

# The Steeple Podcasting Scrapbook

A podcasting resource book for UK  
Higher Education

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# Introduction

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## Tutorials/SteepleBooklet/ Introduction

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### Introduction

Podcasting involves the creation and distribution of multimedia files, such as audio files (most commonly, MP3s) or videos, over the internet for playback on mobile devices and personal computers. The term podcast, like 'radio', can mean both the content and the method of delivery. Podcasts are already being used by savvy universities for marketing and recruitment. Some universities use podcasts to providing expert commentaries on topical issues from researchers or staff who are renowned authorities on their subject. They can be used to share the latest outcome of a research project. The advantage of podcasting is the relative ease at which it is possible to create recordings and distribute them via the internet.

Teaching a course with podcasting provides an additional way to share lecture content and promote student engagement. Podcasts can be made by simply recording a seminar/lecture or by creating them *de novo* as an additional learning resource. Educational video and audio is undergoing a step change, posing new requirements on institutional workflows that have high overlap between institutions. Particularly the availability of affordable recording techniques as well as new distribution channels has changed the way in which audio and video visual material is used in UK higher education. As downloadable audio and video, podcasts empower an educator with the ability to deliver course materials and lectures outside a conventional classroom environment. Students, or interested parties (depending on whether the material is publicly available) can access the material from outside the campus, view it at any time, and by downloading it to a portable media device (such as an iPod) can view the material anywhere.

Academic commentary, interviews, or public lecture series could also be published as a podcast and made available publicly or to a restricted audience (using the institutions single-sign-on system). Podcasting technology is useful for regular commentary because RSS listing allows users to subscribe to the podcast feed; being alerted and downloading the latest instance in the series. Linking to a podcast directory allows you to find new material quickly. The most popular directory service is the one provided by the Apple iTunes software, which is a free download from Apple <sup>[1]</sup>. iTunes can search existing podcasts based on outputted RSS feeds, and fully integrate academic podcast series into Apple's own service, iTunes U ([www.apple.com/itunesu](http://www.apple.com/itunesu) <sup>[2]</sup>), which academic institutions must sign-up to prior to use.

"Podcasts are different from Internet radio stations. Radio content is streamed over the Internet. Podcast episodes are downloaded to your computer and you can copy them to an iPod (or other media player)"

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A particular advantage to podcasting is that the media is easily created by most recording equipment (an iPod with a mic, a computer, a DV camera &c.) and is encoded into an industry standard (MP3) that is universally read by computers and portable media devices.

Widening one's perspective, podcasts can be published by students and made available in exactly the same manner as their academic counterparts. Student podcasts could document the learning experience, the development of their knowledge, experimental / research methods or simple commentary of any nature. Apple's iTunes U has a built-in feature that allows students to upload podcasts which can be viewed either by the tutor or by fellow students (suitable for peer review).

## We want \*YOU\* to contribute

This booklet is not a polished guide. It is not perfect nor is it complete. We have taken a snapshot of the information in the Steeple project's wiki and made it available as an example of what podcasting involves. The printed document contains only a fraction of what we have online at the Steeple project wiki <sup>[3]</sup>. The wiki is a live and expanding guide to the issues surrounding academic and institutional podcasting. We encourage you to visit the Steeple website and **contribute** your expertise, thoughts, concerns and questions.

This booklet and its online wiki companion is released under a Creative Commons Attribution-Noncommercial-Share Alike <sup>[4]</sup> license. You are free to photocopy and distribute any portion of it as long as it's for non-commercial use. You are free to re-use and re-mix, as long as you share the result under the same (or a compatible) license.

## About Steeple

Steeple <sup>[5]</sup> is a JISC <sup>[6]</sup> funded UK Higher Education community project, led by Oxford University <sup>[7]</sup>, the Open University <sup>[8]</sup>, and Cambridge University <sup>[9]</sup>. The vision for the Steeple project is to create a viable community around scalable, enterprise-level solutions suitable for the UK higher education sector in the areas of automated video/audio capture, video/audio processing, and video/audio delivery ("**podcasting**").

The Steeple project will look at the processes supporting effective use of audio and video podcasts using emergent technologies that can streamline complex audio-visual encoding activities through enterprise level services. This centralised institutional work will relieve the burden placed on departmental support structures and lead to long term savings from the reduced time and effort in creating audio visual materials for teaching, research and outreach. The project will run from October 2008 to March 2010. We are hoping to work with all UK higher education institutions that have an interest in OpenCast <sup>[10]</sup>, and hope that Steeple will lead to strong participation of UK-HEI in OpenCast.

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## References

- [1] <http://www.apple.com/itunes/>
- [2] <http://www.apple.com/itunesu/>
- [3] [http://www.steeple.org.uk/wiki/Main\\_Page](http://www.steeple.org.uk/wiki/Main_Page)
- [4] <http://creativecommons.org/licenses/by-nc-sa/3.0/>
- [5] <http://www.steeple.org.uk/>
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# Podcasting in Education

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## Tutorials/SteepleBooklet/Education and podcasts

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The prime motivator for the use of podcasts within a course should be the achievement of the learning outcomes or specific objectives of a learning activity. A review of the current course structure and pedagogy will allow strengths and weaknesses to be identified. As a tutor you may wish to address a weakness with the introduction of podcasts. By addressing the questions on the pedagogical and technical issues and relating these to learning theory the tutor will be in a much stronger position to assess whether the introduction of podcasts will help achieve the learning outcomes or objectives (<http://www.bioscience.heacademy.ac.uk/resources/projects/barry.aspx>).

### Podcasting Activities

#### TUTOR INITIATED PODCASTS

Entire lectures

Visiting lecturer

Pre lecture material

Seminar discussion

Supplementary topics that you may not have time to cover in the lecture

Supplementary topics explaining difficult/complex areas of course

Authentic audio materials

Feedback to students on assignments

Summary of journal articles on a research topic

Record interviews with specialists in a specific field

Provide information for field trip activities

Provide administrative information

Interactive podcasts with tasks/questions and links to URL sites

Provide pronunciation of technical language or relevant sounds (e.g. Korotkoff sounds when measuring blood pressure)

#### STUDENT INITIATED PODCASTS

Reflections on an activity

Summary of key idea/theory

Discussion between two or more students of a pertinent issue/idea/theory

Assignment work - presentation, field report or project

Interview a specialist in a specific field

Interview other students

Podcast to encourage peer evaluation



## Files, formats and sizes

**Audio** - is the most common form of podcast content. Files are encoded/compressed using the MP3 algorithm and typically produce hourlong recordings in files of 60Mb or under. For audio recordings where extra quality is required (e.g. music performances), larger file sizes with higher quality settings can be used.

**Video** - is often the more popular format for podcasts and offers a variety of uses ranging from camera footage of a performance, to captured slide presentations, to images/photos akin to a slide show. The format used is called MP4, and utilises the H264 video codec to compress the visual data. Typical outputs will be 640 pixels wide, in either a 4:3 or 16:9 (widescreen) aspect ratio, and use 700kbps of data, resulting in an hour's video producing a file size of 350Mb.

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# Rights

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## HCPT/Session 1: Rights

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When creating or distributing a podcast, it is important to make sure all necessary rights and permissions are secured for the material included in the podcasts. This is relatively easy if you create all of the material that is included in the podcast but can become progressively more complex the more you include material created by other people. In education this can be as simple as asking the lecturer to sign a release form and need not be unnecessarily complicated with professional film or television copyright forms. Nonetheless, if you do not obtain the necessary rights and permissions you may get into legal trouble for incorporating third party material into your podcast and for authorising others to use that material as part of your podcast.

For the purpose of audio recording a talk, the relevant rights fall into three broad categories:

1. Speakers own what they say (their 'performance') and so a release form is needed to give the rights to this to the institution.
2. The recordist also has rights to their recording (the 'physical' recording) and so needs to sign a release form.
3. However, other 'works' also have copyrights attached to them, for example songs, pictures, books, lectures, slides (third party copyright). Permissions from third parties is hard to clear, and so:
  1. During the talk, you cannot play commercial music from CD, read poetry, or play commercial videos without running into copyright issues. However, you can read short extracts from books and articles.

Consequently a basic plan of action could be to:

1. Ask the speaker - well in advance of the talk - if you can record their talk and distribute it over the internet.
2. Ensure the speaker signs a release form.
3. Ask if the speaker plans to use poetry, music or video, and if so seriously consider if recording and subsequent distribution is likely to be possible.
4. Secure the permission of the recordist, who should also sign a release form.

You should note that the speaker may not be able to negotiate their own rights: For instance, if the speaker appears on behalf of an organisation, or the contract is being dealt with by the speakers agency. In these examples, we assume that the speaker can deal with their own rights, which often is the case for academic talks. However, depending on the home institution of the speaker, some of their work may be owned by their institution.

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## Permissions

A conversation (by email or otherwise) with a potential lecturer might go like this:

- Organiser: "We were hoping you might be able to give a talk for us as part of our upcoming series on XYZ."
- Lecturer: "That sounds great. I would be happy to do this."
- Organiser: "By the way, to increase the impact of our talks, and to promote our cause as broadly as possible, we do what many organisations now do: We record all our talks, and put them online. Is this fine with you?"
- Lecturer: "Yes, that's okay."
- Organiser: "I'll email you a release form, and it would be great if you could sign it and post it back. Otherwise we can have one for you on the night."
- Lecturer: "That's good, I'll get that back to you straight away."
- Organiser: "When we do the recording, we have to make sure that we comply with copyright legislation. Could I double check whether you are planning to play any music, DVDs, or film during the talk, or whether you are planning to recite some poetry?"
- Lecturer: "Nope, no poetry, music or DVDs of any kind."
- Organiser: "Great, thanks!"

This is your best outcome and it means you can just go ahead and record/publish the talk without any issues.

If you are new to podcasting, there are a lot of issues you will have to think about, including technical, editorial, publishing and so on. You should try to keep things as simple as possible to make sure that you can go through all the required processes without getting stuck and to make sure that you see some fruits of your labour quickly. So if you have a choice over which talks to record pick some talks that are straight forward to record and where permissions are simple. Once you have a good overview and experience of the entire podcasting process you can move on to recording more complicated talks. We say this from experience: Where people try to "bite off too much", they get stuck and do not produce any output. This in turn leads to frustration and the view that it "cannot be done". So start with some easy talks!

## Getting permission with "non-commercial" third party rights

A variant of the previous conversation, this time there are music and DVDs used, but they are not commercial:

- Organiser: "When we do the recording, we have to make sure that we comply with copyright legislation. Could I double check whether you are planning to play any music, DVDs, or film during the talk, or whether you are planning to recite some poetry?"
- Lecturer: "Ah, actually I have rather a lot of music and film."
- Organiser: "What sort of film and music do you have? Is it commercial, or your own?"
- Lecturer: "Nothing bought, it's all my own. The film is field-work footage from our trip to Antarctica."
- Organiser: "Do you know who owns the rights?"
  1. The conversation can now go several ways. Best case:
    - Lecturer: "We release all our materials under creative commons license, so as long as you comply with this, there are no problems."

- Organiser: "Could you get us a list of items, and associated licenses?"
  - Lecturer: "No problem, it's all on my last slide anyway, so you can just copy it from there."
2. But more likely:
- Lecturer: "It was all taken by me personally, and I do happen to know that at our institution, professors own their materials. Some of it was taken by a technician, so it would be owned by our institution, but as principal investigator on the project, I do know that the institution is happy for me to give you permission to use this."
  - Organiser: "As long as you are happy for the sound track of your films are reproduced in the audio recording, that's all fine. Would you be happy to get us the relevant permissions in writing?"
  - Lecturer: "Yes, I can just take photocopies of the relevant documents, is that okay?"
  - Organiser: "Yes, that's fine, thanks."

In this case you are basically okay: You need to carefully check that the lecturer can indeed give you the relevant permissions, and that you get the right forms signed and copies for permissions from the lecturer as appropriate. Get some advice from somebody (such as your institution's legal services) if necessary, but it is most likely fine.

## **Getting permission with commercial third party rights**

- Organiser: "When we do the recording, we have to make sure that we comply with copyright legislation. Could I double check whether you are planning to play any music, DVDs, or film during the talk, or whether you are planning to recite some poetry?"
- Lecturer: "Ah, actually, I have rather a lot of music and film."
- Organiser: "What sort of film and music do you have? Is it commercial, or your own?"
- Lecturer: "No, it's all bought, some CDs, and some extracts from commercial DVDs. But I always show these, and I have heard that in an educational context this is all fine."
- Organiser: "Unfortunately that isn't the case. There are very special conditions under which materials can be used in educational contexts, but our public talks don't fall under this, and recording the material certainly won't be possible."

What are your options? You obviously cannot go ahead and publish the talk regardless. Also, it will be expensive and possibly long-winded to clear the materials, so that is rarely an option (unless you have the budget, in which case at least music can be cleared relatively easily).

On a low budget, and if you want as much of the talk as possible, you essentially have three options:

- You ask the speaker not to use any third party materials. (You may be able to convince the speaker that recording the talk would be great, and really help to promote your cause, and so they may be happy.)
- You do not record the talk, and spend your effort on recording another talk instead.
- You record the talk, but edit out all third party copyright materials.

The latter option is really only recommended if there are not many third party materials and if they can be removed easily. Therefore you need to talk more to the lecturer and see what can be done. However, complications are common: Usually, if the editing is done by volunteers, removing materials causes such long delays that the talk stops being topical and may not be worth publishing anymore.

A better cause of action would be to not use the entire talk but just publish some excerpts. Alternatively, record a separate interview with the speaker or even record the speaker giving a separate 5 minute summary of the talk. This would be much more efficient in terms of effort and look much better than a heavily excised lecture.

## **Getting permissions for presentation slides**

The above focuses on audio recording because it is the simplest thing to do and avoids problems with third party images in slides. Presentation slides can be hard to clear mostly because they usually contain images. Images are more complicated for two reasons: The speaker is much more likely to use images and tracking the rights is usually harder.

However, if the slides are entirely the lecturer's own work, i.e. if there are no images in the slides (and no other graphics that may belong to a third party) then it is fine to use the slides. You simply get the speaker to sign over the relevant rights.

If the slides have images/graphics you can of course use them if they are in the public domain, e.g. if copyright has expired, or the owner has released them (say under Creative Commons), or gives you adequate permission. Images from some organisation (e.g. NASA) are also acceptable provided you follow the terms and conditions on their website. Note that it is not necessarily true that a person from an organisation can authorise the use of photos owned by that organisation.

## **Release forms, legal forms, complicated forms**

Once the speaker has agreed to sign a release form you must know what form to use. The legal services of your institution will be able to advise you but such an approach can create complications. Typically, if faced with a lengthy and overly legalistic form a lecturer may simply decline to give permission whereas agreement may be secured if the lecturer had been presented with a shorter form that uses clear, concise statements. Similarly, phrasing the forms in terms of reciprocity can help; for instance, noting that you will provide the lecturer with free copies of the edited recording.

With forms the first option is to use a copyright-assignment. This gives you the greatest freedom, and could be recommended for situations where a performer is paid for their performance or where the performance constitutes only a small part in the whole work (e.g. a few sentences in a longer documentary). This is thus quite common for commercial film work.

However, the lecture recording situation is quite different. The performance (i.e. the lecture) is the main part, and it is also fully conceived of by the lecturer. Also, they are probably giving the lecture (at least partially) as a gesture of good will, possibly without payment. It would be quite unreasonable to expect the lecturer to sign away all rights in that performance. You can follow two strategies:

- The University of Cambridge and the University of Oxford each have a 'license form' through which the speaker gives the University a license. It means the speaker retains copyright, and can do what he or she likes with it while giving the university a license to use the recording. This is a good approach, but rests on form drafted by the institution's legal services. Before any podcasts are published at Oxford they need to have two signatures, a conventional speaker release form with a departmental signature.

- An additional approach is to make the material available as open content using the Creative Commons (<http://www.creativecommons.org/>) licensing scheme. In this approach you would ask the speaker to license their work (their performance on the day, and their slides etc) to your society (or to the world), e.g. under a 'CC-By' license (<http://creativecommons.org/licenses/by/2.0/uk/>). The "You" in this case would be your society/the world, and the "original author" would be you. As the license states, your fair dealing and other rights are in no way affected by the above.

## Creative Commons

We briefly offer a few more thoughts on Creative Commons licensing. Firstly, the Creative Commons license is a license in perpetuity: That is to say, the lecturer gives you a license in perpetuity, but if you give a CC license to the world, this is also in perpetuity: You are unable to withdraw the material at a later stage. From an institutional perspective, this may be a disadvantage, but from the users perspective, this is absolutely essential. The point of CC is that others can build on your works, and so that you can build on works of others: For this the licenses need to be perpetual.

The lecturer may not have licensed their talk as CC yet, so you might need to get something from the lecturer that states their intention. It is not clear what the right approach would be, but a common sense approach would be to get the lecturer to sign a simple letter, to the effect that she or he wishes to license their lecture/slides under a CC license. For instance:

*To whom it may concern.*

I hereby license the performance of my lecture ..... [name of lecture/date] ..... and associates materials (my slides, my photographs, ....) for which I hold copyright under a CC-By (<http://creativecommons.org/licenses/by/2.0/uk/>) license. This applies to all materials used in the lecture are my own.

3rd party materials: The following materials are not owned by myself ..... and I attach permissions from the third parties concerned. These are licensed as state in those permissions.

Signed ..... [lecturer] .....

Another consideration is that the CC licenses are usually one-to-many, so the license letter may not need to mention you.

