translationAcademy

Audio Manual

Version 5

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Date: 2016-07-02
Version: 5

Table of Contents

Introduction to translationAcademy

Welcome to translationAcademy

This page answers the question:

What is translationAcademy?

The "translationAcademy" is intended to enable anyone, anywhere to equip themselves so that they will be able to make high-quality translations of biblical content into their own language. translationAcademy is designed to be highly flexible. It can be used in a systematic, in-advance approach or it can be used for just-in-time learning (or both, as needed). It is modular in structure.

translationAcademy contains the following sections:

- Introduction - introduces the unfoldingWord project
- Process Manual - answers the question "what next?"
- Translation Manual - explains the basics of translation theory and practical translation helps
- Checking Manual - explains the basics of checking theory and best practices
- Audio Manual - How to do high quality audio recordings
- Gateway Languages Manual - explains issues specific to the Gateway Languages

Several of the manuals are separated into two volumes. Volume 1 of each manual covers the basics of that subject while volume 2 goes more in depth. In general, if a module is needed to translate and publish Open Bible Stories, then it is included in volume 1, if not, then it is included in volume 2.

Next we recommend you learn about:

The unfoldingWord Project

Why We Translate the Bible

The purpose of translationAcademy is to train you to become a Bible translator. Translating God's Word into your language to help your people grow as disciples of Jesus is an important task. You must be committed to this task, take your responsibility seriously, and pray that the Lord will help you.

This page answers the question:

Why should we translate the Bible?

In order to understand this topic, it would be good to read:

The unfoldingWord Project

Introduction to the Translation Manual in *Translation Manual Volume 1*

What is Translation in *Translation Manual Volume 1*

God has spoken to us in the Bible. He inspired the writers of the Bible to write his Word using the Hebrew, Aramaic and Greek languages. There were about 40 different authors writing from around 1400 B.C. to A.D. 100. These documents were written in the Middle East, North Africa and Europe. By recording his Word in those languages, God ensured that the people at those times and in those places could understand it.

Today, your people in your country do not understand Hebrew, Aramaic and Greek. But translating God's Word into their language will enable them understand it!

Someone's "mother tongue" or "heart language" means the language they first spoke as a child and the one which they use at home. This is the language in which they are most comfortable and which they use to express their deepest thoughts. We want everyone to be able to read God's Word their heart language.

Every language is important and valuable. Small languages are just as important as the national languages spoken in your country and they can express meaning just as well. No one should be ashamed to speak their dialect. Sometimes, those in minority groups feel ashamed of their language and try not to use it around the people who are in the majority in their nation. But there is nothing inherently more important, more prestigious, or more educated about the national language than there is about local languages. Each language has nuances and shades of meaning that are unique. We should use the language we are most comfortable with and with which we best communicate with others.

Next we recommend you learn about:

The Qualities of a Good Translation in *Translation Manual Volume 1*; *The Translation Process* in *Translation Manual Volume 1*

The unfoldingWord Project

The unfoldingWord project exists because we want to see **unrestricted biblical content in every language**.

This page answers the question:

What is the unfoldingWord Project?

In order to understand this topic, it would be good to read:

Introduction to translationAcademy

Jesus commanded his disciples to make disciples of EVERY people group:

> "Jesus came to them and spoke to them and said, 'All authority has been given to me in heaven and on earth. Go therefore and make disciples of all the nations. Baptize them into the name of the Father, of the Son, and of the Holy Spirit. Teach them to obey all the things that I have commanded you. And see, I am with you always, even to the end of the world.'" (Matthew 28:18-20 ULB)

We have the promise that people from EVERY language will be in heaven:

> "After these things I saw, and behold, there was a great crowd, which no one was able to number, out of every nation, tribe, people, and language, standing before the throne and before the Lamb." (Revelation 7:9 ULB)

Understanding the Word Of God in one's heart language is important:

> "So faith comes from hearing, and hearing by the word of Christ." (Romans 10:17 ULB)

How Do We Do This?

How do we accomplish the goal of **unrestricted biblical content in every language**?

- unfoldingWord Network - By partnering with other like-minded organizations
- Statement of Faith - By working with those who have the same beliefs
- Translation Guidelines - By using a common translation theory
- Open License - By releasing everything we create under an open license
- Gateway Languages Strategy - By making Biblical content available to translate from a known language

What Do We Do?

- **Content** - We create and make available for translation free and unrestricted biblical content. See http://ufw.io/content/ for a complete list of resources and translations. Here are a few samples:
    - **Open Bible Stories** - a chronological mini-Bible comprising 50 key stories of the Bible, from Creation to Revelation, for evangelism and discipleship,

in print, audio, and video (see http://ufw.io/stories/).
    - **the Bible** - the only inspired, inerrant, sufficient, authoritative Word of God made available under an open license for unrestricted translation, use, and distribution (see http://ufw.io/bible/).
    - **translationNotes** - linguistic, cultural, and exegetical helps for translators. They exist for Open Bible Stories and the Bible (see http://ufw.io/tn/).
    - **translationQuestions** - questions for each chunk of text that translators and checkers can ask to help ensure that their translation is understood correctly. Available for Open Bible Stories and the Bible (see http://ufw.io/tq/).
    - **translationWords** - a list of important Biblical terms with a short explanation, cross references, and translation aids. Useful for Open Bible Stories and the Bible (see http://ufw.io/tw/).
- **Tools** - We create translation, checking, and distribution tools that are free and open-licensed. See http://ufw.io/tools/ for a complete list of tools. Here are a few samples:
    - **Door43** - an online translation platform where people can collaborate on translation and checking, also the content management system for unfoldingWord (see https://door43.org/).
    - **translationStudio** - a mobile app and a desktop app where translators can do offline translating (see http://ufw.io/ts/).
    - **translationKeyboard** - a web and mobile app to help users create and use custom keyboards for languages without them (see http://ufw.io/tk/).
    - **unfoldingWord app** - a mobile app where translations can be distributed (see http://ufw.io/uw/).
- **Training** - We create resources to train mother tongue translation teams. translationAcademy (this resource) is our primary training tool. We also have audio recording and training resources. See http://ufw.io/training/ for a complete list of training materials.

Next we recommend you learn about:

Statement of Faith; *Gateway Languages Strategy*

Statement of Faith

The official version of this document is found at http://ufw.io/faith/.

The following statement of faith is subscribed to by all member organizations of and contributors to the unfoldingWord project (see https://unfoldingword.org). It is in agreement with the Lausanne Covenant (see http://www.lausanne.org/en/documents/lausanne-covenant.html).

This page answers the question:

What do we believe?

In order to understand this topic, it would be good to read:

The unfoldingWord Project

We believe that Christian belief can and should be divided into **essential beliefs** and **peripheral beliefs**.

Essential beliefs

Essential beliefs are what define a follower of Jesus Christ and can never be compromised or ignored.

- We believe the Bible to be the only inspired, inerrant, sufficient, authoritative Word of God.
- We believe that there is one God, eternally existent in three persons: God the Father, Jesus Christ the Son and the Holy Spirit.
- We believe in the deity of Jesus Christ.
- We believe in the humanity of Jesus Christ, in His virgin birth, in His sinless life, in His miracles, in His vicarious and atoning death through His shed blood, in His bodily resurrection, in His ascension to the right hand of the Father.
- We believe that every person is inherently sinful and so is deserving of eternal hell.
- We believe that salvation from sin is a gift of God, provided through the sacrificial death and resurrection of Jesus Christ, attained by grace through faith, not by works.
- We believe that true faith is always accompanied by repentance and regeneration by the Holy Spirit.
- We believe in the present ministry of the Holy Spirit by whose indwelling the follower of Jesus Christ is enabled to live a godly life.
- We believe in the spiritual unity of all believers in the Lord Jesus Christ, from all nations and languages and people groups.
- We believe in the personal and physical return of Jesus Christ.
- We believe in the resurrection of both the saved and the lost; the unsaved will be resurrected to eternal damnation in hell and the saved will be resurrected to eternal blessing in heaven with God.

Peripheral beliefs

Peripheral beliefs are everything else that is in Scripture but about which sincere followers of Christ may disagree (e.g. Baptism, Lord's Supper, the Rapture, etc.). We choose to agree to disagree agreeably on these topics and press on together toward a common goal of making disciples of every people group (Matthew 28:18-20).

Next we recommend you learn about:

Translation Guidelines; *Open License*; *Copyrights, Licensing, and Source Texts* in *Translation Manual Volume 1*

Translation Guidelines

The official version of this document is found at http://ufw.io/guidelines/.

The following statement on the principles and procedures used in translation is subscribed to by all member organizations of and contributors to the unfoldingWord project (see https://unfoldingword.org). All translation activities are carried out according to these common guidelines.

This page answers the question:

By what principles do we translate?

In order to understand this topic, it would be good to read:

The unfoldingWord Project Statement of Faith

1. **Accurate** — Translate accurately, without detracting from, changing, or adding to the meaning of the original text. Translated content should faithfully communicate as precisely as possible the meaning of the original text as it would have been understood by the original audience. (see Create Accurate Translations)
2. **Clear** — Use whatever language structures are necessary to achieve the highest level of comprehension. This includes rearranging the form of a text and using as many or as few terms as necessary to communicate the original meaning as clearly as possible. (see Create Clear Translations)
3. **Natural** — Use language forms that are effective and that reflect the way your language is used in corresponding contexts. (see Create Natural Translations)
4. **Faithful** — Avoid any political, denominational, ideological, social, cultural, or theological bias in your translation. Use key terms that are faithful to the vocabulary of the original biblical languages. Use equivalent common language terms for the biblical words that describe the relationship between God the Father and God the Son. These may be clarified, as needed, in footnotes or other supplemental resources. (see Create Faithful Translations)
5. **Authoritative** — Use the original language biblical texts as the highest authority for translation of biblical content. Reliable biblical content in other languages may be used for clarification and as intermediary source texts. (see Create Authoritative Translations)
6. **Historical** — Communicate historical events and facts accurately, providing additional information as needed in order to accurately communicate the intended message to people who do not share the same context and culture as the original recipients of the original content. (see Create Historical Translations)
7. **Equal** — Communicate the same intent as the source text, including expressions of feeling and attitudes. As much as possible, maintain the different kinds of literature in the original text, including narrative, poetry, exhortation, and prophecy, representing them with corresponding forms that communicate in a similar way in your language. (see Create Equal Translations)

Identifying and Managing Translation Quality

The quality of a translation generally refers to the fidelity of the translation to the meaning of the original, and the degree to which the translation is understandable and effective for the speakers of the receptor language. The strategy we suggest involves checking the forms and communicative quality of the translation with the language community, and checking the fidelity of the translation with the Church in that people group.

