Handbook on Radio Automation

PALMER '08
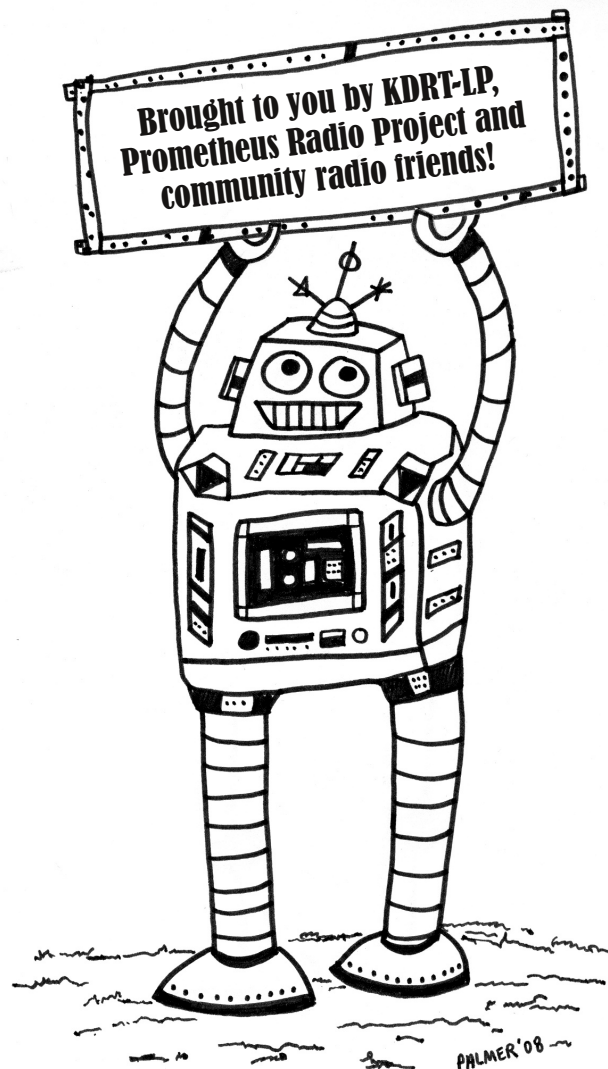
Table of Contents

Solutions to Problems You Never Knew You Had

Our approach in this guidebook is to help the low-budget station navigate the waters of radio automation. If your station decides that some level of automation is needed or wanted, then hopefully this guidebook will help you move forward without fear, and give you some pointers on who can help.

Plus, with increasingly powerful hardware, and increasingly sophisticated software and software developers, the cost of computerized radio automation is lowering. Coupled with a determination to learn, expenses can be decreased further, and, with donated equipment, one could put together a system for practically free.

Any system will have temperamental moments, and need regular love and maintenance. But with a little bit of tinkering and good cheer, your station should be able to do more than it could otherwise.

Some people might think radio automation is inherently evil. Perhaps this is what the majority of volunteers at your station think. If so, maybe investing time and energy in automation is not the best route for you. It might be best to simply concentrate on building a large pool of programmers and DJ's to fill your broadcast day, whether it be for 6 hours a day or 24 hours a day. In reality, though, automation- however you define it- is just a tool. You can opt to build an automation system now and then stop using it later on, depending on the whims of your community.

At KDRT-LP, we initially chose to use automation because there was another station on our frequency when we weren't broadcasting. In order to avoid confusion with this commercial station, we decided to broadcast 24 hours a day, 7 days a week. Given that we had raised $14,000 to start the entire station and run it until our next funddrive, we didn't have much money to allocate to automation, nor the organization to keep the doors open all the time with a live programmer. So we started fairly low-tech, and literally went from "silence to never stopping" in the course of one day. Needless to say, this stressed the good will and patience of the group. Unless you aren't bothered by the prospect of suddenly waking at 3:00am to check on the station, hearing dead-air and then embarking on a brisk bike ride to remedy the situation, I don't recommend this steep of a jump-off. Or, if you do, just make sure everybody knows what might be in store.

Needless to say, the first two weeks of our broadcast was incredibly repetitive during the "non-live" hours, which both excited people about the new music they were hearing or made them question our effort altogether. Therefore, if you are just starting out, you might want to start out slow- say 6 hours of live programming and 2 hours of automation, then turning the transmitter off, or some combination thereof. Easing your way into it might help set the tone for years to come.

Consider these questions before proceeding with unattended broadcasting:

•**What happens on the channel if you turn off your transmitter?**
•**Who is going to be helping?**
•**How many volunteers will be helping in the next 6 months? Next year?**
•**How late can you stay open? Does your space have limited access?**
•**Can volunteers can let themselves in and out of the studio?**
•**What is your budget for automation hardware & software?**

An early automation system at WWJQ (WPNW). What's not to love?

Of those questions, most relate to volunteers. This is because, when it comes down to it, whether there are 2 of you or 300 of you, the station is driven by volunteer effort. Volunteer effort drives just about every decision, including broadcast hours- both automated and live. Behind every automated broadcast hour still lurks a human, programming logs or maintaining scripts.

Regarding volunteer effort, automation as a tool can both improve station culture, or contribute to its toxicity.

Here are some situations to consider:

Volunteers: so much time can be spent corralling people- keeping them happy, helping them develop their skills and voices, or dealing with conflicts. One tool that can be used in the "volunteer management" toolkit is automation. You can employ automation to record programmers' shows and replay them at other times of the day. This can be used as reward for volunteers who spend a good amount of time producing relevant programming. It can also be a way for the programmer to develop radio skills as they listen to a rebroadcast of their show while sipping tea in the comfort of their home.

Flexibility: recording shows and replaying them can lead to either "long-term volunteerism" or "habitual absenteeism." In other words, while some people might use the ability to replay last weeks show as a reason to lose motivation and not show up for their airshift, other folks might arrange in advance for biweekly live shows, planning ahead of time to prevent long-term burnout. The difference is using the technology positively instead of using it as a crutch.

Skill-building: many people are comfortable or even like working with computers these days, and their expectations of what can and can't be done have similarly increased. These folks might want to use computers to distribute their show online, play audio from sources on the internet, or otherwise increase their computer-based skills. An automation system might help to increase the skillset of individuals in your community.

Programming: scheduling programmers can be difficult. While scheduling is a different topic, an automation system can give you more options, such as scheduling a natural block of shows from programmers that don't get along in person, or repeating a popular show later in the week.

Just remember, if your station did not have you and other volunteers with all of your quirks and personalities, it would never sound as good as it does. It is this diversity that tools like automation should enhance, not stifle. Even with a complex automation system, the quirky, highly individualized personality of your station should be heard loud and clear. This personality is a great thing and worth celebrating!

Once you decide to use automation, ask yourself what kind of programming will be broadcast during the unattended hours, and the different elements that will go into these programming blocks. Station ID's, announcements, music and pre-recorded shows are all possibilities. Putting these elements together form the basis of a basic automation system.

Some of the best advice I've received is to test out as many systems as you can and don't be too hasty about it. In other words, allot 2-4 weeks or more just
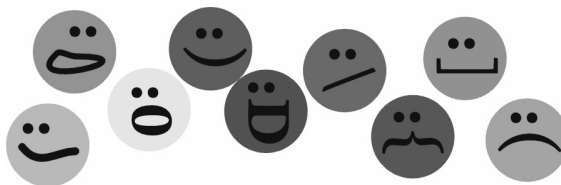
to play around with the machines you might use, the free demonstration versions of the software, how it might tie into the systems you currently use, and how it might enhance the good already going on at your station. Look at the interfaces, build playlists, and see what other volunteers think of it. Time spent doing experimentation is a worthy investment over the long run.

While this sounds good, sometimes it comes down to budget and expertise. A used multi-disc DVD changer might be the extent of your budget. Or, if your group is highly versed in Apple computers, a Mac based solution might make sense. Or perhaps, after being donated older PC computers, you might want to tinker with open source software. These unique situations all will play a factor in deciding what is best for your station.

Computer, We Don't Need No Stinkin' Computer!

Well, mostly, anyways...

KVLP-LP and KMUD are both stations in California. While both stations actually do use computers, the actual playout of audio is with more simple devices.

KVLP-LP (kvlp.org) operates at 101.5 FM in Visalia, CA. Bill Balsley of KVLP-LP says he built a 24/7 automation system because "the rent-free transmitter site cannot include a studio" and "I consider broadcasting only six hours daily to be a waste of scarce resources."

Before going on the air in 2005, he put together a reliable, cheap and easy system for automation. The concept is relatively simple: MP3 data files are sequenced for playback on a PC, burned to a CD-R disc, and the disc is then transported to the radio transmitter site and played on an ordinary household dvd player.

He says it works because, "typically, MP3 files at 128bps, in stereo for music, provide compression of about ten-to-one, while lower bps rates, in mono for spoken word, have even higher compression rates. The point here is that a data-CD disc (DVD-R discs with MP3 files are not readable by his dvd player) with both music and spoken-word data files can (and does) play for thirteen and a half hours or more."

Bill keeps his system organized the following way: "Each disc is created from numbered MP3 files which are stored in three major folders: IDs, announcements, programs.

"Data files on a CD-R are burnt in alphanumeric order by most generic burner software packages. To organize a show in the desired sequence requires that the MP3 files have slightly modified filenames, so they play back in the order you wish.

"Station-ID file names are prefixed with odd numbers (001 003 005 007...); PSAs, calendars, underwriting, and community interest announcement files are prefixed with 'fives' only (005 015 015 025 025 035...); music files are prefixed with even numbers (000 002 004 006 008...).

Don't forget: FCC rules for Station Identification and the Emergency Alert System (EAS) still apply for automated broadcasts!

"After sequencing the program (even numbers), drag those files to the burn-list, add the announcements, and finish with enough station-IDs to fill between songs. Then trim down the list to barely less than the CD-R's maximum data capacity of 700MB, and burn the disc. MP3 files on this disc are auto-arranged by the generic burning software & will play in this order: 000 001 002 003 004 005 006...(music, ID, music, ID, music, PSA, music...)."

"We're proud to ID the station after every song, and up to three announcements are scheduled after every fifth song, in a sort of 'stop-set.' Lastly, a variety of prepared shows (about 200 songs each) are saved in dozens of folders and each CD is archived.

"At the transmitter site, listen for a logical break, such as the end of a song or an announcement. Eject the old CD-R from the dvd player, insert the new CD-R, and select 'repeat-all' with the remote control.

"Disc swaps are recorded in the logbook at the site. Each song or announcement repeats every 13.5 hours, so the time frame is 13.5, 27, 40.5, 54, 67.5 hours. Current practice at KVLP is to swap out the disc every 2 or 3 days, and the 200-song set is retired until the next month or so. A typical listener might hear a song a couple of times from the current program, and not hear it again for quite a while."

Bill sees some additional benefits to this system:

"Operating power consumption is less than any other automation system, and there is minimal training for volunteers. Equipment is inexpensive and readily available- the dvd player was replaced for $30 once in 22 months, and the CD burner in the computer was replaced for $20."

KMUD, or Redwood Community Radio, has a studio in Redway, CA and operates 99.3 FM in Eureka, 91.1 FM in Garberville, 99.5 FM in Shelter Cove, and 90.3 FM KLAI in Laytonville. http://www.kmud.org.

KMUD is a full power NCE station, with a full schedule of diverse programming and a solid volunteer base. Still, they do not always have programmers in the middle of every night of the week. As such, they have done a couple different things to get the station to the next airshift. Technical Director Simon Frech says "we do automation a couple nights per week, usually for four hours, sometimes five." While they started out by using mini-discs in long play mode for 4 to 4.5 hour overnight automation, he says they now use CD players that play CD-Rs of MP3 data files, with the last DJ of the night starting the CD and leaving it playing.

"I make a playlist in iTunes & burn it onto CD (using a computer), and fill each hour as as close to 60 minutes as possible with shorts and announcements and station IDs. Occasionally there is a file that the player skips over, I don't know why. Usually it works great, though."
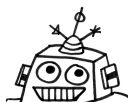
OK, Computer

If you've decided that computer based automation makes sense for your station, the next decision you'll need to make is Mac vs. PC- if this decision hasn't already happened. A PC can run either Microsoft Windows or a version of the Linux (or GNU Linux if you prefer) operating system, while a Mac, although possible to run certain versions of Linux, generally should be run using OS X. A debate about which operating system to use is beyond the scope of this discussion & going with what is already familiar or available is probably best anyway.

Instead, we'll focus on examples from each operating system. We'll also limit most of our examples to the most affordable solutions. A brief look at complimentary software programs is included in the Random Software Bits section.

Deciding on software and hardware is not always an easy task. Information on the web is not always reliable- if you can talk a real person directly, do so. Also, look into the human side of software development. If software is not being updated, the developers might be investing their time in something else. Or you might find that a monthly fee will soon be required for the software. And always examine the hardware requirements for software- i.e. if a program requires an expensive audio card, it may not work for you.

While the best way is to test each system yourself, some software does not have trial versions, and you may not have time to test every option available to you. Therefore, it is helpful to see what other stations are doing.

