



@server

iSeries

Time Management

Version 5 Release 3





@server

iSeries

Time Management

Version 5 Release 3

Note

Before using this information and the product it supports, be sure to read the information in "Notices," on page 37.

Second Edition (August 2005)

This edition applies to Version 5, Release 3, Modification 0 of IBM Operating System/400 (product number 5722-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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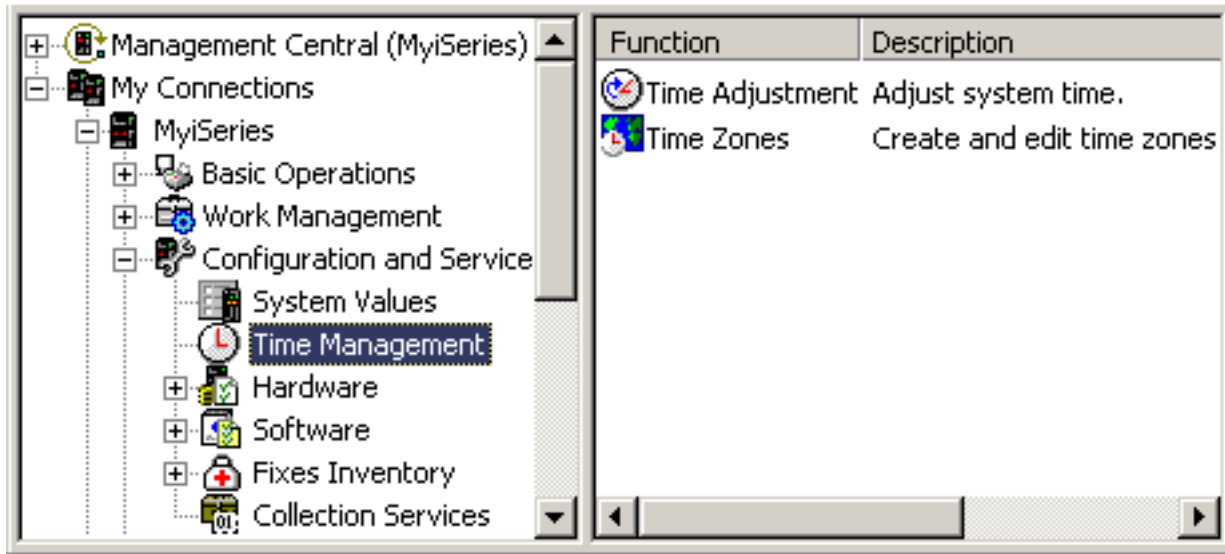
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Time management

Time management allows you to manage time on your iSeries^(TM) server. Within the time management component of iSeries Navigator, you can work with the time zone and time adjustment functions. With these two functions, time management allows you to choose a time zone for your system to use. In addition, you can identify the software to use as the time maintenance application that synchronizes your system time with an external time source.



The time zones function allows you to specify a time zone for your system to use. Many time zone descriptions are provided with the system and you can also create your own. Time zone descriptions include whether your system should observe Daylight Saving Time (DST) or not. If DST is being observed, the system automatically updates your system time for the start and end of DST.

The time adjustment function allows you to adjust the system time by manually starting a time adjustment. In addition, you can identify a time maintenance application to use to adjust the system clock to keep it synchronized with an external time source.

In addition, you can work with time management using iSeries Navigator tasks on the Web. This allows you to work with time management functions using a Web browser. For more information, see iSeries Navigator tasks on the Web.

To learn more about time management, see the following:

“What’s new for V5R3” on page 2

View this topic to see the significant developments that time management provides. Time management is new for V5R3.

“Print this topic” on page 3

View this topic to access a PDF version of the time management topic. The PDF makes it easy to print the entire time management topic.

“Concepts” on page 4

Before working with time management, it is essential to become familiar with time management concepts. View this topic to start learning about time management and how to apply it to your business.

“Setting up time management” on page 15

View this topic to learn how to set up your systems to use time zones and time adjustment applications. In this topic, you will:

- Determine which time zone or time zones are appropriate for your systems.
- Determine if your systems meet the proper software and hardware requirements.
- Find information on how to specify a time zone for your systems.
- Find information on how to specify a time maintenance application for your systems.

“Managing system time” on page 19

View this topic to learn how to properly manage your system time.

“Managing time zones” on page 22

View this topic to learn how to effectively use time zones. You will learn how to create and edit time zones as well as set the time zone system value.

“Troubleshooting” on page 25

View this topic to troubleshoot problems your system may encounter. This topic describes a variety of problems and specifies recovery steps.

“Scenarios” on page 31

View this topic to learn about the different ways you can use time zones and time adjustments in time management. These scenarios describe a particular situation and task to complete.

What’s new for V5R3

For V5R3, the Configuration and Service component of iSeries Navigator now contains information about time management. This information allows you to do a variety of things with time zones and time adjustments. Here are some of the highlights:

- You can set a time zone for each system.
- You can identify a time maintenance application to use to adjust your system time in order to keep it synchronized with an external time source.
- You no longer need to manually set the time of day system value when Daylight Saving Time starts and ends. If your current system time zone observes Daylight Saving Time, the system will automatically adjust your system time when Daylight Saving Time begins and ends.
- You no longer need to set the offset from coordinated universal time (QUTCOffset) system value. This value is now determined by the time zone properties associated with the time zone specified for the time zone (QTIMZON) system value.

You can access time management in iSeries Navigator by expanding **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management**. Then, you have the option to work with either time zones or time adjustment.

In addition, you can access the time management component of iSeries Navigator from a Web browser. You can work with the time zone and time adjustment functions from virtually anywhere. For more information on accessing time management on the Web, see iSeries Navigator tasks on the Web.

New time zone function

Now you can specify time zone properties on your iSeries server. You can specify one of the shipped time zones or create your own time zone. By specifying a time zone, your system will automatically adjust the system time for Daylight Saving Time (DST), if the current system time zone observes DST. Each system can have its own time zone setting. Therefore, you may have one physical system that contains multiple time zones, if individual partitions use different time zones.

If you have a previous version of OS/400^(R) installed and you are upgrading to OS/400 V5R3 or later, it is recommended that you “Setting the time zone before upgrading” on page 16. By setting the time zone before the upgrade, the system time is set properly immediately after the installation. Otherwise, the system may not be set to the correct time zone initially. If you have already installed the new release, see “Setting the time zone after an IPL” on page 18.

If you do not have a previous version of OS/400 installed, you can set either the time zone system value during an attended IPL or after an IPL using iSeries Navigator. To ensure that your system time is correct and that jobs run with the proper time, set the time zone system value as soon as possible.

New time adjustment function

Prior to V5R3, minor changes to system time involved replacing the current time with a new time value. The system time is located in iSeries Navigator in the Date and Time system values on the Time page. By changing the system time field, problems can arise because time can appear to jump forward or backward if jobs are accessing the time value before and after the time change. Now, a time adjustment can be made where time gradually speeds up or slows down on the system in order to reach the desired time value. See “Updating system time” on page 20 to learn how to start a time adjustment and “Time adjustment” on page 8 to learn more about time adjustments.

To make time adjustments, you must be using a version of OS/400 V5R3 or later with V4R5 or later hardware.

New time maintenance support

You can use the OS/400 provided Simple Network Time Protocol (SNTP) application or another application to synchronize your system time with an external time source. To use the OS/400 provided SNTP time maintenance application, you must be using a version of OS/400 V5R3 or later with V4R5 or later hardware.

New date and time system value

In the iSeries Navigator interface, the system date (QDATE) and time of day (QTIME) system values have not changed. However, they are combined into one system value in the character-based interface, QDATETIME. If you are accessing the date or time system value using the character-based interface, use QDATETIME rather than QDATE or QTIME. In the character-based interface, QDATE and QTIME are still accessible so you can access the date and time values separately, if needed. Use the QDATE and QTIME system values to retrieve values, and use the QDATETIME system value to set the date, time, or both. This will ensure that the system values do not conflict with each other.

Print this topic



To view or download the PDF version of this topic, select Time Management (about 550 KB).

You can view or download these related topics:




- System Values
- SNTP

Saving PDF files

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF in your browser (right-click the link above).
2.  Click **Save Target As...** if you are using Internet Explorer. Click **Save Link As...** if you are using Netscape Communicator. 
3. Navigate to the directory in which you would like to save the PDF.
4. Click **Save**.

Downloading Adobe Acrobat Reader

 You need Adobe Acrobat Reader to view or print these PDFs. You can download a copy from the Adobe Web site (www.adobe.com/products/acrobat/readstep.html)  . 

Concepts

Before working with time management, you should become familiar with these concepts:

“Time”

Read this topic to understand the concepts associated with time. You will read an overview of time that involves numerous other concepts that are related to the concept of time on the iSeries server. The following concepts related to time are discussed: system time, job time, coordinated universal time (UTC), offset from UTC, and time zone.

“Coordinated universal time” on page 6

Read this topic to learn about coordinated universal time. This topic describes the origin of UTC and how UTC applies to your systems.

“Time maintenance application” on page 6

Read this topic to learn how a typical time maintenance application works. You can also view an example environment that uses SNTP as a time maintenance application.

“Time adjustment” on page 8

Read this topic to learn about time adjustments. Learn how a time maintenance application automatically adjusts system time and how you can manually make time adjustments to the system time. Also, learn how a time adjustment is different from manually setting the time of day system value and why a time adjustment is the preferred method when changing the system time.

“Time zone” on page 9

Read this topic to learn about time zones. This topic identifies the time zones that are shipped with the system and their properties. You can use one of the time zones shipped with the system or create your own.

“Daylight Saving Time” on page 14

Read this topic to learn about Daylight Saving Time (DST). Find out what DST is and which time zones use DST.

After you become familiar with the time management concepts, see “Setting up time management” on page 15 to begin taking advantage of the time management function.

Time

Time on an iSeries system involves several time concepts. Each iSeries system or partition uses system time. The system time is displayed using the time of day system value.

System time is one important time concept. However, you need to understand the various time concepts that play an important role in time management. The following are important concepts that relate to time:

Local system time (system time)

Local system time is determined by applying the system's time zone offset to UTC. The time of day system value displays the local system time. Local system time and system time are used interchangeably.

Local job time

Local job time is determined by applying the job's time zone offset to UTC. To view a job's local date and time, view the Date/Time page of the job's properties.

"Coordinated universal time" on page 6

Coordinated universal time (UTC) is used to calculate local system time and job time. The offset from UTC is applied to UTC time to calculate the local system time (system time).

