem.

o Minor features (misc):
  - The "torify" script now uses torsocks where available.
  - Make Libevent log messages get delivered to controllers later,
    and not from inside the Libevent log handler. This prevents unsafe
    reentrant Libevent calls while still letting the log messages
    get through.
  - Certain Tor clients (such as those behind check.torproject.org)
    may want to fetch the consensus in an extra early manner. To enable
    this a user may now set FetchDirInfoExtraEarly to 1. This also depends
    on setting FetchDirInfoEarly to 1. Previous behavior will stay the
    same as only certain clients who must have this information sooner
    should set this option.
  - Expand homedirs passed to tor-checkkey. This should silence a
    coverity complaint about passing a user-supplied string into
    open() without checking it.
  - Make sure to disable DirPort if running as a bridge. DirPorts aren't
    used on bridges, and it makes bridge scanning somewhat easier.
  - Create the /var/run/tor directory on startup on OpenSUSE if it is
    not already created. Patch from Andreas Stieger. Fixes bug 2573.

o Minor bugfixes (relays):
  - When a relay decides that its DNS is too broken for it to serve
    as an exit server, it advertised itself as a non-exit, but
    continued to act as an exit. This could create accidental
    partitioning opportunities for users. Instead, if a relay is
    going to advertise reject *:* as its exit policy, it should
    really act with exit policy "reject *:*". Fixes bug 2366.
    Bugfix on Tor 0.1.2.5-alpha. Bugfix by user "postman" on trac.
  - Publish a router descriptor even if generating an extra-info
    descriptor fails. Previously we would not publish a router
    descriptor without an extra-info descriptor; this can cause fast
    exit relays collecting exit-port statistics to drop from the

consensus. Bugfix on 0.1.2.9-rc; fixes bug 2195.
- When we're trying to guess whether we know our IP address as a relay, we would log various ways that we failed to guess our address, but never log that we ended up guessing it successfully. Now add a log line to help confused and anxious relay operators. Bugfix on 0.1.2.1-alpha; fixes bug 1534.
- For bandwidth accounting, calculate our expected bandwidth rate based on the time during which we were active and not in soft-hibernation during the last interval. Previously, we were also considering the time spent in soft-hibernation. If this was a long time, we would wind up underestimating our bandwidth by a lot, and skewing our wakeup time towards the start of the accounting interval. Fixes bug 1789. Bugfix on 0.0.9pre5.
- Demote a confusing TLS warning that relay operators might get when someone tries to talk to their ORPort. It is not the operator's fault, nor can they do anything about it. Fixes bug 1364; bugfix on 0.2.0.14-alpha.
- Change "Application request when we're believed to be offline." notice to "Application request when we haven't used client functionality lately.", to clarify that it's not an error. Bugfix on 0.0.9.3; fixes bug 1222.

o Minor bugfixes (bridges):
- When a client starts or stops using bridges, never use a circuit that was built before the configuration change. This behavior could put at risk a user who uses bridges to ensure that her traffic only goes to the chosen addresses. Bugfix on 0.2.0.3-alpha; fixes bug 3200.
- Do not reset the bridge descriptor download status every time we re-parse our configuration or get a configuration change. Fixes bug 3019; bugfix on 0.2.0.3-alpha.
- Users couldn't configure a regular relay to be their bridge. It didn't work because when Tor fetched the bridge descriptor, it found that it already had it, and didn't realize that the purpose of the descriptor had changed. Now we replace routers with a purpose other than bridge with bridge descriptors when fetching them. Bugfix on 0.1.1.9-alpha. Fixes bug 1776.
- In the special case where you configure a public exit relay as your bridge, Tor would be willing to use that exit relay as the last hop in your circuit as well. Now we fail that circuit instead. Bugfix on 0.2.0.12-alpha. Fixes bug 2403. Reported by "piebeer".

o Minor bugfixes (clients):
- We now ask the other side of a stream (the client or the exit) for more data on that stream when the amount of queued data on that stream dips low enough. Previously, we wouldn't ask the

other side for more data until either it sent us more data (which it wasn't supposed to do if it had exhausted its window!) or we had completely flushed all our queued data. This flow control fix should improve throughput. Fixes bug 2756; bugfix on the earliest released versions of Tor (svn commit r152).
- When a client finds that an origin circuit has run out of 16-bit stream IDs, we now mark it as unusable for new streams. Previously, we would try to close the entire circuit. Bugfix on 0.0.6.
- Make it explicit that we don't cannibalize one-hop circuits. This happens in the wild, but doesn't turn out to be a problem because we fortunately don't use those circuits. Many thanks to outofwords for the initial analysis and to swissknife who confirmed that two-hop circuits are actually created.
- Resolve an edge case in path weighting that could make us misweight our relay selection. Fixes bug 1203; bugfix on 0.0.8rc1.
- Make the DNSPort option work with libevent 2.x. Don't alter the behaviour for libevent 1.x. Fixes bug 1143. Found by SwissTorExit.

o Minor bugfixes (directory authorities):
- Make directory authorities more accurate at recording when relays that have failed several reachability tests became unreachable, so we can provide more accuracy at assigning Stable, Guard, HSDir, etc flags. Bugfix on 0.2.0.6-alpha. Resolves bug 2716.
- Directory authorities are now more robust to hops back in time when calculating router stability. Previously, if a run of uptime or downtime appeared to be negative, the calculation could give incorrect results. Bugfix on 0.2.0.6-alpha; noticed when fixing bug 1035.
- Directory authorities will now attempt to download consensuses if their own efforts to make a live consensus have failed. This change means authorities that restart will fetch a valid consensus, and it means authorities that didn't agree with the current consensus will still fetch and serve it if it has enough signatures. Bugfix on 0.2.0.9-alpha; fixes bug 1300.
- Never vote for a server as "Running" if we have a descriptor for it claiming to be hibernating, and that descriptor was published more recently than our last contact with the server. Bugfix on 0.2.0.3-alpha; fixes bug 911.
- Directory authorities no longer change their opinion of, or vote on, whether a router is Running, unless they have themselves been online long enough to have some idea. Bugfix on 0.2.0.6-alpha. Fixes bug 1023.

o Minor bugfixes (hidden services):
- Log malformed requests for rendezvous descriptors as protocol

warnings, not warnings. Also, use a more informative log message in case someone sees it at log level warning without prior info-level messages. Fixes bug 2748; bugfix on 0.2.0.10-alpha.
- Accept hidden service descriptors if we think we might be a hidden service directory, regardless of what our consensus says. This helps robustness, since clients and hidden services can sometimes have a more up-to-date view of the network consensus than we do, and if they think that the directory authorities list us a HSDir, we might actually be one. Related to bug 2732; bugfix on 0.2.0.10-alpha.
- Correct the warning displayed when a rendezvous descriptor exceeds the maximum size. Fixes bug 2750; bugfix on 0.2.1.5-alpha. Found by John Brooks.
- Clients and hidden services now use HSDir-flagged relays for hidden service descriptor downloads and uploads even if the relays have no DirPort set and the client has disabled TunnelDirConns. This will eventually allow us to give the HSDir flag to relays with no DirPort. Fixes bug 2722; bugfix on 0.2.1.6-alpha.
- Only limit the lengths of single HS descriptors, even when multiple HS descriptors are published to an HSDir relay in a single POST operation. Fixes bug 2948; bugfix on 0.2.1.5-alpha. Found by hsdir.

o Minor bugfixes (controllers):
- Allow GETINFO fingerprint to return a fingerprint even when we have not yet built a router descriptor. Fixes bug 3577; bugfix on 0.2.0.1-alpha.
- Send a SUCCEEDED stream event to the controller when a reverse resolve succeeded. Fixes bug 3536; bugfix on 0.0.8pre1. Issue discovered by katmagic.
- Remove a trailing asterisk from "exit-policy/default" in the output of the control port command "GETINFO info/names". Bugfix on 0.1.2.5-alpha.
- Make the SIGNAL DUMP controller command work on FreeBSD. Fixes bug 2917. Bugfix on 0.1.1.1-alpha.
- When we restart our relay, we might get a successful connection from the outside before we've started our reachability tests, triggering a warning: "ORPort found reachable, but I have no routerinfo yet. Failing to inform controller of success." This bug was harmless unless Tor is running under a controller like Vidalia, in which case the controller would never get a REACHABILITY_SUCCEEDED status event. Bugfix on 0.1.2.6-alpha; fixes bug 1172.
- When a controller changes TrackHostExits, remove mappings for hosts that should no longer have their exits tracked. Bugfix on 0.1.0.1-rc.

- When a controller changes VirtualAddrNetwork, remove any mappings for hosts that were automapped to the old network. Bugfix on 0.1.1.19-rc.
- When a controller changes one of the AutomapHosts* options, remove any mappings for hosts that should no longer be automapped. Bugfix on 0.2.0.1-alpha.
- Fix an off-by-one error in calculating some controller command argument lengths. Fortunately, this mistake is harmless since the controller code does redundant NUL termination too. Found by boboper. Bugfix on 0.1.1.1-alpha.
- Fix a bug in the controller interface where "GETINFO ns/asdaskljkl" would return "551 Internal error" rather than "552 Unrecognized key ns/asdaskljkl". Bugfix on 0.1.2.3-alpha.
- Don't spam the controller with events when we have no file descriptors available. Bugfix on 0.2.1.5-alpha. (Rate-limiting for log messages was already solved from bug 748.)
- Emit a GUARD DROPPED controller event for a case we missed.
- Ensure DNS requests launched by "RESOLVE" commands from the controller respect the __LeaveStreamsUnattached setconf options. The same goes for requests launched via DNSPort or transparent proxying. Bugfix on 0.2.0.1-alpha; fixes bug 1525.

o Minor bugfixes (config options):
- Tor used to limit HttpProxyAuthenticator values to 48 characters. Change the limit to 512 characters by removing base64 newlines. Fixes bug 2752. Fix by Michael Yakubovich.
- Complain if PublishServerDescriptor is given multiple arguments that include 0 or 1. This configuration will be rejected in the future. Bugfix on 0.2.0.1-alpha; closes bug 1107.
- Disallow BridgeRelay 1 and ORPort 0 at once in the configuration. Bugfix on 0.2.0.13-alpha; closes bug 928.

o Minor bugfixes (log subsystem fixes):
- When unable to format an address as a string, report its value as "???" rather than reusing the last formatted address. Bugfix on 0.2.1.5-alpha.
- Be more consistent in our treatment of file system paths. "~" should get expanded to the user's home directory in the Log config option. Fixes bug 2971; bugfix on 0.2.0.1-alpha, which introduced the feature for the -f and --DataDirectory options.

o Minor bugfixes (memory management):
- Don't stack-allocate the list of supplementary GIDs when we're about to log them. Stack-allocating NGROUPS_MAX gid_t elements could take up to 256K, which is way too much stack. Found by

Coverity; CID #450. Bugfix on 0.2.1.7-alpha.
- Save a couple bytes in memory allocation every time we escape certain characters in a string. Patch from Florian Zumbiehl.

