Clock time is off on dual boot

Dual boot system Windows XP Pro and Ubuntu 12.04.

I have the bios set for the correct time and Ubuntu set for US Eastern time. Ubuntu will boot up and the time will be off by -4 hours. If I correct the time in Ubuntu then when I boot up in Windows XP the time will be off by + 4 hours.

This is a fresh install of 12.04. I did not have this problem before reinstalling Ubuntu.

dual-boot windows timezone

edited Jan 2 at 16:30
zahypeti
27 6

asked Jul 28 '12 at 17:48
Bill Walden
1,041 3 8 3

4 Answers

https://help.ubuntu.com/community/UbuntuTime#Multiple_Boot_Systems_Time_Conflicts

Multiple Boot Systems Time Conflicts

Operating systems store and retrieve the time in the hardware clock located on your motherboard so that it can keep track of the time even when the system does not have power. Most operating systems (Linux/Unix/Mac) store the time on the hardware clock as UTC by default, though some systems (notably Microsoft Windows) store the time on the hardware clock as the 'local' time. This causes problems in a dual boot system if both systems view the hardware clock differently.

The advantage of having the hardware clock as UTC is that you don't need to change the hardware clock when moving between timezones or when Daylight Savings Time (DST) begins or ends as UTC does not have DST or timezone offsets.

Changing Linux to use local time is easier and more reliable than changing Windows to use UTC, so dual-boot Linux/Windows systems tend to use local time.

Since Intrepid (8.10), UTC=yes is default.

Make Windows use UTC

Note: This method was not initially supported on Windows Vista and Server 2008, but came back with Vista SP2, Windows 7, Server 2008 R2 and Windows 8/8.1.

To make MS Windows calculate the time from the hardware clock as UTC.

Create a file named WindowsTimeFixUTC.reg with the following contents and then double click on it to merge the contents with the registry:

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\TimeZoneInformation]
     "RealTimeIsUniversal"=dword:00000001
```

Note: Windows Time service will still write local time to the RTC regardless of the registry setting above on shutdown, so it is handy to disable Windows Time service with this command (if time sync is still required while in Windows use any third-party time sync solution):

```
sc config w32time start= disabled
```

Reversing the change
You can create a file with the following contents and then double-click it to merge in the original changes, as above:

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\TimeZoneInformation]
     "RealTimeIsUniversal"=-
```

If Windows Time service was disabled, enable it again with the command:

```
sc config w32time start= demand
```

Make Linux use 'Local' time

To tell your Ubuntu system that the hardware clock is set to 'local' time:

Pre-Ubuntu 15.04 systems (e.g. Ubuntu 14.04 LTS):

1. edit `/etc/default/rcS`
2. add or change the following section

```
# Set UTC=yes if your hardware clock is set to UTC (GMT)
UTC=no
```

Ubuntu 15.04 systems and above (e.g. Ubuntu 16.04 LTS):

1. open a terminal and execute the following command

```
timedatectl set-local-rtc 1
```

edited Feb 22 at 3:51
muru
110k 16 223 375

answered Jul 28 '12 at 18:07
Eric Carvalho
35.4k 15 99 130

27 Oh lord. I can't *believe* they were dumb enough to use local time on a hardware clock. Why would you ever, ever do that? – iono Dec 9 '13 at 7:22

12 @twome because since there wasn't much in the way of networking in the early days of MS-DOS, and it wouldn't have been common to move a PC so far that it moved timezones. (And yeah, even considering that history, it was still not the best move). – Jon Hanna Apr 22 '14 at 13:44

3 @twome although I agree with you re hardware clock staying as Universal, since it doesn't keep timezone information, there are few problems with that: A) BIOS/UEFI have various features such as auto-wake up/sleep timers, where you set times for those triggers. It'd be weird to set those times in UTC - at least for average user. B) As Jon said above, backward compatibility reasons. – Shahriyar Imanov May 15 '14 at 19:19

2 In Windows PowerShell run this command to update the above mentioned registry property: `New-ItemProperty -Path HKLM:\SYSTEM\CurrentControlSet\Control\TimeZoneInformation -Name RealTimeIsUniversal -PropertyType DWord -Value 00000001` – Anatoly Mironov Jan 14 '15 at 9:29

