Using Symphonie Data Retriever to fix Leap Year timestamps

Introduction

Symphonie Loggers with firmware revisions 8,7 and lower have a problem when they convert internet timestamps to dates in leap years. This affects the file names given to your data files by the logger; the file names are one day ahead of the data timestamps. The data timestamps from stand alone loggers (no iPack) are not affected.

If your Symphonie site includes an iPack and you are using an internet time server to automatically set the logger clock, the logger will set its clock ahead by one day when the clock is set after leap day. Only logger systems using iPacks and internet time servers are affected by this problem.

This Application Note helps explain how to use Symphonie Data Retriever (SDR) version 4.28.01 or higher to scale the timestamps correctly in raw data files affected by this problem.

Determine which Files are affected

Symphonie data files are named by the starting timestamp of the file. When the file timestamp is after 28 February 2003, the data file name will be incorrect, naming the file one day ahead. For example, the data file beginning on 29 February 2003 will be named for 01 March 2003. Data timestamps are still correct for these files unless the clock is set from an internet time server at the end of an iPack data call. When the clock is set by the internet time server, it is set one day ahead.

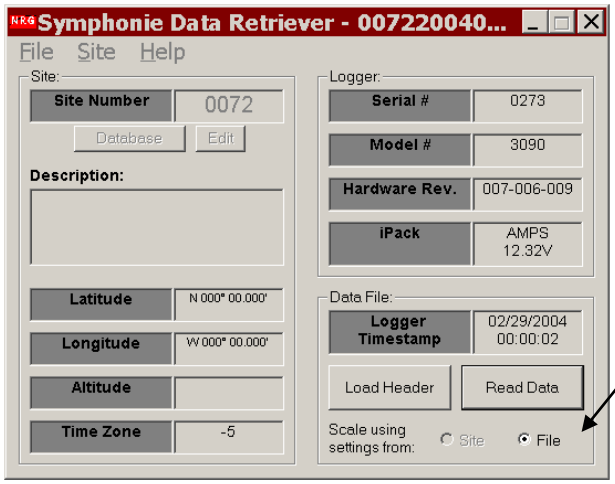
If your Symphonie site does not have an iPack, the clock will not be affected. Skip to “Using the Leap Fix Wizard”, below. When you run the Leap Year Fix wizard, it will ask if you have an iPack. Answer “No”. The wizard will not apply any correction, and it will not need to ask again for this site.

As described above, you can set the iPack to automatically set the logger’s clock at the end of each data call using an internet time server. If your iPack is not set to do this automatic correction, the clock will not be affected. When you run the Leap Year Fix wizard, it will ask if you have an iPack. Answer “Yes”. The wizard will then ask if you are using an internet time server to set the logger clock. Answer “No”. The wizard will not apply any correction, and it will not need to ask again for this site.

