

RL2000 Operations Manual

V3.00



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Edmonton, AB

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Introduction to RL2000

Thank you for purchasing RL2000! RL2000 is an evolution of the original ReeLogger product, adding multi-channel logging capabilities to proven, time-tested technology introduced by ReeLogger.

What is RL2000? It's a multi-channel radio station logger system in a box - **or** - a multi-channel aircheck skimmer in a box - **or** - a multi-channel program recorder in a box - **or** - a combination of radio station logger and aircheck skimmer in a box. As many as 4 stereo channels of audio can be logged or skimmed concurrently. What's even better, the box is an off-the-shelf personal computer!

A major benefit of logging or skimming audio to a PC-based system is that the audio can be made available for review to virtually anyone you choose, whether the reviewer is in-house on your local area network or perhaps thousands of miles away. Logged or skimmed audio can be available to multiple, concurrent users.

As hardware technology has advanced, producing faster off-the-shelf computers, bigger, faster hard drives, and less expensive fault-tolerant hard drive arrays, it became feasible to support not just a single stereo logging system on a PC (as ReeLogger does), but rather, as many as 4 stereo channels logging audio concurrently.

RL2000 is a Windows 9x or Windows NT-based (preferred) based system that allows complete walk-away capability. The system automatically will roll over at month end, unlike traditional methods of using logger tapes and other digital systems. It will support up to 3 months of audio logs on-line, with automatic rollover. If you need to archive or store audio for longer periods of time, you can copy the audio files to other storage media. Included with every turnkey system RL2000 is a 2 gigabyte Iomega JAZ system. This allows storage of about 1 week's audio on a removable cartridge. Beyond the built in Jazz drive are tape backup systems that will allow an entire month to be stored on a data cartridge, CD-RW, and the emerging DVD-RW technologies.

To simplify the process of producing submissions for government reporting purposes (i.e., CRTC), a program called ReelArc is included. This software allows the user to choose which days they want to archive and press the go button. A complete archive is then copied to the backup media. In Canada, the CRTC has been equipped with a playback computer capable of accessing RealAudio files stored on Iomega JAZ cartridges.

To accomplish the task of storing audio of significant magnitude on hard drives and maintaining some efficiency relative to how much drive storage is used requires substantial levels of audio compression. Many compression schemes exist today. For RL2000, we singled out one compression scheme that provides many benefits to the end user.

The format chosen was Progressive Networks "RealAudio". RealAudio is the de facto standard of the Internet. It affords high levels of lossy compression with acceptable audio quality. Having been designed for network based replay, the compression schemes lend themselves nicely to audio logging needs.

There are several "flavors" (sample rate, data reduction rate combinations) available in this environment, allowing you to select the quality level you wish to use for logging or skimming. The end-user can then balance their need for quality levels against storage required or available.

Commercially available players allow the end user many different choices for the office environment. Many users likely already have a suitable player installed on their PC, one that could be used for review of logged or skimmed audio.

Let's take a moment to discuss data storage. Any form of long-term storage requires some level of backup to provide the assurance the information is available when required, especially if the information

is required by law to be available on request. A long-standing axiom in the computer industry is "It's not **if** a hard drive will fail but **when** ..." Keeping this in mind, the end user must realize that the potential for significant data loss can occur.

As a manufacturer we attempt to single out components that have high MTBF ratings, but these even prove fruitless at times. The best safeguard to protecting your data is to routinely back it up. While our original design for RL2000 was to provide an economical replacement to analog storage systems, we recognized the need for backing up the information, too. We have successfully tested a number of different tape-based archiving systems. These are not part of the RL2000 system but are commercially available from your RL2000 dealer and can even be ordered with your system. We strongly recommend that you consider purchasing a system to work in conjunction with RL2000. Because RL2000's audio files are stored on hard disk, you may already have other data backup systems in place today that could be used.

Given that the data storage requirements for multiple stereo channels is significant, you may wish to consider using a RAID array as the data storage device. You also run redundant RL2000 systems (requires a second software license).

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Installation

There are several different methods of installing RL2000; we will explore a basic radio station implementation here. Custom options are available and you should discuss these with your sales representative.

Normally RL2000 will be shipped fully configured for use, including hardware. If you have purchased just the software and intend to supply your own machine, refer to Appendix B - Detailed Installation Instructions. If your hardware has been supplied by your RL2000 dealer, the installation requirements for you are summarized as follows:

1. Unpack RL2000, open case and verify all components are properly seated
2. Connect RL2000 to a suitable UPS device.
3. Position Computer in a location that will provide adequate airflow for the internal fan.
4. Provide an Unbalanced audio source of approximately -15 dbu for input to the system.
5. Select the appropriate recording algorithm. This should be based on available drive space and quality requirements.
6. If required, configure the system to attach to your Local Area Network.
7. If required, attach phone line for remote access.
8. Configure Audio Levels.
9. Make a test recording.
10. Begin using RL2000.

After receiving your RL2000 system please carefully inspect it for any damages that may have occurred in shipping. If you note any damage please advise your dealer as soon as possible.

We recommend that a visual inspection of the personal computer be made prior to the application of power. Find an open work surface to place the PC on, remove the screws attaching the cover to the unit and carefully remove the cover. Visually inspect the internal cards, looking for any that may have become dislodged during shipping. If all looks OK, replace the cover and reinstall the screws.

The AC power input to RL2000 should source from a true UPS power source; this will provide maximum protection to your investment and will minimize the potential of loss of data.

Locate the RL2000 PC in a well-ventilated area. Make sure there is adequate air flow available around the fan located in the back of the PC. This fan supplies cooling to the power supply and the PC, it should have a clear and unobstructed area.

The standard configuration of RL2000 utilizes industry-stand PC sound cards for audio input and output. These cards require unbalanced connections; suitable balancing devices may be required to connect to your broadcast facility. Your RL2000 dealer can supply these components, please call them for details. Once you have connected the audio input to the PC, adjust it so at the input to the audio card is at

approximately -15dbu. Mult-channel sound cards in some cases have balanced connections available. Be sure you know ahead of time the required connection type.

Next, connect the video monitor, keyboard, mouse and speakers. Please verify all connections are properly seated and all attachment screws are tight.

You are now ready to power the system. If the system was purchased complete (hardware and software), RL2000 will be fully installed. If you have purchased only the software, installation instructions will be included in a separate manual accompanying the software disks.

Turn on the power and watch the video monitor, the PC will perform its low-level tests and should begin to start loading the operating system (Windows 95 , Windows 98, NT, Windows 2000). If any errors are noted here such as disk errors, etc. Please contact your dealer immediately.

After Windows initializes, RL2000 will automatically launch. This is the default installation for RL2000. You will see the RL2000 splash screen for approximately 5 seconds after which the RL2000 users dialog should appear. At this point we should be recording, you will observe this by seeing a large red colored dot on the display and the word "Recording".

Note: If you are using Windows NT or Windows 2000, you may wish to enable automatic login for the unit. See your operating system instructions for information on how to accomplish this task.

If known prior to shipping, your dealer will have configured your system for the desired mode and compression flavor.

The first thing that should be done at this point is to adjust audio levels for optimum performance. Select the Mixer button - this will launch the Windows mixer. By default you will see the playback mixer control, we need to select the record mixer before making any adjustments. Select **Options | Properties**, from here you will see a drop down panel marked "Mixer Device". Clicking the down arrow will present the available mixers. By default RL2000 uses Mixer 220 as the record mixer, select this one. Next we need to select recording in the panel "Adjust Volume for" then press OK. You will now see the mixer level adjustments for the input to RL2000. You should also see a small bar graph beside the "Recording Volume Control" adjust the "Line Input Control" so that adequate input level appears on this meter. To minimize clipping it is recommended that peaks occur in the yellow and seldom in the red. After adjusting this level we need to adjust your playback level. Select Options|Properties and select mixer 240 and adjust volume for playback. Set the mixer volume control to 75% and the Wave mixer control to about 75%, this should provide adequate levels for monitoring. Select Options|Exit to close this mixer panel.

Verifying the playback portion of RL2000 is simple if you have selected the AutoPlay Current Recording option in the system configuration. The audio is looped through the output, so you have instant verification.

After successfully receiving audio, you may wish to connect a silence sensor to the line out jack on the Playback card. We recommend that you set the delay for at-least 30 Seconds.

At this point, installation and setup is complete. We recommend that you take some time to familiarize yourself with the workings of RL2000 and its setup. Once you have it in full-time service, it will be more difficult to "play around" with the system.

You may also wish to set the machine up to function on a network or be available for dial in remote access. This is beyond the scope of installation, you can review the later chapter on Networking Ideas. Also you should familiarize yourself with the configuration program RL2000 Config.

RL2000 can also be run in a Schedule/Skimmer mode. If you wish to use RL2000 as a skimmer, see Appendix C, which details the additional needed wiring.

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RL2000 Configuration

RL2000 Configuration can be accessed via the Windows program menu. **Select Start | Programs and RL2000.** Click on the title **RL2000 Config.**

You will see a screen like this:

From here you can customize all features of RL2000, if available prior to shipment from the factory the system will have been configured as per the station specifications. It is advisable that the user learns what is available within this program.

Configuration Data

Output Directory

Output directory will specify where RL2000 will store the actual audio files, these files will all have the extension of "ra". RL2000 use's a simple file naming convention as follows. **XXYY-ZZ.ra**, where:

XX = Day of the month ~ ranging from 01 to 31

YY= Hour of Day (Military) ~ ranging from 00 to 23

ZZ = Additional cut within that hour ~ ranging from 01 to 99.

RL2000's logic will detect a previously recorded audio cut and will check to see if the date is valid, if it is it will add the cut extension to protect from overwriting the existing audio. The situations that would lead to this happening are. Someone stops recording and starts again with in the same hour; the system is restarted within the same hour. During the fall daylight savings change we fall back an hour, RL2000 will thus detect this and make the second hour a -ZZ.ra file.

If RL2000 is configured for 60-day storage, this directory will be used for months 1, 3, 5, 7, 9, or 11 (January, March, May, July, September or November). If the configuration is for 90-day storage, this directory will be used for the months 1, 4, 7 or 10 (January, April, July or October).

Output Directory 2

If your system is configured with more than one drive surface for storage a second audio path can be entered here. The logic in RL2000 will then split the month after day 15 and place all audio files in this location if RL2000 is configured for 30-day storage. If RL2000 is configured for 60-day storage, this directory will be used for the months 2, 4, 6, 8, 10 or 12 (February, April, June, August, October or December) of a given year. If configured for 90-day storage, months 2, 5, 8, or 11 (February, May, August or November) will be stored in this location.

Output Directory 3

If your system is configured to store 90 days of log files, this directory will be used for months 3, 6, 9, or 12 (March, June, September or December) in a given year.

Ram File Directory

The location of .RAM files. To simplify the playback of audio files, RL2000 creates automatically ASCII text files with the syntax of Day**XX**.ram, Where **DayXX** = the day of the month.

Within these files RL2000 stores the names of the actual audio files it has recorded for that day. Using a Real Audio player the user may select either this file or the individual hours and playback the audio. Using the ram files allows the convenience of having the entire day play back for you. The Real Audio player has built in features for handling these text files that allow advancing through the files by using the page up and down keys.

NOTE: If a storage mode of 60 or 90 days is selected, this directory information is not used, rather, the .RAM files are stored in their respective Output, Output 2 and/or Output 3 directories along with the audio files.

Archive Directory

This path will indicate the location of the archive drive, normally a JAZ Drive. The REELARC program uses this parameter when producing Archives.

Station Name

This field provides a location to identify the station call letters on the audio file. If you are recording 2 stations in Stereo you may wish to use a syntax of CKDQ Left Chan/ CIBQ Right Chan. This is user definable.

Additional Info

This is a custom field for placing other information to associate with the audio clips.

Record Duration

This value determines the length of each recording; it is adjustable from 1 to 24 hours. Default is 1 hour. Using lengths of greater than 1 hour can lead to some potential problems, if for some reason the system freezes the potential exists that the file being recorded will be lost. Although we make great efforts to protect the files from becoming corrupt we cannot absolutely be assured that that file is usable. We recommend for logging purposes that you adhere to the 1-hour recording standard. This would reduce the likelihood of file loss to a 1-hour segment.

Low Space Threshold

Adjust this value to warn of low disk space. Normally, 10% would be a safe level.

Playback Offset Time

Adjust this with caution, this will cause the default 30 second delay to be changed when the player begins playing the current recording. High quality codecs require more delay.

Codec Flavor Selection

This drop down list provides access to all of the current RealAudio Codec Flavors; a text description below it provides the details of each Codec. The following table provides the technical data of each Codec flavor, proper selection will be determined by 2 main factors, 1 the total amount of storage in the system and 2 the desired audio quality. It should be noted that the higher quality Codecs require substantial CPU horse power and if you system is not equipped for this audible artifacts will occur in the audio. The table provides the recommended CPU speeds for each Codec flavor.