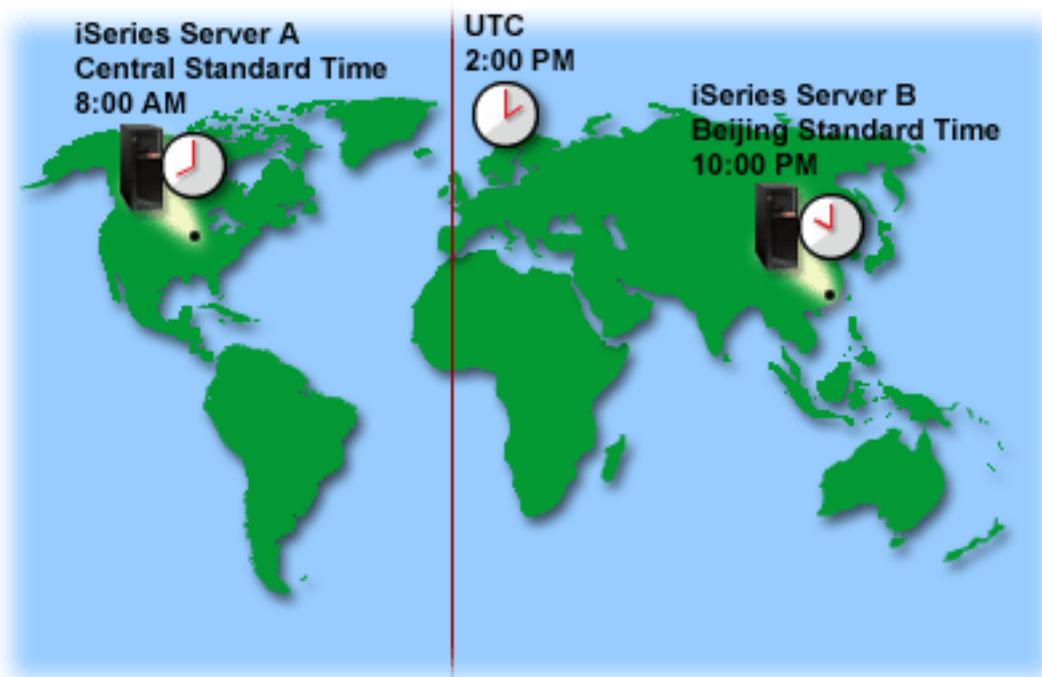
Offset from coordinated universal time (UTC)

Represents the difference in hours and minutes between UTC and the local system time. A negative offset indicates that the time is west of UTC and a positive offset indicates that the time is east of UTC.

"Time zone" on page 9

The time zone settings specify the offset from UTC and whether to observe "Daylight Saving Time" on page 14 or not. Each logical partition on a system may specify a time zone to use.

To combine these time concepts into the various time values associated with an iSeries server, examine two servers that use different time zones.



This figure shows two servers in two different time zones. Server A is in the Central Standard Time zone and Server B is in the Beijing Standard Time zone.

Each server's time values are the following:

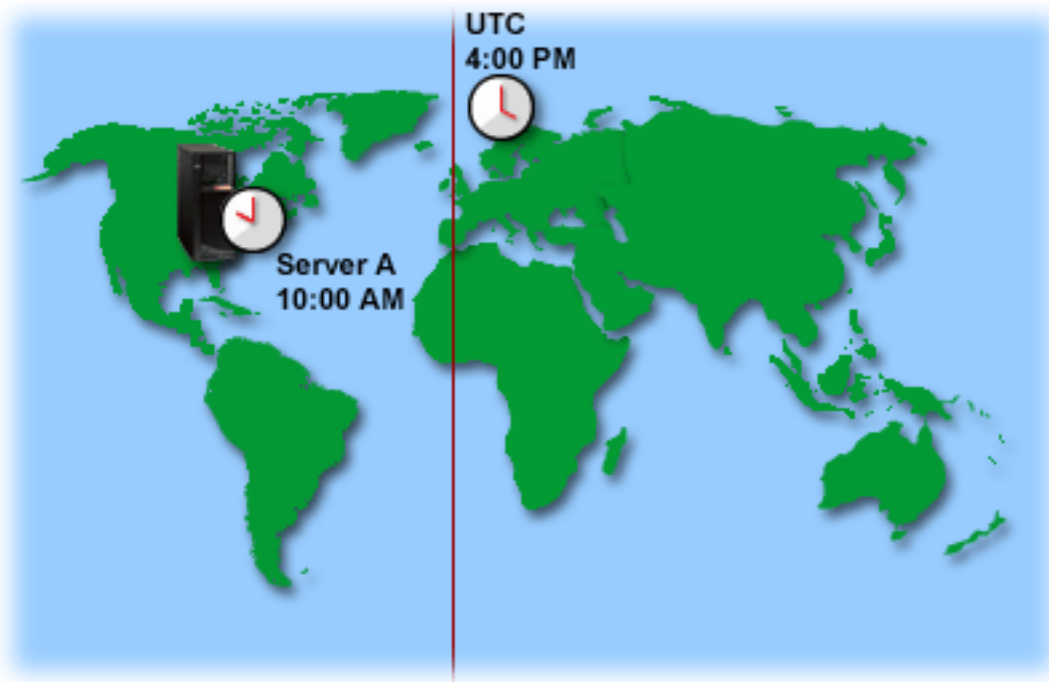
| | Server A | Server B |
|--------------------------|-----------------------|-----------------------|
| Local system time | 8:00 a.m. | 10:00 p.m. |
| Local job time | 8:00 a.m. | 10:00 p.m. |
| Time zone | Central Standard Time | Beijing Standard Time |
| Offset from UTC | -6:00 | +8:00 |
| UTC | 2:00 p.m. | 2:00 p.m. |

Coordinated universal time

Coordinated universal time (UTC) is a time scale that is kept by time laboratories around the world and is determined by using highly precise atomic clocks. The UTC time is accurate to approximately a nanosecond (billionth of a second) per day. UTC is located at 0 degrees latitude, the Prime Meridian.

UTC is used as the starting point to calculate the system time. To calculate the system time from UTC, the system's offset from UTC is added to UTC. The offset specifies the number of hours and minutes that the system is either west or east of UTC. Everything west of the Prime Meridian has a negative offset and everything east has a positive offset. Then, the offset is applied to UTC to calculate the system time. The system time is displayed in the time of day system value.

The following figure shows where UTC is located relative to Server A. UTC has a time value of 4:00 p.m. Server A is located in the United States of America in the Central Standard Time zone. Server A is located west of UTC 6 hours; therefore, Server A is offset from UTC by -06:00 hours. To calculate Server A's system time, add a negative 6 hours (-06:00) to 4:00 p.m., which is the current time value for UTC. With this calculation, Server A's local system time is 10:00 a.m.



Time maintenance application

A time maintenance application maintains the system time with an external time source. Each time maintenance application is unique and is programmed differently. However, the overall purpose of a time maintenance application is to retrieve a time value from an external time source and compare it to the

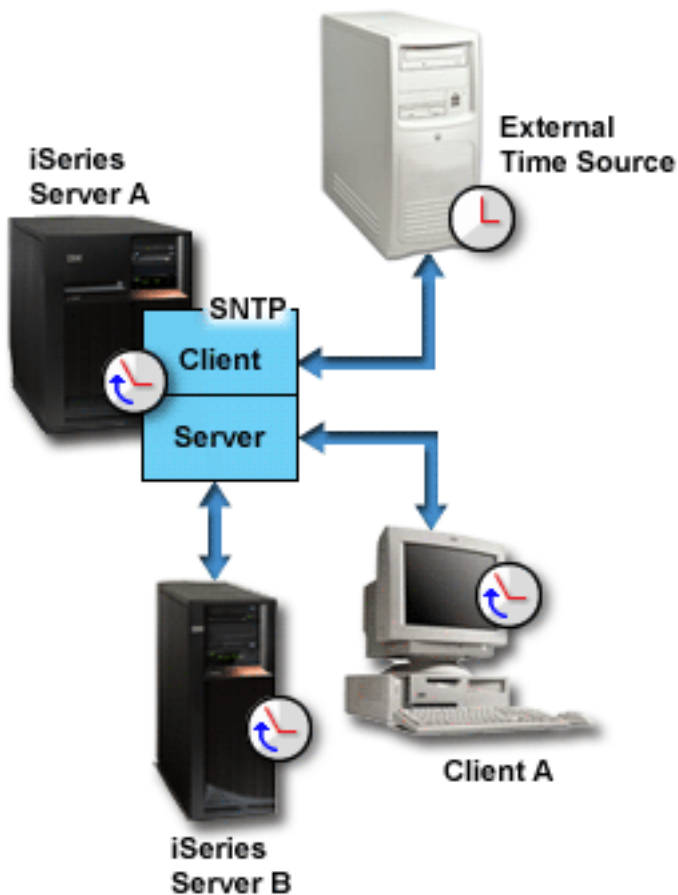
system's time value. If the two values differ, a time adjustment begins. The amount of time that the two values must differ before a "Time adjustment" on page 8 begins is unique to the actual time maintenance application that you are using.

Use the time adjustment (QTIMADJ) system value to identify the software to use to adjust the system clock to keep it synchronized with an external time source. The system does not enforce the software specified; it only identifies the software to use. This value should be maintained by the time adjustment software and is intended as an aid to prevent having multiple time adjustment applications conflict with each other. The system does not verify this value or that this software is or is not performing time adjustments. IBM time adjustment offerings will use identifiers that start with 'QIBM' such as 'QIBM_OS400_SNTP'. Other software suppliers should follow a similar naming convention of company name and product name.

Time adjustment software should check this system value prior to starting. If this system value has an identifier for other time adjustment software, then the software being started should notify the user of this potential conflict and confirm that this time adjustment software should be started. When there is no identifier associated with this system value, the software should update this system value to identify that it is now responsible for adjusting the system clock. Time adjustment software should check this system value again prior to ending. This system value should be set to 'None' only if the current value identifies this time adjustment software that is ending.

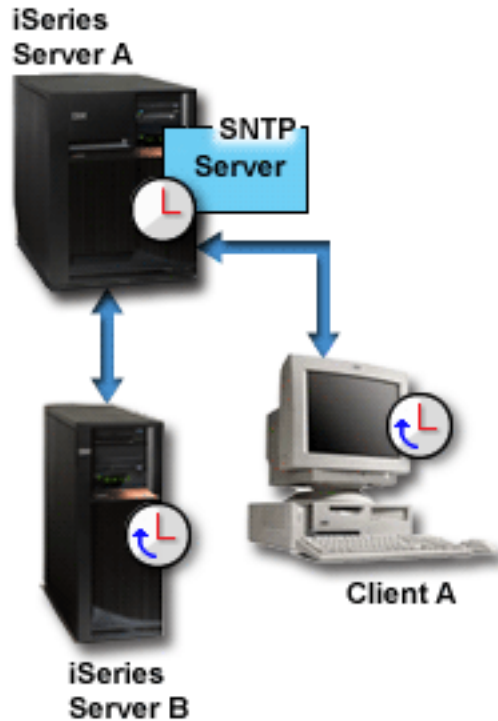
You can use the Simple Network Time Protocol (SNTP) application to maintain your system time. The SNTP application is an IBM-supplied time maintenance application that you can use as a client, server, or both.

Figure 1: *SNTP as a client and a server.*



In Figure 1, the iSeries server (Server A) uses the SNTP application as a client and a server. The SNTP client retrieves a time value from an external time source. The external time source is determined by what you specify to use. The SNTP application synchronizes Server A's coordinated universal time (UTC) with the time value from the external time source. Then, the SNTP server (Server A) sends the time value to all SNTP client systems (iSeries Server B and Client A) connected to it.

Figure 2: SNTP as a server



In Figure 2, the iSeries Server A uses the SNTP server. In this situation, the UTC time is retrieved from the iSeries server rather than being synchronized with an external time source. This internal time value is sent to all SNTP client systems (iSeries Server B and Client A) connected to it.

Time adjustment

The time adjustment function of iSeries Navigator allows you to make adjustments to the system time or to use a "Time maintenance application" on page 6 to make adjustments to the system time automatically. Time adjustments are preferred over manually setting the time of day system value because a time adjustment speeds up or slows down time in small increments rather than making a single, instantaneous time change.