The specific steps involved may vary significantly, depending on the language and context of the translation project. Generally, we consider a good translation to be one that has been reviewed by the speakers of the language community and also by the leadership of the church in the language group so that it is:

1. **Accurate, Clear, Natural, and Equal** — Faithful to the intended meaning of the original, as determined by the Church in that people group and in alignment with the Church global and historical, and consequently:
2. **Affirmed by the Church** - Endorsed and used by the Church. (see Create Church-Approved Translations)

We also recommend that the translation work be:

1. **Collaborative** — Where possible, work together with other believers who speak your language to translate, check, and distribute the translated content, ensuring that it is of the highest quality and available to as many people as possible. (see Create Collaborative Translations)
2. **Ongoing** — Translation work is never completely finished. Encourage those who are skilled with the language to suggest better ways to say things when they notice that improvements can be made. Any errors in the translation should also be corrected as soon as they are discovered. Also encourage the periodic review of translations to ascertain when revision or a new translation is needed. We recommend that each language community form a translation committee to oversee this ongoing work. Using the unfoldingWord online tools, these changes to the translation can be made quickly and easily. (see Create Ongoing Translations)

Next we recommend you learn about:

Open License; *Introduction to the Translation Manual* in *Translation Manual Volume 1*; *Introduction to Translation Checking* in *Checking Manual Volume 1*

Open License

A License for Freedom

This page answers the question:

What freedoms do users have with unfoldingWord content?

In order to understand this topic, it would be good to read:

The unfoldingWord Project

Statement of Faith

Translation Guidelines

To achieve **unrestricted biblical content in every language**, a license is needed that gives the global church "unrestricted" access. We believe this movement will become unstoppable when the Church has unrestricted access. The

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- **Free Translate License**

See Copyrights, Licensing, and Source Texts for more information.

Next we recommend you learn about:

Gateway Languages Strategy; *Copyrights, Licensing, and Source Texts* in *Translation Manual Volume 1*

Gateway Languages Strategy

The official version of this document is found at http://ufw.io/gl/.

This page answers the question:

How can every language be reached?

In order to understand this topic, it would be good to read:

The unfoldingWord Project

Open License

Explanation

The objective of the gateway languages strategy is to equip 100% of the people groups that comprise the global Church with biblical content that is released from copyright restrictions and made available in a language they understand well (a language of wider communication) together with unrestricted translation training and tools that enable them to translate it into a language they understand fully (their own language). A "gateway language" is a language of wider communication through which second-language speakers of that language can gain access to content and translate it into their own language.

The "gateway languages" at the world level comprise the smallest number of languages through which content can be delivered to every other language, via translation by bilingual speakers. For example, French is a gateway language for minority languages in Francophone Africa in that content available in French can be translated by bilingual speakers from French into their own languages.

At the country level, the gateway languages of a given country are the fewest languages of wider communication required for bilingual speakers in every minority language native to the country (not located there due to immigration) to gain access to content. For example, English is the gateway language for North Korea, given that all people groups native to North Korea can be reached by translation of content into their language from English.

Effects

This model has two basic effects: First, it empowers all languages to "pull" content to their language once the content and helps have been "pushed" into a language accessible to every language of the world (a gateway language). Second, it limits the amount of translation that needs to be done as the translation helps only have to be translated into the gateway language. All other languages can translate only the biblical content, since no language will be dependent upon them for understanding the translation helps.

Thus, whether or not a language is a gateway language will determine what needs to be translated into that language.

For Other Languages, we recommend they translate at least Open Bible Stories. They

are welcome to translate whatever other resources they like.

To see what must be translated for Gateway Languages, go to Translating in the Gateways. If you are translating into a gateway language, you will find the Gateway Languages Manual particularly helpful because it deals with certain issues that specifically appear for gateway languages.

Next we recommend you learn about:

Translating in the Gateways in *Gateway Languages Manual*; *Finding Answers*

Finding Answers

How to Get Answers

This page answers the question:

Where can I find answers to my questions?

In order to understand this topic, it would be good to read:

Introduction to translationAcademy

There are several resources available for finding answers to questions:

- **translationAcademy** - This training manual is available at http://ufw.io/ta and has much information including:
  - Introduction - introduces the unfoldingWord project
  - Process Manual - answers the question "what next?"
  - Translation Manual - explains the basics of translation theory and practical translation helps
  - Checking Manual - explains the basics of checking theory and best practices
  - Audio Manual - How to do high quality audio recordings
  - Gateway Languages Manual - explains issues specific to the Gateway Languages
- **Slack Chatroom** - Join the Team43 community, post your questions to the "#helpdesk" channel, and get real-time answers to your questions (sign up at http://ufw.io/team43)
- **Helpdesk** - email help@door43.org with your questions

Next we recommend you learn about:

Introduction to the Process Manual in *Process Manual Volume 1*

Audio Manual

Introduction to the Audio Manual

This page answers the question:

What is the audio manual for?

The unfoldingWord Audio Manual is created to be your helpful companion, equipping you with information, skills-training and recommendations that may aid you in carrying a project from start to finish. We have divided the manual into modules covering various aspects of audio projects. The principles, standards, skills, recommendations and guides are carefully selected and continually evaluated as we endeavor to identify the best practices and optimized equipment for recording and effective distribution of Biblical content in real-world conditions. This manual will be revised and updated occasionally.You can always find the latest version at http://ufw.io/ta/.

Vision & Purpose

This page answers the question:

What is the vision of unfoldingWord for this audio manual?

The vision of unfoldingWord Audio Engineering is to serve and equip the global Church to create and distribute excellent, unrestricted audio recordings of Biblical content, especially in sub-optimal conditions. The recommendations, skills-training and tips in this manual are developed for, by and with the global Church. By openly sharing access to empowering solutions, a world-wide team of media creators can lead their own projects with skill, excellence, wisdom and longevity for their own people groups.

Today, the need for Biblical content to be accessed audibly is as significant as any time in history. As much as 80% of all people live in oral culture communities. Among people living in literate-based societies, many of them learn best, if not exclusively, by listening (aural learning). Billions of people need a solution engineered that can go the distance where traditional and modern strategies often have limited effectiveness and restrict access.

This manual, like all unfoldingWord content, is licensed CC BY-SA to make it irrevocably accessible to the global Church. By combining meaningful relationships with unrestricted resources, skills-training, advancements in recording technology, and versatile devices for offline listening and sharing, it is our belief that the global Church can work together to meet the vast need for access to Biblical content for the first time.

About Audio Recording

This page answers the question:

In what context does unfoldingWord engage audio recording?

With nearly 140 years of history, audio recording is far from being a new invention. Over the years, certain truths have been discovered that have come to be considered "principles" of sound, many of these relating to the physics of sound. As principles were learned, inventors designed equipment to capture and reproduce sound with increasing faithfulness to the live-sound source.

The type of audio recording we are thinking about in this manual does not happen in laboratory conditions of science halls or in a technical design room. Instead, it happens in a dynamic, diverse, real-world environment with each scenario a unique condition, each recording a unique, creative, human expression.

Real audio recording cannot be reduced to a technical or mechanical process. In truth, real audio recording is the craft of a creative artist applying wisdom, skills, proven principles and careful technique to the unique ingredients of the environment, the available tools and the characteristics of the people participating.

unfoldingWord understands this distinction and seeks to encourage and empower the global Church's new and existing audio recordists to become ever wiser and better skilled at their craft. Likewise, we are equally and always students of audio. So we eagerly look forward to what the global Church will continue to teach us and allow us to pass along in the free and open context.

Best Practices

This page answers the question:

What are best practices for audio?

In this manual we strive to identify the best approaches, standards, methods and techniques that show the most effectiveness, reliability, affordability and sustainability in the diverse challenges of the real-world context. However, these aspects are not the ultimate goal or purpose of audio recording. The ultimate goal is to worship God and make His message known to everyone.

Therefore, best practices are not such unless they are aligned for the worship of God, are bringing His family together in love and unity, and are confirmed to be yielding audio resources with the best possible value and meaningful blessing to the people in need of them.

Approach To Audio

Our approach to audio recording and distribution is anchored by three key concepts: excellence, simplicity and skills-training.

This page answers the question:

What is the unfoldingWord approach to audio?

Excellence

This page answers the question:

What is the excellence approach to audio?

The excellence approach to audio has many aspects. It refers to what the recording quality enables for effective distribution. Does the quality allow for flexibility and versatility needed for various applications? Excellence also refers to how a project is done in regard to relationships. Does the project work and interactions bring about positive things among God's family? A third aspect of excellence is considering if the best possible value in audio content is being reached for the language group for the present time and for generations to come.

Some reasons for excellence:

- The message of the Bible is the most valuable message in the world.
- Every language group is equally valuable to God.
- It maximizes listening longevity and format versatility across listening devices for years to come (mediocre recordings are limiting and can hit a quality threshold in usability before listener's needs are met).
- It makes a project faster and better.
- Fewer errors happen that would require additional time to fix.
- Everyone's time is spent more productively.
- The team's stress level is lower, which leads to a better overall experience and more meaningful relationships within the team.
- It is easier to do things right the first time (there really are no shortcuts).

It is important to do the best quality work we can on each project, as ultimately we are serving the Lord (Romans 12:11, Colossians 3:23-24, Ecclesiastes 9:10). Part of striving to do our best includes being responsible to strengthen our skills and keep them sharp. Together, we can do this (Proverbs 27:17).

