Browser 2 Performance Measurement
Installation and Use

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Installation

- There are two ways to install 3PMobile™ Performance software. OTA (Over the Air) using the standard Android browser or via side loading (see link below).

- If you have an AT&T phone, the software must be side loaded. The best way to do this is to download the free side loader app from here and follow the instructions.

- The 3PMobile™ Performance app (Browser2.apk) may be downloaded from the link on our Website or the link that was sent to you in your account setup confirmation email

- The software installs per the standard Android app installation process. Please refer to your device manual if you require assistance.

- Once downloaded and installed, run the 3PMobile browser application. When the first Web page loads, push the browser menu and select Privacy Options. You will be prompted to install the Me.apk. Say, "Yes" and continue. At this point, you will have two distinct apps added to your app library. The apps work together seamlessly, but should you need to uninstall them for any reason, this is important to note.

    1. Browser2.apk (the testing browser)
    2. Me.apk (the performance control panel)

Reinstallation

- If you need to download and reinstall the software again, you must use the standard Android browser for the download.

- You can install Browser2.apk over the currently installed version. Using this approach does not upgrade the Privacy Options app (Me.apk). All your data, login and sharing settings remain intact.

- If you want to ensure a complete upgrade, then delete both apps prior to installing the new versions. This can be done by going to Settings l Applications l Manage Applications and select the correct apps. Remember, you will need to repeat this process for each of the app components.

Using 3PMobile™: Performance Testing Basics

3PMobile™ Performance Measurement service is a client-server application. The following instructions refer to the mobile application component of the service. For information about the reporting service or to see sample reports, visit www.3pmobile.com.

- **Mobile Performance App Set-Up:** 3PMobile™ is two applications in one. There is a Privacy Options app (the Me app) where you enable the Performance Measurement Report and collect the on-device data, and there is the Browser, which transmits that data to the 3PMobile™ Performance Web Service.
    - After installing the software you must check one option in the Privacy Options app to send a performance report to the 3Pmobile.com service. The process is as follows:
        - Start Browser2 and click on the Menu button
        - Select *Privacy Options*
        - Next select *Owner Preferences* and then *Performance Measuring.* Check the box that says "Enable Performance Reporting". Add your username and password you selected when you set up your 3pmobile.com service account (this is where your performance reports will be sent).
        - Choose "Save Changes and Exit" from the Menu. Your data will be encrypted and saved.
        - You will then be returned to the *Owner Preferences* panel. Use the back button to return to the 3PMobile browser.
    - ***Additional Note.*** If you wish to capture screen shots of the Web site please select those options while in the Performance Measuring panel. Be aware that the files are large and that the device will respond more slowly. We suggest that you use this feature over Wi-Fi to conserve your data plan. *5o9® Inc, is not responsible for any data plan overage fees incurred while using the 3PMobile™ service.*

- **Sending a Performance Report:**
    - Navigate to the URL you want to test using the 3PMobile™ browser. (You can click on Menu and then select the *Go To* option to type in a URL.)
    - Using the browser menu key, select "Performance". A Performance Report Panel will appear that allows you to select various options.
    - Choose *Send Report*. Once selected, you will get a progress dialog box along with a message that the report was sent successfully.
    - To verify that you generated a valid Performance report for the last URL visited, select Performance from the browser menu and choose the "View Summary" tab at the top right of the Performance Report Panel. If you do *not* see a complete report summary, use the Back key to return to the Performance Report Panel and click on either "Refresh" or "Refresh and Send Report".
- To view the details of your performance reports please go to: www.3pmoible.com and use your username and password to login in to the service.

Privacy Note: All data that leaves the device is compressed and encrypted. No personal information is transmitted other than that required to login into the 3PMobile service (username and password).

Geo-Location Data

If your smartphone contains a GPS chip then Browser2 will use it to determine your real-time location. There are several features of which you should be aware:

- You can access the Location Information panel with Browser2 running by clicking on the Menu and then selecting *More* and scrolling down to the bottom of the panel. Near the bottom you will see the "Location Information" menu option. Click for real time information and to see if your GPS is responding correctly
- If your GPS is working correctly and has acquired a signal from multiple satellites, then the latest data will be displayed. If it's not working then please place your device in an area where it has unimpeded access to the sky.
- While Browser2 is running you will see a satellite icon in the menu bar at the top of the screen. If it is flashing then it is trying to acquire a signal.
- Please be aware that as long as Browser2 is running then the satellite/GPS function is running and updating every 20 seconds.
- Terminating Browser2: Select *Menu | More | Terminate this Program*. This will also terminate the real-time GPS updates.

