



IBM Systems - iSeries
Systems management
Time management

Version 5 Release 4





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Note

Before using this information and the product it supports, read the information in “Notices,” on page 43.

Third Edition (February 2006)

This edition applies to version 5, release 4, modification 0 of IBM i5/OS (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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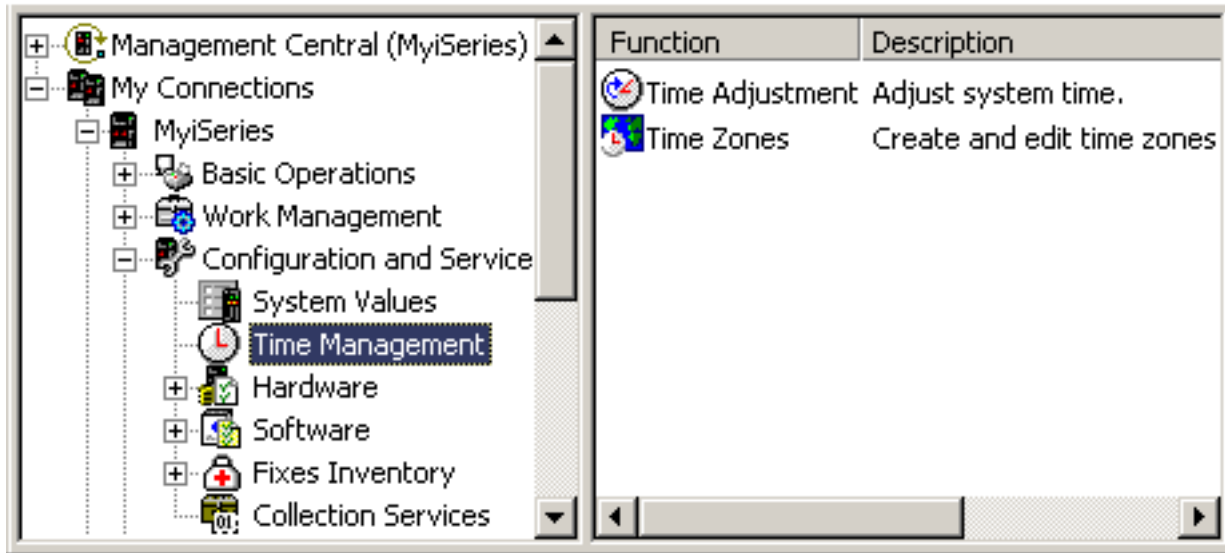
Contents

Time management	1	Create a time zone	31
I What's new for V5R4	1	Edit a time zone	32
Printable PDF	2	Delete a time zone	33
Concepts	2	Verify the time zone properties	33
Time	2	Verify the time zone message properties	34
Coordinated universal time	4	Troubleshooting	34
Time maintenance application	5	Offset from UTC was incorrectly set during the installation of the i5/OS operating system	35
Time adjustment	7	System time is incorrect and jobs are not running with the proper time	35
Time zone	9	System time is off more than 2 hours	36
Daylight saving time	16	System time adjusted 2 hours for DST rather than 1 hour	37
Scenarios	17	Time adjustment is incorrect	38
Scenario: Create a time zone using a message file for abbreviated and full names	17	I cannot edit my time zone	39
Scenario: Change DST start or end due to time-sensitive programs	19	My time zone is not displaying the Standard Time and DST names correctly	39
Scenario: Adjust the system time 3 minutes	21	I want to stop Simple Network Time Protocol	40
Set up time management	23	Appendix. Notices	43
Examine your network of systems	23	Programming Interface Information	44
Set the time zone (QTIMZON) system value	23	Trademarks	45
Set up time maintenance	26	Terms and conditions	45
Manage system time	28		
Update system time	28		
View a job's time	30		
Verify the system values related to time	30		
Manage time zones	31		

Time management

Time management allows you to manage time on your iSeries™ 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.

Related reference

iSeries Navigator tasks on the Web



What's new for V5R4

This topic highlights the changes made to this topic collection for V5R4.

New time zones

Thirteen new time zones are included with the system. For detailed information about these new time zones, see "Time zone" on page 9.

| **How to see what's new or changed**

- | To help you see where technical changes have been made, this information uses:
 - | • The  image to mark where new or changed information begins.
 - | • The  image to mark where new or changed information ends.
- | To find other information about what's new or changed this release, see the Memo to users.

Printable PDF

Use this to view and print a PDF of this information.

To view or download the PDF version of this topic, select Time management (about 706 KB).

You can view or download these related topics:


- System values
- Simple Network Time Protocol

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 the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

Downloading Adobe Acrobat Reader

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

Concepts

Use this information to understand time management concepts such as time zones, coordinated universal time (UTC), and daylight saving time (DST).

Related tasks

“Set up time management” on page 23

View this topic to learn how to set up your systems to use time zones and time adjustment applications.

Time

Use this information to understand time concepts such as time zones, coordinated universal time, system time, and job time.

Time on a system involves several time concepts. Each 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 concepts 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 coordinated universal time (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

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).