Encoder	GB per Week	GB per Month	Sound Quality	Drive Req.	Sample Rate	CPU	Notes
Real 2.0 - 14.4	0.623616	2.761728	Fair	3.2GB	8 Khz	Intel 200 MMX	Do not use this Codec Bad Quality
Real 2.0 - 28.8	1.151944	5.101468	Fair	6.4GB	8 Khz	Intel 200 MMX	Very Poor Quality
Real 3.0 - 28.8 Narrow	1.212129	5.368002	AM Radio	6.4GB	8 Khz	Intel 200 MMX	Reasonable Quality Acceptable
Real 3.0 - 28.8 Medium	1.209261	5.355299	AM Radio	6.4GB	8 Khz	Intel 200 MMX	Better Yet Acceptable
Real 3.0 - 28.8 Full	1.209427	5.356034	AM Radio	6.4GB	11 Khz	Intel 200 MMX	Good Listenable Acceptable

Encoder	GB per Week	GB per Month	Sound Quality	Drive Req.	Sample Rate	CPU	Notes
Real 3.0 - 28.8 Stereo	1.514300	6.706185	AM Radio	2 * 4.3GB	8 Khz	Intel 200 MMX	Acceptable some pitch fluctuation
Real 5.0 - 8Kb/s Mono	0.606328	2.685171	Fair	3.2GB	8 Khz	Intel 200 MMX	Good Listenable Acceptable
Real 5.0 - 12Kb/s Mono	0.909626	4.028344	AM Radio	5.3GB	8 Khz	Intel 200 MMX	Good Listenable Acceptable
Real 5.0 - 32Kb/s Mono	2.421087	10.72195	AM Radio	2 * 6.4GB	16 Khz	Intel 200 MMX	Good Listenable Acceptable
Real 5.0 - 32Kb/s Stereo	2.416875	10.70330	AM Radio	2 * 6.4GB	11 Khz	Intel 200 MMX	Good Listenable Acceptable
Real ISDN Mono	3.024678	13.39500	Good	4 * 4.3GB	22 Khz	Intel 233 MMX	Very Good Top end Rolled Off
Real ISDN Stereo	3.025145	13.39707	Good	4 * 4.3GB	16 Khz	Intel 233 MMX	Very Good Top end Rolled Off
Real Dual ISDN Mono	6.047279	26.78080	Excellent	4 * 8GB	44 Khz	Intel 266 MMX	Excellent Quality
Real Dual ISDN Stereo	6.056111	26.81992	Excellent	4 * 8GB	32 Khz	Intel 266 MMX	Excellent Quality

RL2000 Mode Selection

Select the mode of operation for RL2000 with this setting. When Logger mode is selected, RL2000 will function as a normal audio logging system. Selecting Skimmer/Schedule mode configures RL2000 to follow a user-defined schedule (see the section on scheduling events) that allows skimming or scheduled recordings.

Auto Play Current Recording

Enabling this feature will cause RL2000 to play the current audio file being recorded. This feature is intended to provide a loop back method of insuring audio recording. A user may connect an audio detector to the audio output to indicate loss of audio. The player begins playing the current recording 30 seconds after the recording begins.

Automatically Start Recording at Startup

This will cause RL2000 to begin recording as soon as the program is started; this is desirable for unattended operation. By default the systems when shipped from KTC will have the RL2000 program enabled to automatically load on startup of the computer. This combined with setting this feature will cause the logger to immediately begin recording at the startup of the machine.

Sync Recording to Top of the Hour

Enabling this feature will cause RL2000 to constantly check the remaining time to record against the system clock and begin recording the next file at the top of the next hour. This feature will aid in synchronizing the files for easy playback. If the user selects a record length of greater than 1 hour this feature should be disabled.

Sample Rate Selection:

Sample rate selection must be adjusted to match the selected Codec flavor. It is noted that in the text description of each Codec flavor, the frequency response is indicated. The proper sample rate will be 2 * the frequency response. Thus if the frequency response is 4Khz, then the user should set the sampling rate to 8Khz.

Logger Storage Options

Select either 30, 60 or 90-day storage mode. This option applies only to RL2000's logger mode. In logger mode, RL2000 will maintain audio for 30, 60 or 90 days. Note that for 60 or 90-day operations, you must define output directories Output 2 and Output 3. Because storage requirements could be very high for extended storage, ensure that you have adequate disk space for the storage term and quality types selected.

Type of Sound Card

Select the type of sound card you will be using with RL2000. Typically, this will be a PCI full-duplex card.

30-60-90 Day Storage

Select the number of days of audio to keep on-line. Note that if you use 60 or 90-day storage modes, your required storage capacity will double or triple. **Be sure you have enough available disk space for 60 or 90-day mode!**

Show Peak Indicators

If the meter bridge is being used, checking this option will cause peak indicators to display on the meter bridge.

Perfect Play Mode

This check box enables RealAudio's perfect play capability. Note that only files created **after** this option is selected will contain the needed information to use RealAudio's Perfect Play Mode.

Selective Record

This check box enables RealAudio's selective record capability. Note that only files created **after** this option is selected will contain the needed information to use RealAudio's Selective Record Mode.

File | Save:

This will save the current setting to the system registry.

File | Exit:

This will exit the configuration program, if changes have been made the user will be prompted to save changes and then exit.

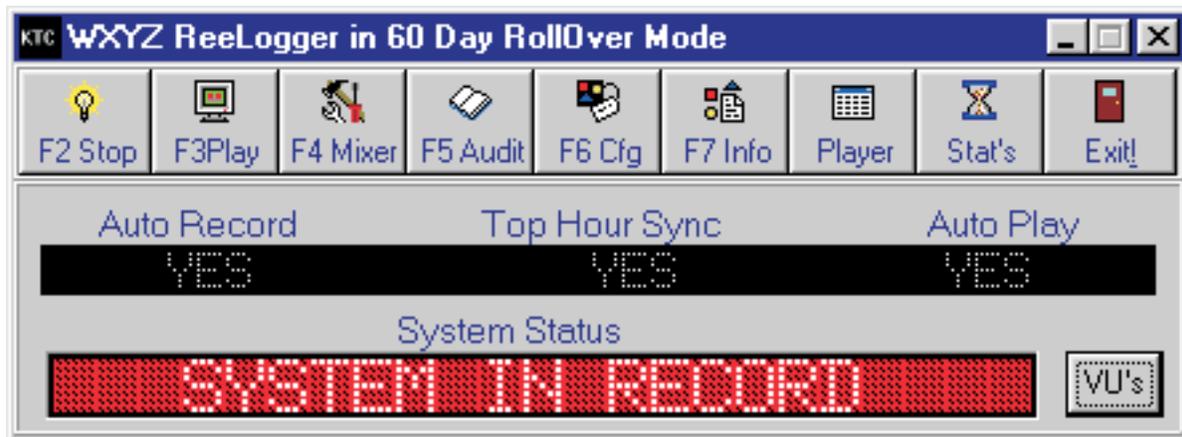
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RL2000 Operation (Logger Mode)

Operation of RL2000 was designed to be simple and straightforward. When the program first launches the user is presented with the RL2000 startup banner, which lasts for 5 seconds. The main user dialog will then appear. The screen is set by default to a display size that accommodates multiple RL2000 instances to display on the screen.

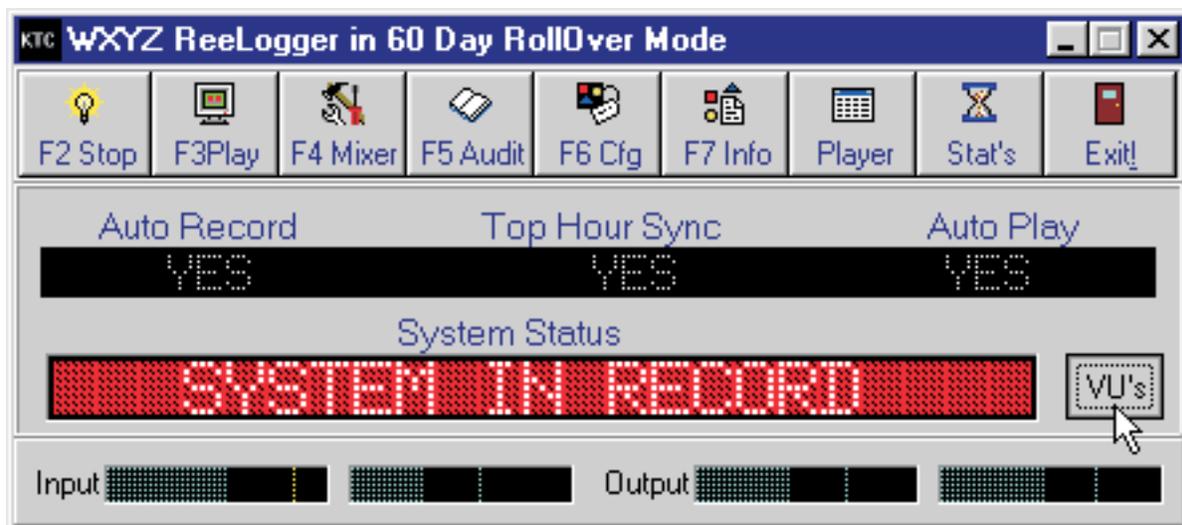
Note: Additional display information can be shown or hidden using buttons along the tool bar. See the section on **Button Functionality** later in this section.

Standard RL2000 Display



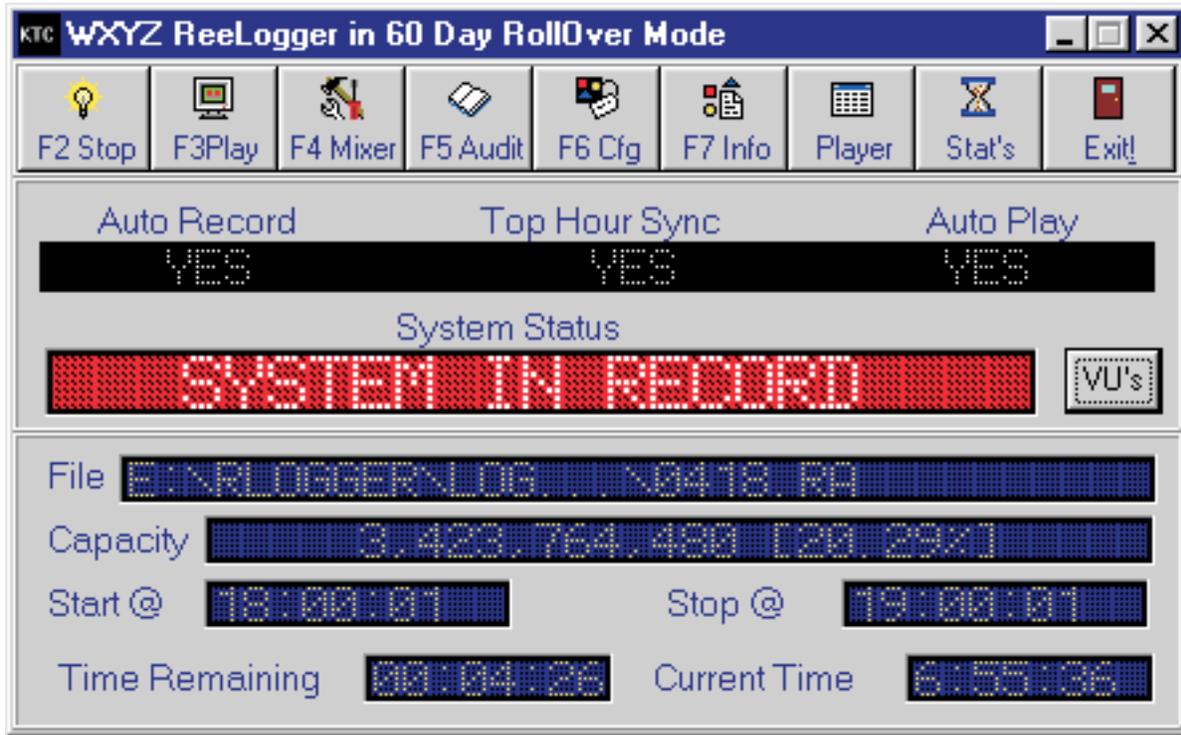
RL2000 uses buttons instead of a menu structure to access features and control the operation of the application. Where indicated, you may use the function keys instead of a mouse to select an action.

Standard RL2000 Display with VU's Displayed



Note that, unlike the original ReeLogger, no VU meters are displayed as a default. This is to conserve system resources. Meter displays require a significant amount of CPU resources. VU meters can be displayed on-demand by clicking on the [VU] button and holding the left mouse button down. The VU meters will disappear when the mouse button is released.

