WATTLOG™

User's Guide

Continental Control Systems

Rev 2.5.3

Contents

1 Overview

The WattLog for LonWorks software performs LonWorks network management, data acquisition, and data logging. The main form displays data for each WattNode in a tabular format.

The network management functions support WattNode installation, removal, and replacement. WattNode installation has physical aspects of attaching and wiring the nodes; it also has logical aspects of configuring the WattNodes to communicate with the PC. The PC keeps a network database entry for each WattNode. The process of installation creates a new database entry, assigns each WattNode an address, and configures it to correctly calculate energy, power, and demand data. The PC sends address and configuration messages to each WattNode. This information is stored in the WattNode's nonvolatile memory. The node is now active on the network and measures energy, power, and demand. Removal is when a WattNode is no longer needed on the network. Replacement is for replacement of a defective WattNode.

Network variable communication is the reading and writing of data to and from the WattNodes. A WattNode has three types of variables:

1) Network configuration inputs (NCIs) configure the operation of the node.
2) Network variable inputs (NVIs) are input data to the node.
3) Network variable outputs (NVOs) are output data from the node.

The NCIs and NVIs can be read and written, and the NVOs can be read. A data acquisition and display feature periodically reads and displays energy, power, and demand of all configured WattNodes on the network.

1.1 WattNode Firmware Requirements

WattLog is designed for operation with WattNode Plus models firmware version 2.04 or later. These models contain a separate non-volatile memory chip and updated firmware to support internal data logging. It logs the time and energy to non-volatile memory at the end of every demand interval. The log stores the most recent 3700 data points (38 days of data with a 15 minute demand interval). With this version of the WattNode, it is not essential to keep WattLog running continuously (although it is recommended), because WattLog will automatically recover missing data from the WattNode's internal log.

2 Installation

2.1 Software

To install the software, run SETUP.EXE and follow the on screen directions. WattLog requires Windows 2000 or XP to run correctly.

2.2 Hardware

Follow the instructions in the WattNode user's guide to install the WattNode(s).

You will also need an Echelon LonTalk Adapter for your computer to communicate with the LonWorks network. We highly recommend the SLTA-10 because it can be quickly connected to a serial port and requires no drivers for use with WattLog.

When WattLog runs for the first time or if WattLog cannot establish communications with the LonTalk Adapter, the following dialog box will appear. It is also available in the **Config\LonTalk Adapter** menu.

2.2.1 SLTA

Echelon originally sold the SLTA-2, which has now been superseded by the SLTA-10. If you are using the SLTA-10, we recommend operating in "MIP Mode Firmware". This is configured with the DIP switches on the end of the unit. You should set the switches as follows (this also sets the baud rate to 38400):
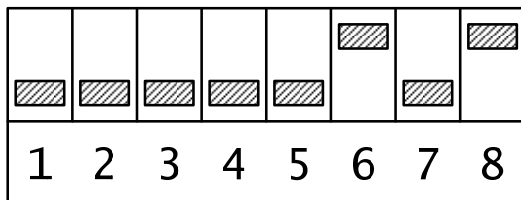
Then choose the **SLTA-2 / SLTA-10** from the dialog box below and select the correct COM port and baud rate (38400). If you are using a COM port number that doesn't appear in the drop-down, you may type your own COM port number.

Once you have chosen the adapter settings, click **OK**. In a few seconds, if everything is configured correctly, the WattLog main screen will appear. If something is not set correctly, then an error message will appear and you will return to the dialog box to change the settings. Sometimes it requires some experimentation to find which settings will work correctly.

2.2.2 PCTLA

If you are using a PCLTA (this does not include the PCLTA-10, which is covered in the **LON** section below), select **PCLTA** from **LTA Type** and then choose the correct I/O base address and interrupt (IRQ) number and press **OK**. If the PCLTA does not appear to be working correctly, try changing to a different interrupt to solve the problem. This setting does not require any Echelon device drivers.

As with the SLTA, you can use the **LON** setting with a PCLTA if you have correctly installed the Echelon device drivers.

2.2.3 LON

This setting should work with Echelon device drivers for LonTalk adapters. You will need to select the LON device number (LON 1 through LON 8). You will also need to indicate whether the driver is a DOS (.SYS file in CONFIG.SYS) or Windows (.VxD file) driver. See the documentation that came with your LonTalk adapter for more information. If you are having problems, make sure that the LonTalk adapter and its driver are working correctly using a tool such as Echelon's NODEUTIL.
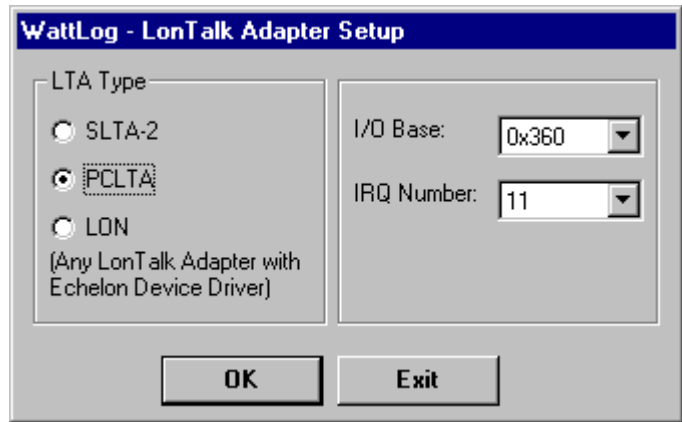
3 Configuration