Simplicity

This page answers the question:

What is the simplicity approach to audio?

We recommend keeping things simple. It is easy for beginners and experienced recordists alike to become intrigued with all of the gadgets and digital processing available in audio recording today. However, keeping things simple is not only the easiest approach, but also the wisest approach in nearly every recording scenario. In fact, things rarely go wrong when the equipment and process is kept simple. By contrast, every additional piece of equipment, cable adapter, processing step or logistical challenge that is not a necessary element increases the likelihood for errors, complications, project down time, stress and discouragement.

In regard to equipment, a basic setup will be the most reliable, each piece designed and tuned to do its task well. Every piece is compatible with the other pieces and with the context of the project. No unnecessary pieces of equipment, cables or software processes are taking up space or creating increased potential for problems.

In regard to the team, a small team that is committed to the project, understands their roles and works as a team will likely have excellence in their efforts. Having too many staff or participants involved can often introduce new complications to the project and decrease efficiency.

Next we recommend you learn about:

The Equipment Setup; *The Team*

Skills Training

This page answers the question:

What is the skills training approach to audio?

Skills are perhaps the most valuable, yet underrated asset in any audio project. Gaining, sharpening and maintaining skills takes effort and time investment. However, for a recordist working toward excellence, there is great joy and appreciation for learning, strengthening and improving skills. In fact, a wise recordist not only enjoys learning, but values it as an important, continual process.

Some people assume that upgrading to more expensive, advanced-level equipment will be a fast and easy substitute for skills. In reality, advanced-level equipment is typically more challenging to use properly, especially for people that never gained basic skills in the first place. Also, expensive equipment typically means increased complexity in the recording setup, which works against the principles discussed in the Simplicity module.

Another misconception is that "IT" or "Technology" skill sets are an automatic substitute for media creation skill sets. This assumption may come from the casual observation that technology is used. However, technology is actually used in most, if not all professions across the world and we would not assume an IT person automatically possesses the skills of a doctor, pilot or teacher. It is true that many technically-skilled people are also skilled at creative arts and working in a team context with creative artists, but it is important to understand that IT and Media Creation skill sets are not the same thing. Audio recording is a creative process, not a mechanical or technical process.

The approach that has the best strength for the dynamic, interpersonal, creative process of audio recording is anchored in skills, not equipment. Skills live on when the equipment fails. Skills know what to do when troubleshooting is needed. Skills recognize when the equipment is working fine but the recording is not coming together properly. Skills know how to adapt to the best alternative solution. Skills are sensitive to the dynamics of the creative process, hour by hour. Skills find and build upon the unique strengths of each team member. No piece of equipment can do these things and a technical understanding of the mechanics is not sufficient.

Because skills training is so important, much of the content of this handbook is dedicated to skills training on essential audio principles. Our reliance must be on skills, not equipment.

Next we recommend you learn about:

Simplicity

Audio Quality Standards

This page answers the question:

What are the unfoldingWord standards for audio quality?

Our goal, through collaborative effort of the global Church, is to provide accurate, high-quality, audio recording of Biblical content with broad listening appeal and longevity. Rather than being production-focused, we are striving for a simple excellence that faithfully communicates the message of His Word and His love for all people, languages and cultures. We have identified the following as standards that support this goal.

License

All recorded content must be licensed Creative Commons Attribution Share-Alike 4.0 (CC BY-SA 4.0) International license. More information about the license terms and strategic advantages for the global Church can be found in the Open License module.

This page answers the question:

What is the license standard for unfoldingWord audio?

Format

The following are unfoldingWord format standards for recording, uploading/archiving and distribution.

This page answers the question:

What is the format standard for unfoldingWord audio?

Recording

- WAV, 44.1kHz, 16-bit, mono

door43 upload and/or archiving

- WAV, 44.1kHz, 16-bit, mono (high quality, universal standard)
- FLAC, 44.1kHz, 16-bit, mono (high quality, do not use without solution for frame/verse markers)
- MP3, 44.1kHz, 128kbps, mono (low quality, do not use without solution for frame/verse markers)

Distribution

- MP3, 44.1kHz, 128kbps, mono (high quality download)
- MP3, 44.1kHz, 64kbps, mono (mid quality download)
- MP3, 22kHz, 32kbps, mono (low quality download)

Style

This page answers the question:

What are the style standards for unfoldingWord audio?

The style standards identified below are selected because they enable the best flexibility for a wide variety of listening settings including personal, family, church, radio broadcast, etc. These standards also provide the best longevity for value across generations, future versatility and consistency with the most common style preferences requested by the global Church for audio Scripture content.

- Use narration-style approach with natural emotion, rhythm and nuance.
- Narrator(s) must be a native speaker of language and culturally acceptable for conveying Biblical content.
- Avoid unnecessary or excessive changing of narrators within a recording. Too many changes can be distracting to the listener. A change of narrator should not occur within a single chapter or story.
- No sound effects, background music, dramatization, multi-voice acting, theatrical-style voicing or emphasis that suggests a presumed interpretation of the Scripture passage onto listeners.

Note: In regard to style, there is a great degree of diversity in the way media content can be created with excellence. Our style standards are not to suggest that no other culturally appropriate styles exist for various types of media content. Instead, they serve to reflect characteristics identified as highly valuable to the global Church specifically in the area of Biblical content.

File Naming Standard

Also known as a File Naming Convention, a file naming standard identifies a specific, reliable pattern to be followed for naming audio files. This helps maintain excellent organization of audio files during the recording process and subsequent distribution, as well as clarity in identification for years to come.

This page answers the question:

What is the file naming standard for unfoldingWord audio?

General Guidelines

- use the official IETF language code. More information is available here http://ufw.io/ietf/.
- use an underscore (_) to separate information fields
- use a hyphen (-) to identify:
  - a subgroup or regional dialect of a language
  - frames within Open Bible Stories

Open Bible Stories (for full story)

Template: language code*content name*story number

Examples:

en_obs_01
en_obs_02
pt-br_obs_28
es-419_obs_50

Open Bible Stories (for story frame)

Template: language code*content name*story number-frame number

Examples:

en_obs_01-01
en_obs_01-02
pt-br_obs_28-04
es-419_obs_50-17

Scripture

Template: language code*Bible type*book number*book name*chapter number

Examples:

en_ulb_01_gen_01

es-419_ulb_19_sal_119
fr_udb_55_2ti_01
pt-br_ulb_44_ato_03
en_???_66_rev_22 (???= label accordingly if a different open-licensed text)

Other

When recording draft versions or other scenarios where additional identification is needed, please use the format shown below and simply add an underscore (_) followed by text that clearly communicates what the file is. For example, a draft version of the first story in English Open Bible Stories would be:

en_obs_01_draft

Note to Recordists:

Proper identification of each audio file is very important. Please verify:

- file naming according to the guidelines above
- that each file name matches the recorded content
- total file count (check for any missing or duplicated files)
- markers/cues are placed in the audio file for OBS frames or Scripture verses

Next we recommend you learn about:

Audio Markers

Characteristics

The following are important characteristics of audio files.

This page answers the question:

What are the characteristics of unfoldingWord audio?

Technical Characteristics

- Normalize to -3dB
- Noise floor below -45 dB.
- 1 second of silence at the beginning of file.
- 1 second of silence at the end of file.
- Use no compression or soft compression only. No heavily applied compression, limiting, noise gate or noise reduction.

Listening Characteristics

- Speed of narration should be moderate, comfortable and easy to follow.
- Voice must be clear and sound natural.
- No echo, reverb or delay (use adequate acoustical treatment during recording).
- No distracting background noises (clicking of computer mouse, conversations in next room, etc).
- Any editing effects processing applied in the breaks between phrases must be non-detectable and maintain the natural sound characteristics and flow of the whole audio file. unfoldingWord Audio Engineering encourages proper recording technique rather than heavy reliance on post-production effects, which are too often used in excess and without knowledge and wisdom about the impacts, potentially causing irreversible degradation to the audio quality.

Review & Checking Characteristics

A minimum of 1 native speaker of the language must be present during the recording, editing and final listening of the recording. This person is to provide:

- support and encouragement to the narrator
- accuracy checking in the areas of text reading, word pronunciation and reading style

Editing Characteristics

- Complete all editing of files in collaboration with the checker.
- Set the appropriate pausing or silencing between OBS slides or Bible chapters for natural reading flow.
    - The length of pause will vary depending on the language and speed of narration.
- Cue Markers are placed in audio at all frame changes in OBS and at important

section transitions in other types of content (such as verses of Scripture).

Next we recommend you learn about:

Setting the Mic Gain Level; *Noise Floor*; *Finalizing*; *How to Normalize an Audio Track*; *The Checker*; *Audio Markers*

Project Setup

This page answers the question:

What is involved in project setup?

Project setup refers to a wide range of planning, communication, logistics, identifying team members, equipment and many other factors that must be accomplished before starting the first recording session. Excellence in project setup is one of the best ways to have an easier, faster, lower-cost, lower-stress recording project. Let's look at the various areas of project preparation and setup.

The Content

Regarding the content that will be recorded, there are several areas of preparation needed.

This page answers the question:

What is involved in preparing the content?

Licensing

If you are recording open-license, CC BY-SA content, no further preparation is needed in the area of license. You are free to record.

If you are planning to record copyrighted content that is not licensed CC BY-SA, you will need to obtain permission from the copyright holder. unfoldingWord does not provide support or publishing for content with restrictive licensing, so this paragraph serves only to raise awareness that content with conventional copyright licensing cannot be legally recorded without permission from the owner. This is an issue that is sometimes misunderstood by recordists and may cause significant criminal penalties in many parts of the world for the recording team, publisher or anyone receiving distributed copies. The recording team and/or organization also damages their trustworthiness as a result of not honoring the license terms placed on intellectual property owned by others.

Updated text

Make sure you have the latest version of the text you plan to record.

