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Advanced search

- **Board index** ‹ **General** ‹ **Using VirtualBox**
- **Change font size**
- **Print view**

- **FAQ**
- **Login**

High speed serial port (or equivalent)?

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5 posts • Page **1** of **1**

- **Reply with quote**

High speed serial port (or equivalent)?

by **jchatham** » 15. Jul 2013, 21:26

I'm trying to port some virtual machines from vmware to virtualbox, and have run into a problem: I need a reasonably high speed data connection between the host and the VM, that does not go over a standard network interface. In vmware, this could be accomplished in two ways: using a serial port, or using their vmci direct memory communication protocol. For reasons I don't understand, serial ports under virtualbox are at least an order of magnitude slower (regardless of what speed I set in the guest VM), rendering them unusable for my application, and if there's an equivalent to vmci, I haven't been able to find it.

Are there any tips or tricks that people can share? Some way to make the serial ports less painfully slow under virtualbox? (A forum search shows I'm not the only one who's had problems with slow serial ports - but none of the prior topics I found included a solution.) Or would I be better off trying to extend the mechanisms used by vboxmanage guestcontrol to allow pipe connections? Or is there something else I'm missing here?

Again, I can't just run this communication through a standard network interface; I need a mechanism that works even when the guest's network connections are nonfunctional.
(Other possibly relevant information: I need this to work with, at a minimum, windows guest machines (windows XP / server 2003 and later) and windows (win7), ubuntu, and macintosh host machines.)

jchatham

Posts: 17
Joined: 15. Jul 2013, 20:57

Top

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Re: High speed serial port (or equivalent)?

by **mpack** » 15. Jul 2013, 21:32

The serial port emulation is providing a UART register interface that queues one character at a time, IMHO it is inherently slow. Unless serial ports suddenly rocket in popularity then I doubt the devs will put a lot of work into getting them to work better - I guess that's one of the prices you pay for using free software (limited resources).

If it was me I would consider developing a custom network protocol of some kind, using TCP or UDP and the "host only" network mode. Of course if you do it right then it won't care that it's running in a VM and could just as easily run on two physical PCs over a network.

mpack
　　Site Moderator

　　Posts: 24125
　　Joined: 4. Sep 2008, 17:09
　　Primary OS: MS Windows 10
　　VBox Version: PUEL
　　Guest OSses: Mostly XP

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Re: High speed serial port (or equivalent)?

by **jchatham** » 15. Jul 2013, 21:43

> *mpack wrote:*The serial port emulation is providing a UART register interface that queues one character at a time, IMHO it is inherently slow. Unless serial ports suddenly rocket in popularity then I doubt the devs will put a lot of work into getting them to work better - I guess that's one of the prices you pay for using free software (limited resources).
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Thanks for the info on the serial port implementation.

Unfortunately, I can't use your suggestion of a host only network - that's still going through a, as far as the guest is concerned, normal network interface - and for my application, those aren't guaranteed to be functioning.

jchatham

　　Posts: 17

Joined: 15. Jul 2013, 20:57

Top

- Reply with quote

Re: High speed serial port (or equivalent)?

by **mpack** » 16. Jul 2013, 11:15

Unfortunately, that's about it then. Short of the devteam coming up with their own paravirtualized serial port implementation I can't see any way to make the serial port API faster. In fact I can't see how VMWare could have done it either, unless they did the former (do you have to install the tools to get a fast serial port in VMWare?).

I can think of other ways to communicate, but they all involve writing files into shared folders - which of course requires networking or a USB drive. Or else they e.g. involve writing to a fixed sector(s) of the virtual hard drive, but I'm not sure how you could reliably access the drive at the same time as the VM.

There may be something in the SDK for injecting data into the VM address space, but that's a complete guess as I've not looked as I have no use for the SDK myself.

mpack
Site Moderator

Posts: 24125
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Re: High speed serial port (or equivalent)?

by **jchatham** » 16. Jul 2013, 18:15

I did actually try using a virtualbox shared folder; that... mostly works; it shows up as a networked drive in a windows guest, but doesn't require any sort of functioning network. But only mostly; as a networked drive, it only exists when someone's logged in.

I've also found a way to get data out of a VM at reasonable speed & latency - vboxmanage guestcontrol exec --wait-stdout will pipe data out just fine. But I don't see any way to attach an inputstream to that. Maybe there's something in the SDK... I'll have to make another attempt at making sense of that.

jchatham

Posts: 17
Joined: 15. Jul 2013, 20:57

Top

| Display posts from previous: | All posts ⇅ | Sort by | Post time ⇅ | Ascending ⇅ | Go |

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5 posts • Page **1** of **1**

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