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Topic#: 002685 Created: September 2012

Introduction

Wonderware Historian supports a real-time window, which is defined as any value between -30 seconds and +999 milliseconds. This time window is the time delay between a data source (AKA I/O server) and the Historian time. If a data value is outside of this window when arriving at the Historian, the value might be discarded. Therefore, it is important to synchronize the time between the system clock for the data source and the Historian.

This *Tech Note* provides a step-by-step procedure for synchronizing the system clocks using the Net Time command and the Windows Task Scheduler. You can perform these steps on your data source computer so as to synch the time to that of the Historian Server.

Application Versions

- Historian Server 10.x
- Windows 2008 Operating System
- Microsoft Task Scheduler v1.0 and later

Procedure

You can use to the Window NET command with the TIME option to synchronize the system clock of one computer with the system clock of another.

1. To display the syntax of this command, open a Command window and type

NET TIME /?



FIGURE 1: NET TIME /? COMMAND

2. Use NET TIME with **/SET** to store the Date and Time information to your local system clock. It will prompt you to confirm the adjustment (Figure 2 below).

Adding /YES will allow the time synchronization without the prompt (Figure 2 below).

In this example, the I/O Server computer is synched to the Historian Server BRIANN5:

NET TIME \\BRIANN5 /SET /YES

Administrator: C:\Windows\system32\cmd.exe	
C:\Users\briannu}NET_TIME_\\BRIANN5_/SET Current time at \\BRIANN5_is 9/24/2012_6:09:27_PM	
The current local clock is 9/24/2012 6:09:27 PM Do you want to set the local computer's time to match the time at \\BRIANN5? (Y/N) [Y]: y The command completed successfully.	
C:\Users\briannu\NET_TIME_\\BBIANN5_/SET_/YES Current time at \\BRIANN5_is_9/24/2012_6:09:44_PM	
The command completed successfully.	
C:\Users\briannu>_	
	-

FIGURE 2: NET TIME \\BRIANN5 /SET /YES COMMAND

- 3. Right-click on the Windows desk top and click New/Text Document.
- 4. Give the file a meaningful name with the .bat extension then save it to a folder. In this example, the batch file is called

TimeSynch.bat.

5. Right-click the file and click **Edit** to edit the file with the NET TIME command similar to the one for NET TIME \\BRIANN5 /SET /YES.

Windows Task Scheduler

Configure the Windows Task Scheduler so that it will run the batch file **TimeSynch.bat** automatically per the schedule you assign to it in the Scheduler.

- 1. Click Start/All Programs/Accessories/System Tools/Task Scheduler.
- 2. To create a new task, click Create Task...



FIGURE 3: NEW TASK

- 3. In the General tab, type a meaningful name for the new task. In this example, the task is called **TimeSynchronization**.
- 4. Click on the button Change User or Group to open up the Select User or Group dialog box.

🕒 Create Task	
General Trig	gers Actions Conditions Settings
Na <u>m</u> e:	TimeSychronization
Location:	\Microsoft\Windows\Time Synchronization
Author:	CORP\briannu
Description:	
- Security opt	tions
When runni	ing the task, use the following user account:
CORP\brian	nnu Change <u>U</u> ser or Group
• Run only	/ when user is logged on
O Run whe	ther user is logged on or not
🗖 Do n	not store <u>p</u> assword. The task will only have access to local computer resources.
🗌 Run w <u>i</u> th	n highest privileges
☐ Hidd <u>e</u> n	<u>C</u> onfigure for: Windows Vista [™] , Windows Server [™] 2008
	OK Cancel

FIGURE 4: TIMESYNCHRONIZATION > CHANGE USER OR GROUP

5. Type the user name **LOCAL SERVICE** then click on the button **Check Names** to make sure the name entered is correct. It should look like Figure 5 (below).

Select User or Group	<u>? ×</u>
Select this object type:	
User, Group, or Built-in security principal	Object Types
From this location:	
BRIANN8	Locations
Enter the object name to select (examples):	
LOCAL SERVICE	<u>C</u> heck Names
<u>A</u> dvanced	OK Cancel

FIGURE 5: CHECK NAMES > LOCAL SERVICE

6. Click **OK**. Chek **Run with highest privileges** and Configured for the <Operating System you are using> (Figure 6 below).