Copies for the team

Be sure the members on your recording team all have an identical copy of the most up to date text, whether a print version or a digital version on a laptop or uW app.

The Team

This page answers the question:

What is involved in making a recording team?

Before a recording project can begin, a recording team needs to be formed. There are four essential roles of responsibility in a recording project: the recordist, the narrator, the checker and the project coordinator. While the roles of recordist, narrator and checker are dedicated roles, the responsibilities of project coordinator may be handled by one of the team members or shared by team members.

Let's look at each of the roles.

The Recordist

This page answers the question:

What does the Recordist do?

The recordist has a diverse range of responsibilities. The recordist must develop their necessary creative process, perceptive and interpersonal skills for:

- creating media in a team setting
- leading the recording process with wisdom
- ensuring excellence in recording and editing steps according to standards

In addition, the recordist often is the greatest servant and encourager to the rest of the team, sensing their needs and helping them succeed in their roles.

The recordist must also make, or suggest many decisions in real-time that will impact the quality of the recording and the efficiency of the project. The view of unfoldingWord is that these two things, quality and efficiency, are not conflicting opposites, as they are often believed to be. Instead, making proactive decisions toward quality will naturally result in efficiency.

In many ways, the recordist has a significant influence on the morale and attitude of the team, as well as the overall experience of the recording project. A happy, pleasant, patient, humble recordist is a great blessing to the rest of the team members, as each of them also have challenging responsibilities. Remember most narrators and checkers will have less experience with the recording process and may not be confident in the beginning. Your encouragement and gentle guiding will mean a lot.

One thing a recordist can do to really strengthen the team is to make sure that he/she does not work in a way that places technology as a barrier between themselves and the rest of the team. For example, too often in recording settings, viewing sound waves on the screen is thought to be only for the recordist. Instead, we suggest that in many contexts a team that can see, understand and communicate together based on what is happening with the sound waves on the computer screen will be a team that works more effectively together.

The recordist must evaluate the recording environment before and during the recording process, providing solutions for any acoustical challenges that are present.

The recordist makes sure the equipment is of the right design, sets up the equipment properly and ensures that all team members, including themselves, are using good technique.

The recordist should also have the courage and courtesy to address recording problems right away in a kind manner. It is of no benefit to allow bad recording to happen that will need to be re-done later. It is much better to stop recording for a

moment, fix the problem, and then record with quality.

Not always, but many times the recordist will be the one that must pay close attention to the well-being of the team and learn to recognize their limits. For example, the recordist may need to suggest it is time for a short tea break when it is clear that the narrator is feeling fatigued or when everyone has just struggled through a challenging section of recording. A few minutes spent recharging physically and relationally will keep the overall productivity stronger.

Prayer is something that should be part of the project and life of the team everyday. Pressing the red record button as quickly as possible each morning is not more urgent that spending a few moments together with the Lord as a team.

Lastly, the recordist, especially those early in their learning, should take a moment to send a recorded sample via email or Dropbox to unfoldingWord or to a mentor for constructive feedback. This is an excellent way to learn in real-life scenarios, improve the excellence of the recording and potentially save the entire team from wasting a lot of time recording badly. Obviously, getting feedback at the beginning of the project is much more beneficial that waiting until later in the project.

The Narrator

This page answers the question:

What does the Narrator do?

The narrator is the voice of the recording. The responsibility of the narrator is to clearly communicate the words of the text (or oral translation). The narrator must not only say the correct words, but the words must also be said in the correct way. In many languages, words or phrases said in the wrong way (mispronounced, incorrect tone, incorrect emphasis on a syllable) can change the meaning of the message communicated to the listener.

Anyone involved in a recording project should spend a few moments in the position of narrator to gain appreciation and understanding for how challenging this role is. Few people are able to narrate even short passages on the first try without making errors. A good narrator will build upon any natural skill they have and train further at their ability to read accurately with making few mistakes (fixing mistakes is where a lot of time can be consumed on a project).

A narrator should have a clear voice that is comfortable to listen to for extended periods of time. He or she must be a native speaker of the language they are recording and must not have lost their pure accent due to living away from communities where the language is spoken daily.

Consistency in the sound of the narrator's voice is important not only for the listeners but also for the recording and editing processes. A narrator must read using their natural voice, not attempting to sound like someone else.

Can the narrator be old, young, man or woman? The answer is yes, but cultural values should be respected and taken into consideration when selecting the right narrator(s) for a project. Pastors or other ministry leaders in the people group will usually have the best understanding of the cultural values and help identify the right kind of person to communicate Biblical content in their culture.

Avoid having a popular person serve as narrator based only on their popularity or prestige. Being a popular figure in the community does not mean they have the right skills to be a narrator. A good way to identify the best narrator is to record samples of several different candidates. Assign a number to each sample file. Have local leaders listen to each file and identify the file number of the narrator that is best to listen to. This helps identify the best narrator based on skill and quality of voice, not popularity or prestige.

A narrator must also consider the varying education levels and listening needs of a diverse audience. Therefore, it is best to narrate at a slow-to-mid level speed. Avoid reading too fast.

As mentioned above, the narrator must be a native speaker of the language. To

define that more, they must be familiar with the correct pronunciation and meaning of the words in the text. He or she must be able to give the correct intonations and sound consistent, confident and natural, not speaking in a manner that conveys doubt, uncertainty or guessing.

The narrator must also obey punctuation marks correctly in the text. Failure to do so may cause listeners to hear a different message than the written text was carefully punctuated to communicate.

Another valuable skill of a narrator is the learned ability to minimize the negative impacts of their breathing during narration. Of course, the narrator must breathe and be relaxed and comfortable during the recording process. But narrators can sharpen their skills at breathing in a quieter and more controlled manner. This decreases the amount of editing work for the recordist and will be more comfortable for listeners. Our opinion is that the soft sound of the narrator breathing between phrases does sound natural and it is not distracting. By contrast, loud breathing and drastic silencing effects during the editing phase both can create a significant degree of distraction to the listener. Therefore, a good narrator can make a very positive impact on a recording by breathing skillfully.

One way to help the narrator perform well is to record the text in small portions, rather than lengthy sections. This can help not only with accurate narration, but also with good breathing technique.

The Checker

This page answers the question:

What does the Checker do?

The checker is the teammate responsible to ensure that the narrator is communicating the words accurately. In this context, accuracy refers to several things. The narrator must speak the exact words that are approved as "the text" (written or oral translations). Those words must be pronounced correctly. And just as important, they must be spoken with the intonation and rhythm that accurately conveys the correct meaning.

In order to fulfill this responsibility well, the checker must be a native speaker of the language and well engaged in the life of the language community, so as to have good judgment regarding accent, pronunciation, etc. In contrast, a person that speaks the language but has lived away from the language community, or has not been speaking the language regularly in the community context, would no longer have the best sense of accent and pronunciation.

In the case of recording a written text, the checker must have achieved proficiency as a reader of the language. They must be able to follow the text in real-time while listening to the recording.

A checker that is full of patience and encouragement will be a great blessing to the team. As mentioned before, narrating with precision is a difficult task. Any encouragement and support the checker can give will be much appreciated by the narrator.

There will likely be many situations during a recording where the checker and narrator will need to assess a word or phrase for accuracy. The checker would do well to have a resource or two readily available to aid in confirming correct pronunciation of proper nouns or other unfamiliar words that may appear in the text.

The Coordinator

This page answers the question:

What does the Coordinator do?

The coordinator handles many of the responsibilities of bringing a recording project together. This role could be fulfilled by a person with no other responsibilities or, in many cases, might be handled by the recordist.

Aspects of a project that need coordinating include identifying and arranging for the recording location, logistics for the team members involved in the project (lodging, transportation, meals), ensuring necessary funding is obtained and is being dispersed appropriately, ensuring needed equipment is available, recording session planning and project scheduling. He or she may also be involved in making sure the source text is up to date and made available to the team in the right format(s).

The coordinator would also be part of formulating an overall project plan, including time line, costs and handling special travel needs for team members (visas, etc.). Assuming that the content being recorded is CC BY-SA, licensing concerns are not an issue requiring coordination.

The Logistics

Typically there are many logistical considerations involved in a recording project. These will vary depending on the context. The following are examples of common considerations:

This page answers the question:

What logistics need to be considered?

- Arrival/departure of team to general location of project
- Arrival/departure of team to recording site
- Meals/snacks provision for team (daily)
- Obtaining/delivering equipment to/from recording site
- Costs/arrangements for use of recording site
- Ensuring electrical power is functional or that other provisions are obtained (such as battery or solar power)

The Recording Environment

The recording environment is the area where the recording takes place, including the physical objects and attributes that make up the environment such as climate conditions, ambient noise, human activities, etc.

This page answers the question:

What is a recording environment?

Generally, there are two kinds of recording environments, studio and field. We will identify some characteristics of each and discuss some of their advantages and disadvantages.

Studio Recording Environment

The studio recording environment is a place where a significant level of investment and preparation has been made to create a permanent area with favorable conditions for recording projects to occur.

This page answers the question:

What is a studio recording environment?

Generally, a studio will have at least one room where adequate acoustical treatment has been done to improve sound quality. Most of this treatment is permanent, but some may be removable to allow flexibility for different types of audio production.

Most studios will be equipped with all the basic equipment needed for voice recording. Some studios may have additional equipment on hand for other types of audio production or, for example, to select a mic that is better matched for a narrator's voice.

Many studios will have some capacity for climate control and will be equipped with electrical power, perhaps even a battery backup system.

Studios will often have a staff that includes a manager, recordist, project coordinator or other essential roles supporting audio production in a studio environment.

Advantages of a studio can be:

- A dependable, stabilized workspace with fewer variables to contend with during the process.
- A room that has received acoustical treatment to improve suitability for recording (although not guaranteed to be adequate improvements – use your own ears to evaluate).
- Equipment for audio recording in place and ready to use every day (although not guaranteed to be the correct design for voice recording or functioning properly).
- Experienced staff available for hire to aid in projects (although not guaranteed to be proficient)

Disadvantages of a studio can be:

- It is not mobile, so it may be a very long distance to travel for participants of a project.
- Permanent infrastructure requires initial investment and ongoing maintenance.
- Continual income is typically needed to keep the facility maintained and staff employed to keep studio operation viable.

