The Vermont Folklife Center

Digital Editing of Field Audio

The Vermont Folklife Center
3 Court Street / P.O. Box 442
Middlebury, Vermont 05753
Phone 802-388-4964 / Fax 802-388-1844
info@vermontfolklifecenter.org / www.vermontfolklifecenter.org

www.vermontfolklifecenter.org/res_digititalediting.htm

Prepared by Andy Kolovos
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I. Introduction

The process of using a computer to create an edited audio product from field recordings can be broken down into three phases: **1)** Transferring the audio from the field recording medium to the PC; **2)** Editing audio on the computer; **3)** Creating and packaging the final product, be it a website, CD, CD-Rom, DVD-Rom, radio program or what have you. This document deals primarily with phases 1 and 2 of this process. We hope it will assist you in transferring analog or digital audio to your PC, and provide some introductory information on how you can manipulate digital audio files with an eye toward creating a final, edited result.

A primary intention in creating this guide is to give interested researchers lower-cost options for digital conversion and audio editing. For this reason we emphasize the use of computer hardware that you may already own, and inexpensive (but by no means inferior quality) software. More expensive, professional-grade hardware and software can make a big difference in the resulting final product, but it is not necessary to get the job done. If you are interested in exploring the world of digital audio more in depth and have funds to purchase high-end equipment, by all means do so—better tools can produce better results. However, with a little creativity, practice, and materials already at hand one can still shape raw field audio into finely crafted final products.

The language of this guide and the hardware and software discussed in it are skewed toward the users of Microsoft Windows-based PC systems. This is for two reasons. First, because all our digital audio work here at the Vermont Folklife Center is done on Windows-based PCs we are able to speak from

experience. Second, we make a statistically-based assumption that a majority of PC users own Windows-based PCs, and therefore a majority of individuals interested in creating and editing digital audio materials are owners of Windows-based PCs. This bias is not a statement on the quality of Windows-based PCs when compared to other systems such as Macintosh, especially since Macintosh systems remain the preferred platform for audio work by many professionals in the field. Rather it is a begrudging admission of the near ubiquity of Windows-based personal computers at this point in time.

II. The Basics—Why do this?

The conversion of analog audio (from a cassette tape, for example) to a digital file, or the transfer of a digital recording (like a DAT) to a PC are the simplest, and potentially least expensive ways to prepare audio for a number of applications such as creating edited audio documentaries, prepping audio for inclusion on CD- or DVD-Rom projects, burning to compact disk, or for making sound selections available on the web.

The conversion or transfer of field audio to a PC also provides a way to correct problems with your field recordings including raising the level of the recording if the sound on the master tape is too low, and removing extra noise such as tape hiss, electronic hums or background noises.

Additionally, a PC-based editing system can be used to cut and paste selections of sound cleanly—doing with great precision what could only be done previously with splicing tape and razors or somewhat complexly with two tape decks—to create fully edited sound projects.

What do you need to digitally edit your field-recorded audio? Simply speaking, all you need is a computer with a sound card or other digital audio interface, a sound editing program, playback equipment for your original recordings, and a way to attach that playback equipment to your computer. Since most off-the-shelf PCs already have a sound card that will allow for the input of audio from outside sources, and anyone who has made field recordings has access to a playback machine, most field workers are already part way there.

III. A Little Bit about PC Audio Input Devices, RAM and Storage

PC Audio Input Devices

Any computer with a set of internal or external speakers has a sound card of some sort, and the basic way to get your field recording from the original recording medium on to your computer is to use your sound card as an audio input device. As long as your computer's sound card has input ports, you can

play your analog or digital field recordings into your computer, save them as computer audio files and edit them in digital form.

Your sound card isn't the only lower-cost way to get audio on to your PC. Recently a large number of USB-based PC audio input devices have appeared on the market. These little doo-dads have a USB plug on one end and an analog-to-digital converter with a series of audio input jacks on the other. You plug one end of the device into a USB port, your external audio source into the other, fire it up and off you go.