Mac

MegaSeg- WSLR-LP, WECI, WBCR-LP

MegaSeg is promoted as both DJ'ing and Radio Automation Software, and is one of the more popular choices among community radio stations who choose to use Macs.

WBCR-lp | 97.7fm
BERKSHIRE COMMUNITY RADIO

WBCR-LP (berkshireradio.org) broadcasts at 97.7 FM in Great Barrington, MA and uses MegaSeg as their automation system. In regards to using automation, WBCR-LP's Nick Ring says "why not be on the air at all times for people who want to listen?"

Regarding MegaSeg in particular, "It is a pretty flexible program with a selection of interfaces, from a more digital DJ type 2-deck interface to the one we use which is more geared towards station use. We also run a second computer that we installed a second copy of MegaSeg on to use as a 'DJ Assist' machine so that they may access the digital library without mucking with the automation computer."

Asa Hardcastle adds that, "Everyone at WBCR is a volunteer. Megaseg is overseen by a tech committee, and there are 5 of us who deal with MegaSeg in various ways, including adjusting playlists, etc. It requires good communication when you have more than one person."

"We raised our antenna 2 days before the expiration of our CP...Asa and I sat on the roof of the hospital where the antenna was raised putting MP3s into the computer as the wiring was being connected"- WBCR-LP

How is MegaSeg put on the air at WBCR-LP? Asa shares:

"It is just an input on the board. Fading back in to automation is the responsibility of the programmer and we train people how to use it. You could easily use megaseg to act as an autoswitch, but transitions would not be quite as nice. The more advanced users tend to queue up a song in megaseg before fading into automation. When a syndicated show follows, the programmer will watch the show click into place and then fade in."

Nick adds that, "The random mix is mainly from midnight to 6:00am. DJs can pre-empt it with live programming if they feel inspired."

MegaSeg in use at WBCR-LP. Provided by Asa Hardcastle.

Megaseg.com: Priced at $199, demo available- cue and preview outputs- automatic or manual control- color coded - playlist events & scheduling- requires an Apple computer OS 9 or OS X.

Regarding syndicated shows, Asa says they both manually download files from show websites, as well run scripts that automatically download shows.

"We've written some shell scripts that download mp3s, but this does not work for every show, and requires consistency from the people who are syndicating. They need to have consistent filenames, post time, and bandwidth. With MegaSeg you can overwrite the old file with the new one and it will play properly in its slot. No need to import after the first time setting up the playlist."

Asa says you can contact them (tech.committee@berkshireradio.org) if you'd like copies of those scripts, though "the scripts are shell scripts, so they only work in *nix operating systems (Linux, Solaris, Mac OS X, etc)."

WSLR 96.5 LPFM
Grassroots Community Radio

Over at Grassroots Community Radio WSLR-LP (wslr.org), 96.5 FM in Sarasota, FL David Beaton says that, although "we have built a station family of over 90 folks," they still need automation for "our gaps and overnights- after 1am to 7am- when we lack programmers," and that MegaSeg was in the right price range.

"We don't stay open but have a real estate lock box with a key inside. We give the combo to our programmers and they come and go. We have a station manager that does 3 days a week for continuity sake and to make sure everyone stays connected.

"We record our shows onto a Sony CD recorder live from the air off the board. We do not allow community prerecorded shows at this time. We want folks to get involved in the station. We do not replay shows at this time. Our public affairs folks do go out and record speakers for airplay. But we are not interested in folks who want to stay at home and just want us to carry their podcast without coming into the station."

College station WECI (weciradio.org) at 91.5 FM in Richmond, IN also uses MegaSeg. Alice Edgerton, who was at WECI between 2003 and 2007, tells us this about their system: "We used automation as a back up in case a live DJ missed their show. It ran 24/7, hooked to a silence sensor. Megaseg had the features we wanted for an acceptable price, and the guy who had written the software promised to provide backup. We also wrote scripts that would drop new syndicated programs, downloaded by iPodder into MegaSeg, which was (in my opinion) way too often a failure."

WECI 91.5 fm
Richmond's public radio

Alice describes the physical location of MegaSeg at the station: "The automation computer is located in the main office- we have a monitor in the main broadcast studio that shows exactly what is going on with the automation computer, without being able to control it."

Alice also provides some insight into how automation affected the culture of WECI: "I have come around to the idea that we should have dealt with the dead air in a different way. I think we relied on it (the silence sensor and MegaSeg) much too heavily.

"I also think that there might have been a better program out there for us. I feel like we either didn't understand the program enough to make it work perfectly, or that the program was too hard to use- we were never really sure if the problems were a result of the program, or a result of staffers not having enough time. But, when it worked, it was great, and there was a general sense of pride and 'look at this cool new flashy technology, we're awesome.'

"Automation was also popular idea for fundraising purposes, and, at first, popular among all DJs. It made us seem more legit to outsiders- having something playing at all times. But again, I think that we should have looked at it less as a cure-all, and more as a last resort tool."

Any questions regarding Megaseg at WECI can be sent to: stationmanager@weci.org.

A Silence Detector or "silence sensor" setup might include an audio feed plugged into a computer Line Input, with software detecting when no sound is present for a specified time, & subsequently executing tasks like starting a new playlist, or maybe sending you an email!

Both WRYR-LP and KREV-LP use iTunes as the audio file library, and use custom scripting as the basis for their systems.

We aRe Your Radio WRYR-LP (wryr.org) is an all-volunteer station at 97.5 FM in South Arundel, Maryland that uses iTunes and a variety of custom scripts. WRYR-LP's Chris P. says, "Our goal was to be on the air 24/7- automation was the easy answer to fill the times when we didn't have a live volunteer DJ on the air.

"We have been extremely lucky to have had two talented and innovative programmers to provide the station a robust and easy to use system. We had some iMacs donated as well."

Eric Funk and Brian Tabinowski are those people. Eric is the original author of the iTunes scripts used in the beginning at WRYR-LP. Eric moved to Colorado and now works with a team on Audiorack or ARSuite. After he left Brian Tabinowski stepped in. Brian says "I added features to the script as people at the radio station requested them."

Brian has this to say about their custom system:

"First and foremost there is the main automation script that controls iTunes. This script is written in the Applescript language and basically controls what iTunes plays. The script allows recorded shows to be programmed to play at specified times. It also plays promotions, public service announcements, station IDs, and music blocks when no live programs are on the air. The script is aware of the time and plays Station IDs at the top of every hour as required by the FCC. Other things this script does include: keeping a log of all things played and providing an interface for live DJs to interrupt the script and do their live show. The script can also automatically record the live shows so they can be repeated on air at a later time.

"Actual recording is handled by our mp3 streaming program, Nicecast (http://www.rogueamoeba.com/nicecast/). Nicecast is used primarily to stream our signal onto the internet, however it also has an archiving feature that records the broadcast.

"There are several smaller scripts that are used to automatically download programs from 3rd parties. For example, we air 'The Parents Journal' and we have a script that automatically goes to The Parents Journal FTP site, downloads the show, and programs it to play at the correct time. There are at least 4 scripts that perform similar tasks for other 3rd party shows.

"I have other scripts I use to perform other miscellaneous tasks such as: finding out how many stream listeners we have at any given time, moving show files to and from the production PC computer that is also in the studio. The production PC is the only non-Mac machine in use. It is there for DJ's to edit recorded shows, convert files to MP3 format, then submit them back to the automation to be programmed at the desired time.

"As for sharing these scripts, I would have to say that to get any long term use out of them, one would need at least some knowledge of the Applescript language. Right now the script has specific system information hard coded into

it for our system and would have to be modified to work in a different environment. If you are really interested in using this automation script then perhaps I could give you a simpler version of it that had less features but would be easier to get going and still have the main features intact."

Contact WRYR-LP and Brian through their website (wryr.org). Lastly, it is worth noting that WRYR-LP does "not use iTunes for live on-air music playing or assist." If live-assist (the ability of a live DJ to play audio files from your automation system) will be an important part of your system, their solution may not work for you.

KREV-LP 104.7 (krevlp.org) is based in Estes Park, CO, and uses a unique system that incorporates iTunes and iCal to build up and play their programming blocks.

KREV-LP 104.7 FM Estes Park

If you contact KREV-LP about their system, you might reach Paul Saunders. He is a former manager and now producer at KREV. For his shows he converts vinyl records and tapes to MP3's, then records vocal intros through a Yamaha MG 16/4 mixing console. He creates 1 hour long programs like "The Hey It's a Wurlitzer Hour", then goes down to the KREV studio and imports the show in the KREV-LP Automation System.

The KREV-LP Automation System was developed by Mark Lee specifically for KREV-LP and for their particular workflow, which is mostly prerecorded shows; as such it may or may not work for your station.

KREV-LP Automation System "meta-playlist" for Monday

It is licensed as Shareware, though the station does accept donations. You can contact Mark at krev1047@mac.com for a copy of KAS, especially if your station is partial towards Macs.

The manual for this system is also available from the nice folks at KREV-LP, and being a thick 20 pages long, gives some indication as to the amount of thought that went into it.

As Mark writes in the manual: "KAS consists of several custom programs, scripts, and a database designed to manage and automate the programming of KREV. The system is fully integrated with iTunes which continues to serve as the playlist and song repository and playback engine for the station. KAS runs on late-model Mac computers running OS X version 10.4.8 or later. iTunes 7.02 and iCal version 2.0 or later are also required."

KAS is basically an advanced way of building "programs" from specified playlists, then scheduling those programs into a sort of meta-playlist for an entire given day. See the example for Monday. KAS employs iCal to fire off scripts that build these "meta-playlists," and start them playing. There are also options for inserting radio station ID's and public service announcements. Also some additional bells and whistles, like 'automatic backup playlist recovery,' to prevent dead air.

The use of iCal by the KREV Automation System is not unlike those using Windows Task Manager to fire off Winamp playlists.

Here is a snippet from the KAS manual showing how they employ iCal:

To schedule these events, you will need to do the following:
1. **Run the iCal program**
2. **Add a new calendar and give it a name (like "KREV")**
3. **Add a repeating event at 06:00 am called "Play Daily Playlist." Set the repeat frequency to "Every Day" with no end date**
4. **Set the Alarm option to "Run Script" and select the script named "PlayDailyPlaylist" from the KREV Project Folder located in the Applications Folder**
5. **Set the Alarm time to "1 minute before" which will cause the script to start at 05:59:00**
6. **Add another repeating event at 11:00 am (or any other time during the day). Set the repeat frequency to "Every Day" with no end date**
7. **Set the Alarm option to "Run Script" and select the script named "BuildDailyPlaylist" from the KREV Project Folder located in the Applications Folder**
8. **Leave iCal running on the Transmitter Mac at all times. Add it to the auto-start list so it will load automatically any time the computer restarts**

Lastly, Paul adds this about how the KREV-LP operation works: "Some programmers create their programs at the studio using the studio mic, Mackie board and GarageBand in the computer, or straight into a Tascam CD burner for later ripping. Pre-recording is great in that any flubs are edited out. I 'engineer' a Classic Rock program for a host at the studio. He asked me to let him redo his first ten or so program intros as he didn't like his delivery. He got better with time! All the above works well for us with a radio group of only six people."

AUDIORACK- KURA-LP

AudioRack (ARSuite)Also a member of the iTunes family. After working on SimpleAutomate (brand no longer maintained) and WRYR-LP, Eric Funk and his brother now work on AudioRack, aiming to launch ARSuite.

Eric says that "Audiorack is being developed primarily by my brother, Ethan, with some help from staff at KAFM in Grand Junction, CO, KURA-LP in Ouray, CO, and mountainchill.com. It has run for one year on KURA-LP (http://ouray.k12.co.us/Teachers/KURA/firstindex.htm) and several years on mountainchill.com."

Eric also says: "supported audio formats include mp3, aiff, and MPEG-4. The software includes simple functions to import playlists from iTunes. Unlike iTunes, you'll get a cue output and professional segues. You also need access to a MySQL database server."

However, at this point it appears that you'll have to contact Ethan at http://redmountainradio.com if you want to install the program, or install the version available at http://versiontracker.com/dyn/moreinfo/macosx/21927, as the arsuite.org site does not seem to be maintained.

MacBroadcast- WRFR-LP

Joe Steinberger from WRFR-LP (wrfr.org), 93.3 FM in Rockland, Maine, says they love and use MacBroadcast, a French product, and that it has been in use for ten years over in France, but that "it is not cheap." However, at this point it is not clear if the project morphed into something else, or support for it has ceased. If you know French you can explore more elements on their website, here:

http://pagesperso-orange.fr/logram/MacBroadcast/english.html

Windows

Winamp- KRFP-LP, WCNH-LP

Radio Free Moscow, KRFP-LP (radiofreemoscow.org) operates in Moscow, Idaho on 92.5 FM.

Leigh Robartes talks generally about their automation system, while Dave Williard gives us some specifics about how their system operates, and some additional tips for users of Winamp.

Leigh: "We don't have a lot of money or time to investigate automation. We prefer live programming, so we didn't want to put a whole bunch of resources into automation, but we wanted to do overnights and syndicated shows Saturday and Sunday mornings. We don't care about voice-tracking and intros. We don't care about choosing music from style lists. We have about 30-35 programmers so far, with another 10-20 volunteers in other areas- this for a town of about 20,000 people.