3.1 Configure the Password

The WattLog software normally operates in a read-only User mode where data and configuration may be viewed but not written. This provides a safeguard against accidental changes to configuration data. Entering the correct password changes the mode to Administrator where the configuration may be changed. The Administrator mode is exited manually or automatically one hour after entry.
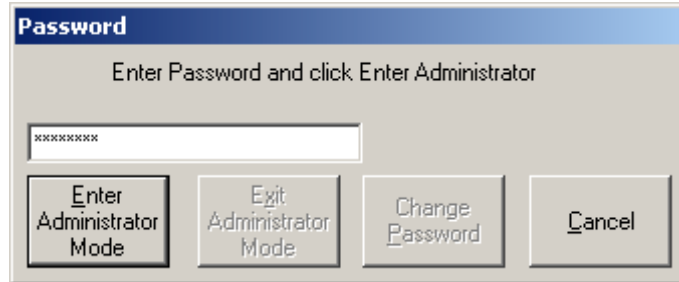
The default password is "password". Use the Config\Password menu to enter the Administrator Mode. Enter the password and then click the Enter Administrator Mode button. To change the password, enter a 3 to 8 character new password and click the Change Password button. To confirm the password, enter it again and click the **Confirm Password** button. The password must be remembered to enter Administrator Mode again.

If you don't want to have password protection, set the password to "OFF".

3.2 Configure Data Logging

The data logging can be changed only from the Administrator Mode. Use the **Config\Data Logging** menu to display the **Log File Setup** form. This form sets the **Display Update Interval, Data Logging Interval**, and log file paths**.**

The **Display Update Interval** controls how often data is read from the WattNode to display in the main grid. A value of 00:01:00 reads energy(kWh), power(kW) and demand(kW) of all WattNodes every minute. For small networks, you can set this to a quick update period, like one minute. For large networks (more than 20 WattNodes), you should probably choose less frequent updates to avoid network congestion.

The **Data Logging Interval** controls the demand interval within the WattNode, as well as the time between writes to the log file on disk. WattLog always sets the number of demand subintervals in the WattNode to one. A value of 00:15:00 writes energy every 15 minutes. The data acquisition time and data logging time are synchronized to midnight so data is acquired and logged at midnight and then at the specified intervals. The **Display Update Interval** and **Data Logging Interval** are restricted to values which divide evenly into 24 hours. This assures that acquisition and logging occurs at the same times every day.

NOTE: all WattNodes should have the same demand interval. If you change the interval, it will only apply to newly installed WattNodes, not existing ones. The only way to change the logging interval for existing nodes is to uninstall and reinstall them.

The log file format is CSV (Comma Separated Variable)
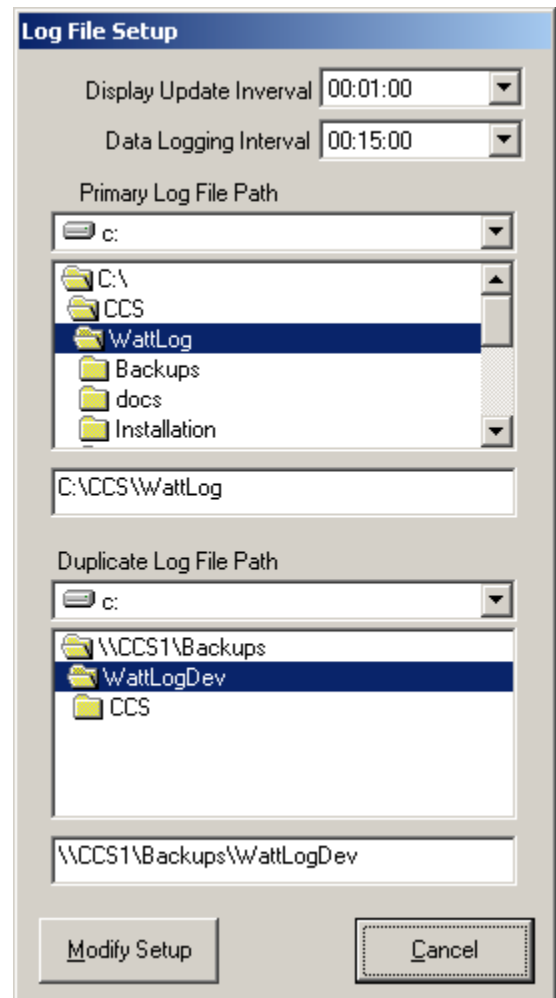
format with date and time in one field.

Data for each WattNode is written into a separate log file and stores the date, time, energy and read method at each log time. Below is a sample CSV file.

```
"Cafe Espresso","Panel A-1"
08/22/1999 14:15:00, 287835.909
08/22/1999 14:30:00, 287836.431
08/22/1999 14:45:00, 287836.946
08/22/1999 15:00:00, 287837.459
08/22/1999 15:15:00, 287837.977
```

The date (four digit year) and time (24 hour clock) are in the first field in month/day/year hour:minute:second format. The energy appears in the second field in kilowatt-hours (kWH).

4 Creating a Network

4.1 Install the WattNodes

First, physically install the WattNode(s) and run the network wiring. Once you've connected the network to the network interface (SLTA or PCLTA), you are ready to perform the logical installation. If the WattNodes you are installing have been used previously, be sure to perform a power on reset (by holding down the service pin at power on for 5 seconds) before re-using the WattNode.