However, all sound cards and all USB audio input devices are not alike. Professional grade sound cards can cost between $400 and $10,000 and up. Although such equipment will provide you with the cleanest audio transfers, you certainly do not need a $10,000 external unit or even a $400 sound card to transfer your recordings to a PC and edit them. In addition, many higher-priced consumer-grade sound cards are designed for enhanced computer game audio, so in some cases purchasing a higher priced consumer-grade card will not do much to help with analog-to-digital audio transfer. If you are in the market for a new sound card explain what you intend to do with it to a sales person or technician, and hopefully they can steer you down the proper path**.**

As with sound cards, the range in price and quality with USB-based audio input devices is vast. However, for between $80.00 and $35.00 one can buy consumer-grade equipment that--while not stellar--will do the job. Two particular units that folks have reported success with are the Edirol UA-1X (http://www.edirol.com/products/info/ua1x.html) and the Griffin iMic (http://www.griffintechnology.com/products/imic/). Both are cheap. The iMic can only do transfers at CD quality (16bit/44.1kHz), the UA-1X can transfer at up to DAT quality (16bit/48kHz). I've seen the Edirol UA-1X in action and was generally impressed with what it could do for the money ($70-$80). I have not worked with the Griffin iMic ($35-$40), but the feedback I've seen has been mostly positive. There are other, much more expensive, USB and FireWire audio input devices available. For a list of a few items, please see the "Laptop Recording" section of the VFC's Audio Field Recording Equipment Guide: www.vermontfolklifecenter.org/res_audioequip.htm

The quality of the audio you will be able to produce depends greatly on the sound card or input device you use. For most purposes, such as creating CD-Rs or preparing audio for the web, analog to digital transfers should be done at least CD quality: 16 bit/44.1kHz stereo. Be sure your sound card/input device can do analog-to-digital transfers at that rate. If you are unsure, check with the manufacturer.

RAM

As you probably already know, RAM stands for Random Access Memory. Stated simply, the more RAM your computer has, the more quickly it will be able to handle certain functions. Audio files can be very large, so if you plan on working with digital audio on your computer, the more RAM the better. Thankfully, upgrading RAM is one of the least expensive performance tweaks you can do to your PC. I have been given recommendations of a minimum of 256 megabytes of RAM for audio work. You can get by with less, but I would be nervous about working with less than 128 megabytes of RAM. The cost of upgrading the RAM on your PC is dependant on the kind of RAM your PC uses.

Storage

As mentioned above, audio files can be very large. One hour of CD quality audio takes up 650 megabytes of space. You will need a fairly ample hard drive to store your sound files while you are working with them. Recently hard drives have been both expanding in storage capacity and dropping in price. If you want to work with digital audio, it is a good idea to purchase a second hard drive for storage and editing.

IV. From Field Recording to Computer File

The quick overview:

1. **Original Field Recording.** Your original field recording, regardless of the recording format. For the sake of this discussion, we will assume it is an analog audio cassette.

2. **External Audio Source.** For most fieldwork this has meant a cassette deck. The cassette deck is either connected directly to the PC Audio Input Device via audio cables. For standard MiniDisc, the same goes, although this time one is forced to go out the headphone jack on the MD unit and into the PC Audio Input Device.

3. **PC Audio Input Device.** For the purpose of this discussion, either the sound card or a USB/FireWire audio input device. The sound card or USB/FireWire input device is where the analog-to-digital conversion takes place. When one is taking audio from a digital source (such as a DAT) and connecting to a sound card that has a digital input (such as a S/PDIF input), it is the place where the digital audio is transferred from the recording medium to the PC.

4. **Editing Software.** The audio editing software is what allows your computer to act as a sound recording device. One sets the editing software to record the incoming audio signal from the external audio source via the sound card. Normally this must be completed in real time.

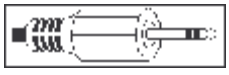
5. **Digital Audio File.** When the recording of the incoming audio signal is completed, one has created a digital audio file. With most digital audio editing software it is possible to save the file in a variety of formats such as .wav, .mp3 and RealMedia. The file type you choose will depend on the type of project you are undertaking. We will address file formats later in this document.