RL2000 with Stats Displayed



The Stats view, accessed by clicking on the **[Stat's]** button, displays statistical information about the current recording activity of RL2000. Current file name, remaining disk space, start time of the recording, scheduled end time of the recording, recording time remaining and current time are displayed.

the RL2000 player section. You can use the player to select and play all or portions of day's audio logs by selecting the date you wish to listen to, then further selecting the hour or simply check the "Play Entire List" option to have the player sequence through the entire log file list for a selected date. The slider allows you to move to a particular position within an hour and play back from that point. Note the slider moves in 3-second increments.

Tool Bar



NOTE: All buttons that have an "F" key shown can be accessed with the keyboard, using the function key indicated on the button.

Record/Stop Button [F2]

This single button "toggles" based on current RL2000 activity. If no recording is occurring, the button enables the start of recording. If RL2000 is currently recording, the button allows for stopping the current recording.

Play Button [F3]

If Auto Play Current Recording is enabled in the configuration of RL2000, this button will start play of the current hour's recording 30-seconds behind current time.

Mixer Button [F4]

Selecting this will cause the Windows audio mixer to appear, this will allow the user to adjust Audio levels for either sound card.

By default Audio mixer 220 is the audio-input source and the user would adjust the record audio level in this mixer and the Audio mixer 240 is the default playback mixer. Here audio playback levels would be selected.

Audit Report Button [F5]

Launches RL2000's File Viewer and displays the RL2000 audit file.

Configure Button [F6]

Selecting configure will cause the configuration program to be launched.

NOTE: any changes made to the configuration will only take effect after the RL2000 program has been shut down and restarted.

Player Button

Selecting the System button will display information about the current state of the operating system and RL2000.

Stats Button

The [**Stats**] button ...

Exit Button

Selecting this will exit the program. You will be prompted to confirm that you wish to stop recording (if recording is active) and exit RL2000.

Additional Buttons (Not on Tool Bar)

There are some additional buttons that are displayed if you have certain display options selected.

Help Button

Launches RL2000's on-line help system.

About Button

Displays copyright and version information about RL2000.

RL2000 Operation (Skimmer/Schedule Mode)

Beginning with RL2000 v2.0, you can use RL2000 to record a specific program for a specific length of time on a specific day. This would be called a schedule event. Recording would begin at the time specified on the day specified and continue for the length of time you specify, up to a maximum of 99 hours, 59 minutes, 59 seconds.

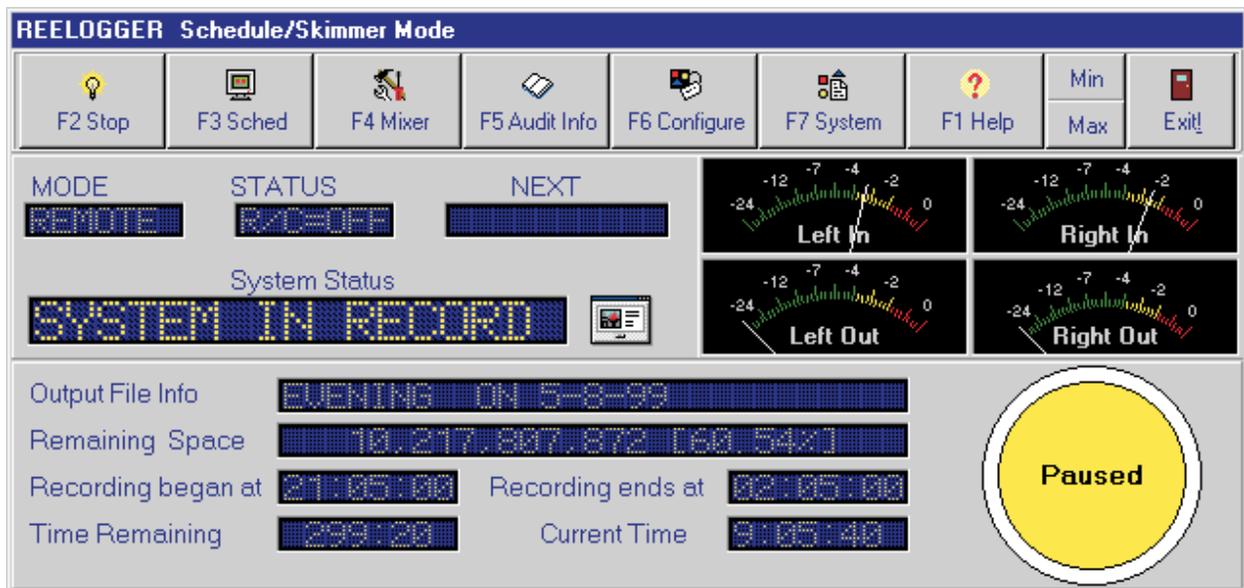
You can also record skimmer events, which are special recordings that again may occur on the day of your choosing, starting at a specific time and running for a specific duration. A skimmer event differs from a schedule event in that RL2000 only writes audio data to disk when told to do so via a contact closure. As long as the closure is exerted, RL2000 will write audio data to disk. When the closure is released, RL2000 goes into pause mode, waiting for the next closure. A typical example of a skimmer event would be an air check. You wish to record only the personality's voice work, not all content. A RL2000 skimmer event does exactly that, producing a finished "scoped" air check automatically. In this example the closure would be activated when the personality opens (turns on) the microphone and deactivated when the personality turns off the microphone.

NOTE: If you are planning to use RL2000's skim functionality, refer to Appendix C for additional information about wiring relays to the game port and operating system-specific requirements.

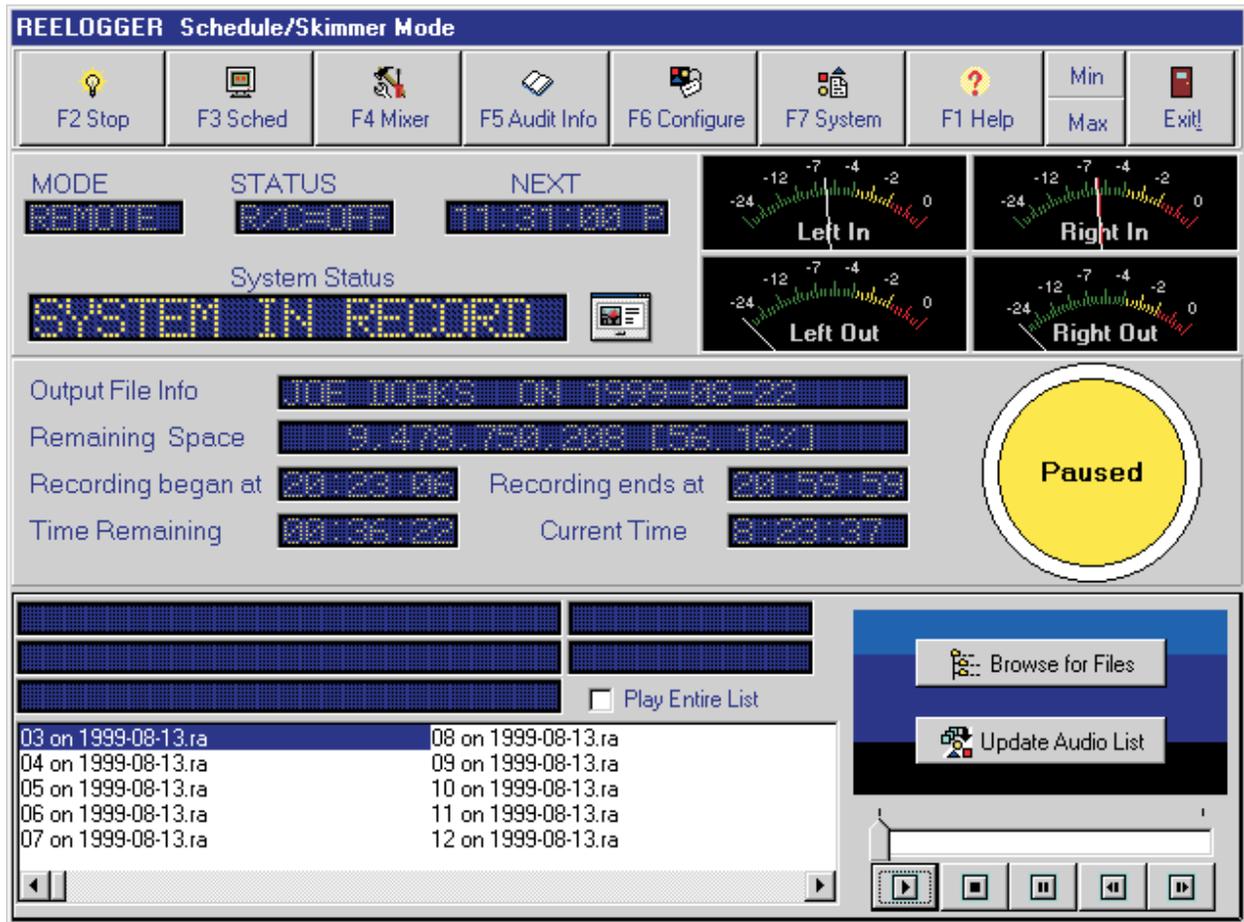
When the program first launches the user is presented with the RL2000 startup banner; this will last for 5 seconds. After this the main user dialog will appear, this screen is set by default to half size, presenting only the current file information. The user may click on the maximize button, to observe all system information. Many of the fields are the results of the settings with the configuration program.

RL2000 uses buttons instead of a menu structure to access features and control the operation of the application. Where indicated, you may use the function keys instead of a mouse to select an action.

Main skimmer/schedule mode standard dialog.



Main skimmer/schedule mode maximized dialog.



Button Functionality

NOTE: All buttons that have an "F" key shown can be accessed with the keyboard, using the function key indicated on the button.

Record/Stop Button

This single button "toggles" based on current RL2000 activity. If no recording is occurring, the button enables the start of an ad-hoc recording. A record dialog will be presented, allowing you to enter appropriate recording information. If RL2000 is currently recording, the button allows for stopping the current recording.

Schedule Button

This button accesses the schedule dialog, which allows you to create skimming and scheduled recording events. See the schedule dialog later in this chapter.

Mixer Button

Selecting this will cause the Windows audio mixer to appear, this will allow the user to adjust Audio levels for either sound card.

By default Audio mixer 220 is the audio-input source and the user would adjust the record audio level in this mixer and the Audio mixer 240 is the default playback mixer. Here audio playback levels would be selected.

Audit Report Button

Launches RL2000's File Viewer and displays the RL2000 audit file.

Configure Button

Selecting configure will cause the configuration program to be launched.

NOTE: any changes made to the configuration will only take effect after the RL2000 program has been shut down and restarted.

System Button

Selecting the System button will display information about the current state of the operating system and RL2000.

Help Button



Launches RL2000's on-line help system.

Exit Button

Selecting this will exit the program. You will be prompted to confirm that you wish to stop recording (if recording is active) and exit RL2000.

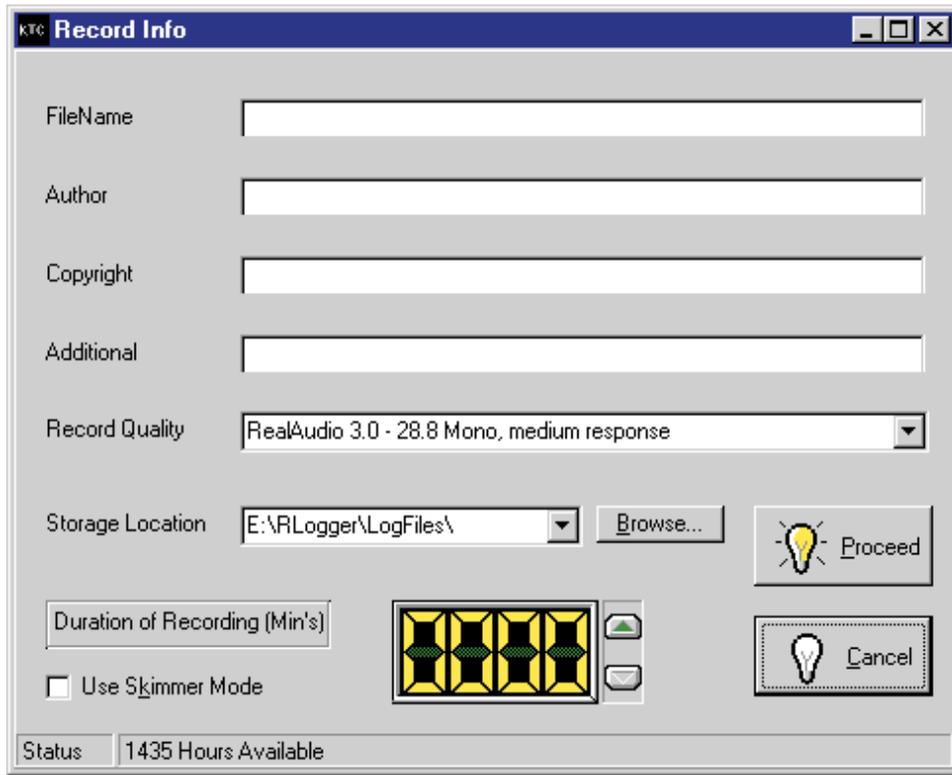
About Button



Displays copyright and version information about RL2000.