First, be sure you set the **Config\Data Logging** Data Logging Interval value. This value is only written to WattNodes when they are installed. For this reason you must uninstall all WattNodes in your system before changing this value. Next use the **WattNode\Install** menu command, fill out the form and click one of the install buttons. The WattNode Identification section has Name, Location and Description fields. The Name field must be unique for each WattNode. It may have up to 40 characters including spaces. The Location and Description fields may contain any characters except the quote symbol " and commas. The **WattNode Setup** section shows **CT Amps**, **Demand Period**, **Demand Sub Intervals, Subnet Address,** and **Node Address** fields. The **CT Amps** field is the full-scale rating of the CTs connected to the WattNode. For a 20 amp CT, enter 20. The **Demand Period** and **Demand Sub Intervals** are displayed, but cannot be changed here. The **Demand Sub Intervals** is the number of subintervals within a demand period for a rolling demand calculation. WattLog does not support subinterval counts other than 1.

The Subnet and Node addresses are normally selected automatically as the next available address, but you may override the selection if you wish. WattLog will not let you select an address that is already in use.

There are two methods for network installation of WattNodes, **Install by ServicePin** and **Install by NeuronID**. The method to use depends upon personal preference and upon the location of the WattNodes relative to the computer running the WattLog software.

The **Install by ServicePin** method is convenient when the WattNodes are easily accessible and near the PC. After the form is filled out, click the **Install by ServicePin** button on the install form. Then press the Service Pin button on the WattNode you are installing. This button is located on the end of the box next to the network connector and below the LED labeled **Service**. A press of the Service Pin button causes the WattNode to send a message, with its NeuronID, to the PC. The PC then configures the WattNode and it is now functional on the network. The CT Amps, Data Logging Interval, Demand Period and Demand Sub Intervals are written to the WattNode. This process takes about 8 seconds. The status bar at the bottom of the form shows the progress.

The **Install by NeuronID** method is useful when the WattNodes are not easily accessible. This method requires the Neuron ID number on the back label to be copied along with a unique name for each WattNode. The following form is useful for this (there is a larger blank form in Appendix A).

Name	Location	Description	CT Amps	NeuronID
Cafe Espresso	Panel A-1		200	00-01-98-23-28-00
Copy Shop	Panel A-2		300	00-03-00-26-18-00

After the form is filled out, click the corresponding ID in the Uninstalled Nodes section and then click the **Install by NeuronID** button on the install form. The PC uses the selected ID to configure the WattNode. This process takes about 8 seconds. The status bar at the bottom of the form shows the progress.

Repeat these methods until all WattNodes are installed. Remember all previously used WattNodes should be reset to unconfigured before re-installation.

4.2 The Main Grid

The main grid shows a list of all installed WattNodes and most relevant information fields for each WattNode. The currently highlighted line selects the WattNode for any menu commands that operate on a single WattNode like **WattNode\Wink**. Each of the columns is explained below:

- **Name** – this is the name you have assigned to this WattNode. The name in only for information and is not stored in the WattNode itself.

- **Location** – Comment string for the WattNode location

- **Status** – This indicates the status of the WattNode and may be one of the following:
    - o **Normal**
    - o **Needs Download** – this WattNode has data that needs to be downloaded.
    - o **Downloading** – initializing the download process for this WattNode.
    - o **Downloading XX%** – shows progress as this WattNode's log is being downloaded.
    - o **Disabled** – polling and downloading are disabled for this WattNode.
    - o **Dupl Addr** – this WattNode has a subnet / node address conflict with at least one other WattNode and is disabled until the conflict is resolved.

- **Energy (kWh)** – This is the total accumulated energy in kilowatt-hours for this WattNode. This is updated whenever the WattNodes are polled. "ReadErr" means there was an error communicating with this WattNode. "---" means the value hasn't been polled yet.

- **Power (kW)** – This is the most recent polled power in kilowatts for this WattNode.

- **Demand (kW)** – This is the most recent demand reading in kilowatts. This updates at whatever the demand period is set to, commonly 15 minutes.

- **NeuronId** – The Neuron ID for this WattNode. Neuron IDs are completely unique.

- **SubNet / Node** – This is the LonTalk address for this WattNode. Each WattNode should have a unique address and any WattNodes with duplicates will have its status set to "Dupl Addr".

- **CT Amps** – The current transformer rated current in amps.

- **DemPer hh:mm** – The period of a demand measurement in hours:minutes.

- **Sub Ints** – The number of demand subintervals (WattLog currently only supports one subinterval).

- **FirmwareRev** – The WattNode firmware version. This string isn't quite correct, because it shows 2.00 for all 2.0x WattNodes.

4.3 Maintaining the Network

WattNodes may be added with the **Install** menu. They may be removed and replaced with **Remove** and **Replace** menus. The **Wink**, **Test**, **Disable**, **Setup**, and **Browse** commands are useful for maintenance and troubleshooting.

4.3.1 Testing a WattNode

Use the **WattNode\Test** menu command to read and display communications errors and status from a WattNode. The fields are:

- **XmitErrs** - This is the number of transmission errors detected when receiving packets. This can be caused by collisions or interference. A small error count is normal, but a large count may indicate problems.

- **TransTimeouts** - This is the number of transaction timeouts. A transaction times out after enough time and enough retries have occurred.

- **RcvTransFull** - Number of received packets discarded because the transaction buffer was full.

- **LostMsgs** - Number of received packets discarded because the application buffer was full.