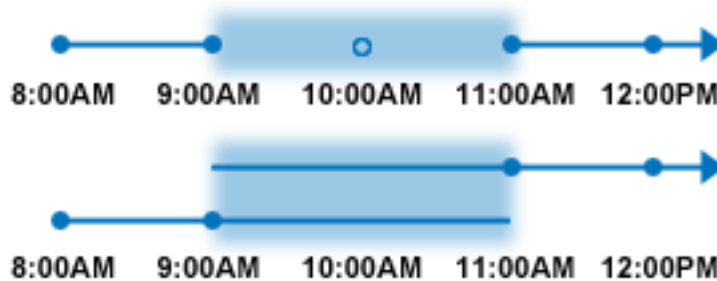
Prior to time adjustments, you could manually change the system time using the time of day system value. For example, if you wanted to set the system time backward three minutes, you would manually change the time of day system value from 3:00:00 (HH:MM:SS) to 2:57:00. By doing this, the system time from 2:57:00 to 3:00:00 is repeated. This can cause problems for applications recording time.

To avoid these types of problems, you can use a time adjustment to change the system time and time will not be skipped or repeated. Adjusting the clock means to incrementally speed up or slow down the clock so that time is gradually adjusted to the desired time value. Adjusting does not cause large jumps in time that can be experienced with setting the clock with the time of day system value. However, adjusting does take time to complete because it is not a single, instantaneous change to the clock. For example, adjusting the clock by 1 second could take 10 seconds of real time to complete.

Note: To make time adjustments, you must be using a version of OS/400 V5R3 or later with V4R5 or later hardware.

The following figure shows the difference between manually setting the time of day system value and using the time adjustment function. The lines represent the progression forward in time. The section highlighted in blue shows the period of time that is either skipped or repeated (during manual changes), or continuous (during time adjustments).

Manual Change



Time Adjustment



The **Manual Change** shows that if you set the system time from 9:00 a.m. to 11:00 a.m. that the two-hour interval from 9:00 a.m. to 11:00 a.m. is skipped. Also, if you set the time backward from 11:00 a.m. to 9:00 a.m., the system time repeats the time frame from 9:00 a.m. to 11:00 a.m.

The **Time Adjustment** shows that if you adjust the system time using the time adjustment function, the flow of time is neither skipped nor repeated. Time gradually speeds up or slows down until the desired time value is reached. The amount of time that an adjustment takes to complete depends on the length of the adjustment. A two-hour time adjustment, either negative or positive, is the maximum adjustment allowed. Time adjustments ensure that the system time flows continuously; therefore, time adjustments are the recommended method for changing system time.

For more information on how to change the system time, either a manual time change or a time adjustment, see “Updating system time” on page 20.

Time zone

A time zone specifies how to set your system time. You can specify a time zone for each system in your business environment. The time zone setting specifies the offset from UTC and whether to observe Daylight Saving Time (DST) or not. If you specify to observe Daylight Saving Time, the system automatically updates the system time when Daylight Saving Time begins and ends. You do not need to manually set the system time when Daylight Saving Time begins and ends.

You may use one of the IBM-supplied time zones or create your own. If you want to edit one of the supplied time zones, you should create a new time zone based on the existing time zone. This prevents your changes from being lost when installing OS/400 in the future. When OS/400 is installed, the system-supplied time zones are overwritten. All IBM-supplied time zone identifiers begin with the character Q and the time zone names are retrieved from the QCPFMMSGQ message file. If you create a time zone (new or based on an existing time zone), it is recommended that the time zone identifier does not begin with the character Q. By doing this, all time zone identifiers that begin with the character Q are reserved for IBM.

Use the time zone (QTIMZON) system value to specify the time zone for your system to use. To use the time zone system value, you must be using OS/400 V5R3 or later. For more information on how the initial value is determined, see "Initial time zone setting" on page 14.

The following table identifies the time zones included with the system:

| Time zone object | Offset from UTC | Message ID ³ (See 13) | Standard Time full name (abbreviated name) ¹ (See 13) | Message ID ⁴ (See 13) | DST full name (abbreviated name) ¹ (See 13) | DST start ² (See 13) | DST end ² (See 13) |
|------------------|-----------------|----------------------------------|--|----------------------------------|---|---------------------------------|-------------------------------|
| Q0000UTC | 0:00 | CPX0910 | Coordinated Universal Time (UTC) | N/A | N/A | N/A | N/A |
| Q0000GMT | 0:00 | CPX0911 | Greenwich Mean Time (GMT) | N/A | N/A | N/A | N/A |
| Q0000GMT2 | 0:00 | CPX0911 | Greenwich Mean Time (GMT) | CPX0912 | British Summer Time (BST) | Last Sunday in March | Last Sunday in October |
| QN0100UTCS | -1:00 | CPX0913 | UTC-01:00 Standard Time (UTC-01:00S) | N/A | N/A | N/A | N/A |
| QN0200UTCS | -2:00 | CPX0914 | UTC-02:00 Standard Time (UTC-02:00S) | N/A | N/A | N/A | N/A |
| QN0300UTCS | -3:00 | CPX0915 | UTC-03:00 Standard Time (UTC-03:00S) | N/A | N/A | N/A | N/A |
| QN0300UTCS2 | -3:00 | CPX0916 | (GMT - 3:00) Brasilia (UTC-03:00S) | CPX095D | (GMT - 3:00) Brasilia Daylight Saving Time (UTC-03:00D) | Third Sunday in October | Second Friday in February |
| QN0330NST | -3:30 | CPX0917 | Newfoundland Standard Time (NST) | CPX0918 | Newfoundland Daylight Time (NDT) | First Sunday in April | Last Sunday in October |
| QN0400UTCS | -4:00 | CPX0919 | UTC-04:00 Standard Time (UTC-04:00S) | N/A | N/A | N/A | N/A |
| QN0400AST | -4:00 | CPX091A | Atlantic Standard Time (AST) | CPX091B | Atlantic Daylight Time (ADT) | First Sunday in April | Last Sunday in October |
| QN0400UTC2 | -4:00 | CPX091C | (GMT - 4:00) Caracas, Pa Paz (UTC-04:00S) | N/A | N/A | N/A | N/A |
| QN0500UTCS | -5:00 | CPX091D | UTC-05:00 Standard Time (UTC-05:00S) | N/A | N/A | N/A | N/A |
| QN0500EST | -5:00 | CPX091E | Eastern Standard Time (EST) | CPX091F | Eastern Daylight Time (EDT) | First Sunday in April | Last Sunday in October |

| Time zone object | Offset from UTC | Message ID ³ (See 13) | Standard Time full name (abbreviated name) ¹ (See 13) | Message ID ⁴ (See 13) | DST full name (abbreviated name) ¹ (See 13) | DST start ² (See 13) | DST end ² (See 13) |
|------------------|-----------------|----------------------------------|--|----------------------------------|--|---------------------------------|-------------------------------|
| QN0500EST2 | -5:00 | CPX091E | Eastern Standard Time (EST) | N/A | N/A | N/A | N/A |
| QN0600UTCS | -6:00 | CPX0920 | UTC-06:00 Standard Time (UTC-06:00S) | N/A | N/A | N/A | N/A |
| QN0600CST | -6:00 | CPX0921 | Central Standard Time (CST) | CPX0922 | Central Daylight Time (CDT) | First Sunday in April | Last Sunday in October |
| QN0600S | -6:00 | CPX0923 | Central Standard Time (S) | CPX0924 | Daylight Saving Time (DST) | First Sunday in April | Last Sunday in October |
| QN0700UTCS | -7:00 | CPX0925 | UTC-07:00 Standard Time (UTC-07:00S) | N/A | N/A | N/A | N/A |
| QN0700MST | -7:00 | CPX0926 | Mountain Standard Time (MST) | CPX0927 | Mountain Daylight Time (MDT) | First Sunday in April | Last Sunday in October |
| QN0700MST2 | -7:00 | CPX0926 | Mountain Standard Time (MST) | N/A | N/A | N/A | N/A |
| QN0700T | -7:00 | CPX0928 | Mountain Standard Time (T) | CPX0924 | Daylight Saving Time (DST) | First Sunday in April | Last Sunday in October |
| QN0800UTCS | -8:00 | CPX0929 | UTC-08:00 Standard Time (UTC-08:00S) | N/A | N/A | N/A | N/A |
| QN0800PST | -8:00 | CPX092A | Pacific Standard Time (PST) | CPX092B | Pacific Daylight Time (PDT) | First Sunday in April | Last Sunday in October |
| QN0800U | -8:00 | CPX092C | Pacific Standard Time (U) | CPX0924 | Daylight Saving Time (DST) | First Sunday in April | Last Sunday in October |
| QN0900UTCS | -9:00 | CPX092D | UTC-09:00 Standard Time (UTC-09:00S) | N/A | N/A | N/A | N/A |
| QN0900AST | -9:00 | CPX092E | Alaska Standard Time (AST) | CPX092F | Alaska Daylight Time (ADT) | First Sunday in April | Last Sunday in October |
| QN1000UTCS | -10:00 | CPX0930 | UTC-10:00 Standard Time (UTC-10:00S) | N/A | N/A | N/A | N/A |
| QN1000HAST | -10:00 | CPX0931 | Hawaii-Aleutian Standard Time (HAST) | CPX0932 | Hawaii-Aleutian Daylight Time (HADT) | First Sunday in April | Last Sunday in October |
| QN1100UTCS | -11:00 | CPX0933 | UTC-11:00 Standard Time (UTC-11:00S) | N/A | N/A | N/A | N/A |
| QN1200UTCS | -12:00 | CPX0934 | UTC-12:00 Standard Time (UTC-12:00S) | N/A | N/A | N/A | N/A |
| QP1245UTCS | +12:45 | CPX0935 | Chatham Islands Standard Time (UTC+12:45S) | CPX0936 | Chatham Islands Daylight Time (UTC+12:45D) | First Sunday in October | Third Sunday in March |
| QP1200UTCS | +12:00 | CPX0937 | UTC+12:00 Standard Time (UTC+12:00S) | N/A | N/A | N/A | N/A |

| Time zone object | Offset from UTC | Message ID ³ (See 13) | Standard Time full name (abbreviated name) ¹ (See 13) | Message ID ⁴ (See 13) | DST full name (abbreviated name) ¹ (See 13) | DST start ² (See 13) | DST end ² (See 13) |
|------------------|-----------------|----------------------------------|--|----------------------------------|--|---------------------------------|-------------------------------|
| QP1200NZST | +12:00 | CPX0938 | New Zealand Standard Time (NZST) | CPX0939 | New Zealand Daylight Time (NZDT) | First Sunday in October | Third Sunday in March |
| QP1100UTCS | +11:00 | CPX093A | UTC+11:00 Standard Time (UTC+11:00S) | N/A | N/A | N/A | N/A |
| QP1000UTCS | +10:00 | CPX093B | UTC+10:00 Standard Time (UTC+10:00S) | N/A | N/A | N/A | N/A |
| QP1000AEST | +10:00 | CPX093C | Australian Eastern Standard Time (AEST) | CPX093D | Australian Eastern Daylight Saving Time (AEDT) | Last Sunday in October | Last Sunday in March |
| QP0930ACST | +9:30 | CPX093E | Australian Central Standard Time (ACST) | CPX093F | Australian Central Daylight Saving Time (ACDT) | Last Sunday in October | Last Sunday in March |
| QP0900UTCS | +9:00 | CPX0940 | UTC+09:00 Standard Time (UTC+09:00S) | N/A | N/A | N/A | N/A |
| QP0900JST | +9:00 | CPX0941 | Japan Standard Time (JST) | N/A | N/A | N/A | N/A |
| QP0900KST | +9:00 | CPX0942 | Korea Standard Time (KST) | N/A | N/A | N/A | N/A |
| QP0900WIT | +9:00 | CPX0943 | Waktu Indonesia Timur (WIT) | N/A | N/A | N/A | N/A |
| QP0800UTCS | +8:00 | CPX0944 | UTC+08:00 Standard Time (UTC+08:00S) | N/A | N/A | N/A | N/A |
| QP0800AWST | +8:00 | CPX0945 | Australian Western Standard Time (AWST) | N/A | N/A | N/A | N/A |
| QP0800BST | +8:00 | CPX0946 | Beijing Standard Time (BST) | N/A | N/A | N/A | N/A |
| QP0800JIST | +8:00 | CPX0947 | Jung Yuan Standard Time (JIST) | N/A | N/A | N/A | N/A |
| QP0800WITA | +8:00 | CPX0948 | Waktu Indonesia Tengah (WITA) | N/A | N/A | N/A | N/A |
| QP0700UTCS | +7:00 | CPX0949 | UTC+07:00 Standard Time (UTC+07:00S) | N/A | N/A | N/A | N/A |
| QP0700WIB | +7:00 | CPX094A | Waktu Indonesia Barat (WIB) | N/A | N/A | N/A | N/A |
| QP0600UTCS | +6:00 | CPX094B | UTC+06:00 Standard Time (UTC+06:00S) | N/A | N/A | N/A | N/A |
| QP0600UTC2 | +6:00 | CPX094C | Asia/Almaty (UTC+06:00S) | CPX094D | Asia/Almaty Daylight Saving Time (UTC+06:00D) | Last Sunday in March | Last Sunday in September |
| QP0530IST | +5:30 | CPX094E | Indian Standard Time (IST) | N/A | N/A | N/A | N/A |
| QP0500UTCS | +5:00 | CPX094F | UTC+05:00 Standard Time (UTC+05:00S) | N/A | N/A | N/A | N/A |

