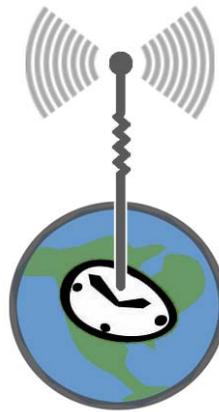


Cell Sync[®]

CDMA Time Synchronization

User's Guide
Version 4.1.0



Fall 2007



beagle software

www.beaglesoft.com

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1.0 Introduction

Beagle Software's ClockWatch Cell Sync keeps a computer synchronized to the Atomic Clock via CDMA cellular broadcast. Cell Sync combines the precision of atomic time with the ubiquity of cell phone service. This pairing makes installing a reliable precision timeserver a simple task; simply plug in the receiver, and it synchronizes itself to the nearest CDMA transmitter in seconds. There are no subscription fees, wireless contracts or any other ongoing charges. The initial investment is the only cost. Time derived from Cell Sync is traceable to NIST (National Institute of Standards and Technology). Cell Sync offers the easy solution for companies with highly secure or remote networks.

Major Features:

- Multiple time sync sources: CDMA, direct modem connection with NIST, Internet.
- Fully redundant and fall back modes.
- Stratum 1 network timeserver—functions as a NTP timeserver.
- Email, syslog and event log notification options.
- Complete kit has easy to install CDMA indoor receiver, antenna, data cable and external power supply.

Tip: Help is available anytime by pressing the F1 key

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2.0 Quick Start

2.1 Hardware Installation and Setup

Unpack

Unpack the receiver, data cable and power supply. Locate the ClockWatch CD-ROM, which has all the installation files you will need.

Position the Receiver

Locate the receiver indoors away from computers and monitors, ideally near a window. Final receiver positioning should be done during the software receiver test.

Plug in the Power Supply

Plug the 100-240 VAC power supply into the wall and screw the 2.5 mm connector on the side of the receiver. The red 'PWR' LED should light when the receiver is powered. When receiving the CDMA broadcast the 'LS' light will blink approximately once every second. Validation begins as soon as the unit is powered.



Connect the Receiver to Computer

Connect the receiver to the computer serial port using the included DB-9 connector and data cable. Verify that 9 pin connector goes into the computer and the 15 pin connector plugs into the receiver.

2.2 Software Installation and Setup

Install the Cell Sync Software

Insert the CD into the CD drive. The installation wizard will auto-start. On the Welcome window, choose "ClockWatch". This will open a Version window, from which you can choose ClockWatch Cell Sync. Accept all default options for the installation wizard, and enter the key code located on the back of the jewel case when requested.

Set Cell Sync to use CDMA as Time Source

Run the ClockWatch program. Select Options and choose CDMA. Select the box to Enable CDMA as time base.

Configure the Receiver In Cell Sync

From the CDMA window (Options>CDMA), select the Setup button. In this window select the CDMA Model (Multitech CDMA) and press the 'Reset'

button. Select the number of the COM port where the receiver is installed. Press OK to save the settings.

Test the Receiver In Cell Sync

From the CDMA window (Options>CDMA), select the Test button. Click Open and observe the data coming from the receiver. Time signal validation begins as soon as the receiver is powered and is done independently from the Cell Sync software.

Monitor the Receiver from Cell Sync

You can monitor the time signal reception from the log window on the main screen of Cell Sync.

Start the Service In Windows (optional)

After Cell Sync verifies that the computer has been synchronized the ClockWatch Service can be started and run to keep the computer synchronized. This service runs whenever the computer is on and the Cell Sync application need only be run to change settings.

3.0 Hardware Installation

3.1 CDMA Receiver Installation

Receiver Location

The antenna/receiver unit is designed to be used indoors. Operation inside some metal framed buildings or buildings with metal reinforcements may be marginal.

Installation

The antenna/receiver should be mounted with the long side horizontal. It may be mounted either flat on a table or shelf, or hung vertically on a wall with the connectors on the side. Use the included mounting ears to attach to a wall or panel. The mounting holes (center-to-center) must be separated by 125mm or 4 -15/16 inches. Attach the four rubber feet if installing on a desktop .



Noise Sources

Avoid locating near suspected interference sources such as: lamp dimmers, fluorescent lamps, electronic igniters, CRT monitors, battery chargers, switching power supplies, motors, automobile ignition systems,

power lines, nearby Cell transmitters. Note: Interference is diminished by the square of the distance (i.e., doubling the distance from the source will reduce its effect by 4).

