

AccuSet (TM) 3.0

System Clock Enhancement Utility

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Topics:

[Introduction](#)
[What's New?](#)

[Registration](#)
[Upgrade Policy](#)

[Synchronizing the Date/Time](#)
[Manual Clock Adjustments](#)
[Error Compensations](#)

[Current Times Around the World](#)

[Configuring AccuSet](#)
[International Calling](#)

[Adjustment Log](#)

[Startup Parameters](#)

[Disclaimer](#)
[Program Requirements](#)
[Common Problems and Solutions](#)
[Obtaining Support / Contacting the Author](#)
[Future Enhancements](#)

Introduction

AccuSet was developed to provide users of the Microsoft Windows environment with a solution for accurately setting and maintaining their computer's date and time. AccuSet provides this service by synchronizing your system's internal clock with the cesium atomic clock at either the National Institute of Standards & Technology (NIST) in Boulder, Colorado, the United States Naval Observatory (USNO) in Washington, DC., Telecom Australia, the Swedish National Time Service (Sweden), the National Electrotechnical Institute (Italy), the Technical University of Graz (Austria), National Research Council (Canada) or the BBC Dial-In Time Service (United Kingdom).

AccuSet Features:

Offers the most accurate synchronization possible with more atomic clocks than any other program.

Determines the accuracy of your PC's internal clock. AccuSet can then make corrections to the system clock to compensate for its error rate, without the need for a telephone call.

Displays the date/time for any five (user-configurable) cities around the world.

Displays the estimated correct time and number of seconds the clock has deviated from the actual time, based on the internal clock's rated accuracy.

Support for automated Daylight Savings Time handling. AccuSet directly supports the DST rules for North America, United Kingdom, Continental Europe, China and Australia. Users can also manually define DST starting/ending dates.

Support for overdue modem synchronization and excessive error compensation warnings.

AccuSet will assist first time users to properly configure the program with a series of easy to understand questions.

Support for manual time adjustments.

Commercial-quality, intuitive interface. Supports a user-selectable digital or text interface.

Easy to use and configure - with automatic modem detection.

Supports call logging. Any adjustment which AccuSet makes to the internal clock is recorded, in detail, to a log file. This information can be printed or used to generate a graphical plot of historical accuracy readings.

Supports the international date/time settings as defined in the Windows Control Panel.

Support for local half-hour time zones.

Works with any speed modem using the AT command set.

Supports the startup parameters (/AUTOSYNC) and (/AUTOADJUST) which will cause AccuSet to automatically adjust the time by either synchronizing with the desired atomic clock or by adjusting the clock based on its rated accuracy and then self-terminate.

Automatic disconnection if the selected service is unavailable.

Call waiting can be disabled during the synchronization process.

Users can choose between using the default generic or a user-defined modem initialization string. Hang-up strings are also user-configurable.

Displays the date and time of the last synchronization.

Can be registered via the CompuServe Software Registration Forum (GO SWREG)! AccuSet's registration ID number is **2407**. Registered users will receive an access code that can be used to register all future versions of the program, *free of charge*.

Extremely low cost!

Registering AccuSet

AccuSet(TM) 3.0 is not public domain software, nor is it free software. The use of AccuSet is subject to the following terms and conditions: Non-licensed users are granted a limited license to use AccuSet on a 21-day trial basis for the purpose of determining whether AccuSet is suitable for their needs. The use of AccuSet, except for an initial 21-day trial, requires registration. The use of unlicensed copy(ies) of AccuSet by any person or business is strictly prohibited. Registration entitles you to use AccuSet. The author will provide you with the access code necessary to personalize your copy of the program and (if you desire) will mail you a registration confirmation notice to prove to your corporate auditors that the software has been legally registered.

The access code you receive can also be used to register all future versions of the program, *free of charge*.

AccuSet can currently be registered in two ways:

Via the CompuServe Software Registration Forum (GO SWREG).

AccuSet's software registration ID number is 2407. This is the easiest (and most convenient) registration method. As soon as I receive notification of your registration, I will immediately send you your access code via e-mail.

OR:

Send \$10.00 U.S. currency to:

**SCOTT D. KISTER
321D West Shady Lane
Enola, PA 17025-2262**

CASH, CHECK OR MONEY ORDERS ONLY. Residents of Pennsylvania add 6% sales tax (\$10.60 in total). If paying by check, funds must be drawn on a U.S. bank.

Contacting the Author

If you should encounter difficulties with AccuSet, proceed to [Common Problems and Solutions](#) help topic. If you cannot resolve the difficulty on your own, you can obtain prompt and courteous support for this program in a variety of ways:

The AccuSet Support BBS:

Telephone Number: **(717) 732-4067**.

Speeds up to 9600 baud are currently supported. Configure your communications program to N-8-1 (no parity, 8 data bits, 1 stop bit). The terminal emulation should be set to ANSI-BBS.

Address all e-mail to **SYSOP**. *The most recent version of the program will also be available for downloading.*

CompuServe:

E-mail address: **70254,2017**.

America On-Line:

E-mail address: **SDKister**.

Via the Internet:

E-mail address: **70254.2017@compuserve.com**.

Or, by writing to me at the following address:

**Scott D. Kister
321D West Shady Lane
Enola, PA 17025-2262
USA**

If you should have any ideas for product improvement or detect any problems, I am most interested in hearing them!