Connecting your external sound source to your PC:

How you connect your external sound source to your PC is dependant on the actual make-up of the component:

If you are using a cassette deck designed to be a part of a home stereo system, a cassette deck that is a part of a stereo mini-system, or a professional-grade portable field recorder (either analog or digital format) you will most likely be able to connect via a line out jack on the back or side of the component. Normally stereo component line out jacks accept RCA plugs. RCA plugs and jacks usually come in matched pairs, frequently one red and one white to signify the right and left channels of a stereo signal. They are standard plugs for connecting stereo components. This is a detail of a male RCA plug.

If you are using an inexpensive, consumer-grade portable tape recorder or a consumer-grade MiniDisc recorder, you will most likely have to connect out of it via the headphone jack. On such equipment the headphone jack is generally designed to accept a stereo mini-plug. The stereo mini-plug is a 3.55mm or 1/8” plug with two black bands around the metal extension, like so:



It is always better to use a dedicated line out rather than the headphone jack if at all possible. If you have no choice, be sure to set the headphone volume to about 8.

For equipment with digital outputs, you will have to be sure that the digital output format of your playback component matches the digital input format of your sound card. Be warned that not all digital field recorders have a digital signal

output, and not all sound cards have a digital signal input. The two most common digital in/out formats found on consumer-grade and some professional-grade field equipment are S/PIDF and optical. Optical is also called TOS-link. Most S/PDIF in/outputs accept an RCA style plug with a digital cord. Optical in/outputs accept a special plug that resembles the stereo mini-plug.

Once you've determined the nature of the output jacks on your external sound source, you need to determine the nature of the input jacks on your sound card or USB/FireWire input. Most consumer-grade sound cards that have external input jacks (not all necessarily do) are usually designed to accept stereo mini-plugs. In some cases a sound card will have RCA jack inputs. USB/FireWire audio inputs can have a range of plugs. For example, the Griffin iMic has only stereo mini plug inputs, the Edirol UA-1X has RCA inputs. In general, higher end consumer equipment will use RCA jacks.

If using a sound card, determine which plug on the back of your computer is used for sound input. In cases where the sound card is integrated into the computer's motherboard, the inputs and outputs should be located somewhere in the mess of other plugs and do-dads near the power supply on the back of the PC. In cases where the sound card is separate from the motherboard, the inputs and outputs should be located in one of the card expansion slots.

It is very common for sound cards to lack an identified line-in port separate from a mic input port. If your particular card does, all the better. If not, use the mic port as the line-in. This is not ideal, but if it's all you got, it's all you got.

As mentioned above, not all sound cards will have a digital input port. Even if your card does, it may not match the format of the digital output on your recorder!

Any problems identifying this stuff, consult your owners manual.

Port to Port: Cables and Adaptors

To actually connect your external sound source to your PC sound card or USB/FireWire input, you will require cables with the proper plug combination. Simply speaking, the plugs on one end of the cable need to match the jacks on your output source, the plugs on the other end need to match the jack or jacks on the input.

For example, lets say that you are using your home stereo cassette deck for playback of your field recording and the output jacks require two RCA plugs. On the other end, your computer's sound card accepts only a stereo mini-plug for input. To go from the cassette deck to the computer you will need one of two things: either a cable that has two RCA plugs on one end and a stereo mini-plug on the other **or** a standard RCA cable with two male plugs on each end and a separate adaptor (called a "Y" adaptor) that has two female RCA plugs on one

end and a single stereo mini-plug on the other. Plug in one set of RCA plugs into the adaptor and off you go.

Onward to the PC

Once the external sound source is connected to the PC Audio Input Device we move from the realm of hardware into the realm of software. In order to transfer the audio signal from your field recording on to your computer you need a piece of audio editing software. As with sound cards, audio editing programs are distributed across a vast range of prices and are designed for a variety of functions.