3.2 Data Cabling

The recommended cable type is RS-232. 4-conductor telephone extension cabling may also be used. Avoid sharp bends in cabling and routing near AC or current carrying wiring.

Serial Cable Length Limits (RS-232)

Table below lists the maximum permissible cable lengths for various protocols at various representative data rates. These lengths are as specified in the EIA RS232C, CCITT V.55 and RS422 interface standards.

Material requirements:

- Conductor size and type: 24 AWG, twisted pair.
- Nominal capacitance: 15.5 picofarads per foot (between conductors of each pair); 27.5 picofarads per foot (from each conductor to shield).
- Nominal DC resistance (each conductor): 24.0 ohms per 1000 feet.
- Nominal DC resistance (shield): 2.35 ohms per 1000 feet.
- Shield type: Overall braided with drain wire.
- Approval: Underwriters Laboratories (UL).

DTE Data Rate [kb/s]	Maximum DTE Cable Lengths [ft]			
	RS232C	V.35	RS449/422	RS530/422
56 or 64	10	4000	4000	4000
224 or 256	N/A	3500	1700	1700
896 or 1024	N/A	1700	350	350

N/A - not applicable (these rates cannot be used for RS232C interface)

NOTE on RS-232 Serial Cables: At lower peripheral speeds of up to 4800 baud, the normal baud rate used in Cell Sync, serial interfaces can usually operate over cables up to 50 feet long. Use of special high quality cable may in some cases allow this limit to be extended to as much as 200 feet.

3.3 Power Supply

- A 5 volt DC power supply maintains power to the receiver. Plug the 2.1mm power connection plug from the power supply into the jack in the Cell Sync receiver.
- Plug the power supply into a 120 VAC outlet.
- Validation of the time signal with the transmitter begins as soon as the receiver is powered.

To reset receiver and force a revalidation: remove power supply and data connection from receiver, then reconnect.

3.4 Connecting Receiver to Computer

- Plug the serial cable from the CDMA receiver into the computer's serial port. The data cable has a male 15-pin connector that goes into the receiver and a female DB-9 connector at the end and plugs into an available serial port (usually named COM1 or COM2) on the computer.
- Note the number of the COM port to which the data cable is connected.

4.0 Software Installation

4.1 Cell Sync Software Installation

1. Place the ClockWatch CD-ROM in the drive and wait for the installation wizard to start. If the CD does not start automatically, select "Setup.exe" on the CD root directory.
2. On the second window of the wizard (Group), choose ClockWatch. On the next window (Version), choose ClockWatch Cell Sync. Follow the instructions and select the default options in the installation wizard.
3. When asked for the key code, enter code exactly as printed **on the sticker on the back of the CD envelope**.
4. When installation is complete, Start ClockWatch from the **Start\Programs\Beagle Software** program menu.
5. Select **CDMA Model number** and connecting **COM port** for the CDMA within ClockWatch **CDMA Setup**.
6. **Test** the CDMA using the **CDMA Test** section within ClockWatch. Note that the initial positional fix may take several minutes.
7. **Enable CDMA as a time base**, set the **Sync Time** under CDMA options. CDMA activity will be shown in the log window of the main ClockWatch screen.

4.2 Cell Sync Options

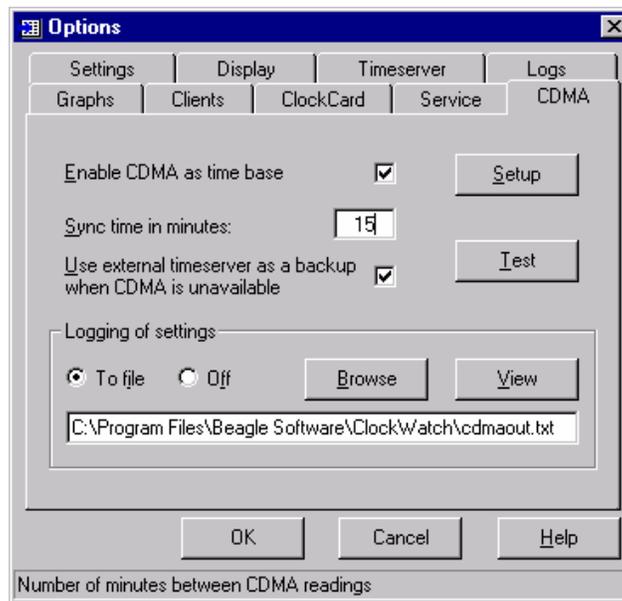
The CDMA options tab (Options>CDMA) in Cell Sync allows the user to set run-time options, such as how often the Operating System time clock is updated from the CDMA broadcast receiver. This window is shown on the top of page 8 in this manual.