"We decided to use Winamp since it is free, people tend to already have experience with it, and it runs most file formats. It's fairly reliable if it's started at the right time, and on the correct track. We bought a cheap automation program for about $80.00 and it was too complicated to learn to use and required re-labeling and tagging all our music files."

Leigh also mentions some downfalls with Winamp:

"Building playlists does take a lot of time, and you have to do it one hour at a time if you want things to start on time in long playlist. It might be more of a pain than a program selecting random music, but we really want our early morning news shows to start and end on time. We insert station ids and promos between tracks and save the playlist with a name that includes the deejay name and start time. The playlists are created on a networked computer away from the deejay computer. We have the computer on an uninterrupted power supply in case the electricity goes out." Occasionally other problems creep up with Winamp, like it's habit of clearing the entire playlist if you double click on a track in the wrong rhythm (we tell folks to drag and drop tracks).

"Also, you can't have the automation choose songs by category. You have to do all the choosing manually. You can't lock deejays out from manipulating scheduled programs or keep them from accidentally putting it in 'random' mode. Though, all of this hasn't been much of a problem.

"One more problem: if you want to broadcast a concert that's split into separate tracks, there will be a quarter second gap between songs. So if the tracks segue into one another, listeners will hear an annoying gap. We avoid this by not playing tracks that segue into one another. We tried a plug-in to correct this, but it caused other problems so we removed it. Overall, Winamp may not be what you want, but it works for us."

Dave Williard: "We chose Winamp because it has always been independent and less invasive of the operating system. These two reasons are no longer true but we still use it because of it's BigClock plug-in, nice playlist, and a stretchable player module (making the seek slider longer and therefore have better positioning).

Winamp on the KRFP-LP desktop. Provided by Dave Williard
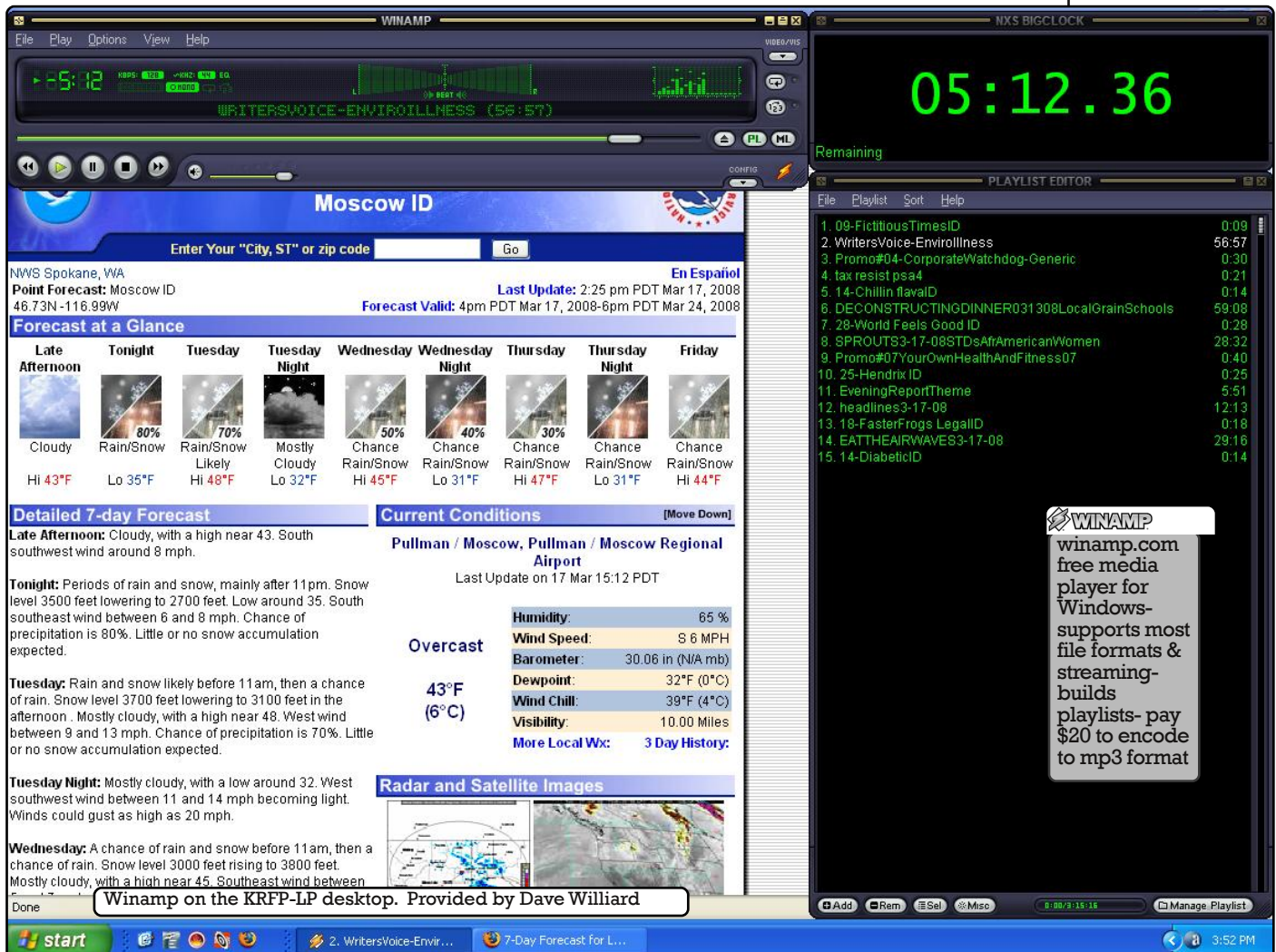
"We've also had good results automating our system by using the Windows Task Manager to start carefully timed playlists from specific times. We use Winamp for the playlists, but I believe this would work with any player.

> **Dave's Quick Guide to Using the Windows Task Manager**
> 1. **Start the wizard: Start -> Control Panel -> Scheduled Tasks -> Add Scheduled Task -> click "Next"**
> 2. **It will take awhile then click "Browse", navigate to your playlist directory (Tip: put a shortcut to your playlist directory on the root of your hard drive to do this in one click)**
> 3. **Select the playlist you want to start; click "open"**
> 4. **Click "One time only"**
> 5. **Fill in the time, AM/PM, and date; click "Next"**
> 6. **Enter the password (twice); click "Next"**
> 7. **Click the box that says "Open advanced properties when I click Finish"; then click "Finish"**
> 8. **Select the "Settings" tab in Advanced Properties**
> 9. **Click "Delete the task ...", to keep your task list clean**
> 10. **UnClick "Stop the task ..." , this can cause conflicts if you leave it on**
> 11. **Click "Wake the computer ...", to start the playlist even if you've had a power outage.**

Some tips on Winamp in particular and Windows in general from Dave:

"<u>1</u>. All (or most) media players in Windows want desperately to be YOUR media player, as such they will fight with each other within the operating system to take over operations. This can be disastrous for a radio station, pick one and install only it (you can't un-install Window Media player, but you can push it into the background). Do NOT install Realplayer or Quicktime as they are known to install spyware, use RealAlternative and QuicktimeAlternative instead. Removing Realplayer and Quicktime and their spyware requires manually editing the registry.

<u>2</u>. When installing any media player do not "associate" the various types of audio formats to the program (you will have to un-click them during the install). If you do so then when you sort by file type in explorer then all files will be the same "type". By not associating the file types they will still work, but just not launch automatically in Winamp if you double click them.

<u>3</u>. When you want Winamp to stop after a track & not play the next track, just drag the file to the bottom of the playlist. You can make the repeat button select between continue or stop rather then repeat the playlist in the options, but the button will inevitably be left in the wrong position if you train DJ's to use it.

<u>4</u>. We air several shows directly off their webstream including Democracy Now. We make a playlist that has multiple sources and multiple copies of those sources, with the best ones on the top. Multiple streams in case the first one messes up, i.e for Democracy Now we have a couple of "KU Left" (Pacfica's Ku satellite online: audioport.org/live) links first and then links to another station that also airs it when we do and a few other places I believe. To stop the stream or insert ID's on the hour, we just start a new playlist task. It's rather clunky for on the hour ID's but it works.

<u>5</u>. NSXBigClock: This is a plug-in for Winamp that is simply a big clock which is easier for DJ's to see. Bug Warning: left clicking the clock will cycle through its' display options (remaining, playlist remaining, etc.) but if you modify the playlist after it has started then the "playlist remaining" will be wrong. If you right click and select from the list, it works correctly.

<u>6</u>. To add FLAC file support to Winamp, use this FLAC plug-in with library support: http://www.winamp.com/plugins/details/143614

> FLAC: Free, open source Loseless Audio Codec for lossless audio compression and decompression.* FLAC reduces bandwidth and storage requirements without sacrificing the integrity of the audio source- audio sources encoded to FLAC are typically reduced in size 40 to 50 percent.
> *EN.WIKIPEDIA.ORG/ WIKI/FLAC

7. To add Realplayer, Quicktime, and other format support follow this thread:http://forums.winamp.com/showthread.php?s=&threadid=155680

8. And of course, install the Shoutcast Source plugin if you are using Winamp for streaming. http://www.shoutcast.com/download/broadcast.phtml

9. Total Recorder. http://www.highcriteria.com. This is a very useful and well priced recording utility. It can be used in the office to automatically record any webstream (even the ones you aren't supposed to be able to record). In the studio it can be set to record shows for archiving or re-airing. Get the professional version for $35.

10. Getright. http://getright.com. This freeware download utility does an excellent job of getting files off of radio4all.net when it's server is being difficult. To use it with Firefox you will also have to install the Flashgot plugin."

Thanks Dave Williard from KRFP-LP!

Leigh adds:

"Using Total Recorder we can record shows like Flashpoints and Guns & Butter from KPFA's ogg stream to a destination file that is played at the proper time on the Winamp playlist. Otherwise it's pretty much all manual (downloading). I like to check all the shows we air in Sound Forge and I increase the levels and dynamic compression on some."

Regarding KRFP-LP's workflow, Leigh says,

"Deejays can create their own playlists or play cuts off of WinAmp. The programmed shows are on a WinAmp playlist made by staff (usually me) in the other room and saved to the other computer via the network. For overnight playlists I go to the master control computer and program the auto-start. Usually there is a couple minutes of ID's and a promo during the first two minutes which lets the deejay join in progress if their song is going over and still not miss the beginning of whatever comes after. For daytime playlists, the deejay is responsible for clearing Winamp, finding and dragging the playlist (named: DeejayName-Fri-12-26-08-359pm) to the playlist and starting it on time."
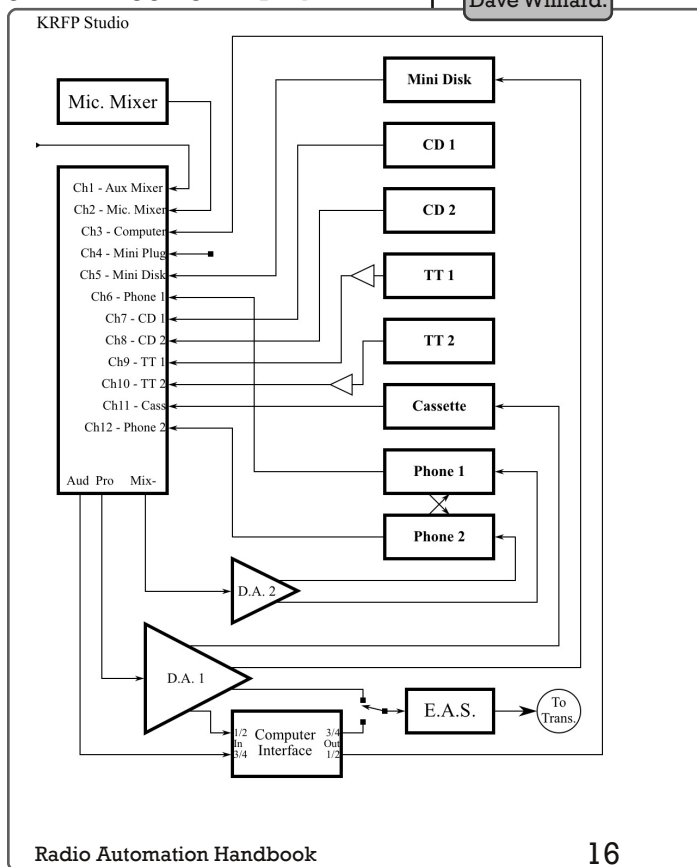
Dave explains their setup, "The computer output is one of the channels on the old Arrakis broadcast board we bought used (and the computer input comes from the board- see block diagram).

We also have a manual switch which bypasses the board during the overnight and sends a feed directly from the computer (which is on a UPS) down the line towards the transmitter. The switch is mainly to bypass the board (which isn't on a UPS) because if power goes out it will turn off the computer channel. With the switch, the broadcast would resume in progress when the power came back on. It's also handy when working on the board."

Lastly, KRFP-LP also indicates that they are currently exploring Zara Radio for a possible future system change. Contact Radio Free Moscow directly if you have any questions.