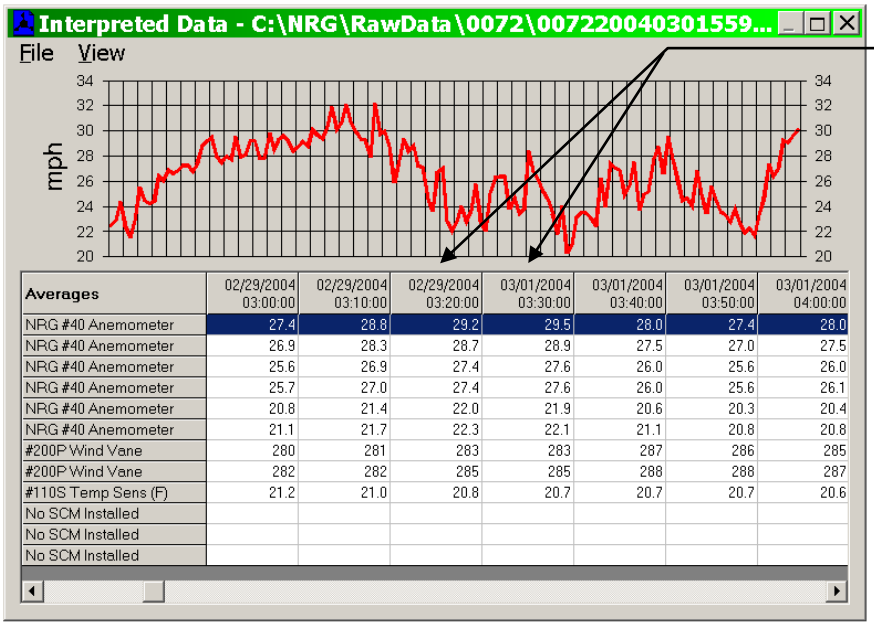
Determine when the clock was set

If your site is affected, the time correction must be applied starting at the time the clock was set. The file that was in progress during the logger’s first call after Feb 28, 2003 will contain the time set event. The timestamps will jump by 1 day. The logger may or may not split the data stream into a new file at the time of the clock set. The affected files will be sent to you during the next call.

Use SDR to look at the data files created around the time of the first call. You can open the files one at a time, and view the data using the "Scale by File" option. Look for the timestamps to jump by one day. See the example below.