| Time zone object | Offset from UTC | Message ID ³ (See 13) | Standard Time full name (abbreviated name) ¹ (See 13) | Message ID ⁴ (See 13) | DST full name (abbreviated name) ¹ (See 13) | DST start ² (See 13) | DST end ² (See 13) |
|------------------|-----------------|----------------------------------|--|----------------------------------|--|---------------------------------|-------------------------------|
| QP0500UTC2 | +5:00 | CPX0950 | Asia/Aqtobe (UTC+05:00S) | CPX0951 | Asia/Aqtobe Daylight Saving Time (UTC+05:00D) | Last Sunday in March | Last Sunday in September |
| QP0400UTCS | +4:00 | CPX0952 | UTC+04:00 Standard Time (UTC+04:00S) | N/A | N/A | N/A | N/A |
| QP0400UTC2 | +4:00 | CPX0953 | Asia/Aqtau (UTC+04:00S) | CPX0954 | Asia/Aqtau Daylight Saving Time (UTC+04:00D) | Last Sunday in March | Last Sunday in October |
| QP0300UTCS | +3:00 | CPX0955 | UTC+03:00 Standard Time (UTC+03:00S) | N/A | N/A | N/A | N/A |
| QP0200UTCS | +2:00 | CPX0956 | UTC+02:00 Standard Time (UTC+02:00S) | N/A | N/A | N/A | N/A |
| QP0200EET | +2:00 | CPX0957 | Eastern European Time (EET) | CPX0958 | Eastern European Daylight Saving Time (EEDST) | Last Sunday in March | Last Sunday in September |
| QP0200EET2 | +2:00 | CPX0957 | Eastern European Time (EET) | N/A | N/A | N/A | N/A |
| QP0200SAST | +2:00 | CPX0959 | South African Standard Time (SAST) | N/A | N/A | N/A | N/A |
| QP0100UTCS | +1:00 | CPX095A | UTC+01:00 Standard Time (UTC+01:00S) | N/A | N/A | N/A | N/A |
| QP0100CET | +1:00 | CPX095B | Central European Time (CET) | CPX095C | Central European Daylight Saving Time (CEST) | Last Sunday in March | Last Sunday in September |
| QP0100CET2 | +1:00 | CPX095B | Central European Time (CET) | CPX095C | Central European Daylight Saving Time (CEST) | Last Sunday in March | Last Sunday in October |
| QP0100CET3 | +1:00 | CPX095B | Central European Time (CET) | CPX095C | Central European Daylight Saving Time (CEST) | Last Monday in March | Last Sunday in September |

Notes:

1

The time zone abbreviated and full names are specified in messages to allow for translation.

2

These time zones use 2:00 a.m as the DST start and end times.

3

The time zone's Standard Time names are retrieved from the message ID specified. The message ID is located in the QCPFMSG message file. The name is specified in the second-level text of the message ID.

4

The time zone's Daylight Saving Time names are retrieved from the message ID specified. The message ID is located in the QCPFMSG message file. The name is specified in the second-level text of the message ID.

N/A

Not applicable.

Initial time zone setting

During the initial startup, the operating system will set the initial time zone according to the following steps. There is no shipped default value for the time zone (QTIMZON) system value. The time zone (QTIMZON) system value can be set in iSeries Navigator and from the IPL Options display during an attended IPL.

To determine the initial value for the time zone (QTIMZON) system value, the operating system does the following:

Step 1: Attempts to retrieve time zone from the QWCTIMZON data area

During the IPL of an OS/400 software upgrade, the operating system will look for a data area named QWCTIMZON in the QSYS library. To create the data area before installation, see "Setting the time zone before upgrading" on page 16. If the data area is found, the following steps are taken:

- a. Attempts to find a time zone description object whose name matches the time zone description object named in the data area. If this step fails, proceed to step b.
- b. Attempts to find a time zone description object whose name is derived from the offset specified in the data area. This name will consist of the letter Q, followed by an N if the offset is negative or a P if the offset is positive, followed by the offset hours and minutes, and finally by the letters UTCS. For example, if the offset specified in the data area is -06:00, the operating system will attempt to find a time zone description named QN0600UTCS. Note that if the offset is zero, the character representing the sign ('N' or 'P') will be omitted, and the name used is Q0000UTC. If this step fails, proceed to step c.
- c. Attempts to create a new time zone description whose name and offset match the information specified in the data area. This time zone description will not support Daylight Saving Time. For example, if the data area specified is -05:15MYTIMEZONE the operating system would attempt to create a time zone description named MYTIMEZONE with an offset of negative five hours and 15 minutes. If this step fails, proceed to Step 2.

Step 2: Attempts to retrieve time zone from the offset from UTC (QUTCOFFSET) system value

If the data area QWCTIMZON does not exist, or the above steps fail, the operating system will attempt to use the value specified in the offset from UTC (QUTCOFFSET) system value. The following steps are performed:

- a. Attempts to find a time zone description object whose name is derived from the offset specified in the offset from UTC (QUTCOFFSET) system value. See Step 1 - b for information on how this name is derived. If this step fails, proceed to step b.
- b. Attempts to create a new time zone description whose name was derived in the previous step (Step 2 - a) and whose offset matches the information specified in the offset from UTC (QUTCOFFSET) system value. This time zone description will not support Daylight Saving Time.

If all of the above steps fail, the time zone (QTIMZON) system value will not be set. In iSeries Navigator, the time zone field is blank, and in the character-based interface, the time zone parameter is set to *N (not available). In addition, the offset from coordinated universal time (UTC) is set to 0. Then, the system's local system time is set to the current coordinated universal time (UTC).

Daylight Saving Time

Many countries or regions specify that their local system time be adjusted forward or backward by one hour, to accommodate annual changes in the number of daylight hours. This change may also be accompanied by a change in the time zone name. For example, in Toronto, Canada, 1 p.m. is announced

in the winter as 1 p.m., EST (Eastern Standard Time), and is announced in the summer as 1 p.m., EDT (Eastern Daylight Time). Daylight Saving Time is also known as Advanced Time, Summer Time, or Legal Time (with Standard Time also known as Winter Time) in certain countries or regions. Daylight Saving Time adjustments in the southern hemisphere are opposite those in the northern hemisphere.

A general rule for Daylight Saving Time changes is that the change from Standard Time to DST needs to be completed before 0300 (local time) on the date or day that DST is to begin. Likewise, when changing from DST to Standard Time the time change occurs between midnight and 0300 (local time) on the date or day when DST ends.

Also note that if you use other automatic methods to adjust for DST in combination with a time zone that observes DST, you need to disable the other methods. Otherwise, your local system time may adjust more than 1 hour for DST.

Setting up time management

To begin taking advantage of the time management function, you need to set up your systems to use time management.

To set up your environment to use time management, complete the following:

1. "Examining your network of systems"
View this topic to learn which time zone is the proper time zone for your systems.
2. "Setting the time zone (QTIMZON) system value" on page 16
View this topic to learn about three ways that you can set the time zone system value. You can set the time zone before an OS/400 software upgrade to V5R3 or later, during an attended IPL, or using iSeries Navigator. If you are upgrading to OS/400 V5R3 or later, it is highly recommended to set your time zone before the upgrade.
3. "Setting up time maintenance" on page 18
Find out how to use a time maintenance application to make the necessary adjustments to your system time. To make time adjustments, either manually or with a time maintenance application, your system must be running OS/400 V5R3 or later software with V4R5 or later hardware.

After you set up your environment to use time zones, see "Managing time zones" on page 22 to learn various ways to maintain your time zone properties. After you set up your environment to make adjustments to system time, see "Managing system time" on page 19 to learn the various ways to maintain your system time.

Examining your network of systems

Before setting up your systems to use time management, you need to examine your systems with respect to which time zone to use and whether your systems meet the proper hardware and software requirements necessary to make time adjustments or not. You can use the time zones and time adjustment functions in combination with one another or separately.

If you plan on using the time zones function of the OS/400, you need to determine the time zone to use for each system. One single physical system may be divided into logical systems (partitions) that use different time zones.

If you plan on using a time maintenance application, the system must meet the proper hardware and software requirements needed to use the time adjustment function of iSeries Navigator. To make time adjustments, you must be using a version of OS/400 V5R3 or later with V4R5 or later hardware.

The following are some questions to consider when examining your systems:

- What time zone are the users of the system in?

- What time zone do you want the jobs to run with? The job's time is equivalent to the system time that is derived from the time zone.
- Are the proper hardware and software requirements met if you want to use a time maintenance application to make time adjustments?

After you have evaluated each system's time zone needs and system requirements for time adjustments, you can set each system's time zone. To continue setting up time management, see "Setting the time zone (QTIMZON) system value" or "Setting up time maintenance" on page 18.

Setting the time zone (QTIMZON) system value

Within the realm of time management, you can specify a time zone for your system to use. The following are three different ways to specify which time zone your system uses. You can set your time zone properties before an OS/400 software upgrade, during an attended IPL of the iSeries, or after an IPL of the iSeries using iSeries Navigator.

The method that you use depends on whether you are upgrading from a previous OS/400 release or installing the OS/400. Otherwise, you can always work with the time zone using iSeries Navigator (the last method described). For more information on how to set the time zone (QTIMZON) system value, see the following topics:

"Setting the time zone before upgrading"

Use this method if you have a previous release of OS/400 installed and are upgrading to OS/400 V5R3 or later. This is the preferred method, if you have a previous release already installed, because your time zone will be set correctly as soon as you upgrade.

"Setting the time zone during an attended IPL" on page 17

Use this method to set the time zone system value during an attended IPL of V5R3 or later. This is the preferred method if you are installing software on a new OS/400 server or partition because it ensures that the time zone will be set correctly as soon as you complete the IPL.

"Setting the time zone after an IPL" on page 18

Use this method if your system is running OS/400 V5R3 or later. This topic describes how to change the time zone system value using iSeries Navigator. Also, use this method to ensure that the time zone is set properly if the offset from UTC was not correct during the upgrade or install of OS/400 software.