Enable CDMA as time base

Check to use CDMA receiver as a time source. This will cause Cell Sync to set the operating system time to the CDMA time at the interval specified. Note that when enabled Cell Sync will access the CDMA at the interval specified independent of the timeserver settings selected (Manual, Periodic, Auto, etc.).

Sync time in minutes

Number of minutes between CDMA time readings.



Use Internet as a backup when CDMA is unavailable

Connect to an Internet timeserver when CDMA is unavailable. Cell Sync will get the time from an backup external timeserver using the settings in the Timeserver tab for which timeserver to use and how to connect to it. Use the warning settings to determine when the backup timeserver should be contacted.

Setup

Opens the form to setup the CDMA connection.

Test

Opens the form to manually test the CDMA connection.

Logging of settings

Logging allows you to create a permanent record of all time settings made through the CDMA receiver.

To file / Off options

To turn on/off CDMA logging. When selected, the logging of time settings is to the named file. The log shows the results of each reading, regardless if the clock is changed or not. When logging is enabled, the status of each attempt is also shown in the timeserver log window (bottom of 3 windows) on the main Cell Sync screen.

Browse

To find an existing log file on your computer.

View

To view the CDMA time setting log file using Windows Notepad.

Log File Name

Enter the file name (with path) for the CDMA settings log. This is the text file where all re-settings of the Operating System clock will be logged. You can view the log from Options>CDMA>View.

Default location:

C:\Program Files\Beagle Software\ClockWatch\cdmalogfile.txt

Sample Log file:

Synchronization Log		12/2/2005 10:01:06 AM			
Date	Time	Difference	Accuracy	Status	Server
05-12-02	10:20:01	-.008	0.0	12	CDMA
05-12-02	10:22:02	-.012	0.0	13	M?00 2000 000 00:00 02
05-12-02	10:23:02	-.048	0.0	5	12/2/2005,16:23:02
05-12-02	10:24:02	-.004	0.0	5	12/2/2005,16:24:02
05-12-02	10:25:02	-.010	0.0	5	12/2/2005,16:25:02
05-12-02	10:26:02	-.077	1.7	0	12/2/2005,16:26:02

The first line is the title and includes the date and time the log was first used. The second line contains the column headers:

Date The date the setting was made (yy-mm-dd).

Time The local time the setting was made (hh:mm:ss).

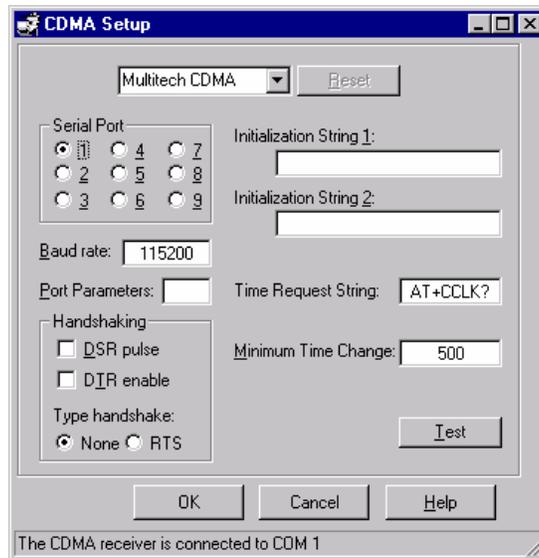
Difference	The difference in the local time from the adjusted CDMA time.
Accuracy	The rate of clock drift in time in terms of seconds per day.
Status	Setting results. For an explanation of codes see below.
Server	'CDMA' or the actual setting string from the receiver.

Log Setting Status Codes

0	SETTING OK	Clock setting made.
1	DATE TIME ERROR	Date/time is invalid: date or time invalid.
2	TIME ZONE ERROR	Time zone is missing: Time Zone error.
3	DATE DIFFERENCE	Dates don't match: date match error. Cell Sync will attempt to reset clocks that in two separate steps (date then time).
4	TIME DIFF TOO LARGE	Time difference was too great, time difference exceeds maximum allowable to make a setting. Cell Sync will confirm before making setting.
5	TIME DIFF TOO SMALL	Time difference is too small; time difference was too small to make a setting. No need to set clock.
7	CANT CHANGE CLOCK	Lacks proper permission to change system clock. Try running as administrator.
9	TIME CONVERSION ERROR	Error occurred during time conversion. Verify that the timeserver format is set correctly.
11	COM PORT ERROR	Can't open serial (COM) port on CDMA.
12	CDMA READ ERROR	Can't read time from CDMA or COM port error.
13	CDMA NOT YET VALIDATED	Receiver not yet validated with NIST
14	TIME CHANGE EXCEEDS AVG	time difference exceeded 3 sigma value, Cell Sync will confirm value before setting clock.
33	INCOMPATIBLE SERVER	Timeserver protocol setting was incompatible.
99	UNKNOWN FORMAT	Unknown time server format.
100	SERVER ERROR	Timeserver not currently available: Internal timeserver error.
200	PARSE ERROR	Parsing return failed: format setting was wrong or time string was corrupt.

