

**RADIO READING
RESOURCES FOR
VOLUNTEERS**



Be heard

In the studio: live radio
and pre-production



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RPH Australia acknowledges the traditional owners of the lands on which we work and live and pay our respects to Elders past, present and future. We embrace diversity in working to build inclusive and connected communities.

These resources have been created by **Kim Stewart** for RPH Australia utilising original materials developed by the Community Media Training Organisation (CMTO). Produced with the assistance of the **Department of Communications and the Arts** through the **Community Broadcasting Foundation**.

We also thank our project partners: **Tagged PDF** and the **CMTO**.



● Introduction

Being in a radio studio is exciting, but the technology can be intimidating.

In this guide we aim to demystify the studio. We talk about the technology you can expect to find, and also the pros and cons of pre-recording a program instead of being live. We also look at basic digital sound editing with the user with vision impairment in mind.



In the studio

Community radio studios vary in size, equipment and function. Some are tiny, while others can host live performances. The various studio consoles in this guide look different but each operates in a similar way to deliver sound to the listener.

The path of sound

Understanding the path of sound in the studio can help you avoid and identify issues.

The path of sound moves in one direction - from voice, through technology, to the ear of the listener.

The voice of a presenter is picked up by a studio microphone



Sound comes also from equipment in the studio eg. Computer, CD player or mini disc. The audio signal from these sources can be either analogue or digital



The signals from these sound sources are monitored, balanced and coordinated at the audio mixing console (the panel) and then sent to a desired destination, e.g. to the transmitter for broadcast



The transmitter sends out the signal, which is then received by radios in the area tuned to the appropriate frequency



The receiver changes the signal back to sound waves, which the listener hears

The whole process takes a fraction of a second to complete.

The studio

Panels

There is a wide range of studio panel types in community radio. Although they may seem complex, they all function in a similar way.

A studio may have a different set up depending on whether it is going live to air or pre-recording content.

A studio panel has a number of functions:

On/off buttons and faders

A combination of on/off switch and faders controls the pieces of equipment or voices that can be heard on-air at any one time. For example you might use two mics (for two people in the studio), a CD player (for music) and a computer output for playing interviews or music.

A fader controls the volume of sound going to air by pushing it up or down. The fader should be positioned between plus or minus 10 db (usually in the middle of the length of the sliders movement ability) and so that there is no distortion. Faders also allow you to cross-fade or merge items, transitioning from one to the next in a smooth manner.

The on/off button and fader combo will have lights telling you if they are on or off.

For users with vision impairments, you will need to listen carefully to determine if any one fader is on or off. On older panels, the on/off may be a switch like a light switch, making on or off easier to discern for those with vision impairments.

One radio producer with low vision used a ruler, marked with braille, to help him identify desk sliders. At some stations tactile markers are used.

The image shows a panel at 4EB, Brisbane's ethnic station, with 15 on/off switches and faders for 15 kinds of input.

Usually only a few would be used.



VU meter



The VU meters indicate the output volume, with either a needle or LED lights. The VU meters are colour coded to differentiate between ideal levels and those that are too high. Occasionally peaking the volume is acceptable, but ideally your volume should stay out of the red. Some VU meters make an audible clicking sound when peaking.

On air indicator

Tells you whether you are off air or on air. A panel will have an indicator (usually a red light) to tell you that the studio is live.

For those with a vision impairment, the output of the announcer's headphones, or a radio tuned in to your station in another room are the best indicators the studio is on-air.

Cue button

Allows you to preview material before going to air. Sometimes you want to be able to check the start of an item to ensure that you have it ready to go to air.

Pictured: Many community stations still use "carts" - a loop of tape that plays the same short content over and again, for sponsorship announcements. These ones are at Radio Reading Network station, 4RPH.

Monitors

Speakers that play the recorded content going to air in the studio. When you turn on the microphones, the sound coming out of the monitor speakers should go off.

Microphones

The first announcer's microphone is usually positioned at the extreme end of the panel (the last fader button combo on either end) and then mics 1, 2 etc. (often called guest mics) in order from there.

The microphone should have a windssock to muffle unwanted popping or hissing sounds in the voice.