Radio4all.net- The A-Infos Radio Project runs this website, founded in 1996, where shows from the activist and grassroots community can be uploaded and downloaded for free, in order to serve the "struggles for liberty, justice and peace."

KRFP-LP Studio Block diagram. Provided by Dave Williard.

KRFP Studio

Mic. Mixer

Ch1 - Aux Mixer
Ch2 - Mic. Mixer
Ch3 - Computer
Ch4 - Mini Plug
Ch5 - Mini Disk
Ch6 - Phone 1
Ch7 - CD 1
Ch8 - CD 2
Ch9 - TT 1
Ch10 - TT 2
Ch11 - Cass
Ch12 - Phone 2

Aud Pro Mix-

Mini Disk
CD 1
CD 2
TT 1
TT 2
Cassette
Phone 1
Phone 2

D.A. 2
D.A. 1

1/2 In 3/4 Computer Interface 3/4 Out 1/2

E.A.S.

To Trans.

WCNH-LP (wcnh.org) broadcasts out of Concord, New Hampshire at 94.7 FM, with a mission to "...promote the appreciation and listening enjoyment of classical music."

To fulfill this mission, Harry Kozlowski explains: "We use Winamp. That's all. No fancy-pants automation software. Just Winamp. We build a playlist each day, which takes about 20-30 minutes. We get all our programming from a network. We use two computers: one to record content at the network and one to play it on air. We take 24 'music hours' and add local underwriting, promos, and ID's and let it run. In 3+ years we have had no problems with Winamp.

Regarding the network feed, Harry has this to say: "The folks at WFMT were kind enough to let us install our own DSL circuit and computer at their offices. They ran an audio source to our computer. We use a shareware program called Cybercorder 2000 to record the music hours. We also use Net Time to keep the computer on time with the network. We then use Turbo FTP on our Concord computer to reach out to Chicago and grab music hours. I should point out we have a IT specialist on our board who helped us set this up. I'm sure we couldn't have done it otherwise. When I say WFMT, I mean the Beethoven Satellite Network (a classical music radio service of the WFMT Radio Network), which is generic- no ID's of any kind. We have a fairly informal agreement with BSN but we do pay a modest rights fee.

"Our mission statement is to preserve classical music radio in Concord, and New Hampshire if we can expand. Classical music is a difficult format to do well. You need an enormous library and at least one programmer who understands the music well enough to make selections intelligently, not to mention be able to pronounce composers and pieces correctly. So hooking up with WFMT gives us the highest quality programming and allows us to operate on a shoestring.

"WCNH runs counter to the usual LPFM mantra. In fact some who know about us think being an automated network station is not what community LPFM should be. But I counter that argument by pointing out that we provide a rare format to a significant appreciative local community."

Station Playlist- WHYS-LP

WHYS-LP (whysradio.org) operates at 96.3 FM in Eau Claire, WI as "a volunteer-operated, non-commercial radio station."
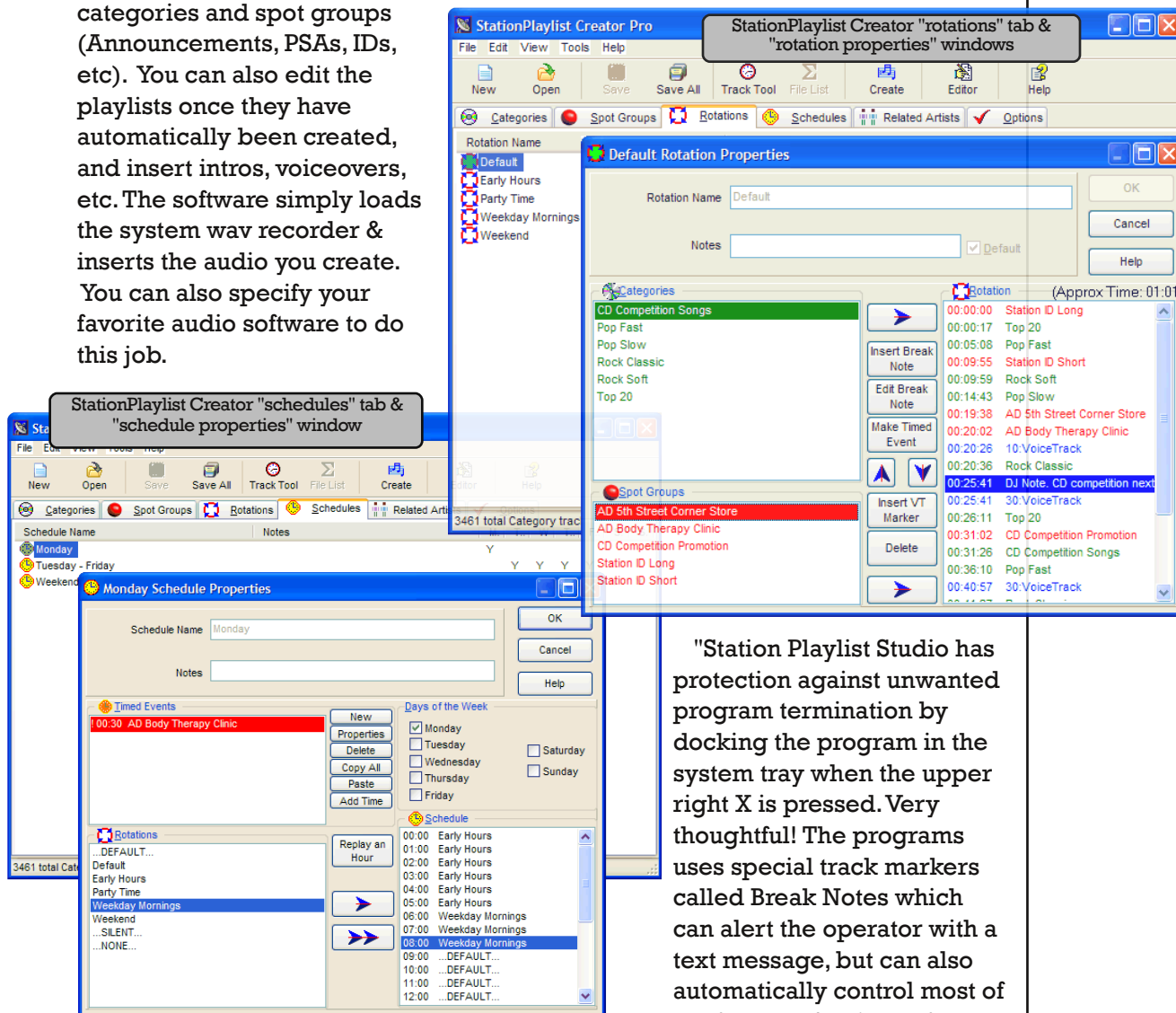
In 2005, Dan Drumm from WHYS-LP wrote the following review about Station Playlist, a software system that operates using Winamp. He now adds, "since then, the software has come a long way- the author is good at listening to requests from his customers."

Dan wrote:"Station Playlist has two components: Creator creates the playlists, and Studio plays them. You can purchase or use either separately, but I recommend getting them both because they really work well together. You can even set Studio to ask Creator to build a playlist of the fly.

Stationplaylist.com: Windows 95 or later- $239 Creater or Studio, $399 both - Automated, Live Assist- MPEG, OGG, WAV, APE, AIFF, WMA & OTS support- User definable playlist format, color coded- control outside software or hardware- update live playlist - uses standard hardware - support for multiple audio devices.

"It's easy to automatically create playlists with artist separations, and it uses categories that can overlap (you can put your local country band in the category Country and the category Local without duplicating the file). Create as many categories as you need. Rotations are created by selecting from multiple categories and spot groups (Announcements, PSAs, IDs, etc). You can also edit the playlists once they have automatically been created, and insert intros, voiceovers, etc. The software simply loads the system wav recorder & inserts the audio you create. You can also specify your favorite audio software to do this job.

StationPlaylist Creator "rotations" tab & "rotation properties" windows

StationPlaylist Creator "schedules" tab & "schedule properties" window

"Station Playlist Studio has protection against unwanted program termination by docking the program in the system tray when the upper right X is pressed. Very thoughtful! The programs uses special track markers called Break Notes which can alert the operator with a text message, but can also automatically control most of the features/options of the software. For example, you can have a break note automatically timed at the end of the hour to turn automation back on after a DJ shift is over. You can switch in satellite feeds, use internet feeds, control the parallel port, and even run external programs all from within a playlist. Sound complicated? It can be if you want to use each and every feature, but it's really easy to get started. It has big Play, Stop and Automate buttons, and you can search for tracks to insert by title, artist, genre, etc, even duration. You can even drag and drop tracks directly from a file folder. Simple! If you want to change the order of the upcoming tracks, simply drag them where you want them.

"When not in automation mode, the live assist mode takes effect. It's very easy to use and easy to understand. You can setup the mic or line in, and use the buttons on the screen to activate them. You can also have playlists dumped to the web and of course you can do internet streaming. Best of all it uses Winamp as the audio engine, so you can use winamp plugins for DSP, streaming, etc.

"Although it is simple to use you will still need a few hours to get to know the system and get comfortable - and at least a few weeks to learn all of the options. This software is very robust...one more thing- support is excellent, email gets answered fast."

Raduga- KZQX-LP

KZQX-LP (kzqx.com) operates at 104.7 FM in Chalk Hill, TX and on two translators in surrounding towns.

Chuck Conrad from KZQX-LP has this to say about the station, as well as a few words about the Raduga automation system: "There is no particular agenda on the part of the station, other than to be good neighbors who are active in the community. We are however, big fans of music and music education.

"We very seldom have live announcers. That usually happens only in local emergencies, like hurricanes, etc., or local sports events, which are a couple of times per week. We were live this evening for almost five and a half hours doing a local double header college basketball game. Usually, it is simply easier to prerecord things and play them back using Raduga's 'scheduler' program. That way, we are able to deliver a much more professional sound. Programming is still locally originated, it is just done in advance of the air time.

"We've been using Raduga for over 5 years...I know that there are more powerful programs out there, but in the five years Raduga has been chugging away with no problems, I've become fairly good at making it do what I want it to do. I haven't had the urge to change to something else, especially after exploring the quirks of some other systems.

"If you set up Raduga properly, it will build the playlists for you automatically, so all you need to do is occasionally edit or rearrange things. It will play indefinitely, all by itself. Using any popular remote desktop software, you can edit and/or control it from anywhere you can get an Internet connection. You can also record a segment, upload it to the automation computer, and put it on the air from anywhere in the world, as long as you can get an Internet connection.

"You can also use it in 'live-assist' mode, so live announcers can just use it as their music source. When we do that we use a free program called Jingle Palette, which runs on a second computer for spots, PSA's, liners, etc.

Lastly, Chuck states that the Raduga computer output comes in on one channel on the KZQX-LP mixing board (which is a Wheatstone Audio-Arts R-50).

Contact Chuck directly <kzqxlp@aol.com> if you have questions about use of the system at KZQX-LP.

You can also read this review of Raduga from Radio World online, though it is outdated (Raduga has been around for quite some time):

www.rwonline.com/reference-room/product_evaluation/05_ss_pe_raduga_2.shtml

Zararadio- Langley Community Radio 1610 AM

Zara Radio (http://www.zarastudio.es/index.php?lang=en) is becoming popular with some community stations because it is free, and is readily available in Spanish with downloads for other languages. Zara runs on Windows, including Vista (Vista's audio handling is very different to XP), but

Raduga.net: price ranges from $149 to $649, depending on features- Runs on Windows Vista- Free demo

most users recommend XP. Zara Radio looks a bit like Raduga. It schedules programming to start at a particular time, has virtual cart machines for live-assist, and can switch to internet streams or other feeds. It has DTMF tone decoding / detecting for switching to sources that use that, and a silence detector to prevent dead air. There is an active forum here: http://www.zararadio.com/phpBB3/index.php.

Tom Voorhees and his friend George from KWPA-LP (www.whidbey.com/kwparadio) & Langley Community Radio 1610 AM (ww2.whidbey.net/lcr1610am), both on Whidbey Island, WA, have this to say: "I ran it on a AMD 2400+ & 192MB Ram with Win98SE .