o Minor bugfixes (protocol correctness):
- When checking for 1024-bit keys, check for 1024 bits, not 128 bytes. This allows Tor to correctly discard keys of length 1017 through 1023. Bugfix on 0.0.9pre5.
- Require that introduction point keys and onion handshake keys have a public exponent of 65537. Starts to fix bug 3207; bugfix on 0.2.0.10-alpha.
- Handle SOCKS messages longer than 128 bytes long correctly, rather than waiting forever for them to finish. Fixes bug 2330; bugfix on 0.2.0.16-alpha. Found by doorss.
- Never relay a cell for a circuit we have already destroyed. Between marking a circuit as closeable and finally closing it, it may have been possible for a few queued cells to get relayed, even though they would have been immediately dropped by the next OR in the circuit. Fixes bug 1184; bugfix on 0.2.0.1-alpha.
- Never queue a cell for a circuit that's already been marked for close.
- Fix a spec conformance issue: the network-status-version token must be the first token in a v3 consensus or vote. Discovered by "parakeep". Bugfix on 0.2.0.3-alpha.
- A networkstatus vote must contain exactly one signature. Spec conformance issue. Bugfix on 0.2.0.3-alpha.
- When asked about a DNS record type we don't support via a client DNSPort, reply with NOTIMPL rather than an empty reply. Patch by intrigeri. Fixes bug 3369; bugfix on 2.0.1-alpha.
- Make more fields in the controller protocol case-insensitive, since control-spec.txt said they were.

o Minor bugfixes (log messages):
- Fix a log message that said "bits" while displaying a value in bytes. Found by wanoskarnet. Fixes bug 3318; bugfix on 0.2.0.1-alpha.
- Downgrade "no current certificates known for authority" message from Notice to Info. Fixes bug 2899; bugfix on 0.2.0.10-alpha.
- Correctly describe errors that occur when generating a TLS object. Previously we would attribute them to a failure while generating a TLS context. Patch by Robert Ransom. Bugfix on 0.1.0.4-rc; fixes bug 1994.
- Fix an instance where a Tor directory mirror might accidentally log the IP address of a misbehaving Tor client. Bugfix on 0.1.0.1-rc.

- Stop logging at severity 'warn' when some other Tor client tries to establish a circuit with us using weak DH keys. It's a protocol violation, but that doesn't mean ordinary users need to hear about it. Fixes the bug part of bug 1114. Bugfix on 0.1.0.13.
- If your relay can't keep up with the number of incoming create cells, it would log one warning per failure into your logs. Limit warnings to 1 per minute. Bugfix on 0.0.2pre10; fixes bug 1042.

o Minor bugfixes (build fixes):
- Fix warnings from GCC 4.6's "-Wunused-but-set-variable" option.
- When warning about missing zlib development packages during compile, give the correct package names. Bugfix on 0.2.0.1-alpha.
- Fix warnings that newer versions of autoconf produce during ./autogen.sh. These warnings appear to be harmless in our case, but they were extremely verbose. Fixes bug 2020.
- Squash a compile warning on OpenBSD. Reported by Tas; fixes bug 1848.

o Minor bugfixes (portability):
- Write several files in text mode, on OSes that distinguish text mode from binary mode (namely, Windows). These files are: 'buffer-stats', 'dirreq-stats', and 'entry-stats' on relays that collect those statistics; 'client_keys' and 'hostname' for hidden services that use authentication; and (in the tor-gencert utility) newly generated identity and signing keys. Previously, we wouldn't specify text mode or binary mode, leading to an assertion failure. Fixes bug 3607. Bugfix on 0.2.1.1-alpha (when the DirRecordUsageByCountry option which would have triggered the assertion failure was added), although this assertion failure would have occurred in tor-gencert on Windows in 0.2.0.1-alpha.
- Selectively disable deprecation warnings on OS X because Lion started deprecating the shipped copy of openssl. Fixes bug 3643.
- Use a wide type to hold sockets when built for 64-bit Windows. Fixes bug 3270.
- Fix an issue that prevented static linking of libevent on some platforms (notably Linux). Fixes bug 2698; bugfix on 0.2.1.23, where we introduced the "--with-static-libevent" configure option.
- Fix a bug with our locking implementation on Windows that couldn't correctly detect when a file was already locked. Fixes bug 2504, bugfix on 0.2.1.6-alpha.
- Build correctly on OSX with zlib 1.2.4 and higher with all warnings enabled.
- Fix IPv6-related connect() failures on some platforms (BSD, OS X). Bugfix on 0.2.0.3-alpha; fixes first part of bug 2660. Patch by "piebeer".

o Minor bugfixes (code correctness):
  - Always NUL-terminate the sun_path field of a sockaddr_un before passing it to the kernel. (Not a security issue: kernels are smart enough to reject bad sockaddr_uns.) Found by Coverity; CID #428. Bugfix on Tor 0.2.0.3-alpha.
  - Make connection_printf_to_buf()'s behaviour sane. Its callers expect it to emit a CRLF iff the format string ends with CRLF; it actually emitted a CRLF iff (a) the format string ended with CRLF or (b) the resulting string was over 1023 characters long or (c) the format string did not end with CRLF *and* the resulting string was 1021 characters long or longer. Bugfix on 0.1.1.9-alpha; fixes part of bug 3407.
  - Make send_control_event_impl()'s behaviour sane. Its callers expect it to always emit a CRLF at the end of the string; it might have emitted extra control characters as well. Bugfix on 0.1.1.9-alpha; fixes another part of bug 3407.
  - Make crypto_rand_int() check the value of its input correctly. Previously, it accepted values up to UINT_MAX, but could return a negative number if given a value above INT_MAX+1. Found by George Kadianakis. Fixes bug 3306; bugfix on 0.2.2pre14.
  - Fix a potential null-pointer dereference while computing a consensus. Bugfix on tor-0.2.0.3-alpha, found with the help of clang's analyzer.
  - If we fail to compute the identity digest of a v3 legacy keypair, warn, and don't use a buffer-full of junk instead. Bugfix on 0.2.1.1-alpha; fixes bug 3106.
  - Resolve an untriggerable issue in smartlist_string_num_isin(), where if the function had ever in the future been used to check for the presence of a too-large number, it would have given an incorrect result. (Fortunately, we only used it for 16-bit values.) Fixes bug 3175; bugfix on 0.1.0.1-rc.
  - Be more careful about reporting the correct error from a failed connect() system call. Under some circumstances, it was possible to look at an incorrect value for errno when sending the end reason. Bugfix on 0.1.0.1-rc.
  - Correctly handle an "impossible" overflow cases in connection byte counting, where we write or read more than 4GB on an edge connection in a single second. Bugfix on 0.1.2.8-beta.
  - Avoid a double mark-for-free warning when failing to attach a transparent proxy connection. Bugfix on 0.1.2.1-alpha. Fixes bug 2279.
  - Correctly detect failure to allocate an OpenSSL BIO. Fixes bug 2378; found by "cypherpunks". This bug was introduced before the first Tor release, in svn commit r110.

- Fix a bug in bandwidth history state parsing that could have been triggered if a future version of Tor ever changed the timing granularity at which bandwidth history is measured. Bugfix on Tor 0.1.1.11-alpha.
- Add assertions to check for overflow in arguments to base32_encode() and base32_decode(); fix a signed-unsigned comparison there too. These bugs are not actually reachable in Tor, but it's good to prevent future errors too. Found by doorss.
- Avoid a bogus overlapped memcpy in tor_addr_copy(). Reported by "memcpyfail".
- Set target port in get_interface_address6() correctly. Bugfix on 0.1.1.4-alpha and 0.2.0.3-alpha; fixes second part of bug 2660.
- Fix an impossible-to-actually-trigger buffer overflow in relay descriptor generation. Bugfix on 0.1.0.15.
- Fix numerous small code-flaws found by Coverity Scan Rung 3.

o Minor bugfixes (code improvements):
- After we free an internal connection structure, overwrite it with a different memory value than we use for overwriting a freed internal circuit structure. Should help with debugging. Suggested by bug 1055.
- If OpenSSL fails to make a duplicate of a private or public key, log an error message and try to exit cleanly. May help with debugging if bug 1209 ever remanifests.
- Some options used different conventions for uppercasing of acronyms when comparing manpage and source. Fix those in favor of the manpage, as it makes sense to capitalize acronyms.
- Take a first step towards making or.h smaller by splitting out function definitions for all source files in src/or/. Leave structures and defines in or.h for now.
- Remove a few dead assignments during router parsing. Found by coverity.
- Don't use 1-bit wide signed bit fields. Found by coverity.
- Avoid signed/unsigned comparisons by making SIZE_T_CEILING unsigned. None of the cases where we did this before were wrong, but by making this change we avoid warnings. Fixes bug 2475; bugfix on 0.2.1.28.
- The memarea code now uses a sentinel value at the end of each area to make sure nothing writes beyond the end of an area. This might help debug some conceivable causes of bug 930.
- Always treat failure to allocate an RSA key as an unrecoverable allocation error.
- Add some more defensive programming for architectures that can't handle unaligned integer accesses. We don't know of any actual bugs right now, but that's the best time to fix them. Fixes bug 1943.

o Minor bugfixes (misc):
  - Fix a rare bug in rend_fn unit tests: we would fail a test when a randomly generated port is 0. Diagnosed by Matt Edman. Bugfix on 0.2.0.10-alpha; fixes bug 1808.
  - Where available, use Libevent 2.0's periodic timers so that our once-per-second cleanup code gets called even more closely to once per second than it would otherwise. Fixes bug 943.
  - Ignore OutboundBindAddress when connecting to localhost. Connections to localhost need to come _from_ localhost, or else local servers (like DNS and outgoing HTTP/SOCKS proxies) will often refuse to listen.
  - Update our OpenSSL 0.9.8l fix so that it works with OpenSSL 0.9.8m too.
  - If any of the v3 certs we download are unparseable, we should actually notice the failure so we don't retry indefinitely. Bugfix on 0.2.0.x; reported by "rotator".
  - When Tor fails to parse a descriptor of any kind, dump it to disk. Might help diagnosing bug 1051.
  - Make our 'torify' script more portable; if we have only one of 'torsocks' or 'tsocks' installed, don't complain to the user; and explain our warning about tsocks better.
  - Fix some urls in the exit notice file and make it XHTML1.1 strict compliant. Based on a patch from Christian Kujau.

o Documentation changes:
  - Modernize the doxygen configuration file slightly. Fixes bug 2707.
  - Resolve all doxygen warnings except those for missing documentation. Fixes bug 2705.
  - Add doxygen documentation for more functions, fields, and types.
  - Convert the HACKING file to asciidoc, and add a few new sections to it, explaining how we use Git, how we make changelogs, and what should go in a patch.
  - Document the default socks host and port (127.0.0.1:9050) for tor-resolve.
  - Removed some unnecessary files from the source distribution. The AUTHORS file has now been merged into the people page on the website. The roadmaps and design doc can now be found in the projects directory in svn.

o Deprecated and removed features (config):
  - Remove the torrc.complete file. It hasn't been kept up to date and users will have better luck checking out the manpage.
  - Remove the HSAuthorityRecordStats option that version 0 hidden service authorities could use to track statistics of overall v0 hidden service usage.