Disclaimer

The author does not warrant that the AccuSet program will meet your requirements or that the operation of the software will be uninterrupted or error-free. Nor does the author offer any warranties or guarantees of any kind. You are free to use AccuSet in any way you see fit, but at your own risk.

The author is not responsible for any problems or damages caused by the software or that may result from using the software; whether it is licensed or not. This includes, but is not limited to, computer hardware, computer software, operating systems and any computer or computing accessories. End user agrees to hold the author and/or any persons associated with the creation of this software harmless for any problems arising from the use of this software.

Future Enhancements

AccuSet, like any other software program, is in a continual state of growth and enhancement. Although it has satisfied my initial needs, I (like everybody else) want more.

After using (and hopefully registering) this program, you'll certainly have some ideas on how to improve upon it. ***I'm very interested in hearing them!*** Each version of AccuSet has been shaped by its users - ***if there's something you want, I'd like to know!***

Contacting the Author

Thanks in advance for any feedback you may have!

AccuSet Configuration

When you select **Configure...** from the main window, the configuration dialog box will be displayed. The configuration dialog is divided into the following four groups of related items, which can be accessed by either clicking on the desired tab or by pressing the desired hotkey accelerator combination:

HARDWARE:

This section deals with hardware-related configuration options such as serial port selection and modem configuration.

[Detailed Hardware Section Help](#)

TIME SERVICE:

This section deals with the configuration of the time synchronization source, local [time zone](#) settings and [Daylight Savings Time](#) configuration.

[Detailed Time Service Section Help](#)

ALERTS:

This section deals with the configuration of system alerts.

[Detailed Alerts Section Help](#)

GENERAL:

This section deals with the configuration of miscellaneous items such as modem result codes, busy signal options, the synchronization time-out delay, and call waiting disabling.

[Detailed General Section Help](#)

USER INTERFACE:

This section deals with the configuration of AccuSet's user interface.

[Detailed User Interface Help](#)

Program Requirements

The following list displays the required hardware and software necessary to use AccuSet:

Microsoft Windows 3.0/3.10/3.11, Windows for Workgroups 3.1/3.11
Hayes-Compatible Modem
Visual Basic Runtime (VBRUN300.DLL)

The Visual Basic runtime module is not included in this archive due to its size. It can be downloaded from a variety of locations:

AccuSet Support BBS:

(717) 732-4067

Speeds up to 9600 baud are currently supported. Your communications program should be configured for a N-8-1 ANSI-BBS connection.

CompuServe:

GO MSBASIC

or

Most local BBS's...

Once obtained, VBRUN300.DLL should be installed in the \WINDOWS\SYSTEM sub directory.

Synchronizing the Date/Time

Once AccuSet has been properly configured, synchronizing your computer's date and time is very simple.

Simply click on the **Synchronize Clock** button in order to start the dialing process.

If the program has been configured correctly, the modem will dial the service you specified in the configuration section. Once connected, your internal clock will then be synchronized to atomic precision.

After the synchronization process is complete, AccuSet will automatically terminate the call.

*If at any time during the synchronization process you wish to abort, simply click on the **ABORT** button.*

If the selected service was busy, AccuSet will automatically disconnect the call.

After the second synchronization is made, AccuSet will have the necessary information to calculate the number of seconds (on average) your computer has either lost or gained per day since the last synchronization.

What's New...

To view a detailed listing of the changes which have occurred to AccuSet since its inception, view the WHATSNEW.WRI file which accompanied this program.

If you have any suggestions for future enhancements, I would very much appreciate hearing them!

Adjustment Log

When you select **Adjustment Log...** from the main program window, the detailed adjustment log will be displayed.

Each adjustment (includes synchronizations with an external time service, manual adjustments (made by using AccuSet) and adjustments made to compensate for the internal clock's error rate) AccuSet made to the system clock is displayed. The entries are sorted by the date and time each adjustment occurred. The following information is displayed:

DATE:

The date the synchronization/adjustment occurred.

TIME:

The time the synchronization/adjustment occurred.

SERVICE:

The service which was used to perform the synchronization. If AccuSet performed a correction to the system clock based on the internal clock's error rate, this field will contain "**ACCUSET**". If a manual clock adjustment was made, the word "**MANUAL**" will appear in this field.

RATED ACCURACY:

The internal clock's rated accuracy (calculated based on the time which was lost/gained since the last synchronization occurred). If AccuSet was used to perform a correction to the system's time, the most-recently calculated accuracy (obtained from the last synchronization with an atomic clock) is entered here.

SECONDS ADJUSTED:

The number of seconds the internal clock was adjusted during the current operation.

Running totals for each type of adjustment which occurred are also displayed.

ITEMS TO DISPLAY:

You also have the option of filtering the log listing to display only synchronizations, error compensations, manual adjustments or all adjustment events.

If you wish to view a graphical plot of the accuracies calculated by AccuSet during each modem synchronization, select either the **Accuracy Graph** tab or press **Alt-G**. The accuracy readings will then be plotted in date order (up to seven of the most recent readings are displayed)

Navigating the tab pages can also be accomplished by using the PgUp and PgDn keys.

Selecting **Print** from this dialog will cause AccuSet to print a hard copy of the detailed adjustment log to the default printer.