Inexpensive Digital Audio Editing Programs

The following is a list of inexpensive (and in one case, free) audio editing programs. All can be downloaded for free in trial versions, so test them out and see which works best for you. Sound Forge Audio Studio is a scaled down version of a fuller, substantially more expensive professional-grade program. Although you do lose out on some features, in my experience these are features that are mostly of interest to people who use their computers to record or create music. For analog-to-digital transfer for the purpose of editing audio or creating CDs, these scaled-down programs do a great job, and still contain a host of features you will probably never even have a reason to use. Sound Forge has a number of plug-in programs available that will expand the features of the basic version. We recommend buying a noise reduction plug-in if you expect to spend a lot of time cleaning up audio signals.

Audacity: Free
A free, open-source audio editing program. Although it has certain limitations when compared to more expensive programs, many can be worked around. Audacity is the program we use in our digital audio editing workshop.
http://audacity.sourceforge.net/

GoldWave Digital Audio Editor: $40.00
A basic, inexpensive audio editor. Limited to one or two tracks.
http://www.goldwave.com/

Sound Forge Audio Studio: $70.00
Another scaled down version of a professional audio editing program. Very well regarded. Has a gaggle of "plug ins" available to add functions like noise reduction and audio effects. Limited to one or two tracks.
http://www.sonymediasoftware.com/Products/ShowProduct.asp?PID=975

Once you have experimented with and selected an audio editing program, you will be able to use your PC as an audio recording device. How the recording

process works is very different with each program, and can best be understood through experimentation and by reading the manuals, FAQs and forums for a particular piece of software. With this said, a few generalizations can be made. First you need to open your audio editing program and prepare it to record. Once the program is set to accept audio input from an exterior source, start the record function of the program and begin playback of the source material. When play back is completed, stop recording. If all has gone well, you now have a digital version of your field recording. The next step is to save the file. To do so you will need to decide what file format you want to create. If you have enough storage space on your computer, for editing purposes I recommend saving your audio as .wav files. Once you have completed your editing work, the other file formats mentioned below are a good bet for simplifying some kinds of access to your materials.

Audio File Formats

There are many different types of audio file formats. For the sake of this guide we limit our discussion to four: .wav (pronounced “wave”), .mp3, RealMedia, and Windows Media files.

.wav

The .wav file is a large, uncompressed, high-quality, standard audio file. When transferring audio to the computer, the master version should be saved as a .wav file. As you work with the digitized audio, the master versions of each edited selection should be saved as .wav files as well. The reason for this suggestion is that .wav files are uncompressed, and therefore have better audio fidelity. In addition, the .wav files is not a proprietary format, so any audio editing or playback program should be able to open them. In addition to this, .wav files burned to a CD-R can be read by most CD players as audio, so .wav is a good format to use when preparing audio for burning to compact disk. Do all your editing work with .wav files and if you wish to have a smaller version for access (for example for downloading or streaming from the web) save a use-version in a different format.

.mp3

The .mp3 file has gained a great deal of notoriety as a audio format for swapping songs and other audio material on the web. In comparison to the .wav file, .mp3 files are small, which is one of their perks. However, this small size also results in one of the format’s greatest drawbacks—in order to achieve this size reduction there is a concordant loss of audio quality. Furthermore, each time you open and save an .mp3 file in an audio editing program, you compound the compression, decreasing the quality of the audio. For this reason you should never edit using .mp3. The .mp3 is a good format for providing downloadable web access to audio materials. Although .mp3 files are still large by file-size standards, their

size tends to amount to tens of megabytes as opposed to the hundreds of megabytes taken up by .wav files. These days many new CD and DVD players can read .mp3 files as audio as well.