Use the "Scale using settings from File" Option to see the raw timestamps

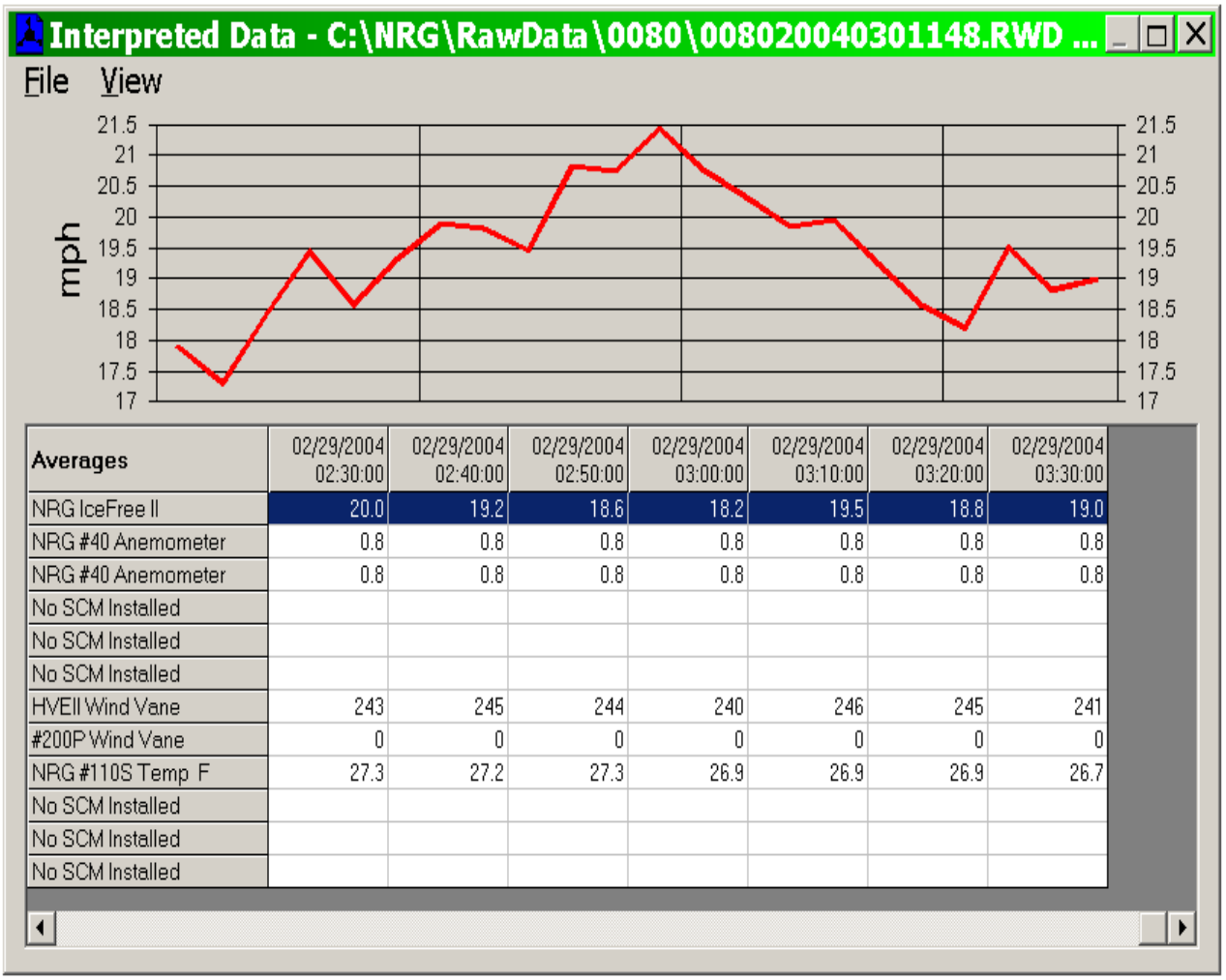


Averages	02/29/2004 03:00:00	02/29/2004 03:10:00	02/29/2004 03:20:00	03/01/2004 03:30:00	03/01/2004 03:40:00	03/01/2004 03:50:00	03/01/2004 04:00:00
NRG #40 Anemometer	27.4	28.8	29.2	29.5	28.0	27.4	28.0
NRG #40 Anemometer	26.9	28.3	28.7	28.9	27.5	27.0	27.5
NRG #40 Anemometer	25.6	26.9	27.4	27.6	26.0	25.6	26.0
NRG #40 Anemometer	25.7	27.0	27.4	27.6	26.0	25.6	26.1
NRG #40 Anemometer	20.8	21.4	22.0	21.9	20.6	20.3	20.4
NRG #40 Anemometer	21.1	21.7	22.3	22.1	21.1	20.8	20.8
#200P Wind Vane	280	281	283	283	287	286	285
#200P Wind Vane	282	282	285	285	288	288	287
#110S Temp Sens (F)	21.2	21.0	20.8	20.7	20.7	20.7	20.6
No SCM Installed							
No SCM Installed							
No SCM Installed							

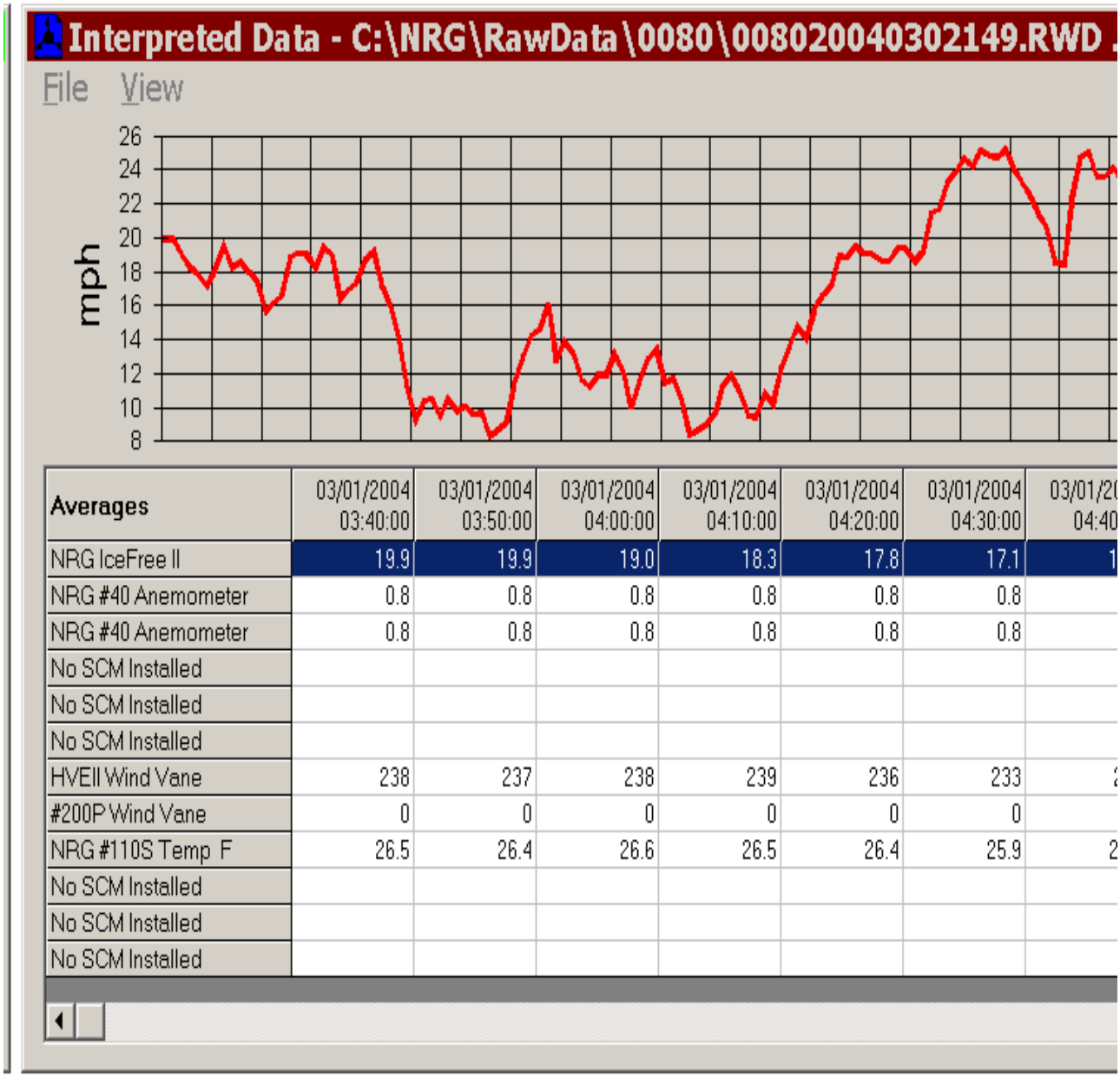
Note that the date changes at the time the clock was set. For this site, 2/29/2004 at 03:20 is the time to begin the correction.