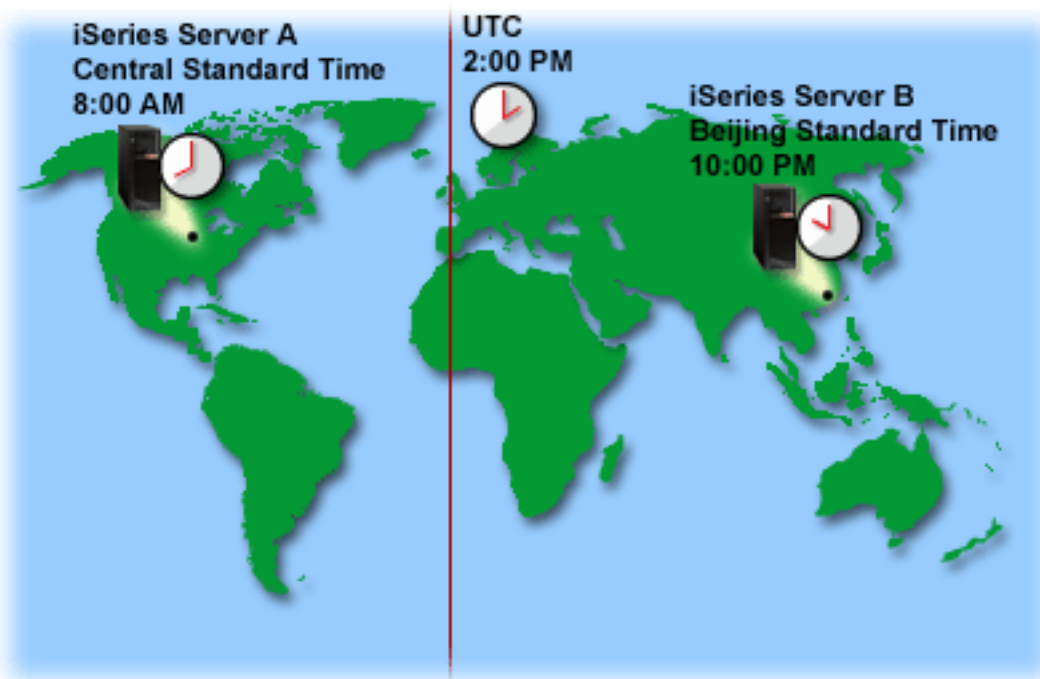
Offset from coordinated universal time

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

The time zone settings specify the offset from UTC and whether to observe daylight saving time or not. Each logical partition on a system can 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 as follows:

	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	Server A 2:00 p.m.	Server B 2:00 p.m.
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Related concepts

“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.

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

“Daylight saving time” on page 16

Use this information to understand daylight saving time (DST). Find out what DST is and which time zones use DST.

“Manage time zones” on page 31

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.

Related reference

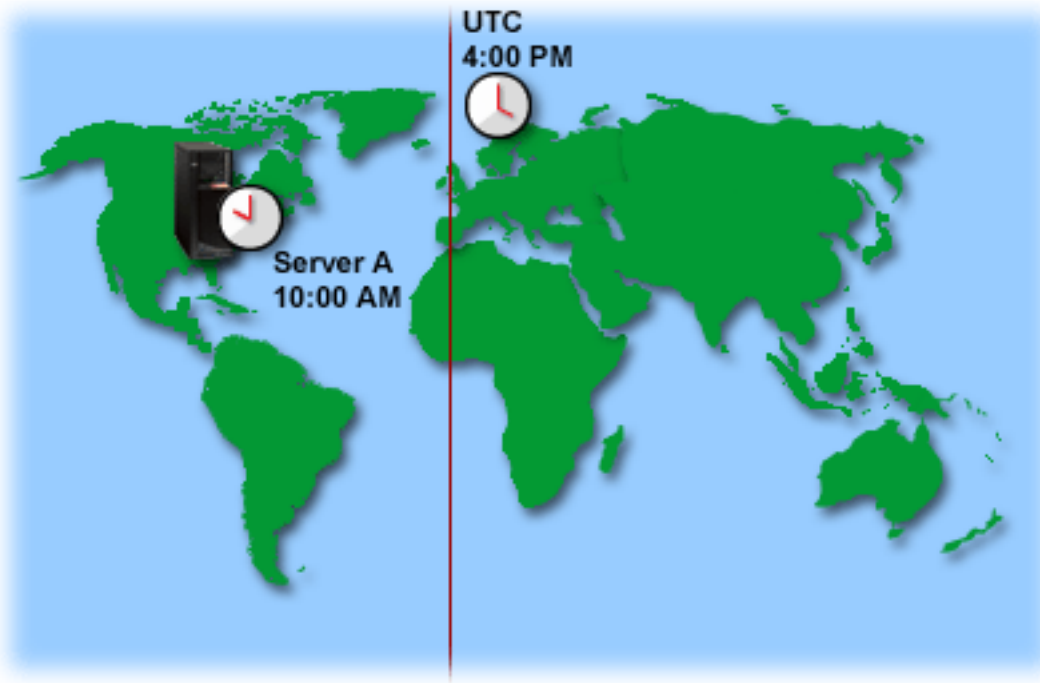
Time of day (QDATETIME) system value

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.



Related concepts

“Time” on page 2

Use this information to understand time concepts such as time zones, coordinated universal time, system time, and job time.

Related reference

Time of day (QDATETIME) system value

Time maintenance application

Use this information to learn how a typical time maintenance application works. You can also view an example environment that uses Simple Network Time Protocol (SNTP) as a 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 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 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 before 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 before 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 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.