- **MissedMsgs** - Number of received packets discarded because the network buffer was full.

- **ResetCause** - The reason for the last reset. Generally this should show "Power-up" or "Software".

- **NodeState** - The configuration state of the WattNode. This should always be "Configured/Online". Any other value indicates a problem with the WattNode.

- **VerNum** - Echelon firmware version number.

- **ErrorLog** - Most recent internal LonWorks error.

- **ModelNum** - The Neuron chip model number. This should always read "0".

4.3.2 Winking a WattNode

Use the **WattNode\Wink** menu command to send a wink command to a WattNode. This causes the WattNode to turn on its Service LED for 15 seconds. The purpose is to identify the WattNode associated with a name.

4.3.3 Replacing a WattNode

Use the **WattNode\Replace** menu command to replace a defective WattNode. First physically replace the defective WattNode with a new WattNode, then highlight the WattNode to be replaced in the grid, then choose **WattNode\Replace** on the menu and press the service pin button on the new WattNode. WattLog copies information from its database to the new WattNode, functionally replacing the defective one. Note that the total energy value inside the new node will be different from that of the replaced node.

4.3.4 Changing CT Amps in an Installed WattNode

Use the **WattNode\Setup** menu to change the location, description and CT amps for a WattNode.

4.3.5 Changing the Subnet/Node Address of a WattNode

Normally, you won't need to do this, but if you have conflicting subnet/node addresses (indicated with "Dupl Addr" in the Status column of the main grid), you will need to fix the conflicts before you can use the WattNodes. Use the **WattNode\Setup** menu to access the Setup dialog, where you can change the subnet and/or node address. Then click Modify to commit the change.

4.3.6 Removing a WattNode

Use the **WattNode\Remove** menu command to logically remove a WattNode from the network. It is best to logically remove the WattNode before physically removing it so WattLog can set it unconfigured. This prevents duplicate LonWorks address errors the next time it is connected to a network.

4.4 Diagnostics

WattLog has several diagnostic capabilities including an event log for alarms and a browse interface for directly viewing and changing LonWorks network variables.

4.4.1 Browsing WattNode Inputs and Outputs

Use the **WattNode\Browse** menu to view WattNode outputs and to view and modify WattNode inputs. The WattNode has many inputs and outputs not used by WattLog.
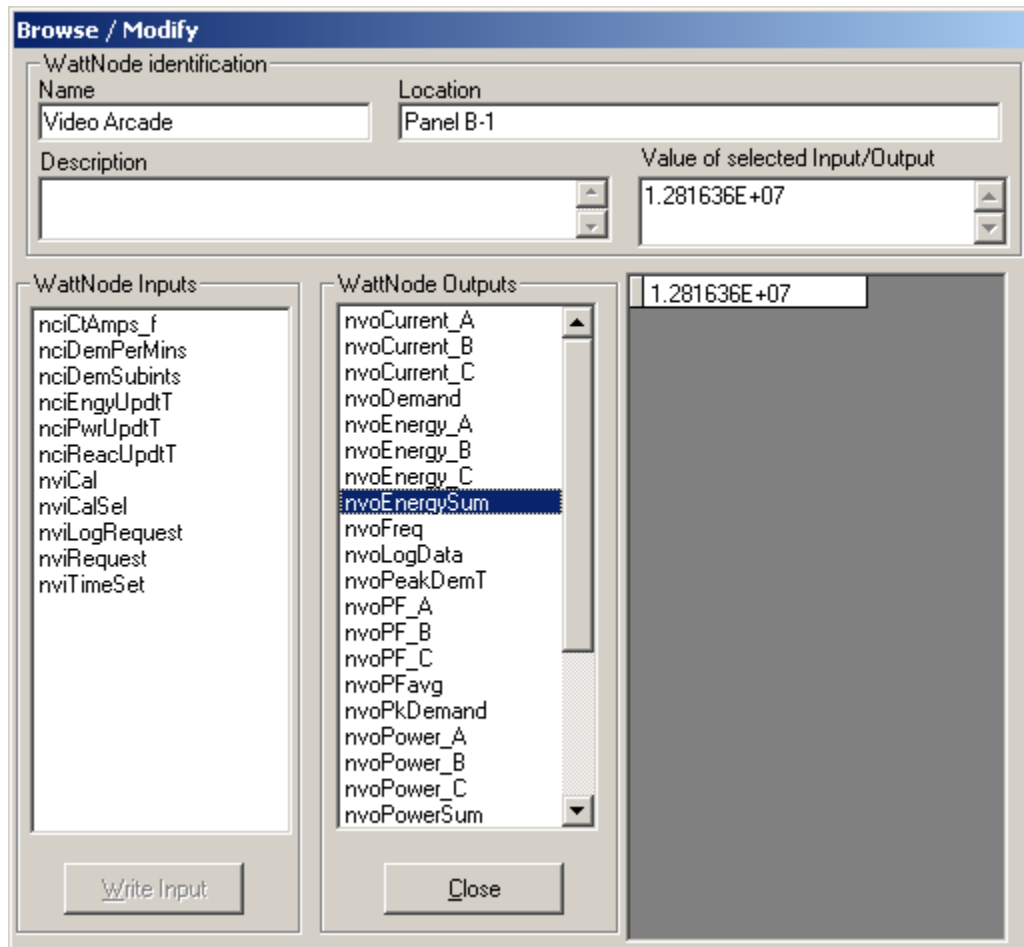
Click on one of the variable names in the **WattNode Inputs** or **WattNode Outputs** boxes to read the current value from the WattNode. The value will be displayed in the **Value of Selected Input/Output** text box and in the grid below. The grid shows all of the various fields within the network variable (useful for complex variables).

