Radio Times

Over the years I've generally enjoyed listening to sound radio. Since I like 'Classical' music and Jazz, I have tended to gravitate towards BBC R3. These days most of my radio listening is via DTTV ('Freeview') – hence the article last month. However during January I switched over to using a Broadband net connection at home. This made it practical to start exploring the parallel world of 'internet broadcasting' using my Iyonix. Fortunately, the !DigitalCD application I mentioned last month can act as an internet radio receiver. Given the URL for a suitable sound stream it will play the results. I must confess this was a pleasant surprise for me. I didn't know how versatile !DigitalCD is until I started experimenting with it! However this immediately prompted me to see if it was possible to record the steams of audio data. In part, this was to let me experiment and analyse the results. But it also enables me to bypass the audio hardware in my Iyonix and listen to the music using decent hifi systems.

At this point I must thank Andre Timmermans. Not only has he developed and made the excellent !DigitalCD package available. He has also kindly helped me to learn how it can be used to make recordings, etc. In fact I can now carry out recordings use two approaches. Hence this article is to explain how you can also do so. As with previous articles, this one comes with an application you can use to try recording for yourself. The application is called !RadioTimes for reasons that should be obvious later on. If you want to try, the first step – if you don't already have !DigitalCD – is to download that and get it working on your RO machine. Once you can use it to listen to internet radio steams you can proceed to make recordings. I will therefore assume you have done this, and go on from that point.

For a simple demo of what is possible, try the following series of steps:

1) Look inside the 'docs/zip' file available with !DigitalCD. Inside "docs/zip.Docs.DiskSample.Examples' you'll find a compiled program called 'DiskPlay'. Drag a copy of this to your ramdisc.

2) Create a file which contains just one line of text:

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ram:DiskPlay -v256 http://stream-10.ssatr.ch:80/rsj/mp3 -oo ram:recorded/mp3
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3) Set the FileType of the above one-line file to 'TaskObey'

4) Run the file by double-clicking on it with the mouse 'select' button.

A TaskWindow will open and a new file called "recorded/mp3" will appear on your ramdisc. The window will regularly report how much data has been fetched and you can watch the size of the file steadily grow. To terminate recording process press 'escape' while the TaskWindow has input focus. The recording will cease and the file will be filetyped as an mp3 file. You can now drag this to !DigitalCD and play your new file. The URL used in this example is for a Swiss Radio Jazz station. All being well, I'll provide the editor with one or two example TaskObey files for recording some stations so you can give this a quick tryout.

If you wish you can put DiskPlay somewhere convenient on your hard disc and create a set of TaskObey files, each including the URL of a different net radio stream and an output file name.

This lets you record you choice of station simply by running the appropriate file. You can find more detailed explanations of how to use DiskPlay in the same directory in docs/zip as the DiskPlay program. The above is quite a neat demonstration of the ability to be able to make recordings from net radio. But I felt it would be more convenient to have something that works more like the way you can use a programmable videorecorder. The idea being that you can give it a starting time, a length for the recording, and a station to record. Then leave it to make the recording unattended. Hence !RadioTimes was born!

As usual, !RadioTimes accompanies this article and you are welcome to use it to experiment with recording net radio streams. The resulting files can be written to a CDR/W or DVDR/W. Many domestic audio and video disc players and recorders can play mp3 files – although usually you will need to remember to ensure the filename ends with "/mp3". I tend to write the files to a CDRW then play them on an audio or video disc player though a good audio system. For some stations this can produce excellent results. Alas, for some others the sound quality can be dire. But writing to a CD allows me to bypass the problems of the Iyonix audio hardware.

As usual, detailed instructions are in a '!Help' file inside the !RadioTimes application directory. But two general points are worth making. First, check you can listen to the station OK using !DigitalCD. This ensures you have a useable URL for the stream. Secondly *DON'T* close the TaskWindow !RadioTimes produces whilst recording in operation. If you do this (or press 'escape' the application will quit without being able to stop the recording! If you need to abandon recording, press 'q' or 'Q' whilst the TaskWindow has input focus, and recording will be terminated in a tidy fashion.