If you wish to purge the contents of the synchronization log, select the **Clear Log** button. **Once the log records have been removed, they cannot be recovered.**

Compensating for Internal Clock Error Rate

Once the internal clock's accuracy has been determined, AccuSet can correct the system time to compensate for the amount of time it loses or gains - *without making a telephone call!*.

AccuSet must first determine your internal clock's error rate (accuracy). This procedure is performed as follows:

After AccuSet has performed two successful synchronizations with an external time service (such as the NIST or USNO), it knows two points in time where your clock's time was accurate.

After the second synchronization occurs, AccuSet computes the amount of time which was lost or gained by the internal clock since the first synchronization was performed.

AccuSet will then calculate the amount of time which has elapsed between the two synchronizations. The accuracy is then calculated by dividing the amount of time which was lost or gained by the amount of time which has elapsed between the two synchronizations (taking into account any adjustments made to the system clock via AccuSet). *This result is then converted to seconds per day.*

NOTE:

Ideally, the accuracy of your internal clock is best determined when the two synchronizations occur at least one or more days apart. This will give your internal clock the necessary time to show its "true colors."

With this information, AccuSet can make adjustments to your internal clock which correct for its error rate. This process can be initiated in either of two ways:

*By selecting **Error Compensation...** in the main program window*

or

During program startup, using the /AUTOADJUST parameter.

NOTE:

Some PC clocks are not only inaccurate, but inconsistent with their error rates as well. If you discover that the computed error rate fluctuates widely from synchronization to synchronization, it is not recommended that you use AccuSet's error compensation feature. It is considered normal, however, for the computed accuracy to vary slightly.

Startup Parameters

AccuSet provides the ability to automate the following functions through startup parameters:

Synchronizing the clock

Adjusting the system time, based upon the internal clock's calculated error rate (accuracy).

Startup Parameters:

/AUTOSYNC

Causes AccuSet to synchronize your clock with the default time service and, upon a successful synchronization, self-terminate.

If the synchronization was unsuccessful (e.g.: busy signal, modem difficulties, etc.), AccuSet will inform you of the problem and wait for your response.

/AUTOADJUST

Causes AccuSet to correct the system time, based upon its calculated accuracy, and then self-terminate.

If the operation was unsuccessful (e.g.: accuracy has not yet been determined, no adjustments were necessary, etc.), AccuSet will inform you of the problem and wait for your response.

/AUTOADJUSTQUIET

Same as the /AUTOADJUST parameter, except that all messages are suppressed.

You can use these startup parameters in conjunction with a Windows scheduling program to automatically synchronize (or adjust) your system's time on a scheduled basis. Simply include the desired startup parameter after the command you use to start AccuSet:

Examples:

To have AccuSet start and automatically synchronize the internal clock with the selected service and then self-terminate:

C:\IACCUSET\IACCUSET.EXE /AUTOSYNC

To have AccuSet start and automatically adjust the internal clock to compensate for its calculated error rate and then self-terminate:

C:\IACCUSET\IACCUSET.EXE /AUTOADJUST

Adding AccuSet to the Program Manager Startup Group:

Double-click on the Startup Group to open it.

Select FILE from the Program Manager.

Select NEW, the New Program Object dialog will be displayed.

Ensure that the PROGRAM ITEM radio button is selected, then select OK. The Program Item Properties dialog will be displayed. Enter the following for each item:

DESCRIPTION: **AccuSet**

COMMAND LINE: **C:\IACCUSET\IACCUSET.EXE /AUTOADJUST**

(You could optionally replace "/AUTOADJUST" with "/AUTOADJUSTQUIET")

WORKING DIRECTORY:

SHORTCUT KEY: **none**

Select OK to save these settings.

synchronize

To accurately match the date and time of the PC's internal clock with an outside source (i.e., the cesium atomic clocks located at either the USNO, NIST, Italy, Austria, Sweden, Australia, Canada or the UK) via modem.

USNO

The United States Naval Observatory atomic clock located in Washington, DC. This service has less phone lines than the NIST and is generally quite busy. Modem connections can only be made at 1200 baud.

NIST

The National Institute of Standards and Technology atomic clock located in Boulder, CO. This service has more available phone lines than the USNO and is generally the preferred service to use. Modem connections can be made at either 1200 or 300 baud.

daylight savings time (DST)

The time observed when clocks and other timepieces are set ahead, usually by one hour, so that the sun will rise and set later in the day. DST conserves lighting power and provides more usable daylight hours for afternoon and evening activities.

First adopted during World War I by the U.S. and other countries, DST in the U.S. currently extends from the first Sunday in April to the last Sunday in October.

If you wish, AccuSet can be configured to automatically handle DST transitions.

accuracy

The calculated error rate of your computer's internal clock, measured in the number of seconds it loses (or gains) per day.

AccuSet can calculate your clock's accuracy after two successful synchronizations have occurred.

AccuSet Upgrade Policy

When you register AccuSet, you will receive an access code which can also be used to register all future versions of the program, *at no further cost to you*. It's just my way of saying "thank you" to those who support the program...

The most recent version of AccuSet can always be downloaded from the AccuSet Support BBS as well as the WINSHARE forum of CompuServe.

International Calling

AccuSet has the ability to synchronize your PC's internal clock with time services spanning three continents. This ability also introduces the inherent complexities of international dialing.