🕒 Create Task		×
General Trig	gers Actions Conditions Settings	
Na <u>m</u> e:	TimeSychronization	
Location:	\Microsoft\Windows\Time Synchronization	
Author:	CORP\briannu	
<u>D</u> escription:		
Security op When runn	ing the task, use the following user account:	
C Run only	y when user is logged on	
C Run whe	ether user is logged on or not	
🗖 Dor	not store password. The task will only have access to local computer resources.	
💌 Run w <u>i</u> t	h highest privileges	
☐ Hidd <u>e</u> n	Configure for: Windows Vista™, Windows Server™ 2008	Í
	OK Cancel	

FIGURE 6: CONFIGURE TASK

7. Click the **Triggers** tab and click **New** to add a new trigger.

() ()	reate Task	ing Constituted Castron			x
G	When you create a tas	k, you can specify the conditions that will trigger the task	k.		
	Trigger	Details	S	Status	
	<u>N</u> ew	lit			
			ОК	Cancel	

FIGURE 7: ADD NEW TRIGGER

8. Click the Begin the task drop-down arrow and click On a schedule.

Figure 8 (below) shows configuring the task to run daily at the time specified. The task will repeat every 8 hours.

Edit Trigger	X
Begin the task: On a schedule	
Settings One time Daily Daily Weekly Monthly Recur every: Monthly	
Advanced settings	
Delay task for up to (random delay): 1 hour	
Repeat task every: 8 hours	
Stop all running tasks at end of repetition duration	
Stop task if it runs longer than:	
Expire: 9/24/2013 🔽 4:44:05 PM 🚊 Synchronize across time zones	
Enabled	
OK Cancel	

FIGURE 8: RUN TASK

- 9. Click OK. It will go back to the Create Task dialog window.
- 10. Click the **Actions** tab then **New** to create a new action.
- 11. Click on the arrow and select Start a program for the Action (Figure 9 below).
- In the Program/script field, click the Browse button to go to the folder you saved the batch file TimeSynch.bat created in Step 3 (above).

New Action		×
You must specify what action this task will per	form.	
Act <u>i</u> on: Start a program Settings <u>P</u> rogram/script:		•
C:\Users\briannu\Desktop\TimeSynch.bat		B <u>r</u> owse
Add arguments (optional):		
S <u>t</u> art in (optional):		
	OK	Cancel



- 13. Click **OK** to close the **New Action** dialog box.
- 14. Next, click the Conditions tab and set the task to Start only if a network connection is available (Figure 10 below).

Wait for idle for: 1 hour ✓ Stop if the computer ceases to be idle □ Restart if the idle state resumes Power	1
 Stop if the computer ceases to be idle Restart if the idle state resumes Power Start the task only if the computer is on AC power Stop if the computer switches to battery power 	
Restart if the idle state resumes Power Start the task only if the computer is on AC gower Stop if the computer switches to battery power	
Power Start the task only if the computer is on AC power Stop if the computer switches to battery power	
Start the task only if the computer is on AC <u>power</u> Stop if the computer switches to battery power	
Stop if the computer switches to battery power	
the second s	
Wake the computer to run this task	
Network	
Start only if the following network connection is available:	
Any remarking	

FIGURE 10: START WITH ANY NETWORK CONNECTION

15. Click the Settings tab and set the task to Run as soon as possible if its scheduled start is missed (Figure 11 below).

🕒 Create Task	×
General Triggers Actions Conditions Settings	
Specify additional settings that affect the behavior of the task.	
Allow task to be run on demand	
Run task as soon as possible after a <u>s</u> cheduled start is missed	
If the <u>t</u> ask fails, restart every:	1 minute 🔽
Attempt to restart up to:	3 times
Stop the tas <u>k</u> if it runs longer than:	3 days 💌
☑ If the running task does not end when requested, <u>f</u> orce it to sto	op a
If the task is not scheduled to run again, <u>d</u> elete it after:	30 days 💌
If the task is already running, then the following rule applies:	
Do not start a new instance	
	OK Cancel

FIGURE 11: RUN TASK ASAP

16. Click **OK** to save the settings.

The TimeSynchronization task is now ready to run automatically as defined by the scheduled TimeSynchronization task.

You can now run some tests to see if the configured task actually works by changing the computer's system clock to a different time, then right-click on the task and select Run. The system clock now should be synchronized to that of the time source.

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Tech Notes are published occasionally by Wonderware Technical Support. Publisher: Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. There is also technical information on our software products at Wonderware Technical Support.

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