- Remove the obsolete "NoPublish" option; it has been flagged
  as obsolete and has produced a warning since 0.1.1.18-rc.
- Caches no longer download and serve v2 networkstatus documents
  unless FetchV2Networkstatus flag is set: these documents haven't
  haven't been used by clients or relays since 0.2.0.x. Resolves
  bug 3022.

o Deprecated and removed features (controller):
- The controller no longer accepts the old obsolete "addr-mappings/"
  or "unregistered-servers-" GETINFO values.
- The EXTENDED_EVENTS and VERBOSE_NAMES controller features are now
  always on; using them is necessary for correct forward-compatible
  controllers.

o Deprecated and removed features (misc):
- Hidden services no longer publish version 0 descriptors, and
  clients do not request or use version 0 descriptors. However, the
  old hidden service authorities still accept and serve version 0
  descriptors when contacted by older hidden services/clients.
- Remove undocumented option "-F" from tor-resolve: it hasn't done
  anything since 0.2.1.16-rc.
- Remove everything related to building the expert bundle for OS X.
  It has confused many users, doesn't work right on OS X 10.6,
  and is hard to get rid of once installed. Resolves bug 1274.
- Remove support for .noconnect style addresses. Nobody was using
  them, and they provided another avenue for detecting Tor users
  via application-level web tricks.
- When we fixed bug 1038 we had to put in a restriction not to send
  RELAY_EARLY cells on rend circuits. This was necessary as long
  as relays using Tor 0.2.1.3-alpha through 0.2.1.18-alpha were
  active. Now remove this obsolete check. Resolves bug 2081.
- Remove workaround code to handle directory responses from servers
  that had bug 539 (they would send HTTP status 503 responses _and_ send
  a body too). Since only server versions before 0.2.0.16-alpha/0.1.2.19
  were affected, there is no longer reason to keep the workaround
  in place.
- Remove the old 'fuzzy time' logic. It was supposed to be used for
  handling calculations where we have a known amount of clock skew
  and an allowed amount of unknown skew. But we only used it in three
  places, and we never adjusted the known/unknown skew values. This
  is still something we might want to do someday, but if we do, we'll
  want to do it differently.
- Remove the "--enable-iphone" option to ./configure. According to
  reports from Marco Bonetti, Tor builds fine without any special
  tweaking on recent iPhone SDK versions.

7. On August 28th, we released Torbutton 1.4.1.

```
Torbutton 1.4.1 has been released at:
https://www.torproject.org/torbutton/

This release features a "New Identity" menu option that clears browser
state, closes tabs, and obtains a fresh Tor circuit for future requests.
It also features a fix for breakage with Hotmail, and further isolates
browser state and identifiers to the url bar domain (see
https://blog.torproject.org/blog/improving-private-browsing-modes-do-not-
track-vs-real-privacy-design).

However, the New Identity button and the Hotmail fix are only
available to Tor Browser Bundle users. If you are still using
Torbutton with a vanilla Mozilla Firefox, we strongly recommend you
download the Tor Browser Bundle 2.2.x alphas from
https://www.torproject.org/dist/torbrowser/ and report problems you
experience, as we will be declaring them stable within the next
release or two.

Here is the complete changelog:
 * bug 523: Implement New Identity (for TBB only)
 * bug 3580: Fix hotmail/live breakage (for TBB only)
 * bug 3748: Disable 3rd party HTTP auth
 * bug 3665: Fix several corner cases SafeCache isolation
 * bug 3739: Fix https->http CORS failure for SafeCache
 * bug 3414: Isolate window.name based on referrer policy
 * bug 3809: Disable referer spoofing (fixes navigation issues)
 * bug 3819: Fix API issue with cookie protections
 * bug 3820: Fix warning w/ session store filter
```

8. On August 31st, updated the stable Tor Browser Bundle.

```
We have updated the stable Tor Browser Bundles to Firefox 6.

There are no longer any stable Tor Browser Bundles with the 3.6.x series
of Firefox. We were using pre-built binaries on some platforms and owing
to the recent DigiNotar debacle, we no longer felt comfortable shipping
versions of Firefox that we were unable to patch. We build all Firefox 6
binaries from source, with our own set of patches, including some
specific to the DigiNotar issue.

We'd originally planned to drop support for Firefox 3.6 bundles on
September 10th, but this moved up the date a bit. The new Tor Browser
Bundles are much more feature-rich than the previous bundles, but users
may still experience unexpected behavior. Please report all bugs to
```

```
https://trac.torproject.org/.

Windows users will see the biggest difference between the old stable
bundle and the new stable bundle. In addition to upgrading Firefox, it
includes the latest stable release of Tor 0.2.2.32,Vidalia 0.2.14 and
Torbutton 1.4.1. These three upgrades together allow you to run the Tor
Browser Bundle at the same time as a system Tor, or even multiple copies
of the Tor Browser Bundle in different directories, by dynamically
choosing available ports.

https://www.torproject.org/download

Tor Browser Bundle (2.2.32-2)

    Update Firefox to 6.0.1, with an additional patch to exclude DigiNotar
    completely
        https://gitweb.torproject.org/torbrowser.git/commit/0be3b043afa0e54d207f

        For the full saga, read:
        http://blog.mozilla.com/security/2011/08/29/fraudulent-google-com-certif...
        http://googleonlinesecurity.blogspot.com/2011/08/update-on-attempted-man...
    OS X specific: Rebuild 32-bit binaries with backwards compatibility
    options so TBB works on OSX 10.5 (closes: #3671)
    Update Libevent to 2.0.14-stable
    Update torbrowser.version string in prefs.js to have more
    information (see #3504)
    Enable internationalized bundles by adding and changing the
    general.useragent.locale pref in prefs.js
```

Design, develop, and implement enhancements that make Tor a better tool for users in censored countries.

- Fixed a bunch of bugs related to microdescriptors and Proposal 171 code. These will show up in September Tor development releases.
- Released multiple versions of Tor Browser Bundle to address issues with the Diginotar Certificate Authority crack.
  https://blog.torproject.org/blog/diginotar-debacle-and-what-you-should-do-about-it
  and
  https://blog.torproject.org/blog/diginotar-damage-disclosure
- Sebastian rewrote TorCheck and Tor Bulk Exit List (TorBEL) tools. We're going to do some more testing and then deploy the updated TorBEL, Check, and DNSel tools in October 2011.
  - Tor Check: It currently comes with a very simplistic torcheck replacement that Sebas-

tian is embedding the new html into:
https://trac.torproject.org/projects/tor/ticket/3749 along with a new torbutton feature for TBB upgrade checking:
https://trac.torproject.org/projects/tor/ticket/2285

- Bulk Exit List: We need a replacement for the current bulk exit list script, because it makes thousands of DNS requests and kills the network as well as the host that it runs on. Torbel did not have a script like this, but Sebastian wrote one. It is much faster than the old script.
- DNS exit list service: This was the core of the old infrastructure; now it is just an addon to TorBEL. This means that even if the DNS service gets overloaded massively, check and bulk list can function independently.
- Core TorBEL: TorBEL itself is now just a service that publishes an exit list along with a status file that tells when the list will be updated next. This means that all the other services making use of the data can simply fetch the list and parse it instead of making one request per request they receive themselves.

- Steven worked on Tor patches to support UPnP on Windows, which also will be useful for launching pluggable transport helper programs. This is now merged into Tor, along with the following patches to fix the test cases.

  These changes consist of:

  - bug 2046: teach Tor how to launch background subprocesses on Windows:
    https://trac.torproject.org/projects/tor/ticket/2046
  - bug 1983: get tor-fw-helper to build on Windows:
    https://trac.torproject.org/projects/tor/ticket/1983
  - Patch miniupnpc to build on Windows:
    https://gitweb.torproject.org/user/sjm217/miniupnpc-patches.git

  This code works for two testers, so we think it is now ready for more users. It is in Tor 0.2.3.3-alpha, but disabled by default.

- Set up a preview of the new Tor Status written by the Wesleyan students in order to get more feedback from the community. Tried to move the discussion forward how to maintain TorStatus in the future and how to merge the relevant metrics website parts into it. The relevant links are:

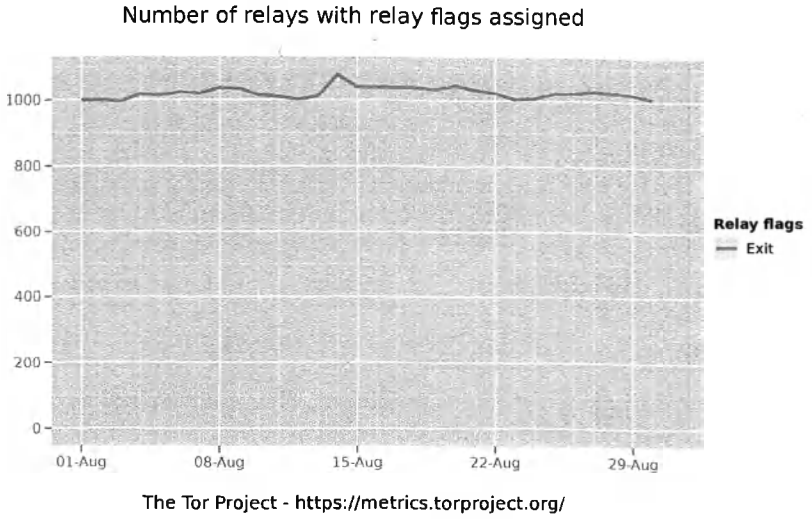
  https://blog.torproject.org/blog/new-pythondjango-based-torstatus
  http://www.torstatusbeta.org/

Hide Tor's network signature.

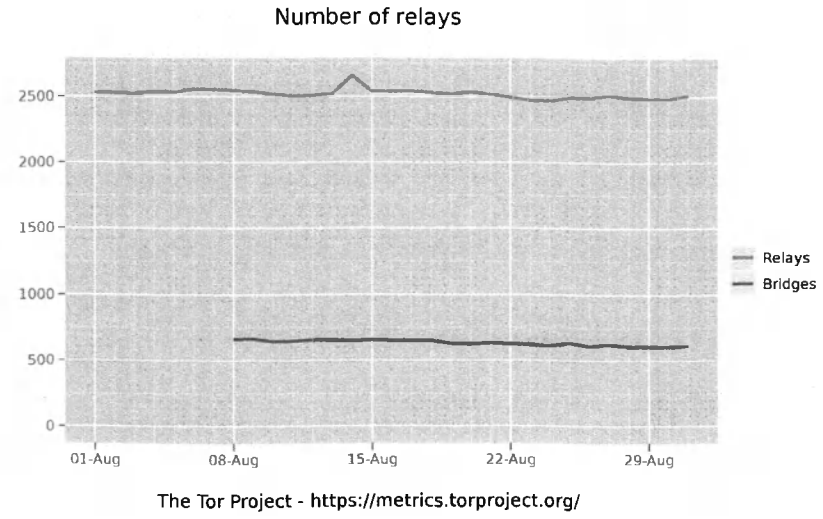
- We're working with CAIDA to get datasets to better test and tune obfsproxy. We've been working through the permissions – it looks like George's aggregated version of their dataset should be something we can release to the world.