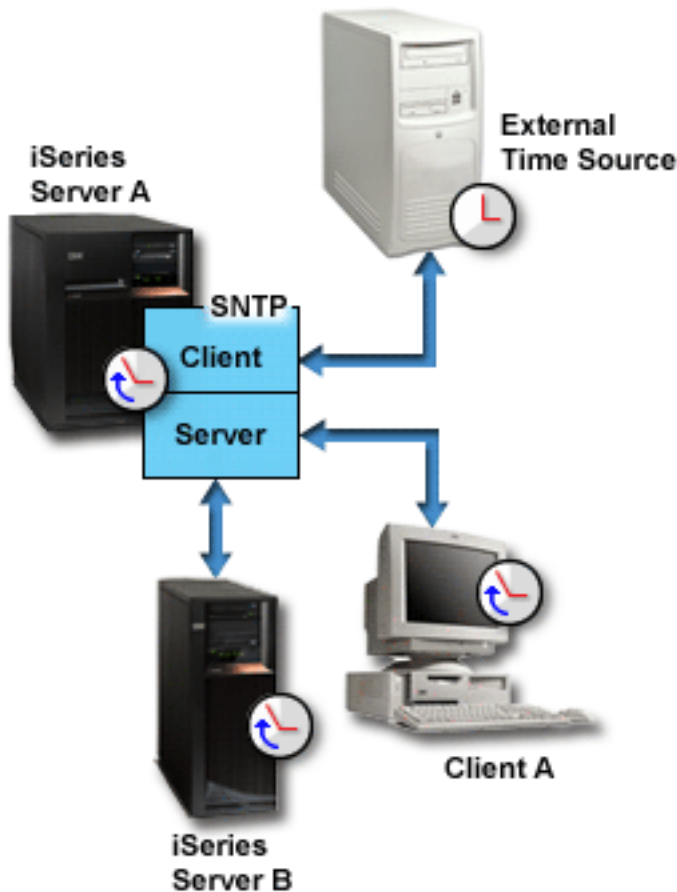


Figure 1. SNTP as a client and a server

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.

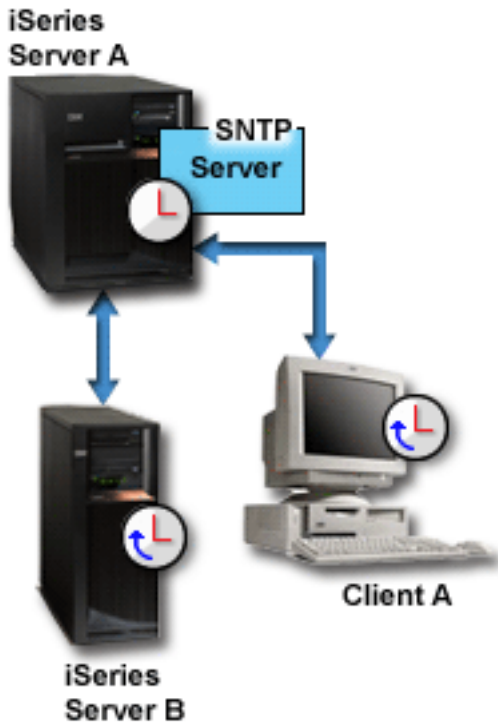


Figure 2. SNTP as a server

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.

Related concepts

“Time adjustment”

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.

“Set up time maintenance” on page 26

Find out how to use a time maintenance application to make the necessary adjustments to your system time.

Related reference

Time adjustment (QTIMADJ) system value

Simple Network Time Protocol

Time adjustment

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.

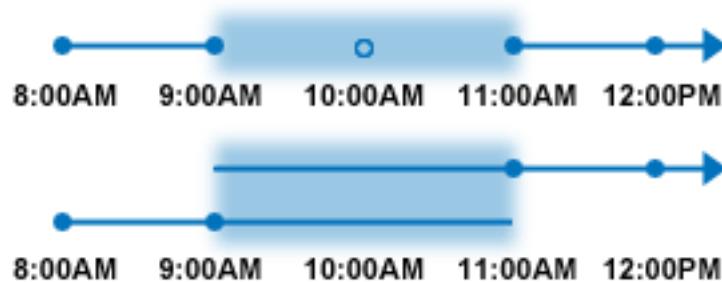
The time adjustment function of iSeries Navigator allows you to make adjustments to the system time or to use a time maintenance application to make adjustments to the system time automatically. Time adjustments are preferred over manually setting the time of day system value because a time adjustment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

Prior to time adjustments, you can 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 can take 10 seconds of real time to complete.

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 about how to change the system time, either a manual time change or a time adjustment, see Update system time.

Related concepts

“Time maintenance application” on page 5

Use this information to learn how a typical time maintenance application works. You can also view an example environment that uses Simple Network Time Protocol (SNTP) as a time maintenance application.

“Scenario: Adjust the system time 3 minutes” on page 21

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.

Related tasks

“Update system time” on page 28

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.

“System time is off more than 2 hours” on page 36

Related reference

Time of day (QDATETIME) system value

Time zone

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

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

You can 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 i5/OS™ in the future. When i5/OS 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 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.

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 i5/OS V5R3 or later. For more information about how the initial value is determined, see Initial time zone setting.

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

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
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	+1:00	CPX0911	Greenwich Mean Time (GMT)	CPX0912	British Summer Time (BST)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 2:00 a.m.