Recording an Ad-hoc Session

When RL2000 is in Schedule/Skimmer mode, you can create an ad-hoc recording at any time by clicking on the Record button. A dialog is displayed, similar to the one below.



You can manually enter the file name and set a duration using the LED spin edit control. The author, copyright and additional fields are optional.

Scheduling Skim Sessions or a Scheduled Recording

When you select the Sched button on the RL2000 main display, the RL2000 Schedule Editor (RLSched) is launched. The main display will be similar to the one shown here:

Time	All	M	T	W	T	F	S	S	File Name	Description	Len
11:44:00	<input checked="" type="checkbox"/>								17@D	Short test recording	00:00
11:45:00	<input checked="" type="checkbox"/>								18@D	Short test recording	00:00
13:00:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43 Skimmer Test @D@T	Skimmer test recording	00:59
13:12:00		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19@D	Mon, Thu, Fri test	00:00
13:21:00		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20@D@T	Mon, Thu test	00:00
13:21:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	44 Skimmer Test @D @T	Skimmer test recording	00:00
14:00:00		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	21 2pm hour test @D	Mon - Thu, Sat, Sun (only Fri sl	01:00
14:01:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22 SPECIAL 2pm hour test @E	Test recording for the 2pm hou	00:58
15:00:01	<input checked="" type="checkbox"/>								23 3pm hour test @D	Test recording for the 3pm hou	00:58
16:55:00		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24@D	Fri only	00:30
18:30:00		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25@D	Mon, Wed, Thu, Fri only	01:00
23:31:00	<input checked="" type="checkbox"/>								26@D	Short test recording	00:00
23:32:01	<input checked="" type="checkbox"/>								27@D	Short test recording	00:00

Schedule for: IBM300GL

For detailed information on using the RL2000 Schedule Editor, refer to that section in the manual.

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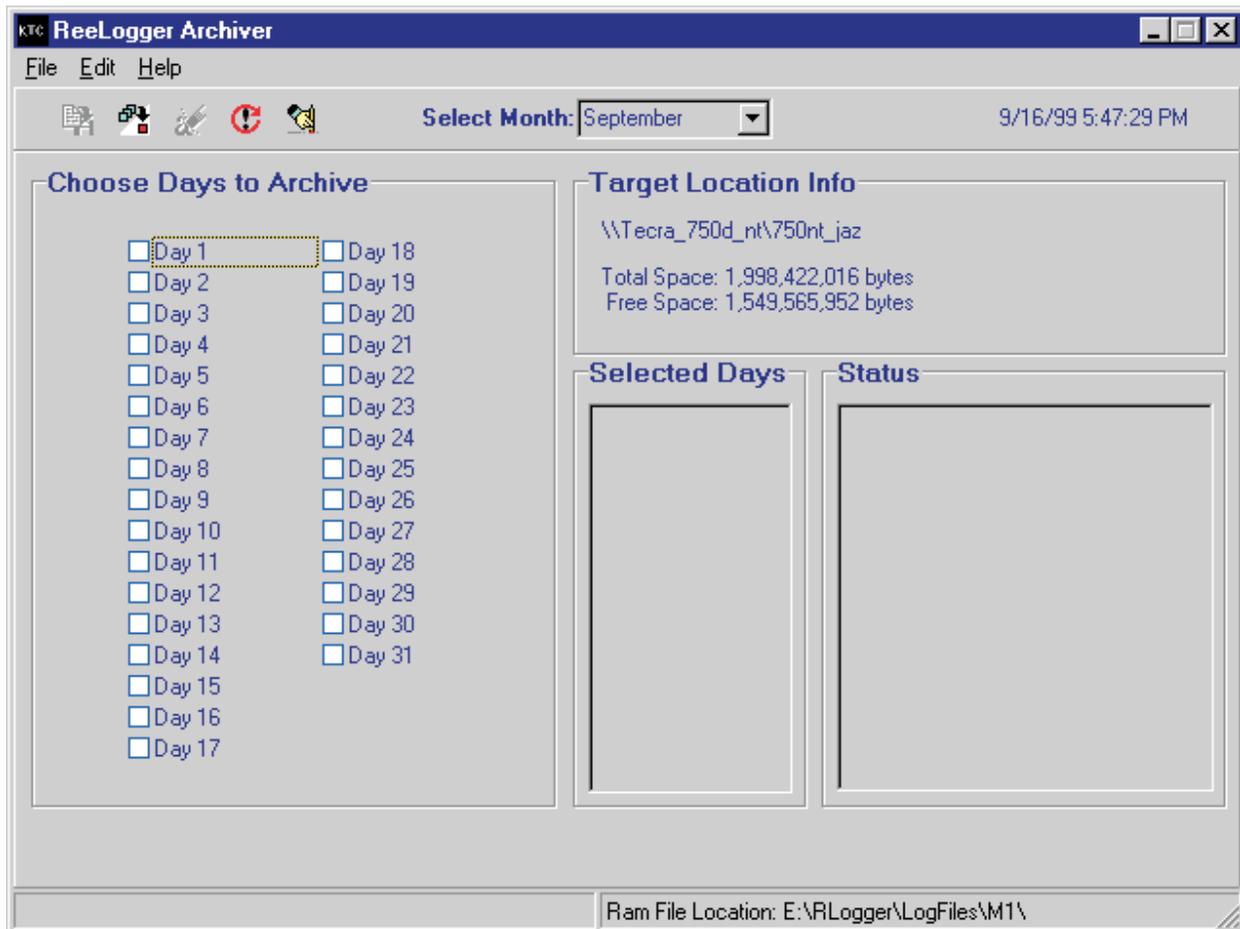
ReelArc Operation

ReelArc is a tool supplied with RL2000© and is used to archive and/or copy audio log files from the RL2000 hard disk system to a storage medium, typically a JAZ removable hard disk. Any valid writable media can be used, including network drives and Zip drives.

The purpose of copying RL2000 audio log files to another storage media might include:

- 1) Long-term archiving of selected audio.
- 2) Submission of selected audio log files to a regulatory or oversight agency like the CRTC (Canada) or FCC (USA).

RL2000 stores audio log files by day, with each day comprised of at least 24 one-hour segments, depending on RL2000's configured segment record duration. At any one time, RL2000 may have up to 93 days of audio log files stored on it's local hard disks (depending on storage mode selected). ReelArc allows the user to select one or more days within a given month's worth of stored audio to copy to the archive media, with a minimum of one day's worth of audio logs.



ReelArc checks to be sure you have enough disk space available on the target media to copy all the files selected, and if not, presents the option to use multiple disks (assuming the target media is removable). Finally, when the copy process is complete, a playback file (.ram) is created to facilitate easy access to the copied files with a RealAudio® player.

Archiving Files

To use ReelArc, you simply select the days you wish to archive by clicking on the day number, which marks the date for copying. To de-select a day click on it again.

Once you've selected the days to archive, you can either click on the archive button on the speedbar or select File | Archive Files. There's also a shortcut keystroke [**CTRL-A**] that you can use. ReelArc then finds all the files that need to be copied, calculates the required disk space on the target drive, and, if there's room for all the files, copies the selected days' files to the target location. ReelArc keeps a log of archiving activities that can be viewed by selecting the **Edit | View Log File** menu item. You can also delete the Log File from the Edit menu.

Changing the Archive Directory

To change the location to which you want archive files copied, select **Edit | Change Target Directory** from the main menu. You may select local drives or UNC locations. If you select a UNC location, be aware that it is not always possible to get accurate available disk information, depending on on the disk media size and operating system of the target location.

Deleting Archive Files

ReelArc will also delete archived files from the current archive directory. Click on the Delete button on the toolbar. You'll be asked to confirm the delete process twice to ensure that's what you really want to do. The deletion process removes only **.ram** and **.ra** files from the target (archive) directory. ***Be careful with this selection*** - ALL RL2000 files in the target directory are deleted when you confirm your choice.

RL2000 Schedule Editor

The RL2000 Schedule Editor is a companion program for RL2000 v2.0 and greater. It provides the means to create and maintain a schedule of recording events for RL2000 when configured to run in Schedule/Skimmer mode instead of the default logger mode.

Beginning with RL2000 v2.0, you can use RL2000 to record a specific program for a specific length of time on a specific day. This would be called a schedule event. Recording would begin at the time specified on the day specified and continue for the length of time you specify, up to a maximum of 99 hours, 59 minutes, 59 seconds.

You can also record skimmer events, which are special recordings that again may occur on the day of your choosing, starting at a specific time and running for a specific duration. A skimmer event differs from a schedule event in that RL2000 only writes audio data to disk when told to do so via a contact closure. As long as the closure is exerted, RL2000 will write audio data to disk. When the closure is released, RL2000 goes into pause mode, waiting for the next closure. A typical example of a skimmer event would be an air check. You wish to record only the personality's voice work, not all content. A RL2000 skimmer event does exactly that, producing a finished "scoped" air check automatically. In this example the closure would be activated when the personality opens (turns on) the microphone and deactivated when the personality turns off the microphone.

NOTE: See your RL2000 documentation for information on setting up your RL2000 machine to work with skimmer events.

RL2000 Schedule Editor was created as an application separate from the main RL2000 program itself to enable it to be installed on another PC. This way, you can maintain your RL2000 schedule from your desktop!

RLSched (short for RL2000 Schedule Editor) includes a number of features useful for creating and maintaining a RL2000 schedule:

- Virtually unlimited number of schedule records
- User-selected color-coding of schedule and skimmer events for easy identification in the main display
- Schedule events by day or for all days. RLSched uses a 7-day matrix for events, allowing you you record an event every Monday and Wednesday, for example.
- Schedule validation. As you create or edit schedule events, RLSched will check for overlapping events and times.
- User-friendly data entry dialogs that include, where applicable, drop-down lists or check boxes.
- Virtually all features can be accessed via keyboard shortcuts for the "mouse-phobic".

Installing RLSched

RLSched is automatically installed with RL2000 on the PC that will be running RL2000. If you plan to RLSched only on the machine on which RL2000 is running, there's nothing further to do in terms of installation.

Optionally, RLSched can be installed on a separate PC. If you plan to install RLSched on another PC, please review the hardware requirements and standalone installation instructions in this section.

Hardware Requirements

Pentium PC

Windows 95, Windows 98 or Windows NT Operating System

16MB RAM for Windows 95, 98 - 32MB RAM for Windows NT

Approximately 2MB free hard disk space for the application and help files

Network interface card (NIC), properly configured for connection to the RL2000 machine

VGA display

Keyboard

Mouse

Standalone Installation

To install RLSched as a standalone application, use your RL2000 installation CD-ROM and select the RL2000 Schedule Editor installation option. Follow the installation program prompts to complete the installation.

Files installed on a standalone machine include:

RLSCHED.EXE - The main application

RLSCHED.HLP - The help file

RLSCHED.CNT - The help contents file

RLSched also creates a file named **RLSCHED.INI** in your Windows directory. This file contains the program setup information and your preferences. No entries are made in your system registry.

Configuring RLSched

To configure RLSched, select the **Edit | Configuration** option from the main menu. The RLSched configuration dialog will be displayed.

The most important, and only **required** entry is the RL2000 program file folder location. RLSched must know this in order to create and maintain the schedule file, which is named SCHEDULE.DAT and is located in the RL2000 program file folder (directory). Keep in mind that if you are running RLSched on a machine other than the RL2000 machine, you'll need to have a network connection to the RL2000 machine in order to work on the schedule file.

General Page

The General page of the configuration dialog provides for general setup options or preferences you may have. There is only one **required** entry on this page - the RL2000 Program Directory. RLSched **must** know where the RL2000 application is located in order to create or edit RL2000's schedule file.

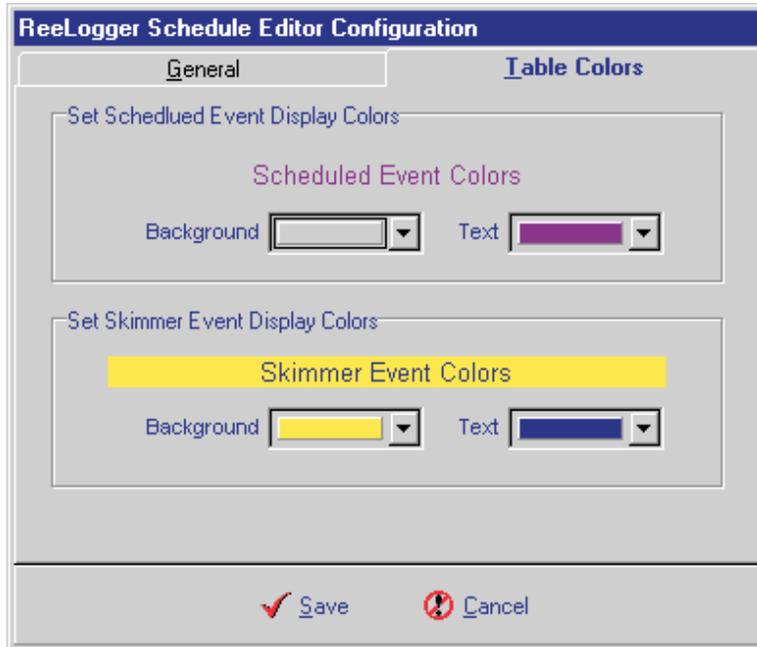
NOTE: You must enter a valid RL2000 program directory location. You may use the **Browse** button to locate the proper directory.