Grow the Tor network and user base. Outreach.

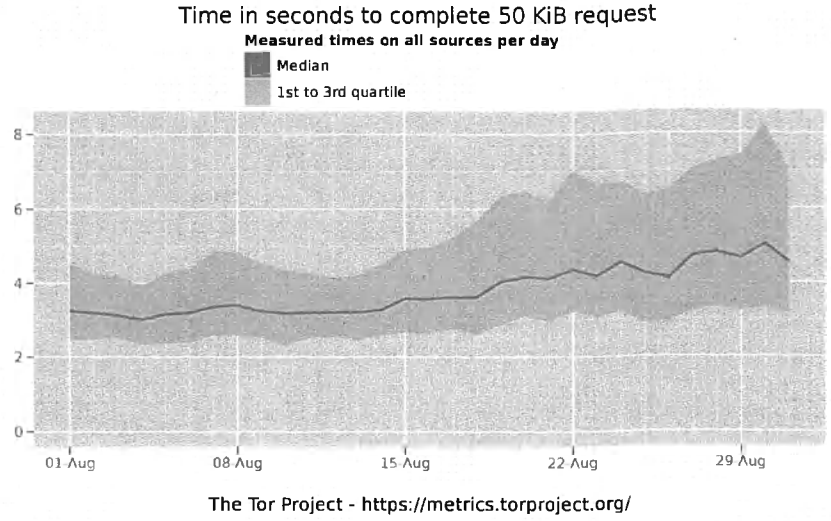
Measures of the Tor Network



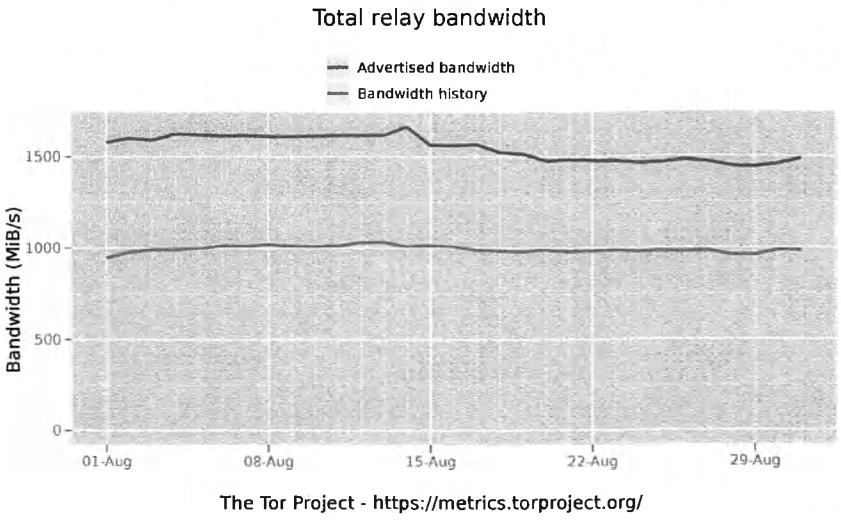
This graph shows the total quantity of exit relays in August 2011. There is a very slight reduction in relays over the month.



This graph shows the total quantity of relays and the total quantity of bridges in August 2011.



This graphs shows how many seconds it took to complete a 50KB download from a standard Tor client. This is an average of all measurements from servers located in Illinois, Massachusetts, and Sweden. Average latency has increased slightly to 4.5 seconds.



This graph shows the total available bandwidth available to clients and how much was actually used throughout the month. The steady-state of relays creates almost 1.5GBps (12.0 Gbps) of bandwidth available.

Outreach and Advocacy

1. The Persian News Network ran a campaign to spread Tor to their users. This campaign has resulted in over 10,000 emails delivering Farsi Tor Browser Bundle. We've seen Tor usage from

Iran increase to around 40,000 users daily. https://metrics.torproject.org/packages.html

2. Roger attended FOCI, the Workshop on Free and Open Communications on the Internet: https://db.usenix.org/events/foci11/tech/.
3. Roger attended Usenix Security Symposium, https://db.usenix.org/events/sec11/index.html.
4. Roger presented the keynote at Crypto, http://www.iacr.org/conferences/crypto2011/.
5. Worked with EFF on their blog post about IP Addresses alone do not identify criminals, https://www.eff.org/deeplinks/2011/08/why-ip-addresses-alone-dont-identify-criminals.
6. Roger posted a research question to the community, https://blog.torproject.org/blog/research-problem-better-guard-rotation-parameters.
7. Runa attended DEFCON and represented Tor at the Privacy By Design "Develop4Privacy" awards, https://www.develop4privacy.org/awards.
8. Andrew presented at the National Network to End Domestic Violence annual technical conference.
https://blog.torproject.org/blog/ending-domestic-violence-nnedv-and-tor
9. Announced the new Tor stable via press release. https://www.torproject.org/press/2011-08-28-tor-022-stable
10. We started to gather a set of "user stories" on the blog:
https://blog.torproject.org/blog/we-need-your-good-tor-stories

Preconfigured privacy (circumvention) bundles for USB or LiveCD.

- Due to the end of life of Firefox 4 and 5, and the DigiNotar Certificate Authority breach, we released Firefox 6 as part of Tor Browser Bundle. Details on the related Tor Browser releases and the DigiNotar issues are at https://blog.torproject.org/category/tags/ohdiginotaryoudidnt

Bridge relay and bridge authority work.

- Continued to make progress on the hardware Tor router device based on the DreamPlug. We have a skeleton graphical interface to allow users to configure it through a web browser. Integration of the arm, console relay controller continues.

Scalability, load balancing, directory overhead, efficiency.

- Started discussion of sanitizing our web server logs. Wrote a simple parser to sanitize existing logs, discussed sanitizing procedure on tor-dev. https://lists.torproject.org/pipermail/tor-dev/2011-August/002892.html

- Added data formats page to metrics website, `https://metrics.torproject.org/formats.html`.
- Fixed a strange out-of-memory problem on metrics by assigning 8G of RAM to a Java program instead of 4G, both of which are too much. Some of this code needs a rewrite that can handle the growing amounts of data.
- Performed experiments with Amazon EC2 cloud. See `https://github.com/info/Tor-Cloud` for progress. Code cleanup and finalization on this is scheduled for September. Tor now has an Amazon AWS account with developers assigned to it for testing the Tor Cloud concept.

Incentives work.

Nothing to report.

More reliable (e.g. split) download mechanism.

- PNN Tsunami: The PNN Tsunami brought up some usability issues of the GetTor service. Christian tried to address them, with the help of Roger. We re-wrote large parts of the help text and fixed some usability bugs on the way:
  `https://trac.torproject.org/projects/tor/ticket/3379`
  `https://trac.torproject.org/projects/tor/ticket/3381`
  `https://trac.torproject.org/projects/tor/ticket/2796`
  `https://trac.torproject.org/projects/tor/ticket/3772`
  `https://trac.torproject.org/projects/tor/ticket/3829`
  `https://trac.torproject.org/projects/tor/ticket/3855`
- Deployed a redesigned download page to help guide users to the right software for their operating system and language.

Footprints from Tor Browser Bundle.

Nothing to report.

Translation work, ultimately a browser-based approach.

- Sebastian and Runa prototyped a script that automatically fetches translations from transifex and commits them to git.
- Updated translations in German, Arabic, Greek, Spanish, Farsi, Portugese Brazilian, Russian, Vietnamese, and Simplified Chinese.

From: Andrew Lewman, Executive Director
To: Kelly DeYoe, program officer, BBG
RE: contract BBGCON1807S6441
Date: March 8, 2011

This report documents progress in February 2011 on contract BBGCON1807S6441 between BBG and The Tor Project.

C 2.0. New releases, new hires, new funding

We contracted Runa Sandvik to work on moving the torouter `https://trac.torproject.org/projects/tor/wiki/TheOnionRouter/Torouter` project forward, translations, integration of tor web server log analysis.

New Releases

1. On February 23rd, we released an updated Tor -stable. Tor 0.2.1.30 fixes a variety of less critical bugs. The main other change is a slight tweak to Tor's TLS handshake that makes relays and bridges that run this new version reachable from Iran again. We don't expect this tweak will win the arms race long-term, but it buys us time until we roll out a better solution.

```
Changes in version 0.2.1.30
  o Major bugfixes:
    - Stop sending a CLOCK_SKEW controller status event whenever
      we fetch directory information from a relay that has a wrong clock.
      Instead, only inform the controller when it's a trusted authority
      that claims our clock is wrong. Bugfix on 0.1.2.6-alpha; fixes
      the rest of bug 1074.
    - Fix a bounds-checking error that could allow an attacker to
      remotely crash a directory authority. Bugfix on 0.2.1.5-alpha.
      Found by "piebeer".
    - If relays set RelayBandwidthBurst but not RelayBandwidthRate,
      Tor would ignore their RelayBandwidthBurst setting,
      potentially using more bandwidth than expected. Bugfix on
      0.2.0.1-alpha. Reported by Paul Wouters. Fixes bug 2470.
    - Ignore and warn if the user mistakenly sets "PublishServerDescriptor
      hidserv" in her torrc. The 'hidserv' argument never controlled
      publication of hidden service descriptors. Bugfix on 0.2.0.1-alpha.

  o Minor features:
    - Adjust our TLS Diffie-Hellman parameters to match those used by
      Apache's mod_ssl.
    - Update to the February 1 2011 Maxmind GeoLite Country database.
```

```
o Minor bugfixes:
  - Check for and reject overly long directory certificates and
    directory tokens before they have a chance to hit any assertions.
    Bugfix on 0.2.1.28. Found by "doorss".
  - Bring the logic that gathers routerinfos and assesses the
    acceptability of circuits into line. This prevents a Tor OP from
    getting locked in a cycle of choosing its local OR as an exit for a
    path (due to a .exit request) and then rejecting the circuit because
    its OR is not listed yet. It also prevents Tor clients from using an
    OR running in the same instance as an exit (due to a .exit request)
    if the OR does not meet the same requirements expected of an OR
    running elsewhere. Fixes bug 1859; bugfix on 0.1.0.1-rc.

o Packaging changes:
  - Stop shipping the Tor specs files and development proposal documents
    in the tarball. They are now in a separate git repository at
    git://git.torproject.org/torspec.git
  - Do not include Git version tags as though they are SVN tags when
    generating a tarball from inside a repository that has switched
    between branches. Bugfix on 0.2.1.15-rc; fixes bug 2402.
```

C.2.1. Design, develop, and implement enhancements that make Tor a better tool for users in censored countries.