After you have set up your time zone information, see "Managing time zones" on page 22 to learn various ways to maintain your time zone properties.

Setting the time zone before upgrading

If you are upgrading from a previous release of OS/400 to OS/400 V5R3 or later, it is recommended that you set up your time zone before you upgrade to the new release. This ensures that your system time is set properly as soon as the upgrade is complete. To set the time zone before upgrading, you must have a supported release for the OS/400 software upgrade.

To define the time zone object for the system before an OS/400 software upgrade, create a data area named QWCTIMZON in the system (QSYS) library. When you perform an initial program load (IPL), the server uses this object when attempting to determine the default value for the time zone (QTIMZON) system value. For more information on how the system determines the time zone to use when upgrading to a new release of the OS/400 system, see "Initial time zone setting" on page 14.

To create the data area for the time zone, complete the following:

1. Sign on to your OS/400 server using a 5250 emulator session.
2. Type the following command:

```
CRTDTAARA
```

and press F4.

3. Specify QWCTIMZON for the name of the Data Area (DTAARA).
4. Specify QSYS for the library of the Data Area (DTAARA).
5. Specify *CHAR for the Type parameter.
6. Press Enter.
7. Specify 16 for the Length parameter
8. For the Initial Value, use the following format:

Byte 1: Sign for current Offset from UTC (either '+' or '-')
Byte 2-3: Hours for current Offset from UTC (00 to 12)
Byte 4: Time separator
Byte 5-6: Minutes for current Offset from UTC (00 to 59)
Byte 7-16: Time zone description name, left justified and padded on the right with blanks. (See "Time zone" on page 9 for a list of names.)

Example

| | | | | | | | | | | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| Byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| | - | 0 | 6 | : | 0 | 0 | Q | N | 0 | 6 | 0 | 0 | C | S | T | |

9. Press Enter to create the data area.

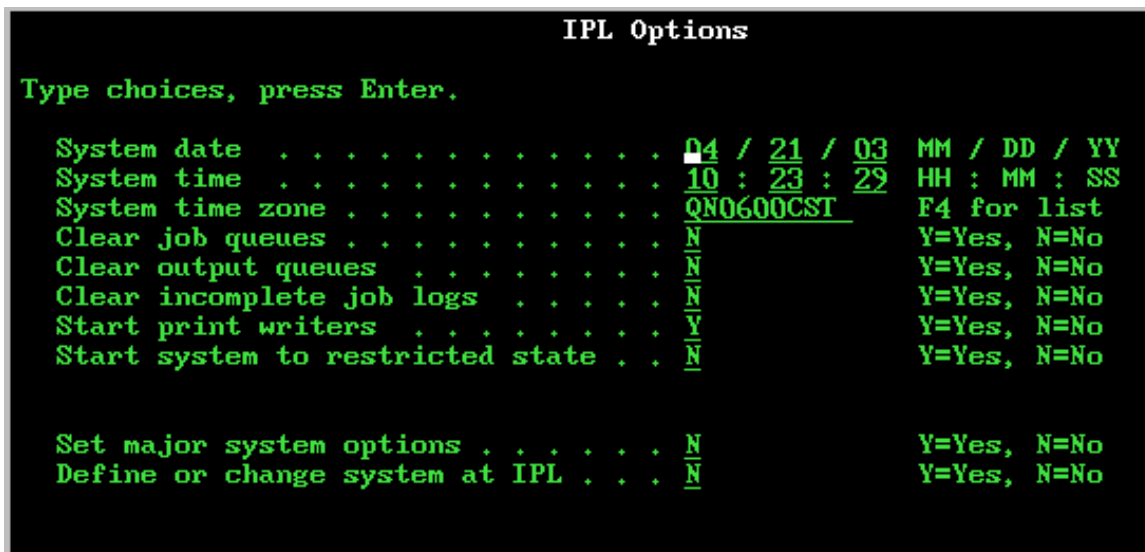
During the upgrade of the OS/4000 operating system, the server uses this data area to set the time zone (QTIMZON) system value.

Setting the time zone during an attended IPL

You can set your time zone during an attended IPL of the OS/400 operating system. The IPL Options display allows you to specify the date, time, and time zone for your system (indirectly your offset from UTC is also set). If the system time zone field is changed, verify that the date and time are set correctly. By setting these three fields, the appropriate date and time system values are set to reflect these field values.

If you want to set your time zone during an attended IPL, complete the following:

1. On the IPL Options display, move the cursor to the row that contains the System time zone field and specify the identifier of a time zone or press F4 to open the Select Time Zone Description display.



```

IPL Options

Type choices, press Enter.

System date . . . . . 04 / 21 / 03 MM / DD / YY
System time . . . . . 10 : 23 : 29 HH : MM : SS
System time zone . . . . . QN0600CST F4 for list
Clear job queues . . . . . N Y=Yes, N=No
Clear output queues . . . . . N Y=Yes, N=No
Clear incomplete job logs . . . . . N Y=Yes, N=No
Start print writers . . . . . Y Y=Yes, N=No
Start system to restricted state . . . . . N Y=Yes, N=No

Set major system options . . . . . N Y=Yes, N=No
Define or change system at IPL . . . . . N Y=Yes, N=No

```

2. If you are using the Select Time Zone Description dialog to select a time zone, complete the following:

- a. On the Select Time Zone Description display, type 1 next to the time zone that you want to use.
 - b. Press Enter to return to the IPL Options display. The System time zone field is updated with the time zone you selected.
3. Ensure the System time field is correct.
 4. Ensure the System date field is correct.
 5. Press Enter to continue the IPL.

Note: If you set the System time zone field on the IPL Options display, then this new value takes precedence over the previous value set by the system as described in the “Initial time zone setting” on page 14.

Setting the time zone after an IPL

Use iSeries Navigator to specify a time zone for your system to use. This topic describes how to change or edit the time zone (QTIMZON) system value using iSeries Navigator. However, you can also specify the time zone (QTIMZON) system value in a 5250 emulator session by using the Work with System Values (WRKSYSVAL) or the Change System Value (CHGSYSVAL) commands.

Complete the following steps to change the time zone (QTIMZON) system value using iSeries Navigator:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. View the “Time zone” on page 9 listed in the **Available time zones** field, and select the time zone you want to use on the system. For more information, see Details.
3. Click **Change system value**.
4. Click **OK** to continue with the change request.

View the online help for more information specific to each field.

Details

You can select a time zone that is shipped with the system or create your own time zone. For more information on creating a time zone, see “Creating a time zone” on page 22.

Setting up time maintenance

If you want to use a “Time maintenance application” on page 6 to synchronize your system time with an external time source, you need to configure the time maintenance application on each system. You may use the IBM-supplied SNTP time maintenance application or an application of your own.

For your time maintenance application to make the necessary time adjustments, your system must meet the proper software and hardware requirements. To make time adjustments, you must be using a version of OS/400 V5R3 or later with V4R5 or later hardware.

“Time maintenance application programming tips”

View this topic to learn some basic techniques to properly set up a typical time maintenance application. Each time maintenance application is unique to your business environment. You may use the IBM-supplied SNTP application or an application of your own to use for time maintenance.

“Configuring your iSeries to use SNTP as the time maintenance application” on page 19

View this topic to learn how to use the IBM-supplied SNTP application for time maintenance.

Time maintenance application programming tips

When writing a time maintenance application, you should ensure that the software checks the time adjustment (QTIMADJ) system value prior to starting. If this system value has an identifier for other time adjustment software, then the software being started should notify the user of this potential conflict and

confirm that this time adjustment software should be started. When there is not an identifier associated with the time adjustment (QTIMADJ) system value, the software should update the system value to identify that it is now responsible for adjusting the system clock. Time adjustment software should check this system value again prior to ending. The time adjustment (QTIMADJ) system value should be set to the value None (*NONE) only if the current value identifies this time adjustment software that is ending.

You can use the IBM-supplied SNTP application as a time maintenance application. The SNTP application can act as a client or a server. To configure SNTP as the time maintenance application, see “Configuring your iSeries to use SNTP as the time maintenance application.”

Configuring your iSeries to use SNTP as the time maintenance application

If you do not have a time maintenance application of your own or you simply want to take advantage of the IBM-supplied time maintenance application, you can use SNTP.

For more information on the various ways you can configure SNTP, see the following topics:

SNTP client

Specifies how to configure SNTP as a client. When SNTP is configured as a client, the iSeries server retrieves a time value from an external time source. You may specify from which source to retrieve the time value. This external time value is compared to the iSeries system time. If the iSeries time value does not match the external time source, a time adjustment begins. The iSeries system time is adjusted until the desired time value is reached.

SNTP server

Specifies how to configure SNTP as a server. When SNTP is configured as a server, the iSeries sends its system time to the clients connected to it. If a client’s time values does not match the iSeries SNTP server time, a time adjustment begins. The client’s system time is adjusted until the desired time value is reached.

Scenario: Synchronize clocks with iSeries server (SNTP as a client and server)

Specifies how to configure SNTP to function as a client and as a server. In this situation, the system specified as the SNTP client server retrieves the time from an external time source and uses that to maintain its local system time. The local system time is then also provided to other systems connected to it. The local system’s time value is compared to each client’s system time. If any of the system’s time values differ from the local system time on the server specified as the SNTP server, a time adjustment begins.

Managing system time

You can manage your iSeries^(TM) system time a number of ways. You can use a time maintenance application to make the necessary time adjustments, or you can manually specify a time adjustment. In addition, you may want to view a job’s time to ensure that the time zone is specified correctly.

To manage your system time, view the following topics:

“Updating system time” on page 20

This topic provides details of how to update system time. You can adjust system time using a time adjustment, which is the preferred method, or manually change the system time using the time of day system value, if you need to change the system time immediately.

“Viewing a job’s time” on page 21

View this topic to learn how to view a job’s properties to make sure it is running with the proper time. The local job’s time is equivalent to the system time.

“Verifying the system values related to time” on page 21

View this topic to verify the system values that relate to time on the iSeries server.

Updating system time

If your system time is not correct or jobs are running with the wrong time, you may need to adjust or change the system time. The time adjustment method is the recommended method for changing the system time unless you need to change the system time more than two hours. You may change the system time using one of the following methods:

“Using the time adjustment function”

“Manually changing the time of day system value”

Using the time adjustment function

If you need to adjust the system time by two or fewer hours, use the time adjustment function to change the system time. A time adjustment is preferred over manually changing the time of day system value because it incrementally speeds up or slows down the rate at which time moves forward rather than making one single, instantaneous change in time. A large jump in time, either forward or backward, can cause unpredictable errors if jobs are concurrently accessing system time.

If your system time is off more than 2 hours and you do not need to change the system time immediately, you can use multiple time adjustments to reach the desired time value. For example, if your system time is off 3 hours, you can make a 2-hour time adjustment and a 1-hour adjustment to make a total adjustment of 3 hours.

To make a time adjustment, complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Adjustment**.
2. On the **Time Adjustment** dialog, click **Start New Time Adjustment**. If a time adjustment is in progress, the current time adjustment will be stopped. Before proceeding, ensure that you should stop the current adjustment.
3. Specify the desired time adjustment value.
4. Click **OK** to begin the time adjustment.
5. View the **Time Adjustment** fields on the **Time Adjustment** dialog. The following fields should be displayed:
 - Adjustment in progress: Yes
 - Adjustment remaining: HH:MM:SS
 - Estimated time until completion: HH:MM:SS
6. Click **OK** to close the **Time Adjustment** dialog.

See the time adjustment online help for more details.