The screenshot shows the 'ReeLogger Schedule Editor Configuration' dialog box with the 'General' tab selected. The 'Table Colors' tab is also visible. The 'ReeLogger Program Directory' field contains the path '\\lbm300g\IBM300GL_D\Program Files\REELOGGER' and has a 'Browse' button next to it. The 'Default Author' field contains 'Joe Doaks' and the 'Default Copyright' field contains '1999 KTC Technologies, Ltd'. There are three checkboxes: 'Double-Space Reports' (unchecked), 'Shade Alternate Rows in Reports' (checked), and 'Save Form Size, Column Sizes on Exit' (unchecked). At the bottom, there are 'Save' and 'Cancel' buttons.

- **Default Author.** This entry is the "default" value for the author information in your audio file. It is the information used when creating a new schedule record.
- **Default Copyright.** This is the "default" value for copyright information in your audio file. It is used when creating a new schedule record.
- **Double Space Reports Checkbox.** Where applicable, schedule reports will be double-spaced if you check this item.
- **Shade Alternate Rows in Reports Checkbox.** If checked, all reports will have every other row "shaded" and will be similar in appearance to having printed the report on green bar paper.
- **Save Form Size, Column Sizes on Exit Checkbox.** If checked, the current size of the form, as well as column sizes, will be saved every time you exit RLSched.

Table Colors Page

This area allows you to select your preferences for the text (font) color and background color of scheduled and skimmer events. The main purpose is to allow for easy visual identification of a schedule item's type when viewing the schedule on-screen.



As you change font (text) or background colors, that color combination is "previewed" for you.

Using RLSched

RLSched is designed around a table view of your schedule. Items are listed in order by the scheduled start time of an event, along with displayed check boxes that indicate the day(s) a schedule item is to be performed, the name of the item, a description, the duration (length) of an item, and the target storage location for the recorded file.

NOTE: Not all information about a schedule item is displayed on the main dialog. For all information about a given schedule item, use the Edit dialog.

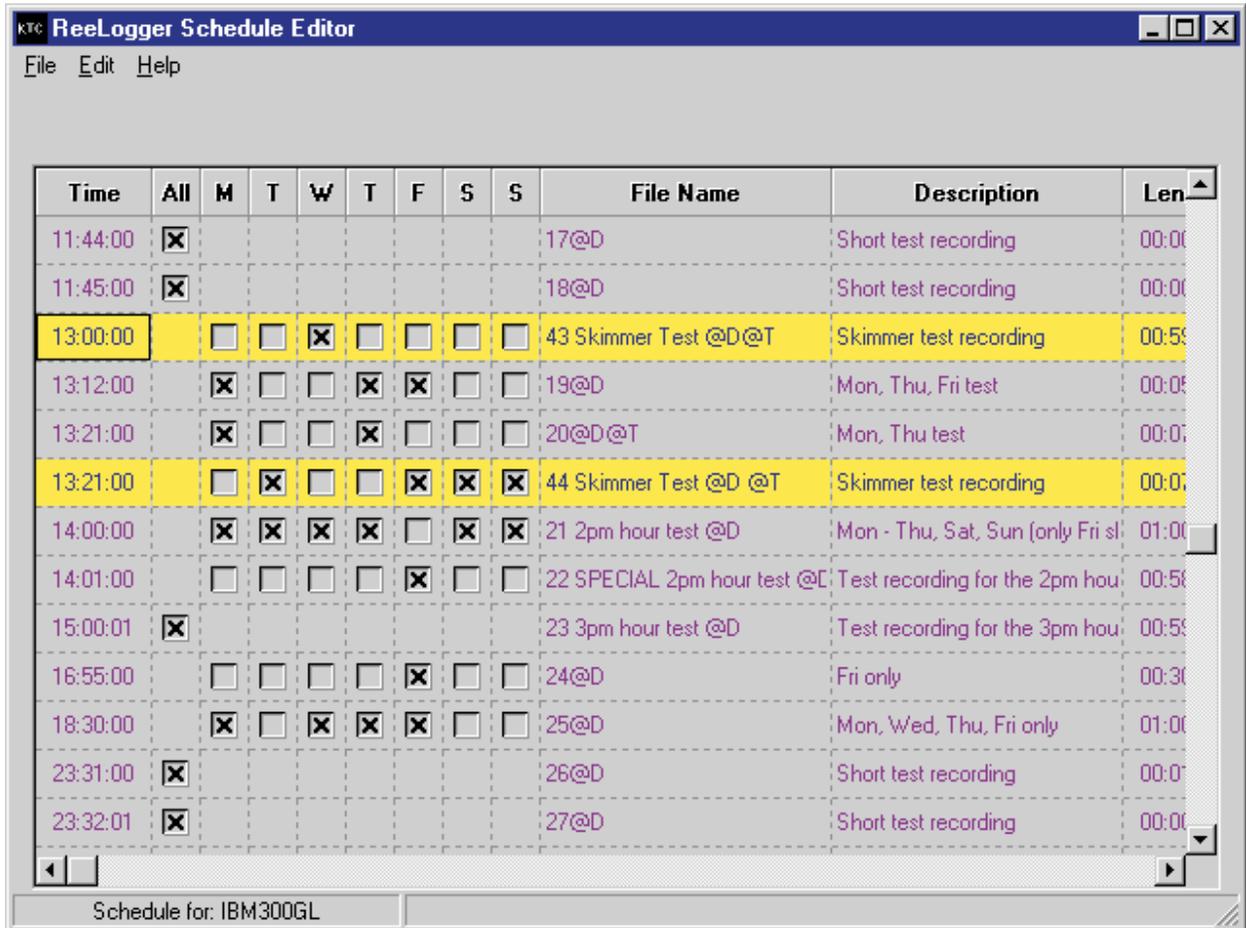
Starting RLSched the First Time

When RLSched is launched for the first time, you'll be prompted to configure the application. Refer to the section Configuring RLSched for specific information on configuration options. The main thing that needs to be done the first time you start RLSched is define the program file folder location for RL2000. If you're using RLSched on the machine on which RL2000 is installed, simply select the installation directory from the **Browse** button. If you're running RLSched on a different PC, you'll need to use the **Browse** button to select the machine on which RL2000 is installed, then the drive, then the program folder. Do this using the Network Neighborhood item from the browse dialog.

It is also possible that there will be no schedule file for RL2000 at this point. If not, RLSched will create a new schedule with a single scheduled event. One event is required for a valid schedule file. You may edit this new default event or delete it later after you've created events of your own.

Main Display

The RLSched main display will look similar to the display shown here.



Navigation

Navigating the main display can be accomplished either with a mouse or using the keyboard. The display can be resized if desired using the normal Windows methods of clicking on the Maximize button (upper right corner) or "dragging" the borders of the main display with the mouse. The column widths can be changed by positioning your mouse on a column divider (the mouse pointer will change) and then holding the left mouse button down while moving left or right to make a given column narrower or wider.

NOTE: Column widths and form size can be saved from session to session so that preferences you have are restored each time RLSched is launched. See the section on

Configuring RLSched for details.

You can use the scroll bars to move up or down, left or right through the main display. In addition, the keystrokes [LeftArrow], [RightArrow], [UpArrow], [DownArrow], [PgUp], [PgDn], [Home], [End], [Ctrl-RightArrow], [Ctrl-LeftArrow] work as expected when the table is being used.

Adding, Editing, Inserting Schedule Items

To **Add** a new schedule item, touch the [Insert] key or, using the mouse, select **Edit | Add Schedule Item** from the main menu, or right-click your mouse while the pointer is over the table and select **Create New Item**. You can also use the keystroke [Ctrl-A]. A new item is created, using default information where applicable, and the Add/Edit Record dialog is displayed.

To **Delete** a schedule item, select the item row by either left-clicking anywhere on the row in which the item is displayed or navigating with the keyboard to the row in the table that contains the schedule item to be deleted. Then, touch the [Delete] key or, using the mouse, select **Edit | Delete Schedule Item** from the main menu, or right-click your mouse while the pointer is over the table and select **Delete Selected Item**. You can also use the keystroke [Ctrl-D]. A dialog asking you to confirm the deletion is displayed. If you click on “Yes”, the item is deleted and is no longer a part of your RL2000 schedule.

NOTE: Once an item is deleted, you can, after a fashion, “undo” the deletion by not saving your edits when prompted at the end of your session. Keep in mind that if you don’t save, *all edits, additions, and deletions will be lost!*

To **Edit** a schedule item, select the row in the table to edit, then touch the [Enter] key or use the the [Ctrl-E] keystroke. Double-clicking on the row to edit, as well as selecting **Edit | Edit Schedule Item** from the main menu or right-clicking your mouse while the pointer is over the table and selecting **Edit Selected Item** will also display the Add/Edit Record dialog.

Adding and editing records is done from the Add/Edit Record dialog. This dialog is automatically displayed when you either select a record for editing or add a new record. Here, all details about the schedule item are displayed and can be edited. Many of the fields are required, that is, must be completed correctly before RLSched will allow you to save the record.

NOTE: All new or edited records are validated before they are saved - that is, the new or changed schedule item is checked against all other items in the schedule for conflicts like time or day overlap before being accepted. See the section in this chapter on validation for a more detailed explanation.

Add/Edit Record Dialog

Your dialog for editing a record or creating a new record will appear similar to the following:

Navigation

You may use the [Tab] key to move forward through the fields. Use the [Shift-Tab] keystroke to move backward through the fields. Left-clicking on a field selects it for editing as well. The buttons may be accessed with the accelerator keys or by using the mouse and left-clicking.

Data Entry

Entering or revising data in each of the fields is a matter of typing the information, selecting an item from a drop-down list, checking off a check box, or, in the case of the Storage Location field, using the **Browse** button.

Most of the fields are required to have valid information. Fields that are **not** required to have information are the Recording Description, Author and Copyright fields. If left blank, those items of information will not be placed in the audio file created by RL2000.

The fields and what they mean:

Recording File Name. This is the name of the file that will be saved when the recording is named. Maximum length is 225 characters. There are two special character combinations with special meaning that may be entered in this field:

The text **@D** has the effect of the date being inserted in the filename. This happens at the moment the file is created during a recording.

The text **@T** has the effect of the time being inserted in the filename. This happens at the moment the file is created during a recording.

Recording Description. If information is entered in this field, it will be embedded in the audio file when recorded. Maximum length is 255 characters.

Author. If information is entered in this field, it will be embedded in the audio file when recorded. Maximum length is 255 characters.

Copyright. If information is entered in this field, it will be embedded in the audio file when recorded. Maximum length is 255 characters.

Start Recording at: This is the start time for the recording. You can enter the time several different ways, including military time and AM/PM time. Checking is done to ensure that a valid time has been entered. You need enter only as much information as needed to convey the time - for instance, "2pm" (no quotes) will be correctly interpreted as "2:00:00 pm". You need not enter two digits for each section of the time. You could enter "2.10.1" (no quotes) and the time would be interpreted as "2:10:01 am". Notice that you don't have to use a colon (:), you can use a period or even a comma to separate the hour, minutes, seconds of the time.

Length. This is the length or duration of the recording, expressed as hours, minutes and seconds. As with the start recording field, you can enter the information in a flexible way. Keep in mind this is a duration, so there will be no am or pm designation. The field will display the information you've entered in the format "hours:minutes:seconds" (no quotes) and may only display a single digit in each of the hours, minutes and seconds portion if that's all that's needed. Maximum recording duration is 99:59:59 (99 hours, 59 minutes, 59 seconds) for a single recording.

NOTE: Recordings of a large duration may use large amounts of disk space. **Be careful** when creating scheduled events of long duration, particularly if the item is a scheduled event - meaning we're recording the whole time. A skimmer event, on the other hand, may have a duration of several hours, but the size of the audio file may not be very large, as the only audio actually recorded is that which occurs, as an example, when a personality has the microphone turned on.

Storage Location. This is the physical location where the scheduled recording will be stored. Keep in mind that *the storage location is from the point of reference of the RL2000 machine*, not necessarily the machine from which you are creating the schedule item. For that reason, the drop-down list presents those locations on the RL2000 machine that have been defined by RL2000 as audio storage locations from RL2000's point of reference. You may also use the **Browse** button to select a **UNC** (Universal Naming Convention) location, but remember that the storage location **must** be accessible from the RL2000 machine at record time. If you use **UNC** locations, be sure that the location is both accessible to the RL2000 machine and there are sufficient privileges

extended to the RL2000 machine to actually write data to the location. Maximum length is 225 characters.