- Arm development has stayed relatively on track, with the revised connection panel very nearly achieving parity with its predecessor (and in most respects surpassing it). Most of what remains are refinements and tasty new features. Arm has also been added to Debian (Sid) and Ubuntu (Natty) with backports pending. Many thanks to Peter for his help.
- Tom spent some time assisting Jacob with a satellite test. The test wound up breaking due to flaky hardware, however they were able to collect some usable data.
- Created the trac ticket around hidden service improvements, `https://trac.torproject.org/projects/tor/ticket/2552` We need to focus on improving hidden services and fixing some of the performance and reliability issues within.
- Mike fixed a bunch of torbutton bugs. His summary iteration results are at `https://trac.torproject.org/projects/tor/ticket/2591`.
- Mike helped fix the bandwidth authority on salsa that exploded due to a reinstall.

C.2.2. Architecture and technical design docs for Tor enhancements related to blocking-resistance.

- Karsten and Sebastian tried to improve the database schema in metrics-db to speed up relay search performance. Unfortunately, the required updates from the old schema took forever,

so we don't just need a better schema, but also a better migration strategy to go from one schema to the next.

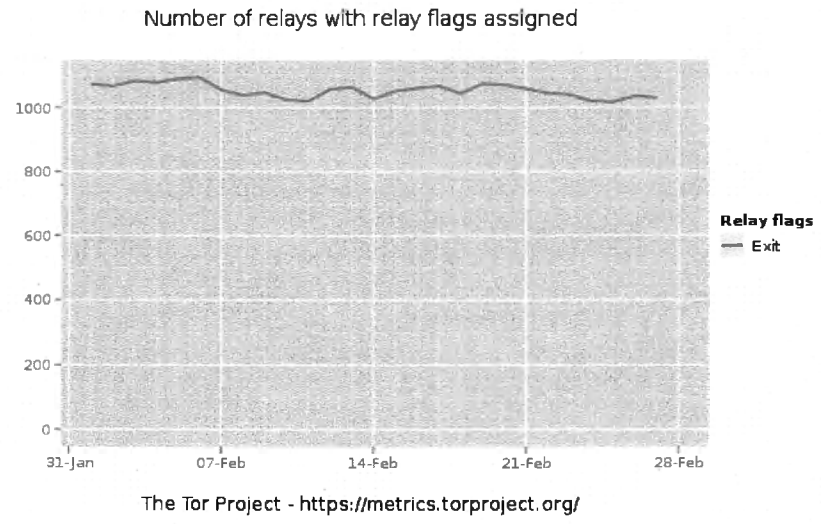
- Karsten started moving code from metrics-db to metrics-web to make the metrics website a self-contained unit that's independent of aggregating descriptors. The idea is that people can take the metrics-web code and improve it or replace it with a better metrics website written in the web language of their choice.
- Karsten started working on better visualizations of Tor data using the Thematic Mapping API together with Rachel Binx.

C.2.5. Hide Tor's network signature.

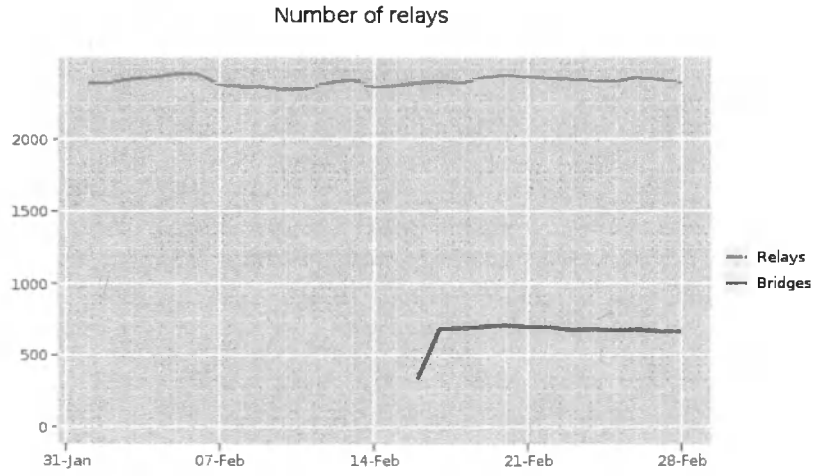
- Collaborated with George K on obfsproxy, a generic protocol obfuscator. It seems to work ok but needs more testing.
- Nick worked on improving the pluggable-transport design.
- Jacob did another revision on what is now prop 179, `https://gitweb.torproject.org/torspec.git/blob/HEAD:/proposals/179-TLS-cert-and-parameter-normalization.txt`
- Jacob looked at the EFF SSL data and have some improvements for how we can get better data for future research questions.

C.2.10 Grow the Tor network and user base. Outreach.

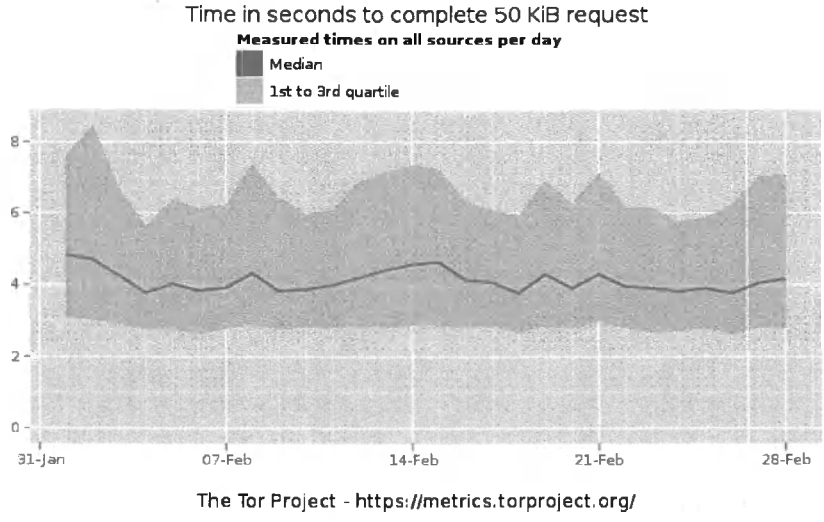
Measures of the Tor Network



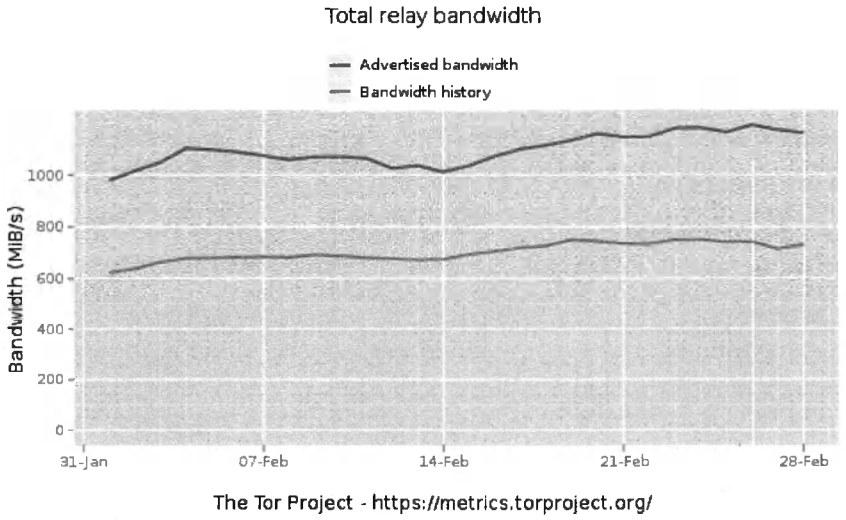
This graph shows the total quantity of exit relays in February 2011. We seem to have kept most of our relays since the bump due to Tunisia and Egypt.



This graph shows the total quantity of relays and the total quantity of bridges in February 2011. We seem to have kept most of our relays since the bump due to Tunisia and Egypt. Due to a data collection error in February, we're missing two weeks of data for bridges.



This graphs shows how many seconds it took to complete a 50KB download from a standard Tor client. This is an average of all measurements from servers located in Illinois, Massachusetts, and Sweden. Performance remains relatively steady at 4 seconds.



This graph shows the total available bandwidth available to clients and how much was actually used throughout the month. The influx of relays from last month creates almost 1.4GBps (11.2 Gbps) of bandwidth available.

Outreach and Advocacy

1. Jacob continued working on Egypt related issues.
2. Jacob did a training for people in Bahrain.
3. Tor, the ACLU and the OPC launched our privacy challenge: `http://www.develop4privacy.org/`.
4. Jacob did a bit of looking at the Libyan Internet.
5. Jacob gave the keynote speech at the Ctrl-X-Ethics Workshop in Toronto on ethics of security research.
6. We ran a successful hackfest with the help of MITs Center for Future Civic Media, `https://blog.torproject.org/blog/tor-open-hackfest-february-19-2011` and the followup at `https://blog.torproject.org/blog/hackfest-thanks`.
7. Roger was the keynote speaker for Workshop on Free and Open Communication on the Internet (FOCI), `http://www.gtisc.gatech.edu/foci.html`.
8. Andrew talked to the Wesleyan HFOSS team about Tor and classwork for their Summer 2011 session. `http://hfoss.org/`.
9. Roger and Steven presented at Financial Crypto and the Workshop on the Ethics of Computer Security Research.
10. Andrew spoke at a few panels under Chatham House Rules. He published his speech notes as a blog post, `https://blog.torproject.org/blog/five-minutes-speak`.

C.2.11. Preconfigured privacy (circumvention) bundles for USB or LiveCD.

- Jacob did some testing of Gibberbot's Tor and OTR integration. Gibberbot is an XMPP chat client for Android designed to work over Tor.
- Jacob did a bunch of work on ttdnsd - some important (but not critical) bug fixes and he's planning on pushing out a release in the future. Jacob and Robert did some work on torsocks integration and in the process hammered out a reasonable torsocks API for people who want to have auto-magically Torified sockets without understanding Tor internals.
- Jacob worked on OpenWRT packaging issues - as well as other work on the Torouter project.
- Jacob worked on Tahoe (`http://tahoe-lafs.org/trac/tahoe-lafs`) and Tor related Hidden Service documentation; after moderate amount of Tor testing with Tahoe now and it seems to be partially functional.

C.2.12 Bridge relay and bridge authority work.

- Karsten prepared a patch for BridgeDB to export bridge pool assignments to a local file. This patch needs some cleanup before being deployed on BridgeDB.
- Karsten wrote a first draft of a BridgeDB specification that Nick commented on. The next step is to include Nick's comments and change the writing style, so that the specification describes what the current BridgeDB code does, not what a generic BridgeDB implemention should do.
- Karsten extended the bridge descriptor sanitizing algorithm to include IP address hashes in the sanitized descriptors. Sanitized all existing bridge descriptors using this new algorithm. Instead of 127.0.0.1, bridges now have 10.x.y.z addresses with x.y.z being stable for a given bridge fingerprint in a given month. This allows analyses of how often bridges change their IP addresses in a given month.
- Christian deployed a new version of BridgeDB, the one that's i18n enabled (1613) and also can dump bridge pool assignments to files. We can now assign an amount of unassigned bridges to someone/something and dump them to file buckets. See 1612 for more infos. In theory, we can now have an amount of Twitter assigned bridges that we pump out over Twitter.
- Christian also started writing a python script that is able to dump stuff to Twitter.
- After deployment of the new BridgeDB, some issues came up that were fixed (2556 and others). It seems to run smoothly now. We'll be even more happy about it when we have important (read: Chinese and Farsi) translations ready and deployed.
- Christian and Karsten discussed about whether his planned "dump bridge pool assignments to files" feature can use the bucket mechanism of 1612. Turns out it can't since both have a different set of goals and would be to painful to sync with every change.
- Mike helped Karsten with improving the output of Torperf for future experiments involving circuit build timeouts.