4.3 Receiver Setup in Cell Sync

The CDMA setup screen can be accessed by choosing Options>CDMA, then selecting the Setup button. In most cases only the model number and com port need to be set in a new installation.



Model Number

Choose the model number of the CDMA receiver connected to the serial port. When using the Cell Sync receiver, select “Multitech CDMA” Once selected press the **Reset** button to change the options to the default settings for the selected model. If the CDMA in use is not on the list, then enter the settings manually.

Reset

Resets the options to the default settings in Cell Sync for the CDMA receiver selected. Note that the settings are for Cell Sync software only; no settings are changed on the CDMA receiver.

Serial Port

Select the number of the serial port (or COM port) connected to the CDMA.

Baud Rate

Baud rate connection with CDMA receiver in bits per second. Enter the baud rate as a number.

Port Parameters

CDMA communication port parameters: parity, data bits, stop bits (default: n,8,1). This must match the data port on the CDMA.

Handshaking

Handshaking refers to the internal communications protocol implemented in the computer hardware by which data is transferred from the communications port to the CDMA receiver. **Tip:** First try opening the port without any handshaking settings.

DSR pulse: Determines whether to have Cell Sync wait for a pulse on the DSR line before making a time fix. This feature must be implemented in the hardware interface.

DTR Enable: Determines whether to enable the Data Terminal Ready (DTR) line during communications. Typically, the Data Terminal Ready signal is sent by a computer to the CDMA to indicate that the computer is ready to accept incoming transmission.

Handshaking Type: A handshaking protocol is used so data is not lost when it arrives at the communications port.

None: No handshaking.

RTS: RTS/CTS (Request To Send/Clear To Send) handshaking.

Initialization Strings

The initialization strings are optional commands that are sent to the CDMA receiver each time ClockWatch starts and before the first time setting is made. The command strings can be used to configure the CDMA receiver. Both strings are optional.

Use strong validation rules

When checked, applies more stringent rules for qualifying time setting changes such as using multiple validation steps and making smaller, incremental time changes.

Time Request String

Character or string to send to CDMA receiver to get time string.

Minimum Time Change

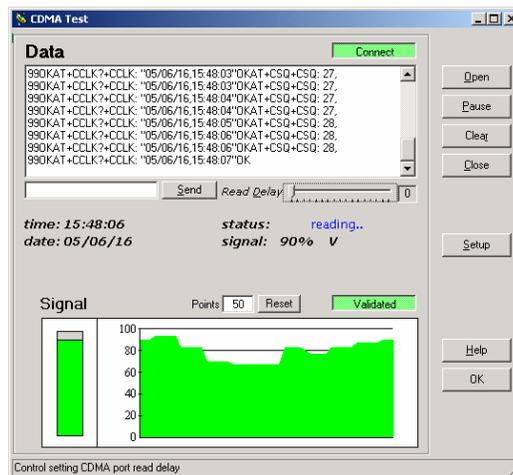
Enter the number of milliseconds for the smallest time change the clock will be set for. This value should be set slightly above the accuracy of the CDMA receiver. Set the value high enough so that the clock will not be changed constantly by a small value.

Buttons

- Test:** Opens the CDMA test screen, useful for verifying settings.
- Help:** On-line help and troubleshooting.
- Cancel:** Return to main option page – no settings are saved.
- OK:** Closes port, saves CDMA settings in ClockWatch and returns to main options screen.

4.4 Testing Receiver in Cell Sync

The Cell Sync test screen lets you to test to see if the Cell Sync program is connected to the CDMA receiver through the computer's serial port and if it is able to communicate thru the data port. After the connection to the CDMA is opened, the test screen shows the raw data coming from the CDMA, displays the information parsed from the raw data, including the date and time, and shows current signal readability.



Data

When the connection to the CDMA receiver is opened shows the raw data strings output by the receiver.

Send

Send a command to the CDMA. After connection is made commands can be sent to the CDMA to query for settings.