Mode. This radio button selection (you may select one or the other) tells RL2000 whether this item is a scheduled or skimmer event. In the case of the skimmer event, the RL2000 machine must be configured properly to run such an event. See your RL2000 documentation for details on setting up RL2000 for skimmer events.

Codec Selection. Simply put, this is the recording quality you wish for this item. Each scheduled event may have a different quality selected if desired. The choices are presented in a drop-down list and are limited to the recording quality selections that RL2000 can support on the machine on which RL2000 is installed. This list is retrieved from the RL2000 machine each time RLSched is launched and/or each time you change the RLSched configuration. The RL2000 application creates and maintains a list of codecs that can be used and communicates that list to RLSched.

Days to Record. You may choose to record the schedule item for a single day, several selected days or all days of the week. Note the schedule is a 7-day matrix that will repeat without regard to dates. Simply check the days (or All Days) that you wish the recording to be made.

Action Buttons

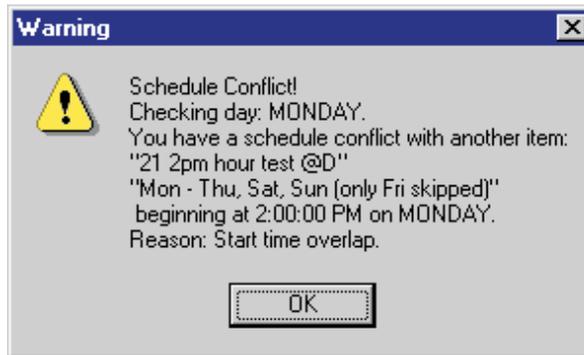
There are four buttons on the Add/Edit Record dialog - [OK], [Help], [Save as New], and [Close]. Of these, the [Save as New] button requires some explanation. When you click on this button, RLSched will attempt to create a new record from the record you are editing. It is presumed that you have selected a record for editing, then made some changes to the record start time or days to record fields and now want to create a new schedule item based on this changed record. When you do this, RLSched will validate this new record to ensure that it will not conflict with other scheduled events. It is the same process that happens when you click on the [OK] button after editing the record except that the edited record is left as it was before you began editing, and the changes are treated as a new schedule item, then validated against all other schedule items. The [Save as New] is not enabled when creating a new schedule item, nor is it enabled until some edits have been made with an existing schedule item.

Validation

Before a newly created item or edited item is saved, it is validated by RLSched. This occurs when you click on the [OK] button when you have completed your schedule item. Simply put, RLSched does two things to validate the schedule item:

- Checks to see that all field information that is required is entered and, where applicable, that the information is valid.
- Looks at all other scheduled items for conflicts in the schedule. A conflict would typically be a time overlap or an attempt to "nest" a recording inside another scheduled recording.

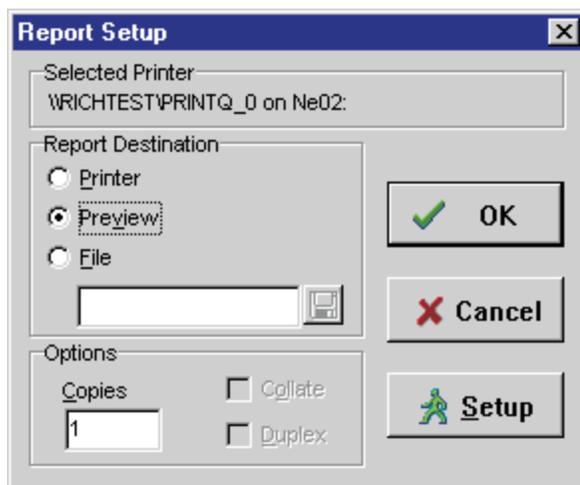
If the validation process finds a problem, an error will be displayed, similar to the example dialog below. **RLSched will not save the new or edited record until the problem is corrected.**



If the error is a conflict, as shown here, you will be advised of the first day the problem occurs, as well as the item description for which there is a conflict.

Print Schedule Reports

RLSched provides basic schedule printing capabilities. To print the current schedule, select **File | Print** and then one of the available report styles. Once selected, a dialog is presented (similar to this one) that allows you to choose whether to Preview the report, just print it, or save it to a file.

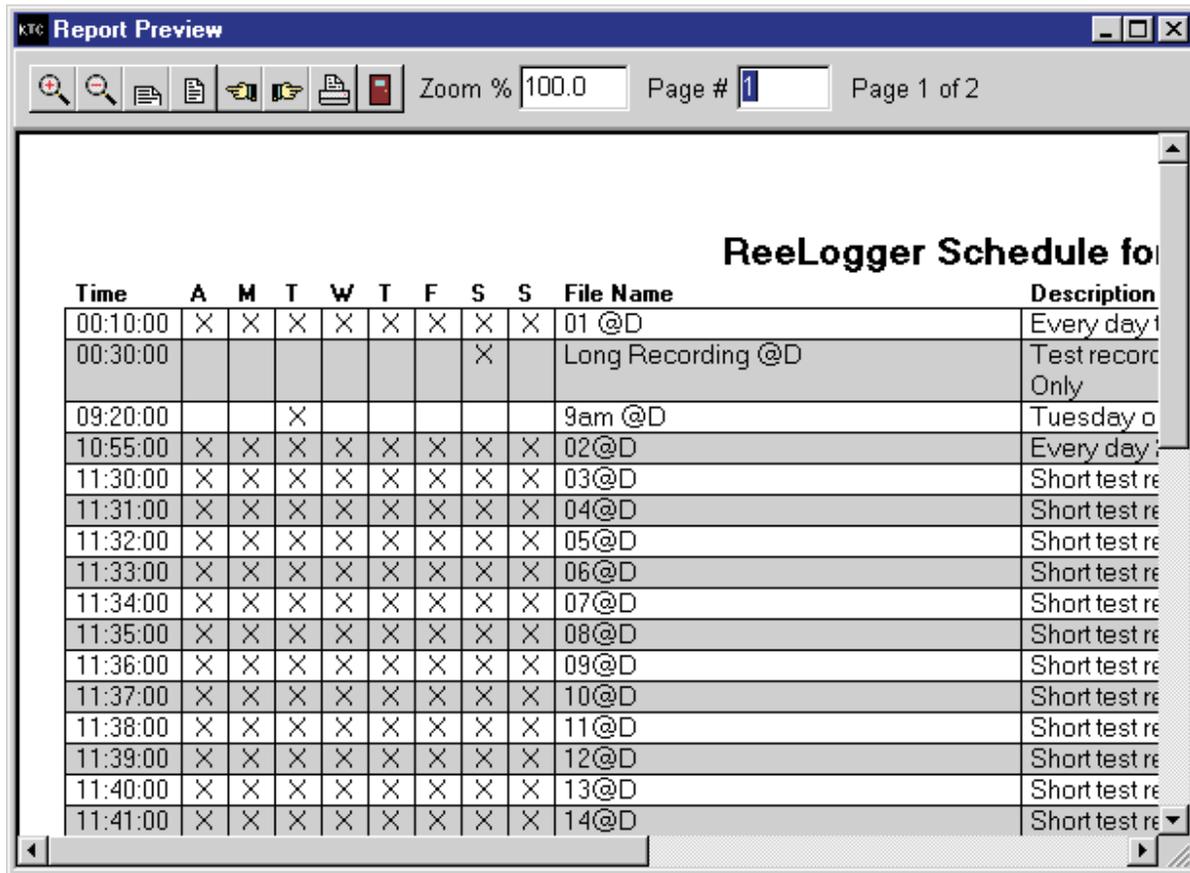


Within this beginning dialog, you can also select a printer other than the default printer on your system. You may also select the number of copies to be printed, if more than the default one (1) copy.

If you select **Printer** as the report destination, the report will be generated and printed immediately.

If you select **File** as the report destination, you'll be allowed to enter a filename, the report will be generated, then saved to that file. Note this will be a printer-specific file, **not** an ASCII file. After the file has been saved, you could later send the file to the printer using any of the normal means to do so. Consult your operating system documentation for additional information about printing files.

If you select **Preview**, the report will be generated and a preview of the report displayed on-screen. It will appear similar to this one:



Time	A	M	T	W	T	F	S	S	File Name	Description
00:10:00	X	X	X	X	X	X	X	X	01 @D	Every day
00:30:00							X		Long Recording @D	Test record Only
09:20:00			X						9am @D	Tuesday o
10:55:00	X	X	X	X	X	X	X	X	02@D	Every day
11:30:00	X	X	X	X	X	X	X	X	03@D	Short test re
11:31:00	X	X	X	X	X	X	X	X	04@D	Short test re
11:32:00	X	X	X	X	X	X	X	X	05@D	Short test re
11:33:00	X	X	X	X	X	X	X	X	06@D	Short test re
11:34:00	X	X	X	X	X	X	X	X	07@D	Short test re
11:35:00	X	X	X	X	X	X	X	X	08@D	Short test re
11:36:00	X	X	X	X	X	X	X	X	09@D	Short test re
11:37:00	X	X	X	X	X	X	X	X	10@D	Short test re
11:38:00	X	X	X	X	X	X	X	X	11@D	Short test re
11:39:00	X	X	X	X	X	X	X	X	12@D	Short test re
11:40:00	X	X	X	X	X	X	X	X	13@D	Short test re
11:41:00	X	X	X	X	X	X	X	X	14@D	Short test re

Within the preview dialog, you can move among the pages, zoom the size of the report to get either a closer look or more distant view, and print the report. If you select print, you'll have the option to print some or all of the pages.

You can also exit the preview without printing. Click on the **Close** button or the [X] in the upper-right corner of the preview display.

Available Report Styles

NOTE: The appearance of these reports will vary, based on user configuration options selected. See the Configuring RLSched section of the documentation for details on printing options that will affect the appearance of your reports.

List Style. This style is intended for brevity. Only a single line of information will appear on the report for each schedule item. Items who have descriptions or other information that may exceed with column width of the report will be truncated.

Table Style. This style will produce a detailed report that includes all information for all fields. A schedule item may occupy more than one line on the report.

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Networking Ideas

This section is provided as an add-on to provide the end user with some real world network suggestions. These are not the only ways to do it, merely some of the options. If you have a particular scenario please feel free to contact us and see if we can be of assistance.

Introduction

We have envisioned the typical user of RL2000 being a Radio station with the need to store government compliant Audio Tapes, a station manager who may want random access to reviewing the station broadcasts, a Program Director who wants to be able to fire up last night's all night show and have it run in the background while he works on other things and maybe the sales manager wants to verify the spot for Bob's Used Cars ran last Tuesday.

To accomplish this requirement means we need to interconnect the RL2000 PC with the other users somehow. Well there are as many network systems out there as there are pages in this manual so we won't attempt to tell you how to configure all of them. Really we do not have to. You see Windows 95 has expanded on the original Windows 3.11 Workgroups theory and bundles in the ability to act as a server for these needs, now when we couple that with the network based design of the Real Audio protocol we have a workable solution. Now this solution requires only a few fundamental items. First we need a network topology that supports Peer to Peer operation, typically Ethernet will support this. We must be certain that the machines can actually talk to each other, some configurations do not permit this. These would be examples like multiple concentrators on different segments etc. Once you have established that the machines are able to see each other, you need to select the appropriate protocol to use. NETBEUI is probably the simplest of all to implement, it does however have some overhead issues that not all IT people appreciate. Second to this would be to implement TCP/IP and create local mappings to the machines. This also works well and does offer the benefit of a more efficient protocol.

Having configured the machines for peer to peer use we now need to make RL2000 available to external users you must share the files, this is accomplished through the Windows Explorer. Consider who may access these files, as you may only wish to allow Read access and not the ability to write. Granting the Write privilege also grants the Delete privilege. Once you have shared the resource you should now be able to install Real Audio players were they are needed.

Remote Access

Windows 95 has the add-on capability of providing Remote Dial-in Access, also known as RAS. This is an optional configuration and it requires the purchase of Microsoft Plus for Windows 95. Adding the remote access server portion will allow you to share your RL2000 files with users remote to your location. RAS server extends the file sharing capabilities of Windows 95 via a modem, so as discussed previously once you have shared the folders containing your audio files, modem users can dial in and playback the logger files. It should be noted that if you plan to do this be cautious of the Codec flavor you choose. Higher quality Codecs require more bandwidth to playback files in real time. Your RL2000 has been equipped with a 33.6KB/s modem; this will provide reasonable playback of RealAudio 3 - 28.8 Codecs and Real Audio 5.0- 8KB/s and 5.0-12KB/s Codecs. For speeds greater than this you may wish to consider using ISDN capable modems. We have successfully installed and tested RL2000 in the following networks:

- **Windows For Workgroups**
- **Windows NT Network**
- **Novell 3.12**
- **Lantastic**

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Contacting KTC Technology Ltd.