KWPA 96.9
Whidbey Public Radio

"Here is some of what the software does (besides running playlists): it will announce the current weather (from weather.com) via another program called Weather Watcher. It will announce current temperature, station ID and Time of day on air when scripted. I made a couple of quick and dirty programs to get the correct time from a NTS (network time server) and one to collect a 3 minute mp3 with the local 5 day forecast. I have a program and information here: http://www.helleboreglass.com/files/zararadio/nts.zip

"There are 2 other special groups (besides music) the software will use: spots and jingles. I have the station id's in the spots, the jingles are the fun stuff like
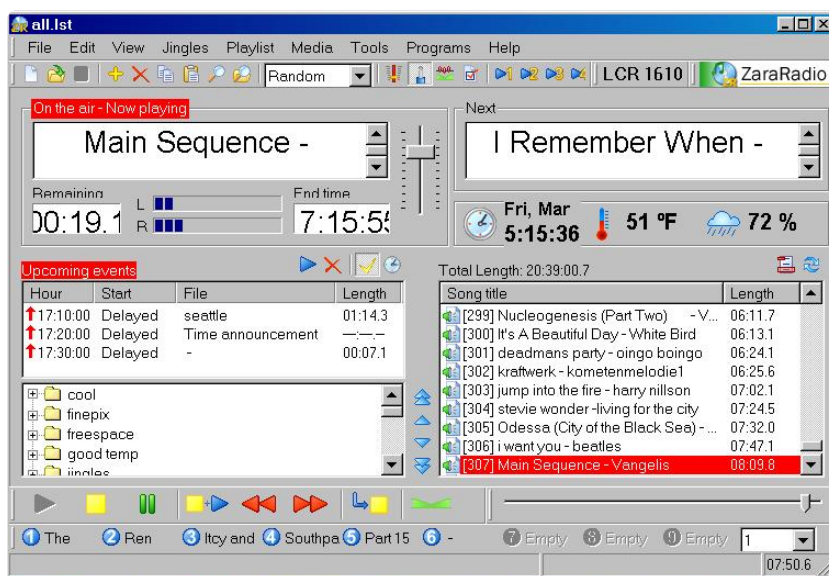
jokes or the Ren & Stimpy theme song. Access to play the jingles are ready at the bottom of the GUI. All other controls- like volume, mixer and level meter are there too. We got the best sound by keeping the volume settings, both main and Zara's at no more than 2/3's. Also it makes a log file that has the things it has done and writes down the errors. It will also stream from the internet. It will play most sound files: wav, ogg, wma, plays from files or cd's and another input from the sound card. The AGC (auto gain control) will keep all songs at one volume level. Use Winamp's equalizer or similiar to help round out your sound output (by changing Zararadio's 'Air Output').

"It fades the volume between cuts and you can talk over what your playing. Songs can be played as a list, random, shuffle or manual (your choice) & uses most play lists, like m3u, psl & lst."

Lastly, Tom says "the help file is not very complete, so you'll want to use the website."

OtsAV- WSCA-LP

These three products from OTS offer MP3, WAV support, basic scheduling, and professional DJ elements (fading, beat matching, sound manipulation). The Narrowcaster package has dayparting. The Broadcaster version is their top-of-the-line product which seems to offer a live input interface, scheduling consultancy, and tight segues. If you are doing mainly music, and want good control over sound, this may be the software to look into. Software also allows for remote access control.
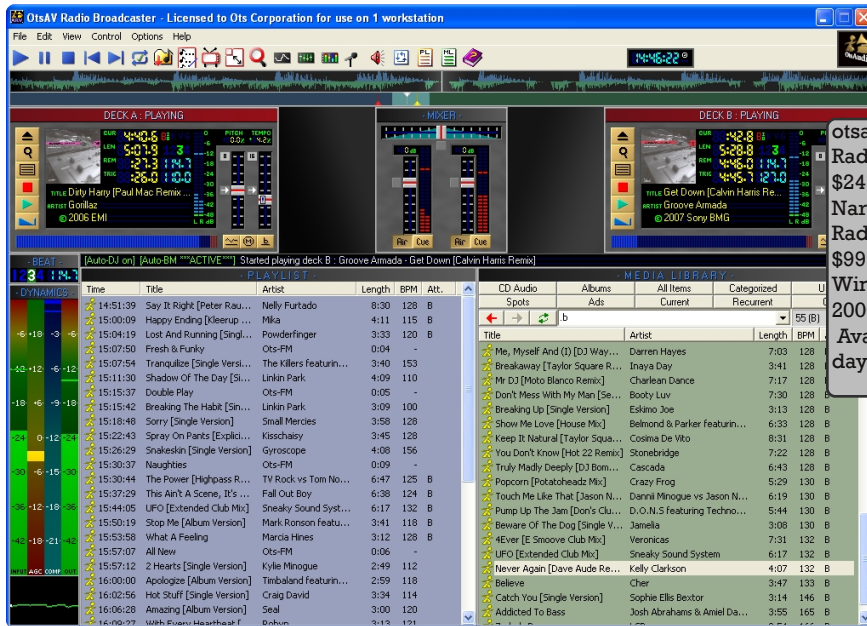
PORTSMOUTH COMMUNITY RADIO WSCA-LP 106.1 FM

Jim Layton from WSCA-LP 106.1 in Portsmouth, New Hampshire has this to say about the OTS suite: "I still believe it to be the best choice for features, price, ease of use, scalability and support. The nuances of the software may have a little deeper learning curve as any complex software will as did most of the other high end titles. However even if a DJ has zero knowledge of the higher features they can quickly and easily get SOMETHING playing in an emergency and keep them playing until help arrives by simply drag and dropping songs, underwriter announcements, whatever. Sans a power failure or end user mismanagement we run it 24/7 for months at a time without so much as a reboot.

We have also used it for streaming live events over the Internet and back to the studio for broadcast. Set up on a laptop and borrowing the local Internet connection combined with the free Shoutcast server it makes a very respectable field unit.

I want to say we paid around $350 or even less (in 2005) for the full suite with lifetime upgrades and unlimited support. In fact they even helped us write a few subroutines in their own programming language for it."

SamBroadcaster- KWMD

Engineer Jeremy Lansman (kwmd.us) has this to say about SAM: "I use a $200 XP package called SAM3 by Spacial Audio intended for web streaming. I use it to play WAV, WMA, OGG, MP3, on local & networked Hard Drive and via live web streams (not WAV). You can drag and drop sound files, winamp play lists, auto play categories of files at random, schedule & write scripts as I have done for playing ID and other announcements + download files from HTTP web pages.

Written in Delphi it has scripting (Program Automation Language) to get some stuff done, which looks like Delphi but has hooks to control almost anything. Uses a Data Base Manager- MySQL in our case. This package will ingest tag files, index them, to provide a search function using MySQL that makes finding stuff easy. It also does encoding/streaming (that was its main purpose), and includes audio processing with pre-emphasis for 50 microsecond and 75 microsecond FM.

If you are interested, I keep a back up of my scripts online at http://site17.ddns.ms in the pal subdirectory, which should make setting up a trial easier. The programs run on KWMD are are listed at kwmd.us."

DRS2006- WHYS-LP (Brief Use)

Dan Drumm (whysradio.org) had this to say about DRS2006: "This software looked like you were in a space ship, and gave a really big feeling to the size of it because every function seemed to be contained in a different module that you would have to run separately from the 'Launcher.' It took hours and a dozen different screens to get anything done. "Trying to get support from the company was like pulling teeth. Scheduled events routinely failed to start, the program often hesitated or simply crashed. When entering songs into the system we found that the database had a 90 character path limit. When this limit is exceeded the program fills the screen with hundreds of repeating error message windows, and then finally aborts after about 45 seconds. If I sound bitter, I am. Save yourself from the nightmare."

drs2006.com For Windows 95-XP. Standard (live-assist) $69, Professional (fully-automated) $549. Demo available. Can webcast: Shoutcast, Live365, Realserver and Windows Media. 12 Channel playback. MPEG and Windows Media formats. Open source database 500,000 item capacity. Auto or Manual playlist generation. Automatic shuffle rotations from MP3 metadata. On-air editor.

spacialaudio.com, $199, demo available. Schedule playlists, songs or other events. Handles large media libraries with category sorting. Playlist rotation logic and scheduling. Webcast encoding in MP3, mp3PRO, WM9 and Ogg formats. Crossfading, gap killer, beat matching, volume normalization and 5-band compressor/limiter Support for many streaming technologies: Shoutcast, Live365, IceCast, Windows Media and P2P Streamer. View webcasting statistics & meta info in real time.

Jockey Pro

JP LT is "aimed at college, LPFM, and internet broadcasters." If voice tracking is desired for LT, V-Tracker LT can be purchased for an additional $49. The Pro version of the software will do larger station features, like satellite automation features, date & time aware, voice tracking, audio mixer, and music & spot scheduling. Additionally, you can edit schedules and voicetrack while on air, it has three on-screen cart machines for live-assist, a "Jock Box" in the upper right corner (see picture) for "push button sound effects!" and web data can be generated from the playlist. Both programs use no specialized hardware and can play standardized formats such as wav and mp3. Pro also has ability for a special events/sports log, & optional interface (hardware) to control external devices.

www.11software.com Jockey Pro $599, Jockey Pro LT $99. For Windows. Trial software available

AUTOMATRONIX

www.jtcomms.com/Autom/automatronix.htm.

Appears to do usual playlist scheduling & live-assist. Includes programmable hotkeys, capable of voice-tracking, generating logs & events which include playlists, hotkeys, executable files, RS-232 commands, TCP/IP commands. Events can be prioritized. Traffic and billing statements. 3 independent players (see picture). Stand-alone timed recorder program. Generates playlists and random playlists for multiple formats.

Price $430, Satellite control via serial port $99 extra. Free demo available. Operates on Win9x, Me, XP, 2000, and NT. Unlimited installs per license, 60 day technical support. Utilizes Windows Media Player engine- Supports wav, mp2, mp3(up to 192 kB/S), mp3Pro, wma, snd, mid, au, aiff, and ogg vorbis formats.

PLAYER 101
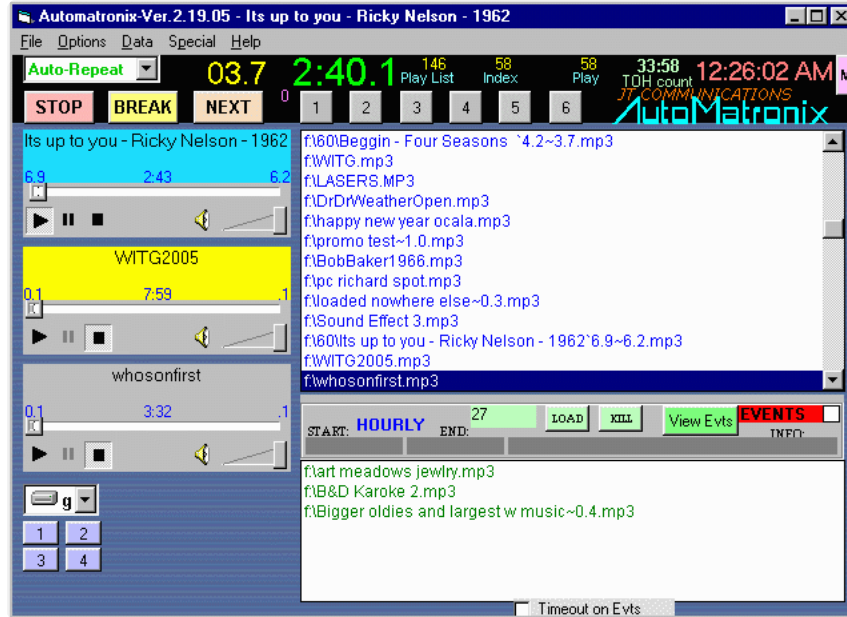
http://www.rcsworks.com/en/products/player101

The core software is required on all PLAYER101 workstations, and includes the ability to create and execute logs, basic audio element production, day of the week clock templates, and audio backup/load utilities, and can operate in automated or live assist mode. All other modules are then added to the core software to create different workstation configurations. It looks like there are about 16 different modules ranging from "Cart Deck" (buttons to play files) to "Multi-User Access" (user preferences) and "Enhanced Production" which enables the integration of third-party audio editors (Player 101 can play, but not edit, MP3 files). You can also choose Air Studio, Production or Internet Packages, and get a discount. Lastly, all levels of support receive free access to the on-line community, email support and maintenance updates. While the product may be good, you also might end up paying more and more for each function you wish you had.

RCS Sound Software. Player 101 core software is $495, add modules for $101. Automated or Live Assist.

PLAYER101

ENCO Systems
www.enco.com

Enco is an international broadcast software company with many product options that might totally overwhelm the curious explorer. However, they do deal with full power Community and College Stations, PBS stations, and have developed modules specifically for ContentDepot (Public Radio Satellite Services). They usually offer discounts on support fees and licenses to members of the National Federation of Community Broadcasters- contact NFCB (nfcb.org) for more info.

The system they sell is called DAD (Digital Audio Delivery), and specific setups can vary greatly. It can be fully functional for live-assist, manage multiple sources of content, and control external equipment, archiving and storage, etc. It is available as software only, or with ENCO's hardware configurations, and with variable service contracts- even with 24 hour call-in support. There are even independent spin-off products of ENCO, some free and some not. Cost for ENCO products is highly variable, ranging from thousands of dollars to tens of thousands of dollars, depending on your need. And that may not include the recommended or required hardware to support the system.

It may be hard to imagine getting that kind of value out of an automation system until your station's operation is quite large. To get a sense of that, you can read about an ENCO Installation at two Southern California Public Radio stations, written by Jeff Krinock:
http://radiomagonline.com/IT_technology/radio_enco_systems_dad.

Maestro- SS32 (Google), Simian, Pulsar

These last Windows systems are geared towards larger station groups, which is probably overkill for an LPFM or smaller college/community station. Furthermore, the software is typically purchased along with specified specialty hardware, ala the Google Radio Automation.