Read Delay

To slow down the test screens sampling rate of the CDMA, slide the control to the right.

Time

Time from the CDMA, or if not yet validated, shows the elapsed time the receiver has been working to validate the time source.

Date

Date from the CDMA .

Status

Current CDMA status when connection is open. Status message include

“OPENING PORT”, “AWAITING VALIDATION”, “reading”, etc.

Signal

Signal level from 0 to 100. 100 indicates excellent reception.

Signal Chart

Points

Number of readability points to show in chart (range of 1-3800).

Reset

Press to change the number of points shown in graph.

Readability

Chart showing a map of current signal level. Shows Green when validated, red when validating.

Y Axis: Readability (0-100 scale)

X Axis: Successive readings over time

Buttons

Open: Opens the connection to the CDMA and starts displaying output

Pause: Pause from reading the CDMA output

Clear: Clear the CDMA output box on test screen

Close: Close the Cell Sync test connection

Setup: Open the CDMA setup screen in Cell Sync

Help: On-line help and troubleshooting

OK: Closes connection, and returns to main options screen

5.0 Troubleshooting Cell Sync

Problems with using ClockWatch Cell Sync with a CDMA receiver can be broken down into three categories:

- CDMA reception problems
- Cabling,
- Serial port configuration

CDMA reception problems could be due to antenna reception or atmospheric problems. Connection problems involve the connection of the CDMA to the computer which may be resolved with proper setup. The CDMA requires a special data cable to connect it to the computer.

5.1 Initial Steps to Troubleshoot

- Check the cabling between the CDMA and the computer.
- Use the test CDMA screen in Cell Sync confirm that the CDMA is working and is getting a reasonable signal.

CDMA Issues

- Check that the CDMA receiver has power and is actively receiving.

Cabling Issues

- Receiver side – check the cable connection to the CDMA receiver.
- PC side – note the COM port in use. Verify it is a working serial port. Verify the com port number in the Options>CDMA>Setup screen in Cell Sync. Try a different serial port if the no data can be read.

Data Output Issues

To get the time from the broadcast, the CDMA must first validate the time signal. To view the raw data output from the CDMA:

- First check the setup to see that the CDMA model and serial port are correct (**Options>CDMA>Setup**).
- Open the CDMA Test screen in Cell Sync (**Options>CDMA>Test**).
- Open a connection with the CDMA. Cell sync creates an output file that will save data output from the CDMA for later review.
- Verify that the CDMA is outputting data – the data list box should show strings of letters and number.
- Observe the type of strings of data output. Note the level of the signal. If signal is consistently below 50 then the CDMA receiver will have difficulty validating the time signal in its current position. Try moving the CDMA receiver to a different position noting the change in signal.
- Once the CDMA receiver is validated then the Test screen will show the current time and date.

5.2 CDMA Receiver Reception Problems

My receiver isn't working

- Check that the antenna, data and power is connected to the receiver
- Place the receiver along a wall or near a window.
- Locate the receiver at least 1 or 2 meters away from any computer monitors, which can cause interference..

My clock is off by one or more hours

- Remember, minutes and seconds are the same in all time zones, only hours are different. If your clock is off by one or more hours, it probably has to do with a time zone setting. Make sure you have properly selected your time zone in the Windows Date/Time control panel.
- If you live in an area that does not observe Daylight Savings Time (AZ, HI, parts of IN), make sure that DST is disabled in Windows.

The clock is off by a few minutes or seconds

This can be due to a number of different problems:

- Reception Problems - If your clock isn't currently receiving the signal. Review the setting log will show the time setting and reception history.
- Checking your clock - There is no need to check a properly working CDMA receiver. However, you might want to check it if you suspect you have a problem. You can check your clock by using Internet time setting option in Cell Sync.

The clock switched to Daylight Saving Time, but we don't use DST at this site

- Check the "Always set clock to Standard Time (DST not used)" options on the CDMA setup screen in Cell Sync.

6.0 Other ClockWatch Options

This section offers a brief guide to understanding the Options available in ClockWatch. A complete ClockWatch guide is available for PDF download at <http://www.beaglesoft.com/Manual/CWClServerGde.pdf>

6.1 Settings

Use this window to establish how you want to sync time using the **Internet**. Note: these settings are for Internet, dial-up and direct connection only.

- Manual:** On-demand settings, useful when you want to manually make a single setting.
- Once:** Single-time setting at a future specified time.
- Daily:** Once-daily setting at the same time every day.
- Periodic:** Schedule settings at specific, fixed timed intervals.
- Auto:** Settings made automatically by ClockWatch when the clock is outside of a designated range of accuracy. This is best used when time drift is relatively constant.