C.2.13. Scalability, load balancing, directory overhead, efficiency.

- Improved Torperf and finally deployed it to collect data about used paths and to measure performance with custom guard node selections. This is still work in progress together with Mike and Tom as part of our first Scrum iteration that ends on March 5.
- Worked on Florian's and Björn's token bucket patch some more together with Sebastian. The current state of the patch is that it needs some more love before it can be merged into 0.2.3.x.
- Nick collaborated a little with two volunteers on what we think at this point must be the 5th generation of a "launch a private network" tool. This one is called "chutney".
- Nick reviewed a bunch of patches, reviewed a bunch of bugs, fixed a bunch of bugs, merged many people's code, got 0.2.2.x closer to done.

- Sebastian wrote a proposal for a safer voting process for consensus parameters, and wrote an implementation for it. https://gitweb.torproject.org/torspec.git/blob/HEAD:/proposals/178-param-voting.txt

- Roger wrote a blog post about using our data archive as input to new safety metrics: https://blog.torproject.org/blog/research-problem-measuring-safety-tor-network.

- Roger talked to the Philly FBI for the Philadelphia Infragard chapter about Tor and anonymity online.

- Roger taught a Tor lecture for Drexel's security class.

- Andrew was interviewed by Discovery News about Tor's role in the unrest in Tunisia and Egypt, http://news.discovery.com/tech/egypt-internet-online-protesters-110201.html

- Andrew was interviewed by the Walpole Times about Tor and what we do, http://www.wickedlocal.com/walpole/news/x95296113/Tor-Project-a-Walpole-based-company-helps-Egyptian

- Damian started thinking about our various projects in a more streamlined and easy-to-understand way. The results are at https://www.torproject.org/getinvolved/volunteer.html.en#Projects.

C.2.14. Incentives work.

1. Christian cleaned up the rather hackish installation of Weather on bahri. The stable installation now lives under '/home/weather/opt/current' and actually is update-able through 'git pull'. There's also a testing installation to test stuff and play around at https://weather2.torproject.org/. He's tried to update the documentation with all the stuff that is necessary to install and run Weather.

2. Christian tried looking into 2467. Some people complained that Weather didn't know their relay fingerprint. On Sebastian's and Mike's idea, Christian changed the torrc to include 'FetchDirInfoEarly 1' and 'FetchUselessDescriptors 1'. Since that no one complained again about Weather not knowing a certain relay (except for one time, when the Weather process had silently crashed and therefore the database wasn't updated for a day).

3. After Tor 0.2.1.30 was tagged and made it to the recommended versions', people running 0.2.1.29 started complaining about getting "Node out of date!" emails from Weather. It turned out that Weather was actually doing the right thing, namely mailing them that they were not running the latest recommended stable version anymore. No one seemed to have read the text near the checkbox in the signup process. After discussing this intensely with Sebastian, we decided to go for a more simple solution: People now get email when they don't run one of the recommended versions or a more recent dev version of Tor.

C.2.15. More reliable (e.g. split) download mechanism.

- Christian did a rather large GetTor overhaul. The way GetTor manages its packages is now much easier to understand and enhance. GetTor moved from a ini-style configuration file and parser to a more BridgeDB-like configuration management. Also, packages are now configured rather than hard coded. In addition, he cleaned up the i18n management of GetTor to something similar to what we use in BridgeDB. Not only are the translation strings cleaner now, but the translation and installation is smoother. Also, the logging was simplified because it had too many features that no one used and generally was polluting the log file with too much useless information. Furthermore, the MakeStat.py script that creates GetTor's package statistics was simplified a lot.
- Christian fixed 1586, users requesting non-existent split packages now are informed about that fact.
- Nick worked on a thandy packaging spec with erinn

C.2.16. Footprints from Tor Browser Bundle.

Nothing to report.

C.2.17 Translation work, ultimately a browser-based approach.

- Sebastian Started figuring out a way how translations can be pulled from transifex and used in their respective products in a more automated fashion.
- New or updated website translations in French, Russian, Italian, Japanese, Spanish, Mandarin Chinese, and Greek.

From: Andrew Lewman, Executive Director
To: Kelly DeYoe, program officer, BBG
RE: contract BBGCON1807S6441
Date: February 8, 2011

This report documents progress in January 2011 on contract BBGCON1807S6441 between BBG and The Tor Project.

C 2.0. New releases, new hires, new funding

New Releases

1. On January 4th, we released the latest in the alpha branch of torbutton, version 1.3.1. This release features a fix for the nasty pref dialog issue in 1.3.0 (bug 2011), as well as Firefox 4.0 support. Thanks to new APIs in Firefox 3.5 and better privacy options in Firefox 4, Torbutton has now been simplified as well. While we still provide a number of XPCOM components, the number of native Firefox components we replace has shrunk from 5 to just one. However, the amount of changes involved in supporting Firefox 4 were substantial, and it is likely that these changes as well as the removal of old code has introduced new bugs. We've done our best to test out operation on Firefox 3.6 and 4.0, but we have not tested Firefox 3.0, and may have missed other issues as well.

   ```
   Here is the complete changelog:
   * bugfix: bug 1894: Amnesia is now called TAILS (patch from intrigeri)
   * bugfix: bug 2315: Remove reference to TorVM (patch from intrigeri)
   * bugfix: bug 2011: Fix preference dialog issues (patch from chrisdoble)
   * bugfix: Fix some incorrect log lines in RefSpoofer
   * new: Support Firefox 4.0 (many changes)
   * new: Place button in the nav-bar (FF4 killed the status-bar)
   * misc: No longer reimplement the session store, use new APIs instead
   * misc: Simplify crash detection and startup mode settings
   ```

2. On January 7th, A new release of arm was released, including enhancements targeted at performance and cross platform compatibility. In particular, this release provides...

   (a) Vastly Better Resolver Performance. By far the most expensive thing that arm does is ps and netstat/lsof/etc lookups. While wandering around development forums I discovered psutil, an awesome library for cross platform resolution of system and process information. For OSX and BSD they're using ps and lsof lookups just like arm. However, for Linux they had a very different approach, querying proc contents directly. I adapted the functions for arm and it cut the runtime for resource and connection resolution by 90%. Many thanks to the authors of psutil (Jay Loden, Dave Daeschler, and Giampaolo Rodola')!

(b) BSD Compatibility. For a long time FreeBSD has been arm's nemesis. Its variant of netstat can't get connection pids, the ss resolving utility belongs to a spreadsheet program instead, and even pid resolution failed (breaking resource stats and numerous other things). However, thanks to patches and testing by Fabian Keil and Hans Schnehl arm now has BSD counterparts for all of these, plus autodetection for BSD Jails.

(c) Expanded Distribution. Peter and I have finished revisions for the arm deb and it's now pending feedback from the Debian FTP admins. Arm is also now available on ArchLinux thanks to Spider.007 and Fabian mentioned that he might be interested in doing a FreeBSD port.

(d) Volunteer Recruiting. Being the lone developer of arm is kinda lonely. I'd love to find other people interested in hacking on the code with me. To this end, and in anticipation of GSOC 2011, I've added a project to Tor's volunteer page ("Client Mode Use Cases for Arm").

Plus numerous other fixes and improvements (for details see the release notes). As always, screenshots and downloads are available from the project's homepage: `http://www.atagar.com/arm/`

3. On January 9th, The Tor Browser Bundles were updated with some important security fixes and it is advised that all users upgrade. Geolocation has been disabled and some prefs added as a workaround for bug 2338.

   - Linux bundles, version 1.1.2. Update Firefox preferences to be more secure and disable geolocation to address 2338
   - OS X bundle, version 1.0.9. Update Firefox preferences to be more secure and disable geolocation to address 2338
   - Windows bundles, version 1.3.16. Update Firefox preferences to be more secure and disable geolocation to address 2338

4. On January 10th, we updated the OS X PPC packages after a long hiatus due to failed hardware. They are now available in stable (0.2.1.28) and alpha (0.2.2.20-alpha) versions, both with the latest Vidalia (0.2.10).

5. On January 15th, we released the latest in the stable Tor series, version Tor 0.2.1.29. This continues our recent code security audit work. The main fix resolves a remote heap overflow vulnerability that can allow remote code execution. Other fixes address a variety of assert and crash bugs, most of which we think are hard to exploit remotely. All Tor users should upgrade.

```
Changes in version 0.2.1.29:
  o Major bugfixes (security):
    - Fix a heap overflow bug where an adversary could cause heap
      corruption. This bug probably allows remote code execution
      attacks. Reported by "debuger". Fixes CVE-2011-0427. Bugfix on
      0.1.2.10-rc.
    - Prevent a denial-of-service attack by disallowing any
      zlib-compressed data whose compression factor is implausibly
```

```
    high. Fixes part of bug 2324; reported by "doorss".
  - Zero out a few more keys in memory before freeing them. Fixes
    bug 2384 and part of bug 2385. These key instances found by
    "cypherpunks", based on Andrew Case's report about being able
    to find sensitive data in Tor's memory space if you have enough
    permissions. Bugfix on 0.0.2pre9.

o Major bugfixes (crashes):
  - Prevent calls to Libevent from inside Libevent log handlers.
    This had potential to cause a nasty set of crashes, especially
    if running Libevent with debug logging enabled, and running
    Tor with a controller watching for low-severity log messages.
    Bugfix on 0.1.0.2-rc. Fixes bug 2190.
  - Add a check for SIZE_T_MAX to tor_realloc() to try to avoid
    underflow errors there too. Fixes the other part of bug 2324.
  - Fix a bug where we would assert if we ever had a
    cached-descriptors.new file (or another file read directly into
    memory) of exactly SIZE_T_CEILING bytes. Fixes bug 2326; bugfix
    on 0.2.1.25. Found by doorss.
  - Fix some potential asserts and parsing issues with grossly
    malformed router caches. Fixes bug 2352; bugfix on Tor 0.2.1.27.
    Found by doorss.

o Minor bugfixes (other):
  - Fix a bug with handling misformed replies to reverse DNS lookup
    requests in DNSPort. Bugfix on Tor 0.2.0.1-alpha. Related to a
    bug reported by doorss.
  - Fix compilation on mingw when a pthreads compatibility library
    has been installed. (We don't want to use it, so we shouldn't
    be including pthread.h.) Fixes bug 2313; bugfix on 0.1.0.1-rc.
  - Fix a bug where we would declare that we had run out of virtual
    addresses when the address space was only half-exhausted. Bugfix
    on 0.1.2.1-alpha.
  - Correctly handle the case where AutomapHostsOnResolve is set but
    no virtual addresses are available. Fixes bug 2328; bugfix on
    0.1.2.1-alpha. Bug found by doorss.
  - Correctly handle wrapping around when we run out of virtual
    address space. Found by cypherpunks, bugfix on 0.2.0.5-alpha.

o Minor features:
  - Update to the January 1 2011 Maxmind GeoLite Country database.
  - Introduce output size checks on all of our decryption functions.

o Build changes:
  - Tor does not build packages correctly with Automake 1.6 and earlier;
    added a check to Makefile.am to make sure that we're building with
    Automake 1.7 or later.
  - The 0.2.1.28 tarball was missing src/common/OpenBSD_malloc_Linux.c
    because we built it with a too-old version of automake. Thus that
    release broke ./configure --enable-openbsd-malloc, which is popular
    among really fast exit relays on Linux.
```