Field Recording Environment

We consider the field recording environment to be any temporary setup that creates a quality recording environment where a suitable one did not previously exist.

This page answers the question:

What is a field recording environment?

It is the our belief that field recording is how most Biblical content will need to be recorded. It is often too expensive to build, maintain and staff permanent infrastructure. Likewise, the high costs and logistical constraints of utilizing established, professionally designed studios can often be prohibitive. However, a field recording team is skilled, mobile and adaptable. A good field recording team enables recordings to happen where they need to happen.

Skills & Ingenuity

Often field recording requires much in the area of skills and ingenuity from the recording team, especially the recordist. The recordist needs to be able to assess the existing recording environment, detect elements that will negatively impact quality and identify locally-available solutions that will solve those issues. In order to do this effectively, the recordist needs to have a solid understanding of the behavior of sound waves in an environment and how to best treat or avoid common issues.

Simplicity

Keeping the recording process and equipment setup simple is one of the smartest decisions that can be made in field recording. A simple kit of gear means it is easy to maintain, easy to setup, and there is less chance for problems, errors or delays. Skill at knowing how to use that gear very well will produce better results than having fancy gadgets.

Adaptability

Adaptability has as much to do with a resilient attitude as it does with the ability to adjust in areas of equipment, logistics or process. A team with proper skills-training and a simple gear setup is able to be adaptive when circumstances change and Plan A is no longer viable. The ability to quickly adapt, create and succeed with excellence at Plan B or Plan C can often be necessary in field recording.

Advantages of a field recording can be:

- Recording can be done in the best location possible considering all of the factors of a project.
- Ability to record at or near where the language is spoken can make the difference in being able to record or not (cost and cultural advantages).

- A team is assembled for the specific project, which can help increase focus and intentionality.
- Intentionality by the recordist to select optimal equipment may lead to an easier recording and better quality.
- Intentionality by the recordist to analyze and treat acoustical challenges can create an environment equal or better than any studio alternatives.

Disadvantages of field recording can be:

- Nearly every aspect of recording becomes a variable that the recordist must find a solution for.
- Some locations can be extremely challenging to find an environment quiet enough for recoding.
- There may be a need to setup and pack away the equipment and the workspace every day, which may reduce time spent recording.

Next we recommend you learn about:

Assessing the Recording Space; *Simple Acoustical Treatments*

Basic Acoustic Principles

This page answers the question:

What are basic acoustic principles?

One of the helpful steps toward recording with excellence is understanding basic concepts about the behavior of sound waves in a recording environment. A recordist with basic knowledge can make profound improvements in quality and clarity of the narration, often with very little investment of time, energy or material cost.

The first principle to know about acoustics is that, even though sound waves are invisible, their behavior is not unpredictable. In fact, their behavior can be easily explained, measured and calculated with mathematical formulas. This is not something the average recordist will be interested in or need to calculate so we will not devote space toward it in this module. Most recordists will only need to understand that there is an objective reason why sound behaves the way it does in a recording space and, with basic knowledge, they can be confident in knowing how to improve it.

The second principle to know about acoustics is that, in truth, when we take steps to improve the sound quality we are actually applying subtractive measures, not additive. In other words, we are not making it sound better by adding new ingredients that are good. Instead, we are making it sound better by decreasing ingredients that sound bad, thus allowing the good ingredients to be heard with more clarity.

Often what we are really solving, or overcoming, by this subtractive improvement technique is to bring a more natural balance back to the sound that has been artificially impacted by the recording environment.

A third principle about acoustics is that sound waves contain energy and will stay active (producing noise) until there is something that depletes their energy enough to become non-detectable for the human ear. Generally, acoustical challenges are caused by physical conditions that make particular sound frequencies too strong, thus throwing off the desirable balance of frequencies. The dimensions of a recording space will impact the balance, or imbalance, of frequencies.

Virtually every type of material provides some degree of absorption of sound, which is something that may not be obvious. What we really need to know is how well a particular material absorbs certain frequencies. For example, a glass window is some what effective at absorbing low bass frequencies, but it is very poor at absorbing mid-range and high frequencies. Therefore, in a voice recording context, glass is not going to be a very useful treatment material because it does poorly at absorbing the frequencies that are problematic in voice recording. By contrast, a wool or cotton blanket, even if it is only a thin layer of material, can provide a significant degree of sound absorption of troublesome mid-range and high frequencies.

Glass typically amplifies acoustical problems because it acts as a large, hard reflective surface to bounce sound waves back and forth with other hard surfaces, such as cement walls. Sounds waves reflecting off hard surfaces are perhaps the main acoustical challenge faced in voice recording.

Deflection of sound waves is another technique to reduce reflections, yet it has a less significant effect. Deflection is typically used more when trying to keep a controlled level of reflection. It is our opinion that for beginning recordists, deflection will not be the best technique. Absorption should be the primary technique used. However, anything that can be done to absorb or scatter (deflect) sound waves will almost always be advantageous.

The last principle to know about acoustical challenges is that they must be tackled before you record, not after. There is a common assumption that software can fix acoustic issues in a recording. The reality is that some things can be adjusted by software, but there are many acoustical issues that cannot be removed from a recording later. Any attempt to do major fixing will usually degrade the entire recording, including the good aspects that need to be preserved. This can be very expensive and time consuming for only a minimum degree of effectiveness. The bottom line is that recordists need to solve acoustical issues on site before recording, not hope there will be expensive software and expert engineers available to fix it later.

Assessing the Recording Space

This page answers the question:

How do I assess a potential recording space?

In most recording projects it is not feasible to expect that the recording space can be professionally analyzed by acoustical experts using calibrated measurement tools and diagnostic software. Instead the recordist is going to need to rely on their ears and their eyes as their best tools to assess a recording space.

An easy way to give a potential recording space an initial assessment is to simply say a few phrases aloud and listen to how your voice sounds in the room. Does it sound clear and natural? Do you notice an echo? Does it sound like your voice has an unusual characteristic? Repeat this test in various locations in the room and while facing in different directions. Do you find different results depending on where you stand or which direction you face? Is there a specific location and direction that sounds the clearest and most natural?

Once you identify the best location, the next step is to make some simple acoustical improvements to make the voice sound even better.

How can we use our eyes to effectively assess the recording space and identify probable sources of acoustical problems? Even with just a small amount of training and experience, you can notice things that are acoustical challenges ready to happen. Bare cement walls and ceilings, tile floors, large glass windows, metal doors – these are physical materials that have a reputation for reflecting sound waves at a problematic level.

Before beginning to make acoustical improvements, there are few more aspects to evaluate about a potential recording space. Are there activities that typically occur in an adjacent room, on the floor above, or outdoors nearby? Is it possible that at certain times of the day or week the recording environment could be a drastically different situation than the exact time that you are assessing it? For example, an evening or weekend visit to assess a recording space may not give an accurate representation of what the ambient noise level is like during regular working hours.

Simple Acoustical Treatments

This page answers the question:

What are some simple acoustical treatments?

Fortunately, with a little ingenuity, easy acoustical treatment solutions can be possible using locally available materials. This is good news, since professionally manufactured acoustic foam is quite expensive and not easy to obtain in many parts of the world.

One of the first steps toward acoustic treatment is to utilize existing furnishings such as chairs, beds, rugs, curtains, tapestries, shelves of books and many other common items that may already be in the room or in the house or facility. In fact, you will probably notice the rooms that sound the best are often the ones with furniture absorbing and deflecting sound waves. It is our recommendation to use these common furnishings to your advantage.

What kinds of things can be done to improve a decent sounding room even further? Hanging blankets on the walls and placing a linen on the table that the narrator is using can significantly reduce echo reflections. Other ideas include positioning pillows or a suitcase with towels or linens inside just beyond the microphone in order to immediately absorb sound.

A word of caution needs to be mentioned, however, against taking acoustical treatment to the extreme. If too much treatment is used, such as covering all surfaces with carpet or foam, it will take away the natural vibrancy that a voice should have. The result is that the sound of the voice seems unnaturally dry, dull and flat. So use good,balanced judgment when approaching acoustical treatment.

After we have made simple improvements that make the room sound better, it is time to make sure our work has been as effective as we believe it is. When recording, a microphone hears, with great sensitivity, what is occurring acoustically in the recording environment. Therefore, what really matters is what the microphone is hearing.

Assuming you are using a correctly designed mic as discussed in the Microphones module, it would be an excellent next step to record a few test samples and carefully listen with a set of quality headphones. Quality headphones will tell the truth about what the microphone is hearing and indicate if further acoustical treatment steps if needed.

Next we recommend you learn about:

Assessing the Recording Space; *Microphones*

The Equipment Setup

For every project, a certain amount of equipment will be required and must be setup at the recording site. This is a responsibility that should be done by the recordist.

This page answers the question:

What kind of equipment is needed for an audio project?

The recordist should make all equipment selections, perform setup of the equipment, test everything to ensure it is working correctly before the project begins, and make sure the workspace is laid out for maximum effectiveness of the entire recording team.

In the Recommended Equipment section of this manual, equipment has been recommended for their simplicity, durability and suitability for sub-optimal project conditions.

In general, key considerations in setting up equipment include:

- selecting a digital recording device
- selecting audio equipment for capture and playback of sound for the team
- cables for signal path routing
- effective workspace for the team
- sufficient provision for electrical power/recharging

Next we recommend you learn about:

Recommended Equipment

The Signal Path

This page answers the question:

What is the signal path?

An important skill in setting up recording equipment (and in troubleshooting if there are problems) is to have a very good understanding of the signal path, or the way the audio signal flows from one piece of equipment to another. Some connections are physical, such as connecting a cable to a jack. Other connections are digital, such as settings selected in software (discussed in software setup section).

The description below illustrates the basic signal path.