Studio mics are usually suspended from an arm that can be adjusted to suit your height. Do this while off air, as adjusting may make noises that will be broadcast.



Microphones are usually unidirectional or cardioids, with a front facing or heart shaped pick up respectively. The microphone is more sensitive at the front than it is at the side or behind. This means that wherever you position the microphone, it should point at your mouth.

Headphones

The panel operator should always use headphones to monitor the program. The first announcer in a self-panelling studio will always be able to hear what is going to air through the headphones.

The headphones will pick up errors that you may not notice visually such a microphone left open or a CD playing, or unwanted interference. Think of the headphones as your insurance against bad production.

Other studio equipment you might need to use includes a computer interface with playback software and CD players. Both can be used for playing back music or pre-recorded content.

Playback software

The majority of Australian community radio stations now use computers as an input device to their studio consoles. Computers allow you to store all the pre-recorded content you need for a program in one place, reducing the complexity of delivering a show.

Playback software allows you to arrange all your items for broadcast in an ordered list, automating the process. Some common ones are [Studio Playlist](https://stationplaylist.com/studio.html)¹, [Wave Cart](http://www.bsiusa.com/software/WaveCartPro/overview.php)² and [M-Airlist](https://www.mairlist.com/en/)³. Tutorials for these software are available on their websites.

CD Players or other input devices

CD players, record players, mini-disc players and even cassette machines are in use in many community radio stations. All are turned on and off via the console.

Cough button

Use this to temporarily mute your microphone if you need to cough or make an unexpected noise.



Some common studio concerns

Optimising sound

Optimising sound is a two stage process:

- Firstly, each component should be the best possible quality.
- Secondly, when playing the sources through the desk you should ensure

¹ <https://stationplaylist.com/studio.html>

² <http://www.bsiusa.com/software/WaveCartPro/overview.php>

³ <https://www.mairlist.com/en/>

that they are reproduced at an even level in comparison to each other.

The VU indicator is your best guide. As station panels vary you should always find out the preferred peak range is for each studio panel. This is the level you should aim for on a consistent basis.

If all sources are recorded at an optimal level and the panel has been calibrated correctly you should be able to place the fader at zero and achieve optimal sound. However this is not always the case and you may sometimes need to adjust (ride) the level to keep the VU meter in the optimal range.

“Riding the fader”

If you listen to talkback radio you will have heard a bad phone line from time to time that is too loud, or too soft, or distorted. This is obviously not optimal. In this situation the panel operator must ride the levels to try and improve the balance between the talkback caller and the presenter.

Pictured: Madonna and guest, Tony, practicing microphone positioning in the

studio at
Brisbane’s
4ZZZ.



Technical difficulties

Sometimes technical quality is affected by faulty or broken equipment which is not the fault of the panel operator.

If you encounter a fault, you need to report it to the responsible person in the station so that it can be repaired.

Your station will have a procedure for this which your trainer will explain to you.

Paperwork

Your station may also have procedures that need to be followed in relation to studio operation. These may include:

- studio booking process
- running sheet storage
- APRA logs
- phone logs
- sponsorship announcement playback log
- fault book

Mixing sound sources

Mixing techniques

Once you have become familiar with the panel and feel comfortable putting different sources to air, you can start experimenting with mixing the sources together.

You will have heard on the radio techniques such as:

- Cross-fading: where one song seamlessly merges with another
- Voice-over: where the voice is heard over a background of music

- Montage: where you will hear a number of short items edited together.

Each of these requires the mixing of sound sources. Most programs produced also involve “fading” or mixing or changing from one sound source to another—voice to music or community announcement or to any combination of sources.

The creation of a montage requires pre-production.