6. On January 16, we released many updated packages.

```
- Windows expert packages (stable & alpha)
- Vidalia bundles (stable & alpha for Windows, and OS X ppc & x86)
- Tor Browser Bundles for Windows, Linux, and OS X (see below for other updates)
- RPM packages (stable & alpha)
- Debian and Ubuntu packages (stable & alpha)
- Tor Browser Bundles
-- Windows Bundles, version 1.3.17
Update Tor to 0.2.1.29
-- Linux Bundles, verson 1.1.3
Update Tor to 0.2.2.21-alpha
Update NoScript to 2.0.9.3
-- OS X Bundles, version 1.0.10
Update Tor to 0.2.2.21-alpha
Update NoScript to 2.0.9.
```

7. On January 15th, we released the latest in the Tor alpha series, version 0.2.2.21-alpha. It includes all the patches from Tor 0.2.1.29, which continues our recent code security audit work. The main fix resolves a remote heap overflow vulnerability that can allow remote code execution (CVE-2011-0427). Other fixes address a variety of assert and crash bugs, most of which we think are hard to exploit remotely.

```
Changes in version 0.2.2.21-alpha
  o Major bugfixes (security), also included in 0.2.1.29:
    - Fix a heap overflow bug where an adversary could cause heap
      corruption. This bug probably allows remote code execution
      attacks. Reported by "debuger". Fixes CVE-2011-0427. Bugfix on
      0.1.2.10-rc.
    - Prevent a denial-of-service attack by disallowing any
      zlib-compressed data whose compression factor is implausibly
      high. Fixes part of bug 2324; reported by "doorss".
    - Zero out a few more keys in memory before freeing them. Fixes
      bug 2384 and part of bug 2385. These key instances found by
      "cypherpunks", based on Andrew Case's report about being able
      to find sensitive data in Tor's memory space if you have enough
      permissions. Bugfix on 0.0.2pre9.

  o Major bugfixes (crashes), also included in 0.2.1.29:
    - Prevent calls to Libevent from inside Libevent log handlers.
      This had potential to cause a nasty set of crashes, especially
      if running Libevent with debug logging enabled, and running
      Tor with a controller watching for low-severity log messages.
      Bugfix on 0.1.0.2-rc. Fixes bug 2190.
    - Add a check for SIZE_T_MAX to tor_realloc() to try to avoid
      underflow errors there too. Fixes the other part of bug 2324.
    - Fix a bug where we would assert if we ever had a
      cached-descriptors.new file (or another file read directly into
      memory) of exactly SIZE_T_CEILING bytes. Fixes bug 2326; bugfix
      on 0.2.1.25. Found by doorss.
    - Fix some potential asserts and parsing issues with grossly
```

```
    malformed router caches. Fixes bug 2352; bugfix on Tor 0.2.1.27.
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o Minor bugfixes (other), also included in 0.2.1.29:
  - Fix a bug with handling misformed replies to reverse DNS lookup
    requests in DNSPort. Bugfix on Tor 0.2.0.1-alpha. Related to a
    bug reported by doorss.
  - Fix compilation on mingw when a pthreads compatibility library
    has been installed. (We don't want to use it, so we shouldn't
    be including pthread.h.) Fixes bug 2313; bugfix on 0.1.0.1-rc.
  - Fix a bug where we would declare that we had run out of virtual
    addresses when the address space was only half-exhausted. Bugfix
    on 0.1.2.1-alpha.
  - Correctly handle the case where AutomapHostsOnResolve is set but
    no virtual addresses are available. Fixes bug 2328; bugfix on
    0.1.2.1-alpha. Bug found by doorss.
  - Correctly handle wrapping around when we run out of virtual
    address space. Found by cypherpunks; bugfix on 0.2.0.5-alpha.

o Minor features, also included in 0.2.1.29:
  - Update to the January 1 2011 Maxmind GeoLite Country database.
  - Introduce output size checks on all of our decryption functions.

o Build changes, also included in 0.2.1.29:
  - Tor does not build packages correctly with Automake 1.6 and earlier;
    added a check to Makefile.am to make sure that we're building with
    Automake 1.7 or later.
  - The 0.2.1.28 tarball was missing src/common/OpenBSD_malloc_Linux.c
    because we built it with a too-old version of automake. Thus that
    release broke ./configure --enable-openbsd-malloc, which is popular
    among really fast exit relays on Linux.

o Major bugfixes, new in 0.2.2.21-alpha:
  - Prevent crash/heap corruption when the cbtnummodes consensus
    parameter is set to 0 or large values. Fixes bug 2317; bugfix
    on 0.2.2.14-alpha.

o Major features, new in 0.2.2.21-alpha:
  - Introduce minimum/maximum values that clients will believe
    from the consensus. Now we'll have a better chance to avoid crashes
    or worse when a consensus param has a weird value.

o Minor features, new in 0.2.2.21-alpha:
  - Make sure to disable DirPort if running as a bridge. DirPorts aren't
    used on bridges, and it makes bridge scanning somewhat easier.
  - If writing the state file to disk fails, wait up to an hour before
    retrying again, rather than trying again each second. Fixes bug
    2346; bugfix on Tor 0.1.1.3-alpha.
  - Make Libevent log messages get delivered to controllers later,
    and not from inside the Libevent log handler. This prevents unsafe
    reentrant Libevent calls while still letting the log messages
```

```
    get through.
  - Detect platforms that brokenly use a signed size_t, and refuse to
    build there. Found and analyzed by doorss and rransom.
  - Fix a bunch of compile warnings revealed by mingw with gcc 4.5.
    Resolves bug 2314.

o Minor bugfixes, new in 0.2.2.21-alpha:
  - Handle SOCKS messages longer than 128 bytes long correctly, rather
    than waiting forever for them to finish. Fixes bug 2330; bugfix
    on 0.2.0.16-alpha. Found by doorss.
  - Add assertions to check for overflow in arguments to
    base32_encode() and base32_decode(); fix a signed-unsigned
    comparison there too. These bugs are not actually reachable in Tor,
    but it's good to prevent future errors too. Found by doorss.
  - Correctly detect failures to create DNS requests when using Libevent
    versions before v2. (Before Libevent 2, we used our own evdns
    implementation. Its return values for Libevent's evdns_resolve_*()
    functions are not consistent with those from Libevent.) Fixes bug
    2363; bugfix on 0.2.2.6-alpha. Found by "lodger".

o Documentation, new in 0.2.2.21-alpha:
  - Document the default socks host and port (127.0.0.1:9050) for
    tor-resolve.
```

8. On January 20th, the TAILS LiveCD/USB team released an updated version, 0.6.2. It is available at `http://amnesia.boum.org/news/version_0.6.2/`. It contains:

```
* Tor: upgrade to 0.2.1.29 (fixes CVE-2011-0427).
* Software
- Upgrade Linux kernel, dpkg, libc6, NSS, OpenSSL, libxml2 (fixes various
  security issues).
- Upgrade Claws Mail to 3.7.6 (new backport).
- Install Liferea, tcpdump and tcpflow.
* Seahorse: use hkp:// transport as it does not support hkps://.
* FireGPG: use hkps:// to connect to the configured keyserver.
* Build system: take note of the Debian Live tools versions being used
  to make next point-release process faster.
* APT: don't ship package indices.
```

9. On January 25th, we released Tor 0.2.2.22-alpha. It fixes a few more less-critical security issues. The main other change is a slight tweak to Tor's TLS handshake that makes relays and bridges that run this new version reachable from Iran again. We don't expect this tweak will win the arms race long-term, but it will buy us a bit more time until we roll out a better solution. Anybody running a relay or bridge who wants it to work for Iran should upgrade.

```
Changes in version 0.2.2.22-alpha
  o Major bugfixes:
    - Fix a bounds-checking error that could allow an attacker to
      remotely crash a directory authority. Bugfix on 0.2.1.5-alpha.
```

```
    Found by "piebeer".
  - Don't assert when changing from bridge to relay or vice versa
    via the controller. The assert happened because we didn't properly
    initialize our keys in this case. Bugfix on 0.2.2.18-alpha; fixes
    bug 2433. Reported by bastik.

o Minor features:
  - Adjust our TLS Diffie-Hellman parameters to match those used by
    Apache's mod_ssl.
  - Provide a log message stating which geoip file we're parsing
    instead of just stating that we're parsing the geoip file.
    Implements ticket 2432.

o Minor bugfixes:
  - Check for and reject overly long directory certificates and
    directory tokens before they have a chance to hit any assertions.
    Bugfix on 0.2.1.28 / 0.2.2.20-alpha. Found by "doorss".
```

10. Released new VisiTor version 0.0.4 that contains a Python version of the weblog-parsing script contributed by Kiyoto Tamura and two minor fixes.

C.2.1. Design, develop, and implement enhancements that make Tor a better tool for users in censored countries.

- From the 0.2.2.22-alpha release notes, Adjust our TLS Diffie-Hellman parameters to match those used by Apache's $mod_ssl. This is a slight tweak to Tor's TLS handshake that makes relays and bridges that r$

- Started discussion of TLS normalization. The developer discussion is at `http://archives.seul.org/or/dev/Jan-2011/msg00029.html`

- Continued discussions of pluggable transports. The draft specification can be found at `https://gitweb.torproject.org/tor.git/blob/HEAD:/doc/spec/proposals/ideas/xxx-pluggable-transport.txt`. The start of the discussion can be found on the or-dev mailing list at `http://archives.seul.org/or/dev/Jan-2011/msg00018.html`.

- Started discussion of Proposal 176 to change the version 3 handshake to not use TLS renegotiation. Proposal 176 is at `https://gitweb.torproject.org/tor.git/blob/HEAD:/doc/spec/proposals/176-revising-handshake.txt`. The developer discussion starts at `http://archives.seul.org/or/dev/Jan-2011/msg00052.html`.

- Andrew and Roger documented the features in the Tor -alpha software that allow users to use a SOCKS proxy as a circumvention method should Tor be blocked in some manner. `https://www.torproject.org/docs/proxychain.html.en`.

C.2.2. Architecture and technical design docs for Tor enhancements related to blocking-resistance.