Using AccuSet to synchronize with foreign time services from the United States:

To enable AccuSet to dial a remote service from the United States, you must modify the phone number for each foreign service in the following manner:

European Services:

Insert the international access code (011) and remove the plus sign (+) from the telephone number:

Sweden - 011 468 7410809

Italy - 011 39 113487892

Austria - 011 43 316472366

Using AccuSet to synchronize with foreign time services from outside the United States:

Depending on your physical location, your telephone service may have special requirements for calling certain countries. Consult your telephone operator for assistance.

Please note that the European time services have a suffix for the country/city codes which may need to be removed to enable local calling access.

Common Problems and Solutions

The following is a list of common problems and their solutions. If you cannot resolve the problem on your own, proceed to the [obtaining technical support](#) section of this help file.

When starting AccuSet, Windows reports that a file is missing or could not be located.

If the file which is reported missing is the VBRUN300.DLL, this file must be located in the \WINDOWS\SYSTEM sub directory of your hard drive. The Visual Basic (version 3) runtime dynamic link library file can be obtained via CompuServe, America On-Line, Prodigy or most local BBS's.

If the file which is reported missing is anything other than VBRUN300.DLL, one of AccuSet's support files has been accidentally deleted. Obtain the original AccuSet archive file and extract the files into your AccuSet sub directory.

When starting AccuSet, the message "THREED.VBX IS OUT OF DATE" is displayed:

The THREED.VBX file, included with AccuSet, is a Visual Basic eXtension which provides AccuSet with its 3D visual effects. Since Visual Basic 3.0 was released, there have been several versions of THREED.VBX released. If you have another version of THREED.VBX located in your \WINDOWS\SYSTEM subdirectory (or have recently used another program with its own copy of a differing THREED.VBX version), the aforementioned message will be displayed.

The solution to this problem is simple:

Copy the THREED.VBX file from the subdirectory containing AccuSet into the \WINDOWS\SYSTEM subdirectory.

Exit from Windows to DOS and restart Windows. This will ensure that any previously-loaded version of THREED.VBX has been removed from memory.

Computer Locks Up (Freezes) When Using AccuSet:

If you have a Gateway 2000 machine and are encountering this difficulty, Gateway has provided a software patch to correct this problem with their serial ports. Download the file SER386.EXE from the AccuSet Support BBS, (717) 732-4067 or from the Gateway 2000 forum on CompuServe (GO GATEWAY).

Difficulties are encountered after dialing has completed:

The modems connect (screeching sound, followed by silence), but the countdown delay is reached without a successful synchronization. There are many possible causes for this type of problem. The time service could be busy, or your modem was unable to properly "handshake" with the time service modem. Try selecting USE ALTERNATE INITIALIZATION STRING and try AT Q0\N1 as the alternate initialization string. If the same problem occurs, contact the author or consult your modem reference manual for the necessary commands to disable error correction and data compression.

This is perhaps the most common first-time error, because there are a variety of likely causes: *(To assist in determining the cause of the problem, make sure that SILENCE MODEM has not been selected in the configuration dialog. This will enable you to hear the progress of the connection)*

Likely causes:

The phone number (or dialing prefix) is incorrect. Select RESTORE DEFAULTS from the configuration dialog. Ensure that the time zone, daylight savings time and COM port options are properly configured. Edit the phone number of the service to include any necessary dialing prefix (such as 8 for WATTS). If calling to a time service located in another country, refer to the International Calling help topic.

An improper COM port was selected in the configuration section. Select the configuration dialog and choose AUTO-DETECT PORT. AccuSet will then determine the proper communications port to which your modem is attached.

After performing a synchronization, the time is incorrect.

This is most-likely the result of an improperly configured time zone. Most time services report time in UTC (Universal Time Coordinated) format. AccuSet automatically converts this time to that which is appropriate for your time zone. Depending on your physical location, ensure that the proper time zone has been selected. Another problem may be caused by Daylight Savings Time. Some countries, including the United States, move their clocks forward one hour in the summer months. If your area is currently using Daylight Savings Time, ensure that this option is checked.

After upgrading from version 1.0, the Last Synchronization Date appears scrambled.

This problem is a result of an incompatibility between version 1.0 and 2.x initialization files, due to the addition of international date/time support. It can be resolved by either performing another synchronization or by deleting the ACCUSET.INI file. If ACCUSET.INI is removed, you will have to re-configure AccuSet.

When AccuSet is started, Windows reports a General Protection Fault in XXXXXX.DRV.

This is caused by an incompatibility between graphical Visual Basic programs and your video driver. To correct this type of problem, contact your video board manufacturer for the latest video driver. You may also wish to obtain the latest VBRUN300.DLL (dated 12/93) from CompuServe (GO MSBASIC), the Microsoft Download Service or a local BBS. Another temporary solution is to use the generic Windows VGA driver included with Microsoft Windows.

The modem will not pick up the phone.