When I tried to change that reg setting in Win7 I got: `Cannot import [key]: Not all data was successfully written to the registry. Some keys are open by the system or other processes.` Changed it in Ubuntu then. – pileofrocks Mar 16 '15 at 8:56

To set the BIOS clock to local time instead of UTC in a systemd-based version (15.04 and above), you will have to use the `timedatectl` command. According to the Arch Wiki:

You can set the hardware clock time standard through the command line. You can check what you have set to use by:

```
$ timedatectl | grep local
```

The hardware clock can be queried and set with the `timedatectl` command. To change the hardware clock time standard to localtime, use:

```
# timedatectl set-local-rtc 1
```

If you want to revert to the hardware clock being in UTC, do:

```
# timedatectl set-local-rtc 0
```

answered Jan 13 '16 at 3:40
muru
110k 16 223 375

4 On Ubuntu 16.10 it helped to do "hwclock --systohc --localtime". This writes the "local part" to /etc/adjtime and thereby makes it permanent. – user1050755 Oct 21 '16 at 19:25

Your time zone is Eastern, which is currently EDT (Eastern Daylight Time). EDT is UTC minus four hours, the same as the offset you're experiencing.

When this happens on a dual-boot system, it's usually because one operating system thinks the hardware clock tracks local time, while the other operating system thinks the hardware clock tracks UTC.

In your case, your hardware clock is probably set to the local time, and:

- Windows is set to use local time, which (given your time settings) is **correct.**
- Ubuntu is set to use UTC, which (given your time settings) is **incorrect.**

If you were to just reset the time in the Ubuntu system, either manually or automatically, it would then be wrong in Windows, so that's not a good solution.

Instead, the best solution is probably to **reconfigure Ubuntu to treat the hardware clock time as local time** (then you can leave your Windows configuration, and your hardware clock time, alone).

To do this, edit `/etc/default/rcS` as root and make sure it has `UTC=no`:

1. Press Alt+F2.
2. Type `gksu gedit /etc/default/rcS` and press Enter.
3. You'll probably see this:

```
# assume that the BIOS clock is set to UTC time (recommended)
UTC=yes
```

   - If you do, change `UTC=yes` to `UTC=no`. (Or you might want to add a comment too, by changing it to something like `UTC=no # changed to accommodate Windows system`. Everything on a line after a `#` character is a comment, and is there just to make your settings more human-readable.)
   - If you don't, look for any `UTC=` line. If it's uncommented (i.e., doesn't have a `#` at the beginning), change it accordingly. If it is commented, uncomment it by removing the leading `#` and make sure it says `UTC=no`.
4. Save the file and quit the text editor.
5. Reboot to apply your changes and check that the time is working properly now on both operating systems.

Source: https://help.ubuntu.com/community/UbuntuTime#Make_Linux_use_.27Local.27_time

(But that is very general; I have written this answer to apply specifically to your situation, which is a somewhat common problem.)

edited Apr 13 at 12:25
Community ♦
1

answered Jul 28 '12 at 18:16
Eliah Kagan
71.9k 18 197 326

Note that this can also occur when you upgrade from one Ubuntu release to the next, like it did for me. I can recommend performing the above fix, and then also manually syncing your clock as in this answer (adjusting it to work with systemd): askubuntu.com/a/254846/139735 – starbeamrainbowlabs Jun 20 '16 at 20:03

The /etc/rcS fix did not work on my Win7 / Ubuntu 14.04x64 installation, nor did any fixes through the clock GUI. Because the root of the problem is BIOS time VS UTC time, and Windows is a pain in the butt when it comes to using UTC, I just picked a point on the map that uses UTC+0 (no change between BIOS and UTC time).

Try changing your location to Reykjavik (the capital of Iceland). Voila! Your Ubuntu time will change to match your BIOS time.

answered Jul 3 '14 at 17:49
OpensourceFool
316 2 7

Haha! Awesome. :D I really don't care my location. This was two seconds fix. Thanks a lot. – Pale Blue Dot Mar 10 '15 at 9:05

protected by Community ♦ Apr 18 '14 at 15:49

Thank you for your interest in this question. Because it has attracted low-quality or spam answers that had to be removed, posting an answer now requires 10 reputation on this site (the association bonus does not count).

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