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
Q000GMT3	0:00	CPX0911	Greenwich Mean Time (GMT)	CPX0912	British Summer Time (BST)	Last Sunday in March at 1:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Second Friday in February at 2:00 a.m.
QN0330NST	-3:30	CPX0917	Newfoundland Standard Time (NST)	CPX0918	Newfoundland Daylight Time (NDT)	First Sunday in April at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
QN0330NST2	-3:30	CPX0917	Newfoundland Standard Time (NST)	CPX0918	Newfoundland Daylight Time (NDT)	First Sunday in April at 12:01 a.m.	Last Sunday in October at 12:01 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
QN0400CLT	-4:00	CPX095E	Chile Time (CLT)	CPX095F	Chile Summer Time (CLST)	Second Saturday in October at 12:00 a.m.	Second Saturday in March at 12:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
QN0600S	-6:00	CPX0923	Central Standard Time (S)	CPX0924	Daylight Saving Time (DST)	First Sunday in April at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
QN0800U	-8:00	CPX092C	Pacific Standard Time (U)	CPX0924	Daylight Saving Time (DST)	First Sunday in April at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
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 at 2:00 a.m.	Third Sunday in March at 2:00 a.m.

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
QP1245UTC2	+12:45	CPX0935	Chatham Islands Standard Time (UTC+12:45S)	CPX0936	Chatham Islands Daylight Time (UTC+12:45D)	First Sunday in October at 2:45 a.m.	Third Sunday in March at 03:45 a.m.
QP1200UTC5	+12:00	CPX0937	UTC+12:00 Standard Time (UTC+12:00S)	N/A	N/A	N/A	N/A
QP1200NZST	+12:00	CPX0938	New Zealand Standard Time (NZST)	CPX0939	New Zealand Daylight Time (NZDT)	First Sunday in October at 2:00 a.m.	Third Sunday in March at 2:00 a.m.
QP1200NZS2	+12:00	CPX0938	New Zealand Standard Time (NZST)	CPX0939	New Zealand Daylight Time (NZDT)	First Sunday in October at 2:00 a.m.	Third Sunday in March at 3:00 a.m.
QP1100UTC5	+11:00	CPX093A	UTC+11:00 Standard Time (UTC+11:00S)	N/A	N/A	N/A	N/A
QP1000UTC5	+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 at 2:00 a.m.	Last Sunday in March at 2:00 a.m.
QP1000AES2	+10:00	CPX093C	Australian Eastern Standard Time (AEST)	CPX093D	Australian Eastern Daylight Saving Time (AEDT)	Last Sunday in October at 2:00 a.m.	Last Sunday in March at 3:00 a.m.
QP0930ACST	+9:30	CPX093E	Australian Central Standard Time (ACST)	CPX093F	Australian Central Daylight Saving Time (ACDT)	Last Sunday in October at 2:00 a.m.	Last Sunday in March at 2:00 a.m.
QP0930ACS2	+9:30	CPX093E	Australian Central Standard Time (ACST)	CPX093F	Australian Central Daylight Saving Time (ACDT)	Last Sunday in October at 2:00 a.m.	Last Sunday in March at 3:00 a.m.
QP0900UTC5	+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
QP0800UTC5	+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

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
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 at 2:00 a.m.	Last Sunday in September at 2:00 a.m.
QP0600UTC3	+6:00	CPX094C	Asia/Almaty (UTC+06:00S)	CPX094D	Asia/Almaty Daylight Saving Time (UTC+06:00D)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 3:00 a.m.
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
QP0500UTC2	+5:00	CPX0950	Asia/Aqtobe (UTC+05:00S)	CPX0951	Asia/Aqtobe Daylight Saving Time (UTC+05:00D)	Last Sunday in March at 2:00 a.m.	Last Sunday in September at 2:00 a.m.
QP0500UTC3	+5:00	CPX0950	Asia/Aqtobe (UTC+05:00S)	CPX0951	Asia/Aqtobe Daylight Saving Time (UTC+05:00D)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 3:00 a.m.
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 at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
QP0400UTC3	+4:00	CPX0953	Asia/Aqtau (UTC+04:00S)	CPX0954	Asia/Aqtau Daylight Saving Time (UTC+04:00D)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 3:00 a.m.
QP0300MSK	+3:00	CPX0961	Moscow Time (MSK)	CPX0962	Moscow Summer Time (MSD)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 3:00 a.m.

Time zone object	Offset from UTC	Message ID ²	Standard Time full name (abbreviated name) ¹	Message ID ³	DST full name (abbreviated name) ¹	DST start	DST end
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 at 2:00 a.m.	Last Sunday in September at 2:00 a.m.
QP0200EET2	+2:00	CPX0957	Eastern European Time (EET)	N/A	N/A	N/A	N/A
QP0200EET3	+2:00	CPX0957	Eastern European Time (EET)	CPX0958	Eastern European Daylight Saving Time (EEDST)	Last Sunday in March at 3:00 a.m.	Last Sunday in October at 4:00 a.m.
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 at 2:00 a.m.	Last Sunday in September at 2:00 a.m.
QP0100CET2	+1:00	CPX095B	Central European Time (CET)	CPX095C	Central European Daylight Saving Time (CEST)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 2:00 a.m.
QP0100CET3	+1:00	CPX095B	Central European Time (CET)	CPX095C	Central European Daylight Saving Time (CEST)	Last Monday in March at 2:00 a.m.	Last Sunday in September at 2:00 a.m.
QP0100CET4	+1:00	CPX095B	Central European Time (CET)	CPX095C	Central European Daylight Saving Time (CEST)	Last Sunday in March at 2:00 a.m.	Last Sunday in October at 3:00 a.m.