Check time at startup: When enabled, ClockWatch will automatically start and run a time setting upon startup.

Check time once and then exit: When enabled, ClockWatch will check the time once using the Internet and then exit.

Force all time settings: When enabled, ClockWatch will force a time setting every time the clock is checked. This overrides the "time setting too small. No setting made" result.

Warn me when time has not been checked every...: ClockWatch will monitor the last time a time check was made. If the last check exceeds the interval limit selected, then a warning will be shown in the Log Window and in the system tray icon.

Send Email Warning

Enables email notification for clock check warnings (see above). When first checked opens up Email notification setup.

Usage Notes

- On Windows 9xMe machines ClockWatch starts on system boot-up.
- On Windows NT/2000/XP/2003/Vista machines ClockWatch is started when the local user logs in to Windows.
- Windows NT/2000/XP/2003/Vista users should consider running ClockWatch as a service.

6.2 Display

The Display window allows you to customize the options for time display and format. You can also set ClockWatch to startup automatically.

Mode (Win XP/Vista)

XP/Vista: Display screens using the XP/Vista style.

Classic: Display screens using the Windows classic (9x) style.

Startup Automatically—Configuring for Auto Startup

ClockWatch can be operated in an unattended mode from the System Tray. When this option is checked, ClockWatch automatically loads and operates in whichever mode it was last configured and then runs in the background. The ClockWatch icon will be available in the System Tray after ClockWatch is loaded. When you use “Startup Automatically” with the ClockWatch service running, the ClockWatch system tray monitor applet will be started instead of the full ClockWatch application when you first log in. This applet monitors time setting status and shows seconds in the system tray.

6.3 Timeserver

The Timeserver window offers a choice for the Internet timeserver used and type of connection you are using. If an Internet connection is not available, you can call the NIST directly using the computer’s modem.

Connection Frame options

Internet/LAN: Communicates directly to the specified timeserver over the Internet, using the protocol and port specified.

Internet/Dial-up: Will first dial your ISP to make a connection to the Internet and then sync the clock using the timeserver specified. For configuration options click **Setup**.

Internet Connection Setup

Click the **Setup** button to configure how ClockWatch will make connection with the Internet. ClockWatch offers several connection options:

Manual Connection: If you establish the connection to the Internet manually, or you normally are connected to the Internet over a LAN or on demand methods such as DSL or cable modems, you should choose the manual connection option.

Have ClockWatch wait for Internet connection: Use this option if you want ClockWatch to wait for the next time you make a connection to the Internet.

Have ClockWatch Automatically Dial my ISP: You can have ClockWatch dial your ISP to make an Internet connection when needed.

Direct modem connection: When selected, uses the modem to call the NIST directly and sync up time signals over the phone line.

Source Frame options

Address of timeserver: Shows the name of the timeserver currently in use. This can be changed by clicking the **Directory** button and choosing another timeserver.

Timeserver Directory: The Timeserver Directory screen allows you to choose a timeserver. You can also test, edit or add timeservers.

Timeserver Test: The timeserver test lets you check both the connection and the capability of local or remote timeservers. Compatibility and connection problems can be diagnosed using the built-in 8 point connection test.

6.4 Logs

The Clock Setting log provides a record of all the settings made by ClockWatch. Once a log file is specified, ClockWatch will add data to the log file each time the program is activated and a setting is made.

Interpreting the ClockWatch Log

This section explains how to interpret the ClockWatch log. If logging is enabled in the **Options>Logs** tab, this log is updated each time a setting is made.

A sample of the log is:

```
Synchronization Log          9/14/98 11:43:12 AM
Date      Time      Difference Accuracy  Status Server
-----  ----  -
98-09-14 11:42:37    2         10.0      5    time-a.nist.gov
98-09-14 11:52:28    0          0.0      5    time-a.nist.gov
```

The first 2 lines show the title and the date and time the log was first used.

The data definitions are:

Date: The date the setting was made.

Time: The local time the setting was made.

Difference: The difference (in seconds) in the local time from the adjusted timeserver time. May be a positive or negative number.

Accuracy: The rate of clock drift in time in terms of seconds per day.

Status: The results of the setting. See Status Result Codes, below.

Server: The name of the timeserver used to make the setting. Direct modem connections will show the phone number dialed.

Setting Status Result Codes

The status result code, found in the Clock Setting log, shows the result of a time setting attempt. Result codes are in section 4.2.