Manually changing the time of day system value

If your system time is off more than 2 hours and you need to change the system time immediately, you need to make a manual change to the time of day system value. If your system time is off more than 2 hours and you do not need to change the system time immediately, you can use multiple time adjustments until the desired time value is reached.

There could be a number of reasons that your system time is off more than two hours. The following are some examples:

- The time zone (QTIMZON) system value is not set properly.
- The time maintenance application is not functioning appropriately.
- The offset from UTC (QUTCOFFSET) system value is not set correctly.

Before manually changing the system time, verify that the following are correct:

- The time zone

- The offset from UTC

If the system time is still off more than 2 hours and you need to change the system time immediately, complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **System Values** —> **Date and Time**.
2. On the **Time** page, specify the desired time value in the **Time of day** field.
3. Click **OK** to confirm the time of day change.
4. Click **OK** to close the **Date and Time** dialog.

Attention:

Before making a change to the time of day system value, ensure that no time-sensitive jobs are running. A system value change may cause unpredictable errors if jobs are concurrently accessing system time.

Viewing a job's time

If you have specified a new time zone and want to make sure that jobs are running with the proper time, you can view a job's properties to make sure it is running properly. Also, you may want to view a job's properties if you have configured a time maintenance application.

By viewing the job's time, you will know if your system time is set properly. If the job is not running with the proper time, you can perform some troubleshooting actions.

To verify that jobs are running with the proper time, complete the following:

1. Locate the job in iSeries Navigator. To locate a job, see Find a job.
2. After you have located a particular job, right-click the job and select **Properties**.
3. On the **Properties** dialog, select the **Date/Time** page.
4. View the **Job local date and time** field.
5. If the job's date and time are correct, click **OK** to close the **Properties** dialog.

If the job's date or time is not correct, verify that the following are correct:

- The job's time zone
- The offset from coordinated universal time (UTC)

Verifying the system values related to time

You can view or change the system values related to time on the iSeries server. These include the following system values: time of day (QTIME), offset from UTC (QUTCOFFSET), and time zone (QTIMZON). This topic describes how to view the system values and their associated values.

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **System Values** —> **Date and Time**.
2. On the **Time** page, determine whether a time adjustment is in progress or not.
 - a. If an adjustment is in progress, the **Time of day** field will not reflect the adjusted time value until the adjustment is complete. Continue to step 4.
 - b. If an adjustment is not in progress, continue to the next step.
3. Verify that the **Time of day** is correct. If not, see "Updating system time" on page 20 to make the proper time adjustment.
4. Verify that the **Offset from coordinated universal time (UTC)** is correct.
 - a. If it is not correct and you are using V5R3 or later IBM iSeries Access for Windows with OS/400 V5R3 or later, you need to "Verifying the time zone properties" on page 24. The offset from UTC is determined by the time zone being used on the system.

- b. If it is not correct and you are using V5R2 or earlier IBM iSeries Access for Windows with OS/400 V5R3 or later, you need to verify the time zone (QTIMZON) system value using the character-based interface. Use the work with system values (WRKSYSVAL) command.
 - c. If it is not correct and you are using V5R2 or earlier IBM iSeries Access for Windows with OS/400 V5R2 or earlier, change the **Offset from UTC** system value to the correct value.
5. Click **OK** to close the **Date and Time** system values.

Managing time zones

Within time management you can specify a system value, time zone (QTIMZON). This system value specifies the name of the time zone description that is used to calculate “Time” on page 4. Depending on the time zone description being used, the iSeries can now automatically adjust the local system time for Daylight Saving Time observances.

For more information, see the following topics:

“Creating a time zone”

View this topic to learn how to create a time zone.

“Editing a time zone” on page 23

View this topic to learn about the authority needed to edit a time zone and how to edit the time zone properties.

“Deleting a time zone” on page 23

View this topic to learn about deleting time zones. This topic describes what time zones can be deleted and provides step-by-step instructions on how to delete a time zone that is no longer used on the system.

“Setting the time zone (QTIMZON) system value” on page 16

View this topic to learn the different ways to set the time zone system value. This topic describes three different methods that can be used to set the system value. You can set the system value before iupgrading, during an IPL, or after the installation using iSeries Navigator. The method that you use depends on whether you are upgrading to a new release, are performing an IPL, or already have OS/400 installed.

“Verifying the time zone properties” on page 24

View this topic to view or change the time zone system value and its associated properties.

“Verifying the time zone message properties” on page 24

View this topic to view or change the time zone properties that reference a message file for full and abbreviated names.

Creating a time zone

Using the time management function of iSeries Navigator, you can create a time zone specific to your needs. You can create either a new time zone or a new time zone based on an existing time zone. The method you choose depends on the time zone properties that you want to use. If there is an existing time zone with properties similar to the one you want to create, use the new based on method.

When the OS/400^(R) is installed, the IBM-supplied time zones^(R) are overwritten. All IBM-supplied time zone identifiers begin with the character Q and the time zone names are retrieved from the QCPFMSGQ message file. If you create a time zone (new or based on an existing time zone), it is recommended that the time zone identifier does not begin with the character Q. By doing this, all time zone identifiers that begin with the character Q are reserved for IBM.

To create a time zone, complete the following:

1. In iSeries Navigator, expand **My Connections**. —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. View the “Time zone” on page 9 listed in the **Available time zones** field.
3. If an existing time zone is similar to the time zone that you want to create, highlight the time zone and click **New based on**. Otherwise, click **New**.
4. Specify the time zone properties on the **General** page.
5. Specify the time zone properties on the **Daylight Saving Time** page.

Note: If the system is using a non-Gregorian calendar, the day of the week support may not work correctly when specifying the start and end of DST.

6. Click **OK** to save and close the time zone properties.

View the online help for more information specific to each field.

Note: Time zones are initially created with use (*USE) authority even if you are creating a time zone based on an existing time zone. If you want to change the time zone authority, click **Edit** on the **Time Zones** dialog. Then, click **Permissions** on the **General** page to edit the authority of the time zone object.

The time zone is created and appears in the list of **Available time zones**. To use the new time zone on your system, click **Change system value**. For more information on setting the system value, see “Setting the time zone after an IPL” on page 18.

Editing a time zone

If you create a time zone and realize later that a property was not set correctly, you can edit the time zone. You can also edit the time zone while it is being used by the system.

To edit a time zone, you need to make sure you have the proper authority to edit the time zone. If you cannot edit the time zone, see “I cannot edit my time zone” on page 28.

To edit a time zone, complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. On the **Time Zones** dialog, view the “Time zone” on page 9 listed in the **Available time zones** field and select the time zone you want to edit.
3. Click **Edit**.
4. Edit the properties on the **General** page. For help specific to each field, see the online help.
5. Edit the properties on the **Daylight Saving Time** page. For help specific to each field, see the online help.
6. Click **OK** to save and close the time zone properties.

You have successfully edited the time zone. The changes take effect immediately.

Deleting a time zone

When you delete a time zone, the time zone object is removed from the system. You will no longer be able to access the time zone object. You can only delete time zones that you have authority to. In addition, you cannot delete the time zone that is currently in use on the system.

Note: It is recommended that you do not delete the IBM-supplied time zones.

To delete a time zone, complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. On the **Time Zones** dialog, view the “Time zone” on page 9 listed in the **Available time zones** field and select the time zone you want to delete.
3. Click **Delete**.
4. Click **OK** to confirm the delete.
5. Click **OK** to close the **Time Zones** dialog.

Verifying the time zone properties

You can view or change the time zone system value. This topic describes how to view the current time zone and its associated properties. You can use a time zone supplied with the system or create your own. If you need to edit a time zone supplied with the system, it is recommended that you create a new time zone based on the supplied time zone. This ensures that the edited time zone will not be replaced when the OS/400 is upgraded or reinstalled.

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. On the **Time Zones** dialog, verify that the time zone specified in the **Current time zone system value** field is correct.
 - a. If the current time zone is not correct, select a time zone from the list of available time zones and click **Change system value**. Otherwise, “Creating a time zone” on page 22.
 - b. Click **OK** to confirm the system value change.
3. Select the current time zone from the list of **available time zones** and click **Edit**.
4. On the **General** page, verify that the **Offset** is specified correctly.
5. On the **Daylight Saving Time** page, verify that the Daylight Saving Time start and end times are specified correctly, if applicable.
6. Click **OK** to close the time zone properties.
7. Click **OK** to close the **Time Zones** dialog.

Verifying the time zone message properties

If you are using a message file to retrieve the time zone’s Standard Time or Daylight Saving Time names for a time zone and the names are not displaying correctly, verify the time zone’s message properties.

To verify a time zone’s Standard Time and Daylight Saving Time names, complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. Select the time zone that you want to work with from the list of **Available time zones**.
3. Click **Edit**.
4. On the **General** page, ensure the **Message file** is specified correctly.
5. Ensure the **Library** name is specified correctly.
6. Ensure **Use name specified in message** is selected.
7. Ensure the **Message ID** is specified correctly.
8. If you are observing DST, complete the following to verify the DST message properties are specified correctly:
 - a. On the **Daylight Saving Time** page, ensure **Enable Daylight Saving Time** is selected.
 - b. Ensure **Use name specified in message** is selected.
 - c. Ensure the **Message ID** is specified correctly.
9. Click **OK** to close the time zone properties.

If the Standard or Daylight Saving Time names still do not display correctly, continue to Step 2 in the recovery process of the troubleshooting topic “My time zone is not displaying the Standard Time and DST names correctly” on page 29.

Troubleshooting

Use this information to understand your options when problems arise related to time management. This topic describes problems that your system may encounter with time zones, time maintenance applications, or time adjustments.

The following topics identify problems you may encounter and how to recover:

- “Offset from UTC was incorrectly set during the installation of the OS/400 operating system”
- “System time is incorrect and jobs are not running with the proper time” on page 26
- “System time is off more than 2 hours” on page 26
- “System time adjusted 2 hours for DST rather than 1 hour” on page 27
- “Time adjustment is incorrect” on page 28
- “I cannot edit my time zone” on page 28
- “My time zone is not displaying the Standard Time and DST names correctly” on page 29
- “I want to stop SNTP” on page 30

For more information on troubleshooting problems related to the SNTP client, see SNTP troubleshooting.

If your problem resides outside of the time management topic, see Troubleshooting to learn about the options you have regarding general problems with the iSeries server. For additional help, see Service and support.

Offset from UTC was incorrectly set during the installation of the OS/400 operating system

Problem

If the offset from UTC (QUTCOFFSET) system value was not set correctly during the installation, the initial time zone value for your system may not be correct. If you set the time zone before installation of OS/400, the offset from UTC is set according to the time zone you specified. If you set the time zone during an IPL, the offset from UTC is set according to the time zone you specified during the IPL. Otherwise, the offset from UTC is determined by the “Initial time zone setting” on page 14 steps.

This troubleshooting topic assumes that you did not set the time zone (QTIMZON) system value prior to installation or during an IPL.

The offset may be incorrect if any of the following conditions exist:

- The offset from UTC (QUTCOFFSET) system value was set to 00:00 (HH:MM) prior to installation and it is not the actual offset.
- The system was observing Daylight Saving Time during the installation. Therefore, the system chose a time zone description based on an incorrect offset.

Recovery steps

The offset from coordinated universal time (QUTCOFFSET) system value is derived from the time zone (QTIMZON) system value. Therefore, if the time zone is not correct, the offset will not be correct either. After the time zone system value is set correctly, the offset from UTC will be correct.

To troubleshoot this situation, complete the following:

1. "Verifying the time zone properties" on page 24.
2. "Verifying the system values related to time" on page 21.