Notes:

- ¹ The abbreviated and full names of the time zone are specified in messages to allow for translation.
- ² The Standard Time names of the time zone 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.
- ³ The Daylight Saving Time names of the time zone 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.

Related concepts

“Time” on page 2

Use this information to understand time concepts such as time zones, coordinated universal time, system time, and job time.

“Scenario: Change DST start or end due to time-sensitive programs” on page 19

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

Related tasks

“Set the time zone before upgrading” on page 24

Use this method if you have a previous release of i5/OS installed and are upgrading to i5/OS 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.

“Set the time zone after an IPL” on page 26

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 coordinated universal time (UTC) was not correct during the upgrade or install of i5/OS software.

“Create a time zone” on page 31

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

“Edit a time zone” on page 32

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

“Delete a time zone” on page 33

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.

Related reference

Time zone (QTIMZON) system value

Initial time zone setting

During the initial startup, the operating system sets the initial time zone.

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 initial program load (IPL).

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

1. Attempts to retrieve time zone from the QWCTIMZON data area

During the IPL of an i5/OS 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 Set the time zone before upgrading. 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 1b.
- 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 1c.
- 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 does not support DST. For example, if the

data area specified is -05:15MYTIMEZONE, the operating system will 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 2.

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

If the data area QWCTIMZON does not exist, or the preceding 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 1b on page 15 for information about how this name is derived. If this step fails, proceed to 2b.
- b. Attempts to create a new time zone description whose name was derived in the previous step 2a 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 preceding 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).

Related tasks

“Set the time zone before upgrading” on page 24

Use this method if you have a previous release of i5/OS installed and are upgrading to i5/OS 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.

“Set the time zone during an attended IPL” on page 25

Use this method to set the time zone system value during an attended initial program load (IPL) of V5R3 or later. This is the preferred method if you are installing software on a new i5/OS server or partition because it ensures that the time zone will be set correctly as soon as you complete the IPL.

“Offset from UTC was incorrectly set during the installation of the i5/OS operating system” on page 35

“System time is incorrect and jobs are not running with the proper time” on page 35

Related reference

Time zone (QTIMZON) system value

Offset from UTC(QUTCOFFSET) system value

Daylight saving time

Use this information to understand daylight saving time (DST). Find out what DST is and which time zones use DST.

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 might 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., Eastern Standard Time (EST), and is announced in the summer as 1 p.m., Eastern Daylight Time (EDT). 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 to those in the northern hemisphere.

A general rule for DST changes is that the change from Standard Time to DST needs to be completed before 03:00 (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 03:00 (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 might adjust more than 1 hour for DST.

Related concepts

“Time” on page 2

Use this information to understand time concepts such as time zones, coordinated universal time, system time, and job time.

Scenarios

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.

To help you take full advantage of the time management function, read the scenarios in this topic. 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 needs.

Scenario: Create 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.

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 might 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 server 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 i5/OS Version 5 Release 3 (V5R3) or later 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 i5/OS 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.

Configuration steps

The following information illustrates the steps to create a time zone that uses a message file.

Related tasks

“Set the time zone after an IPL” on page 26

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 coordinated universal time (UTC) was not correct during the upgrade or install of i5/OS software.

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 steps:

1. Open a character-based interface and connect to iSeries A.
2. Type the following command from a command line and press F4:
CRTMSGF
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 specify the name of an existing library.
5. Press Enter.
6. Complete the following steps to specify the Standard Time names in the message file:
 - a. Type the following command and press F4:
ADDMSGD
 - 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 quotation marks. You can specify text in between the single quotation marks or leave it blank. The single quotation marks are required.
 - f. Specify 'MCST MyCompany Standard Time' for the second-level text message, including the single quotation marks. 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 steps to specify the Daylight Saving Time names in the message file:
 - a. Type the following command and press F4:
ADDMSGD
 - 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 quotation marks. You can specify text in between the single quotation marks or leave it blank. The single quotation marks are required.
 - f. Specify 'MCDST MyCompany Daylight Saving Time' for the second-level text message, including the single quotation marks. 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 new time zone and specify this message file for the Standard Time names and the Daylight Saving Time names. To do this, continue to “Create a new time zone that specifies the message file to use.”

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

You need to create a new time zone that specifies the message file to use.

To create a time zone, complete the following steps:

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 information 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 box. 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**.

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

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

Situation

Time-sensitive programs are scheduled to run during the hour that DST starts or ends. Because that hour is skipped or repeated, time-sensitive programs might encounter unpredictable results. The following conditions can occur:

- Jobs might run twice; thus, unnecessarily impacting the performance of the system

- Jobs might not run at all; thus, work is not completed
- Programs might retrieve the wrong time value

Objectives

The DST 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 DST start or end time to a time frame when no time-sensitive programs are scheduled to run
- 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 might 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 DST. For example, if DST begins at 2:00 a.m., your system time moves forward 1 hour at 2:00 a.m. In this case, the system does 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 DST. You cannot schedule jobs during the hour that is repeated.

If you change the DST 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 DST start or end time 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 start or end of DST, you can delay DST or create a new time zone that uses different start and end times 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.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

Method 1: Delay DST for the current time zone

One way to solve the problem of having jobs scheduled to run during the starting or ending of daylight saving time (DST) is to delay DST.

To delay DST for the current time zone, perform the following steps.

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.
2. View the time zones 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 box.