Action Log

The Action Log is a summary view of all current time setting activity. Data is displayed in a list on the main screen and actions are added as they occur. Entries include the origination of the action and the result. Upon starting, the list shows the five most recent events (if available). After the program closes, the action detail can be found in the individual logs.

Columns:

Date: Identifying source icon and date and time in yy-mm-dd hh:nn:ss format.

Source: Internet time setting, ClockCard setting (Option), BIOS clock setting, CDMA time settings, client time requests and clock locking activity are all included in the log.

Note: to show Client/Server activity the “Log as an event” option in the Client Options section must be enabled.

Status: Result of the action.

Time Difference (seconds): If clock was changed shows the number of seconds time setting. For clock locking shows the attempted time change.

Accuracy (sec/day): For clock setting, shows the accuracy in terms of seconds/day.

Tip: You can resort by any column by clicking the column header.

Event Logging

Event logging allows you to write selected action to a text file and/or the NT/2000/XP/2003/Vista event log. This log captures major time setting activities as well as warnings for when there may be a system or time setting problem.

Syslog: when checked, ClockWatch also writes events to a remote Syslog server. When option first checked, opens up Syslog Setup.

SNMP (Client/Server): when checked, ClockWatch sends events to a SNMP network manager by sending a SNMP trap.

6.5 Graphs

The **Graphs** tab offers options for graph display and data charting of computer clock performance.

Clock Drift: Used to turn Clock Drift graph on/off.

Current Settings: Used to turn Current Settings graph on/off.

Previous Settings: Used to turn Previous Settings graph on/off. This graph shows the settings made on previous ClockWatch sessions.

Ignore Zero Differences: If checked, displays only the settings when the internal clock was changed. If not selected, shows all settings in the Previous Settings graph.

6.6 Clients

The **Clients** tab is the main point of control for establishing communication with clients when running Cell Sync as a timeserver.

Listen for Clients: When enabled, ClockWatch listens for time requests on the port specified and responds to time requests from ClockWatch Clients. If client communication is expected then this check box should be checked.

Port Number: ClockWatch listens for time requests from ClockWatch clients on this TCP or UDP port. Specify the port number used to communicate with ClockWatch Clients. The default value is 1001.

Client Protocol: Choose the protocol used to communicate with the time clients. This must be the same protocol and port used by the client in communicating with ClockWatch Cell Sync Server.

Log as an event: When enabled, this option will log individual client requests in the event log showing the date, time and address of the requesting client.

Client Logs

Two reports are available on client contacts with timeserver, the Client Detail log and the Client Summary log.

Client Detail Log

The Client Detail Log shows the time requests from clients. When enabled the report will show every time a client asks the server for the time. the report shows the date for request (Y-M-D), the time of the request, the time zone used (UTC is GMT), the time on the client (if available), the difference in seconds between the client and the server, and the IP address of the client making the request.

```
Client Log 11/16/2006 2:24:20 PM
Date      Time      Lcl Client Time Difference Client
-----
06-11-16  20:24:20  UTC  20:24:25          5    192.168.0.101
06-11-16  20:51:13  UTC  20:51:16          3    192.168.0.102
06-11-16  21:01:24  UTC  21:01:27          0    192.168.0.102
06-11-16  21:11:24  UTC  21:11:29          0    192.168.0.101
```

On/Off

Turn the Client Detail Log on or off.

Log request as an event

When enabled, this option will log individual client requests in the event log showing the date, time and address of the requesting client. See more at Event Logging.

File name of client detail log

Contains the full file name and path of the client requests log file (i.e. C:\Program Files\Beagle Software\ClockWatch\ClientLog.txt). This log shows a list of all the clients requesting time from ClockWatch Server.

View

View the client detail log using Windows Notepad.

Browse

Select a new filename or directory for the Client Detail Log

Client Summary Log

Runs the Client Summary report and opens up the log using Windows Notepad. The summary report shows the total times each client has contacted the server and the time the last contact was made.

Note: To conserve resources the Client Summary Report is normally stored in memory, pressing the View button first writes the report out to the file.

6.7 Bios Clock (or ClockCard, if installed)

The BIOS Clock Options tab in ClockWatch allows the user to update the Windows operation system clock from the BIOS (hardware) clock. If Beagle Software's ClockCard is installed, this option is renamed to "ClockCard" and the time is updated from the ClockCard clock.

6.8 System (Windows NT/2000/XP/2003/Vista)

The Service option shows status of the ClockWatch Service and allows you to stop and start the service. In Windows, a service is a separate process that runs independently of any application and that is normally active whenever the computer is running.