Your first level of support should come from your authorized RL2000 dealer, if you are unable to resolve your problem through your dealer please contact KTC Technology Ltd.

To contact KTC Technology Ltd., please be sure to have the following information ready:

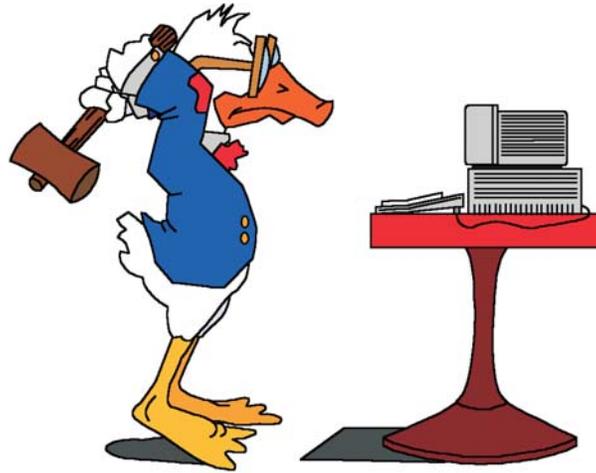
- Station/Customer Name
- System Serial Number
- Dealer
- Date of Purchase
- Problem
- Error messages, if any.

KTC Technology Ltd. is available for customer support Monday through Friday 09:30 to 16:00 MST by calling (403) 922-4093. Fax is available 24 hours per day at (403) 922-4287 or by email at **ktc@ktctech.com**.

Support for systems not covered by annual maintenance contracts will be billed at a rate of \$3.00 per minute of telephone support.

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Windows Configuration Issues and Troubleshooting



Known Issues

Windows 95 versions

RL2000 will not work with the original version of Windows 95, as certain operating system features that RL2000 takes advantage were not available in the original release. RL2000 will work only with Windows 95 OSR2 and later releases, including Windows 98.

NOTE: If you are running Windows 95 or running a Windows 98 version prior to Windows 98 Second Edition, you must have the Microsoft Continuous Operation patch installed on the RL2000 PC. The patch is located on your RL2000 install CD in the MS_Patch folder.

Windows NT

You may use Windows NT (Service Pack 3) as the operating system beginning with RL2000 version 1.6.

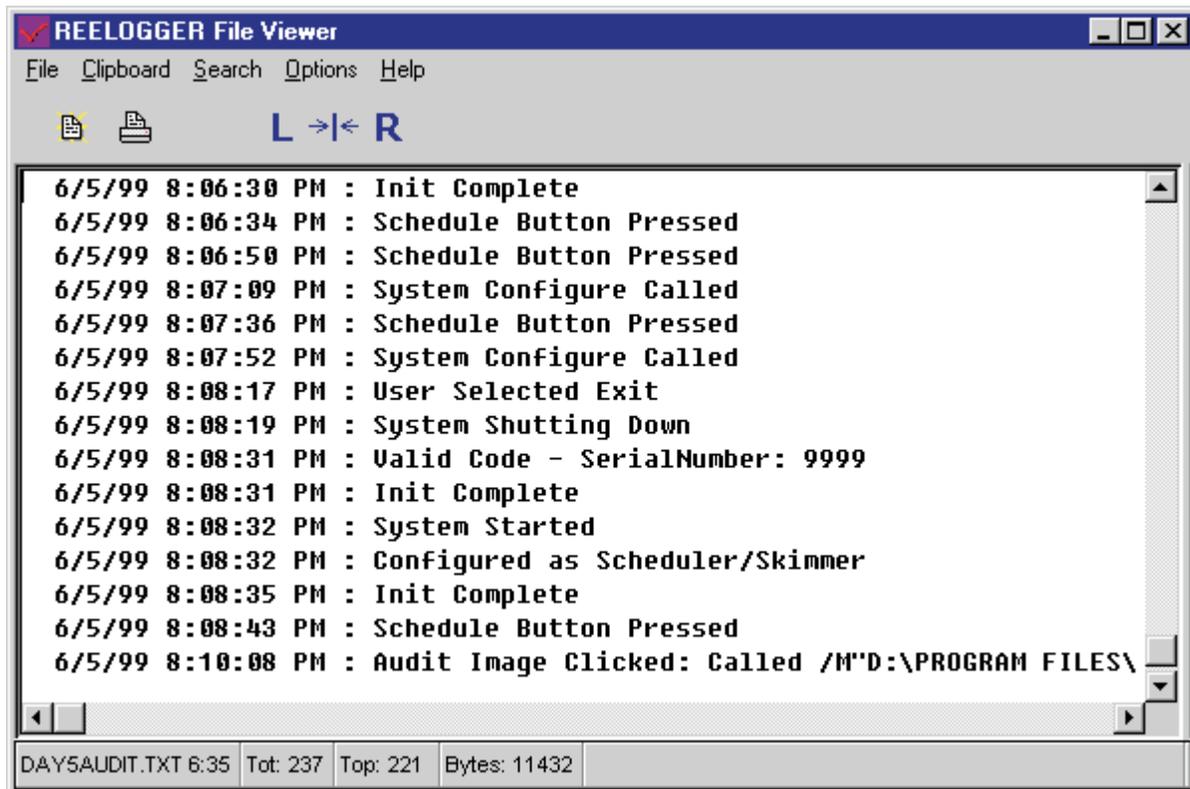
Troubleshooting Tools

Audit File

RL2000 automatically generates a text file that includes potentially important information about the status and operation of RL2000. This file is a standard ASCII text file, located in the RL2000 installation directory and named Audit.Txt. You may view the audit file any time by selecting the Audit Report button from the main display. This launches an included file viewer application and displays the audit file information.

File Viewer

RL2000 includes a separate utility application for viewing files. This application is used to display the audit file generated by RL2000 and can be used for other general viewing purposes as well. When launched from within RL2000, the file viewer loads and displays the audit report for RL2000.



Common Problems

Audio card shows conflict on IRQ or IOMemory

Observe what the sound card is having a conflict with, if possible remove the other device and restart the system. If this clears the problem re-install the other device and let Windows find a new location for it.

System shows conflict or problem with PCI or ISA bridge

Check for patches available for your motherboard that will install the correct drivers for the mainboard chipsets.

System shows conflict with DMA or System Timer

Your system may have run out of physical resources, some programs such as Lantastic, install quasi-devices that steal IRQ's and IO positions. Check the system devices for any devices which may be taking up several locations and remove if possible.

Windows 95/98 Setup Tips

Windows 95 was created for use in offices as well as in the home. In this capacity, it is a fairly quick and efficient system. However, digital audio applications make heavy use of real time processing, and in this case Windows 95 is not well suited. The good news is that with a little tweaking and optimizing Windows 95 can be made to run digital audio applications quite well.

NOTE: Windows 98 is not much different than Windows 95 and these suggestions should work equally well in setting up a system using the newer operating system.

The following tips and suggestions were put together from recommendations from various hardware and software manufacturers. In many cases these settings will greatly improve your success in setting up a working system, but every piece of hardware and software is different and could require more work or different settings.

Virtual Memory Settings

This setting alone could solve many problems. Normally Windows is setup to allow the virtual memory swap file to be resized dynamically as the system is running. While the swap file is resizing other programs can be delayed causing glitches or pops in the audio during playback. In order to avoid this situation it is best to set the minimum and maximum parameters in your swap file settings to the same values.

Setting your Virtual Memory Size.

1. On your start menu click on SETTINGS and then on CONTROL PANEL.
2. Double click the SYSTEM icon.
3. Click the PERFORMANCE tab.
4. Click on the VIRTUAL MEMORY button.
5. Select "LET ME VERIFY MY OWN VIRTUAL MEMORY SETTINGS".
6. Set the MINIMUM and MAXIMUM values to the same value. The best setting depends on your hardware and the amount of memory you have installed. Your machine should have at least 32MB RAM. Set the MINIMUM and MAXIMUM values to an amount equal to your physical RAM. Make sure both values are the same. For instance, if you have 48MB RAM installed on the machine, set both the minimum and maximum values to 48MB.

Disk Caching

Write caching is another feature of Windows 95 that normally helps to speed applications but in the case of Digital Audio programs can be a big problem. In order to disable this feature follow these steps.

Turning off Write Caching

1. On your start menu click on SETTINGS and then on CONTROL PANEL.
2. Double click the SYSTEM icon.
3. Click the PERFORMANCE tab.
4. Click the FILE SYSTEM button.
5. Click the TROUBLESHOOTING tab.
6. Check DISABLE WRITE BEHIND CACHING FOR ALL DRIVES
7. Click OK to save the settings.

Read caching can cause similar problems to Virtual Memory in that Windows 95 dynamically resizes the read cache buffers. Again the solution is to set the minimum and maximum parameters to be the same.

Making changes to Read Cache Settings

1. Open the System.ini file by typing "system.ini" in the Win95 Run line, click OK.
2. Look for a section in the file named [**vcache**] There should already be one, but if not you can add it.
3. Add the following lines under the [**vcache**] heading.

MinFileCache = 2048

MaxFileCache = 2048

You can experiment with larger settings in increments of 1024.

Double Buffering

Some systems may be configured with double buffering for handling disk transfers. This can be another source of audio problems.

Disabling Double Buffering

1. Locate your root directory on your boot drive.
2. Right click on the MSDOS.SYS file and select PROPERTIES.
3. Uncheck the read only box and click OK.
4. Double Click the MSDOS.SYS file and open it in Notepad.
5. Look for a section labeled [**Options**]
6. Look for a line under the heading which says **DoubleBuffer=1**
7. Change this to say **DoubleBuffer=0**
8. If there is not a line at all add "**DoubleBuffer=0**" (no quotes)

9. Save the file and exit Notepad.

Read Ahead Optimization

This is an additional area for optimizing HD performance for Digital Audio applications. You should turn off Read-ahead optimization.

Disabling Read Ahead Optimization

1. On your start menu click on SETTINGS and then on CONTROL PANEL.
2. Double click the SYSTEM icon.
3. Click the PERFORMANCE tab.
4. Click the FILE SYSTEM button.
5. Move the READ-AHEAD OPTIMIZATION slider to the left (OFF)
6. Select NETWORK SERVER from the TYPICAL ROLE OF THIS MACHINE setting.
7. Click OK.

Video Cards

Many video cards can monopolize the PCI bus and interfere with DMA operations. One of the first things you should do is make sure you have the latest drivers for your card. Many new drivers provide applets which allow you to disable or modify certain settings for the card. If there is an option for PCI bus retries and/or DMA bus mastering or a similar option, you should try disabling these. If you are still having problems or your video driver does not have the above options, you can try reducing hardware acceleration from the control panel.

Reducing Graphics Hardware Acceleration

1. On your start menu click on SETTINGS and then on CONTROL PANEL.
2. Double click the SYSTEM icon.
3. Click the PERFORMANCE tab.
4. Click the GRAPHICS button.
5. Move the HARDWARE ACCELERATION slider to the left one notch.
6. Click OK.

You will need to restart Windows. If the problem remains, repeat the above process until the problem is solved or the slider is all the way to the left. If this did not solve your problem you should probably reset the slider to the highest setting (to the right).

Media Control

To keep the Media Control Interface (MCI) from introducing a double buffering condition in your system you may need to disable the Wave audio device.

Disabling the Wave Audio Device

1. On your start menu click on SETTINGS and then on CONTROL PANEL.
2. Double click the MULTIMEDIA icon.
3. Click the ADVANCED tab.
4. Click the plus sign next to MEDIA CONTROL DEVICES.
5. Select the WAVE AUDIO DEVICE(MEDIA CONTROL) and click PROPERTIES.
6. Select the "DO NOT USE THIS MEDIA CONTROL DEVICE" option.
7. Click OK.

Appendix A - Authorized Dealers

Canada

- Cavoco Equipment Ltd.
1-800-268-4081
- KLZ Innovations
1-800-334-9640

USA

- Computer Concepts Corporation
1-800-255-6350

International

- Computer Concepts Corporation
1-800-255-6350
- KTC Technology Ltd.
1-403-922-4093

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Appendix B - Detailed Installation Instructions

If you are installing the sound card and software on a PC you've acquired directly, please review the required hardware list to ensure the PC meets the minimum requirements for successful operation of RL2000.

Required Hardware

Personal Computer with good quality chassis and power supply

- Intel Processor P-II 233mhz and up
- 32MB of premium quality ram memory (64MB for Windows 98 Second Edition and Windows NT)
- 2 4.3GB EIDE Hard drives, preferably A/V rated drives
- 1 32bit PCI sound card
- Good quality keyboard, mouse and monitor
- CD-ROM Drive
- IOMEGA JAZ 2GB or 1GB Models

RL2000 has been refined to make use of the full duplex capabilities of the supplied PCI sound card thus eliminating the need for an additional sound card.