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

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

If you are using an IBM-supplied time zone, you can create a new time zone based on the supplied time zone to avoid the problem of having jobs scheduled during the starting or ending of daylight saving time (DST).

To create a new time zone with the proper DST values, perform the following steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.
2. View the time zones 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 that 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 time. 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 box.

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: Adjust the system time 3 minutes

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.

Situation

As an administrator of your company's network, you need to maintain the system time on your IBM iSeries server. Your iSeries server is set to use the Eastern Standard Time zone, but you notice that the system time on your iSeries server 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 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 i5/OS 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 might conflict with any adjustments that the time maintenance application might make.

Time-adjustment steps

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

1. In iSeries Navigator, expand **My Connections** → **iSeries A** → **Configuration and Service** → **Time Management** → **Time Adjustment**.
2. On the **Time Adjustment** dialog box, 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 box. 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.

Related concepts

“Time adjustment” on page 7

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.

Set up time management

View this topic to learn how to set up your systems to use time zones and time adjustment applications.

Complete the following tasks:

- 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 about how to specify a time zone for your systems
- Find information about how to specify a time maintenance application for your systems

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

Related concepts

“Manage time zones” on page 31

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.

“Manage system time” on page 28

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

Examine your network of systems

View this topic to learn which time zone is the proper time zone for your 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 i5/OS, you need to determine the time zone to use for each system. One single physical system can 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 i5/OS 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.

Set the time zone (QTIMZON) system value

View this topic to learn the different ways to set the time zone system value.

Three different methods can be used to set the system value. You can set the system value before upgrading, during an initial program load (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 i5/OS installed.

Within the realm of time management, you can specify a time zone for your system to use. There are three different ways to specify which time zone your system uses. You can set your time zone properties before an i5/OS software upgrade, during an attended IPL of the iSeries server, or after an IPL of the iSeries server using iSeries Navigator.

The method that you use depends on whether you are upgrading from a previous i5/OS release or installing the i5/OS. Otherwise, you can always work with the time zone using iSeries Navigator.

Related concepts

“Manage time zones” on page 31

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.

Set the time zone before upgrading

Use this method if you have a previous release of i5/OS installed and are upgrading to i5/OS 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.

If you are upgrading from a previous release of i5/OS to i5/OS 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 i5/OS software upgrade.

To define the time zone object for the system before an i5/OS 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 about how the system determines the time zone to use when upgrading to a new release of the i5/OS system, see Initial time zone setting.

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

1. Sign on to your i5/OS server using a 5250 emulator session.
2. Type the following command and press F4:
CRTDTAARA
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 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 i5/OS operating system, the server uses this data area to set the time zone (QTIMZON) system value.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

Related tasks

“Initial time zone setting” on page 15

During the initial startup, the operating system sets the initial time zone.

Related reference

Time zone (QTIMZON) system value

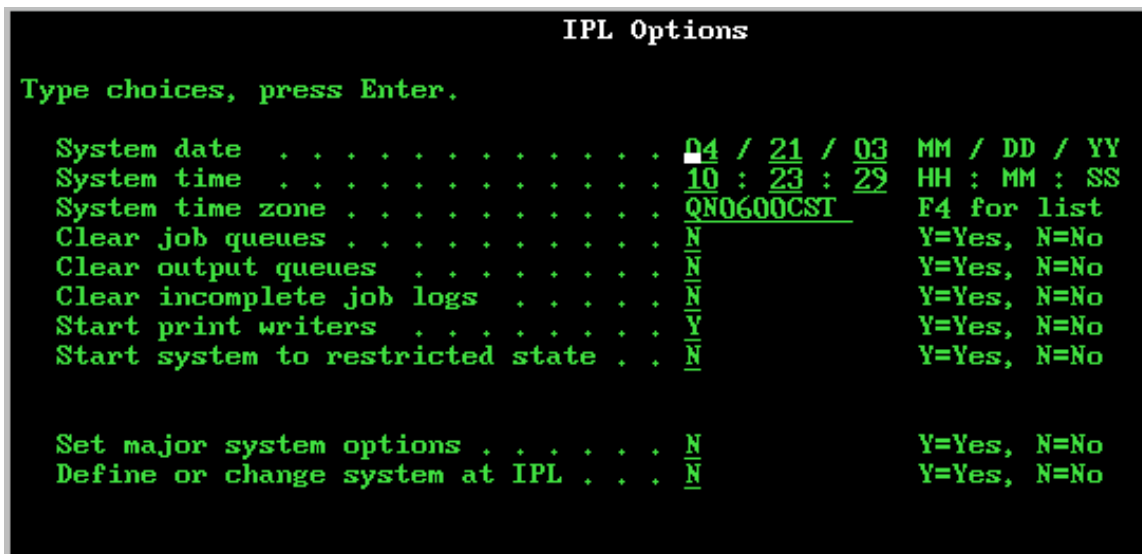
Set the time zone during an attended IPL

Use this method to set the time zone system value during an attended initial program load (IPL) of V5R3 or later. This is the preferred method if you are installing software on a new i5/OS server or partition because it ensures that the time zone will be set correctly as soon as you complete the IPL.

You can set your time zone during an attended IPL of the i5/OS 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 steps:

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.



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

Related tasks

“Initial time zone setting” on page 15

During the initial startup, the operating system sets the initial time zone.

Set the time zone after an IPL

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 coordinated universal time (UTC) was not correct during the upgrade or install of i5/OS software.

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) command.