Look for the timestamps in the file to jump from one date to the next while the time stamps remain sequential. The last timestamp before the jump is the time to begin the correction.

Often, the logger will split the data file at the time of the call. In this case, the correction should start at the end of the file before the split. Note the time and date of the last data interval before the jump.



Averages	02/29/2004 02:30:00	02/29/2004 02:40:00	02/29/2004 02:50:00	02/29/2004 03:00:00	02/29/2004 03:10:00	02/29/2004 03:20:00	02/29/2004 03:30:00
NRG IceFree II	20.0	19.2	18.6	18.2	19.5	18.8	19.0
NRG #40 Anemometer	0.8	0.8	0.8	0.8	0.8	0.8	0.8
NRG #40 Anemometer	0.8	0.8	0.8	0.8	0.8	0.8	0.8
No SCM Installed							
No SCM Installed							
No SCM Installed							
HVEII Wind Vane	243	245	244	240	246	245	241
#200P Wind Vane	0	0	0	0	0	0	0
NRG #110S Temp F	27.3	27.2	27.3	26.9	26.9	26.9	26.7
No SCM Installed							
No SCM Installed							
No SCM Installed							

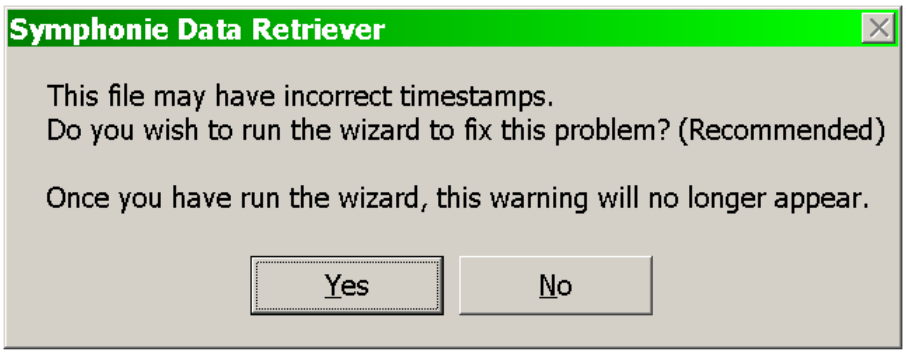


Averages	03/01/2004 03:40:00	03/01/2004 03:50:00	03/01/2004 04:00:00	03/01/2004 04:10:00	03/01/2004 04:20:00	03/01/2004 04:30:00	03/01/2004 04:40
NRG IceFree II	19.9	19.9	19.0	18.3	17.8	17.1	1
NRG #40 Anemometer	0.8	0.8	0.8	0.8	0.8	0.8	
NRG #40 Anemometer	0.8	0.8	0.8	0.8	0.8	0.8	
No SCM Installed							
No SCM Installed							
No SCM Installed							
HVEII Wind Vane	238	237	238	239	236	233	2
#200P Wind Vane	0	0	0	0	0	0	
NRG #110S Temp F	26.5	26.4	26.6	26.5	26.4	25.9	2
No SCM Installed							
No SCM Installed							
No SCM Installed							