However, there needs to be much more discussion in the UK higher education sector over the use of release forms and Creative Commons licenses.

## Release forms

Release forms:

- University of Cambridge, <http://www.admin.cam.ac.uk/cam-only/offices/communications/services/photoconsent/> (Cambridge only)
- University of Oxford, [http://www.ox.ac.uk/itunes\\_u/contribute.html](http://www.ox.ac.uk/itunes_u/contribute.html)

Web 2.0 Rights:

- JISC-funded Web2.0 Rights project, <http://www.web2rights.org.uk/>
- Flowchart for considerations surrounding the release of content, <http://www.web2rights.org.uk/charts.html>

Disclaimer Statement: Whilst we hope you find the contents of this booklet useful and informative, the contents are for general advice and best practice purposes only and do not constitute legal advice. We can give no assurances or warranty regarding the accuracy, currency or applicability of any of the contents in relation to specific situations and particular circumstances, appropriate professional legal advice should always be sought.

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# Recording

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## **Tutorials/SteepleBooklet/Recording a podcast**

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In creating a podcast first of all you will need a headset with microphone to make and check the quality of recordings. Alternatively use a dedicated portable recording device such as a digital dictaphone, recordable MP3 player, or PDA. You may already have some of this equipment but if not your institution's computing services or learning technology unit probably has equipment they can loan. If not write a short teaching and learning proposal to cover set up costs and submit this to your head of department without delay. NB: You may need to get permission to make recordings of teaching sessions and students.

There are many means of recording audio and video for podcasts, with varying levels of expensive and complexity. At the basic level, to create a podcast you would need:

- A relatively modern computer with speakers and internet connection.
- A microphone. Some computers have an in-built mic, but a more expensive external mic will create better quality audio recordings.
- Digital recording software (such as Audacity) to create the audio files. However, there are software packages (such as ProfCast on the Apple Mac) designed specifically for audio and video podcasting that may now be more suitable.

Audio podcasts (usually MP3s) are easier to create and the filesize is more manageable for upload and download but nevertheless it is now simple to create video podcasts using podcasting software. In addition to the requirements above video requires a video camera. This can be a simple USB webcam or a more expensive digital video camera connected to the computer.

It is possible to record audio podcasts into portable media players (such as an iPod with a mic attachment) but the quality is not necessarily high. By far the simplest method is to record directly into a computer using its own internal mic, but the audio quality will not be exceptional and the mic is likely to pick up background noise (from the computer's fan, for example).

Regardless of the means by which podcasts are recorded, to publish them it is usually required to transfer the recording from the recording device to a computer with access to the internet. In general, the fewer steps required to generate the final podcast file on a computer, the better.

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Other options for recording include:

- An iPod, with Apple's proprietary mic attachment plugged into the top. There are different microphone products with varying performance, some examples can be seen here: <http://www.welovemacs.com/ipmire.html>



- A portable recorder, such as a Fostex FR-2LE or a Marantz PMD660 Solid State Recorder can be a relatively inexpensive and yet high quality option for audio recording. Many of these portable recorders make use of CompactFlash cards and other modern storage cards.
- Expensive external USB (not analogue) microphones (such as a Samson CO1U USB mic) can be plugged directly into a computer and provide very high quality audio recordings. Additional attachments to isolate background noise can increase the quality.
- Digital video cameras can be used for audio and video input for use in podcasts, and these can record onto DV tape (which would then have to be transferred to the computer using a separate piece of hardware) or can be plugged directly into a computer (commonly via FireWire). These usually provide high-quality audio and video recordings.
- High-end audio mixing equipment (such as M-Audio's NRV 10 FireWire Mixer) is expensive but can be plugged directly into a computer and handle high-quality audio input from multiple wire or wireless transmission microphones. Such mixers provide the expert with a greater degree of configuration for eliminating unwanted sound and more.
- Tape recorders of various levels of expense can provide a safe means of long-term storage of audio and video files, but the added steps required to transfer them to a computer and the more modern means of recording call into question their immediate value.

## Preparation

Prior to recording a podcast, like any lecture or public-speaking, preparation of the content is necessary. It is also vital to test the recording equipment prior to recording the final podcast; a few trial runs of recording the audio and video through the mic or the mic and camera setup. These trials will give an indication of the level of quality of the final podcast and allow these settings to be adjusted accordingly.

During the trial stage it is wise to check the system volume of the computer to ensure the microphone is the selected audio input device, and that its input level is set appropriately.

- For audio voice recording the suggested quality is 44.1KHz and 16-bit sampling which should produce a clear, crisp sound. Higher quality settings may be required if the podcast contains music, or for more professional / commercial requirements, such as an important public lecture.

Always ensure that the audio is set to capture at sufficiently high quality and that you have enough file storage space on the device when you start. Audio quality can always be

reduced later to make the podcast file size smaller but it is much harder to improve the quality of recordings at a later date.

Some important considerations when recording audio:

- Ensure there is limited background noise because many mics will pick these up. It is worth considering a noise-reduction attachment for more expensive microphones.
- Position the mic accordingly, so that the voice is clear but unwanted sound (computer fans, a person breathing) is minimal.

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## Tutorials/Baseline audio kit

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Below is a sample collection of a good range of audio equipment to cover three basic applications:

1. High quality lecture recording using a high quality recorder and a high quality radio mic.
2. Round-table discussion recording, using a high quality recorder and good quality omni-directional microphones.
3. Quick audio gathering that provides a way in for less experienced individuals and also facilitates quick recording of discussions and talks, albeit at a lower quality.

The proposed equipment is:

- High quality kit
    - Fostex FR-2LE for high quality recording (about GBP £350 for the recorder plus accessories).
    - High capacity rechargeable batteries (four for the recorder and a fast charger, around GBP £30).
    - A set of headphones. These should be proper headphones that go around your ears, rather than in-ear. For speech work almost anything will do. You could get a cheap AKG K512 from Richer Sounds for GBP £20.
    - Spare memory cards (it is worth getting 4GB cards), GBP £20.
    - A soft, ideally padded, shoulder-bag to hold the Fostex, the XLR cables, headphones, and other accessories. Approximately GBP £30.
    - A reasonably sized plastic crate (with lid) that can hold all the equipment: The case stays in the office and holds everything that is not signed out when the bag goes out (GBP £10)
  - Radio mic (Sennheiser EW112P), GBP £350.
    - High capacity rechargeable batteries (you need four for the mic kit, so get eight to have spares)
    - A pouch that just holds the radio mic, GBP £20.
  - Several mics for table top discussion recording, e.g. get two Audio-Technica AT8010 (Omnidirectional Condenser, GBP £100 each), or Audio-Technica AT8004
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(Omnidirectional Dynamic, about GBP £100 each). The AT8004 is more rugged, and probably better for for novice use (including outdoors). The condenser is more sensitive but does not handle drops well and might need a proper wind-shield outdoors.

- Table-top mic stands (GBP £10 each)
- Some XLR leads (you need at least two times 10m, better four times 10m, at GBP £10 each)
- Standard quality recorder (for quick recordings)
  - H2 recorder for simpler recording (GBP £150)
  - A spare memory card (GBP £10)
  - A pouch for it that holds the recorder, cabling, and memory cards (GBP £20)
  - You need two rechargeables, so get four (GBP £10)

## Other thoughts

- If you were going to do handheld interviews (rather than discussion recording) you could use the Behringer M58 or the Audio-Technical AT804 mic. The Behringer is a nice mic: It has a long grip, and is not sensitive to handling noise. However, the low sensitivity requires you to be quite close to the subject and so the mic is not so good for ambient table-top recording.
- If you have the budget buy a second sennheiser radio mic.

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# Audio recording using a digital recorder and wireless mics

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This tutorial will show you how to make a high quality audio recording with the Fostex FR - 2LE (Field Memory recorder) and a Sennheiser EW112P G2 series radio mic. Most comparable audio recording devices have a very similar layout and operate along the same principles as the Fostex used in this tutorial.



There are a few solid state recorders that have similar functionality to the Fostex FR2-LE (basically a CompactFlash based recorder with XLR mic sockets), as well as many solid state recorders that do not have XLR inputs). You should compare usability and sound quality carefully, ideally before committing to a purchase . For a number of recorders, including the Marantz PMD660 , the Zoom H2 and the Edirol R09, customised versions of this tutorial are available here [http://en.wikipedia.org/wiki/Tutorials%2Faudio\\_recording](http://en.wikipedia.org/wiki/Tutorials%2Faudio_recording).

## Your equipment: The Fostex FR-2LE and Sennheiser EW112P

Before You Start: Make sure you have all the correct equipment and that it is all in working order. Typically, an audio recording kit around the Fostex FR2LE might include:

- **Fostex FR - 2LE** (Field Memory recorder), including **CF memory card** (already inserted), along with **AC adaptor**. (There is also a battery compartment, and you can run the recorder off batteries.)
- One set of radio mics (Sennheiser EW100 G2 series). You need to have:
  - 1 transmitter with lapel mic attached (check the wind shield is on the mic and securely attached)
  - 1 receiver with two cables: one minijack to XLR, one minijack to minijack
  - This image [Image:FR2LE-A-7.jpeg](#) shows the mic kit.
- The recorder comes with a remote control for use with a boom as well as carrying bag and shoulder strap. (You will not need the remote control or boom for this tutorial but you should use the case to transport the recorder safely.)

To power the equipment you can either use the AC adaptor (mains power) for the Fostex FR-2LE or 4 x AA batteries for the battery pack. The radio mics need 2 x AA batteries in the transmitter and 2 x AA in the receiver, i.e. you need 8 AA batteries for a full charge. Ideally you would use rechargeables - the EW100 G2 series runs very well off rechargeables. *If you are recording away from mains be sure to take spares in case the battery life runs out. All equipment has a battery life gauge to show remaining battery life.*

You may want to have the manual to hand: [http://www.fostexinternational.com/docs/pro\\_support/FR2LE\\_OM\\_E.pdf](http://www.fostexinternational.com/docs/pro_support/FR2LE_OM_E.pdf) (from [http://www.fostexinternational.com/docs/pro\\_support/pro\\_pdf\\_manual.shtml](http://www.fostexinternational.com/docs/pro_support/pro_pdf_manual.shtml)). Note that the V1.10 and V1.20 firmware upgrades enable mono recording, see ([http://www.fostexinternational.com/docs/pro\\_support/FR2LE\\_V110\\_supplement.pdf](http://www.fostexinternational.com/docs/pro_support/FR2LE_V110_supplement.pdf)) and ([http://www.fostexinternational.com/docs/pro\\_support/FR2LE\\_V120\\_OM\\_supplement.pdf](http://www.fostexinternational.com/docs/pro_support/FR2LE_V120_OM_supplement.pdf)) respectively.

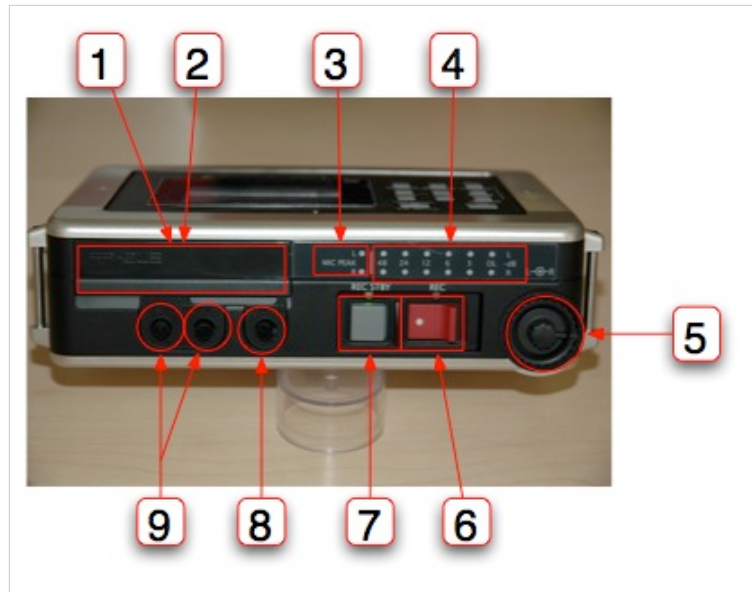
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## Names and Functions:

### Front of the recorder (important)

Here is a quick run through of the FR2-LE - make sure that you can identify the relevant parts of the equipment. All important controls for recording are situated on the front of the recorder.

- 1) Memory card slot protection cover
- 2) The memory card slot itself, with card eject button.
- 3) Mic peak indicators - indicators will light up when the input is 'overloading'
- 4) Level Meters - shows the recording or playback levels.
- 5) Recording level control - adjusts the input level for recording but does not influence the internal microphones. (These are linked to the level meters (4). If the level shown on the level meters is too low or too high, use the recording level control to adjust this.)
- 6) Record (REC) button - slide the button across to begin recording.
- 7) Record Standby (REC STBY) button - press this button when ready to record. It allows you to check the input levels and can be used to stop recording.
- 8) Monitor control - adjusts the output levels of either headphones or a monitor. It can also adjust the output levels of the internal speakers.
- 9) Mic Trim controls - adjusts the input level of external microphones from Analog in connectors L and R. (They are linked to the mic peak indicators (3) - If the mic peak indicators light up, you need to reduce the mic trim.)



## Top of the recorder

On the top of the device you only need the LCD display; the other controls you can look at later when you are copying materials off the recorder or when you are playing back some audio.



- 1) LCD Display Screen
- 2) Internal Microphones - situated both sides of the panel as Internal L and R inputs.
- 3) Light / Contrast - allows you to light the screen. Hold the button down for a few seconds for the light to stay on, press again to turn off. This allows you to adjust the screen contrast.
- 4) Shift - press and hold this button whilst using other buttons to enable the secondary operation.
- 5) Menu / Enter - pressing this allows you to enter the menu option and is used to select each setting. Using shift with the menu button enters you into a quick setup mode.
- 6) Prev File - when more than one file is stored using this button will skip to the previous file. Pressing this button with shift allows you to go to the previous cue point if any are set.
- 7) Next File - when more than one file is stored using this button will skip to the next file. Pressing this button with shift allows you to go to the next cue point if any are set.
- 8) + / Up key - while in menu mode this button allows you to scroll up. Used with shift it will lock the panel.
- 9) Rewind - allows you to rewind through files.
- 10) Fast Forward - allows you to fast forward through files.
- 11) - / Mark key - by pressing this key whilst recording or playback marks a cue point, in the menu setup it scrolls down and with shift will delete the previous cue point.
- 12) Stop key - stops the files and exits the menu screen from any mode.
- 13) Play key - starts playback of files.

## Left side: Audio inputs (important)



- 1) **DC in Jack** - used to connect the AC Adaptor.
- 2) **Remote Input** - used to connect the remote control.
- 3) **ANALOG IN** - used to connect an external microphone.

## Right side: Power and headphones (important)



- 1) **Power Switch** - turns recorder on and off. To turn off hold the power switch up for two seconds.
- 2) **USB Port** - used to transfer audio files to and from a computer.
- 3) **Monitor Output** - these connectors output -10dBV analog audio signals.
- 4) **Headphones Jack** - allows you to connect headphones to the recorder to monitor audio.

## Back: battery compartments



- 1) **Battery Compartment** - This compartment houses 4x AA batteries.

## Setting Up:

### Setting up the memory card

We have had a problem where even though you have manually deleted all files from the Fostex so that the memory card is empty, the recordings are not actually deleted from the memory card and the card may unexpectedly run out of space. For example, the recording stops half-way through the talk displaying a screen which reads 'Disk Full. Press enter to return to the main menu'.

To ensure this does not happen, when you turn on the Fostex for a new recording, reformat the memory card. You can do this by pressing 'Menu', then selecting 'Disk', and then 'Reformat'. This will clear all files from the memory card. It will also, however, reset the Fostex settings so you will have to enter them again. (You want the settings to be BFW44-16.)

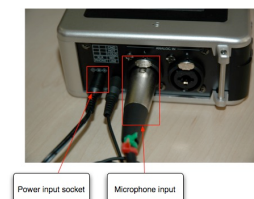
If for some reason the card has not been cleared and you suddenly get the "disk full" warning in the middle of a talk just exchange the memory card and keep recording. It does not matter too much if there is a small break in the talk. This is why it is important to **LISTEN TO THE RECORDING AS IT IS HAPPENING** wherever possible.

## Setting up the digital recorder with the wireless mics

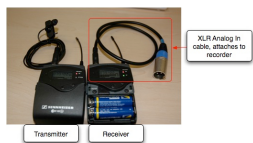
Have the recorder on a flat surface in front of you and either connect the AC adaptor into the **power input** and a nearby power socket. If you use a power socket, make sure that nobody will trip over the cable - use gaffer tape to tape down the cable if necessary. The power input for the recorder displays a "-" and "+" symbol and is located next to the remote socket.

Using the radio mics, the recorder does not have to be close to the transmitter - it will pick up from a distance as long as there is nothing substantial between them such as a solid wall. To connect the radio mics to the recorder insert the large silver plug (**XLR cable**) into the **ANALOG IN** connectors and the smaller end connects to the receiver. Use just the L input for one mic; use and L and R if you have two mics.

The picture shows (left to right): power connection, the remote control plugged in (not needed), and a single mic connected to the left input of the recorder:



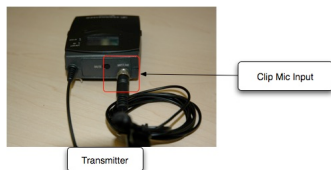
Here is a picture of the receiver, with XLR cable connected:



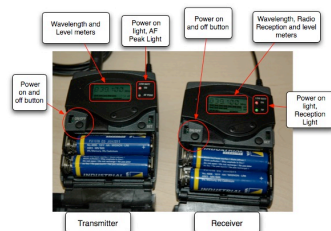
Also connect your headphones to the **"phones"** connection on the right hand side of the recorder.

