

# Tor Browser Delay Detection Extension Ver2

## Introduction:

The objective of this extension is to record delay information of websites user surf by Tor Browser. The first version of the extension cannot record the delay information until webpage fully loaded, thus, before page fully loaded, user cannot change url, switch tab or abandon current tab. After the last meeting with Greg, I understand the extension should be as stealthy as possible, thus, the second version of the extension does not need any user interaction, user can add multiple tabs, open multiple webs, change location....., no pop-ups, no user interaction, everything is the same as normal Tor browser except the extension will record delays in the background. Another improvement is the version 2 can handle user abandon actions, which means, if user abandon a page before its fully loaded, the extensions can record in which period of time ( pre-processing, network, local-processing) user abandon the page, and how long the user wait until they abandon the page.

## Problems Met:

1. If user open multiple tabs, how to monitor every tab and differentiate their emitting events and how to record delay information of every tab.
2. how to know a page is abandoned or fully loaded
3. how to record delays if the page is about to abandoned.
4. how to know the reason a user abandoned a page.
5. how to differentiate request send by iframes and mainwindow( Note that in same situations use isFrameElement to determine is not enough).
6. how to record the delays if user abandon before the page object load. Since if in this situation we cannot user navigation API, we implement another mechanism to handle this situation.

## Details:

**what delays to record:**

(this graph is from <https://dvcs.w3.org/hg/webperf/raw-file/tip/specs/NavigationTiming/Overview.html>)

like version 1 we choose three periods of time, they are: pre-processing, network and local-processing.

The pre-processing is between navigationStart and requestStart

The network is between requestStart and responsEnd

the local-processing is between responseEnd and domComplete

### **How to record delays for all tabs:**

Every tab will be added a progress listener, when we receive a notification, we can use the notification to locate the active tab. Then we can create a time instance for the tab to record delays.

### **How to record abandon connections:**

abandon connection means user abandon the current webpage beofre it is fully loaded which means domComplete. There are several approaches a user to abandon a webpage:

1. he/she may change to visit another website which means change the url of current tab.
2. he/she may close the tab
3. he/she may close the browser

The extension provides handlers to handle each of these three situations and record the waiting time before abandon.

### **Where to save the results:**

the extension will save the results to any customized places.

### **Structure of saved file:**

the file name is maked up by two part, the first part is time stamp and second is random number, they are separated by "-". the format of saved file is csv, and it has 6 columns: domainName, pre-processing delay, network delay, local delay, abandon reason ( if user abandon the page before fully loaded, this column will record the reason such as close tab, change url....), connectionTime.

Note that, if user abandon the webpage at any delay perod, there will be a string 'abandon' after the delay time.

e.g. record for abandon before dom load complete

<a href="http://bbs.erji.com/">http://bbs.erji.com/</a>	1455	1591	8106	abandon	user change location or stop loading	Tue Jan 13 2015 13:55:40 GMT-0500 (EST)
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