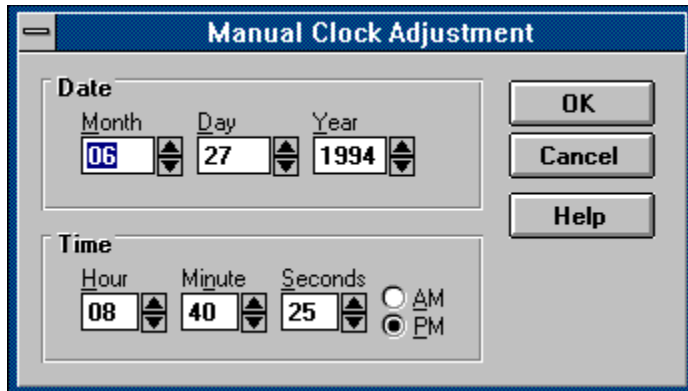
This may be caused by many factors (like a modem which is not turned on). Other factors which may cause this problem are: Improper communications port selection (select CONFIGURE and use AccuSet's AUTO-DETECT PORT feature) or an incompatibility with AccuSet's modem initialization string. If the problem is being caused by an initialization string incompatibility, try the following: Select USE ALTERNATE INITIALIZATION STRING from the configuration dialog. Do not enter any initialization codes. Next, reset the modem (power off the modem, if external; if internal, power down your machine and restart).

BBC Dial-In Time Service

The BBC's broadcast time signals are derived from a highly accurate time standard maintained at the Broadcasting House, London. It should be noted that this service is only available to those users who are calling from within the United Kingdom.

Manual Clock Adjustments

If you so desire, you can adjust the system clock manually. AccuSet performs this function in a manner similar to the Windows Control Panel. To perform a manual adjustment to the system date/time, select Perform Manual Adjustment from the main window. The following dialog box will be displayed:

A screenshot of a 'Manual Clock Adjustment' dialog box. The dialog has a title bar with a minus button and the text 'Manual Clock Adjustment'. It contains two main sections: 'Date' and 'Time'. The 'Date' section has three spinners for 'Month' (06), 'Day' (27), and 'Year' (1994). The 'Time' section has three spinners for 'Hour' (08), 'Minute' (40), and 'Seconds' (25), followed by two radio buttons for 'AM' and 'PM', with 'PM' selected. On the right side of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

The formats of the date and time are displayed using the Short Date and Time formats specified in the International Settings of the Control Panel.

To change the date and time:

Select the part of the date or time you want to change, and then enter the new value.

or

Click the up or down arrow to increase or decrease the number by one.

Choose the OK button.

Times Around the World...

AccuSet can display the dates/times for five (user-configurable) cities around the world.

Each city can be configured individually by selecting its associated Setup button.

City Configuration...

This section is used to define the configuration of the city you selected from the Times in Cities Around the World dialog window.

LOCATION NAME:

Enter the name of the city as it should appear in the frame.

SELECT PRE-DEFINED LOCATION:

If you prefer, you can select from a pre-defined list of cities around the world. AccuSet will then automatically configure the name, time zone and (if available) the automated daylight savings time rules for the location you select.

TIME ZONE:

Select the time zone in which the city is located. *This information is used to determine the city's current time in relation to yours.*

LOCAL HALF-HOUR TIME ZONE:

Specify whether or not this city is located in a local half-hour time zone (in which case AccuSet will add thirty minutes to its time, relative to Universal Time Coordinated). *This information is used to determine the city's current time in relation to yours.*

USE DAYLIGHT SAVINGS TIME:

Specify whether or not this city is currently using Daylight Savings Time. *This information is used to determine the city's current time in relation to yours.*

If you did not select a pre-defined location for which AccuSet automatically supports DST, you can select the **Daylight Savings Time Automation** button. You then have the option of selecting from a list of pre-configured DST rules or define the DST start/end dates manually.

LED DISPLAY COLOR:

Select the color of the display LEDs (available only if the digital display was selected in the main configuration section. If you wish to have all cities display using this color, select the **USE THIS COLOR FOR ALL CITIES** check box.

If you prefer, you can select from a list of pre-defined locations.

To save any changes that you have made, select **OK**. If you wish to abort the changes you have made, select **CANCEL**.

Internal Clock Status Section

This section displays the current system date and time as reported by your computer's internal clock.

If you should desire to alter the system clock manually, select [Perform Manual Adjustment](#).

Estimations Section

This section will display the following items:

ACCURACY

The estimated amount of time your system clock will deviate from real time in one day (measured in seconds per day).

This value is determined by the amount of time the internal clock loses or gains between modem synchronizations. The best accuracy calculations are made when at least one or more days has elapsed between modem synchronizations.

SECONDS IN ERROR:

Based upon the internal clock's rated accuracy, the estimated number of seconds your internal clock has deviated from real time since the adjustment to the system clock was performed.

ESTIMATED DATE/TIME:

Based upon the internal clock's rated accuracy, the estimated correct date and time.

NOTE:

This section is only enabled after two modem synchronizations have been performed (so that an accuracy reading could be obtained).

The following functions are also included within this section:

ERROR COMPENSATION:

This option is used to adjust the system clock to reflect the estimated correct date/time.

RESET:

This option is used to reset the calculated accuracy to 0 (zero), in the event an abnormally large value was reported during the last modem synchronization. If the estimated accuracy is currently 0 (zero), this option will be disabled.

Telecom Australia

The Australian time service, Telecom Australia, has local access numbers in the following cities: Adelaide, Brisbane, Darwin, Hobart, Melbourne, Perth and Sydney. Since these services report the local time for the state in which they are located, they should only be used if you are calling from within the state in which the service is located.