## Radio Mic transmitter

If the mic is not already attached, attach the clip microphone to the transmitter: The mic plugs in at the top, and there is a screw to secure it.



Turn both the transmitter and receiver on by pressing the **on/off button**, which is situated underneath the flap for the battery compartment. The flap lifts by squeezing either side to release it.



Have a look at the picture above, and do this check:

- On both transmitter and receiver: Has the display lit up, and are both powerlights showing?
- On the receiver the RF light (green) should be on and the upper black bar on the screen should be on full (indicating full radio reception).
- When you talk into the mic do the level indicators (on both the transmitter and receiver) flicker?
- Now mute the transmitter and look at the receiver: Has the "radio reception bar" fallen to zero? If not, change frequency (see the trouble shooting below).

There are usually several stages that control audio levels and two of those stages are on the radio mic set.

- The mic/transmitter has a sensitivity setting. Locate the sensitivity setting in the menu, and explore different settings. With the sensitivity set to say -6dB, you will find it quite easy to distort mic signal (the yellow led on the front will flash). A good, conservative setting is -20dB.
- The receiver has the 'AF out' setting, which determines the power delivered to the recorder. This can range from -12dB (mic level) to +12dB (line level). Again you should explore this and see how it affects the input stage of the recorder (see below). Many recording devices expect a mic level, so it is safer to set the 'AF out' level to -12dB (mic level).

## Switching on and testing sound quality

Switch on the power switch on the right hand side of the recorder. The screen will turn on and make sure that in the bottom right of the screen it says **BWF 44-16**. This is the correct format for recording.

Make sure the bottom option on the right of the screen that says "**SRC**" (which means source) is set to **INPUT** according to the **ANALOG IN** position you have plugged the mics into. Otherwise it could be set to record from the internal microphones.



Testing sound quality

**You must do this test:** Switch off or unplug the external microphones. Does the sound in the headphones disappear? If not, you are recording from the internal mics. Also, you can gently scratch the external mics, e.g. on the handle, or **gently** tap the mic itself: Do you hear this in the headphones? If yes, then you are recording from the external mics as you should be.

To test whether there is sound being picked up look at both the transmitter and receiver. If they are on the same wave length both screens should be showing the activity coming through the clip mic. Now turn on the **REC STBY** switch on the front of the field audio recorder and the same activity should be shown on the recorder screen.

Try tapping, scratching or speaking into the microphone while watching the levels. They should coincide with the activity coming through the microphone. You should also hear the activity coming through the headphones. Try testing that the internal microphone is not picking up any sound by tapping on those. They should not register anything.

## Trouble shooting

- **No sound.** Make sure both the transmitter and the receiver are on the same wave length in order for them to be able to pick each other up. Check the 'sound chain':
  - Is the level meter on the transmitter flickering when you speak into the mic? If not, check that it is turned on and not on mute and that the mic is properly connected.
  - Is the level meter on the receiver flickering? If not, check radio reception.
  - Is the level meter on the recorder flickering? If not, check the cables are connected properly.
  - All of these are working, but you do not hear anything? Check the volume control for the headphones.
- **Strange sounds / other people speaking.**
  - Do this test: try turning the transmitter off, if the green light on the receiver stays on and the black bar showing the radio reception is still full, someone nearby may be using the same frequency.
  - If the wave length is already used (e.g. if you can hear other sounds, or the "radio reception bar" does not fall to zero when you turn of the transmitter), you need to change the frequency (on both transmitter and receiver). **You must never have two microphones transmitting on the same frequency.** (Two receivers receiving signals from the same microphone is, however, fine.)

**Mobile phones on the person connected to the mic must be turned off otherwise they will interfere.**

## Attaching microphone to the speaker

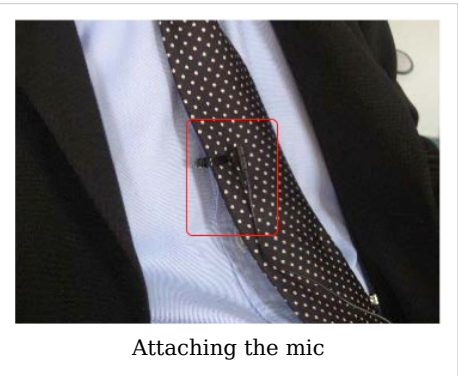
Ideally you want to do this at least 15 minutes before the lecture starts. Connect the clip microphone to the speaker in a way so that the mic "comes cleanly off the clothes", i.e. such that the mic does not rub against the clothing. Make sure that there is not a name tag, long hair, or jewelry that "clunks" against the mic.

When putting the mic on the speaker the best place is on the tie. Otherwise on the lapel of a jacket, or onto the shirt. A third of the way down the shirt is a good position. Make sure that the mic clip is firmly attached

but that the mic itself comes away from the clothing: sometimes (with movement) it can fall back against the clothing.

The transmitter that should be placed safely out of the way. Either the trouser pocket or belt are both good positions. If your speaker is well animated make sure the transmitter will not come loose. Make sure the antenna can hang freely, and is not about to be snapped off.

Ask your speaker to carry on talking, bearing in mind that they may speak more loudly during the talk. This allows you to listen through the headphones and watch the levels on both the receiver and recorder. Monitor the audio carefully and pay attention to any peaks in the sound. Be aware that if the speaker is going to be giving a lecture but they are speaking at a normal level before, they will adjust their own personal voice levels when it comes to the lecture.



Attaching the mic



## Checking Quality and adjusting audio levels

Before the lecture is under way you have a good opportunity to check quality. If anything is wrong you can still go back to the speaker and adjust things.

Make sure the **REC STBY** switch is on: you can tell as a green light should be on above the switch. You will not be able to see levels of audio on the recorder as well if the switch is not on.

You need to set up the levels using a two pairs of indicators and controls:

- Pair 1: Input level controls (Mic trim, 9) and Mic peak indicators (3).
- Pair 2: Recording level controls (5) and recording level display (4).



Note that pair 1 (mic trim) affects the level recorded with pair 2 but the reverse is not true: the recording level control has no affect on the mic peak indicators.

1. Step 1. You should start with the mic trim buttons pointing straight up. Talk loudly into the microphone. Do the mic peak indicators light up (for the relevant channel)? If so, reduce the mic trim (turn counter-clockwise). If not, you are fine.
2. Step 2. Move on to pair 2 (recording level controls). Talk into the microphone as if you were giving a lecture and turn up the recording level control until the recording level display shows goods activity, with green leds lighting up reasonably often at -12dB, very occasionally at -6dB, but never higher.
3. Step 3. If you have turned the recording level controls (5) all the way clockwise and you are still not getting good sound levels go back to the mic trim (9) and turn the mic trim clockwise to increase the input level, and then go back to step 1, checking that the mic trim has not been increased too much.

Note that with some mics (e.g. the Behringer M58) it is not possible to overload the inputs and you might have to have the mic trims up fairly high. This is not a problem as long as the mic peak indicators (9) do not light up when you speak into the mic loudly!

Finally, listen to the speakers voice and check the quality of the sound. Does it come through the headphones clearly? Or is it muffled or can you hear extraneous sounds? If so, see the trouble shooting section.

If the levels on the recorder LCD and microphone LCDs seem good but still you are not hearing the sound either at all or not clearly then either the headphones are turned down or the headphones are faulty. You can adjust the volume by altering the monitor control next to the input controls on the front of the recorder (button 8).

## Recording the lecture

You should now be ready to record the event. You have plenty of space on the memory card, so there is no harm in starting the recording 10 minutes early. From experience: It is a common problem to miss the start of the event and people may suddenly start to talk while you were not watching. So just start recording in good time.

If there is somebody introducing the speaker, record this as well (even if you do not have a mic on them). You can always cut it later. (Imagine the disappointment: *Did you catch the introduction by [famous person]? - Ah sorry, the recorder was not running.*) Of course without a second mic the sound may not be usable but at least you have it.

As mentioned above: Give enough pre-record time before the activity happens as you want enough pre-roll for the edit and if you do a test recording previously you will also be confident that either the recorder is working fine or you have enough time to sort the problem out!

Remember: What you hear in the headphones is what you hear on the recording so continuously check the audio for any outside sound, buzzing or feedback. If you are recording on location and have the ability to start recording again listen out for unwanted sounds that are out of your control, such as trains going past, dogs barking etc.

During the Recording: Whilst recording it is advisable to do some checks to make sure the recording is working properly:

- Is the record light on display of the recorder solid?
- Is the time display ticking forward?
- Are the level meters still running and showing activity?
- Does it sound good? Is it clean sound?
- Is there enough space on the memory card?

When you are ready to record press the **"record"** button on the front of the recorder. You should see the light come on within the button and the time on the screen should start running. You will also notice a record symbol in the top right of the screen.

## Stopping Recording

Press **"Stop"** when you have finished recording. The **REC STBY** switch will also stop recording. Do not press stop right at the end of the lecture but rather leave the recording running through the Q&A session. The speaker might say a nice short clip that you can use as a sound bite.

Make sure you get the radio mic transmitter back from the speaker! Speakers can easily wonder off with your mic. Also make sure that you have got an appropriate release form signed by the speaker. Just after the talk may be a good occasion to get this done.

Once you have finished recording make sure everything is turned off and packed away safely, making sure you have the whole kit - check against the kit list if necessary.

## Transferring your recording to a computer

When you are ready to import your recording connect the USB cable to both your computer and the recorder. Once they are connected and your computer is on press the "**menu**" button. Scroll down using the "-" button until you get to **USB Mode**. Press "**enter**" then scroll down to **USB DEVICE MODE**. Press "**enter**" again and this will start importing. You will see the new USB connection on your computer either in the "**finder**" or for a PC in "**My Computer**". You can then drag your recordings into a suitable file or your desktop from there.

It is best to copy the recording from the memory card to the computer rather than moving it. Computers can crash, and you do not want to lose your recording. Generally speaking, you would only delete the raw recording from the memory card when you have got a backup on CD or DVD.

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>*

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Contributors: Bjoern, OLewis, PStrachan, PeterRobinson

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# Sound Editing

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## Tutorials/SteepleBooklet/ Introduction to editing

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Editing is a relatively laborious process. You will have to go through your audio, bit by bit, and remove each section of audio that is irrelevant or unnecessary. It is slow, but worth it. In conversation, even lectures, we often jump off topic or simply pause while we speak. While fine in conversational speech, podcasts are different because we want them to be relatively fast-paced and easy to follow. As such, we edit this audio out.

You might also wish to record an introduction or closing remarks for the podcast. Many sound editing software programs have features that allow you to record additional material directly into the computer and then attach this to the beginning or end of the larger recording. Some of the most successful podcasts have a standard introduction to an entire series, or will outline the contents of the podcast ("In today's podcast...").

### Software for editing

Simple:

- Audacity, for recording or editing sound (PC/Mac), <http://audacity.sourceforge.net/>
  - Audacity requires the LAME MP3 Encoder to save the audio files as MP3: <http://lame.sourceforge.net/>
- iTunes, for converting audio files to MP3, <http://www.apple.com/itunes/>
- Windows Sound Recorder, but the quality will not be exceptional.
- Podium is a complete commercial podcasting solution for Windows with a robust audio editing toolset, <http://www.podiumpodcasting.com/>
- GarageBand is a multi-track recorder with podcasting tools - Mac, <http://www.apple.com/ilife/garageband/>
- ProfCast is professional podcasting software tailored specifically for educational needs - Mac (PC version in development), <http://www.profcast.com/>

Advanced:

- Cakewalk, <http://www.cakewalk.com/>
  - Steinberg CuBase, <http://www.steinberg.net/>
  - ProTools, a widely-used professional suite, <http://www.digidesign.com/>
  - ePodcast Producer is expensive professional podcasting software for the PC, <http://www.industrialaudiosoftware.com/products/epodcastproducer.html>
  - Sony Vegas series suite is a high-end commercial audio and video editing software package, <http://www.sonycreativesoftware.com/products/vegasfamily.asp>
  - Apple's Logic Studio is a professional audio suite for Apple computers, <http://www.apple.com/logicstudio/>
  - Rosegarden, open source editing software for Linux, <http://www.rosegardenmusic.com/>
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## A quick note about Dynamic range compression

Ever wondered why the recording sounds so quiet? Speech recordings naturally have a large dynamic range and you will have left enough head room to make sure you get a good recording. In the edit you need to remove the headroom (normalisation) and reduce the dynamic range to make the recording suitable for playback via laptop, radio, personal MP3 player. Unless you are planning to produce theatrical sound for cinema performances you need to apply dynamic range compression!

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>"*

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8120](http://www.ict4e.net/wiki_source/index.php?oldid=8120)

Contributors: Bjoern, OLewis, PeterRobinson

## Tutorials/SteepleBooklet/Audacity training important notes

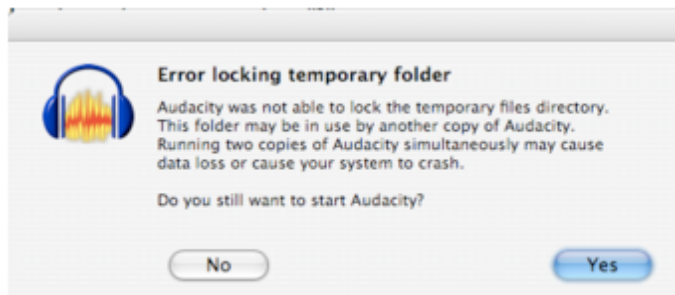
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### Three important notes for not losing work

1. When starting a new project always save your blank project first, before you start working. (Otherwise the auto-recovery fails.)
2. Always make a 'surrounding folder' in which you save a particular project. Then when moving your project move the 'surrounding folder'. Never just move the '.aup' file.
3. If Audacity crashes unexpectedly, read the 'auto recovery' section below. You may be able to recover your work.

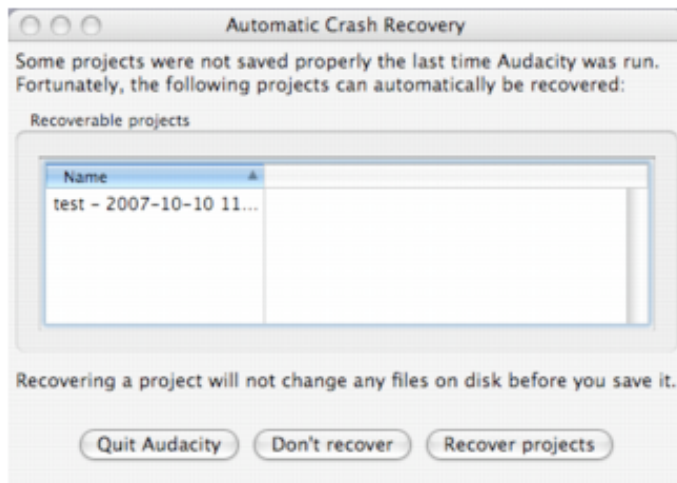
### Crash Recovery

Like with many other software Audacity can occasionally crash. Fortunately there is a recovery option that allows you to recover unsaved work after crashes. When Audacity crashes first make sure that Audacity really has crashed and you cannot see any open Audacity windows. Then re-open audacity. You may see the following error message (we will show you later how to remove this message). Make sure Audacity is not running then select 'Yes'.



A crash recovery screen will now appear with Audacity giving you the option to recover you project. Select recover projects and this will load the projects you were using before the crash.

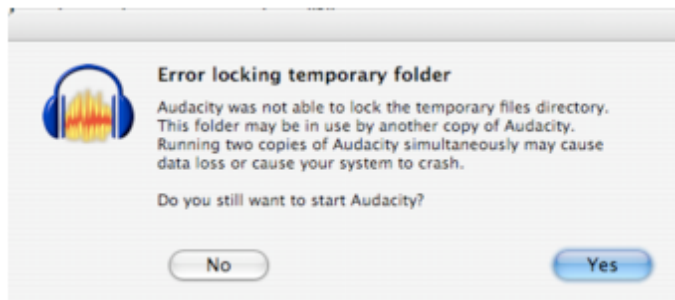
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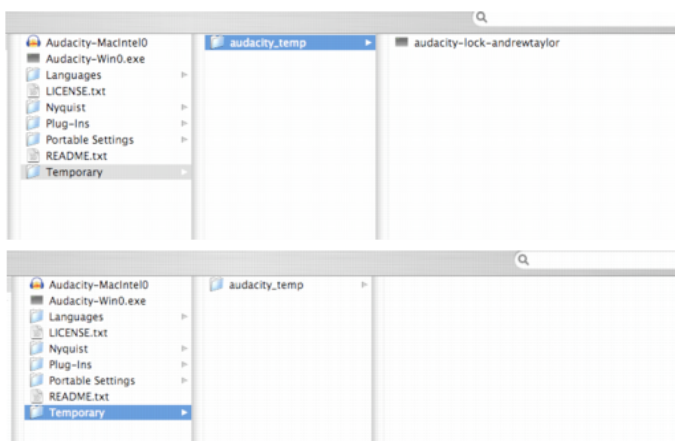
Once the project is back running to save your work.

## Crash recovery: Removing the "lock file"

If Audacity crashed you might keep seeing the message below every time Audacity starts. Here is how to fix this.