To write a variable select an input network variable from the **WattNode Inputs** box. Its current value will be displayed in the box **Value of Selected Input/Output** and in the grid below. Change the value in the text box (not in the grid), and click on the **Write Input** button (note: the WattLog software does not support writing to every network variable type). You will need to click on the network variable again to refresh the display with the new value.

Note! WattLog does not support writing network variables of type date-time as well as some others.

4.4.2 Events and Alarms

WattLog displays a list of significant events (Network management actions, communication errors, etc.) in the Events dialog box. These events are also logged to the file Events-YYYY-MM.Log, where YYYY-MM are the current year and month. These files are stored in the main WattLog folder, generally **C:\Program Files\WattLog**. If an event occurs which would adversely affect the operation of WattLog, such as a WattNode not responding, the alarm window will appear and flash in red.
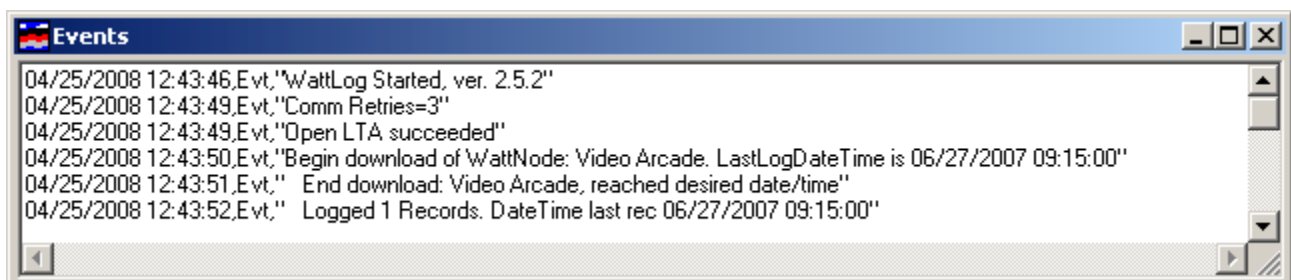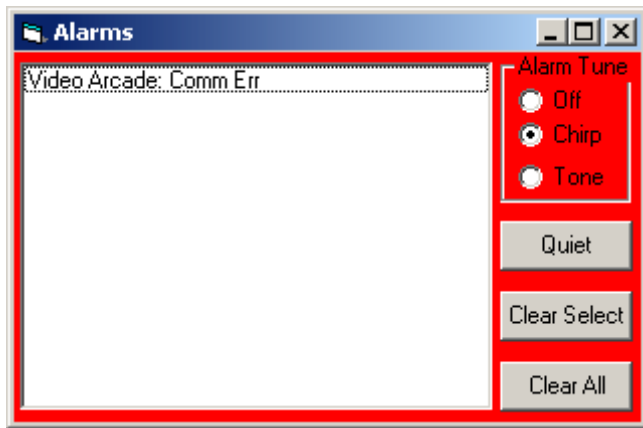
5 Logging Date-Time and Energy

5.1 Logging Overview

Under normal operation, WattLog will check to see if any WattNodes need to have data logged whenever it starts up. It also checks every time a WattNode is polled (you can do this manually with the menu item **WattNode / Poll**). If you have any disabled WattNodes, they will be polled and have log data downloaded as soon as they are re-enabled.

Whenever WattLog thinks any WattNodes need to have log data downloaded, the **Status** column will show "Needs Download". WattLog will work its way through the list of WattNodes, one at a time, download log data. When it starts a download for a WattNode, the **Status** will change to "Downloading XX%", and you will see the percent complete increment as the download progresses. When complete, the WattNode status will display "Normal". If all WattNodes show a status of "Normal" then they are all up-to-date.

5.2 Advanced Logging Information

The following is an advanced discussion of the details of logging. Most users will not need to read this section.

WattLog has essentially unlimited logging capability as it is limited only by disk size. The WattNode has a relatively small amount of nonvolatile memory for storing logged data. Internally the WattNode uses two data tables for the efficient storage of Date, Time and Energy. The Date table has one row per day and has 191 rows. At midnight the Date and Total Energy are written to the next row in the table. After the last row is written, the first row is overwritten. Because the Date table has only 191 rows, the WattNode is limited to 3700 log rows or 191 days, whichever comes first.

The Demand table has one row per demand interval and has 3700 rows. At the end of each demand interval, the WattNode writes time, energy since midnight and the current Date row to the next row in the table. After the last row is written, the first row is overwritten. The Demand table has only the most recent 3700 demand periods.

Date-Time and Energy are computed from the two tables. Start with a Demand row and get its DailyLogRow field. Use this to get the Date field and EnergyAtMidnight field from the Daily table. Now from the Demand row, get the Time field and EnergySinceMidnight field. Add the EnergyAtMidnight and EnergySinceMidnight. Now we have Date-Time and TotalEnergy which WattLog writes to disk.