Using 3PMobile™: Mobile Context (metadata) To Support Privacy & Personalization

The Privacy Options app includes support for sending additional metadata to your Web server enabling you to more effectively manage performance, privacy and personalization – The 3P's of Mobile Web Success. More information about how this works along with use cases can be found on our Web site at: www.5o9inc.com

- If you wish to experiment by sending additional data to your own Web server where it can be used to personalize Web pages etc., you can enable it by doing the following:
    - Go to "Privacy Options" (either launch the app directly from the applications folder or open the 3PMobile Browser2 app and select *Menu | Privacy Options*)
    - Click on "Owner Preferences" and then select any of the following panels to enable metadata in the form of HTTP_X headers to be sent to your own server. Use the "Save and Exit" option at the bottom of each page or when you press the browser menu key.
        - Owner Information
        - Location Information
        - Device Information
        - Commerce Information
    - Before you can send the data to your server, you must add your testing domain to the white list. Go to "Advanced Options" and enter in the domain name to which you wish to send the data.
    - You then need to scroll down to the bottom of the screen and ensure that the box next to "Do NOT use OTA encryption" is checked. (The full version of our software supports full encryption of your data to your server)
    - Be sure to click on Menu and "Save and Exit". Then click on "Return to Main Menu", and finally click on the back key.
    - Now anytime you navigate to the approved Web site using Browser2 your metadata will be transmitted to your server as HTTP_X headers (CGI environment variables), which can be extracted using a scripting language.
- Please note that if you enable this feature, your data will also be sent to your account at 3PMobile.com. You can view your contextual data by selecting a performance test, choosing the "Raw Data" tab and then clicking on the link titled, *HTTP_X_5O9 Headers*.

JavaScript Report Options

Located in the Performance Measuring Panel: *Menu | Privacy Options | Owner Preferences* there are two JavaScript report options. They are both checked on by default:

[x] Include JavaScript error count
[x] Include JavaScript error detail

- If the first is checked but the second is not, then we will accurately report the number of JavaScript errors on the page, but there will be no detail reporting in your performance report.
- If both boxes are checked then you will see the full count of the errors *and* the corresponding console messages in the browser performance tab of your site report.
- If both boxes are unchecked then we will not report the number of JavaScript errors on the page, even if there were some errors.

Automation Options

Checking these boxes allows you to run auto tests and auto scripts:

[x] Enable Automation using Scripts
[x] Enable Automated Testing

For example: You want to automate tests for the following three Web pages:

1. www.5o9mm.com
2. www.5o9inc.com
3. www.3pmobile.com

You would write the following script:

```
<script>
function do_5o9()
{
 var urls = ""; // The list of URLS to AUTOTEST

urls += "description Performance Test script\n";
urls += "http://www.5o9mm.com/\n";
urls += "http://www.5o9inc.com/\n";
urls += "http://www.3pmobile.com/\n";
urls += "loop delay 60\n";

  js5o9.autotest( urls );
}
   </script>
```

- Each script must use the above syntax
- You can extend the delay between test sequences by changing the value i.e. 900 = 15 minutes
- You can insert additional titles/descriptions inside the above. Subsequent titles will have that title

Testing Options

There are, currently, two different modes that can be used for Performance Testing. Detail Mode and Summary Mode:

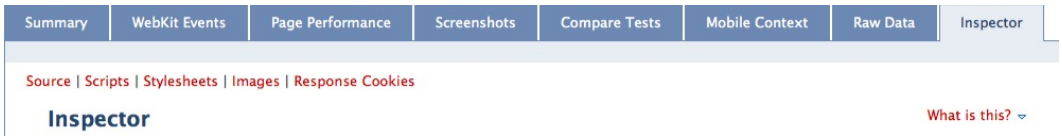
- **Summary Mode**
  - Summary Mode supplies an overview of the individual resource loads
  - Summary Mode uses fewer system resources than detail mode
  - Summary Mode is recommended if you are using any Automated Testing, Scripting options

- **Detail Mode** (default test setting)
  - Detail Mode provides the greatest amount of detail during performance testing
  - Detail Mode is the ***default*** test setting
  - Detail mode includes the following checkboxes. These two features are ***ONLY*** available in Detail mode. You can click back to Summary mode with these two check boxes activated but they will be ignored during the performance test
    [x] Use HTTP/1.1 Keep Alive
    [x] Include Source code in reports
    [x] Include Cookies in reports

Detail Mode Check Boxes: Checking and unchecking the above the boxes can add valuable information the reports you will see in your 3PMobile™ test account. Please note the more detail you choose to send, the more time each report takes to send and process and if you are using a fixed data plan, you will be sending more data.

