



# Do the write thing

Writing to CD is now **cheap and easy**. Steven Helstrip goes on record.

**Y**our home-grown recordings should be sounding heaps better if all the suggestions from the past three *Sound* columns have been put to good use — it just takes a hint of compression and some EQ to make a world of difference. This month, as promised, I am going to look at how to get those recordings onto CD as cleanly as possible. I have also taken Yamaha's newest rewritable drive for a spin.

**Until relatively recently**, producing a CD required some serious cash investment. These days, however, you can get your hands on a CD writer for less than 200 sheets — about the price of a decent cassette recorder.

Strange though it may be, blank CD-Rs are now cheaper than most audio cassettes and offer far greater flexibility. When I master a CD, for instance, I create a mixed mode disc and archive my sequencer arrangements, audio files, softsynth patches and even an image of the CD inlay to the data partition. This leaves plenty of room on my hard disk to start a new project. So how is it done?

### First steps

Once you have a mix you're happy with as audio tracks in your sequencer (refer back to the February issue column for the full low-down) listen to each track in turn and remove any unwanted noise such as background hum from microphone recordings.

If you have a noise gate plug-in, multiple instances can be inserted on the worst offending channels until your PC runs out of steam. Alternatively, snip out the noisy sections by using the scissors tool, paying particular attention to quiet passages.

If you're planning to fade out your track towards the end, don't worry about inserting volume envelopes in your sequencer; this is far easier to achieve



▲ **Fig 1 To**  
**CREATE A GENTLE**  
**LOGARITHMIC**  
**FADE IN**  
**WAVELAB, TRY AN**  
**OFFSET OF 50**  
**PERCENT WITH**  
**-12dB DAMPING**

with an audio editor once the arrangement has been recorded as a standard stereo wave file. Most audio programs have a 'mixdown to stereo' facility that does this for you: in Cubase, set the locators to the start and end of your song and select Export Audio from the file menu; in Cakewalk, the command is Mixdown Audio, which can be found under Tools.

To be compatible for CD audio, the wave file needs to be saved in 16-bit stereo with a 44.1kHz sampling rate. If you have used sequencer effects and automation, these options should also be checked in the mixdown windows.

**You can get your hands on a CD writer for less than 200 sheets**

**Once the mixdown** is complete, listen back to ensure that no unusual side effects have crept in and load the track into your sound editor. From there you can apply a fade-out if necessary and trim the intro. Remember, though, that some CD players don't instantly spring into play mode so it's best to leave around 50ms of silence just before your audio begins, otherwise, you may lose a

slice from the beginning of your songs when skipping from track to track. When it comes to applying the fade, bear in mind that a logarithmic curve will sound more natural than a straight linear fade [Fig 1].

I generally set the fade over six or seven seconds depending on the material. To ensure as much signal goes to CD as possible, normalise the track to 0dB before saving. You may even consider applying compression to the overall track or a master EQ. Given the effects of compressions, though, it's best to do this before applying a fade.

### Writes and wrongs

Unlike data CDs, audio discs need to be written in one go (or session). But if anything should go wrong before the session is closed the disc will be rendered useless. So that you don't waste more discs than necessary, I have outlined below the potential pitfalls and how best to avoid them.

- One of the main reasons why disc writes fail is due to contamination of the



## YAMAHA CRW4416SX DRIVE

disc surface; it only takes a speck of dust and it's 'game over, man'. To avoid this, don't remove a blank CD-R from its case until needed and, just as importantly, never touch the write surface.

- CD writers have a buffer (usually 1 or 2Mb) where data is stored before being written to disc. If your PC doesn't keep up with the recorder, the buffer runs empty; the dreaded buffer under-run. If this error message is reported, and it's not that uncommon, try disabling any programs that may interrupt the writing phase. These include screensavers, power management utilities, CD auto insert notification and even fax software.

- Burning CDs requires a continuous stream of uninterrupted data, so you should ensure that your hard drives are defragmented. Do not use your PC for anything else while writing is in progress. But if all else fails, try reducing the write speed from 4X to 2X, or from 2X to 1X.

Yamaha introduced the first ever recordable CD drive back in 1989, so it comes as no surprise that it leads the way today. **The 4416 is a tray-loading device capable of writing and rewriting at quad speed, while playback is a respectable 16-speed.** It comes in either SCSI or IDE configurations and there's an external model for SCSI, which is the drive under scrutiny here. Although the most expensive, external drives have a big advantage: they can be switched off when not in use, which prevents them from overheating.

The external case is only just bigger than the drive itself and provides a switch for power, SCSI ID select, and two SCSI 2 connectors. The first thing I noticed about the 4416 is how quiet it is; other drives I have used sound like they might take off once they reach 16 speed. As you would expect, all the main CD formats and writing modes are



supported and there's an essential 2Mb buffer to prevent under-runs. In the six weeks I've been using this drive, I have had a 100 percent success rate.

The package includes one CD-R, one rewritable disc and a copy of Adaptec's Easy CD Creator. With a typical street price of £349 it's not the cheapest drive around, but if you're looking for a solid workhorse I'd highly recommend it.

Price £410 (£349 ex VAT)

Contact Yamaha 01908 368872

## Questions & answers

**Q** I have been using Cubase VST for MIDI and audio sequencing for several months without

problems but since having upgraded my AWE-64 Gold to a SoundBlaster Live! I'm having trouble with synchronisation. When I playback my Cubase arrangements, audio and

MIDI start in sync but drift apart after about a minute into the track. I have experimented with different buffer sizes and have increased the pre-roll setting in the Sync menu but to no avail. Have I missed something?

NEIL PERRING

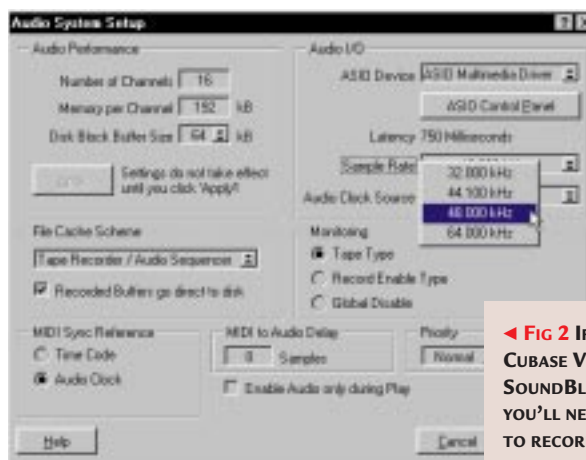
**a** Cubase uses your sound card's digital clock as a time reference to sync MIDI tracks to audio. From what you've described, it sounds as if the problem is related to the SB

Live!'s clock output, which is fixed to 48kHz. If your previous arrangements were recorded at

the default 44.1kHz sampling rate, drifting will occur over time. The first thing you need to do is set Cubase to operate at 48kHz to match the sound card (Audio System Setup dialogue — see Fig 2). This will ensure that new songs sync-up correctly. To playback your old arrangements in sync, you will need to convert, or resample, the audio tracks to 48kHz and reload them into your songs. Most audio editors have this facility.

### PCW CONTACTS

Steven Helstrip welcomes your feedback on the Sound column; it's music to his ears. Contact him via the PCW editorial office (address, p14) or email [sound@pcw.co.uk](mailto:sound@pcw.co.uk)



◀ **FIG 2** IF YOU USE CUBASE VST WITH A SOUNDBLASTER LIVE, YOU'LL NEED TO SET VST TO RECORD AT 48KHZ