WattNode DATE TABLE

Row	Date	Energy at Midnight
1	01/01/2002	10000
2	01/02/2002	11000
3	01/03/2002	12000
4	01/04/2002	13000
...	...	...
191		

WattNode DEMAND TABLE

Row	Time	Energy Since Midnight	Daily Log Row
1	08:00	200	1
2	16:00	700	1
3	00:00	1000	1
4	08:00	200	2
5	16:00	700	2
6	00:00	1000	2
7	08:00	200	3
8	16:00	700	3
9	00:00	1000	3
...	...	...	...
3700			

WattLog DISK FILE

Date Time	Energy
01/01/2002 08:00	10200
01/01/2002 16:00	10700
01/01/2002 00:00	11000
01/02/2002 08:00	11200
01/02/2002 16:00	11700
01/02/2002 00:00	12000
01/03/2002 08:00	12200
01/03/2002 16:00	12700
01/03/2002 00:00	13000
...	...

Days to WattNode Log Overflow vs. Demand Interval

Demand Interval hh:mm	Demands per day	Days to Demand overflow	Days to Log overflow
0:05	288	12.85	12.85
0:10	144	25.69	25.69
0:15	96	38.54	38.54
0:20	72	51.39	51.39
0:30	48	77.08	77.08
1:00	24	154.17	154.17
2:00	12	308.33	191.00
3:00	8	462.50	191.00
4:00	6	616.67	191.00
6:00	4	925.00	191.00
8:00	3	1233.33	191.00
12:00	2	1850.00	191.00

5.3 Date, Time and Power Outage

It is important to update the PC clock once per month so the time is accurate. Windows can be configured to automatically keep the time accurate using the Internet: double click on the clock in the system tray, then select the "Internet Time" tab and configure appropriately.

The WattNode does not have battery backed up clocks. WattLog sends WattNodes the time from the PC clock. WattNodes write the time and energy to nonvolatile memory every 15 seconds. Therefore after a power outage, the WattNode recovers the date from the Daily Log and the last saved time. If the power outage is only a few seconds then the time error is at worst 15 seconds plus the few seconds. If the power outage is minutes, hours, or days, then the time error is also minutes, hours, or days. When WattLog is running and connected to the network, it sends the date-time to the WattNodes on startup and every day just after noon. Menu options allow the user to force WattLog to send the date-time to the WattNodes.

5.4 Logging Reliability

The WattLog-WattNode system was designed to have WattLog running on a dedicated computer connected to the network of WattNodes. For maximum reliability the computer should only be running WattLog and have an uninterruptible power supply (UPS).

We recommend you disable any extraneous programs that Windows runs at startup and avoid running other applications. It is also a good idea to reboot the computer weekly or monthly. You may also want to set Windows to notify you when there are updates ready, but not let Windows automatically install security updates, because Windows may then reboot the machine, stopping WattLog.

5.5 Logging Modes

5.5.1 Continuous Logging

Continuous logging occurs when WattLog is running and connected to the network. Three minutes after each demand interval, WattLog reads the WattNode's log to get Date-Time and Energy, and then writes it to the disk file associated with that WattNode.

5.5.2 Intermittent Logging

If WattLog quits running, the PC crashes or the PC is disconnected from the WattNode network, the WattNodes continue to log data. Later when WattLog is started and/or connected to the WattNodes, it automatically determines what data is missing from the PC log, downloads the required data and writes it to the PC log.

If the PC Log files are lost or corrupted, the user can force a download from the present date back to any date still in the WattNode's memory.

The screen shot below shows a download in progress.
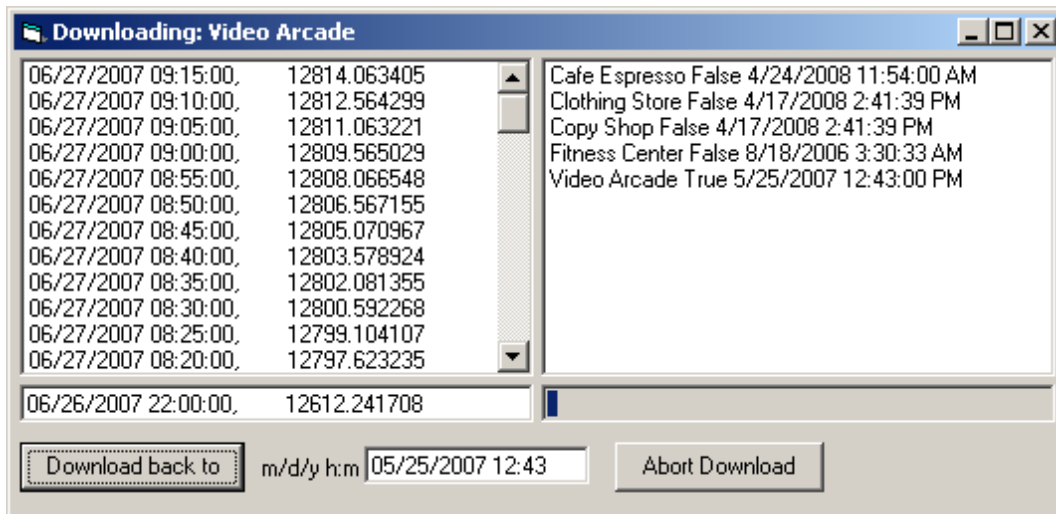
5.6 Emergency Recovery

As with any memory system, it is possible for the WattNode memory to become corrupted. A feature of the WattLog-WattNode system is the ability to copy the entire contents of WattNode's log memory to a PC file. Then CCS personnel can help recover whatever data is available. A severely damaged WattNode can be returned to CCS for possible data recovery.

6 Menu Reference

This section gives a short description of each command in the pull down menus.