1. Sound waves from the narrator's voice enter the microphone.
2. The microphone changes the sound wave to an electric pulse and sends it through a cable to the next device. A USB mic or a TRRS mic would connect directly to a laptop or tablet. If using a mic with a professional XLR connector, the mic would first connect to a small audio interface or mixing console and then to a laptop or tablet.
3. Once sound has reached the recording device it is captured in the recording software. The sound captured in the software can be played back for listening.
4. The sound leaves the laptop or tablet through the built-in speakers or through connected headphones or external speakers.

Many portable handheld recording devices combine the entire signal path process into a single piece of equipment.

Next we recommend you learn about:

Activating the Mic

Digital Recording Devices

For modern digital recording, there are three general categories of devices used for audio recording.

This page answers the question:

What options are there for digital recording devices?

Computers (Windows OS)

Desktop computers and laptops have been used for many years for recording and are the most popular and powerful devices. They are unequaled in their performance and capability to perform any recording, editing and file management task required during a project. Typically, these will have a larger screen and the ability to utilize keyboard and mouse commands, all of which aids in productivity and precision.

Note about other operating systems for computers: We have not focused on other OS platforms in this manual for the following reasons. Apple OS is also excellent for recording but the computers are typically far too expensive and unfamiliar for most end-users within the global Church. Linux OS is very cost effective but not familiar for most end-users. Initial testing has been done on laptops utilizing Chrome OS. While the hardware appears suitable for quality recording, it currently lacks good, fully functional, offline recording software adequate for voice recording. Therefore, Chrome is not considered a practical solution for recording at this time.

Tablets (Android OS)

Android is by far the predominate operating system for tablets today with numerous manufacturers and broad global distribution. These can typically be purchased at a much lower cost than a Windows OS laptop. Besides cost savings, one of their chief advantages is portability (at the compromise of screen size and the other factors that boost productivity and efficiency).

A fully-functional, free recording/editing software (WavePad Free) exists for Android OS, with many other apps available or being developed that offer varying degrees of functionality. While software is not a limiting factor for Android devices, it is important to be aware that most manufacturers are not building their devices with quality audio hardware inside. There are 2 primary hardware issues with Android devices that are not detectable without hands-on testing to discover what level of provision for quality audio the manufacture included in the device.

Many tablets are not equipped with a 3.5 mm TRRS jack, which means that it cannot record with an external microphone (built-in mics usually produce very poor quality). Even if it does have a TRRS jack, the majority of tested tablets were discovered to have poor quality analog to digital converters inside, which convert the captured sound to digital data. Typically there is a significant amount of static noise in the recorded sound due to the poor quality converters.

Handheld Portable Recorders

Small, battery-powered handheld digital recorders have become popular in recent years and a wide variety of models are offered by many manufacturers of electronic equipment. These devices often include a set of basic recording and playback controls, an LCD screen user-interface, the ability to listen to recorded material on the device and the ability to name files. Many of these have an extremely long battery life, record to an SD card or can connect directly to a laptop and function as a USB mic.

Portable recording devices offer some conveniences, but they usually come with various tradeoffs in their capability for other important aspects of a project. Generally, portable recording devices have limited flexibility for file naming and inevitably will require the use of another recording device to do the majority of the audio project work. The best use for a portable device would be a circumstance where it is not possible to have any other equipment where the recording will happen. While there are circumstances in voice recording where this could be the right choice, it is our suggestion that the vast majority of these devices are ill-suited for the task of voice-recording in sub-optimal conditions. For example, nearly every model is designed with omni-directional condenser mics (often 2 or more of them), which is probably the worst possible design for recording voice narration in sub-optimal settings.

Next we recommend you learn about:

Recording Devices

Audio Equipment

This page answers the question:

What audio equipment is needed?

In keeping faithful to our approach of simplicity, there are only a few essential pieces of audio equipment that we need in order to do an excellent recording. The important thing is to make sure we are choosing the correct type of equipment and that we know how to use it properly. The following pieces of equipment could be considered the essential pieces:

Audio In

The following pieces of equipment are used in processing sound before it reaches the recording device (laptop or tablet).

Microphone

In order to capture sound we need a microphone (mic). Depending on the type of recording device and type of mic, there may be other pieces equipment needed to amplify, process and convert the sound energy before it reaches the recording device.

Which types of mics require additional amplification and processing?

- A USB or TRRS mic does not.
- Mics with a professional XLR connector do require an audio interface or small mixing console.

Pop filter or windscreen

The movement of air when certain letters or syllables are spoken by the narrator can hit the sensitive microphone capsule with too much force, causing the recorded audio to be too strong and distorted. A pop filter is a fine wire mesh or fabric placed between the narrator and the mic in order to slow down and diffuse the force of the air movement. A windscreen is a foam version that slips over the microphone capsule.

Mic stand

Whenever possible, mounting the mic on a stand will give better consistency in recording volume level and avoid handling noise when compared to holding a mic directly in your hand. A mic stand can be as simple as small tripod stand, a standard full-size mic stand or an improvised solution.

Signal Cables

The signal cables required will depend on the type of mic used. The following types of signal cables will be used with the following mic types:

- USB mic – possible cables: USB A to USB B, USB A to miniUSB, USB A to microUSB
- TRRS mic – possible cables: TRRS male to female extension (1 or 2 meters)
- XLR mic – possible cables: XLR mic cable and USB A to USB B (for audio interface or mixing console) or USB A to USB B or phone plug (mixing console)

Audio Out

The following pieces of equipment are used in playing back sound after it leaves the recording device (laptop or tablet), not including the built-in speakers on the device.

Headphones

Typically it is important to have at least one quality set of headphones available for the recordist to be able to do careful listening.

Monitors

Monitors is a term that usually applies to speakers specially designed to provide accurate, transparent reference of the recorded audio. However, in simple recording projects studio monitors are unlikely to be available, so any kind of small speaker that can provide good listening quality for the recording team could be considered a monitor.

Cables

There are a variety of cables that may be used for transferring the audio signal to headphones or monitors. The following types of cables may be used:

- TRS Y-Adapter cable – These cables split the audio into 2 pathways. These may be used in order to connect two sets of headphones or a set of headphones and a monitor. These will typically be 3.5mm TRS.
- TRRS Y-Adapter cable – These split the signal when connecting both a mic and a set of headphones to a single TRRS 3.5mm jack on a tablet (TRRS cables transfer audio in and audio out).

Power Equipment

While not specifically a piece of audio equipment, there is always a need for electrical power for the recording device, which often will not have enough battery life to last a full day of recording without needing to be recharged. There are several ways to provide for this need.

- Electrical service - it is a good idea to include an outlet strip and extension cord with the audio equipment for charging the recording device when/if electrical service is available. Be sure to have the correct plug or an adapter to the local socket configuration.
- Backup Battery – this can be in the form of a extra battery for the device. Or, in the case of a tablet, an external battery can be connected via miniUSB to recharge the tablet while in use.
- Solar – a solar panel system can be utilized to recharge batteries.

Next we recommend you learn about:

Recommended Equipment

Workspace Layout

This page answers the question:

What considerations are there in laying out a project workspace?

The layout of the workspace for the recording team is an important consideration for a recording project. A workspace that is laid out well helps to bring the team together and make the work flow effective. A poorly configured workspace can cause the team to feel disconnected and make many repetitive tasks take longer.

Because every workspace will be different across the world, we cannot speak specifically to each scenario. What we can do is provide key concepts that we consider when laying out a workspace. These concepts can then be applied by the recording team to their unique recording environment.

Organized & Tidy

We recommend creating a workspace that is easy to keep organized, clean and tidy. Of course, people must maintain it and care for it. But the layout often sets a tone for how people decide, and are able, to maintain it. Here are some suggestions:

- Layout the equipment and positions of the team so that cables are not stretched across areas where people must walk or in ways that make a desk messy.
- In advance, make provision for equipment like headphones, notepads, pens, etc. to have a "home". This helps prevent items from being lost or damaged.

Minimize Distractions

Avoid placing the narrator in a position where there are many visual distractions, such as facing a window or a door. They will be too easily distracted by other activities happening nearby.

Minimize Acoustical Challenges

There are certain locations in a room that will typically be prone to more acoustical challenges than others. Avoiding these locations when positioning the narrator and the microphone's listening direction can help decrease acoustical challenges. Generally, these are locations to avoid:

- Near to a wall
- Near a window
- The exact center of a square or rectangular shaped room.

Visual Connectivity

Perhaps one element that draws a team together and helps their work flow more than anything else is good visual communication within the team and in interaction with the display of the audio waveform. Unless a circumstance proves otherwise, we tend to discourage traditional layouts where:

- the recordist has exclusive view of the screen where the audio file and waveform are displayed.
- The recordist and the narrator are in separate rooms.

Instead, positioning the team in the same room with open visual communication with each other and with the audio data can give the team a better sense of truly working together as a team and making the best use of time and information.

Suitable furniture

Recording projects require many hours of patient work, so it is important that the team is comfortable and able to work productively. Provisions might include comfortable chairs and a small desk or table. There should also be enough lighting, natural or lamp, for the team to read text without straining their eyes.

One special note about chairs:

Be careful of chairs that swivel, rock or have metal legs and casters. These may contribute unwanted sounds to your recording. Quite naturally, if chairs swivel, rock or have loose metal pieces, someone on the team will be making their chair squeak, creak or clank accidentally.

Mic Setup

Setting up the microphone properly is a crucial step in the recording process. There is probably no single factor in recording that makes a greater impact on the qualities of the recording and the level of editing challenges faced in the project.

This page answers the question:

How do I properly setup a mic?

Setting up a mic is not a difficult task. It is simply a task that requires a small amount of patience and knowing what to do. There are five steps in achieving and maintaining a properly setup mic:

- Activating the mic
- Positioning the mic
- Setting the gain level
- Ensuring quality signal vs noise ratio with low noise floor
- Fine-tuning mic placement along with good mic technique by the narrator

Activating the Mic

In this section we will focus on what is required to activate USB and TRRS mics.

This page answers the question:

How do I activate the mic?