System time is incorrect and jobs are not running with the proper time

Problem

If your system time is incorrect or your jobs are not running with the proper time, your time settings may not be specified correctly. The local job time is equivalent to the system time; therefore, if jobs are not running with the proper time, your system time may not be specified correctly. The system time relies on a number of settings that relate to time.

Any of the following conditions may lead to your system time being incorrect:

- The time zone is not specified correctly.
- The offset from UTC (QUTCOFFSET) system value was not set properly during installation.
- A time adjustment may be in progress; thus, the system time has not reached the desired time value yet.
- The time zone properties may be incorrect.

Recovery steps

Complete the following steps to ensure that your time values are specified correctly and to determine how to set the system time correctly:

1. "Verifying the time zone properties" on page 24.
2. "Verifying the system values related to time" on page 21.

System time is off more than 2 hours

Problem

If the system time is off more than 2 hours, one or more of the following conditions may exist:

- The time zone automatically adjusted the system time one hour for DST and the system time was adjusted manually one hour for DST. Therefore, the system time adjusted a total of 2 hours for DST rather than one hour.
- The time zone was set during the installation of OS/400 incorrectly due to any of the following:
 - The offset used to determine the time zone was wrong.
 - The wrong time zone was selected.
 - The offset specified in the time zone description was incorrect.

If you attempt to make a time adjustment for more than 2 hours, you will receive an error message stating that you cannot make an adjustment that is greater than 2 hours.

Recovery steps

To recover from this situation, you can perform one of two different methods. You can manually change the time of day system value or you can use multiple time adjustments until the desired time value is reached. The method you use to change the time of day depends on how quickly the system time needs to be fixed.

If you need to change the system time immediately, you must manually change the time of day system value. If you do not need to change the system time immediately, you can use multiple time adjustments to gradually reach the desired time value. The adjustment method requires multiple time adjustments because the maximum time adjustment allowed is 2 hours and your system time is off more than 2 hours. For more information on the implications of manually changing the system time versus using a time adjustment, see “Time adjustment” on page 8.

Before changing the system time using either method, complete the following:

1. “Verifying the time zone properties” on page 24.
2. “Verifying the system values related to time” on page 21.

After you determine which method to use to change your system time, see “Updating system time” on page 20 for step-by-step instructions on how to either manually change the system time or how to use the time adjustment function.

Note: If you are making an adjustment using the time adjustment function, you will need to make multiple time adjustments until the desired time is reached.

System time adjusted 2 hours for DST rather than 1 hour

Problem

If the current time zone (QTIMZON) system value observes DST, the system automatically updates the system time for Daylight Saving Time (DST). If the system is also set to use other automatic adjustments for DST, more than 1 time adjustment may occur.

For example, if your time zone (QTIMZON) system value is set to Eastern Standard Time (EST), your system time will adjust 1 hour forward the first Sunday in April to observe Eastern Daylight Time (EDT). In addition, you may have the OS/400 job scheduler of iSeries Navigator set to automatically adjust the system time 1 hour forward on the first Sunday of April. With this environment, the system time adjusts a total of 2 hours forward on the first Sunday of April rather than 1 hour.

Recovery steps

If your system time was adjusted by other automatic methods (such as the OS/400 job scheduler), you need to disable the automatic adjustments and adjust the system time 1 hour to compensate for the additional hour. To do this, complete the following:

1. Disable any other automatic time adjustments, if the time zone that you are using observes Daylight Saving Time.

Note: The steps to disable automatic adjustments are unique to the application in use.

2. Adjust the system time 1 hour by completing the following:
 - a. In iSeries Navigator, expand **My Connections** → *server-name* → **Configuration and Service** → **Time Management** → **Time Adjustment**.
 - b. Click **Start New Time Adjustment**. If a time adjustment is in progress, the current time adjustment will be stopped. Before proceeding, ensure that you should stop the current adjustment.
 - c. Specify one hour positive or negative, depending on whether you are starting or ending DST.
 - d. Click **OK** to start the time adjustment.
 - e. If a time adjustment is already in progress, click **OK** to stop the current adjustment and to begin the new adjustment.

Time adjustment is incorrect

Problem

If a time maintenance application is performing a time adjustment that is incorrect or you manually specified an incorrect time adjustment, you can stop the current time adjustment. You need to stop the time adjustment if the time maintenance application is not making the proper time adjustments or if you specified the wrong desired time value for a time adjustment.

Recovery

These recovery steps stop the current time adjustment that is incorrect, whether it was initiated by a time maintenance application or manually. These steps do not stop the time maintenance application from making additional time adjustments. You need to stop the time maintenance application to stop it from making additional adjustments to the system time. The procedure to stop an application is unique to each time maintenance application.

After the time adjustment stops, the system time is set to the current time value. It does not go back and set it to the original time value before the adjustment began nor does it complete the adjustment. Therefore, you need to start a new time adjustment to set the system time back to its original value. The original value is the system time before the time adjustment began.

To stop the current time adjustment and specify a time adjustment that is correct, complete the following:

1. In iSeries Navigator, expand **My Connections** —>*server-name* —> **Configuration and Service** —> **Time Management** —> **Time Adjustment**.
2. View the amount of time in the **Adjustment remaining** field. You will need this value when you adjust the time to its original value.
3. Click **Stop adjustment**.
4. Click **OK** to continue the request.
5. Click **Start new time adjustment** to start a new time adjustment.
6. Specify an **Amount of time** that includes the amount of time that the system time adjusted incorrectly. To determine the amount of time needed to adjust the system time to its original value, subtract the adjustment remaining (from Step 2) from the original time adjustment. This is the amount of time to adjust to make up for the incorrect time adjustment. For an example, see **Details**.
7. Click **OK** to start the new time adjustment.

Details: To determine the amount of time for the new time adjustment, consider this example. Before any time adjustments occurred, the system time was 2:30 p.m. Then, you started a time adjustment of -00:30:00 (30 minutes backward). Then, you realized that the time adjustment was suppose to be +00:30:00 (30 minutes forward). By this time, the system time adjusted 5 minutes of the total 30 minutes. The adjustment remaining field specified 00:25:00 (25 minutes). Therefore, you need to start a new time adjustment that compensates for the 5 minutes that the time adjusted incorrectly. The new time adjustment needs to be +00:35:00 (35 minutes forward) where 5 minutes compensate for the incorrect adjustment already complete and 30 minutes for the correct adjustment.

I cannot edit my time zone

Problem

You are not allowed to edit the time zone.

Recovery steps

To edit a time zone, you must have change (*CHANGE) authority to the time zone object. Each time zone is initially created with public use (*USE) authority, not change (*CHANGE) authority, even if you create a time zone based on a time zone with a different authority. However, if a time zone is created using a CL command, you can specify an authority other than public use (*USE) authority.

If you do not have change (*CHANGE) authority and need to edit a time zone, a system administrator or user with change (*CHANGE) authority and object management (*OBJMGT) authority needs to give you authority. The public can be granted change (*CHANGE) authority or only you can be granted authority by specifying your user name.

To change the authority level, a system administrator or user with change (*CHANGE) authority and object management (*OBJMGT) authority needs to complete the following:

1. In iSeries Navigator, expand **My Connections** —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. On the Time Zones dialog, highlight the time zone you want to edit.
3. Click **Edit**.
4. On the **General** page, click **Permissions**.
5. On the **Permissions** dialog, select change (*CHANGE) authority for the public or click **Add** to grant a specific user change authority.
6. Edit the Permissions as necessary.
7. Click **OK** to close the **Permissions** dialog.
8. Click **OK** to close the time zone properties.
9. Click **Close** to close the **Time zones** dialog.

Note: If you want to edit one of the IBM-supplied time zones, you should create a new time zone based on the existing time zone. This prevents your changes from being lost when installing OS/400 in the future.

My time zone is not displaying the Standard Time and DST names correctly

Problem

The time zone uses a message file to specify the full or abbreviated names for either Standard Time or Daylight Saving Time. However, the time zone names are not displaying correctly. When the message cannot be retrieved, the name parameters in the character-based interface display *N (not available) and the time zone name fields in iSeries Navigator are blank. In addition, if the second-level text of the message description is not formatted correctly, the name displays incorrectly.

Recovery steps

If the time zone uses a message to specify the time zone full and abbreviated names, the names are not displayed if you are not authorized to the message file or its library.

If you are authorized to the message file and its library, complete the following to ensure the time zone names are properly retrieved from the message file:

1. “Verifying the time zone message properties” on page 24
2. Verify that the library specified exists on the system.
3. Verify that the message file exists in the library specified.

4. Verify that the message ID exists in the specified message file.
5. Verify that the message description is specified in the second-level text of the message and not the first-level text. In addition, verify that the message is formatted correctly with the first 10 characters as the abbreviated name and the next 50 characters as the full name.

I want to stop SNTP

Problem

You may want to stop SNTP for a variety of reasons. For example, you may want to stop SNTP if any of the following conditions arise:

- You want to start a time adjustment and the SNTP has a time adjustment in progress.
- SNTP is not making proper time adjustments.

Recovery steps

The method that you use to stop SNTP depends on whether you want to stop SNTP from starting when TCP/IP is restarted or if you want to temporarily stop SNTP for the current TCP/IP session. You may want to complete both recovery methods if you want to stop SNTP immediately and do not want it to start when TCP/IP restarts.

Method 1: Stop the current SNTP session

Complete these steps if you want to stop the SNTP server temporarily. These instructions stop the SNTP client server for the current TCP/IP session. However, SNTP will start again when TCP/IP restarts.

1. In iSeries Navigator, expand **My Connections** → *server-name* → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SNTP**, and select **Stop**.

SNTP will not make time adjustments to your system time during the current TCP/IP session. However, SNTP will restart when TCP/IP is restarted. To stop SNTP from starting when a new TCP/IP session begins, complete the steps in **Method 2** too.

Method 2: Stop SNTP

Complete these steps if you want to stop the SNTP client server from starting when TCP/IP restarts. These instructions do not stop SNTP immediately. To stop SNTP immediately, complete the instructions in **Method 1**.

1. In iSeries Navigator, expand **My Connections** → *server-name* → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SNTP**, and select **Properties**.
3. On the **General** page, deselect **Client**, **Server** or both, depending on how SNTP was originally configured.

Note: For V5R2 or earlier systems, deselect **Start when TCP/IP is started**.

4. Click **OK**.

SNTP will not start when a new TCP/IP session begins. However, the current TCP/IP session can still make time adjustments. To stop SNTP immediately, complete the instructions for **Method 1**.

Additional recovery steps

Depending on the condition that led you to stop SNTP, you may want to consider these additional recovery steps:

- Verify that SNTP's external time source is specified correctly.
- Verify that the connection between SNTP and the external time source is working properly.
- If you are using OS/400 V5R3 or later, verify that the time zone system value is specified correctly.
- If you are using a OS/400 V5R2 or earlier, verify that the offset from coordinated universal time (UTC) system value is specified correctly.
- Verify that the time of day system value is specified correctly.

When stopping a time maintenance application, you should follow some simple programming techniques. For more information on what techniques to follow, see "Time maintenance application programming tips" on page 18.

Scenarios

To help you take full advantage of the time management function, read the scenarios described below. These scenarios serve as a guide when completing specific tasks. Each scenario describes a specific situation and identifies how to use time management to meet your business's needs.

For more information, view the following scenarios:

"Scenario: Creating a time zone using a message file for abbreviated and full names"

View this topic to learn how to create a time zone that uses a message file. The message file contains the full and abbreviated time zone names.

"Scenario: Adjusting the system time 3 minutes" on page 35

View this topic to learn how to manually adjust the system time by 3 minutes. A time adjustment is different from changing the time of day system value. A time adjustment is the recommended method for system time changes.