If the "error locking temporary folder" keeps re-appearing you need to remove a particular file called a "lock file". To do this enter "Podcast course" > "Audacity Applications", and then the "Temporary" folder. Go to "Audacity\_temp". You should see a file called "audacity-lock-username". Delete this file, either using "Backspace/Delete" or dragging the file into the "Trash".



The "Audacity\_temp" folder should now be empty and next time you start audacity the error message will not appear.

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Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8121](http://www.ict4e.net/wiki_source/index.php?oldid=8121)

Contributors: Bjoern, OLewis, PeterRobinson

# Tutorials/SteepleBooklet/Audacity training

## Outline

This session will introduce you to Audacity (a free cross-platform audio-editing application). You will learn how to set up Audacity and how to record, manipulate and save a sound file suitable for use in a course, project, podcast or on a website.

The Audacity website is <http://audacity.sourceforge.net/> (<http://audacity.sourceforge.net/>). The software is Open Source meaning that it is free and can be modified by anybody with the appropriate skills; you can make a donation to the authors though - this will help the project prosper!

Browse the Website, have a look at the tabs at the top - they include comprehensive help and user guides. There are different downloads for different operating systems and plug-ins, etc. There is also an Audacity wiki and user community area.

To install Audacity on your own machine you should download the latest 'proper' version (ie, not a Beta version): the Windows version is downloadable from the front page of the site; other versions are available via the 'Download' tab.



It is also recommended that you download (or read) the Quick Reference Guides and / or User Manual, these are available under the 'Help' tab.

**Note:** Audacity is not necessarily the best choice for musicians and video post production. There are other software packages listed which are more suitable. An example of one of the drawbacks is that the 'Effects': Echo, Compression, etc are printed onto the source file; in other words you change the source file rather than routing the source file through an effects processor as happens with other systems. Another point to note is that Audacity does not have a mixer meaning that it is not particularly good for playing two sources at once. It also lacks a sequencer for syncing with MIDI instruments. What Audacity is good at

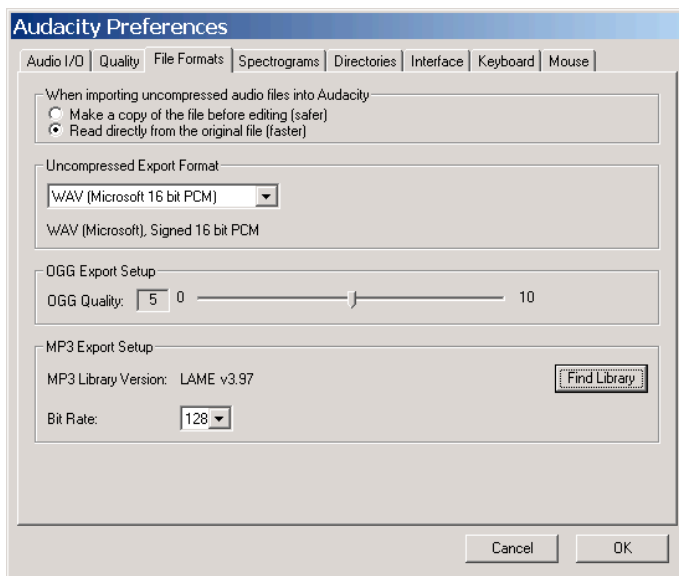
is simple sound recording - there is probably no need to buy a package to do this as it runs on Windows, Linux and MacOS.

You can use the project menu, import audio command to import MP3 files and WAV files into Audacity.

If you are expecting to want to save sound files in MP3 format then you also need to download and save the 'LAME' MP3 encoder. This library is also free but must be downloaded separately from the main software (probably) due to licensing restrictions. Type 'LAME MP3 encoder' into the Google search box at the top of the page, this will give you a page of explanation.

Read the instructions and then visit the LAME website: <http://lame.buanzo.com.ar/> (<http://lame.buanzo.com.ar/>) - versions exist for Windows, MacOS and Linux. Download the appropriate ZIP file and expand and save 'somewhere sensible'. (This may mean 'My Documents' or possibly 'Program Files' or equivalent.)

Once you have saved the LAME encoder, you need to tell Audacity where the library can be found. To do this use 'Edit' > 'Preferences' > 'File Formats'. Then click on the 'Find Library' button and navigate to the 'sensible' place where you saved LAME.



## Setting up and recording a sound file

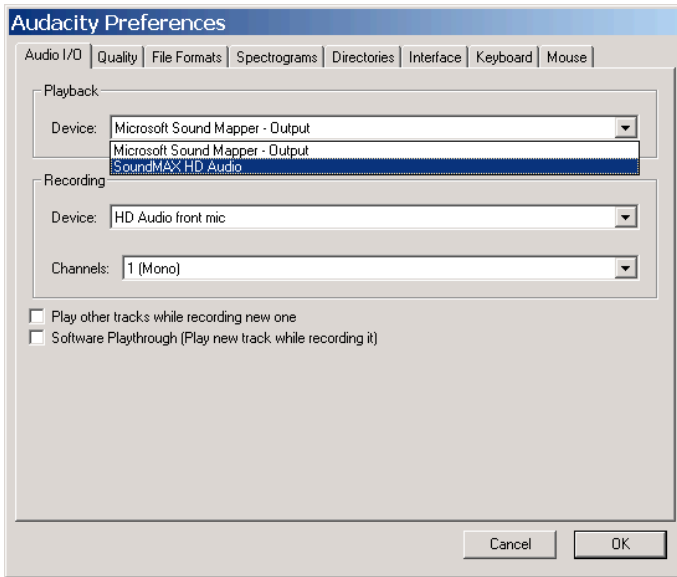
### Equipment

To make a spoken word recording, you need a decent microphone and decent set of speakers. A poor microphone means that your original sound source will not be good and no amount of editing and enhancement will make it sound professional. A good pair of speakers with a flat response is also essential. If your speakers do not faithfully represent the actual sound (for example, they do not play treble very well) then you may end up boosting frequencies that are actually present but that you cannot hear through your speakers.

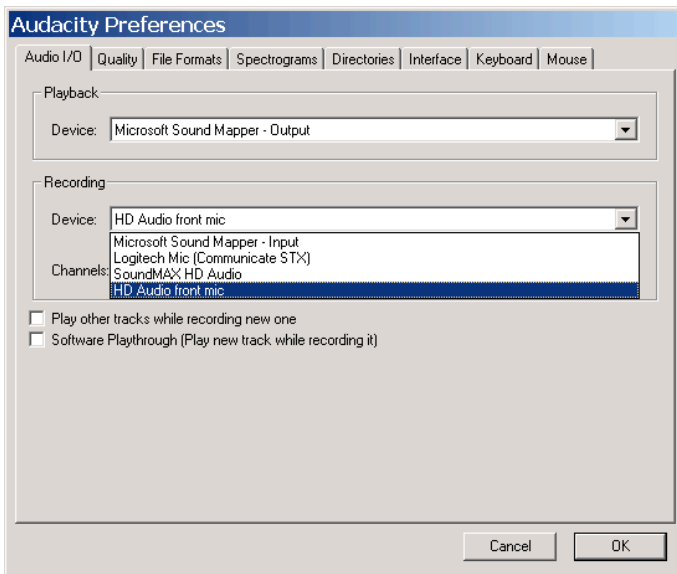


## Configure Audacity

The first thing you (may) need to do is to set the audio input and output; this is done via preferences. It is probably best to choose your soundcard for output.

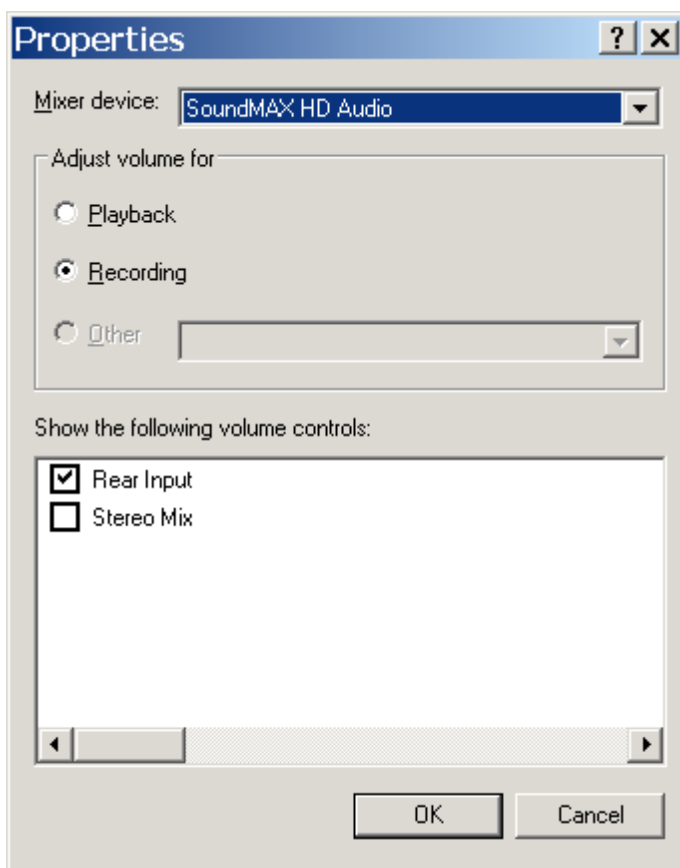


As you will be recording via a microphone, select that as the input source. A mono channel should be OK.



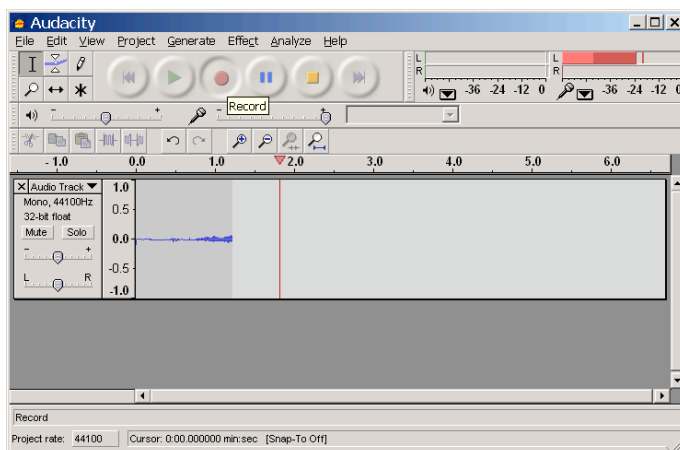
The signal level (volume) of low cost microphones with no pre-amp is an issue so make sure the sound card is set correctly to maximum boost and the microphone is selected as input source for recording. You should also check that you have not muted playback from your PC. This is done via 'Start' > 'All Programs' > 'Accessories' > 'Entertainment' > 'Volume Control'.

Check 'Master Volume' is not muted or at zero; also check that 'Wave' playback is not muted or at zero. The check the input source click on 'Options' > 'Properties'; all PCs are different but you need to check that microphone recording is enabled for the input socket you are using. The following has enable input via the red 'phono' socket on the rear of the PC.

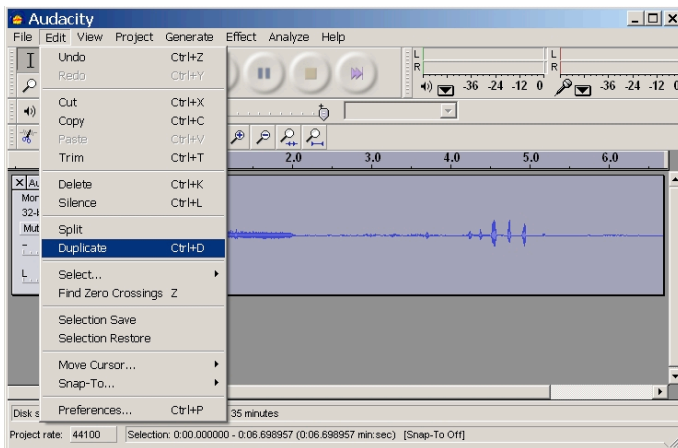


## Recording

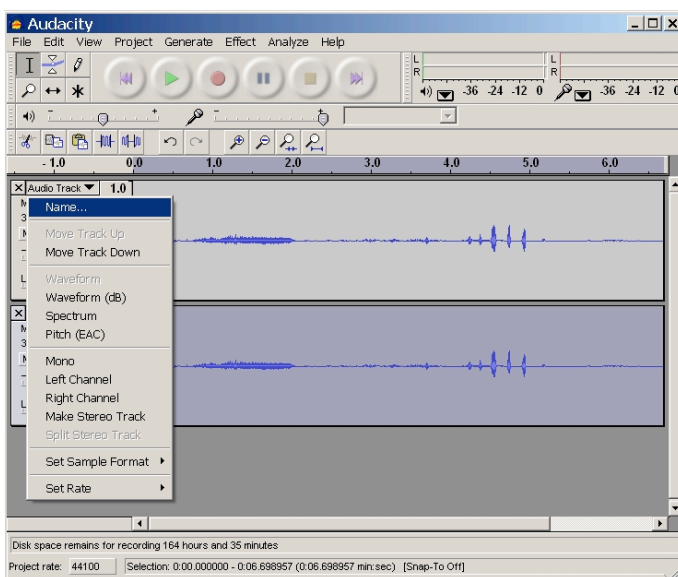
Now it is time to record a track. Click the big red record button and speak into the microphone. Adjust the input level so that the level indicator peaks at about -3dB.



Select the track by clicking on it (it should change colour). Now make a copy, do this by selecting 'Edit' > 'Duplicate'. (You could also use 'Cut' and 'Paste'.) You now have two tracks of the same material.



Name both tracks by using the drop down arrow in the track view. Call the first “original” and the second, “edit track” (or something).

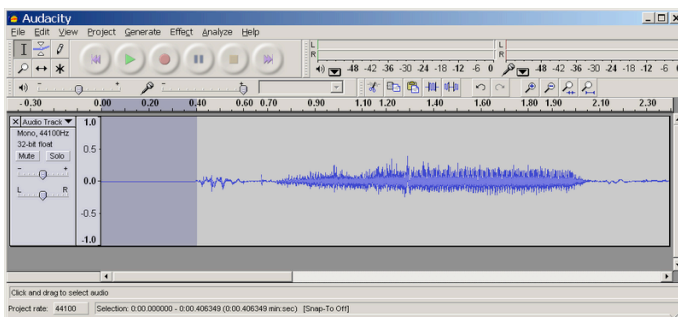


Next select ‘View’ > ‘Fit in window’ to see the whole audio track. You can change the resolution of your view using the zoom tools or click and drag at the track edges.

## Editing a sound file

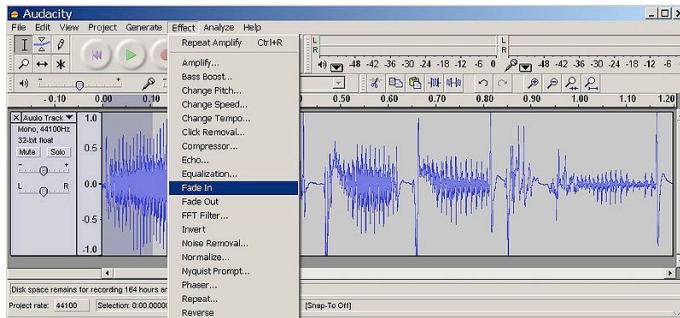
### Cueing Up

A good thing to do is to delete the silence at the beginning of the recording. To figure out where the silence ends you should use both your ears and eyes! Select the silence and delete using the delete button on your keyboard.

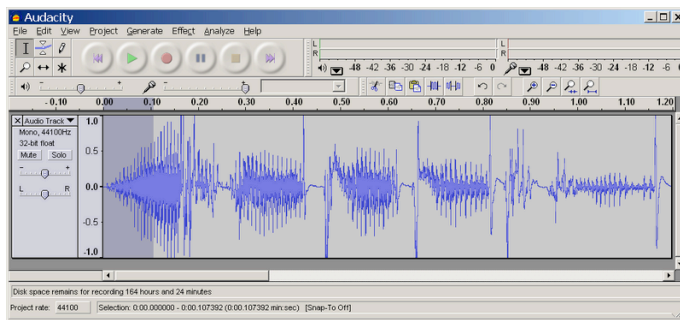


## Fade In

Next select a short segment of file from the beginning of the file and then choose 'Effects' > 'Fade In'. This is very useful to avoid a surprisingly loud signal from the start. It allows the listener time to adjust to what they will be hearing.



You should now see a gentle slope at the start of the track.

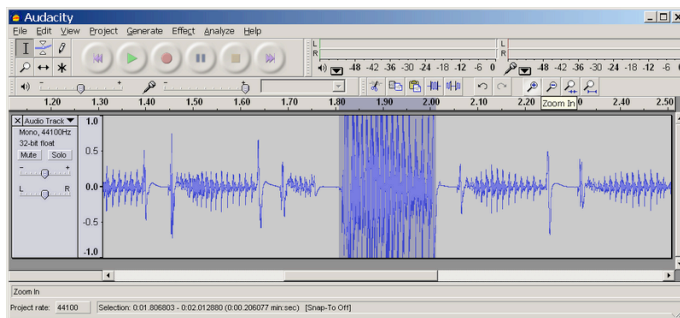


## Removing Blemishes

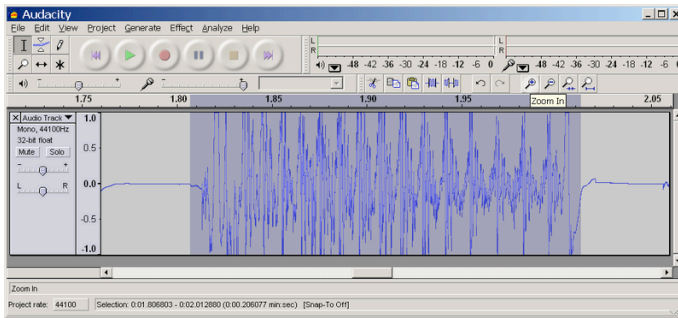
If the track contains a cough or other such noises it may be good to remove it. There are four ways to do this; either chop the blemish out of the track entirely, reduce the volume of the blemish, replace the blemish with silence (or white noise) or if there is significant background noise meaning the first three options are not suitable, replace the blemish with some background noise copied from elsewhere within the sound file.