Maestro and SS32: Google Radio Automation-
http://www.google.com/radioautomation/index.html

> Google Radio Automation is a combination Maestro and SS32. Maestro is an on-air digital audio player and recorder. It can assist a live DJ in cart playback and interfaces with many music schedulers, does voice tracking and direct audio recording in uncompressed formats. SS32 is automation software which is claims to be adaptable (can be accessed from web browser, Mac or PC), easy (there is a touch screen interface), and dependable (if there is a server failure it can rebuild a workstation from scratch). There are also deluxe features (phone call recording, time shifter for satellite feed, file transfer to different stations, monitoring of many individual stations).

Simian- http://www.bsiusa.com/software/simian/simian.php

> Priced at $1499 with one year tech support. 60 minute Demo available for download. While this is pricey, it does claim to do a lot. From their site: "Full automation, satellite, live-assist, production and multi-instance. Runs under Windows 2000 and Windows XP. Background & timed recording while playing. Time shift a newcast and play it back while it's still recording. Can dynamically create a web page with 'now playing' information."Triple on-screen decks, with on-screen voice-track editor. Dual on-screen record decks (record device required for each record stream). Drag-and-drop program log building and editing. Supports PCM, MPEG Layer 2, and MP3 audio formats. Dynamically updated audio database- no need to 'import' audio files. Edit a program log while its on the air. Auto replace from the same cart or from another cart. Edit program logs from multiple studios or remote locations. Controllable via console buttons or contact closure- up to 48 external relays to control external devices like tape machines and satellite receivers. Up to 24 incoming "triggers" to accept control from external source. Programmable serial communication with external devices switchers and satellite receivers. Assignable mixer groups for advanced mixing control. Programmable log import for compatibility with many music, traffic and billing systems."

Pulsar 4.0 & Pulsar Multimedia http://www.pulsarmultimidia.com

> $1,900 initial + $550 yearly = more than you want to pay, most likely.
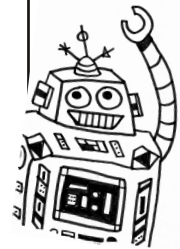
Linux

RIVENDELL - KDRT-LP

KDRT-LP (kdrt.org) 95.7 FM in Davis, CA has been using the Rivendell automation system since first going on the air in October 2004.

We chose Rivendell because at the time it was the only open source radio automation software available, and it seemed to have a solid development team behind it. The open source philosophy aligns well with our mission. Open source also affords the highest degree of flexibility for tailoring the application to suit needs as they arise.

Engineer Darrick Servis gives this background overview on Rivendell: "We were very stubborn about having to turn off the transmitter and didn't want to go that route. In 2004 Rivendell was extremely unpolished and very hard to install. Plus, needing to save disk space we hacked in support for mp3 files.

"Currently Rivendell is much easier to install and documentation has become much more robust. However, the developers of Rivendell (Salem Radio Labs) are focused on the more high-end bells and whistles. Whereas KDRT requires a suite simply to easily archive and playback audio materials at scheduled times or on-demand. The Salem Radio Labs folks are mainly radio engineers with much higher budgets to purchase high end audio cards, studio consoles, satellite receivers and switchers which can be controlled by the Rivendell software and integrated with proprietary "traffic managers." So suffice to say their focus is a little different then what LPFM is. This means Rivendell may never support mp3 files; however ogg-vorbis support is arriving soon and there is much effort on making the install process smoother.
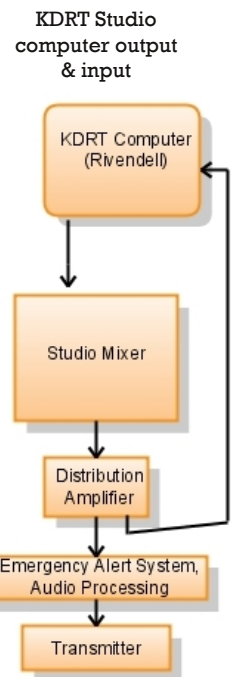
"Reliability-wise Rivendell works quite well. We've written a program to automatically download programs from the internet (i.e. Democracy Now and FSRN) and import them into the software. This has been a huge time saver for us. We also are able to record our programmers shows and play them back later. Technically Rivendell is most stable if a audioscience sound card is used. However, these cards cost upwards of $1000. We've since settled on the less expensive m-audio delta 88 which is quite compatible with Linux. We have had issues of the radio playout just stopping, though fairly rare. Most of the time just restarting it will fix it. We are coming close to upgrading our system to solve these problems. Plus, since we are housed in a Public Access TV station, we have access to a 'failure detector' downstream on the signal path that will trigger a playlist running on another machine should Rivendell fail.

"We also recently started archiving our programs on our website. Having the radio shows already digitized via the Rivendell software we created a simple program to import them into our website. Our website is developed on the Drupal CMS and we use the station module to manage the audio programs, descriptions and schedule on the site.

If you are interested in our program which bridges the station module and Rivendellfeel free to contact me at darrick@davismedia.org."

On our system, we use 2 different computers- a Production Computer and a

95.7 KDRT
Davis, California

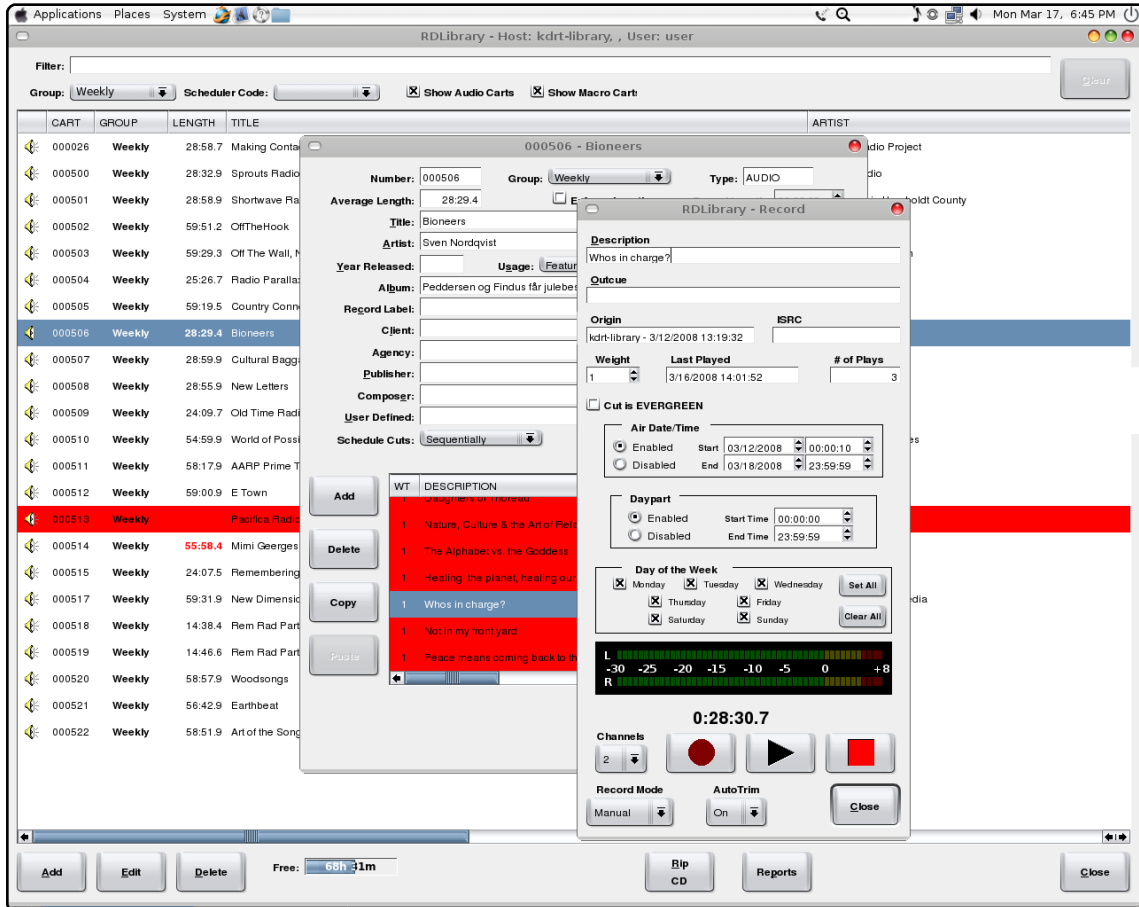## Rivendell
Salem Radio Labs rivendellaudio.org free, released under GNU public license, touchscreen-friendly, complete system with 6 different components, supports PCM16 and MPEG Layer 2

KDRT Studio computer output & input

KDRT Computer (Rivendell)

Studio Mixer

Distribution Amplifier

Emergency Alert System, Audio Processing

Transmitter

Studio Computer. Both use Rivendell components that access the same audio library and MySQL database. We mostly use five of the six components of the Rivendell system: RD Admin, RD Library, RD LogEdit, RD Airplay, and RD Catch. While many DJ's are familiar with RD Library and RD Airplay, only about 5-6 of us work with all of the aspects described below. We've also developed our own documentation specific for our station- placed in a Binder- to keep everyone on the same page. Having a binder makes it easier for volunteers- no matter what system you are using.

Binders!

RD Library
Cut edit window

RD Library
Import file window

RD Library is for interfacing with individual carts, and cuts within carts. Carts are the main sound unit in Rivendell, but each cart can have up to 99 cuts which can be played sequentially or dayparted. This means each time a cart is scheduled to play, a different designated cut from that cart could rotate in for playout.

RD Library allows you to set cue points for cuts, preview them, rip CD tracks, import and
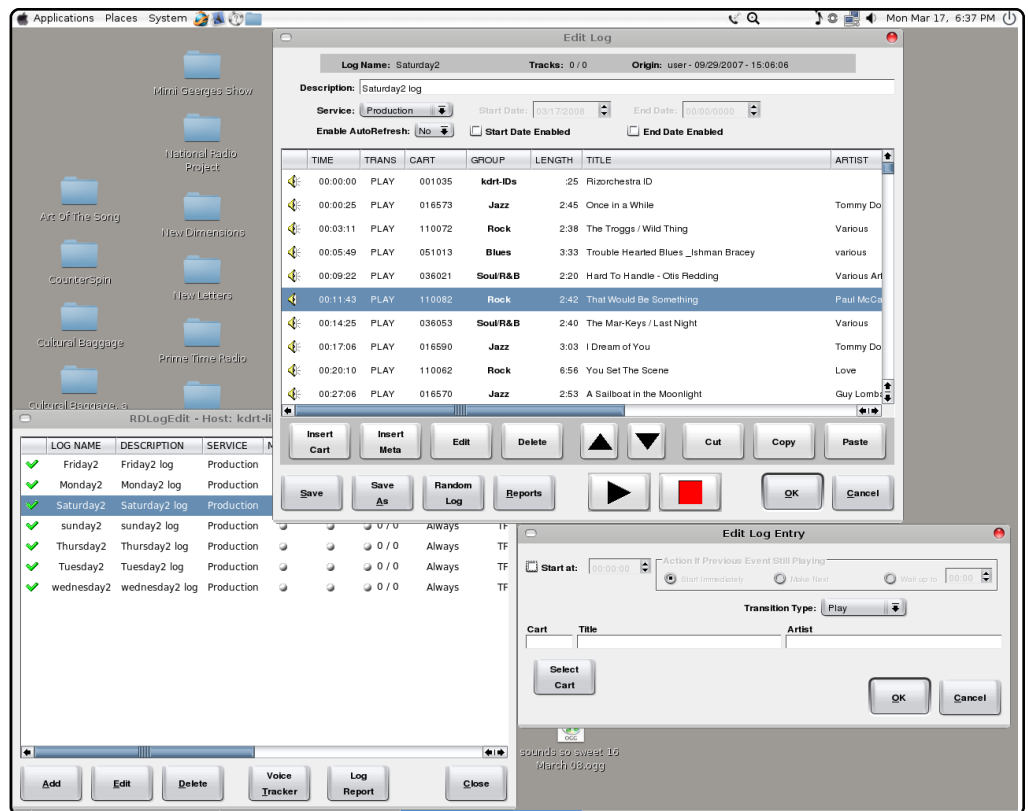
export files, and cut and paste between cuts. It is organized by groups- example groups on our system are "radio shows," "Blues" and "PSAs". Groups are not organized in a tree file structure, and you cannot put carts in more than one group.

RD Admin is used mainly to manage the groups, creating new groups, assigning a range of cart numbers for groups, or renaming them.

RD Log Edit is used primarily to generate daily logs. We insert timers on carts that play at a certain time, assign segues, or insert an hour of "filler" music. At the end of the log for the day- usually ~5:00am, we insert a "meta-cart" called a "chain" that will automatically load the next days log.