- **HTTP/1.1 Keep Alive Settings:**
  - Using HTTP 1.1 (keep alive) is the default setting. This feature makes testing ***faster*** because it re-uses the same connection for all requests.
  - Unchecking this box will downgrade your tests to HTTP 1.0 (connection closed). While downgrading may seem counterintuitive, this testing approach is useful as it shows you how fast your server is able to open and close connections.

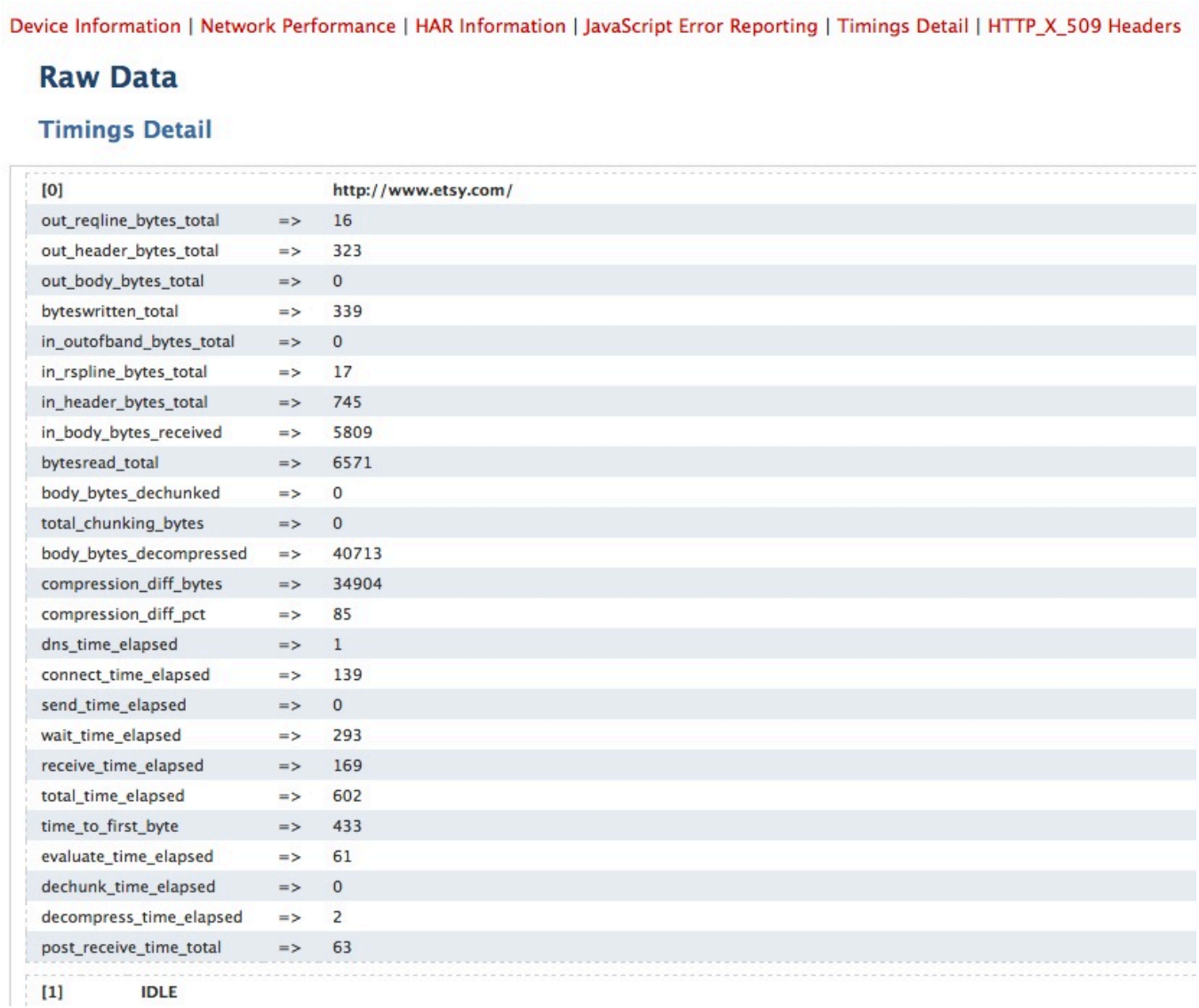
- **Include Source Code in Reports:**
  - Checking this box will populate your test reports with the source code of the tested Web page. Think of this as the "view source" option you are used to with your desktop browser.
  - To view the source code for your test page, login into your test account at 3Pmobile and after clicking on a test, look for the "Inspector Tab" the far right (see picture below).