It is also possible to stream .mp3 files. For information on streaming .mp3, see the page at transom.org:

http://www.transom.org/tools/webaudio/200403.mp3_streaming.html

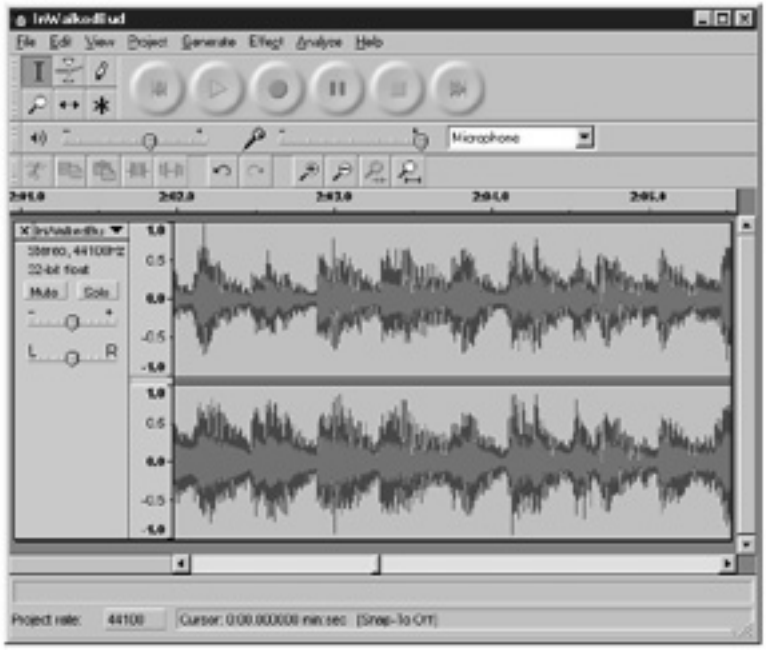
RealMedia and Windows Media

RealMedia (.rm) and Windows Media (.wma) are audio file formats that can be used to stream audio over the web. Streaming audio shortens the amount of time you need to wait to hear web-based audio content. As a result, it makes accessing audio off the web much more convenient for users. What this means is that when you access a RealMedia or Windows Media audio file remotely, over the web for example, you do not have to wait for the entire file to download before you can hear the audio. There are three major downsides to these two streaming audio formats: 1) The ability to take advantage of streaming audio depends on whether or not the company hosting your website provides the service. If they do, it frequently carries extra fees, 2) they do not allow for very high audio fidelity and 3) they are both proprietary formats—that is, in order to listen to them you need to have specific software produced by either RealNetworks (RealPlayer) or Microsoft (Windows Media Player). In the case of both, RealPlayer and Windows Media Player are available as free downloads, but not everyone wants to install or use these programs, so the ability to reach people interested in your materials might be slightly limited.

V. Editing Digital Audio

Cutting and Pasting Sections of Audio

As with the process of recording audio to your PC, the techniques for editing digital audio vary enormously from software package to software package. Most will provide a number of different interfaces for working with audio. The most common is what is called a “waveform” view. Below is a waveform view taken from the audio editing program Audacity.



The waveform view presents audio data as sound waves along a linear path. Since most of us are familiar with the idea of sound as waves passing through the air, the waveform view tends to provide a fairly intuitive way of visually representing sound. The utility of the waveform view comes in that you can easily playback and identify sections of audio you want to work with and then highlight, cut, copy or paste the audio within the file or into new files. While the way this is done varies from audio editing program to audio editing program, the overall gist of copying, cutting and pasting sections of audio from a file is not all that different from copying, cutting and pasting text in a word processing program within files and from one file to another. In this way, you can work with sound on you PC in ways that in the past would have required expensive audio equipment such as reel to reel players and splicing tools or somewhat crude tape-to-tape set ups. As you work with and read about the particular program you are using, you will learn the best methods of manipulating sections of sound in your particular software environment.

Sound Processing and Noise Reduction

Digitizing analog audio also affords the possibility of processing sound in a variety of ways. If your master field recording suffers from any number of audio fidelity problems, many of them can be corrected or lessened through the sound processing functions of an audio editing program. As with all of the software-based operations discussed in this document, sound processing techniques and technology vary greatly from software program to software program, but some generalizations can be made. We will explore two kinds of audio fidelity problems with field recordings: 1) low sound levels that result from having recording levels set too low or from the person who is speaking being too far from microphones, and 2) background noise such as excessive tape hiss,

electronic hums or ambient environmental noise picked up at the time of the initial recording.