6.1 Config Menu

Config	View	WattNode	WattNodes	Help
Password				
Data Logging				
LonTalk Adapter				
Save Grid				
Exit				

The configuration menu allows configuration of the hardware as well as the ability to save a snapshot of the setup in the main display grid.

Password

This brings up a dialog box so you can enter or exit administrator mode as well as change the password.

Data Logging

This brings up a dialog box so you can change the display update interval, data logging interval, and log file locations. Note that you must uninstall all WattNodes on your network before changing the data logging interval.

LonTalk Adapter

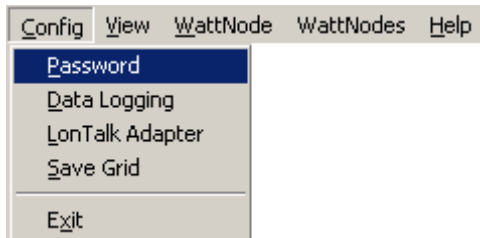This brings up a dialog box so you can change the LonWorks interface type and parameters. This is the same dialog box which appears at startup if your LonWorks adapter is unconfigured or improperly configured.

Save Grid

This saves the data in the WattLog grid display, such as name and location, to a comma separated value file.

Exit

This exits the program. You must be in administrator mode or have set the password to "OFF" to exit the program.

6.2 View Menu

Config	View	WattNode	WattNodes	Help
	Alarm			
	Events			
	Download			
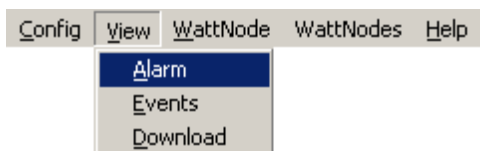
The view menu allows you to bring up various data windows for viewing.

Alarm

This displays the Alarm box. The alarm box will open automatically if there are any alarms.

Events

This displays the Event log box. The contents of this display are the same as those of the file Events-YYYY-MM.log. Many events related to normal and abnormal operation are saved here.

Download

This displays the Download box and for each WattNode it shows whether or not download of the WattNode's internal log is needed (you can also determine this by looking at the Status column on the main screen, which will show "Needs Download" for any WattNodes that need to have their log downloaded. A download is needed when WattLog is started after being off for some time. In this case, the PC disk log is missing recent data and the download process gets the missing data from the WattNode's internal log.

6.3 WattNode Menu

Config View WattNode WattNodes Help

Install
Replace
Remove
Disable
Enable
Poll
Test
Wink
Setup
Browse
Set Online
Set Time

This allows you to install, maintain and trouble shoot configure WattNodes on your network. The selected command is applied to whichever WattNode is highlighted in the grid.

Install

Use this dialog to install a WattNode on the network.

Replace

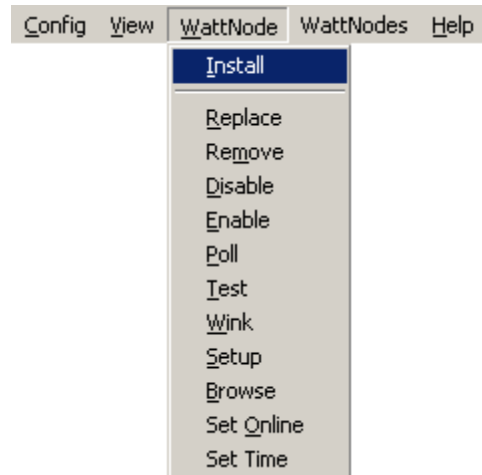This command allows you to replace one physical WattNode with another and automatically copy the address, name, location, description, CT amps and demand setup the new WattNode.

Remove

This unconfigures a WattNode. This is useful if you wish to reset the node before moving it to another network, to remove a node from the database or to reinstall a node.

Disable

For the selected WattNode this disables polling and log downloads. This does NOT actually disable the WattNode, which will continue to measure and log energy. This command should only be used when one or more WattNodes are not physically connected to the WattLog computer and you need to disable polling.

Enable

For the selected WattNode this re-enables polling and log downloads.

Poll

Polls the selected WattNode. This also checks to see if the polled WattNode needs to have log data downloaded.

Test

Shows the cause of last reset and several network related parameters for a node.

Wink

This function causes the service LED on the WattNode to light for 15 seconds.

Setup

Change the location, description, CT amps, subnet address, and node address for a WattNode.

Browse

Browse gives direct access to the LonWorks network variables in the WattNode. This is a diagnostic tool and should be used with care.

Set Online

This sets the node online. Normally this is not needed, but if for some reason a node is set to offline, this can be used to put it back online. The node state can be checked using the **WattNode\Test** menu selection.

Set Time

For the selected WattNode, set its date-time from the PC.

6.4 WattNodes Menu

The WattNodes menu allows you to perform actions that apply to all WattNodes simultaneously, rather than having to perform the action individually on each WattNode.
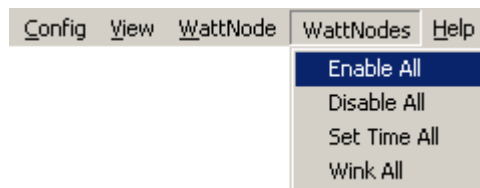
Disable All

For all WattNodes this disables polling and log downloads. This does NOT actually disable the WattNodes, which will continue to measure and log energy. This command should only be used when one or more WattNodes are not physically connected to the WattLog computer.

In the event that many WattNodes are not connected to the WattLog computer, WattLog will start to run very slowly due to network timeouts and retries. This is a useful command to stop polling all the WattNodes. You can then enable just the WattNodes that are connected to poll or download log data.