There is a temptation to remove all coughs and blemishes throughout the track. Firstly, this is a lot of work as you have to trawl through the whole track and find each blemish in turn. Secondly, if the edits are not done properly, the track can sound artificial or unprofessional. The recommendation is to only remove major problems and leave other minor "venue noises" in the track - after all, they were part of the event.

To chop out the blemish, first select the appropriate area of the sound file.



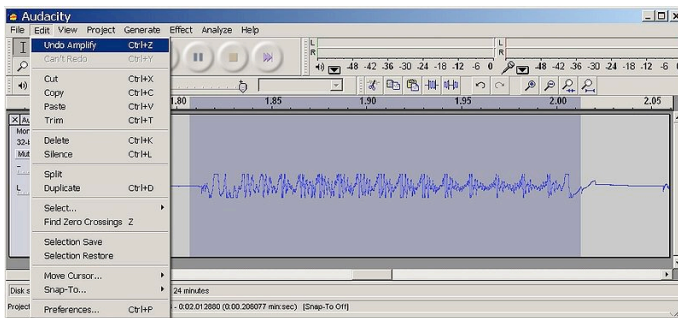
You may like to expand the resolution to make selection easier. This is achieved by using the 'Zoom In' facility which is a magnifying glass containing a '+' sign.



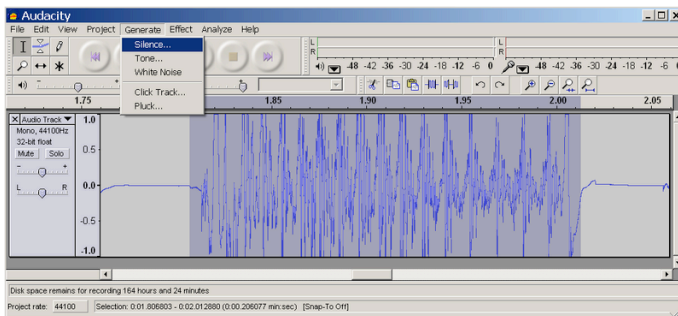
Then delete the area with the 'Delete' button on the keyboard.

The second method is to reduce the volume; this may give a more natural flow to the track than simply chopping out the blemish. To do this, select the blemish (as described above) and then choose 'Amplify' from the 'Effects' dropdown menu. Move the slider to the left to choose a negative value and press OK.

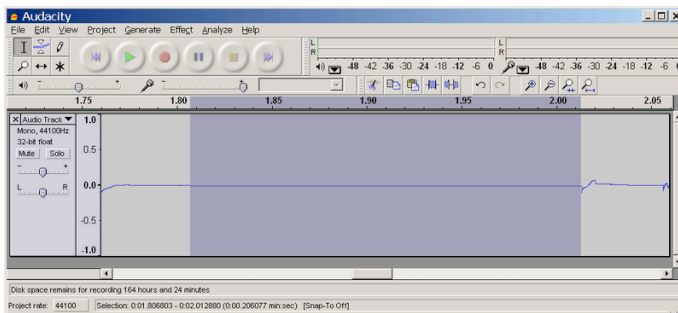
To see if you have fixed the problem, play back the track and listen to see if the new volume is suitable. If you have reduced the volume too much then undo the effect and try again with less severe setting. If the cough is still too loud then repeat the operation.



The third method is to replace the offending area with silence (or white noise). Select the blemish as described above. Then select 'Silence' from the 'Generate' drop down menu.



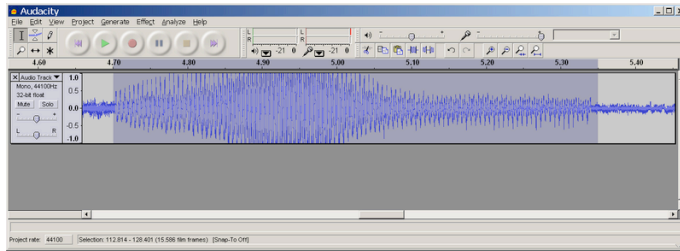
Accept the default length and press OK.



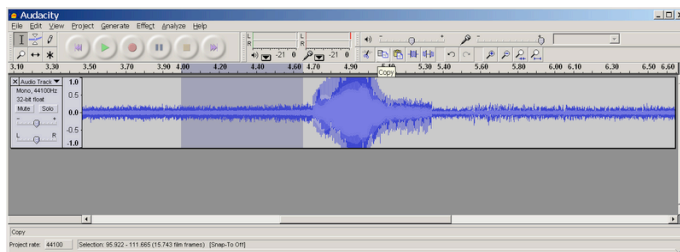
If the silence sounds wrong then try replacing the blemish with white noise. You will probably need to reduce the volume of the generated noise until it fits in with the rest of the track. This will involve a bit of trial and error although you should be able to judge the

approximate volume by looking at the sound file.

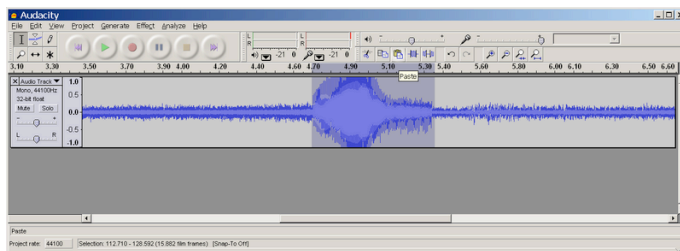
The fourth method is probably the trickiest approach to use and should only be used if the previous methods have failed. First of all, determine the length of the blemish; you may like to Zoom In to make sure your calculations are as accurate as possible.



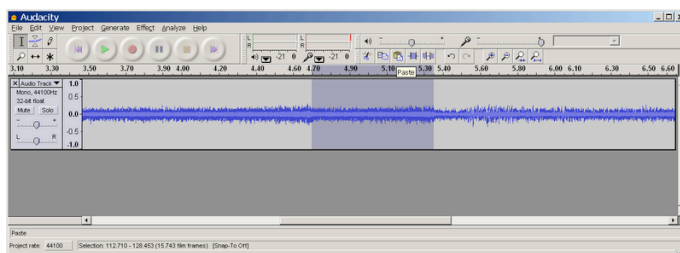
In this case the blemish lasts 5.35-4.70 secs = 0.65secs. Now copy 0.65secs of ambient background noise from elsewhere in the track - do this by selecting an area and then use the 'Copy' button.



Then select the area you want to replace and press the 'Paste' button.



The finished track should now have the blemish removed. You should listen to the section that was replaced to see if it sounds acceptable. You can always undo the changes if the results are not satisfactory.



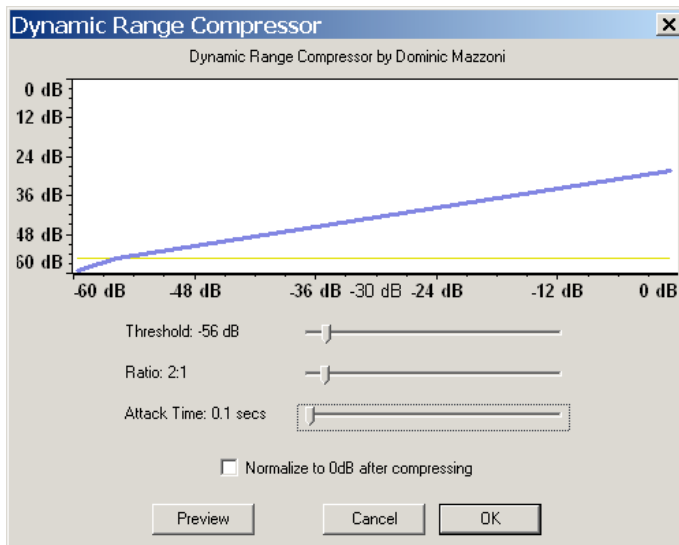
## Compression

In a nutshell, 'Compression' (or Dynamic Range Compression) makes the quiet bits of the recording louder and the loud bits quieter.

It may not be suitable in all situations, especially when the recording contains significant background noise with big gaps between the louder (spoken) sections. You need to rely on your ears to make sure that the level of compression you have added is suitable for your recording.

Where appropriate, compression is used to give more body to the spoken voice and to musical instruments such as drums. Compression is probably used on 99% of recorded material.

Select the whole track by clicking in the left-hand side track information box, then select 'Compressor' from the 'Effects' menu. Start by moving all sliders to the left hand side giving minimal compression. To be on the safe side, unselect the 'Normalize' option; we will normalize the track later.

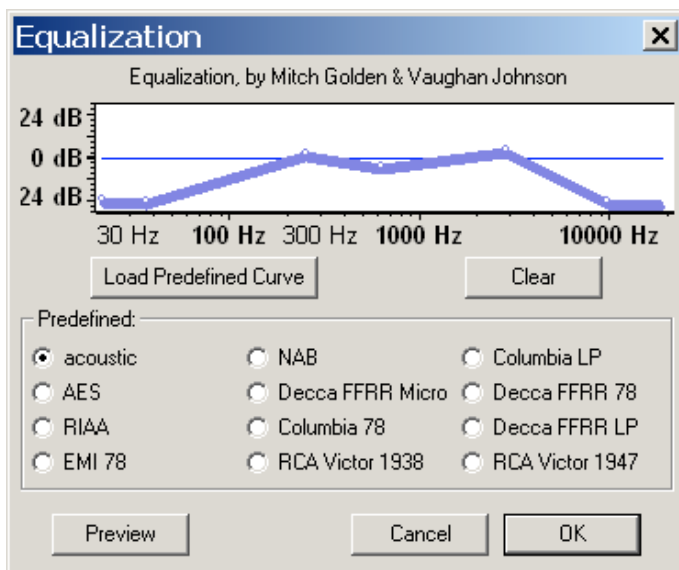


This should give the recording a warmer feel; you can experiment with other settings using the 'Preview' option.

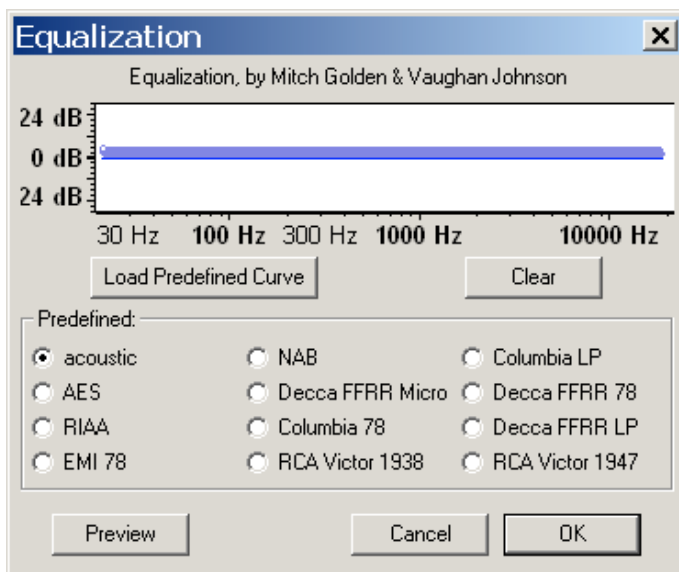
Remember: There is always the 'Undo' function so don't worry if you think you've completely destroyed the recording, you can always go back!

## Equalisation (EQ)

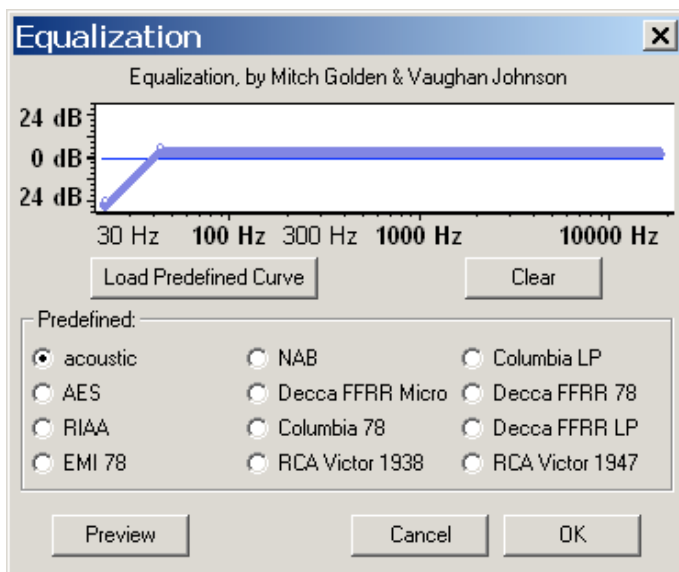
'EQing' as it is called in musical circles, involves boosting and reducing certain frequencies in the recording. At its most simplest, it can be used to remove rumble and hiss. Rumble is caused by low frequencies and hiss by high frequencies. It is recommended that for spoken word recording the following EQ 'curve' should be used.



Select the whole track and select 'Equalization' from the 'Effects' menu. Click on the left-hand end of the blue line, you will see a small circle is added.

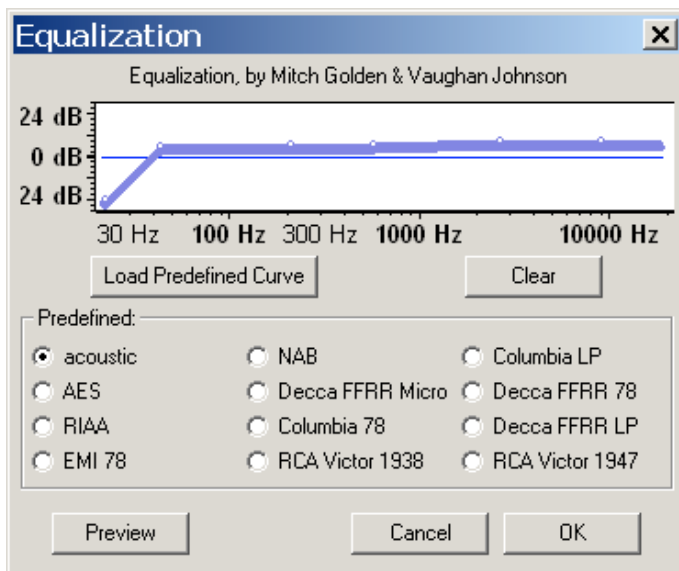


Next, click on the blue line directly above the 50Hz marker, do not worry about being too precise, you can move the blobs sideways later. Now you can drag the first marker downwards to the -24dB level.

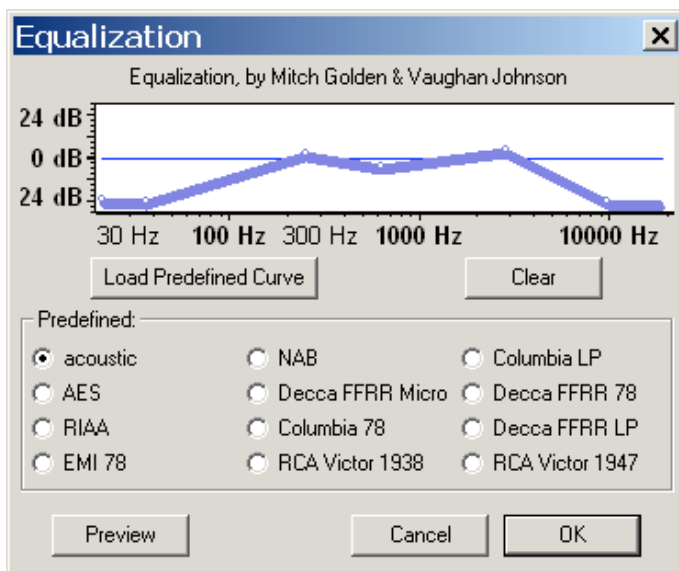


Repeat the process adding more 'handles' to the line. Do this above the following frequencies: 300Hz, 700Hz, 3000Hz and 10000Hz.





Then drag the handles around the top to get the desired shape.

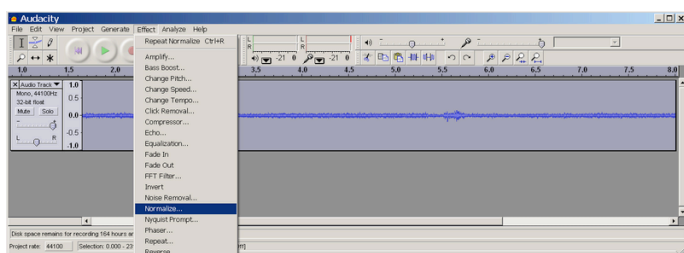


Equalisation may reduce the volume so it may be an idea to increase the volume using the 'Amplify' options from the 'Effects' menu.