By default the application contains a few Stations listed in its 'Stations' file. These were chosen purely to show some random examples of the kinds of stations available. You should replace these with your own favourites. Have a look at lists of stations like those at

http://www.mikesradioworld.com
http://www.vtuner/com
http://www.radiofeeds.co.uk
http://www.radio-feeds.com

From these you can download 'pls' (playlist) files or otherwise get the urls to add to !DigitalCD's list or add to your list of stations for !RadioTimes. Please note that the version of !RadioTimes I've produced is purely intended as a simple way to make 'timer-based' recordings. It works by getting the 'PlaySample' module to manage the recording process using a background event timer. This made writing !RadioTimes easier, but complicates the situation so far as desktop use it concerned. !RadioTimes starts the recording process at the time you specify. It then monitors the time and every now and then checks that the module is still running the recording. At the time you have specified it tells the module to halt the recording process. The actual recording runs in the background using timer interrupts which !RadioTimes does not control.

In effect this means one interrupt driven process (a TaskWindow) is monitoring another independent one (the actual fetching and recording) and !RadioTimes just keeps blindly looping and checking the time until it has to stop the recording. This wastes a lot of effort in desktop terms. As a result the behaviour can interfere with other desktop activities. So the safest course is to only use !RadioTimes only when you are not using the machine for anything else - except maybe listening. If you read the !Help file you will find some other things that also stem from the way !RadioTimes operates. If you want to make recordings in the background while you use the computer for other purposes, then I'd suggest using the above TaskObey file approach as it is simpler.

A final point to note about !RadioTimes is that it also temporarily creates another file whilst it has a recording under way. This is useful if you accidentally close the !RadioTimes TaskWindow whilst recording. The problem here is that !RadioTimes can't now keep an eye on the time and tell the module when to stop recording! However if you look inside the !RadioTimes application you'll find a compiled program "EmergencyStop". If you double click on this it will run and ask for the name of this extra 'RTstream' file. Type in the full name and press return. It will then ask if you wish to stop the recording. Given the correct filename it will confirm by telling you the station being recorded and the time recording was intended to be halted. It then lets you halt recording immediately if you wish. So you can then use this to stop the process and preserve the recorded data. At some point I may add this function into !RadioTimes itself, but I've not got around to it as yet.

Note that by I prefer to make recordings to ramdisc. This is convenient, but it is important to ensure you have enough free space available. If you run out you may lose the entire recording! If you think you are running out of space, press 'q' to get !RadioTimes to halt the recording.

How well you get on with listening to, and recording, will depend on two main factors. One of these is the speed of your connection. In my experience my local broadband connection is fast enough to allow me to simultaneously fetch two 256kbps streams. But some stations seem more 'reluctant' than others. So in some cases even fetching a 128kbps stream may be subject to interruptions. The safest course is to try listening for a while and see if that is OK. If so, you can the proceed to try recording that station. Note that !RadioTimes doesn't allow you to listen to the stream being recorded. This means that if you want to listen to that station you will have to get !DigitalCD to record a 'second' stream from the same source. This should work OK, but if you have a limit on how much data you can download per month it eats up your allocation at double the rate.

The second limitation is that !RadioTimes uses the same modules as !DigitalCD. This means that you are in practice limited to the formats which !DigitalCD can handle. The good news is that there are a number of net stations that fit this requirement. Alas, Auntie Beeb isn't one of them at present! In fact the BBC are currently in the process of evolving/changing their internet sound radio arrangements. They are starting to change to using the aac/aac+ formats. Like mp3 this is an 'open' format in the sense that the stream/file format details are laid out in ISO standards documents. And anyone who wishes can write a decoder – if they have the necessary skills and the time to do so! Hence in the longer term this is a better situation for RO users than in the past where the BBC have a history of using the proprietary wma and real audio formats.

At the time I am writing this (early March) the snag is that you have to access the aac/aac+ streams via the BBC's "Flash iPlayer". This scuppers RO users as we don't have an up-to-date Flash plugin which will cope with this. (Unless you know different...) But from discussions I've had with the BBC this should change in the near future. So it possible that by the time this appears in Archive each of the new aac/aac+ streams will be accessible via URL without needing Flash. The remaining snag is that – as yet – the !DigitalCD system can't play aac/aac+...

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