- **Include Cookies in Reports:**
  - If this is 'checked' (ON) then the HAR reports will include Cookie information in both the request/response HEADER nodes and ALSO in those special 'Cookie' nodes in the HAR format.
  - If this option is 'unchecked' (OFF) then we will still USE Cookies in the background for 'fetching' the correct pages but none of the Cookie information will be added to any of the HAR reports.

Detailed Mode Report Examples:

Timing and Byte Values: When you test in Detailed Mode, you will see some new timings appear in your reports. *Please note that not all numbers below are timing values. Some are byte counts.* This reports can be found in "My Tests | Raw Data | Timings Detail – below is an example from www.etsy.com



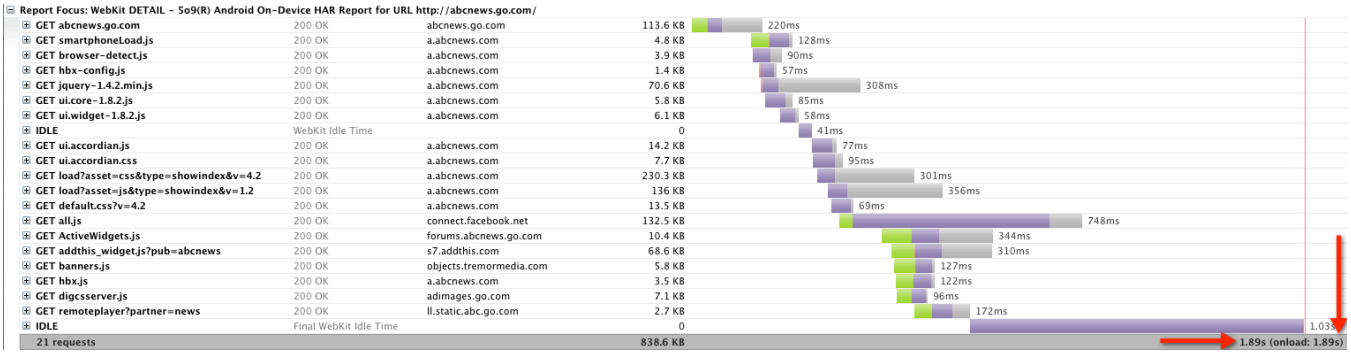
Device Information | Network Performance | HAR Information | JavaScript Error Reporting | Timings Detail | HTTP_X_509 Headers

Raw Data

Timings Detail

[0]		http://www.etsy.com/
out_reqline_bytes_total	=>	16
out_header_bytes_total	=>	323
out_body_bytes_total	=>	0
byteswritten_total	=>	339
in_outofband_bytes_total	=>	0
in_rspline_bytes_total	=>	17
in_header_bytes_total	=>	745
in_body_bytes_received	=>	5809
bytesread_total	=>	6571
body_bytes_dechunked	=>	0
total_chunking_bytes	=>	0
body_bytes_decompressed	=>	40713
compression_diff_bytes	=>	34904
compression_diff_pct	=>	85
dns_time_elapsed	=>	1
connect_time_elapsed	=>	139
send_time_elapsed	=>	0
wait_time_elapsed	=>	293
receive_time_elapsed	=>	169
total_time_elapsed	=>	602
time_to_first_byte	=>	433
evaluate_time_elapsed	=>	61
dechunk_time_elapsed	=>	0
decompress_time_elapsed	=>	2
post_receive_time_total	=>	63
[1]	IDLE	

Viewing Detailed Timings in a HAR Report: In the sample report below there are two times displayed at the bottom right 1.89s (onload 1.89s) between the two red arrows.