RD Airplay is the user interface for playout- with the ability to be on LiveAssist, Manual or Automatic. It can have 3 logs loaded, one main and two secondary, should a DJ want to create logs for assist in their show. Honestly, few DJs use logs for live assist. Mostly we just use the Main Log in automatic mode- if a DJ stops the log, it will restart itself at the next timed event. You can also scroll up and down the log within RD Airplay, adding or deleting carts, modifying their cue points, or skipping whole sections completely. RD Airplay also has a Sound Panel area, which gives you a series of panels of individual buttons, each set to fire off designated carts when clicked; we've used this

RD Airplay, Main Log (Monday2) loaded
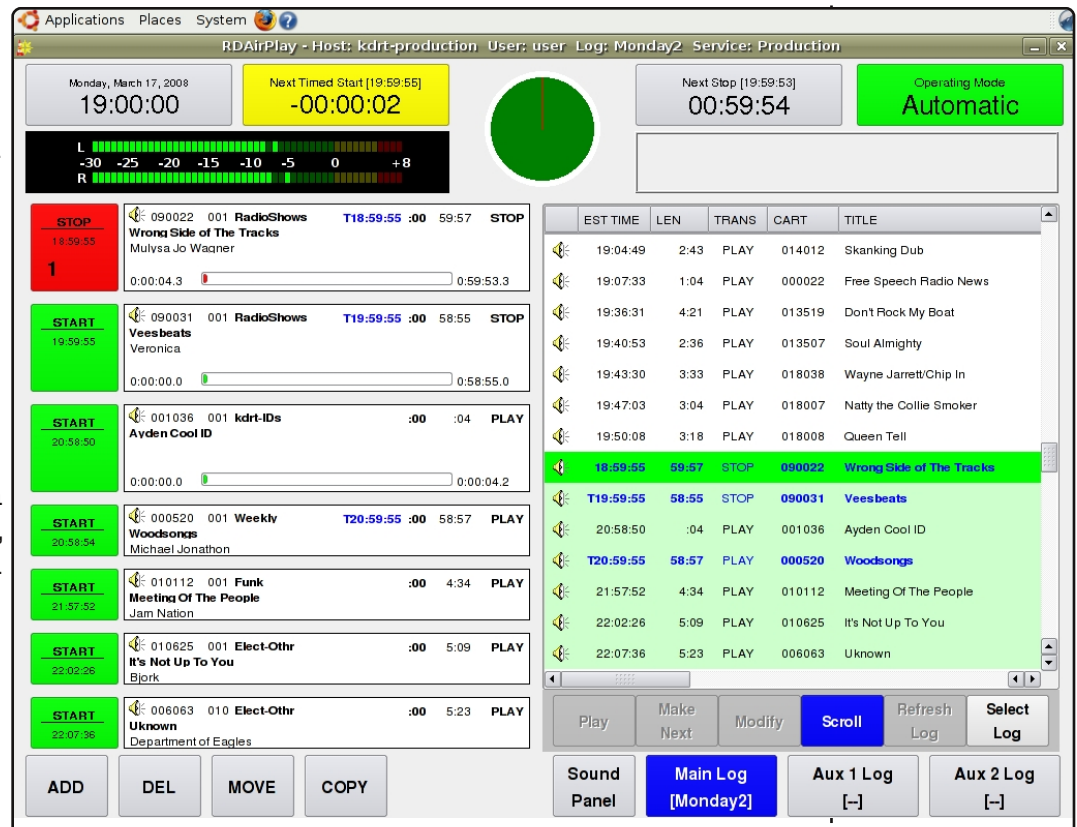
for underwriter spots, announcements, station IDs, and playing disclaimers for public affair shows. Sound Panels can also be automatically timed to load at certain times of the day, say for a specific DJ. One common mistake in using Sound Panel buttons is that if a log is running and not stopped, RD Airplay will play the "button" audio and the log audio simultaneously.

Lastly, we use RD Catch to record local shows on a weekly basis, recording over the same cart each week. By design, we assign each local shows two carts in their name- one that gets recorded over each week, and another "Alternate" that plays during their weekly. If for some reason they aren't there, the "Alternate" cart is broadcast and recorded onto their weekly cart. In this way,

RD Airplay, Sound Panel & buttons display
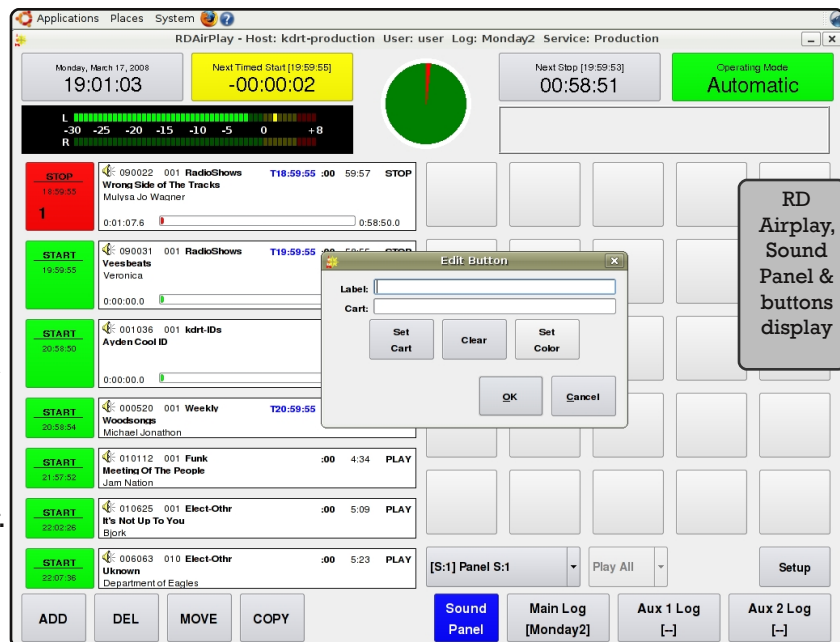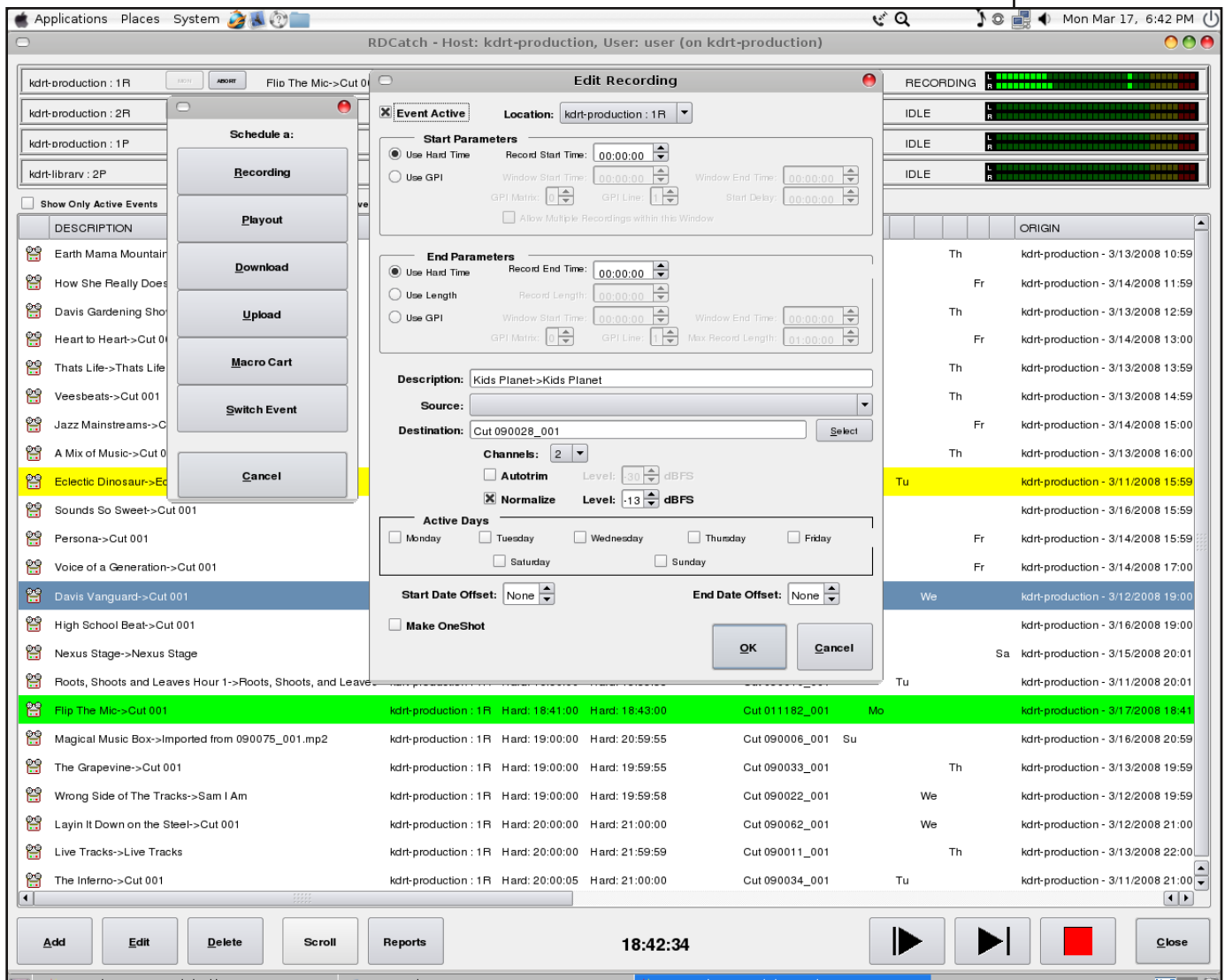
RD Catch

DJ's can manage their own "Alternate" while not messing with the weekly recording. As mentioned in the beginning of this handbook, this concept can be used or abused by volunteers.

In theory, we could use RD Catch to download shows off the internet. But we don't, and instead for Democracy Now!, Counterspin and Making Contact we use a perl script to download and import these programs into Rivendell.

For other syndicated shows, we currently use Rythmbox (www.rhythmbox.org) on our Production computer to subscribe to the RSS feeds (podcasts) of these shows. This automatically downloads new shows into show folders on the desktop. Volunteers then import the most recent show into RD Library, with specific volunteers "sponsoring" different shows by taking responsibility for updating. Supposedly an element for RSS feeds will be incorporated into Rivendell, which would make this manual import unnecessary. Though manual importing does allow for normalizing the audio levels of many syndicated shows, and of course at not all syndicated shows have RSS feeds.

RD LogManager is the last component of Rivendell. We currently don't use LogManager to generate logs, since we just make them ourselves in RD Log Edit. Perhaps this will change, but our priority and "first choice" continues to be live programming, so we haven't invested the time in exploring this further. Other aspects we haven't used much since our launch include the batch importing function, or running scripts that do things like automatically load sound panels for certain programmers. Development of Rivendell is continuing at Salem Radio Labs.

CAMPCASTER

www.campware.org/en/camp/campcaster_news/

Campcaster is an open source radio management application for use by both small and large radio stations to schedule radio shows. It provides both live studio broadcast capabilities via a desktop application called Campcaster Studio as well as remote automation via the Campcaster Web interface. Campcaster has networking components that make it easy for affiliated stations to share their content with each other, either over the Internet, or by exporting content to removable media for ground transport. This latter method is necessary in many places where there may be little or no Internet connectivity. You can create mashups with other applications using Campcaster's XMLRPC interface, which is supported for the audio storage module and the scheduler. Campcaster runs only on Linux.

Campcaster is made by Campware Inititative, funded by the Media Development Loan Fund, and works towards a platform for open source solutions for independent news media organizations in emerging democracies. This philosophy aligns great with the mission and values of many community radio stations. Hopefully Campcaster will continue to be developed and built upon more extensively. We downloaded it and took it for a test run- the installation went smoothly. Once you install point a web browser to http://localhost/campware, and to login the username is root and the password is q. Once logged in the online help is good, and the interface is clean and intuitive- you can import MP3 and Ogg files, create playlists and schedule the playlists down to the second, as well as some segue options. It also has some

content sharing features for sending files between multiple stations. A project and vision worth supporting and not a bad bandwagon to hop on if you can make it work for your station.Tom Brennan might think otherwise:

http://tombrennan.org/index.php/2007/08/12/the-sad-truth-about-campcaster

Though this article speaks to the larger vision:
www.tectonic.co.za/wordpress/?p=1314

SOMASUITE, OPENBROADCASTER

Soma Suite- http://www.somasuite.org/

Soma is a suite of programs that let you play and schedule audio files from the Web. It supports extra utilities using "run-time loadable modules" and includes a broadcasting scheduler, a tool to control it via TCP/IP, and an utility to check file syntax. Soma Player can stream directly an mp3, ogg vorbis, wav, or a track from an audio cd directly onto an icecast server (icecast 2 or shoutcast), or just play it on a computer using sound drivers or sound daemons. Judging by the screenshots available on the website, the interface is seemingly comprehensive though maybe not for the average DJ. Without testing or a good review, all we can say it is looks like it could have great potential.

OpenBroadcaster
http://www.openbroadcaster.com

This project appears to be an ambitious open source broadcasting solution, coming from Canadian station CJUC in Whitehorse. The focus appears to be creating web interfaces for remote access to allow live programming while not in the studio (Perhaps for when those cold winters keep you from going down to the station?). The project appears to be moving slowly. Contact Radio Rob for more information

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Be OS

TUNETRACKER

Tune Tracker (tunetrackersystems.com) runs on the Be Operating System, a slightly esoteric computer operating system. A demo or Tune Tracker is available for download. Priced at $200 for the Basic, $700 for Command Center version or various prices for packages shere theyet it up. Supports MPEG, WAV, AIFF, OGG, MIDI, and CD Audio file formats. Software comes pre-installed in configured packages or alone (along with the BeOS).

