

WorldTZs : Program to display Time Zone Information on Windows NT from version 3.51 and Windows 95

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For registration information please read the on-line help file.

The program does not run on Windows 3.1x or Windows NT prior to version 3.51

On Windows NT from version 3.51 and Windows 95 the program displays a running clock for up to six Time Zones known to the Windows Registry (those which can be selected for the system from the Control Panel's Date/Time applet). For those zones that use Daylight Saving Time the program also displays the next change either to or from Daylight Saving Time in each selected zone, and can display the detail of the changes to and from Daylight Saving Time for any year from 1901 to 2099 (though this is on the assumption - usually erroneous - that the data in the Windows Registry applies to all those years).

Further details and display examples can be found in the Help file.

Note, that the program assumes that the Time Zone used by the system has been set directly by the Control Panel, and that the relevant data in the Registry has not been changed manually or by some other program. The program also assumes that if the "Automatically Adjust for Daylight Saving Time" option is available for the local time zone it has been selected.

I am afraid there is no installation routine; the program is simply installed by copying the EXE and HLP files to any directory and creating a Program Manager icon on Windows NT, or a reference from the Desktop on Windows 95, for the EXE file.

Removing the program is equally easy, simply requiring that the EXE and HLP files be deleted. The program does not use an INI file but stores its data in the Windows Registry. It is not essential, but this can be deleted by using the Registry Editor to search under the Software key of each user for the J_M_Howells key and then deleting the WorldTZs key under that.

Please note that in the About box a version number that ends with an alphabetic character is a Beta version, and you should only have received one of these direct from me. The Registration section of the on-line help file notes the location of an official release.

One minor problems I am aware of:

Under Windows NT 3.51, with the new help system similar to that of Windows 95 (though I have never seen the problem arise on Windows 95), the Search dialog in the Help display may not operate properly. This should only happen if a later version of the Help file is copied over an earlier one, in which case the automatic update to the support files sometimes fails (in particular, when the Search button is selected the Find tab appears but not the Index tab, or

there may be an error report that the Help system is "Unable to display the Find tab (177)" and the Search Dialog does not even appear). To correct this the WORLDTZS.GID and WORLDTZS.FTS support files have to be deleted, by doing the following from a DOS box, in the directory where the program is installed:

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ATTRIB -H WORLDTZS.GID
DEL WORLDTZS.GID
DEL WORLDTZS.FTS
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or by deleting the two files using File Manager. When Help is run again the two files will be recreated properly. The revised Help program in Service Pack 1 for Windows NT 3.51 appears to mostly cure the problem. However, I have seen it recur, but selecting the 'Find' tab a second time appears to cure the problem without resorting to the above sequence.

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Change History and Release Notes

Version 1.00 11th January 1995

Initial release.

Version 1.01 12th February 1995

To correct a bug, such that during the hour following the change from Daylight Saving Time to Standard Time the DST box contained "Yes" when it should clearly have been "No" and as a consequence the 'Next Change' data displayed the change from Daylight Saving Time to Standard Time, and not vice versa.

Also made a couple of very minor corrections to the help file.

Version 1.02 14th March 1995

Allow the user to double-click on a time zone in the selection Dialog Box rather than having to first make a selection and then use the OK button.

Change the output method in the Time Window to eliminate the visible 'flashing' each second as it is updated, and used the same method for the infrequently updated Windows. As well as eliminating the 'flashing' this change reduces the processor time required by the program to less than one fifth of that used by the former version (approx. 0.6% of the CPU on my 486-DX2/66 system as opposed to 3.8% previously). The same method is used for all the display Windows, and also fixes a problem reported on one system where some of the display Windows appear empty.

Allow the user to save the position of the display.

Version 1.03 21st September 1995

Small modifications so that the program works on Windows 95 as well as Windows NT 3.5x. The appearance is little different on Windows 95, apart from the Windows 95 associated changes to the appearance of the title bar and the buttons.