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 zones listed in the **Available time zones** field, and select the time zone you want to use on the system. You can also create your own time zone.
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.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

“Scenario: Create a time zone using a message file for abbreviated and full names” on page 17

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.

Related tasks

“Create a time zone” on page 31

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

Set up time maintenance

Find out how to use a time maintenance application to make the necessary adjustments to your system time.

If you want to use a time maintenance application to synchronize your system time with an external time source, you need to configure the time maintenance application on each system. You can use the 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 i5/OS V5R3 or later with V4R5 or later hardware.

Related concepts

“Time maintenance application” on page 5

Use this information to learn how a typical time maintenance application works. You can also view an example environment that uses Simple Network Time Protocol (SNTP) as a time maintenance application.

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 can use the IBM-supplied Simple Network Time Protocol (SNTP) application or an application of your own to use for time maintenance.

When writing a time maintenance application, you should ensure that the software checks the time adjustment (QTIMADJ) system value before 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 before 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.

Related concepts

“Configure your server to use SNTP as the time maintenance application”

View this topic to learn how to use the Simple Network Time Protocol (SNTP) application for time maintenance.

Related tasks

“I want to stop Simple Network Time Protocol” on page 40

There are circumstances in which you might want to stop Simple Network Time Protocol (SNTP). Use this topic to find out how to do this in different situations.

Related reference

Time adjustment (QTIMADJ) system value

Configure your server to use SNTP as the time maintenance application

View this topic to learn how to use the Simple Network Time Protocol (SNTP) application for time maintenance.

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

For more information about 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 can 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 server sends its system time to the clients connected to it. If a client's time values do 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.

Related concepts

"Time maintenance application programming tips" on page 27

View this topic to learn some basic techniques to properly set up a typical time maintenance application.

SNTP client

SNTP server

Related tasks

Scenario: Synchronize clocks with iSeries server

Manage system time

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

You can manage your iSeries system time in 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 might want to view a job's time to ensure that the time zone is specified correctly.

Related tasks

"Set up time management" on page 23

View this topic to learn how to set up your systems to use time zones and time adjustment applications.

Update system time

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.

If your system time is not correct or jobs are running with the wrong time, you might need to adjust or change the system time. The time adjustment method is the preferred method for changing the system time unless you need to change the system time more than two hours.

Related concepts

"Time adjustment" on page 7

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.

Related tasks

"Verify the system values related to time" on page 30

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

"System time is off more than 2 hours" on page 36

Use 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 steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Adjustment**.
2. On the **Time Adjustment** dialog box, 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 box. 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 box.

See the time adjustment online help for more details.

Manually change the time of day system value

If your system time is off by 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 by 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 might be a number of reasons that your system time is off by more than 2 hours:

- 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 settings are correct:

- The time zone
- The offset from UTC

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

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 box.

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

Related reference

Time zone (QTIMZON) system value

Offset from UTC (QUTCOFFSET) system value

Time of day (QDATETIME) system value

View a job's time

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.

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 might 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 steps:

1. Locate the job in iSeries Navigator. To locate a job, see Find a job on the server.
2. After you have located a particular job, right-click the job and select **Properties**.
3. On the **Properties** dialog box, 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 box.

If the date or time of the job is not correct, verify that the following settings are correct:

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

Related tasks

Find a job on the server

Related reference

Time zone (QTIMZON) system value

Offset from UTC (QUTCOFFSET) system value

Verify the system values related to time

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

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. See Update system time 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 i5/OS V5R3 or later, you need to verify the time zone properties. 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 i5/OS 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.

Related tasks

“Update system time” on page 28

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.

“Verify the time zone properties” on page 33

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

“Offset from UTC was incorrectly set during the installation of the i5/OS operating system” on page 35

“System time is incorrect and jobs are not running with the proper time” on page 35

“System time is off more than 2 hours” on page 36

Manage time zones

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.

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 local system time. Depending on the time zone description being used, the iSeries server can now automatically adjust the local system time for daylight saving time observances.

Related concepts

“Time” on page 2

Use this information to understand time concepts such as time zones, coordinated universal time, system time, and job time.

“Set the time zone (QTIMZON) system value” on page 23

View this topic to learn the different ways to set the time zone system value.

Related tasks

“Set up time management” on page 23

View this topic to learn how to set up your systems to use time zones and time adjustment applications.

Create a time zone

View this topic to learn how to create 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 i5/OS is installed, the IBM-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.

To create a time zone, complete the following steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.

2. View the Time Zones 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 might not work correctly when specifying the start and end of daylight saving time.

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 box. 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**.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

Related tasks

“Set the time zone after an IPL” on page 26

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 coordinated universal time (UTC) was not correct during the upgrade or install of i5/OS software.

“Verify the time zone properties” on page 33

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

Edit a time zone

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

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 required authority to edit the time zone.

To edit a time zone, complete the following steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.
2. On the **Time Zones** dialog box, view the time zones 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.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

Related tasks

“I cannot edit my time zone” on page 39

Delete a time zone

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.

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 steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.
2. On the **Time Zones** dialog box, view the time zones 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 box.

Related concepts

“Time zone” on page 9

Use this information to understand the time zones that are included with the system and their properties. You can use one of the time zones included with the system or create your own.

Verify the time zone properties

View this topic to view or change the time zone system value and its associated 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 i5/OS 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 box, 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, create a new time zone.
 - 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 box.