Enable All

For all WattNodes this re-enables polling and log downloads.

Set Time All

For all WattNodes, set their date-time from the PC.

Wink All

For all installed WattNodes, wink their service.LED for 15 seconds

6.5 Help Menu

About

This shows the version and vendor information for WattLog.

7 Files used by WattLog

Retries.txt – The LonWorks protocol supports communication retries. This file has one number from 0 to 15 inclusive and specifies the number of retries. The default is 3. To edit this value, use notepad or some other text editor. If you use word, be certain to save it as a .txt file.

LogSetup.txt – Setup file from the form "Log Setup"

Field	Description
"00:05:00"	Polling interval for updating the energy display.
"00:15:00"	Log interval for writing energy to disk.
"CSV DateTime"	Log file format.
"Month"	Start new log file every month. Not supported at this time.
"c:"	Disk to store primary log files (those ending with "-1")
"c:\WattLog"	Path to store primary log (those ending with "-1")
"e:"	Disk to store duplicate log (those ending with "-2")
"e:\WattLog\Backup"	Path to store duplicate log (those ending with "-2")

LTASetup.txt – Saved setup from the form "LonTalk Adaptor Setup"

"LON 1"	Example when Lon driver is used.

"SLTA COM1 38400 autobaud"	Example of SLTA without Lon driver.

NextNetDomain.txt – Next LonTalk address to use. The subnet and node addresses from this file are no longer being used, because WattLog has been updated to scan the installed WattNodes to determine the next subnet and node address to use. Only the domain is still used and the domain defaults to zero length domain.

"",1,1	Domain, subnet and node

Password.txt – Encrypted version of the password. Note, to disable the password, use WattLog to set it to "OFF".

B40D47A319DA5883	Encrypted password

WattNode.txt – This is the old configuration file used to store information about all installed WattNodes. If you upgrade from an old version of WattLog to version 2.5.2 or later, WattLog will read this old file format, then rename this file to WattNode.txt.old and will create a new WattNodes.txt file to use instead.

WattNodes.txt – This is the configuration file used to store information about all installed WattNodes. It also stores the date and time when log data was last retrieved from each WattNode. This is a comma separated text file, with information for one WattNode per line. The fields are:

- **Name** – this is the name of the WattNode in WattLog (the name in only for information and is not stored in the WattNode itself).

- **Location** – Comment string for the WattNode location

- **Description** – Comment string for the WattNode.

- **CtAmps** – The current transformer rated current in amps.

- **DemandPeriodMinutes** – The period of a demand measurement in minutes.

- **DemandSubints** – The number of demand subintervals (WattLog only supports one subinterval).

- **NeuronID** – The Neuron ID for this WattNode. Neuron IDs are completely unique.

- **ProgramID** – This identifies the WattNode model and firmware version.

- **DomainID** – The network domain ID.

- **Subnet** – The network subnet address. Normally 1 for small networks.

- **Node** – The network node address, ranges from 1 to 127.

- **FirmwareRev** – The WattNode firmware version. This string isn't quite correct, because it shows 2.00 for all 2.0x WattNodes.

- **EnergyOffset** – This can be used to program an offset to the energy value, commonly used when replacing a WattNode and you want the energy total on the new WattNode to match the old one.

- **LastLogDateTime** – The date and time of the most recently retrieved log record.

- **Disabled** – This field is normally 0, but can be set to 1 for WattNodes that are disabled in WattLog (disabled meaning WattLog doesn't try to poll or download data).

8 Troubleshooting

8.1 Communications

Problem: There is no communication with <u>any</u> installed WattNode.

Solution: Check that the LonTalk adapter is installed, configured, and cabled.

Problem: There is communication with some WattNodes but not others.

Solution: Check that the network cables and power are connected to the WattNodes.

Problem: There is intermittent communication with some of the WattNodes.

Solution 1: The WattNode cabling may exceed the distance specifications or the number of installed WattNodes may exceed 63 thus loading down the signal. In either case the solution is to add physical layer repeaters to retransmit the messages.

Solution 2: Check that the FT10 termination circuit is connected as shown in the "LONWORKS. FTT-10A Free Topology Transceiver User's Guide"

Solution 3: There may be two WattNodes with same address. Two numbers comprise the address: Subnet (1 to 255) and Node (1 to 127). Each time a WattNode is installed, the Node increments by 1. If Node > 127 then increment the Subnet and set the Node to 1. This gives each WattNode a unique address. So how could two WattNodes have the same address?

Suppose someone has WattLog and WattNode at two separate buildings. Both are likely to have WattNodes with addresses of 1,1; 1,2; 1,3; etc. If an already installed WattNode is taken from one building and connected to the network in the other building without reinstalling it, then it is possible you will end up with two WattNodes at the same address. Duplicate addresses can also happen if you manually edit your WattNodes.txt file.

Here are some possible ways of discovering this problem:

1. If WattLog is aware of the duplicate addresses, it will mark the WattNodes with "Dupl Addr" in the "Status" column of the main display, allowing you to find the problem and fix it with the menu command **WattNode / Setup**.

2. If you can see the WattNodes then use the wink command and see if two WattNodes turn on their LEDs.

3. Recall if WattNodes were moved from location to location without reinstallation.

4. Disconnect WattNodes until the problem goes away

Appendix A - WattNode Installation Table

Name	Location	Description	CTAmps	NeuronID
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