Basic package contains TuneTracker for on-air broadcast, TuneStacker for music selection and log generation, Csacker for report generation, pre-configured Station folders and subfolders, free online support, and 1 free month telephone support. Basic version does have an adjustable silence sensor, automatic log checking for errors, can chain logs together for continuous play, and can do dayparting. Advertised to come with SoundPlay audio engine and LiveEncoder that will send streams in MP3 and Ogg Vorbis formats.

Other modules are available to add on, like TT Anywhere ($80) which uses

VNC standard to do remote access, or TimeTracker ($140) to record sound. Or TuneBacker, a double-redundant backup system, TunePrepper ($80) to rip music- you get the idea. Despite these additional costs, the overall price could be kept low, and you could probably find other simple software for some of these functions that runs on BeOS- like a CD Burner, or Simply Vorbis. However, unless you are familiar with Be OS, looking for shortcuts might be tricky. Visit http://www.bebits.com/ for more software for BeOS, and http://wiki.bebits.com/page/Newbie Info

to get orientated to BeOS. The last official version of BeOS is described here: http://en.wikipedia.org/wiki/Be OS_R5.

TuneTracker

File   Settings   Misc

☐ Program Log Queue   ☐ Output Log   ☒ Silence-Sensor   16:46:48

Broadcast Operations

Active Program Log

772: /boot/BeOSRADIO/Station Promos/promo_all_original.mp3
773: /boot/BeOSRADIO/Commercials/EvenBreak_04/promo_buzzcd.mp3
774: /boot/BeOSRADIO/BeTips/BeTips_Open.mp3
775: /boot/BeOSRADIO/BeTips/tip 127 Alien Keystrokes.mp3
776: /boot/BeOSRADIO/BeTips/BeTips_Close.mp3
777: /boot/BeOSRADIO/Liners/EvenNewsTease_02.mp3
778: /boot/BeOSRADIO/Music/Douglas Gore/MuttTitle.mp3
779: /boot/BeOSRADIO/Music/Steve Pond/elegant.mp3
780: /boot/BeOSRADIO/Station Promos/mundy_its time the world knew.mp3
781: /boot/BeOSRADIO/Music/Subspace/circuit.mp3
782: /boot/BeOSRADIO/Music/Joseph Mocanu/korea4.mp3
783: /boot/BeOSRADIO/Music/TJ Reidl/Theory and Escape/07 That Other Place.mp3
784: /boot/BeOSRADIO/Music/Elmobo/Ok/fury_of_the_furries_-_lag1.mp3
785: /boot/BeOSRADIO/Music/Collegium Musicum De Minas/Collegium Musicum De Minas - Senhor
786: /boot/BeOSRADIO/TimeAnnounce/1700
787: /boot/BeOSRADIO/Liners/StationID.mp3
788: /boot/BeOSRADIO/News/News_01.mp3
789: /boot/BeOSRADIO/Station Promos/volunteer.mp3

▷ Start

Auto On

Live Off

00:00:17   -00:05:43   -00:01:03
Elapsed Time   Time Remaining   Ramp Time

Ramp 23.000

-12   -6   0

File   Skins   Settings   SoundPlay

Subspace - Circuit (mpeg layer 3, 160kb, stereo)

⏮ ◀ ■ ▶ ⏭   Speed: 100%
                    Time: 00:16

There are also some testimonials from LPFM stations on the TuneTracker website, including KFOK-LP (kfok.org) and KITC-LP (kitcfm.com). K.C. Cote from KFOK-LP says that "if the power goes out, there is an auto-start up after a power drop."

Since Tune Tracker Basic runs on Be OS, you'll want to check that you have the right hardware to install BeOS. You can do that here: http://www. bedrivers.com/hardware
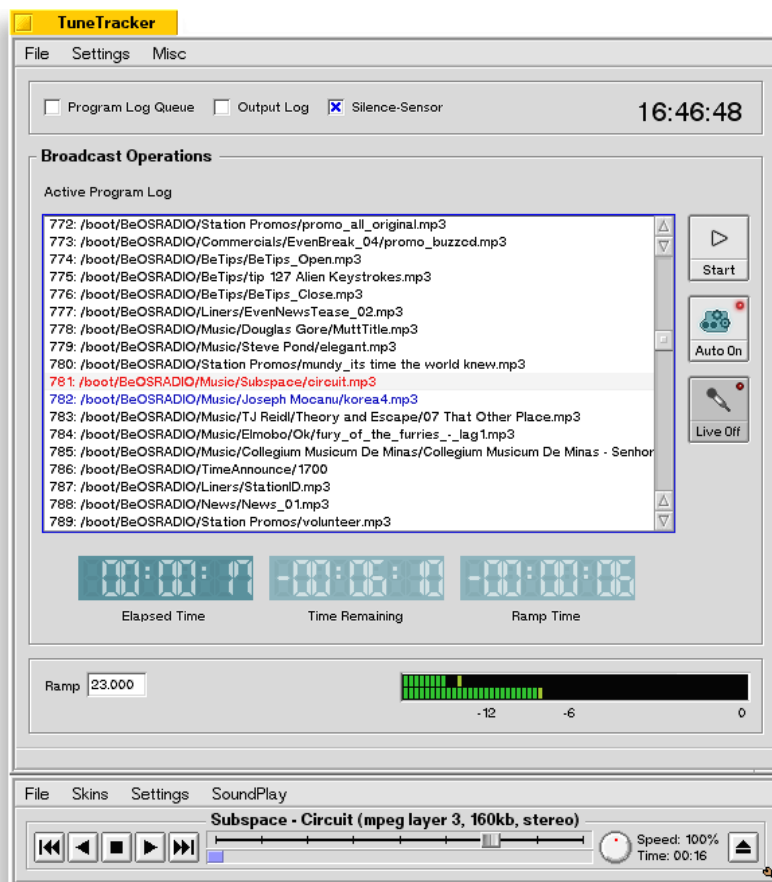
Random Software Bits

Express Rip

A freeware product for Windows that bills itself as the fastest Ripper. Available at http://www.nch.com.au/rip/index.html

Audiograbber

http://www.audiograbber.com-us.net A popular freeware product for Windows for ripping CDs.

Tobasco's Amazing Clockwheel

http://www.riograndemud.com/clockwheel. Builds large, shuffled playlists from other playlists according to parameters you put in. Basically helps create more formatted hours. Can be used in conjunction with Winamp, Zararadio.

Audiocorder

http://www.blackcatsystems.com/software/audiocorder.html. Audiocorder is an audio recording program for your Macintosh with timed and voice activated

recording options. It can record any audio input into a Mac. Currently at $19.99, records audio as AIFF or Wav.

Radio Archive

Documentation: http://sourceforge.net/docman/display_doc.php?docid=31276&group_id=155608. Produced by Otis Maclay <otie@ev1.net> who says he is available via email to answer questions. Basically a Web based archiving system for community radio stations. Includes podcasting, xml indexes, complete control over accessibility of content. Programmers can place descriptions of individual shows. Administrator can control downloadability, i.e. whether to podcast. Available at http://radioarchive.sourceforge.net

Traktor

http://www.native-instruments.com/index.php?id=traktor3&L=1

Perhaps your station volunteers are really into DJ'ing as art: matching beats, mixing samples, etc. Supposedly this program is a good value for that, with more advanced features. At least that is what the legendary WFMU says.

Rotter

http://www.aelius.com/njh/rotter/

This GNU-licensed program for JACK audio connection kit (jackaudio.org) continuously records audio onto a computer, writing a new file every hour with a few different configurations. It deletes files each hour over 42 days old.

Sound Solution

An audio processing plug-in module for Winamp. Jeremy Lansman says, "This is quite good, and includes preemphasis!" Available at http://www.soundsolution.it/forum/ss_version_10-b5.0/

Spinitron

This online software subscription service was developed by community radio programmers at station WZBC in Massachusetts. The idea is that DJ's log the music they play online, and Spinitron will keep track of it, print out nice reports, enable listeners to see is being played, etc. I haven't checked it out personally but it might be what you are looking for. Looks like a good idea.
 http://spinitron.com

Weather Watcher

http://www.singerscreations.com/Software.asp

Weather Watcher makes a file which ZaraRadio can read for the current temperature & humidity. Pretty cool.

Websites about Software

http://ckdu.dal.ca:8080/ckdu-os

Open Radio. CKDU in Canada has operated on open source software since 2003. The above site is attempting to document that use, with information about how they do audio production, run their audio server and general office administration. A good effort.

http://ross.sourceforge.net

R.O.S.S. Open Source Software for Radio Automation. This guy co-founded a small community station in Basel, Switzerland and maintains this helpful

website about open source radio solutions.

http://www.broadcast.net/bware.html

Freeware or Shareware Broadcast Engineering Applications. Dave Biondi from Broadcast Net apparently created this website to compile freeware and shareware applications that might be useful for broadcast engineering. The dates on many of the programs are quite old, but the effort was solid and the quality on something like "3deck" (Win 95!) which is supposedly quite good. Check it out.

A Few Terms, Defined

Even though your station is less part of any industry and more a part of your community, it might be helpful to understand some of the terms below.

<u>Playlist or Log</u>. More people are familiar with the term playlist, due to the proliferation of MP3 players. A log or a playlist refers to a constructed series of individual sound files, music tracks, or cuts.

<u>Live Assist</u> is a live DJ using the automation system for certain tasks. The DJ might provide live talking and then activate the computer system to automatically run announcements, jingles, promos and songs. When it is time for the DJ to talk again, he/she goes live at the appropriate time, repeating as necessary during an air shift.

<u>Traffic and Billing</u>. Some more expensive systems have options that help track the tunes you've been playing and the underwriter spots you've been billing. Typically these options are aimed at commercial stations.

<u>Daypart</u>. This is a way to assign certain times or dates to certain songs, files or cuts. It is a fairly useful tool for things like making sure questionable songs only play during safe harbor, or making sure cuts from a radio theatre play in the right order each week.

<u>Format, Format Clocks, Rotation</u>. Most people know what formats generally are, but in many commercial stations, format is the holy-grail- the mysterious key to finding commercial success- so some automation systems revolve around the idea of tightly controlling the format and which elements are contained in that format. Sometimes the word rotation is used as well to describe how audio elements are put together, as in, "This cut is in rotation." To demonstrate how deep the hole goes, here is an entertaining email solicitation about building format:

> "Custom music architecture for virtually every project: what worked in Arizona may have little relevance in New Jersey. AC, Hot AC, Country, Classic Rock, Active Rock, CHR, Oldies, and Contemporary Christian all require organically-designed format blueprints for your market."

<u>Voice Tracking</u>. This is typically seen as the culprit for the death of real radio, by those that make such proclamations. Simply put, it is the process of recording the speaking part of radio, or "air breaks," all at once, and strategically peppering them throughout the programming block. Voice tracking creates the illusion that the person speaking has been there the whole time! Magic!

<u>Library</u> of audio files is just what it sounds like. Library is typically the term of choice for "storage of all of the sound media to be used."

The FCC and Radio Automation

Generally speaking, the FCC doesn't care too much about radio station automation, since the same "on-air" rules apply whether a human or computer is at the controls. And, at this point in radio history, just about every commercial station either relies a lot on automation, or completely on automation. At the very least, they utilize a Live Assist system where Morning Jocks press buttons with goofy sounds to augment zany banter, before delivering you to automated commercial breaks.

What the FCC does care about is "Unattended Operation" and having a human that can shut down the station within a reasonable amount of time if there is a problem with the signal or an emergency. For this reason, they ask that you submit a letter stating that your station is sometimes unattended, and that when it is, you'll comply with the FCC rule about unattended operation. See the sample letter.

The other thing the FCC might care about is whether or not you promised to provide 8 hours of local programming per day in your original LPFM application, and whether or not this was a determining factor in awarding you the license. While the specifics of what constitutes "local origination" are still being debated, the FCC could determine that programming can only be repeated once or twice during a week to be considered "original." If "local origination" became defined this way, it would mean that if you record local shows, and then replay those shows, you could count one replay of that show towards your original commitment. Remember, though, if a "local origination" commitment was not a determining factor in the FCC awarding your station a license, most likely this level of analysis would never be conducted.

Media Bureau
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

To Whom It May Concern:

This letter is in regards to Report & Order FCC 00-19, Paragraph 117: Unattended Operation.

Facility #123456, call letters WGNU-LP licensed to Always On Radio has undertaken unattended operation using on-air playlist software developed by Salem Radio Labs, titled Rivendell Automation. Paragraph 117 states:

> "LPFM stations that will operate unattended will be required to advise the Commission by simple letter of the unattended operation, and provide an address and telephone number where a responsible party can be reached during such times. The responsible party must be able at all times to turn off the transmitter within 3 hours of receiving notice from the FCC that the equipment is not functioning properly."

As such, the following are responsible parties that can be reached during unattended operation, who can turn off the transmitter within 3 hours of receiving notice:

Ada Lovelace, 1600 Mitnick Street, Davis, CA 95616.
Phone: 530-326-2189, 530-354-0961

Grace Murray Hopper, 10 Downing Street, Davis, CA 95616
Phone: 530-463-7382, 530-478-4702

Sincerely

Ada Lovelace
President, AOR

Have Fun!