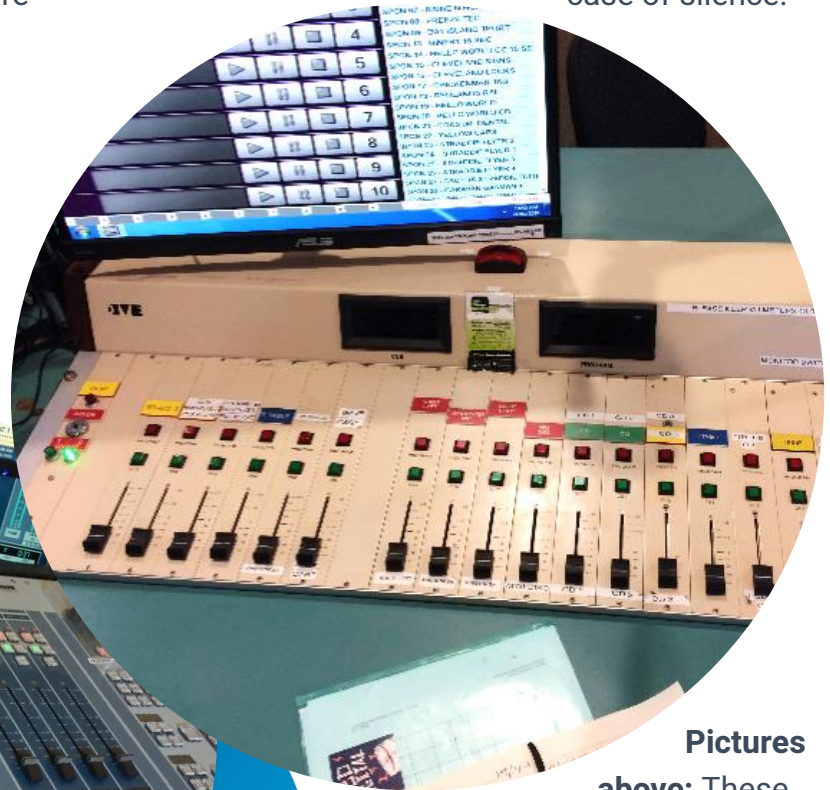
What you don't want to hear

The art of studio operation is to create a seamless and pleasant

experience for the listener from a technical perspective.

So, there are a number of things that you need to ensure don't get broadcast.

- **Silence:** a second or two can be ok but too big a gap and listeners think that the power has gone off! You should always have a stand-by item, such as a piece of music or a promo, ready to broadcast in case of silence.



Pictures above: These panels at 4BAY use Wave Cart software on the input computer, shown in the top picture.



- **Rustling paper:** shuffling paper in the studio can get picked up by the microphones and broadcast. This can be very annoying for the listener.
- **Feedback squeals:** having the headphones up too loud and close to the microphone can create feedback. You will need to either turn down the headphones or reposition the microphone.
- **Clunks and bumps:** accidentally hitting the microphone while it is “live”, dropping things on the desk can usually be heard, similarly with squeaky doors and chairs, or tinkling rings and bracelets.
- **Clicks:** when you start a CD player or cassette you will often get a click as the machine starts that is audible to the listener. You should practice the technique of turning the microphone off prior to starting other equipment.
- **Unwanted speech:** many a radio announcer has got themselves into trouble by saying something when they thought the microphone was off!

Studio etiquette

Accepted behaviour in the studio varies between stations. However, minimising noise and maximising sound quality are everyone’s concerns.

Quiet please!

The studios may be sound proof to normal levels of noise but if there is loud laughter, conversation and traffic, sounds will leak into the studio and affect the quality of the program.

Water

Studio equipment is sensitive and can be extensively damaged by liquids other than water. Some stations may have a no liquids policy. If allowed, only take water into the studio area. Please do not take any other beverages into the studio.