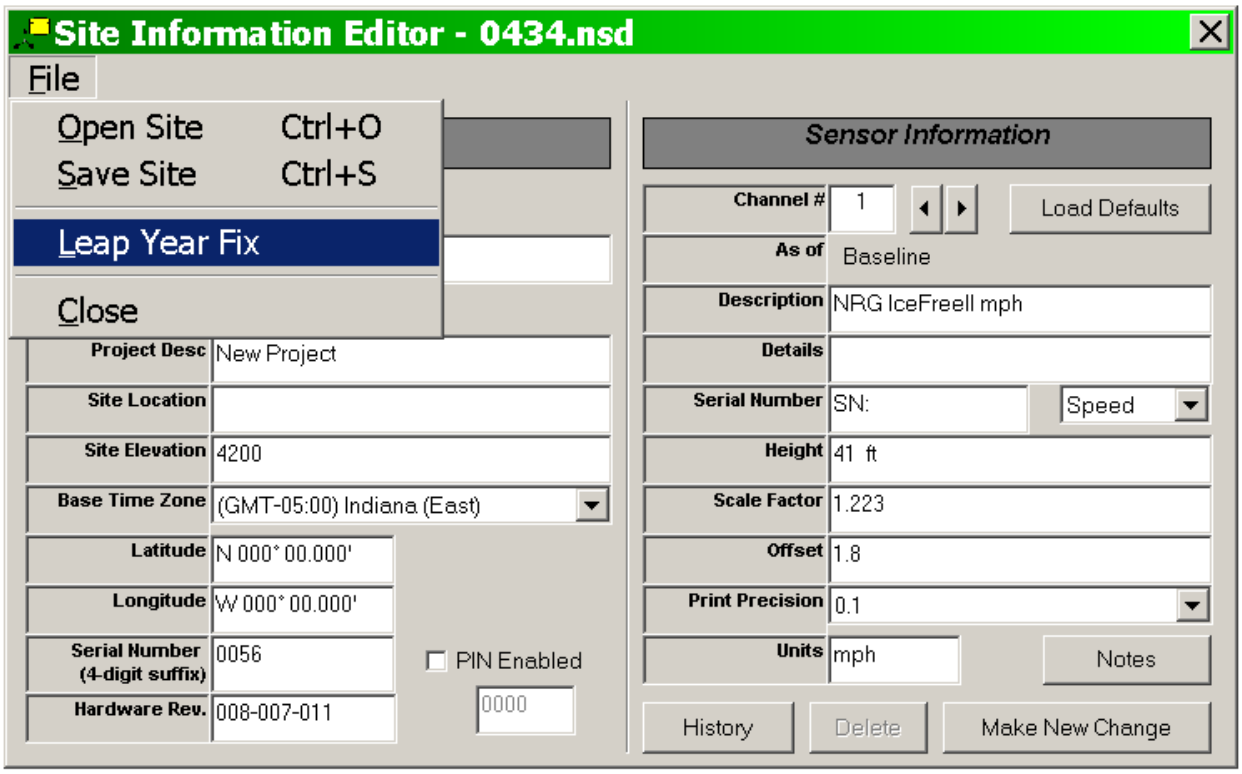
In the screen above, the logger created a new file at the time the clock was set. For this site, the correction should start at the last timestamp of the first file, 2/29/2004 at 03:30:00.

Using the Leap Year Fix Wizard

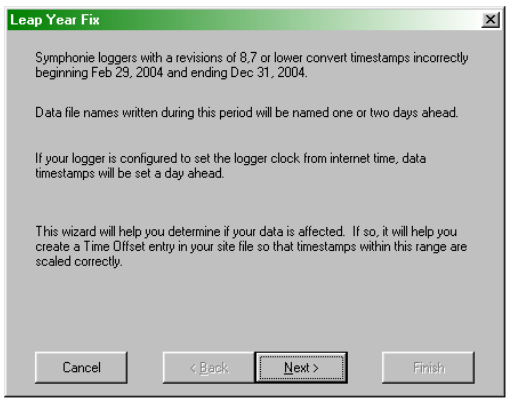
Once you have determined the time to begin the correction, run the Leap Year Fix Wizard. A pop up will offer to start the Wizard when you open a raw data file that may be affected.