"Scenario: Changing DST start or end due to time-sensitive programs" on page 34

View this topic to learn how to avoid problems if you have time-sensitive programs scheduled to run during the time frame that DST time either starts or ends.

Scenario: Creating a time zone using a message file for abbreviated and full names

Situation

As an administrator, you are creating a time zone specific to your company's needs. In doing so, you want the time zone name to be retrieved from a message file rather than being generated by the system.

One of the many reasons that you may want to use a message file to store the Standard Time and Daylight Saving Time full and abbreviated names is for translation purposes.

Objectives

In this scenario, MyCompany, Inc. wants its time zone to retrieve the Standard Time names and Daylight Saving Time names from a message file.

The objectives of this scenario are as follows:

- To create a new time zone.

- To specify the full and abbreviated Standard Time names using a message in a message file.
- To specify the full and abbreviated Daylight Saving Time names using a message in a message file.
- To have the time zone retrieve the time zone's Standard Time and Daylight Saving Time names from the message file.

Details

MyCompany, Inc. has one system (iSeries A) in its environment. This system needs to use a time zone that specifies to use a message file for the time zone's full and abbreviated names.

- iSeries A is running OS/400 Version 5 Release 3 (V5R3) and conducts all of the business processes.
- You are using IBM iSeries Access for Windows V5R3 or later to communicate with iSeries A.

Prerequisites and assumptions

- iSeries A is running OS/400 V5R3 or later.
- You are using IBM iSeries Access for Windows V5R3 or later to communicate with iSeries A.
- MYLIB library exists on the system.

Step 1: Create a message file

To use a message file for the Standard Time names and Daylight Saving Time names, you need to create a message file that specifies the names to use. To create a message file, complete the following:

1. Open a character-based interface and connect to iSeries A.
2. Type the following command from a command line:
CRTMSGF

and press F4.
3. Specify MYTZMSG for the name of the message file.
4. Specify MYLIB for the name of the library to store the message file or the name of an existing library.
5. Press Enter.
6. Complete the following to specify the Standard Time names in the message file:
 - a. Type the following command:
ADDMSGD

and press F4.
 - b. Specify MSG1001 for the message identifier.
 - c. Specify MYTZMSG for the message file.
 - d. Specify MYLIB for the library.
 - e. Specify first-level text that is enclosed in single quotes. You can specify text in between the single quotes or leave it blank. The quotes are required.
 - f. Specify 'MCST MyCompany Standard Time' for the second-level text message, include the single quotes. The first 10 characters are used for the abbreviated name and the next 50 characters are used for the full name.
 - g. Press Enter to create the message description.
7. Complete the following to specify the Daylight Saving Time names in the message file:
 - a. Type the following command:
ADDMSGD

and press F4.

- b. Specify MSG1002 for the message identifier.
- c. Specify MYTZMSG for the message file.
- d. Specify MYLIB for the library.
- e. Specify first-level text that is enclosed in single quotes. You can specify text in between the single quotes or leave it blank. The quotes are required.
- f. Specify 'MCDST MyCompany Daylight Saving Time' for the second-level text message, include the single quotes. The first 10 characters are used for the abbreviated name and the next 50 characters are used for the full name.
- g. Press Enter to create the message description.

The MYTZMSG message file and two messages now exist in the MYLIB library. Now, you need to create a time zone (See 33) and specify this message file for the Standard Time names and the Daylight Saving Time names. To do this, continue to Step 2: Create a new time zone that specifies the message file to use.

Step 2: Create a new time zone that specifies the message file to use

To create a time zone, complete the following:

1. In iSeries Navigator, expand **My Connections**. —> *server-name* —> **Configuration and Service** —> **Time Management** —> **Time Zones**.
2. Click **New**.
3. On the **General** page, type MYTIMEZONE for the **Identifier**.
4. Specify the hours and minutes that you want the time to be **Offset** from UTC.
5. Specify the following to use the message file that was created in Step 1 for the Standard Time full and abbreviated names:
 - a. Select **Use name specified in message**.
 - b. Type **MSG1001** in the **Message ID** field.
 - c. Type **MYTZMSG** in the **Message file** field.
 - d. Type **MYLIB** in the **Library** field.
6. Specify **Time zone that uses a message description** in the **Description** field.
7. On the **Daylight Saving Time** page, select **Enable Daylight Saving Time**.
8. Specify the following to use the message file that was created in Step 1 for the Daylight Saving Time full and abbreviated names:
 - a. Select **Use name specified in message**.
 - b. Type **MSG1002** in the **Message ID** field.
9. Specify when to **Start** Daylight Saving Time.
10. Specify when to **End** Daylight Saving Time.
11. After you are done specifying the time zone properties, click **OK**.
12. MYTIMEZONE is displayed in the list of **Available time zones**.

For help specific to each field, see the online help.

Note: Time zones are initially created with use (*USE) authority even if you are creating a time zone based on an existing time zone. If you want to change the time zone authority, click **Edit** on the **Time Zones** dialog. Then, click **Permissions** on the **General** page to edit the authority of the time zone object.

The time zone is created and appears in the list of **Available time zones**. To use the new time zone on iSeries A, click **Change system value**. For more information on setting the time zone (QTIMZON) system value, see “Setting the time zone after an IPL” on page 18.

Scenario: Changing DST start or end due to time-sensitive programs

Situation

Time-sensitive programs are scheduled to run during the hour that Daylight Saving Time starts or ends. Because that hour will be skipped or repeated, time-sensitive programs may encounter unpredictable results. The following occur:

- Jobs may run twice; thus, unnecessarily impacting the performance of the system.
- Jobs may not run at all; thus, work is not completed.
- Programs may retrieve the wrong time value.

Objectives

The Daylight Saving Time start or end, depending on which is in effect, needs to be scheduled to occur during a different time frame. A different time frame is necessary because you have time-sensitive programs scheduled to run during the time frame specified for the current time zone.

The objectives for this scenario are as follows:

- To allow the time-sensitive programs to run as scheduled
- To either change the current Daylight Saving Time start or end time to a time frame when no time-sensitive programs are scheduled to run or
- To temporarily use a different time zone that has a DST start or end time frame that does not impact time-sensitive programs

Details

The system may encounter errors if a job is scheduled to run during an hour that is either skipped or repeated or if a job is currently running, depending on whether you are starting or ending Daylight Saving Time. For example, if Daylight Saving Time begins at 2:00 a.m. your system time will move forward 1 hour at 2:00 a.m. In this case, the system will not recognize the hour from 2:00 a.m. to 3:00 a.m. Time-sensitive jobs cannot be scheduled to run during this hour. The same situation applies to ending Daylight Saving Time. You cannot schedule jobs during the hour that is repeated.

If you change the Daylight Saving Time to a time frame when no time-sensitive programs are scheduled to run, you can continue using the current time zone. However, you need to change the Daylight Saving Time start or end back to the original value after the DST goes into effect.

If you create a new time zone based on the current time zone, you do not need to change the current time zone's DST properties. However, after the DST time change, you need to change the time zone system value back to the original time zone.

Recovery steps

If you have jobs scheduled to run during the starting or ending of Daylight Saving Time, you can delay Daylight Saving Time or create a new time zone that uses a different start and end time for DST. If you are using an IBM-supplied time zone, create a new time zone based on the supplied time zone. This ensures that you are not editing a time zone that is supplied with the system. Otherwise, delay DST by editing the time zone description.

Choose one of the following two options to recover from this situation:

Option 1: Delay DST for the current time zone

1. In iSeries Navigator, expand **My Connections** → *server-name* → **Configuration and Service** → **Time Management** → **Time Zones**.
2. View the “Time zone” on page 9 listed in the **Available time zones** field and select the system’s time zone.
3. Click **Edit**.
4. On the **Daylight Saving Time** page, change the Daylight Saving Time **Start** or **End** field to a time when time sensitive jobs are not active.
5. Click **OK** to save and close the time zone properties.
6. Click **OK** to close the **Time Zones** dialog.

The Daylight Saving Time start or end will occur during the time value specified. If you do not want to use these time values for the next Daylight Saving Time observance, be sure to change the time value back to the original start or end time. This ensures that it will be set correctly for the next Daylight Saving Time observance.

Option 2: Create a new time zone with the proper DST values

1. In iSeries Navigator, expand **My Connections** → *server-name* → **Configuration and Service** → **Time Management** → **Time Zones**.
2. View the “Time zone” on page 9 listed in the **Available time zones** field and select the time zone that you want to copy.
3. Click **New Based On**.
4. Specify a time zone **Identifier**.
5. Ensure the time zone properties on the **General** page are correct.
6. On the **Daylight Saving Time** page, specify the Daylight Saving Time start or end. Ensure that the start or end time does not conflict with time-sensitive programs.
7. After you have specified all of the time zone properties, click **OK** to create the time zone.
8. Select the time zone from the list of **available time zones**.
9. Click **Change system value**.
10. Click **OK** to confirm the system value change.
11. Click **OK** to close the **Time Zones** dialog.

If you created this time zone to use temporarily, you need to change the time zone (QTIMZON) system value back to the original time zone after the DST change.

Scenario: Adjusting the system time 3 minutes

Situation

As an administrator of your company’s network, you need to maintain the system time on your iSeries server. Your iSeries is set to use the Eastern Standard Time zone, but you notice that the system time on your iSeries is off by 3 minutes. Instead of manually setting the system time using the time of day system value, you need to make a “Time adjustment” on page 8 to ensure that your jobs run with the proper time. This also ensures that time does not jump either forward or backward in one instantaneous change.

Objectives

In this scenario, MyCompany, Inc. needs to adjust the system time 3 minutes. Jobs retrieve their time values from the system time. Therefore, it is critical that the system time be accurate so that jobs run with the proper time.

The objectives of this scenario are as follows:

- To adjust system time backward 3 minutes.
- To ensure that jobs run with the proper time.
- To ensure that time does not jump forward or backward in one instantaneous change.

Details

The system time on iSeries A is ahead 3 minutes. The system time needs to be slowed down until it is set to 3 minutes less than the current time. You cannot manually change the time of day system value because that would essentially repeat the last 3 minutes of system time. The type of repetition can cause unpredictable errors if time-sensitive programs are running.

Prerequisites and assumptions

Based on this scenario, your system must meet the following requirements to make a time adjustment:

- Your system is using V4R5 or later hardware.
- You are running OS/400 V5R3 or later.
- You are using IBM iSeries Access for Windows V5R3 or later to communicate with your system.
- Your system does not retrieve UTC from an external time source.

In addition, it is recommended that you turn off any time maintenance applications that are in use. A manual time adjustment may conflict with any adjustments that the time maintenance application may make.

Time adjustment steps

Assuming that time adjustments are allowed on your system, complete the following:

1. In iSeries Navigator, expand **My Connections** → **iSeriesA** → **Configuration and Service** → **Time Management** → **Time Adjustment**.
2. On the **Time Adjustment** dialog, click **Start a new time adjustment**. If a time adjustment is in progress, the current time adjustment will be stopped. Before proceeding, make sure that the current adjustment can be stopped.
3. Specify **-0:03:00** (3 minutes).
4. Click **OK** to start the time adjustment.
5. View the **Time Adjustment** fields on the **Time Adjustment** dialog. The following fields should be displayed:
 - Adjustment in progress: Yes
 - Adjustment remaining: HH:MM:SS (where HH represents the hours, MM represents the minutes, and SS represents the seconds)
 - Estimated time until completion: HH:MM:SS

A time adjustment is in progress until the system time reaches the time value specified. Click **Refresh Now** to update the statistics displayed.

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