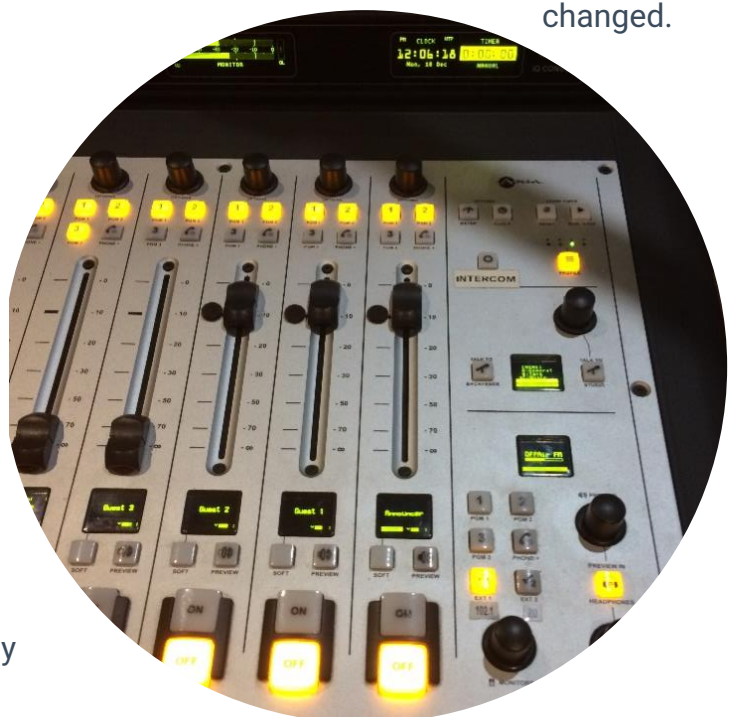
Posture

Bring your chair as close as possible to the desk without touching the desk. This will help you to keep on mic.

Cueing

The volunteer reading before you will raise their arm to indicate that they are beginning to read the last paragraph in the article. Their arm will lower quickly as they end the article and back announce.

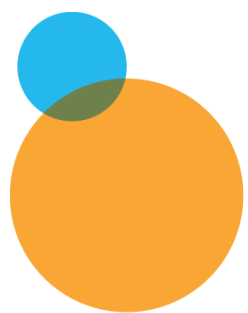
Below: a digital panel at 4ZZZ showing on/off buttons and faders. On this console, the input device of each slider can be changed.



Turning the mic on and off

When it is time to turn on the mic, when something is coming to an end, or the previous reader is almost done, rest your finger just above the “On air” button. As they lower their arm and finish back announcing, turn on the “On” button.

When you begin reading the last paragraph, follow the cueing system so that the next reader can prepare to begin. When you finish reading the article, turn off your mic.



Pre-production

Many things you hear on the radio are not live, but pre-recorded and edited to get that seamless professional sound.

Pre-produced community radio content can include:

- Station IDs
- Sponsorship announcements
- Interviews recorded either in the studio or over the phone
- Documentaries
- Regular programs

Many volunteers at community radio stations also work and may not always be able to attend the station at the time that their show is scheduled to provide a live show. For these people, pre-producing a show in a studio is a good option. Pre-production is also helpful when the limitations of existing technology in the stations on-air studio

means that people with vision impairments or blindness may have difficulties operating the equipment.

Pre-recording your program requires that you script what you will say, and have all other content ready to insert into your edits at the correct place.

One of the great things about pre-production is that you can edit what you have recorded if you make mistakes. You can also add music and sound effects to make your production more entertaining.

Recording

Once you have mastered the operation of the studio panel, you can learn how to use the studio, while it is off-air, to record things. In some stations you might only have one studio, so pre-recording may happen in a booth or another room.

You must record your content at a high quality so that it will sound good to the listener.

Some of the qualities important for a good recording include:

- **Volume (also called gain or loudness):** you can adjust this in your final edits or “mastering” to -1db
- Your final production needs to be mixed down to **WAV format or MP3 encoded to 320kbps**. So, record it at a high quality to start with, in a studio or booth, with a high bit rate setting on your recording device. Ask your station technician to ensure the studio settings are right.

Editing

Editing takes time to learn, but can be very rewarding. If you want or need to edit the parts of your pilot, enlist the help of someone who knows how in the first instance.

There are many kinds of audio editing software, but far fewer that are accessible. Chief amongst these is Studio Recorder, designed by the American Printing House for the Blind specifically with people using screen readers in mind. With Studio Recorder you can record and edit your work. It isn't free, but it may be worthwhile asking your station to purchase if you will be doing a lot of editing.

Find out more about Studio Recorder, electronic recording software⁴ on their website.

Steve Richardson, an experienced producer who is blind, has made an [audio tutorial](#) explaining the basics of Studio Recorder for producers who use screen readers. You can listen to it on the [RPH Australia](#)⁵ website.