Installing and Configuring the Sound Card

In your RL2000 package you will have received the following:

- CD-ROM
- PCI Sound Card
- RL2000 Manual

NOTE: Prior to the installation of the sound card it is assumed that Windows has been installed correctly and is operating without any difficulties. If this is not the case; stop now and correct those problems first. We will not be going through anything in this manual that will cure those problems.

Find an open and well-lit work area, place the PC in front of yourself and remove its cover.

Ensure there is an open and available PCI slot

Carefully remove the PCI audio card from its anti static bag and align the edge connector with that of the motherboard. Firmly insert the card into the PCI slot, making sure that it seats fully into the socket.

Secure the rear bracket to the system chassis with the correct screw for your system. Make sure that no other components are touching areas of the soundcard that may cause the device to short out.

Reinstall the system cover and reassemble the system complete with monitor, keyboard and mouse.

Power up your system.

The computer will find a new **PCI Multi Media Audio Device**

The "**update device driver**" wizard will appear and display PCI Multimedia Audio Device Click Next

Make sure the driver CD is in the CD ROM

The Wizard will search for the driver but will be unable to find the driver

Click on "**Other Locations**"

In the Other Locations window, Select **Browse**

In the Browse Window click on the **+** sign to the right of the CD-ROM Drive that displays **Sonic Impact** (or the sound card you're installing)

Click on the Folder that says **Win9X**

The OK Button Will Highlight

Click **OK**

In the Select Other Location Box it should display **<CD-ROM Drive Letter>:\WIN9X.**

Click **OK**

In the Update Device Driver Wizard Window at the top it should say "Windows found the following update driver for this device ESS Device Driver"

Click **Finish**

A screen will come up and say "**Insert disk Labeled Maestro Pci Audio Device Driver ...**"

Click OK

Type **<CD-ROM Drive Letter>:\win9x**

Press **Enter**

The Sonic Impact Setup Windows will appear

Click **Cancel**

The Screen will display "do you want to abort the install"

Click **Yes**

Remove the line that has **MAESTRO.COM** in it from the AUTOEXEC.BAT and the **Device = c:\aecu.sys /s0000** Line from the CONFIG.SYS

The AUTOEXEC.BAT and the CONFIG.SYS file should be empty except for the line "**c:\windows\command\scandisk /autofix /nosummary /all**" in your AUTOEXEC.BAT

Restart your computer

Go to START, SETTINGS, CONTROL PANEL

In the Control Panel double-click the Multimedia icon

In the lower left hand corner put a check mark in the box that says "**Preferred Devices Only**".

Once this is complete you will need to restart your system.

On restart we need to verify that the audio device has been installed correctly and no conflicts exist.

Launch control panel and choose system. Under the device settings tab observe that no exclamation marks exist. If they do observe the properties of that device and see what windows is reporting as a conflict.

If all is ok you can close the system and control panels and proceed to the installation of the RL2000 software.

If conflicts do exist please correct them first. The manual section on Windows Configuration and Troubleshooting lists several possible causes and solutions.

Installing the Software

Remove the CD carefully from its container and insert into your systems CD-ROM drive. If auto insert

notification is turned on, on your system (default on Windows install) you will be presented with a basic installation menu similar to the one depicted here..



The first item that should be installed is the Real Audio Player. Click on the **Install Real Player** button and follow the directions on the Real Player setup program.

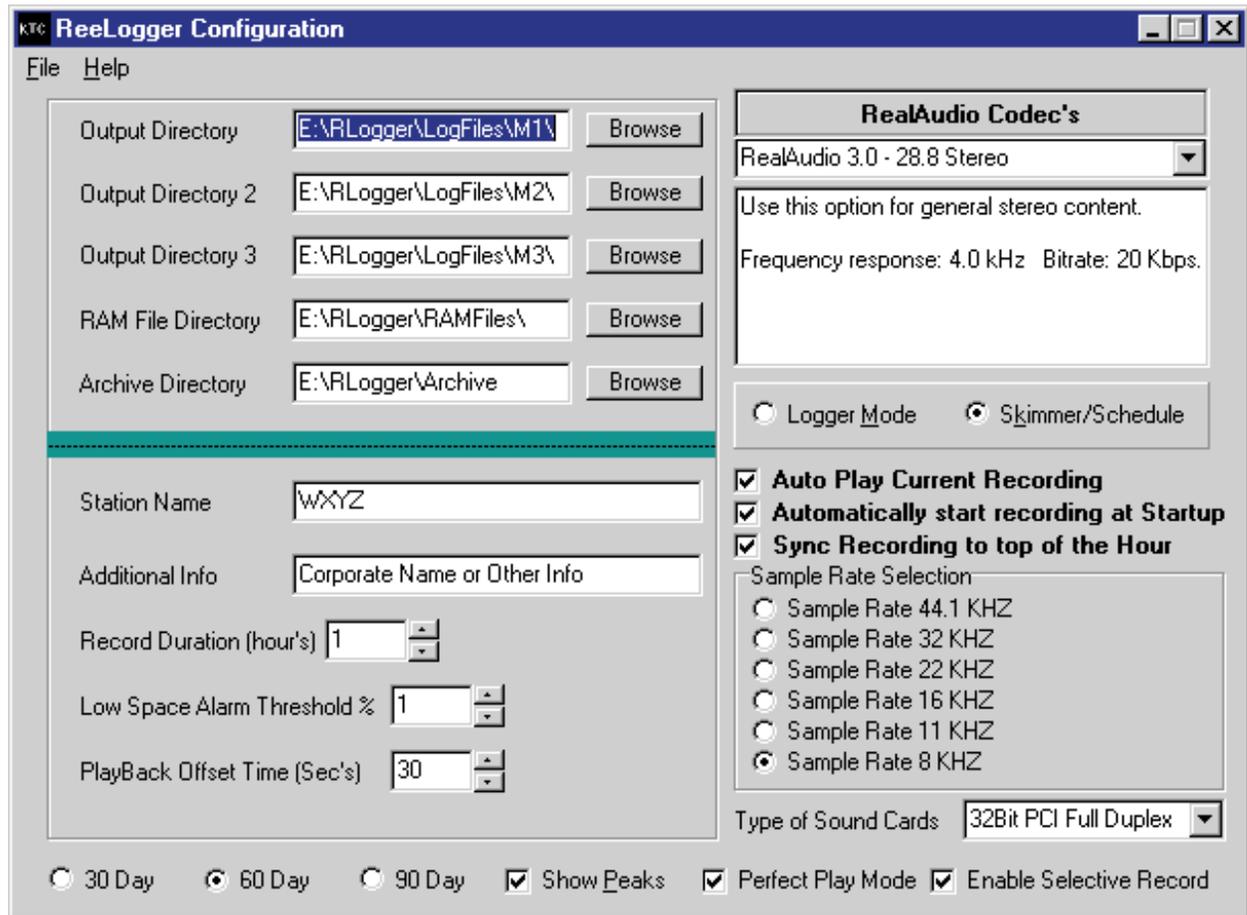
One of the last items you will encounter with the Real Audio Player installation is the registration of the software, generally the RL2000 machine has no means of connecting to the Internet. To eliminate the ongoing registration message you can go ahead and fill out the register form and send it. You will see Windows Internet Explorer launch and give you an error that it could not connect to the Internet site, this is normal. Click Ok and you should see a quick introductory video from Real Networks. This will demonstrate that the player is installed correctly. It may also ask you if you would like to automatically size your player for your display answer Yes.

Once this is complete you will again be back at the main installation menu, this time choose **Install Single PCI** and follow the setup program prompts. During the course of installation you will be asked for your Name, Company and Serial Number. Your Serial number is the number on the back of the CD-ROM case; enter it exactly as shown. It is coded with your internal serial number, program expiration date and user info.

Once the RL2000 installation is complete you may choose **Exit Install** from the main menu.

You should now proceed to configure RL2000. **Do not reboot the system until you have configured RL2000**

Go to the Task Bar and **Start | Programs**, select **RL2000** and **RL2000 Config**. A display similar to this example will appear.



Here we need to specify the locations of where your audio files will be stored and additional program options. For more detailed information on the configuration of RL2000, see the section on RL2000 Configuration.

Generally we recommend using the standard directory names of:

LogFiles ~ for storage of actual audio files

RamFiles ~ for storage of ram files (akin to day tapes)

In output Directory click **[BROWSE]** - you will be warned that the default name does not exist, click **[OK]** and then browse once more. You will now see a directory of your hard drive. Enter the actual path including the drive letter here. Example - for the C: drive it would be "**C:\LogFiles**", now press **[OK]**. You will be prompted that the directory does not exist and would you like to create it answer yes.

If you have 2 drives in the system repeat the above procedure for Output Directory 2 this time choosing your second drive.

We generally store the Ramfiles on the first drive of the system and you will need to create the directory there as well.

Last, select the archive drive location that you will use to make archive copies to. Typically, this would be the path to a removable drive such as an IOMEGA JAZ drive.

Additionally you need to select the quality of the recordings you need to make; this must be coupled with your drive sizes. If you select a codec of high quality be sure you reference the space requirement chart in the operations manual for drive sizes. If you choose a codec that requires more drive space than you have your system will fail when it runs out of space.

You can also configure at this time the station name and additional info that will be encoded into each audio file. Once you have filled in all the appropriate fields, select **File | Save** and then **File | Exit**.

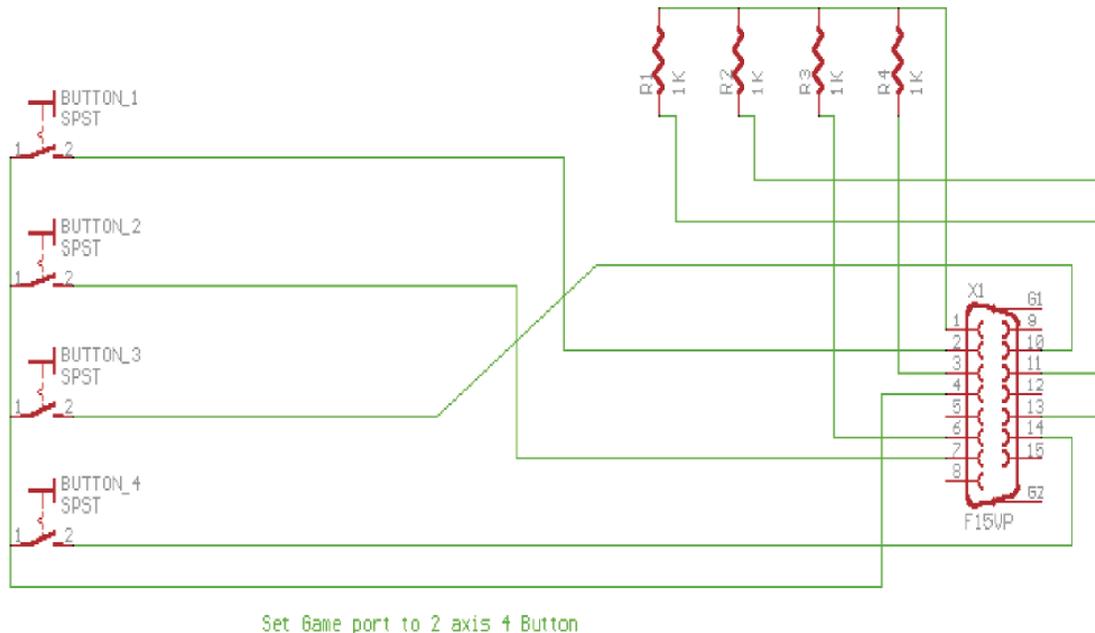
You are now ready to restart your system.

On start up RL2000 you automatically launch and if autostart recording is selected, begin recording.

Please familiarize yourself with using RL2000 by reviewing the section on RL2000 Operation.

Appendix C - Wiring the Game Port

If you plan to use RL2000 for skimming operations, you will need to wire a connection to your RL2000 machine's game port (joystick port). RL2000 uses the game port and associated Button 1 info to determine whether or not to pause or resume recording. Here's the wiring diagram for the connection:



You need to be sure that the game port on your RL2000 PC is enabled and set to 2-axis, 4-button operation. You may need to install the joystick port driver, particularly in the Windows NT environment.

Instructions for installing Analog Joystick driver in NT

If you are installing on an NT machine, you'll need to ensure that the Analog Joystick driver is installed. To check this, and to install if needed, open control panel, select the Multimedia applet, then select the Devices tab. Check the Joystick Devices item to see if the Analog Joystick driver is installed. If not, select the Add button, then Unlisted or Updated Driver. From there, you'll need to insert your Windows NT OS installation CD and use the Browse button to select `\\Drvlib\\Multimed\\Joystick\\x86`. Select OK, and the Analog Joystick Driver will appear in the list. Once selected and installed, you'll be prompted to reboot the machine.

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