USB Mic Activation

USB mics are automatically activated when they are connected by USB cable to a device such as a laptop. Many mics will have a small colored LED light on the mic body or inside the capsule area that will emit a friendly glow, telling you that it is activated.

Typically a notification will be announced on the laptop screen indicating that the laptop has detected the USB mic.

TRRS Mic Activation

When using a TRRS mic with a mobile device such as a tablet, the device automatically detects the mic and activates it. It also automatically selects it as the input signal for recording (unless it does not have TRRS compatibility).

When using a TRRS mic with a laptop with a single TRRS jack, the laptop automatically activates it. However, in most recording software, a manual step must be taken to select the TRRS mic as the input signal for recording in the software.

Positioning the Mic

Placing the mic in the correct position is a process that typically requires a few adjustments before the ideal position is identified.

This page answers the question:

How do I position the mic?

Before proceeding, two assumptions must be clarified.

1. These instructions assume you are using a unidirectional mic. If you are using an omni-directional mic, you will likely spend all day adjusting the mic position and never find a noticeably better position. Every position will yield similar, typically poor results. So if you are using an omni-directional mic, it is important to stop and ask yourself why you are doing that. We recommend avoiding the negative impacts and decreased quality that are commonly experienced with omni-directional mics. Instead, acquire and use a reliable unidirectional mic.
2. It is always an excellent idea to use a pop filter or windscreen with a mic. These are a minimal expense and can even be improvised to a degree of effectiveness if necessary. A pop filter will disperse the force of wind that moves with too much strength on some letters and syllables. When the wind hits the mic capsule directly it can cause distortion or thudding noises in the recording. These impacts are called plosives. Most narrators will not have voice training to help them control plosives, so it is important to use a pop filter or other counter measures to prevent a recording full of plosives, which can be very unappealing for listeners to hear in the recording.

The mic placement begins by considering the various physical and audible factors of the recording space and the narrator. Other sections of this manual should have helped you get the recording space into good recording condition. Our focus now involves positioning the narrator and the mic in ways that make maximum benefit of the acoustical treatment.

Initial Placement

There are three fundamental considerations that determine the initial mic placement.

- The narrator should be positioned in a location where his/her voice can project sound in a direction that is best prepared to minimize echoes and changes to the sound of the voice.
- Where is the front of the mic pointing? This is the sensitive side. It should be pointing toward the sounds you want to capture.
- Where is back of the mic pointing? This is the side that is not sensitive to sound. It should be pointing toward any sound sources you want to block out of the recording. Many people forget about this idea. A wise recordist will leverage the

sound rejecting characteristic of the back of the mic just as strategically as the sound capturing front side.

Find the Narrator's Comfortable Position

Especially in a field recording scenario where there is less permanent furniture and fixtures, it is important to have the narrator settle in to a comfortable position. Typically the narrator is seated, but standing is also acceptable and some people believe it may improve the narrator's breathing and projection of voice. However, a standing narrator may tend to move around more, which will create increased difficulty in maintaining a consistent recording level. For this reason and others, most narrators perform their work from a seated position. When referring to a seated position, this is specifically a comfortable, yet attentive posture. Slouching or hunching over is not a good position for the narrator.

Bring the Mic To the Narrator

Have the narrator get comfortable first, then move the mic into position. If the mic is positioned first, the narrator will likely shift to a more comfortable posture and will the mic will not be in the best position.

Typically, the mic (including pop filter) should be about one hand width away from the narrator's mouth and slightly offset to be out of the direct force of the wind from their voice. If the mic is placed too far away the result will be a thin sound and low recording volume, which means the mic will need to be amplified more, which will also make it more sensitive to background sounds. This creates many unnecessary problems that will negatively impact the recording process and quality. Likewise, if the narrator is getting too close to the mic, the audio signal will be recorded too strong, resulting in distortion and popping noises in the audio track.

Setting the Mic Gain Level

Properly setting the gain level is an extremely important step that will have profound positive impacts on the recording. Improper gain level setting creates editing and production challenges that in many cases are not repairable.

This page answers the question:

How is the mic gain level set properly?

Fortunately, setting a proper gain level is one of the easiest things to do and only takes a couple minutes. The proper level is always a careful balance of three variables:

- mic preamp level
- loudness of narrator's voice
- distance of the narrator from the mic

About the Mic Preamp Level

Every mic is paired with a preamp, which may be in the form of a dedicated external preamp device, an audio interface, a mixing console channel preamp, a computer sound card or built into the mic. On a practical level, adjusting the gain level will be done either with an analog control knob on a device, by adjusting the sound settings in the computer control panel settings, or both. It is generally good advice to never set any preamp level to 100%, as it can add electronic noise into the recorded signal. If it seems that setting at 100% is necessary, it may be an indicator that one of the other three variables is not set right or that you are using equipment not designed for voice recording applications.

By contrast, if you find the need to set a level at 10% or "slightly on", you are probably using a setup with multiple gain staging and at a different stage in the signal path the gain is set too high. Operating at either of these extreme volume settings is not a good idea, with risk of added noise or a recorded signal that is thin and does not replicate the quality produced in the live environment. Multi-gain level systems should be avoided if possible due to the added complexity, the exception being a mic such as the Zoom H2n (please read module on setting up the Zoom H2n).

Our recommendation is to operate within the range of 25%-75% on equipment level settings.

About the Loudness of the Narrator's Voice

The loudness of a narrator's voice will vary from person to person. Furthermore, a narrator's voice may vary at different times of the day and at different energy levels (the characteristic sound of a person's voice can also vary throughout the day). What is more important than targeting a specific volume is that the narrator's voice must

sound natural. Asking a narrator to speak louder than they are comfortable doing will produce a noticeably unnatural feel to the recording. By contrast, asking a loud narrator to read quietly could yield a result that sounds lifeless or weak.

While making sure the voice sounds natural and comfortable is very important, people with extremely soft or extremely loud voices can present challenges to recording well. An excessively quiet voice will probably necessitate very high gain settings on the equipment, which increases ambient and electronic noise levels in the recording. An excessively loud voice can easily sound like shouting and even create additional echoes and other acoustical challenges to deal with.

The best idea is to encourage the narrator to use a steady, natural voice that is comfortable for them and can be sustained throughout recording sessions.

About the Distance of the Narrator From the Mic

The specific type of mic and the natural loudness level of the narrator's voice are variables that are unique to each recording, thus preventing our ability in this manual to specify an exact distance for placement of the mic. However, we recommend using the width or length of a hand (10 - 20 cm) as a general distance to begin with when setting the gain level.

The Process of Setting the Level

Our goal is for the signal level of the narrator's voice to register at approximately -6dB of amplitude on the level meter and/or waveform editor, depending on the measurement tools available in your software. We will need to adjust the gain sensitivity level to accomplish this.

Create a new file and begin recording. Have the narrator practice speaking at their natural volume level a hand-length away from the mic, with the mic volume set to about 50%. Observe the amplitude level of the recording, In rare cases, the volume will be consistently higher than -6dB. If so, keep decreasing the gain level setting until you have reached a proper recording volume. In many cases, the test recording volume level will be inadequate. If that is the case, follow these steps in the following order of priority.

1. Make sure the narrator is positioned comfortably and is projecting their voice to the best of their ability while still sounding natural. Sometimes beginning narrators might be reading softly for lack of confidence in a new and unfamiliar role. Other times they may not realize that they can project their voice a little louder while still sounding natural and feeling very comfortable. Be very kind and encouraging throughout the process of reaching the optimal volume output of the narrator's voice. If the test recording volume level is still low, proceed to step 2.
2. Make sure the narrator is maintaining a hand-length distance from the mic.

Many beginning narrators might gauge their distance initially, but within seconds move their posture for comfort or to be able to view the text more easily. Suddenly, they are no longer a hand-length away but may be even up to a forearm length away. Make sure they are in a comfortable position and can view the text easily. Then watch to make sure the narrator is keeping the correct distance consistently. If these things are being done correctly and the test volume level is still low on the recording, proceed to step 3.

3. As explained earlier in this module, we can often turn the mic preamp gain up to about 75% without adding too much background or electronic noise. Begin increasing the mic preamp gain level up towards 75% until you have reached the target level in the test recording.

Next we recommend you learn about:

Zoom H2n Setup (USB mode recording)

Signal to Noise Ratio

One characteristic of a quality recording that will have many years of usefulness, and require the least amount of additional work during editing and post-production, is a recording with an excellent signal to noise ratio.

This page answers the question:

What is the signal to noise ratio?

What is a signal to noise ratio?

Signal to noise ratio (SNR) is not exactly a ratio in the sense of a mathematical ratio, but rather a way of expressing how loud the good sound (narrator's voice) is compared to bad sound (specifically electronic noise, hiss and hum, but could also include unwanted ambient noise). An audio recording with an excellent signal to noise ratio will have the narrator's voice very clear in the foreground of the audio track, with little or no hiss or static noise in the background. By contrast, a poor signal to noise ratio will be characterized by very noticeable static noise and hiss competing with the narrator's voice. A recording with a significant amount of distracting background noise from the local environment could also be considered an example of poor signal to noise ratio.

Our goal is to record the narrator's voice (signal) at a quality level (-6dB) while having the background noise as quiet of possible. The term that refers to that background noise level and the measurements we want to achieve are discussed in the next module called Noise Floor.

Next we recommend you learn about:

Noise Floor

Noise Floor

This page answers the question:

What is the noise floor?

The noise floor is the constant level of background noise in a recording. Once the process of setting the mic gain level has been completed, we need to make sure the noise floor is still below -45 dB before proceeding with the recording session. If you are using the right kind of equipment and have followed the steps above, you should find yourself with a sufficiently quiet noise floor, preferably -55 dB or less. If the noise floor is louder than -45 dB, you have:

- equipment ill-suited for voice recording, or
- something in the setup process has not been done properly, or
- your location is very poorly suited for recording.

Rather than proceeding to record with a high noise floor, we highly recommend identifying the cause and solving the problem. This may require relocating, seeking support and/or training in setting the gain level properly.