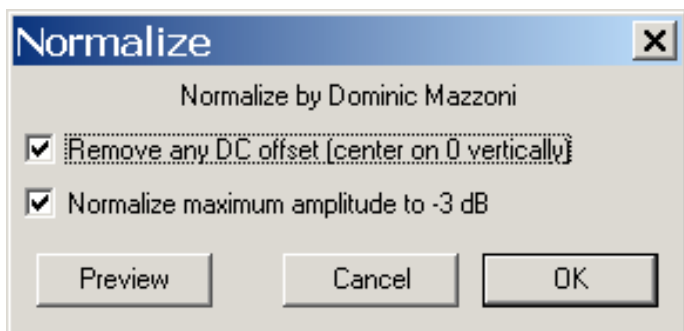
## Normalisation

Normalising a track means "making it as loud as possible without adding distortion". Audacity will analyse the peak volume then boost the amplitude of the wave ensuring that the peak volume does not exceed the prescribed limit. Remember that we compressed before so much of the spike will have been reduced anyway.

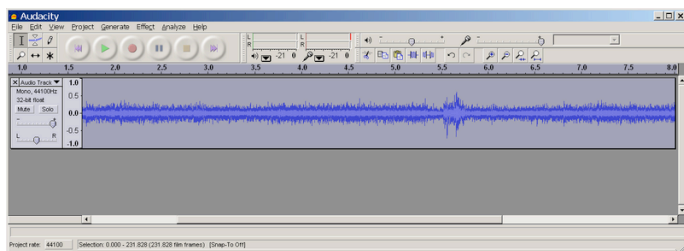
This is a good trick to use if your recording is quiet and you think it needs to be louder. For instance, if your recording equipment is not as powerful as you would like it to be, the normalize function can raise the volume levels to a more audible level. However, it is important to remember not to raise the levels too much or it will sound distorted or 'clipped' so use your own judgement about how loud you want to make your track. Select the whole track and select 'Normalize' from the 'Effects' menu.



Leave the default options and click OK.



The recording should now be louder. The -3dB option gives a little 'headroom' for further editing of the track.



This is a quick and efficient way of boosting a weak audio recording's signal to a useable level. One downside to using this tool is that it will of course boost any background noise as well.

## Other Effects

Audacity has many built-in effects. Have a play - occasionally it may enhance the recording to add an echo or a wah-wah! Other plug-ins can be downloaded from Audacity site.

'Reverb' may be a useful addition as it can compliment vocal recordings if used conservatively. Reverb makes a sound appear that it has been recorded in a room with reflective walls; it adds a variety of subtle echoes which give the impression of space. Think about how different your voice sounds in a tiled bathroom as opposed to a living room with furniture and carpets.

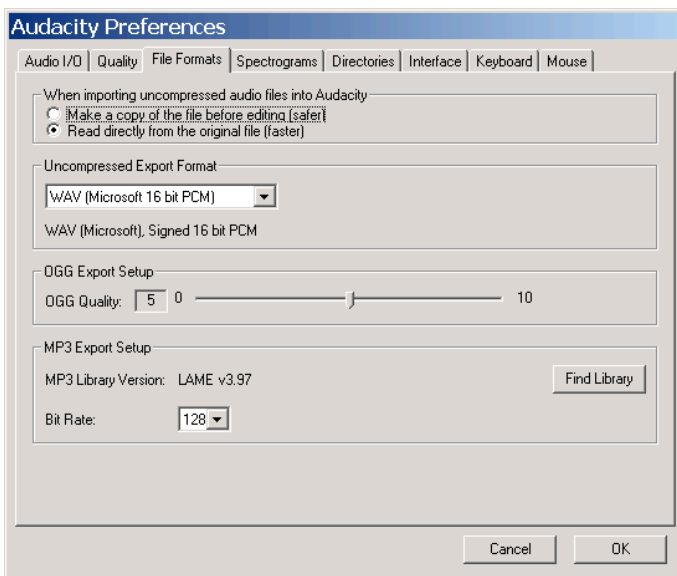
It is common practice to record voices in a dampened room (perhaps with curtains (or egg boxes) covering the walls; the impression of space can then be added later. However, if you are editing a podcast be careful to use these effects sparingly as they can distort and lessen the overall sound quality of the recording.

## Saving your project and exporting to a podcast .mp3 format

Obviously it is good practise to save copies of the track as you progress just in case of unexpected events! The easiest option is to choose 'Save Project' (or 'Save Project As') from the File menu. Make sure you save your work in a sensible place and give it a sensible name.

You probably also want to save the sound file in a format that is able to be played back on your device of choice. **WAV** is a 'lossless' format; it is a Microsoft Windows format but is supported on most platforms. **MP3** is a compressed format and is very common. Unlike WAVs; MP3 files can be played back on iPods and similar and can be used for podcasting. It is roughly one tenth of the size of a WAV and for this reason is the ideal format for delivery over the web; podcasts should use this format. MP3 files can be saved at different 'bit rates', the higher the bit rate the better the quality and the larger the file size.

Audacity has a bit rate of 128 which is fine, however, a bit rate of 64 will produce smaller files and may still sound fine. If space is at a premium then you can experiment with different bit rates. To change the bit rates use the 'Edit' menu, select 'Preferences' then 'File Formats', the bit rate is at the bottom under 'MP3 Export Setup'.



*Ogg Vorbis* certainly has the best name and is another compressed format with better reproduction than the MP3 format, it is an Open Source standard but is generally not supported as much as WAV files or MP3 files - maybe one day it will gain in popularity.

If you have more than one sound file, select the one you want to save and choose 'Export as ...' Form the 'File' menu. I would suggest saving as a WAV and also saving as an MP3 which is probably the version that you will use.

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>"*

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8019](http://www.ict4e.net/wiki_source/index.php?oldid=8019)

Contributors: Bjoern, OLewis, PeterRobinson

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# Publishing

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## Tutorials/SteepleBooklet/Publishing

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### **Publishing a podcast**

Before users can listen to your podcast it requires some means of publication. The most common way to publish a podcast is by using an RSS syndication feed, which is a special file that points to the podcast (the MP3, MPEG4 etc.) and contains your description of the podcast's content.

To publish a podcast the author needs the following:

1. Web space to store the podcast (MP3s etc.) online.
2. An RSS generator, such as a third party service or your University's newsfeed service to point to the content.
3. A medium to view the podcast (commonly iTunes but there are many other digital media players and browsers, such as Miro and Firefox).

### **RSS -Promoting and syndicating a podcast item**

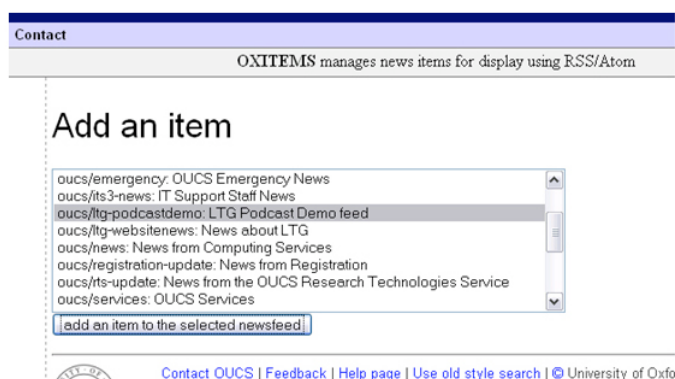
To avoid podcasting in a void, podcasts are promoted (advertised, and listed in searches) using Really Simple Syndication (RSS) for news feeds. Each feed is a simple XML file containing textual information about the content e.g. title and the URL of the online content it links to. The information about each item not only includes the title, author and description of each individual podcast, but also whether it belongs in a series, and what number in the series it is. Software like iTunes picks up the RSS information and displays it to the user so they can view, subscribe and download the podcast in the easiest way possible. Software that can pick up and view RSS feeds are known as aggregators.

### **OXITEMS A typical RSS Service**

OXITEMS is a typical RSS newsfeed system developed at Oxford University by Oxford University Computing Services. It allows Oxford users to add and maintain news items (announcements, news, events, podcasts etc.). These feeds can be subscribed to by digital media players allowing the end user to receive news updates, podcasts etc. without the need to keep visiting the originating web site themselves.

The first publishing step the author has to make is to upload the podcast to their online web space, e.g. a college server, their users web space or to a course area on their VLE. You cannot upload files to OXITEMS as it is not a filestore, nor are other RSS feeds; they merely link a news item in a newsfeed to an associated file (called a enclosure) and contain textual information about this linked file (metadata). Once the location of the podcast is known, there are a series of easy to follow web-based forms into which you fill in the information.

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## Adding your podcast to a RSS feed service

Each RSS service is slightly different but the following steps are typical -

1. Login. You will now see a list of the podcasting feeds that you are eligible to add new items to. If not you may need to create one.
2. Select the podcast feed you wish to add to and click the Add New Item to Selected Newsfeed button.
3. You will now see the Add an Item screen. This is composed of various boxes where you need to add in information about your new podcast. This must include the URL (location on the web) of your podcast file. Complete the form as instructed. Cataloguing fields needed include:
  - Title
  - Description
  - Author
  - Duration
  - Rights and permissions tick box
4. Submit podcast information form
5. You will now see a summary of your entries. If these are all correct, click the Now Add the Above Item to the Newsfeed button. If you need to make any changes to the form entries, click the Make Changes to the Values of the Above Item button instead. You will be returned to the original form where you can make edits to your entries. Submit again and check your the summary of your entered details
6. Once you have submitted your item, your service should show you a new page showing all the items in the feed. Your new item should be at the top of this list. You will also be give the URL of the RSS feed into which you have added your podcast item. This URL is the one to place on your own web pages.

## Accessing your podcast feed

In order to check whether your podcast feed and files work on the web you need to subscribe to the feed and download the file(s) in question. These instructions relate to using iTunes to check the feed. If you do not have iTunes already, visit <http://www.apple.com/itunes/> to download the program. Install this onto your computer. If you do not want to install iTunes onto your system, you can also check the url of the feed using modern web browsers such as Firefox and Opera. Alternatively there are other digital media players available that you can use instead.

1. Open iTunes and click on [Advanced] found on the top most menu. "Advanced" button

2. From the dropdown menu select [Subscribe to podcast] option. A new dialogue box will appear. "Subscribing to a podcast, type URL here"
3. Enter the address of your podcast feed i.e the URL given to you via OXITEMS or another RSS service. Click on OK
4. iTunes will now access the RSS feed and list any items it finds in the main iTunes podcast screen. "Podcast shown in iTunes podcast"
5. Each item in the feed can now be downloaded either individually by clicking the Get button by each one, or by clicking on Get All next to the name of the feed itself.
6. Click the Get button next to your new item. iTunes will access and download the file to your machine.
7. Once your file is downloaded, the podcast title will change to black text and the Get button will disappear. You will now be able to play the podcast in iTunes.

Note that once you've subscribed to a podcast feed you will see automatically in the client whenever new material is available for downloading. This syndication element is the key reward of RSS podcasting.

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>"*

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=7995](http://www.ict4e.net/wiki_source/index.php?oldid=7995)

Contributors: Barry.cornelius, Bjoern, OLewis, PeterRobinson

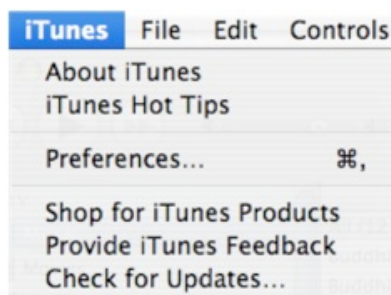
## Tutorials/Encoding mp3 with iTunes

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This tutorial explains how to encode to mp3 using iTunes 7. Some notes inline below for changes in iTunes 8.

### Setting up preferences

#### Setting up preferences

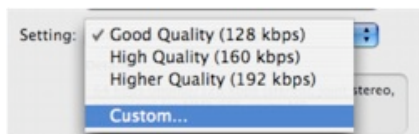


## Select 'Advanced' and 'Importing'

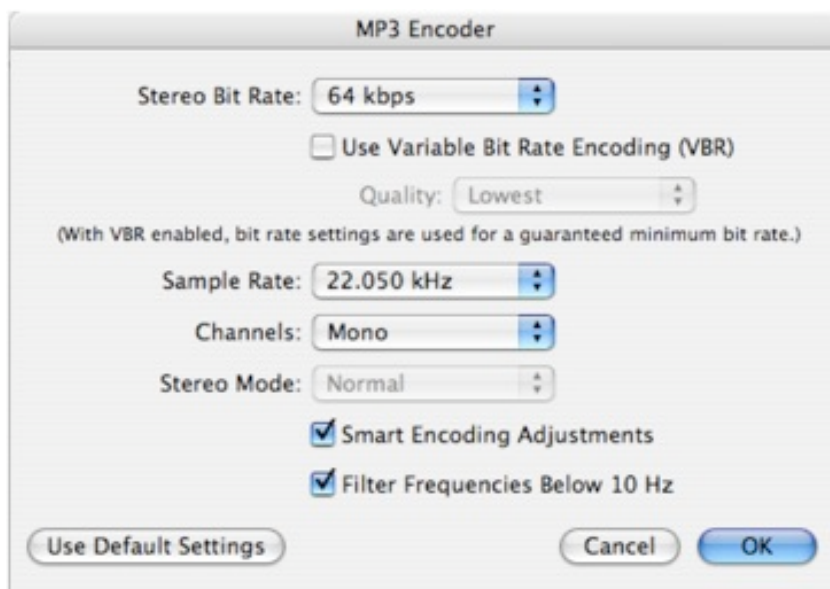


Note: As of iTunes 8 this dialog is under the very top left 'General' tab. Use the 'Import Settings...' button to access the settings.

## Under setting, select 'Custom'



## Select bit rate = 64 kbps, Sample rate = 22.050, channels = Mono



We are selecting the Sample rate as 22.050 so that the audio plays back properly in Flash players.

**Click 'ok' -the preference pane should now look like this:**



**Now switch to general, and uncheck 'copy files to iTunes Music folder'**



Note: In iTunes 8 although the General/Importing/Burning selection is gone from this tab you will still find the 'copy files to iTunes music folder' setting here.

## Encoding files

Drag your aif/wav file into iTunes.

Amend meta-data: Hit Apple-i (or 'Get info') and amend fields like author, title, description etc.

Select 'Convert selection to mp3'. Drag the file out of iTunes (e.g. onto the desktop) and amend the filename to be suitable for distribution. You might then want to drag the file back into iTunes to check the metadata and to make sure the filename appears as expected.

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>"*

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=7901](http://www.ict4e.net/wiki_source/index.php?oldid=7901)

Contributors: Bjoern, OLewis, 6 anonymous edits



# Tutorials/SteepleBooklet/ RSSformats

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## RSS and Atom newsfeed formats

Various formats are often used for newsfeeds (including podcasting newsfeeds). The formats that are considered here are: RSS 1.0, RSS 2.0, Atom 0.3 and Atom 1.0.

## A validator

There is a validator that can be used to check the validity of a newsfeed that allegedly conforms to one of these specifications. This validator is at <http://feedvalidator.org/>

Departments and colleges at the University of Oxford use a newsfeed generation system called OXITEMS. We have extensively used the validator to check out the validity of the RSS 1.0, RSS 2.0, Atom 0.3 and Atom 1.0 newsfeeds that are generated by OXITEMS. The feedvalidator software is open source, and can be downloaded and run locally. We have downloaded a copy and every 4 hours we use it to check the validity of the newsfeeds that are used by Oxford's site in iTunes U.

Note: if you attempt to validate an Atom 0.3 newsfeed using this validator, it will report the newsfeed is an obsolete version. It says that early adopters of the Atom format should upgrade their feed to the latest version of the specification.

## RSS 1.0

The RSS 1.0 specification is at <http://web.resource.org/rss/1.0/spec>

The description element (of an item) is described as (#PCDATA). Consequently, there is no explicit provision for including HTML markup in a newsfeed.

Extensions to RSS 1.0 is done through the use of modules. A page containing a list of proposed modules is at <http://web.resource.org/rss/1.0/modules/proposed.html>. For example, the module for events is at <http://web.resource.org/rss/1.0/modules/event/>

## RSS 2.0

Although the numbering may imply that RSS 2.0 is a more up-to-date version of RSS 1.0, this is not the case: there has been an unfortunate forking in the development of RSS and an unwanted confusion re numbering. So RSS 1.0 and RSS 2.0 are alternative and rival newsfeed formats.

Although there is a version of the RSS 2.0 specification at <http://blogs.law.harvard.edu/tech/rss>, since July 2003, the RSS Advisory Board has been looking after revisions. The latest revision of the RSS 2.0 specification is at <http://www.rssboard.org/rss-specification>

The specification does not seem to specify what the description element can contain. Some people say that it can contain HTML; whereas others say that it definitely cannot.

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For example, a web page at Mozilla ([http:// developer. mozilla. org/ en/ docs/ RSS:Article:Why\\_RSS\\_Content\\_Module\\_is\\_Popular\\_-\\_Including\\_HTML\\_Contents](http://developer.mozilla.org/en/docs/RSS:Article:Why_RSS_Content_Module_is_Popular_-_Including_HTML_Contents)) says *Do not put anything but plain text into the RSS <description> element. Although it has become common practice to abuse the RSS <description> element and put non-plain text data in it. It is not actually allowed.*

However, some people do put HTML into the description element.

When using RSS 2.0, you are allowed to use elements from other namespaces. So, other people use a content:encoded element instead of a description element for providing HTML. Some people even provide both with HTML in both.

YAHOO use RSS 2.0. In the description element, they put HTML inside a CDATA section. An example is <http://rss.news.yahoo.com/rss/sports>. This method is also adopted by other people.

The Mozilla web page cited above says that CDATA sections reduce the bloat. However, the <description> is NOT suppose to be used for any of this. It is only suppose to be used to include plain text. They say that HTML should be put in a content:encoded element.