Hardware Configuration Options

The following is an explanation of each available option:

COMMUNICATIONS PORT:

Specify the COM port to which your modem is attached. AccuSet will inform you if you should make the wrong selection, or if it encounters difficulty during initialization.

If you desire to have AccuSet automatically determine the port to which your modem is attached, select Auto-Detect Port. If an active modem is detected, AccuSet will automatically make the correct port choice.

BAUD RATE:

The NIST supports connections at either 300 or 1200 baud. The USNO only supports 1200 baud connections.

As of the time AccuSet was released, the atomic clock modems will only support connection speeds at 1200 BPS (the NIST can also connect at 300 BPS).

DIALING METHOD:

If your telephone service does not support tone dialing capabilities, select pulse.

MODEM INITIALIZATION:

You can choose to either use AccuSet's default generic modem initialization string, or you can enter one of your own. The generic initialization string works with most Hayes-compatible modems. If you are not encountering difficulties, use the generic initialization string.

If AccuSet times out before a synchronization occurs, try using the alternate initialization string (AT Q0\N1); if that does not work, consult your modem reference manual for the necessary commands to disable error correction and data compression or feel free to contact the author for further assistance.

ALTERNATE MODEM INITIALIZATION STRING:

If you selected to use an alternate modem initialization string in the Modem Initialization section (possibly because your modem was incompatible with AccuSet's default initialization string), enter the command here. **Example: AT Q0\N1.** For further assistance on alternative modem initialization commands, consult the Modem Initialization help topic.

SILENCE MODEM DURING CALL:

If you do not wish to hear the modem during the call, check this box. *This option is only available if you selected **Use Generic Modem Initialization String** in the Modem Initialization section.*

USE CCITT V.21/V.22 CONNECTION PROTOCOL:

If you are encountering difficulty connecting with a non-U.S. time service, select this option.

MODEM HANG-UP COMMAND:

If the default modem hang-up command "**~~~+++~~~ATH0**", does not cause your modem to hang up the telephone, consult your modem's reference manual and insert the necessary command.

Time Service Configuration Options

The following is an explanation of each available option:

TIME SERVICE TO USE:

Select either the National Institute of Standards and Technology (NIST), United States Naval Observatory (USNO), Italy, Sweden, Austria, United Kingdom, Canadian, or Australian time service.

NOTE:

The BBC Dial-In Time Service can only be used if you are calling from within the United Kingdom.

Australian users should use the Telecom Australia branch that is located within their state.

TELEPHONE NUMBER:

When you specify a time service, its telephone number will appear in this field. It may be necessary to alter the prefix of the numbers for one or more of the following reasons:

In the event your telephone system requires connecting to outside line (e.g.: WATTS). If so, change the first character "1" to whatever numbers you have to dial to get access to an outside line.

In the event you need to dial internationally to access a foreign time service. See International Calling.

YOUR TIME ZONE:

Select the time zone in which you reside. AccuSet receives the date/time stamp from the atomic clocks of most services in the Universal Time Coordinated (UTC) format. Adjustments are then made to accurately reflect the correct time for your time zone.

NOTE:

The Telecom Australia branches report the local time for the state in which they are located. For these services only, AccuSet will set your system clock to the date/time received from the selected Telecom Australia branch.

LOCAL HALF-HOUR TIME ZONE:

Select this option if you live in a half-hour time zone. If this option is selected, AccuSet will add thirty minutes to the time received from the selected time source during the next modem synchronization.

NOTE:

The Telecom Australia branches report the local time for the state in which they are located. For these services only, AccuSet will set your system clock to the date/time received from the selected Telecom Australia branch.

USE DAYLIGHT SAVINGS TIME:

If the time zone in which you reside is currently utilizing daylight savings time, check this box. If the

area in which you live does not utilize DST at all, make sure this box is **not** checked.

If you should wish AccuSet to automate the process of DST start/end dates, select the **Daylight Savings Time Automation** option.

Alerts

The following is an explanation of each available option:

Enable "Excessive Adjustment" Warnings:

This option, when enabled, will have AccuSet inform you when a specified number of adjustments (error compensations / manual adjustments) have been made to the system clock without an intervening modem synchronization.

This alert is useful in maintaining accurate time by ensuring that the current accuracy of the clock is calculated on a regular basis.

Enable Overdue Modem Synchronization Warnings:

This option, when enabled, will have AccuSet inform you when a specified number of days have elapsed since you last performed a modem synchronization.

This alert is useful in maintaining accurate time by ensuring that modem synchronization occur on a regular basis.

Enable "Excessive Modem Synchronization" Warnings:

This option, when enabled, will have AccuSet alert you in the event you try to perform a modem synchronization before a specified number of days has elapsed.

*Performing synchronizations closer than one day apart severely limits AccuSet's ability to compute your internal clock's accuracy. **If this option is enabled when performing a synchronization via the startup /AutoSync parameter (and the specified amount of time between synchronizations has not elapsed), AccuSet will proceed without performing a synchronization.***

General Configuration Options

The following is an explanation of each available option:

Busy Signal Options:

RETRY SYNCHRONIZATION IF SELECTED SERVICE IS BUSY:

Select this option if you wish AccuSet to automatically make further attempts at performing a modem synchronization, in the event the selected service is currently busy.