Related tasks

“Verify the system values related to time” on page 30

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

“Create a time zone” on page 31

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

“Offset from UTC was incorrectly set during the installation of the i5/OS operating system” on page 35

“System time is incorrect and jobs are not running with the proper time” on page 35

“System time is off more than 2 hours” on page 36

Verify the time zone message properties

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

If you are using a message file to retrieve the 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 the Standard Time and Daylight Saving Time names for a time zone, complete the following steps:

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 that 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 that **Use name specified in message** is selected.
 - c. Ensure that the **Message ID** is specified correctly.
9. Click **OK** to close the time zone properties.

If the Standard Time or Daylight Saving Time names are still not displayed correctly, continue with the recovery process of the troubleshooting topic My time zone is not displaying the Standard Time and DST names correctly.

Related tasks

“My time zone is not displaying the Standard Time and DST names correctly” on page 39

Troubleshooting

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

Related tasks

Troubleshoot SNTP

Troubleshooting

Related reference

Offset from UTC was incorrectly set during the installation of the i5/OS 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 might not be correct. If you set the time zone before installation of i5/OS, 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 value steps.

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

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

- The offset from UTC (QUTCOFFSET) system value was set to 00:00 (HH:MM) before 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 steps:

1. Verify the time zone properties.
2. Verify the time system values.

Related tasks

“Initial time zone setting” on page 15

During the initial startup, the operating system sets the initial time zone.

“Verify the time zone properties” on page 33

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

“Verify the system values related to time” on page 30

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

Related reference

Offset from UTC (QUTCOFFSET) system value

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

Problem

If your system time is incorrect and your jobs are not running with the proper time, your time settings might 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 might not be specified correctly. The system time relies on a number of settings that relate to time.

Any of the following conditions can 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 might be in progress; thus, the system time has not reached the desired time value yet.
- The time zone properties might 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. Verify the time zone properties are correct.
2. Verify the time system values are correct.

Related tasks

“Initial time zone setting” on page 15

During the initial startup, the operating system sets the initial time zone.

“Verify the time zone properties” on page 33

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

“Verify the system values related to time” on page 30

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

Related reference

Offset from UTC (QUTCOFFSET) system value

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 might 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 incorrectly during the installation of i5/OS due to any of the following conditions:
 - 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 about the implications of manually changing the system time versus using a time adjustment, see Time adjustment.

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

1. Verify the time zone properties.
2. Verify the time system values.

After you determine which method to use to change your system time, see [Update system time](#) 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.

Related concepts

“Time adjustment” on page 7

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.

Related tasks

“Update system time” on page 28

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.

“Verify the time zone properties” on page 33

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

“Verify the system values related to time” on page 30

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

System time adjusted 2 hours for DST rather than 1 hour

Problem

If the current time zone (QTIMZON) system value observes daylight saving time (DST), the system automatically updates the system time for DST. If the system is also set to use other automatic adjustments for DST, more than 1 time adjustment might 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 can have the i5/OS 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 i5/OS 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 steps:

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

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

2. Adjust the system time by 1 hour by completing the following steps:
 - 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.

Related reference

Time zone (QTIMZON) system value

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 steps:

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 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 supposed to be +00:30:00 (30 minutes forward). By this time, the system time had 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 that has already been completed 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 must complete the following steps:

1. In iSeries Navigator, expand **My Connections** → **server-name** → **Configuration and Service** → **Time Management** → **Time Zones**.
2. On the **Time Zones** dialog box, highlight the time zone you want to edit.
3. Click **Edit**.
4. On the General page, click **Permissions**.
5. On the **Permissions** dialog box, 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 box.
8. Click **OK** to close the time zone properties.
9. Click **Close** to close the **Time zones** dialog box.

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 i5/OS in the future.

Related tasks

“Edit a time zone” on page 32

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

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 displayed 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 steps to ensure the time zone names are properly retrieved from the message file:

1. Ensure that the time zone properties specify the correct library, message file, and message ID.
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.

Related tasks

“Verify the time zone message properties” on page 34

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

I want to stop Simple Network Time Protocol

There are circumstances in which you might want to stop Simple Network Time Protocol (SNTP). Use this topic to find out how to do this in different situations.

Problem

You might want to stop SNTP for a variety of reasons. For example, you might 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 might want to complete both recovery methods if you want to stop SNTP immediately and do not want it to start when TCP/IP restarts.

Related concepts

“Time maintenance application programming tips” on page 27

View this topic to learn some basic techniques to properly set up a typical time maintenance application.

Related reference

Time of day (QDATETIME) system value

Time zone (QTIMZON) system value

Offset from UTC(QUTCOFFSET) system value

Method 1: Stop the current SNTP session

Find out how to stop the SNTP server temporarily.

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: Stop SNTP” also.

Method 2: Stop SNTP

Learn how to stop the SNTP client server from starting when TCP/IP restarts.

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: Stop the current SNTP session” on page 40.

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. 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: Stop the current SNTP session” on page 40.

Additional recovery steps

You might need to complete some additional recovery steps to stop SNTP.

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

1. Verify that SNTP’s external time source is specified correctly.
2. Verify that the connection between SNTP and the external time source is working properly.
3. If you are using i5/OS V5R3 or later, verify that the time zone system value is specified correctly.
4. If you are using OS/400 V5R2 or earlier, verify that the offset from coordinated universal time (UTC) system value is specified correctly.
5. Verify that the time of day system value is specified correctly.

When stopping a time maintenance application, you should follow certain simple programming techniques.

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