The BBC uses a mix of RSS 2.0, RSS 1.0 and RSS 0.91. For their RSS 2.0 feeds, they just put a single sentence (using no HTML) in the description element. An example is [http://newsrss.bbc.co.uk/rss/newsonline\\_uk\\_edition/front\\_page/rss.xml](http://newsrss.bbc.co.uk/rss/newsonline_uk_edition/front_page/rss.xml)

Date elements such as pubDate and lastBuildDate require use of the RFC 822 format for dates. This format is not easy to parse, and in my opinion, it is preferable to supply dates in the ISO 8601 format. Some people use a dc:date element instead of a pubDate element. This requires the use of ISO 8601.

RSS 2.0's author element requires an e-mail address. Because it is considered to be bad to disclose e-mail addresses in newsfeeds, OXITEMS uses:

undisclosed\_email\_address@ox.ac.uk (Fred Bloggs)

This format is valid according to RFC 2822 but it is regarded as a legacy format by RFC 2822. However, it is the format illustrated in an example in the RSS 2.0 specification.

Other people omit the author element and use a dc:creator element instead. If you try using both, the validator will moan that this is not allowed.

If you want to use RSS 2.0, instead of using pubDate, description and author, you could use dc:date, content:encoded and dc:creator. This is valid RSS 2.0 but this use of elements from other namespaces for the crucial elements suggests the RSS 2.0 format is inadequate. Although the use of these other namespaces in this way is quite common, it is unclear as to how many newsfeed readers support the use of these other namespaces.

As mentioned above, RSS 2.0 permits elements from other namespaces. So the RSS 1.0 modules mentioned earlier can also be used in RSS 2.0. Here, again, is a link to a page containing a list of proposed RSS 1.0 modules: [http:// web. resource. org/ rss/ 1. 0/ modules/proposed.html](http://web.resource.org/rss/1.0/modules/proposed.html). One such module is the module for events: <http://web.resource.org/rss/1.0/modules/event/>.

## RSS 2.0: Apple iTunes and iTunes U formats

The additional elements used by Apple for iTunes are documented at <http://www.apple.com/itunes/store/podcaststechspecs.html>

iTunes U uses an additional element, an `itunesu:category` element. This element is documented at [http://deimos.apple.com/rsrdoc/iTunesUAdministratorsGuide/iTunesUintheiTunesStore/chapter\\_9\\_section\\_2.html](http://deimos.apple.com/rsrdoc/iTunesUAdministratorsGuide/iTunesUintheiTunesStore/chapter_9_section_2.html)

## Atom 0.3

The Atom 0.3 specification is at <http://www.mnot.net/drafts/draft-nottingham-atom-format-02.html>

Note that with the release of Atom 1.0 during Summer 2005, Atom 0.3 is deprecated. The above web page says the Atom 0.3 specification is made available for historical purposes only. It continues by saying DO NOT implement it or ship products conforming to it.

The Atom 0.3 specification says that content elements MAY have a "type" attribute, whose value indicates the media type of the content and if this is not present, its value MUST be considered to be "text/plain". The specification also says that content elements MAY have a "mode" attribute, whose value indicates the method used to encode the content. This can be one of the values "xml", "escaped" and "base64". If [it is] not present, its value MUST be considered to be "xml".

Typically, people have content elements like:

```
<content type="text/html" mode="escaped"> ... </content>
```

And inside the content element, people:

(a) either put HTML inside a CDATA section as shown at <http://gilbane.com/blog/atom.xml>

(b) or they provide encoded HTML writing

as `&lt;p&gt;` as shown at <http://ramble.oucs.ox.ac.uk/blog/stuart/atom.xml>.

## Atom 1.0

The Atom 1.0 specification is at <http://atompub.org/2005/08/17/draft-ietf-atompub-format-11.html>

Atom 1.0 was released during Summer 2005. There is a useful summary of the changes between Atom 0.3 and Atom 1.0 at <http://www.rakaz.nl/nucleus/item/103>

Atom 1.0 has title, summary, content and link elements. The content element has an associated type element which can be "text", "html" or "xhtml" or any mime type.

A good article on the topic of guids is "How to make a good ID in Atom" by Mark Pilgrim: <http://diveintomark.org/archives/2004/05/28/howto-atom-id>

A good overview of Atom 1.0 is: <http://www-128.ibm.com/developerworks/xml/library/x-atom10.html>



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# Institutional Podcasting

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## Tutorials/SteepleBooklet/ Institutional Checklist

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### Institutional Checklist

The following checklist may help you in planning work at an institutional level to provide a podcasting service or to improve current activities.

### Overview

How would you summarise your institutional approach to podcasting ? Is it a centralised activity or localised to departmental activity ? How do people find online audio-visual material at your institution? Do you have a central web page or through Google ? It may help you to start to create an overview of your setup and situation, list institutional priorities and start to note down the the overall processes for material being created and the different types of material that might be created - outreach, teaching, research etc. The following questions will help add more depth to any summary of activity.

### Institutional Podcasting

- What do you see as the primary benefits of podcasting?
  - What teams/personnel are involved at your institution in podcasting?
  - What are their roles in the process?
  - How much of their time is dedicated to those podcasting tasks?
  - Who has overall management/responsibility for podcasting?
  - Are there steering groups involved at any level and where do they draw their membership from?
  - Where are the major costs incurred?
  - What areas do you see as having opportunities for cost savings/efficiencies?
  - What technical areas could be advanced?
  - What technical areas are currently problematic?
  - What are the top 5 risks to your podcasting processes, and their solutions?
-

## Audio Video Capture

This section is focussed upon the initial digitisation and content production aspects.

- What material are you targeting/getting (both academic and non-academic areas)?
- Who is responsible for sourcing the material?
- Where do you capture the material?
- How is the material captured/digitised (differs for lectures, interviews, outreach, etc)?
- Where/how is that source material stored?
- What metadata is captured to accompany the media?
- How do you record the metadata and when?

## Content Processing

This section looks at content issues from post digitisation to final published outputs.

- What editing work is done to the original material?
- Who does the editing?
- How much time is spent on editing?
- What guidelines are provided for editing (e.g. times, focus, styling, titles)?
- What software/hardware is available for editing, and who has access to it?
- What outputs do you have from the editing process?
- What compressed formats do you support, and why?
- Who does the compression for published work, and what do they use?
- What metadata is added to the final outputs?

## Content Publishing

This section is concerned with the practicalities of distribution and syndication methods.

- Where do you publish your podcasts to?
  - Who provides the public webspace for published material?
  - What does they use to provide this service?
  - How much resiliency is built into the file hosting system?
  - How are files placed on/in this webspace?
  - How much space do you presently have available, and what was the criteria for this quantity?
  - What do you use to provide the published RSS feed?
  - Who/what is responsible for data entry to the RSS system?
  - When do you create the feed?
  - Who/what consumes that RSS feed?
  - Do you offer other forms of syndication?
-

## Content Management

- What aspects of the podcasting process do you control/manage?
- Do you have a central authority for podcasting?
- When do you first learn of new material?
- Who is responsible for content on each of your distribution systems?
- Do you plan/schedule content for release?
- How do you track the status/progress of podcasts within your service?
- Do you have an automated/digital system for content management?
- How do you identify content within your processes/systems?
- Do you host or surface your material in a third party service?
- Who is responsible for maintaining your iTunes U/YouTube interface?
- How do you update your iTunes U/YouTube interface, and how often?

## Storage

- What elements of the podcasting process do you store?
- What methods/systems do you use?
- How long do you store the material for?

## Quality Control

- Do you maintain any standards for published material?
- Who checks that these standards are met?
- Where in your processes is Quality Control done, and how is it implemented/enforced?

## Legal

- What legal responsibilities do you have in regard to podcasting?
- How do you ensure those responsibilities are met?
- What release/consent forms do you use?
- How do you administer the legal processes?
- What problems do you encounter administering these processes?
- What is your take down policy?

## Marketing

- Who is your target audience ?
- Have you considered a press release or discussed a communication plan ?
- What channels do you have to communicate with your key audiences ?
- How will you track usage?
- How will you evaluate whether your marketing strategy is working?

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=7503](http://www.ict4e.net/wiki_source/index.php?oldid=7503)

Contributors: Bjoern, PeterRobinson

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# Tutorials/SteepleBooklet/ InstitutionalWorkflow

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## Institutional Podcasting: Suggested Project Workflows

### Introduction to common elements of a workflow

In order to save time while managing work and help a team follow a plan, an agreed workflow is vital. This is especially true for teams dealing with a large amount of digitisation activity. A written workflow helps a project where there are many staff handling content and working with many complicated subprojects. Regardless of your specific processes for handling AV projects at an institutional level, there are common workflow elements required to allow files/projects to be located easily and efficiently.

It is also important to start to think of multiple encodings per project to be handled so that different online versions can be provided. Users with greater infrastructure resources (more disk space, higher bandwidth, better players, etc) will appreciate downloading the higher quality versions. Whereas, those with less infrastructure resources will prefer the time saved by having access to smaller files.

To simplify the number of derivative versions needed by users, it is recommended to produce a limited range of different quality versions for different distribution uses. As well as the Master Edit version of the video content, there are four levels of encoded output for video podcasts and three levels for audio using this simplified workflow. These are outlined in the following tables.

### Sample settings for encoding video

Level	Filenames	Resolution	Encoding details	Typical file-sizes
Master Edit	filename.dv or filename.mov	4:3 = Not defined, 16:9 = Not defined	DV or Uncompressed	~ 12000Mb/h
High	filename-high-video.mp4	4:3 = 640 x 480 px, 16:9 = 640 x 360 px	Bitrate: VBR using VBV @ 1500k. Peak 1800k.	~ 690Mb/h
Medium	filename-medium-video.mp4	4:3 = 640 x 480 px, 16:9 = 640 x 360 px	Bitrate: VBR using VBV @ 700k. Peak 900k.	~ 350Mb/h
Low	filename-low-video.mp4	4:3 = 320 x 240 px, 16:9 = 320 x 180 px	Bitrate: VBR using VBV @ 300k. Peak 450k.	~ 150Mb/h

Key things to note:

- The three levels (high, medium, low) all share these Encoding attributes: H264 encoded. Keyframes: Natural and Forced (every 20 frames). No. Of Reference Frames: 1. Profile: Baseline. B-frames: 1.
  - For playback on iPods and similar media devices, a Baseline encoding profile is essential.
  - For H264 files to support “scrubbing” (winding forwards and backwards through the video) you need to supply a good dose of keyframes at regular and frequent intervals.
-



Most encoders support automatic scene (natural) changes and insert a keyframe there. However, video that doesn't feature much movement (e.g. talking heads, lecturer at a lecture, etc) tends to feature few keyframes. Our value of 20 frames between keyframes is almost arbitrary, but aims to compromise between recovery gaps (how long it takes the player to refresh an image between keyframes) and compression. It does mean that any artifacts introduced by interrupted or skipping of playback should be fixed in under a second.

## Audio Encoding

### Sample settings for encoding audio

Level	Filenames	Encoding details	Typical file-sizes
Master Edit	filename.aif or filename.wav	Uncompressed, PCM, 16bit, 44100Hz, Stereo	~10Mb/m ~600Mb/h
Medium	filename-medium-audio.mp3	Lame MP3. VBR 64-(128)-320k. 44100Hz. Joint Stereo. Stereo output	~780Kb/m ~47Mb/h
Low	filename-low-audio.mp3	Lame MP3. VBR 32-(32)-96k. 44100Hz. MS Stereo. Mono output.	~380Kb/m ~23Mb/h

At present the high quality audio version is identical to the master/archive copy.

## Consistent Naming Strategy

Whatever approach followed, a common naming strategy is needed. Due to the disparate systems underlying the work done, the need for human readable project names applied consistently is required to allow content to be located and tracked. There are primarily three distinct systems/locations to consider:

- Local filestore
- RSS
- media.podcasts.university.ac.uk

Generically, naming takes the following pattern: /unitcode/project\_name\_without\_spaces

What is a project? This is a valid question, not easily definable. Crudely, any set of related podcasts/media-files and their source materials. Thus a working project folder will contain a range of media and text files related to that work/topic. Folder paths and names should be identical on both Local filestore and media.podcasts, with RSS feednames mirroring the folder/project name. These folder names and file names will eventually form part of a public URL, and thus should be human readable and sensible in appearance.

## Local Filestore

The main working copy of a project should be held in an accessible (to all users that need it, opposed to on your local user desktop) area, ideally grouped together in a common folder (e.g. Projects). Once in that folder, next level should be folders bearing unitcode names (e.g. UnitX, UnitY, SubjectAreaX, SubjectAreaY, etc) and that then contains a project folder with a unique (short) name. A project folder should contain a number of consistent elements (folder name in brackets):

- Unmodified source material (Originals)

- Legal documents and notes (Legal)
- The final edited master files (MasterEdit). Naming of these files needs to be done in a short and sensible fashion as their name will be carried onto the published files (with suitable appendices and file extensions). There should be NO SPACES in these names. If needed, use an underscore ( \_ ) character in place of a space. This is derived from simplifying issues related to URL names and paths.
- Final set of encoded1 outputs made from the contents of the MasterEdit folder (FinalOutputs)
- A number of folders containing working edits, partial material, project files, tests, etc. These can take a range of names to suit whoever is working on the material.

As a rule, we are not deleting any temporary work or test files. Whilst space allows we are moving these to “Junk” folders in the relevant section of the project folder (i.e. there can be multiple junk folders in a project folder). If at some point storage space becomes critical, a sys-admin may target these folders for deletion.

Thus we can have....

```
/Projects
  /unit
    /project_alpha
      /Originals
        /some_input.mov
      /Legal
        /ApprovalForm.doc
      /MasterEdit
        /Junk
          /project_alpha_olddedit.dv
          /introduction.dv
          /introduction.aif
      /FinalOutputs
        /introduction-low-video.mp4
        /introduction-medium-video.mp4
        /introduction-high-video.mp4
        /introduction-low-audio.mp3
        /introduction-medium-audio.mp3
      /Fred's working edits
        /clip1.mov
        /clip1_2-too-short.mov
        /alpha.imovie-project
    /another_project
      /Originals
      /Legal
      /MasterEdit
      /FinalOutputs
  /another-unitcode
etc...
```

## A central online filestore: media.podcasts

The centrally hosted publicly available online filestore is referred to as media.podcasts. The accessible URL for the public portion of the filestore is <http://media.podcasts.university.ac.uk/>. There are two top level folders in this example: archive and pub. The aim is to copy portions of the local filestore in both the [archive] and [pub] folders, thus under all three we should see a series of folders representing the unitcodes, and in those folders the project folders, and in those folders, files. However, we are only interested in copying the files encoded for public consumption to [pub] and just the master edit files to the [archive] tree (as we can regenerate the processed content from these if needed). Thus, using the previous example we would have (for a special video project with three feeds - see RSS section):

```
/media.podcasts.university.ac.uk
  /pub
    /unit
      /project_alpha
        /introduction-medium-video.mp4
        /introduction-high-video.mp4
        /introduction-medium-audio.mp3
      /another_project
  /archive
    /unit
      /project_alpha
        /introduction.dv
        /introduction.aif
      /another_project
etc
```

The key here is that the RSS will point to the files in `/pub/unitcode/projectname/`.

## RSS

RSS does not support more than one media enclosure per item. It's thus not possible to include both an audio and video file in the same item (with just RSS). However, in RSS 2.0 additional namespaces are supported, and the yahoo media namespace can be used to add multiple enclosures per item. Atom, a newer format, also has the ability to have several 'enclosures' per 'item', i.e. several `<link rel="enclosure">` tags per `<entry>`. Further information and comparisons can be found here: [http://en.wikipedia.org/wiki/Enclosures\\_in\\_yahoo\\_media%2C\\_rss%2C\\_and\\_atom](http://en.wikipedia.org/wiki/Enclosures_in_yahoo_media%2C_rss%2C_and_atom).

If you have a system that doesn't support multiple enclosures, you have to create a number of RSS feeds for each project delivery format. Similarly, if you are delivering content for iTunes U then each RSS feed appears as a tab in an iTunesU entry for a project/topic. This might range from 1-4 RSS feeds per project.