MAXIMUM NUMBER OF RETRIES:

Enter the maximum number of attempts you wish AccuSet to make if the selected time service is busy.

Modem Result Codes:

BUSY SIGNAL MODEM RESULT CODE:

Enter the result string the modem sends when a busy signal is encountered. This field will default to BUSY.

MODEM CONNECTION RESULT CODE:

Enter the result string the modem sends when a connection has been made. This field will default to CONNECT.

Seconds to Wait Until Automatic Timeout:

This field contains the number of seconds AccuSet will wait before automatically disconnecting the call. If AccuSet automatically disconnects the call before the synchronization process has completed, increase this value.

Disable Call Waiting:

If you wish to disable call waiting during the synchronization process, select this option. You will also be given the option of modifying the dialing command which is used to disable call waiting.

NOTE:

Only select this option if you have call waiting installed on the telephone line connected to the modem.

User Interface Configuration Options

The following is an explanation of each available option you have in order to customize AccuSet's user interface:

3D EFFECTS:

This section deals with controlling the 3D effects AccuSet uses throughout the program:

BUTTONS:

If this check box is selected, the text of the picture buttons on the main window will have a raised 3D effect.

FRAME TEXT:

If this check box is selected, the text of the frame boxes used throughout the program will have a raised 3D effect.

STATUS LINE TEXT:

If this check box is selected, the text of the main window's status line will be displayed using a sunken 3D effect.

DISPLAY TYPE:

Select the type of display (text of simulated LED displays) you prefer. The selection you make will be used throughout the program.

If you opt to use the digital display, you can also change the colors of each display to reflect your personal preference. The colors from which you can choose are green, red, blue and yellow.

NOTE:

The color of the LED displays used in the City Times Around the World section is controlled through each city's configuration option.

SIMULATE UNLIT SEGMENTS:

Select this option if you wish to have AccuSet "simulate" the unlit segments of the simulated LED displays. If you find the LEDs difficult to read, you can improve the contrast between the lit and unlit segments by choosing to disable this option.

MINIMIZED OPTIONS:

Choose from one of the following minimized display options:

Display AccuSet's normal icon, with the date and time displayed in text below the icon.

or

Display the date and time within the icon (this is the default selection).

SOUNDS:

If you wish to enable beeps AccuSet uses to draw attention to a particular event (such as an error or warning message), ensure that the **Enable Beeps** check box is selected.

Daylight Savings Time Automation

AccuSet can be easily configured to automate the transition between Daylight Savings Time (DST) and Standard Time. When configured for automatic DST operation, AccuSet will automatically inform you of the change and add/subtract an hour to/from the current time.

AccuSet has built-in DST rules for the following areas of the world:

North America
British Isles
Continental Europe
China
Australia (in the states where DST is utilized)

You can also manually enter the DST start and end dates. If you do not live in one of the aforementioned areas, and would like to have the DST rules for your country added to AccuSet as a pre-defined rule, [contact the author](#) with the DST start/end date information and it will be included in the next release of the program.

Automating Daylight Savings Time Handling:

Select **Configure** from the main window.

Select the **Time Service** index tab (by either clicking on the tab, pressing the Alt-T hotkey or using PgUp and PgDn to move to it).

Select the **Daylight Savings Time Automation** button. The Daylight Savings Time Automation dialog will be displayed.

Select the DST rule you wish to use from the **Starting/Ending Rule** combo box. If you select anything other than "Enter Starting/Ending Dates Manually", the DST start and end dates for the current point in time will be displayed. You will not be able to change the dates, they will be maintained by AccuSet.

If you selected Enter Starting/Ending Dates Manually, enter the DST start and end dates for the current point in time. You will also need to update these dates after DST ends. If you would like to have the DST rule for your country/area incorporated within the program, [contact the author](#) with the necessary information at your earliest possible convenience.

Select OK to save your changes.

Modem Initialization

Although AccuSet's default modem initialization string works flawlessly with the vast majority of the installed base of modems, you may find that yours does not.

Symptoms of a modem initialization problem may include the following:

The modem does not respond.

The modem dials, but no connection is made.

The modem dials, a connection seems to be made, but AccuSet times out.

NOTE:

Some of these symptoms can also be caused by a variety of other reasons (such as an incorrect telephone number, incorrect serial port selection, call waiting being disabled when call waiting has not been installed on your telephone line, etc...). Verify that your configuration selections are accurate before proceeding.

If AccuSet's default modem initialization string fails to work with your modem, you may use an alternate initialization string. This string should contain the necessary commands to disable the error correction and data compression features found on high speed modems. Consult your modem reference manual for these commands.

Procedures to Enter an Alternate Modem Initialization String:

Select **Configure** from the main window.

If the **Hardware** index tab is not already selected, either click on it with the mouse or press Alt-H.

In the Modem Initialization section of the dialog, select the **Use Alternate Init String** radio button. When you do, the Alternate Initialization String text box will become enabled.

Enter the desired initialization string. *Do **not** end the command with ^M or any other character commonly used to represent a carriage return/line feed (AccuSet will automatically insert this for you).*

If the new initialization string still does not work, please contact the author with the following information:

Your modem type (make/model/speed).

The initialization strings you have tried.

An exact description of what happens during the synchronization process.