Boosting low volume recordings

It is very easy to raise the amplitude of low volume sound recordings using an audio editing program. The technique for doing this depends on the audio program, but the overall concept is much the same. What you should be aware of, however, is that when you attempt to raise the volume of the speakers' voices, you are raising the volume of the entire recording, including any background noise present in the original. In order to remove amplified background noise, you will need to apply some of the noise reduction and audio filtration techniques we will go over shortly. Consult the documentary materials for your particular program to learn the specific means of raising sound levels.

Noise reduction and sound filters

Audio editing programs will usually come with a set of sound filters and noise reduction schemata. Some programs sell separate plug in programs that extend the range of noise reduction options available to the user. Noise reduction functions by identifying repetitive sound patterns in a recording and then removing sound frequencies associated with them. Unfortunately, noise reduction technology is far from perfect, and the heavy use of noise reduction also tends to remove sound frequencies that you will generally want to keep, so step lightly. Some specialized noise reduction schemata are designed to target particular kinds of noise, such as tape hiss, and are very effective at removing such kinds of extraneous noise. The reduction of unwanted noise in a recording can also be accomplished through the use of sound filters. Filters work by removing or reducing the presence of certain sound frequencies in a recording. Audio editing programs will generally both come with a number of pre-set sound filters for cutting off or boosting high-end frequencies, low-end frequencies, mid-range frequencies, etc., and the ability to formulate your own. As with most of what we have discussed in this document, each program will work differently (and in the case of noise reduction, with varying degrees of effectiveness). Consult the documentary materials for your particular program to learn about the noise reduction capabilities of the software you own.

Preparing Audio For CD

There are two types of CDs you can create to store digital audio information: "audio" CDs (CD-DA format) and "data" CDs (CD-ROM format). Each approach has it virtues and applications in different circumstances.

Audio CDs (CD-DA)

If you want to be able to play back your digital audio in an audio CD player such as a stereo component or a car CD player, you will need to burn an audio CD. On an audio CD a digital audio file is stored in a special way that allows audio CD players to interpret it as sound. Digital audio files burned as audio CDs are restricted to so-called "CD-quality." CD-quality audio files are 16 bit/44.1kHz stereo files, and we advise saving audio for CD in .wav format. If you are starting with a file that is not CD-quality, you will need to convert the file to meet the specifications for CD audio. A standard CD can hold 74 minutes of audio. If you file is longer than 74 minutes you will need to break the file into smaller files and burn each one separately to its own disk. Longer CDs are available, but for a number of reasons addressed below, we recommend the use of 74 minute CD-R blanks.

One of the downsides to making and using audio CDs of interviews is that if your interview recording is burned as one long audio selection—essentially as one long track—fast-forwarding through the interview can be frustrating, if not outright impossible. Many audio CD players do not have a feature that will allow you to search through individual tracks as opposed to simply jumping from one track to another. In those cases in order to reach a particular part of the interview you will need to listen to the entire recording up to that point each time. In the case of CD players that have a search function, you generally have to hold the search button down as the laser quickly skips over the disk until you reach the point in the recording for which you are searching. This takes time, creates a racket and wears your equipment.

The solution archivists have arrived to remedy this problem is breaking up long interviews into a series of tracks, and burning those tracks to a CD rather than burning one long file. There are two approaches to doing this. One approach involves dividing up the audio at points determined by subjects discussed. The other method involves placing tracks at regular intervals, usually five or ten minute intervals, across a recording. It is important to be sure that you configure your CD burning application so that it does not automatically insert the standard two seconds of silence between each track. With the silences inserted there will be a short break between each track, without the silences there will be a seamless transition from on track to another. In order to perform this function you will need a CD burning application that supports "Disk-at-Once" recording. Whichever method you choose, each audio editing program will have a different technique for breaking up long audio selections into separate tracks, and each CD burning application will have a different means of preparing audio for CD. You will need to consult the documentary materials of your particular programs.