Although it is not apparent to the user, the program was previously a UNICODE application (because of the way, even on Windows 95, that the local time zone name is returned by the operating system), but so that it can run on Windows 95, where UNICODE support is generally not available, this is no longer the case.

For Windows 95 the program has to provide its own implementation of the function to convert the system time (in UTC/GMT) to the local time in each of the displayed time zones, as the function in Windows NT 3.5x that performs the conversion is not provided (the release build of Windows 95 does have a function with the right name, otherwise this program would not start, but only as a non-working 'stub'). The program does not rely on the platform type (Windows 95 or Windows NT) to determine which function

to use, but checks whether the OS function works, and uses its own if that OS provided version appears to fail, so that if a working version of the function were ever provided by a future version of Windows 95 (though this might be some while away) the program would automatically use that rather than its own implementation. If the program has to fall back to its own version it reports this in the "About" box. The program's own implementation is limited to the years 1601 to 30999 inclusive, the same as that of the Windows NT 3.5x implementation (and, no, that is not a typing mistake - it is 30999). For all 3594240 test cases, covering the years 1980 to 2020 in the Northern and Southern hemispheres, the program's own implementation produces the same results as that in Windows NT 3.50 (though on average the program's own function uses only a fraction over 13% of the CPU time used by the Windows NT 3.50 implementation), but if you do notice any errors please report them to the CIS identity noted, with the fullest possible details of the date and time and the time zone when the error occurred.

Text in the displays is reduced in size by one point, since Windows NT 3.51 and Windows 95 use a normal font for the main display rather than the bold font used previously, though under Windows NT 3.50 the bold font is still quite legible at the size used. With the new font a very small amount of 'flashing' could again sometimes be perceived as the time displays were updated. Although this was far less obvious than that seen prior to version 1.02, to eliminate it the display handling is further changed a little, though this should not be apparent to the user.

The program works on the Release version (build 950) and on the second Preview version - the 'June Test' - build 490, but will fail to load on the first Preview version of Windows 95 (the 'final Beta' - build 347), as that does not contain even the 'stub' version of the time conversion function.

Version 1.04 25th September 1995

Corrected an amazingly dumb tyro's mistake on my part in the time conversion function, and so therefore not apparent on Windows NT, where the date and time can be way out in the future when the system clock is in one day but the local clock for the zone should be in the previous day. For those who are interested, the adjustment calculation is done in milliseconds [to match the accuracy of the system clock and the accuracy to which the time conversion is defined, even though it's never likely to be needed in practice], but because a constant was erroneously declared "unsigned" instead of "signed" the small negative adjustment of a few hours became a huge positive adjustment as the result of an unsigned divide to determine the number of days [2^{32} milliseconds = 49.710 days, less the few hours the adjustment should be]. This had not shown up during testing, so that will have to be improved! My apologies to those who spent time downloading the previous version.

Added a check that the offset (Bias) from UTC/GMT being used by the system, and other Time Zone Control data, is the same as the data in the Registry for the Time Zone being used by the system. The Windows 95 and Windows NT operating systems provide two clocks, a system clock that records UTC/GMT and a local clock derived from the system clock, but

allowing for local offset from UTC/GMT and for changes to and from Daylight Saving Time. The system has Time Zone Information data that controls the way the local clock is derived from the system clock (and vice versa). Most programs on the system use the local clock, which is the clock the user changes via the Control Panel, and any such changes are then reflected automatically into the system clock. If there is an error in the offset of the local clock from the system clock this will usually not be noticed. Any changes to the local time will use the wrong value when adjusting the system clock, but the error will cancel out as the same wrong value is used when local time is derived from system time. However, this program uses the system clock, and derives the time in each selected Time Zone, including the local Time Zone, from the basic system data for the possible Time Zones, from which the Time Zone Information is derived. A difference between the two sets of data indicates that the system is set up incorrectly, and that the Time Zone Information does not properly reflect the values for the Time Zone selected.. If an error is found it will be reported, and the program will continue, but the times and dates will probably be displayed incorrectly. The system setup should be checked; in particular, try selecting a different Time Zone from the Control Panel and then reselecting the local Time Zone, as this should correct any discrepancy, but this may require the local time to be corrected.