When enabled, the ClockWatch Service runs whenever the computer is running. It functions identically to the ClockWatch application in checking the clock and keeping the time correctly set.

Application Privilege Level (Windows XP/2003/Vista)

This option shows if you are running ClockWatch as an administrator or as a regular user. If the application is running with administrative privileges then the application has complete functionality. Regular users are often not able to set the clock directly. However then can indirectly set the time by sending the time setting request to the ClockWatch service, if it is running.

7.0 Obtaining Technical Support

Web site: www.beaglesoft.com

Consult our web site for the latest updates, technical information and documentation.

E-mail: support@beaglesoft.com

Please be as specific as possible including the program version and the steps to recreate the problem, if possible.

Phone: +1 612-370-1091

Fax: +1 612-605-7138

Refund Policy

In order to receive a refund on a product for the purchase price, the product must not have been damaged by the customer or by the courier chosen by the customer to return the goods. The product must be returned in complete condition, meaning that all cables, manuals, software, etc., are included. The product must be in as-new or re-saleable condition to qualify for refund. Refunds are not issued for shipping charges.

Restocking Charges

Product items returned within 30 days qualify for a full purchase price refund, assuming all qualifications listed above in Refund Policy are met. Items returned after 30 days and before 60 days of purchase will be subject to a minimum 20% restocking charge. Additional charges may apply for damaged or missing parts. Products returned after 60 from the date of purchase, or products that are not returned in as-new or re-saleable condition, do not qualify for refund or credit and will be returned to the customer.

Registered Version

One registered copy of ClockWatch can be installed on a single workstation and used by one or more people.

Limited Warranty

Beagle Software warrants that this product will perform in accordance with the included documentation for a period of 180 days from the date of receipt and that Beagle Software will, at its own discretion, make commercially reasonable efforts to solve any problem issues. This Limited Warranty is void if failure of the software product has resulted from accident, abuse or misapplication.

Governing Law

This agreement shall be governed by the laws of the State of Minnesota, USA.

Limitation of Liability

THIS SOFTWARE AND THE ACCOMPANYING FILES ARE SOLD "AS IS" AND WITHOUT WARRANTIES AS TO PERFORMANCE OF MERCHANTABILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS OFFERED. Good data processing procedure dictates that any program is thoroughly tested before relying on it. The user must assume the entire risk of using the program. ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO PRODUCT REPLACEMENT OR REFUND OF PURCHASE PRICE.

8.0 Beagle Software Information

Beagle Software supplies innovative and useful Internet enabled Windows programs that bring the power of the Internet to the desktop of the user.

Beagle Software is located in Minneapolis, Minnesota, just slightly West of the Mississippi River.

Ordering Information

Web: <http://www.beaglesoft.com/OrderForm.htm>
Email: sales@beaglesoft.com
Mail: Beagle Software
126 N 3rd St, Ste 407
Minneapolis, MN 55401 USA
Fax: +1 612-605-7138
Phone: +1 612 370-1091, 1-877-845-2549

9.0 Specifications	
Transmitter received	CDMA
Receive frequency	Dual-band 800/1900 MHz CDMA
Transmitter locations	Coverage throughout the US, Australia and Asia.
Receiver	CDMA2000 1xRTT Qualcomm® MSM6050 chipset CDMA IS-95A, IS-95B backwards compatible 800 MHz with R-UIM support
Clock absolute accuracy	+/- 0.100 sec upon reception .015 sec/hour drift during loss of signal periods
Inputs/Connectors	RS-232: DB 15-pin female Antenna: SMA Power: 2.5mm miniature screw
Power	Input: 100 to 240 VAC 5 V to 32VDC; 400mA Typical @ 5V, 700mA Maximum @ 5V
Warranty	One year
Weight	1.0 lbs. (0.5 kg) total
Temperature	-30° to +70°C operating range, 0 to 95% relative hu- midity, non condensing
Antenna	SMA external antenna, approximately 3.5" (9 cm) high
Receiver Size	Size: 4.3" w x 2.4" h x 0.94" d; (11 cm x 6.1 cm x 2.4 cm) Weight: 4.2 oz. (120 g), not including cable or power supply Cable: 10' of RS232 cable (included).
Certifications	EMC: FCC Part 2, 15, 22, 24, EN 55022 & EN 55024 Safety: cUL, UL 60950, EN 60950 Network: CDG 1 & 2
	Made in Mounds View, MN, U.S.A.

beagle software

Time Synchronization Solutions

Beagle Software offers a complete line of premier time synchronization products.

Consult our Web Site for more information and updates.



www.beaglesoft.com

612-370-1091