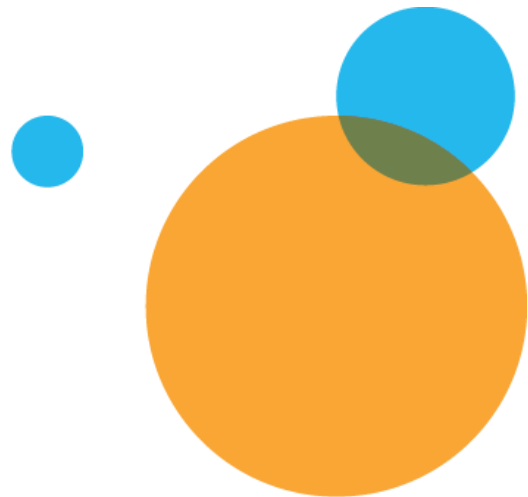
You can also access tutorials for free editing software like Audacity on video sharing websites.

Audacity has an extensive [Wiki](#)⁶ to help people to learn to use the software. There is also a mailing list, "audacity4blind: Audacity recording software and how the Blind can use it" for people with blindness vision impairments. Audacity 2.3.0 is accessible and compatible with NVDA.

You can [download Audacity here](#)⁷.

Another alternative is to script and prepare well, and record the whole thing in one sitting in the production studio at your station with the assistance of your production person.

The [Community Media Training Organisation](#)⁸ (CMTO) can provide day workshops at your station to develop editing skills in the software of your choice.



⁴ https://tech.aph.org/sr_info.htm

⁵ <https://www.rph.org.au/>

⁶ www.wiki.audacityteam.org/wiki/Audacity_for_blind_users

⁷ <https://www.audacityteam.org/download/>

⁸ <http://cmto.org.au>



Stephen Jolley

Is a Radio Reading Champion. He has volunteered and worked in community radio for more than 40 years.

Stephen's connection with radio began behind the mic in the 1970's on the ABC community access station, 3ZZ, as a presenter with "A Blind Affair", one of the earliest programs for vision impaired people in Australia.

In 1994, Stephen joined Vision Australia, then the Association for the Blind. For 15 years, he led their radio service as it grew from a single Melbourne based metro station, 3RPH, to 8 stations across regional Victoria and NSW.

He became RPH Australia's first ambassador in 2018. He has served as member and chair of the RPHA board, and also on the board of the Community Broadcasting Foundation

Stephen's dedication to the Radio Reading movement, and advocacy for people with vision impairments and blindness, is widely recognised.

In 1996, he received the David Blyth Award from Blind Citizens Australia; and the Alex Johnson Award from the Victorian Blind Workers Union in 1989. In 2009 he was honoured with the Community Broadcasting Association of Australia's Michael Law Award, which recognises an individual for their sustained and outstanding contribution to community broadcasting.

After all these years, Stephen still has the 'radio bug'. He volunteers with Vision Australia Radio producing the weekly radio program "Talking Tech" with David Woodbridge.

Stephen Jolley has some advice for budding radio presenters:

"Get involved in a supportive way at first if possible, and then you're more likely to have someone tap you on the shoulder and say 'Can you take over research and preparation for this program now?'

Don't expect yourself to have all those skills and to be accepted from the very start. Being good takes time!"

About this resource

You can find more Radio Reading Resources for [stations](#) and for [volunteers](#) on our website.

We developed these community media training resources to support the Regional Development project, which aims to broaden the national reach of Radio Reading services to reach people with a print disability living in regional and remote areas.

RPH Australia is supporting stations, outside the current Radio Reading Network, to produce new, diverse, quality local programming made by and for people with a print disability in their community. [Contact us](#) to find out more.

About us

RPH Australia is the peak body for the Radio Reading Network; community radio services dedicated to providing access to information for the estimated 5 million Australians with a print disability. We champion the rights of all people to access printed material, empowering equal participation in cultural, political and social life.

Radio Reading programming aims to meet the information needs of people with a print disability (those who are unable to effectively access printed material due to visual, physical or cognitive impairment, age or low literacy).

It provides a voice for people in our community with a print disability and caters directly to their information needs and interests.

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Turning print into sound

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