Version 1.05

1st March 1996

The program no longer runs on Windows NT 3.50 because it has been built with the Visual C++ 4.0 development package, which also obviates the need for CTL3D32.DLL as the necessary code is included in the EXE file. Together these changes would add about an extra 40K or so to the size of the EXE file, but other changes mean the overall increase is only 25K.

To remove unnecessary clutter the buttons have been removed from the main window. Double-clicking in a window used for a Time Zone name allows selection of the Time Zone to be displayed in the associated entry, while double-clicking in the current Date or either of the Next Change windows (when the Time Zone uses Daylight Saving Time) brings up the associated Daylight Saving Time detail dialog. Further information can be found in the Help file, which now contains some popup items on the example displays.

The icons are now displayed correctly on Windows 95 in the Title bar and the Task bar (a small icon usually), and in the 'fast switching' (Alt-Tab) Window (a large icon). [The program does this its own way as the Visual C++ 4.0 package tries to do it but doesn't get it quite right and uses a large icon for all purposes.] The larger icon used in the 'fast switching' Window is slightly different from the main icon to improve visibility under those conditions when the 'fast switching' icon is used in the Title bar or Task bar when otherwise the small icon would be used.

Corrected the margins in the 'Time Zone Detail' dialogs. On Windows 95 the text margins in a Dialog box are set too wide by the system if, as here, a TrueType font is used. This does not cause any particular problems, but means that the look of the Windows 95 version is further than was intended from that of the Windows NT version. Again, a Windows 95 specific

function allows the margins to be set, and therefore allows the problem to be corrected.

Moved 'Use Saved Position' option to the menu, and changed so that this is enabled by default. This makes it easier to add other menu-type items, which was not the case when this was on the main Window.

Added a 'Force 24-hour Clock' option, which is enabled by default. For more details see the Help file. The program correctly handles either a leading or trailing Time Marker (AM/PM indicator), unlike the Windows NT Clock application, which gets confused by a setup requiring a leading Time Marker if the time marker strings are empty. Further, this program changes each clock display at the correct time when Daylight Saving Time starts or ends in any zone, including the local time zone, also unlike the Windows NT Clock application, which may not change the displayed clock till quite some time later.

The current main window position and the flags for 'Use Saved Position' and 'Force 24-hour Clock' are now saved if the program is running when the user logs off or closes down the system. Previously, because of the way the Windows 95 and Windows NT operating systems interact with the software created by Visual C++ (which is very silly in my opinion, but which I had not noticed), the items noted were saved only when the program was explicitly closed by the user, and not when the user logged off or closed down the system while the program was still running.

The main window no longer closes when the Escape key is pressed.

Corrected a minor bug where the user-selected Time Zone Names were incorrectly stored in the Registry without the required terminating NUL character, though the error would not be apparent to the user.

Corrected a minor bug where an un-named value was stored in the Registry under the program's key, though this was again not apparent to the user.

Corrected a minor bug to ensure that the very first time the user starts the program it is properly centred on screen, though it was unlikely that this would not happen anyway.

Corrected a bug only apparent when running on Windows NT, such that an attempt to 'Clear' the first entry, which should set that entry to display the data for the local Time Zone, fails.

This version also corrects a bug reported against version 1.04 when running on certain Beta versions of Windows NT 4 (the version of Windows NT with the Windows 95 interface), where the program is unable to read the Time Zone names from the Registry. Although the problem goes away with this version I do not understand why, as the code concerned has not changed in any material way, apart from using Visual C++ 4.0 for the build. But working out what is happening will have to wait until I have a version of Windows NT 4 to try it for myself.