It is, in fact, possible for one (or more) of the individual resource download times to extend beyond the "vertical red line". (The exact moment of the WebKit onPageFinished event. In the above example they happen to both finish at the same time).

- *Why This Happens:* The legacy HAR viewer spins through all of the entries nodes and adds up all the individual "timings" values BEFORE it begins constructing the waterfall chart. It already knows that some items extend beyond the "onLoad" (onPageFinished) event marker and it adjusts its display parameters accordingly.

The page speed timing number on the LEFT of the (parentheses) in the gray bar is the actual sum of all the "entries" values and their "timing" nodes in the HAR report. This is the value that could be greater than the "onPageFinished" time value.

The number to the far RIGHT on the gray bar, (within the parentheses) is the actual "onLoad" time as reported at the top of the HAR report. In our case, this represents the exact "onPageFinished" moment.

Use "Unsolicited" Cookies:

This version of the software now allows you to send our "X-header" data using another format. To enable this click on the browser menu | Privacy Options | Owner Preferences | Advanced Options. Then scroll down to the bottom and in the field named "Other Options" type in "usecookies" (all one word). Now your data will be sent to the server in a "cookie". All you need to do is read the environment variable Cookie: name=value; with any server side script.

Here's an example of what the "cookie" can contain:

x5o9_android_os_build_model=sdk;
x5o9_is_emulator=true;
x5o9_cm_version=AN,v.1.2.3.0029,(C)2008-2011,5o9(R),Inc.;
x5o9_cm_limits=APP, Expires 1/1/2012;
x5o9_aod=AcceptAll;
x5o9_javascript_enabled=YES;
x5o9_javascript_can_open_windows_automatically=NO;
x5o9_email_address=John.Smith@joeserver.com;
x5o9_name=John Smith;
x5o9_zipcode=90210;
x5o9_cell_phone_number=15555218135;
x5o9_Custom-item-1-title=Custom 1 value;
x5o9_Custom-item-2-title=Custom 2 value;
x5o9_Custom-item-3-title=Custom 3 value;
x5o9_Custom-item-4-title=Custom 4 value;
x5o9_cell_tower_current_time=09/09/2011 06:39:10 PM CDT;
x5o9_cell_tower_current_id=GSM cid/-1 lac/-1 mcc/310 mnc/260;
x5o9_cell_tower_current_signal_strength=7 asu;
x5o9_gps_current_time=N/A;
x5o9_gps_current_latitude=N/A;
x5o9_gps_current_longitude=N/A;
x5o9_gps_current_altitude=N/A;
x5o9_gps_current_speed=N/A;
x5o9_gps_current_direction=N/A;
x5o9_browser_version=Android 2.1 Std;
x5o9_browser_height=513;
x5o9_browser_width=320;
x5o9_carrier=Android;
x5o9_device_os=Android.2.1.22607.SDK.7;
x5o9_device_type=Android sdk/sdk;
x5o9_device_imei=000000000000000;
x5o9_screen_colors=N/A;
x5o9_screen_height=533;
x5o9_screen_width=320;
x5o9_screen_resolution=240dpi x/240dpi y/240dpi;
x5o9_video_apis=MediaPlayer;
x5o9_paypal_login=MyPayPalLogin;
x5o9_paypal_receipt=YES;
x5o9_coupons=YES;

Continual JavaScript Error warning:

This version has a new POPUP that can appear if we detect 'runaway JavaScript on a page such as http://www.bing.com If you go to http://www.bing.com then about 20 seconds after the page loads a warning will appear telling you that this page has 'Runaway JavaScript' errors.

This means that something is causing a CONTINUAL stream of JavaScript error messages even long after the page has loaded. If you then press MENU and 'Turn JS Error Console ON' you will see the messages 'streaming' in real time. These 'continual' error messages are NOT INCLUDED in the HAR report. The HAR report finishes when the page finishes loading. This feature detects errors AFTER the page has fully loaded.

See screenshots below of the new WARNING POPUP that can appear for 'runaway JavaScript errors'.

This is what you will now see about 20 seconds after www.bing.com has loaded. It warns you about their 'Runaway' JavaScript errors. The second screenshot below shows what happens if you follow the instructions and show our JS Error Console at this point. Notice in the SECOND screenshot below that the JavaScript ERROR count is already up to 129 and climbing fast. When our Console is up the error count is updating in real time and you can see how fast the page is generating 'Runaway' JS errors.