- Continued discussions of pluggable transports. The draft specification can be found at `https://gitweb.torproject.org/tor.git/blob/HEAD:/doc/spec/proposals/ideas/xxx-pluggable-transport.txt`. The start of the discussion can be found on the or-dev mailing list at `http://archives.seul.org/or/dev/Jan-2011/msg00018.html`.

C.2.5. Hide Tor's network signature.

- From the 0.2.2.22-alpha release notes, Adjust our TLS Diffie-Hellman parameters to match those used by Apache's $mod_ssl. This is a slight tweak to Tor's TLS handshake that makes relays and bridges that r$

- Started discussion of TLS normalization. The developer discussion is at `http://archives.seul.org/or/dev/Jan-2011/msg00029.html`
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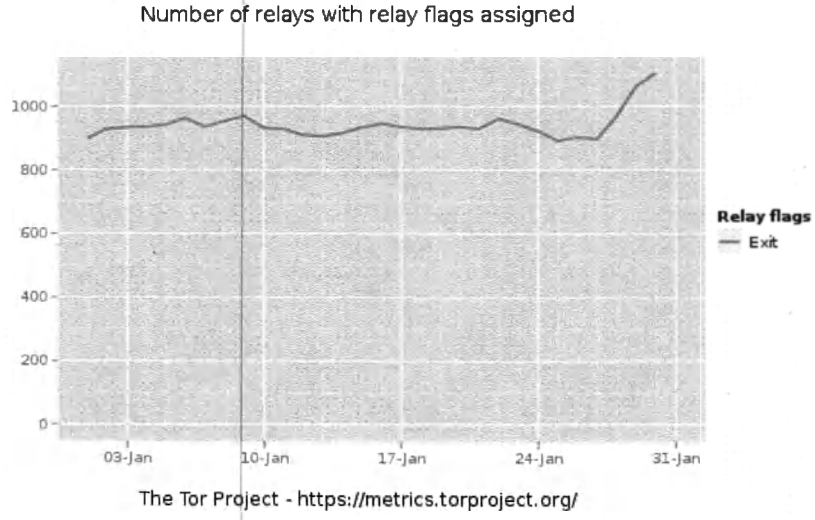
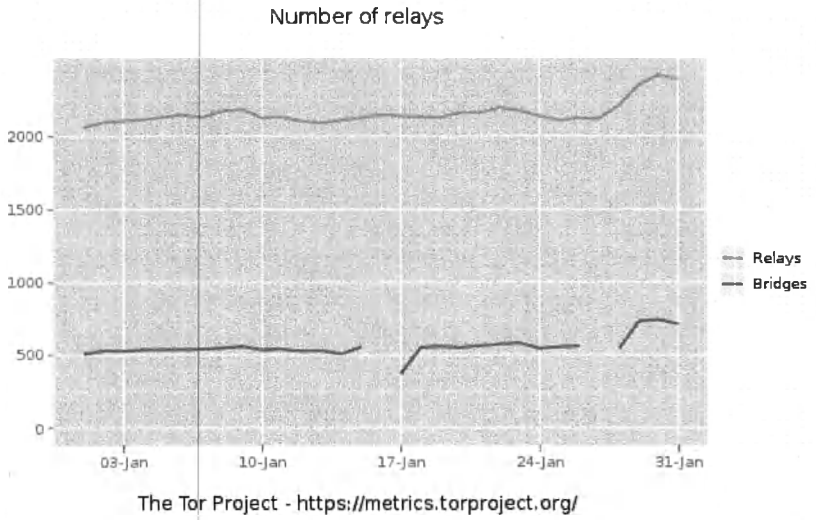
C.2.10 Grow the Tor network and user base. Outreach.

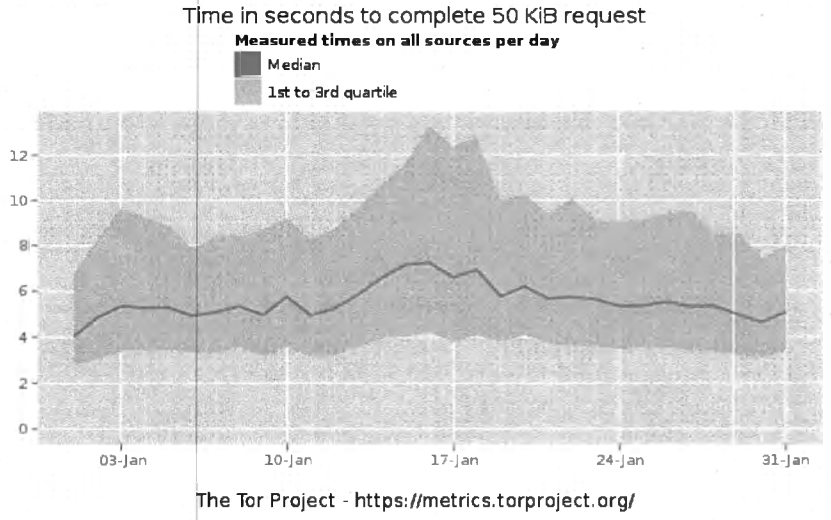
Measures of the Tor Network



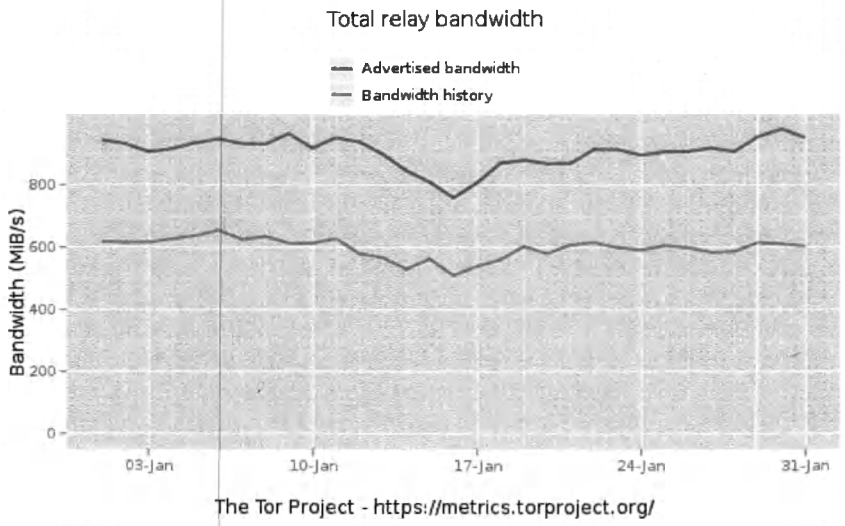
This graph shows the total quantity of exit relays in January 2011. Due to events in Egypt, we had a marked increase in exit relays joining the network.



This graph shows the total quantity of relays and the total quantity of bridges in January 2011. Due to events in Egypt, we had a marked increase in relays and bridges joining the network.



This graphs shows how many seconds it took to complete a 50KB download from a standard Tor client. This is an average of all measurements from servers located in Illinois, Massachusetts, and Sweden. Performance remains relatively steady at 5 seconds.



This graph shows the total available bandwidth available to clients and how much was actually used throughout the month. The influx of relays at the end of the month creates almost 1GBps (8 Gbps) of bandwidth available.

Outreach and Advocacy

1. Held a successful public hackfest at MIT's Center for Future Civic Media, https://blog.torproject.org/blog/boston-tor-hackers-join-us-saturday-january-15th.

2. Due to the events in Egypt, Tor usage by activists, and human rights organizations requesting our technical help, we were featured in over 30 news stories, interviews, and articles. The master list of the media highlights is at https://www.torproject.org/press/inthemedia.html.en.

3. Did Karen attend any events?

C.2.11. Preconfigured privacy (circumvention) bundles for USB or LiveCD.

- See 2.0 for the updated Tor Browser Bundles for OSX, Windows, and Linux.
- The TAILS live CD/USB project continued to document their security model, designs, and overall software configuration.

C.2.12 Bridge relay and bridge authority work.

- Karsten did some work to publish sanitized bridge pool assignments. We're going to publish the information which distribution pool a bridge is assigned to. The distribution pool defines whether we're giving out bridges via HTTP, via email, or not at all (reserved pool). The plan is to remove all sensitive information from bridge pool assignments before making them available on https://metrics.torproject.org/data.html. The discussion was started on the or-dev list at http://archives.seul.org/or/dev/Jan-2011/msg00033.html.

C.2.13. Scalability, load balancing, directory overhead, efficiency.

- We released an updated version of Tor Weather, https://weather.torproject.org. Tor Weather is a web application used to allow tor relay operators to sign up for notices when their relay is offline, drops below a threshold of bandwidth served, and receive notifications when a new version of tor is released. This version of the web application was written by the Wesleyan University Humantarian Free and Open Source Software (HFOSS) team working on Tor for their summer project, http://hfoss.wesleyan.edu/.
- Karsten started improving metrics-db performance, so that it can scale to five years of data with 10K relays and 5K bridges. This included a few tricks to avoid parsing the same data twice. Also changed the database schema to use SQL arrays to store bandwidth histories, which is apparently a less used part of PostgreSQL, because he found a confirmed bug in PostgreSQL 8.2 (released 2006-12-05).
- Karsten found two major, if not blocking, bugs in Torouter when run on the suggested Buffalo hardware. The Excito hardware does not have these problems. The bug numbers

are 2334, https://trac.torproject.org/projects/tor/ticket/2334, and 2376, https://trac.torproject.org/projects/tor/ticket/2376.

- Karsten found and fixed a problematic bridge sanitizer bug that made us keep original IP addresses in reject lines. Updated metrics-db and sanitized all bridge descriptors since May 2008 once again. The latter kept two of our computers busy for 2.5 weeks.
- Karsten started with exporting bridge pool assignments and restarted discussion about preserving hashed IP addresses in bridge descriptors.
- Karsten upgraded Torperfs to output information about which circuits they used for measuring download times. Made data available on metrics website. Added new graphs combining all Torperf sources and showing the fraction of timeouts and failures. Started Torperfs with custom entry guard selection strategies.
- Karsten talked to Björn Scheuermann and Florian Tschorsch about performance improvements in Tor. Working on a patch with them to be included in Tor 0.2.3.x.
- Karsten improved graphs on metrics-web by adding more countries and by allowing users to customize the graph image resolution.

C.2.14. Incentives work.

Nothing to report.

C.2.15. More reliable (e.g. split) download mechanism.

- Sebastian and Erinn started to tackle Thandy and Hudson work. They solved the Hudson issue on Windows and made a good deal of progress on getting Thandy set up, understanding the different roles and responsiblities of each in the Thandy system. Installing files by copying into the right place works, but the packaging db that would be required for TBB is not yet working.

C.2.16. Footprints from Tor Browser Bundle.

Nothing to report.

C.2.17 Translation work, ultimately a browser-based approach.

- Updated translations for the following languages: af ak am arn ast be bg bn bn_IN csb cy dz eo eu fil fur ga gl gun ha he hi ht hu is it km kn kw lb ln lo lt lv mg mi mk ml mn mr ms mt nah nap ne nn nso oc pa pap pms ps sco son sw ta te tg th ti tk uk ur ve wa zh_HK zu.