Daylight Savings Time

The time observed when clocks and other timepieces are set ahead, usually by one hour, so that the sun will rise and set later in the day. DST conserves lighting power and provides more usable daylight hours for afternoon and evening activities.

First adopted during World War I by the U.S. and other countries, DST in the U.S. currently extends from the first Sunday in April to the last Sunday in October.

If you wish, AccuSet can be configured to automatically handle DST transitions.

atomic clocks

Today, the length of a second as defined in the International System of Units is based on a specific number of transitions, or vibrations, in a particular kind of cesium atom. These transitions produce extremely regular waves of electromagnetic radiation that can be counted to produce a highly accurate time scale. Coordinated Universal Time is based on this second, called the SI second.

The cesium-beam clock is the most accurate standard of atomic time currently in use, but scientists are working on using other kinds of atoms for atomic clocks. Such clocks - based on hydrogen or beryllium atoms, for example - could be thousands of times more accurate than even today's cesium clocks.

Many of the world's nations maintain very accurate cesium clocks. The time kept by these clocks is averaged together to produce what is called international atomic time (IAT). Time signals from the world's national-standards laboratories are broadcast around the globe by shortwave-radio broadcast stations or by artificial satellites. Highly accurate time signals are used for, among other things, tracking space vehicles and studying the motions of the Earth's crust.

Pre-Defined Locations

As an alternative to defining locations manually, AccuSet comes with a vast pre-configured list of locations from which to choose. Simply select the location from the list and the applicable configuration information (location name, time zone, latitude, longitude and (if available) the Daylight Savings Time rules) will be entered automatically.

If you wish to limit the list of displayed locations, you select choose to display either all cities, USA cities only or non-USA cities only.

Registration Form Creator

In order to ease the registration process, AccuSet has the capability of collecting the information necessary for registration and automatically generating a completed registration form for you.

Simply complete the fields on the screen and specify the number of copies you wish to register. AccuSet will calculate the total payment due.

To print the form (on the default Windows printer), select the **Print** option button.

Mail the completed form, along with your registration payment, to:

SCOTT D. KISTER
321D West Shady Lane
Enola, PA 17025-2262
USA

latitude

The angular distance from the equator of any point on the Earth's surface. The equator is latitude 0 degrees, and the poles are 90 degrees north (N) and south (S), respectively. One degree of latitude is about 69 miles (110 km), increasing slightly poleward as a result of the Earth's polar flattening. Meridians of longitude (imaginary lines drawn from pole to pole) and parallels of latitude form a grid by which any position on the Earth's surface can be specified.

longitude

The angular distance on the Earth's surface measured along the equator west (W) of the prime meridian, which is at 0 degrees. All other points have longitudes from 0 to 180 degrees east of west. Meridians of longitude (imaginary lines drawn from pole to pole) and parallels of latitude form a grid by which any position on the Earth's surface can be specified.

equator

The equator is an imaginary great circle drawn around the Earth equidistant from the two poles. It divides the globe into northern and southern hemispheres. Latitudes are measured north and south of this line. See also prime meridian.

prime meridian

The prime, or Greenwich, meridian is the longitude line designated 0 deg 00' 00". It passes through the old Greenwich Observatory in London and was agreed upon by international treaty in 1884 as the line on which global time zones are based.

time zone

A time zone is a longitudinal strip of the Earth's surface, stretching from pole to pole and sharing the same time of day or night. The Earth requires 24 hours to make one complete rotation on its axis. Thus the direct rays of the Sun pass through one degree of longitude every 4 minutes. Therefore, to allow for time changes on an hourly basis, each time zone covers 15 degrees of longitude in width ($15 \times 24 = 360$ degrees). In practice, however, the zone boundary lines are drawn to accommodate political units. Also, for various reasons, a number of countries differ considerably from international practice in time designation. Because the time zones extend around the world, the 24th zone has to lie next to the first one. The International Date Line, drawn roughly along the 180 degree meridian in the Pacific Ocean, has been designated as this meeting place. The time zones on either side of this line are 24 hours apart. This means that a person who moves from east to west across the line immediately "loses" a day--is at the same clock time but of the next calendar day. The 0 degree meridian on the opposite side of the Earth has been established as the reference line for setting standard, or universal, time (see Universal Time Coordinated).

Universal Time Coordinated (UTC) or Greenwich Mean Time (GMT)

Universal Time Coordinated or Greenwich Mean Time (GMT) is the time on the Greenwich meridian, used as the zero for longitudinal measurement, according to the Mean Sun. The Mean Sun is an imaginary body that moves around the celestial equator with constant angular speed, making a complete circuit with respect to the vernal equinox in one tropical year. GMT was established as the world standard in 1884. In 1928 it was also given the name Universal Time Coordinated; the International Time Bureau in Paris now coordinates astronomical measurements and atomic clock readings from around the world to arrive at Universal Time Coordinated.

international date line

The international date line is an imaginary line that runs approximately along the 180 deg meridian in the Pacific Ocean. By an 1884 international agreement, the earth day is considered to begin immediately west of the line and ends immediately east of it. Therefore, the time zones on each side are 24 hours apart. Those who cross the line from west to east repeat one day, while those traveling the reverse course omit one. In the few places where the 180 deg meridian crosses land the international date line deviates so as not to disrupt the pattern of life within a political union.