Click Yes to start the wizard. The Wizard can also be started manually from the Site Information Editor. To start the Wizard manually, choose File and then Leap Year Fix as shown below.

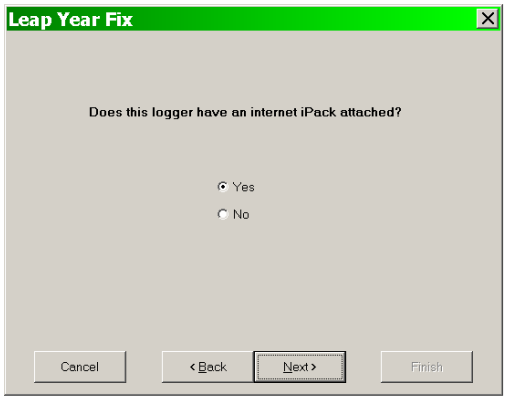


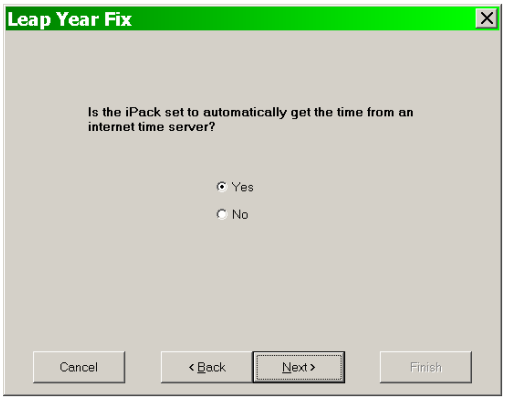
Either way, the SDR Leap Year Fix Wizard will appear. Step One of the wizard explains what it will do. Click Next to go to step Two.



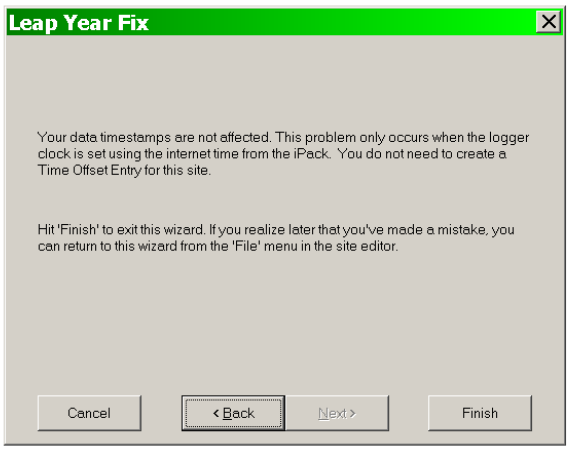
The wizard asks if this site has an iPack. If your site does not, no timestamps are affected. Select No, then click Next.

If you do have an iPack, select Yes and click Next. The wizard then asks if the iPack is set to get internet time and automatically set the clock in the logger. If you configured the "Internet Time Server Name" in your iPack to a valid time server, you should have found the affected timestamps above. Select Yes and click Next.