1. Audio only
2. Video
3. For special projects - audio, video & high quality video
4. Transcript pdf

RSS Feeds need to be created using the common naming strategy which starts “unitcode/project\_name” and is then appended with:

“-audio” for the audio only feed “-video” for the standard video feed “-high-video” for the high quality video feed

Thus the project “another\_project” for “unitx” becomes the following feeds...

```
unitx/another_project-audio  
unitx/another_project-video  
unitx/another_project-high-video
```

It is also possible that files generated in this project can be referenced by other RSS feeds, but that doesn't imply there is a matching folder structure for these meta-feeds. Once these feeds are created, individual media items have to be added to each feed, so for each episode in your podcast stream there will be up to three media items created (individually and manually) for the corresponding encoded file. A project may decide to use a smaller set of available media for instance only the following encoding outputs may be in the core set of institutional newsfeeds:

- **RSS feed -> Encoded File in the enclosure**
- projectname-audio - > projectname/filename-medium-audio.mp3
- projectname-video - > projectname/filename-medium-video.mp4
- projectname-high-video - > projectname/filename-high-video.mp4

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8101](http://www.ict4e.net/wiki_source/index.php?oldid=8101)

Contributors: Bjoern, Marshalc, PeterRobinson

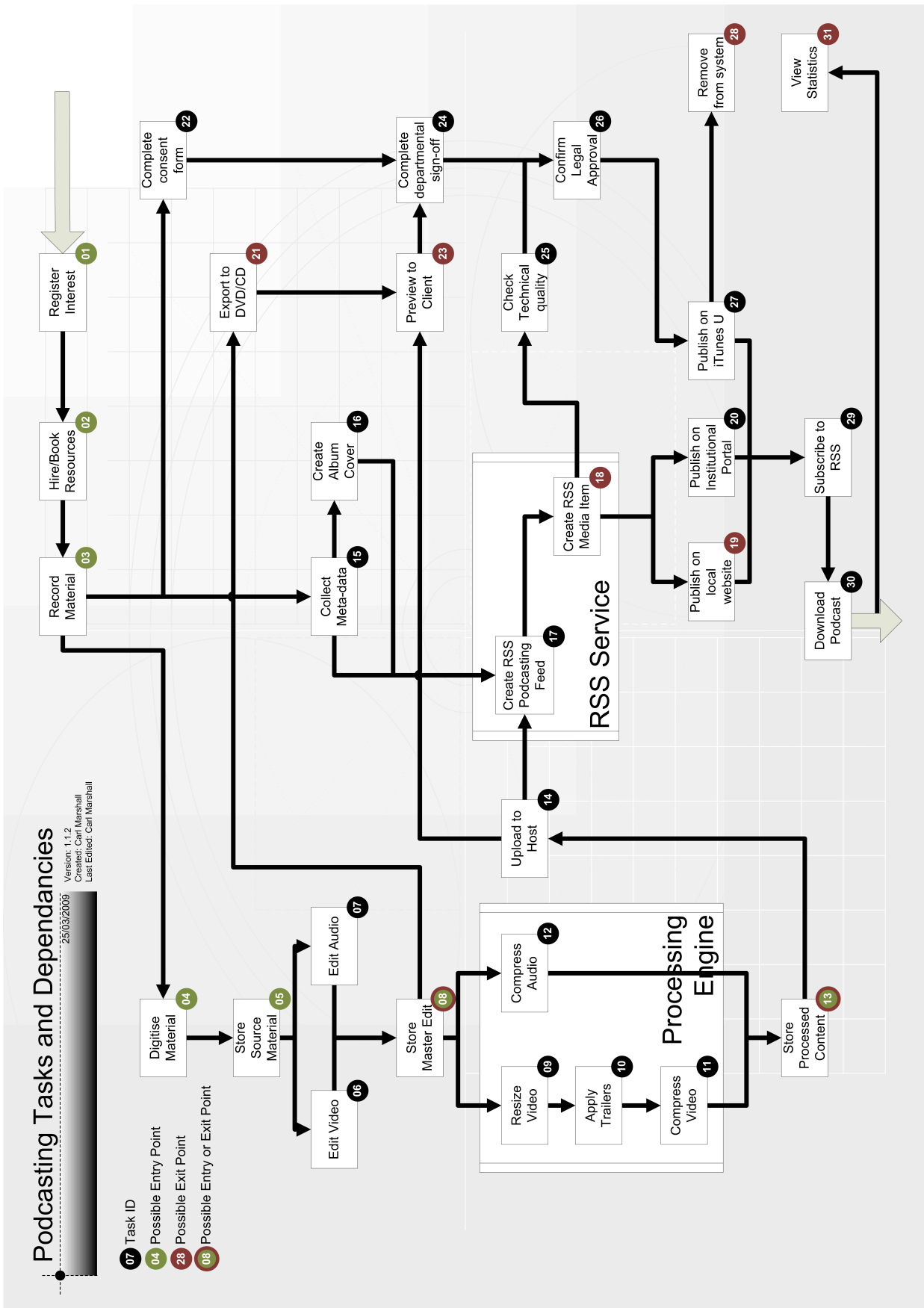
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# Tutorials/SteepleBooklet/ Institutional WorkflowDiagram

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## Podcasting Tasks and Dependancies

The following diagram is a chart of tasks involved in podcasting at an institutional level and a series of dependancies that define their ordering. Not all tasks are essential nor do you have to start at task 1 - the latest entry point is likely to be task 13. This chart is not linear and the arrows indicate dependancies - tasks point to tasks that are dependant upon them completing before they can complete. Most tasks can run concurrently.



Whilst this collection of tasks is not exhaustive, this does help to clarify some of the main steps taken to get a podcast from conception to delivery.

**Let us briefly work through the tasks, but from delivery to conception:**

- 31 - To be able to manage or report on your podcasting you need statistics such as the number of downloads for a given piece of content, who and where your audience are located and their usage patterns.
  - 30 - Ultimately the aim is to have the content downloaded by subscribers or ad-hoc users.
  - 29 - To take full advantage of podcasts subscribing to the feed is a key user task.
  - 28 - It is possible that you will need to be able to remove podcasts from within your system.
  - 27 - Publishing the podcast and feed to Apple iTunes U is a simple technical process that yields exposure to a captive worldwide audience.
  - 26 - Including tasks 25, 24 and 22 this relates to the quality control aspects included in the Apple iTunes U contract and due diligence on behalf of the institution. This final step is the last check before material is made available for inclusion within iTunes U.
  - 25 - Quality control task looking at playback issues for the content.
  - 24 - Within our devolved system responsibility for content quality and copyright and permission ultimately fall upon the sponsoring department and a nominated representative.
  - 23 - Participants may need to review publishable outputs, often before they will consent to public release.
  - 22 - All speakers within a podcast sign a release form permitting the university to use their recording.
  - 21 - Preview the content may require a copy on DVD or CD (or via private network) so that the presenter and sponsoring department can review.
  - 20 - Another outlet for publishing is the institutional web portal...
  - 19 - ...As well as publishing the content locally on a related project/subject specific website.
  - 18 & 17 - This two stage process requires 17 (Creating a Podcasting Feed) if this new content does not belong in another existing container, and 18, the actual creation of an RSS metadata record that can be published within the podcasting feed. Publishing the URL allows users to subscribe for automatic downloads of new content.
  - 16 - Part of the metadata related to items and feeds is that of a visual icon, or Album Art. Typically this is a square JPEG/GIF/PNG image around 300px by 300px.
  - 15 - Early on in the process you can begin collecting the metadata that will be associated with the content. This may be as trivial as a Title and Presenter, but can encompass a much wider range of data fields.
  - 14 - Processed content needs to be uploaded to a website for hosting and distribution. Combining the URL to access the content with the metadata (15) and album art (16) in tasks 17 & 18 is what effectively creates a "podcast".
  - 13 - Processed content refers to final edits of a piece of content compressed down into a suitable format for distribution. These file(s) will need to be stored somewhere, likely before they are uploaded to their final hosting location.
  - 12, 11, 10 & 9 - These four tasks collectively describe automated activities that transform a final edited piece of content into a set of files suitable for final distribution. Less work is typically done on audio only content (12) than on video, where resizing of content and combining it with a suitable marketing trailer/short-movie is followed by the compression stage.
-

- 8 - For many systems, the starting point is receiving a large, high quality version of the content to be published. Typically this content will need archiving for security and reuse purposes.
- 7 & 6 - To produce effective and high-quality content a level of editing is usually required. The degree of work done at this stage is highly dependant on your aims, resources and constraints.
- 5 - Podcasters will typically want to keep a copy of their original material, as at later dates, alternative editing may be desired.
- 4 - Whilst many will now use technologies that automatically produce digital content from the recording process, there is a need (for example with historical content) to convert analogue formats to digital media.
- 3 - The act of creating content is the recording of a performance/presentation.
- 2 - If you have resources that can be used by podcasters to aide their work, this step accounts for that activity.
- 1 - To aide planning (such as media calendars etc) it helps to know what material may be making an appearance within the final output systems. This step acknowledges that you can start to track this content even before an actual recording is made.

Depending on the degree of centralisation and the levels of support your institution may be able to offer, is the number of entry and exit points for the different stakeholders within this process. Not all podcasts flow from task 1 through to 31 and those providing or supporting these users should be aware that surprise additions can appear out of the woodwork as well as promising content being withdrawn due to lack of consent, and a variety of other scenarios.

We hope you will find this useful as a discussion document as well as a starting point to compare with your own processes.

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8086](http://www.ict4e.net/wiki_source/index.php?oldid=8086)

Contributors: Bjoern, Marshalc, OLewis, PeterRobinson



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# Further resources on the web

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## Tutorials/Links

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**Other resources** on the web:

### Guides

- JISC Digital Media Guides - <http://www.jiscdigitalmedia.ac.uk/site-map/>
  - JISC Digital Media Guide to Microphone usage - <http://www.jiscdigitalmedia.ac.uk/audio/advice/microphone-technique/>
  - VideoAktive resources, <http://www.videoaktiv.org/index.php?id=40> (in particular the *Handbook on Digital Video and Audio in Education - Creating and using audio and video material for educational purposes*, <http://www.videoaktiv.org/index.php?id=233>)
  - Accessibility multi-media chapter in web-design guidelines <http://www.aptivate.org/webguidelines/Multimedia.html>
  - Also, for network managers, the BMO book (for free) from here <http://www.bwmo.net/> . ( a great resource for network managers, aimed at developing world use.)
  - Pdf downloading report from Aptivate (2005) <http://www.aptivate.org/Projects.PDFDownloadingGuidelines.html>
  - Five Steps to Multimedia Recording from Berkeley, <http://journalism.berkeley.edu/multimedia/>
  - iPod in Education website, <http://www.addysg.org.uk/ipodined/news.php>
  - University of Leicester podcasting guide (wiki), <http://www2.le.ac.uk/projects/impala/impala-wiki/CreateAPodcast>
  - IWMW Workshop on Podcasting, <http://www.ukoln.ac.uk/web-focus/events/workshops/webmaster-2006/sessions/ramsden/>
  - IWMW podcasts evaluating podcasting, <http://www.ukoln.ac.uk/web-focus/events/workshops/webmaster-2005/podcasts/>
  - IWMW introduction to podcasting through a collaborative learning lens, <http://www.ukoln.ac.uk/web-focus/events/workshops/trieste-2005/talk-2a/>
  - Steeple Project Podcasting Scrapbook, <http://steeple.org.uk>
  - Placing Oxford on iTunesU, <http://www.oucs.ox.ac.uk/podcasts/presentations/>
-

## Podcasts in education

- Podcasting for Pedagogic Purposes - a UK community podcasting SIG, <http://podcastingforpp.pbwiki.com/>
- Impala Podcasting project based at Leicester - <http://www2.le.ac.uk/projects/impala/>
- Apple iTunes for Higher Education, <http://www.apple.com/education/itunesu/>
- CamTV, <http://mediaplayer.group.cam.ac.uk>
- Oxford on iTunes U, <http://itunes.ox.ac.uk>
- Open University, <http://itunes.open.ac.uk>
- UCL, <http://itunes.ucl.ac.uk>
- Warwick, <http://itunes.warwick.ac.uk>
- Oxford Web Podcasting portal, <http://podcasts.ox.ac.uk>
- Trinity Dublin, <http://www.tcd.ie/podcasts/>
- University of Westminster student photography 2006 podcast, <http://feeds.feedburner.com/londonphotocast>
- Warwick University podcasting, <http://www2.warwick.ac.uk/newsandevents/audio/>
- University of Ulster podcasts, <http://www.publicaffairs.ulster.ac.uk/podcasts/>
- Bath University public lecture podcasts, <http://www.bath.ac.uk/podcast/>
- Education Podcast Network (EPN), <http://epnweb.org/>
- Podcast Directory for Educations, <http://recap.ltd.uk/podcasting/index.php>

## Projects

- Steeple, <http://www.steeple.org.uk>
- OpenCast, <http://www.opencastproject.org>
- Steeple Podcast Portal, <http://podcast.steeple.org.uk>
- PPP, Podcasting for Pedagogic Purposes - a UK community podcasting SIG, <http://podcastingforpp.pbwiki.com/>
- Impala Podcasting project based at Leicester - <http://www2.le.ac.uk/projects/impala/>

## Rights

- Podcasting Legal Guide (Creative Commons), [http://wiki.creativecommons.org/Podcasting\\_Legal\\_Guide](http://wiki.creativecommons.org/Podcasting_Legal_Guide)
- Web2.0 Rights project, <http://www.web2rights.org.uk/>
- University of Cambridge Streaming Media Service, <http://www.cam.ac.uk/video/contribute/smsfaq.html>
- University of Cambridge consent forms, <http://www.admin.cam.ac.uk/cam-only/offices/communications/services/photoconsent/>

## Articles

- Derek Morrison on Podcasts, [http://www.bath.ac.uk/dacs/cdntl/pMachine/morriblog\\_comments.php?id=381\\_0\\_4](http://www.bath.ac.uk/dacs/cdntl/pMachine/morriblog_comments.php?id=381_0_4)
- Podcasting briefing document, <http://www.ukoln.ac.uk/qa-focus/documents/briefings/briefing-83/>
- Podcasts on Wikipedia, <http://en.wikipedia.org/wiki/Podcast>
- Bradford University using podcasts instead of normal lectures, [http://news.bbc.co.uk/1/hi/england/west\\_yorkshire/5013194.stm](http://news.bbc.co.uk/1/hi/england/west_yorkshire/5013194.stm)
- University of Southampton's School of Electronics and Computer Science has launched the first video podcast news service from a UK university, <http://www.electronicstalk.com/news/unv/unv104.html>
- Examples of podcasting in North American institutions, <http://education.guardian.co.uk/elearning/story/0,,1550197,00.html>
- Stanford to offer course material available on iTunes, <http://education.guardian.co.uk/elearning/story/0,,1597970,00.html>

## Software

- Audacity, <http://audacity.sourceforge.net/>
  - LAME MP3 Encoder, <http://lame.sourceforge.net/>
- iTunes, <http://www.apple.com/itunes/>
- ProfCast (Macintosh only), <http://www.profcast.com/>
- ePodcast Producer (Windows only), <http://www.industrialaudiosoftware.com/products/epodcastproducer.html>
- Podium (Windows only), <http://www.podiumpodcasting.com/>
- Apple Garageband, <http://www.apple.com/software>

## Recording Hardware

- Fostex FR2 digital recorder, [http://www.solidstatesound.co.uk/fostex\\_fr2-le.htm](http://www.solidstatesound.co.uk/fostex_fr2-le.htm)
- Marantz PMD660 portable digital recorder, [http://www.solidstatesound.co.uk/marantz\\_pmd660.htm](http://www.solidstatesound.co.uk/marantz_pmd660.htm)
- Portable recorders (e.g. solid state digital recorders), <http://www.hhb.co.uk/hhb/uk/products/section.asp?section=Portable%20Recorders>
- USB microphones (e.g. Samson CO1U USB mic), <http://www.musictechmag.co.uk/mtm/reviews/c01u-usb-microphone>
- Digital video cameras, [http://reviews.cnet.com/Camcorders/2001-6500\\_7-0.html](http://reviews.cnet.com/Camcorders/2001-6500_7-0.html)
- Audio mixing equipment (e.g. M-Audio's NRV 10 FireWire Mixer), <http://www.nextag.com/audio-mixer/search-html>
- iPod, [www.apple.com/ipod/](http://www.apple.com/ipod/)

## Educational video portals

The following are a small set of video/audio web portals, useful for reviewing and for technical evaluation. The list is not trying to show all web pages that have HE video on it, but we're trying to list typical video/audio web portals, that might be interesting for gathering technical requirements for anyone considering similar work

## Podcasting Portals in HE

- Oxford University: <http://podcasts.ox.ac.uk/> (iTunesU launching page <http://itunes.ox.ac.uk/>)
- Open University, <http://podcast.open.ac.uk/>, (iTunesU launching page <http://www.open.ac.uk/itunes/>)
- CamTV <http://mediaplayer.group.cam.ac.uk> . Presents media across the whole University in a single web portal, aggregating from the UCS-SMS (see next entry), DSpace, YouTube, and other sources. A second instance of the mediaplayer is the sciencelive site, <http://www.sciencelive.org>
- Cambridge UCS-SMS <http://sms.cam.ac.uk/> presents media that has been processed by the UCS-SMS service on the web.
- ARCA <http://arca.rediris.es> . Spanish national media portal, using the ARCA software developed by Carlos III University.
- Leeds <http://lutube.leeds.ac.uk/>
- <http://podcast.iu.edu/Portal/>
- Princeton <http://uc.princeton.edu/main/>
- MIT <http://mitworld.mit.edu/> (For those familiar with the old MIT World portal: This is now a flash-based site.)

For many of these projects, there are descriptions on the <http://www.opencastproject.org> site.

## AV Portal plugins

- <http://filmforge.koumbit.net/en/about> for Drupal
- MetaVid for mediawiki
- CamTV/Mediaplayer/ScienceLive plugin for Joomla.
- <http://www.phpmotion.com/>
- <http://www.ostube.de/en/ostube>
- <http://blog.plumi.org/features/> for Plone (Zope).

*The rest of this page is intentionally left blank for your own contributions! Please contribute to these tutorials by visiting Steeple at <http://www.steeple.org.uk/contribute>*

Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8111](http://www.ict4e.net/wiki_source/index.php?oldid=8111)

Contributors: Bjoern, OLewis, PeterRobinson

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# Acknowledgements

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## Tutorials/SteepleBooklet/ Acknowledgement

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Source: [http://www.ict4e.net/wiki\\_source/index.php?oldid=8127](http://www.ict4e.net/wiki_source/index.php?oldid=8127)

Contributors: Bjoern, OLewis, PeterRobinson

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