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## Re: Latency of USB-serial converters (UPDATE)

Posted By: [kleinermario](#)Tue Mar 2, 2010 5:39 am | [Options](#)[Reply](#)

The most simple way is to...

1. Open a terminal window.
2. sudo bash + Admin password.
3. Start a texteditor from the commandline, e.g. (all in one line!)

```
/Applications/TextEdit.app/Contents/MacOS/TextEdit
/System/Library/Extensions/FTDIUSBSerialDriver.kext/Contents/Info.plist
```

4. Search for occurrences of the keyword "LatencyTimer", e.g., you'll find something that looks like:

```
<key>FTDI2XXBM</key>
<dict>
<key>CFBundleIdentifier</key>
<string>com.FTDI.driver.FTDIUSBSerialDriver</string>
<key>ConfigData</key>
<dict>
<key>LatencyTimer</key>
<integer>16</integer>
<key>MIDI</key>
<false/>
</dict>
```

5. Now you change the <integer>16</integer> value into a value of 1: <integer>1</integer> for 1 msec timeout interval instead of 16 msec.

6. Save it and exit the texteditor.

7. touch /System/Library/Extensions/FTDIUSBSerialDriver.kext
8. touch /System/Library/Extensions
9. Reboot.

The sudo bash thingy in step 2 will give you full root access, which may be necessary to avoid rejection of your changes due to permission issues. Steps 7 and 8 are important to tell the system that something noteworthy has changed, otherwise it won't rebuild its caches and the change will have no effect - depending on which os/x version you use.

-mario

--- In [psychtoolbox@yahoogroups.com](#), "tamaraknutsen" <knutsen@...> wrote:

```
>
>
> Hi Mario,
> Can you please detail what changes you make to the Info.plist for an FTDI
> US232R to reset the latency timer? I have the Info.plist file open (after doing
> all the installations according to the website). I just don't see where in the
> Property List Editor, I should make changes.
>
> Thanks for your help,
> Tamara
>
> > >
> > > <http://www.ftdichip.com/Support/Knowledgebase/index.html?an232b_o4smalldataend.\
> htm>
> > >
> > > It describes how you can affect the internal buffering behaviour of FTDI
> chips, and how to tweak for low latency data reporting of small amounts of data
> (less than 62 Bytes per data packet), which should apply to anything like
> response boxes, TTL trigger receivers or serial port eyetrackers.
> > >
> > > a) There is an on-chip latency timer that can be configured to send all
> pending data with some maximum delay. The lowest possible timer setting is 2
> msec as of now, so you can restrict the converter induced delay to 2 msec for any
> kind of connected device. Setting the latency timer (which defaults to typically
```

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16 msecs) needs some configuration depending on operating system. On Windows, you'll find a parameter in the driver setting dialog to change this. On Linux there is a special sysfs device config file that accepts settings. On OS/X you need to go through a slightly involved procedure, editing the Info.plist file of the kernel driver .kext extension, then reboot.  
>

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| <b>Latency of USB–serial converters</b><br>I noticed a thread <a href="http://tech.groups.yahoo.com/group/psychtoolbox/messages/8506?threaded=1&amp;m=e&amp;var=1&amp;tidx=1">http://tech.groups.yahoo.com/group/psychtoolbox/messages/8506?threaded=1&amp;m=e&amp;var=1&amp;tidx=1</a> that mentioned mean latency of 43.9ms of USB... | <a href="#">jackm_ustc</a> ☺  | Aug 11, 2009 2:09 pm  |
| <b>Re: Latency of USB–serial converters</b><br>That post is very misleading. The purpose of my test was to measure the variability of USB keypad, not the latency. That was done by measuring the time...   | <a href="#">Xiangrui Li</a> <a href="#">xrl2002</a> ☺                     | Aug 11, 2009 4:01 pm  |
| <b>Re: Latency of USB–serial converters</b><br>Hi there, ... Is not the bus cycle /datagram rate on USB devices 1kHz? Then the shortest sustained latency should be 1ms. But I admit I am easily confused by...   | <a href="#">Sebastian Moeller</a> <a href="#">sebastian.moeller@...</a> ☺ | Aug 11, 2009 4:14 pm  |
| <b>Re: Latency of USB–serial converters</b><br>I was confused about the 1 ms USB cycle before. The test indicates that USB–serial write can be submitted anytime, while the serial read and maybe other status...   | <a href="#">Xiangrui Li</a> <a href="#">xrl2002</a> ☺                     | Aug 11, 2009 4:38 pm  |
| <b>Re: Latency of USB–serial converters</b><br>Hi Xiangrui, thanks for clarifying. regards Sebastian...   | <a href="#">Sebastian Moeller</a> <a href="#">sebastian.moeller@...</a> ☺ | Aug 11, 2009 4:45 pm  |
| <b>Re: Latency of USB–serial converters</b><br>It's not quite that simple, and rules are much more complex than what i will explain now, but this is closer to reality: USB has a work-cycle of 1 msec, so...   | <a href="#">Mario Kleiner</a> <a href="#">kleinermario</a> ☺              | Aug 11, 2009 9:03 pm  |
| <b>Re: Latency of USB–serial converters</b><br>Thanks for the replies! Mario, in our experiment, we want to read the eyetracker as fast as possible. We have a USB–serial converter and a Coolgear one–port...  | <a href="#">jackm_ustc</a> ☺  | Aug 12, 2009 9:40 am  |
| <b>Re: Latency of USB–serial converters</b><br>Has anybody tried something like this? <a href="http://sewelldirect.com/Quatech-Serial-Express-Card-RS-232-PCIe-Based-ROHS-1-port.asp">http://sewelldirect.com/Quatech-Serial-Express-Card-RS-232-PCIe-Based-ROHS-1-port.asp</a> They at least claim low latency in...                   | <a href="#">Alan Robinson</a> <a href="#">ar@...</a> ☺                    | Aug 12, 2009 11:49 am |
| <b>Re: Latency of USB–serial converters</b><br>... Also, could anyone provide advice on which USB–Serial manufacturers work with low latency, with drivers for both Windows and OS X? Has anyone tried...   | <a href="#">tattooed.tentacle</a> <a href="#">tattooed.ten...</a> ☺       | Aug 13, 2009 6:30 am  |
| <b>Re: Latency of USB–serial converters (READ THIS)</b><br>I'll try to address the last couple of posts: a) Theoretically you're better off wrt. latency by using native, built-in serial ports, or one of those PCI /...   | <a href="#">Mario Kleiner</a> <a href="#">kleinermario</a> ☺              | Aug 16, 2009 11:21 am |
| <b>Re: Latency of USB–serial converters (UPDATE)</b><br>As i've learned now during final testing of the new IOPort, FTDI USB–Serial converters on all operating systems support a latency timer setting of 1 msec, so...  | <a href="#">Mario Kleiner</a> <a href="#">kleinermario</a> ☺              | Aug 17, 2009 7:16 pm  |
| <b>Re: Latency of USB–serial converters (UPDATE)</b><br>Hi Mario, Can you please detail what changes you make to the Info.plist for an FTDI US232R to reset the latency timer? I have the Info.plist file open (after...  | <a href="#">tamaraknutsen</a> <a href="#">knutsen@...</a> ☺               | Mar 1, 2010 1:39 pm   |
| <b>Re: Latency of USB–serial converters (UPDATE)</b><br>The most simple way is to... 1. Open a terminal window. 2. sudo bash + Admin password. 3. Start a texteditor from the commandline, e.g. (all in one line!) ...  | <a href="#">Mario</a> <a href="#">kleinermario</a> ☺                      | Mar 2, 2010 6:07 am   |

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