The downside to burning your audio files as audio CDs is that in order to access the files directly—for example to edit them in Audacity—you first have to go

through an intermediate process called “ripping.” Ripping requires an additional piece of software that essentially strips the audio file out of the audio CD. Ripping and can create audio problems with your files, so if you intend to keep working with your audio, you are probably better creating data CDs.

Data CDs (CD-ROM)

A data CD contains audio information stored to the disk in the same way any other computer file—such as photographs or documents—would be stored. For this reason, audio files burned as data cannot be played back in audio CD players. In order to access the audio files on a data CD, you need to play it back on your computer via your CD-Rom drive using either an audio editing program such as Audacity or audio playback software such as RealPlayer or Windows Media Player. Although data CDs cannot be played back on audio CD players, they are very useful for many applications such as back ups, storage and archiving. If you intend to continue working with your audio files or uploading them to the web using the CD as a source, you’d be better off burning data CDs rather than audio CDs. Additionally, digital audio files burned to CD as data are not limited to CD quality—they can be any format or size that fits within the 650megabyte limitations of a standard CD-R.

CD Burning Applications

As mentioned above, to burn a CD of audio file you will need a separate CD burning application such as Ahead Software’s *Nero Burning Rom* or Roxio’s *Easy CD Creator*. There are a huge number of CD burning applications available. We recommend you find one that supports the various functions outlined above, such as Disk-at-Once recording.

What CD-Rs are the Best?

The question of what CD-R media are best is a difficult one to answer. The truth of the matter is that different disks will function better or worse with different burners, and some disks will perform better when burned at higher speeds, some at lower speeds, so there really is no one pat answer. Also, there is no consensus regarding disk color—gold versus silver, for example. Most recommendations that I have read advise that you use higher priced, brand name disks (even though a single factory might supply identical disks to several different brands!) that come in standard size jewel cases. The argument for using brand name disks follows that larger, well known companies have an investment in producing quality materials. The reason for using only disks that come in standard jewel cases is that the standard size jewel case elevates the disk surface and prevents it from becoming scratched. Bulk disks on spindles rub against one another constantly, and disks packed in the slim jewel cases are prone to rub against the bottom of the case. Tests suggest that as a result, bulk

disks fail with greater frequency. At this point in time, for a variety of reasons archivists favor 74 minute Mitsui brand gold disks. The reason 74 minute disks are favored over 80 minute and longer disks is that 74 minute disks are made in line with CD standards established by the industry. As a result they will play in any player designed to play CDs manufactured to those standards, while longer disks may not.

On another note, it is best not to write on your CDs. If you need to, use a water-based permanent pen and write only on the areas of the disk designed for doing so or, for more archivally sound identification, on the clear plastic inner hub. Although adhesive labels on CDs are an archival no-no, they are great for projects. There are many different CD labeling systems available. If you would like to produce labels for your CDs, compare the merits of a number of systems.

VI. What Next?—Concluding Remarks

We hope this document has given you some useful background on transferring audio to a PC and editing digital audio. We present it with the aim of providing introductory tools so that you will be able to integrate audio into your own multi-media projects, and to encourage the creative presentation of folklife and oral history materials, no matter how humble or ambitious your projects may be.

For those of you interested in developing audio projects, I recommend visiting the web site www.transom.org. Transom.org provides additional information on editing audio, guidance in developing audio projects, examples of projects and even a forum for sharing your work. Transom.org is directed at independent radio journalists and documentarians, so their interests do not necessarily match up directly with the work done by folklorists, anthropologists and oral historians. However, their site contains a great deal of useful information, including tutorials on .mp3 streaming and using Audacity, and a thorough introduction to web-based audio. It is a great web site overall.

As mentioned above, this guide is intended as a basic introduction to digitally editing field audio. If you have any further questions please do not hesitate to contact Andy Kolovos, the Vermont Folklife Center's archivist at: akolovos@vermontfolklifecenter.org or via telephone at (802) 388-4964.

Good luck, and get to work!

This document is also available via the web at:
http://www.vermontfolklifecenter.org/res_digitalediting.htm