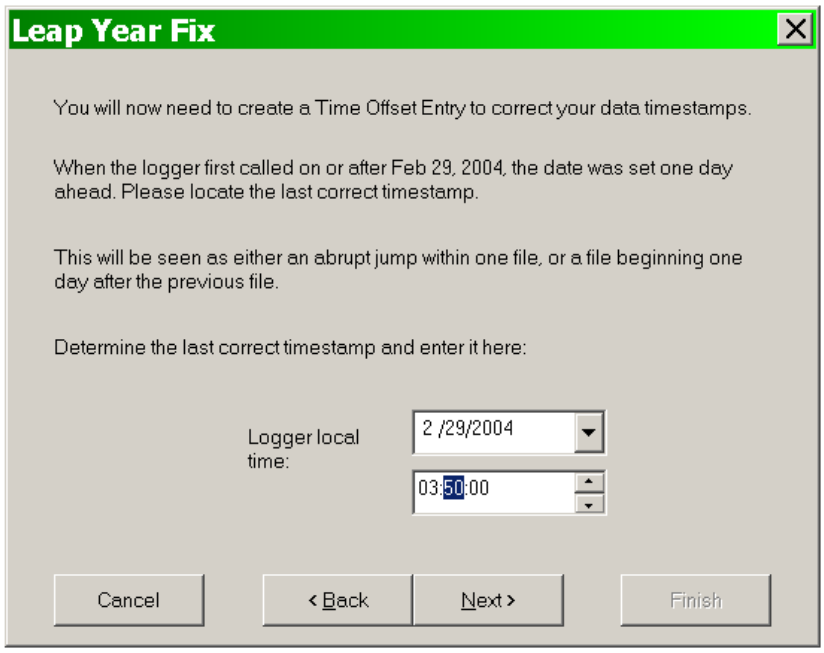


If you answer No to either question, the wizard displays a message explaining that your data timestamps are not affected and that it is not necessary to apply a Time Offset Entry for the site:

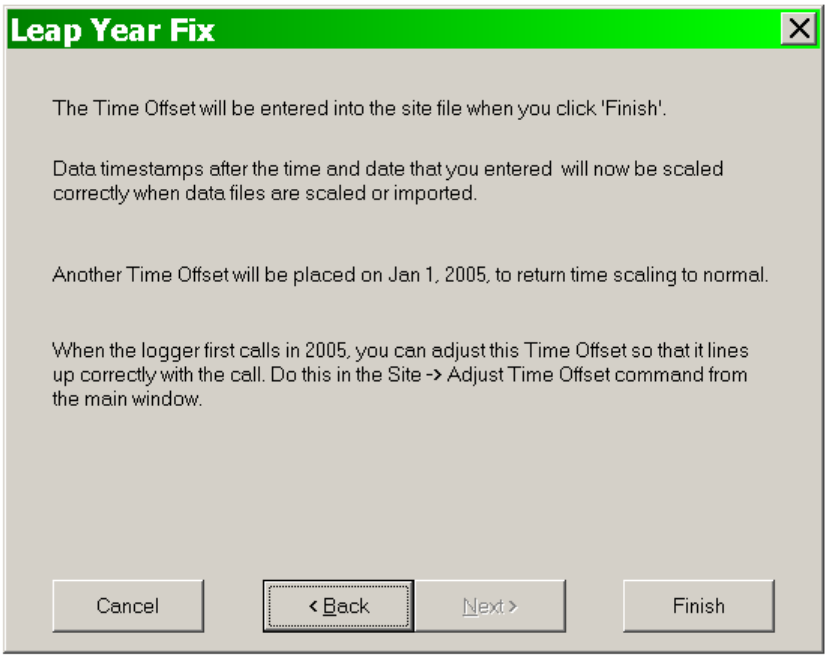


Click Finish. The wizard notes that it has been run for this site, no correction is needed and the wizard will not need to run again.

If you answered Yes to both questions, your timestamps are affected. When you click Next, the wizard displays:



Enter the time of the last data interval before the time set as determined above. Click Next. The wizard displays this message, telling you what it will do:



Click Finish. The time fix entries are now complete, and the wizard will not need to run again for this site.

Rescaling Data

If you have imported raw data to the database before applying the correction, you will need to re-import the files that are affected. It's easiest to re-import all the data for March 2004.

Tips

- Don't try to add the offset manually by adding time offset history entries. The offset entered by the Wizard is marked specially in the database by SDR. These special entries will automatically be disregarded when you upgrade you logger to newer firmware.

- If you import data using the “Silent Batch” feature of SDR, the Wizard pop-up will not appear.

Quality control checks

As always, we recommend that you not modify your raw data files in any way, and always archive these raw files using whatever back up system you normally use.

Make a final check to be sure that the all your data timestamps now flow correctly with no times skipped or gaps of missing data. Most problems are the result of an incorrect starting time and date. If you need to modify the time and date at which the correction begins, you can use the SDR Time Offset History editor to change the starting time and date. If you want to start over, you can delete the two automatically generated Time Offset History entries and run the wizard again. You can start the wizard manually as described above.