Fine-tuning the Mic Placement

With a little experience, it will become easy to achieve an initial placement that yields fair results. These fair results will be refined in a matter of minutes in the process described below.

This page answers the question:

How is the mic adjusted for optimal results?

Listen to the test track on some quality headphones and observe the levels registering on the meter in your software. What do you notice about the audio quality? What did you notice about the noise floor? Was it sufficiently quiet, hopefully around -55dB? Was the narrator reaching -6dB?

If any of your responses are not satisfactory, there is still some fine-tuning needed. If there is too much echo, try repositioning the mic or improving your acoustical treatment. If the narrator was too loud, you can decrease the mic gain level. If the noise floor was too strong, you will need to turn the gain level down and have the narrator stay closer to the mic.

The suggestions in the paragraph above are solutions we might try if we were at a recording project. However, one of the valuable skills that the recordist must develop is taking all of these principles into account and determining what the best solution is in their unique circumstance. It is impossible for us to provide a universal solution in this manual without knowing what is actually occurring at the recording site. Please do not hesitate to contact us with questions if you are struggling to achieve a quality recording level with a quiet noise floor.

Acclimating

You can expect that at the beginning of the recording project or session, the narrator is still getting warmed up and acclimated to the experience of recording. As they become more confident in the process, their volume level may change slightly. This is normal and it will be up to the recordist, as it is at all times during the recording, to make sure the narrator is using good technique and that the mic gain level is set properly.

Note about Proximity Effect

In general, condenser mics do not exhibit proximity effect (USB mics and TRRS mics are condenser mics and thus do not have proximity effect). However, due to their design, professional dynamic mics have a characteristic called proximity effect where bass frequencies become much stronger when the narrator gets very close to the mic. Not every dynamic mic exhibits this characteristic to the same degree.

Proximity effect could be good or bad, depending on the result the recording team is seeking. For example, some people in radio broadcast find the enhanced bass to be a

favorable, signature sound. However, this effect is often safely managed by experienced audio engineers in professional studios to ensure that the effect does not have a negative impact on the quality.

By contrast, in the simple field recording scenario, too much bass can create at least two problems for the recording project. First, too much bass can reduce the clarity of the voice, which hurts the listening appeal of the recording. An attempt to fix that problem when the recording is processed for distribution will often reveal the second problem. So much of the sound that was originally captured was actually excessive bass, which carries more sound energy than mid and high frequencies. Reducing the bass to restore proper balance also significantly reduces the overall volume level of the recording. To fix the reduced volume level, the track must then be amplified, which increases the noise floor, sometimes to an excessive level. The end result is that even though the recordist believed that the recording level was good during the recording, the truth was that too much of the sound level was actually excessive bass, not quality voice sound.

If you record using a dynamic mic (which we do not discourage because they actually have beneficial characteristics and they are very durable), we recommend keeping the principle of proximity effect in mind as you set your recording level. Listen to your recording right away. If there is so much bass that it is reducing the clarity of the narrator's voice, you should take steps to minimize this impact. One simple way to reduce the proximity effect is to angle the mic so the narrator is not speaking directly into the front of the mic capsule.

Software Workspace

This page answers the question:

What is the software workspace?

The software workspace is the area on the home screen where most of your audio work is performed. Depending on the software and the operating system platform, there is sometimes a degree of customization possible to improve your work experience.

Below we will look at an example of a good recording/editing workspace setup for WINDOWS OS and Android OS.

Waveform Editor

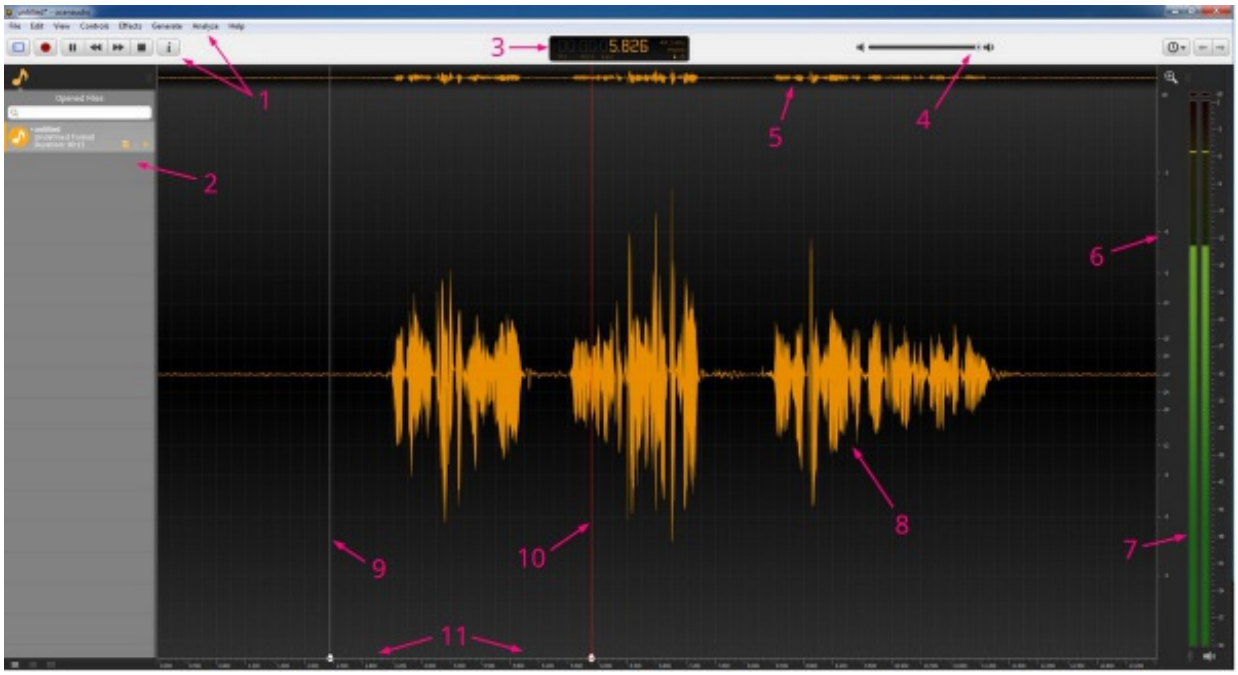
This page answers the question:

What is the waveform editor?

The Waveform Editor is the main screen or window where the waveform pattern of the sound wave is displayed. A good waveform editor provides a large viewing area with accurate scales to measure amplitude and time. It also will have a convenient way to zoom in to view the waveform in detail and make precise editing decisions. Currently excellent free options are available for both WINDOWS and ANDROID OS.

WINDOWS OS

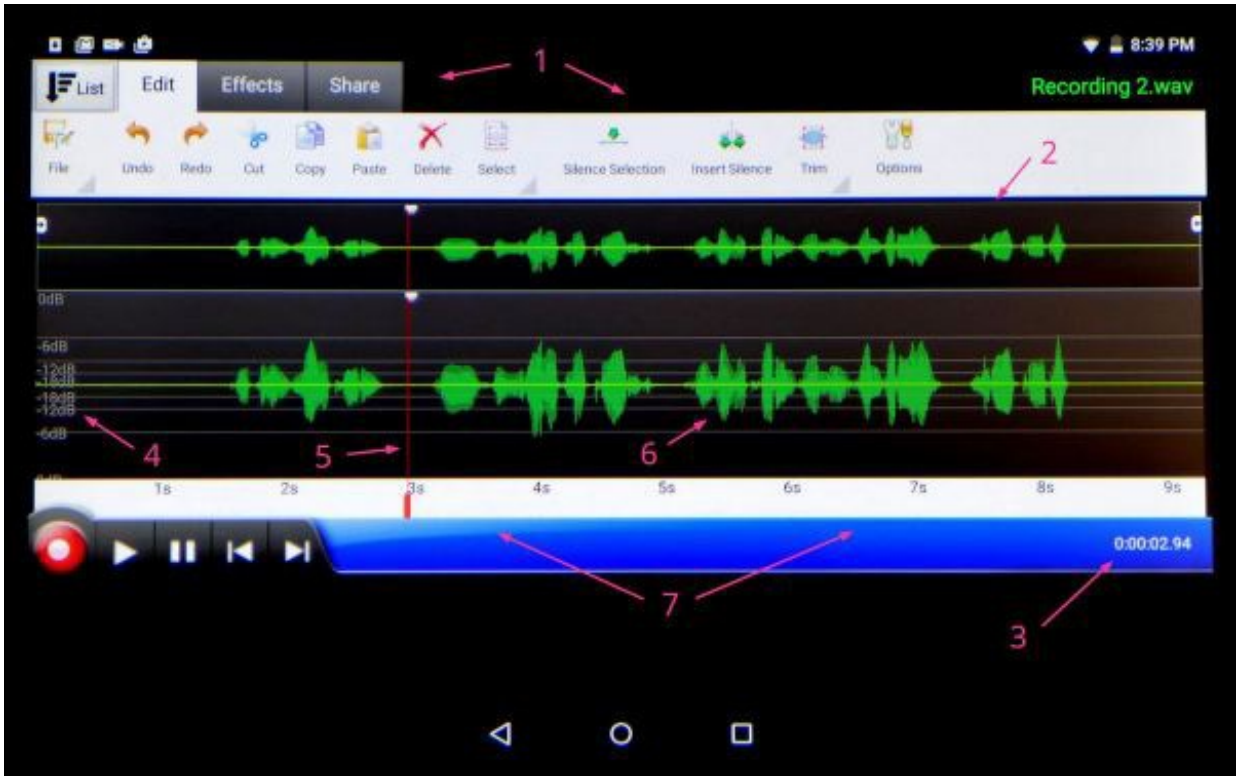
Example: *Ocenaudio (v3.0.6.0)*



1. Menu and Toolbar Buttons
2. File Bin
3. Time Display
4. Speaker Volume
5. Navigator
6. Amplitude Scale
7. Level Meter
8. Waveform (sound wave)
9. Cursor Bar
10. Play Cue
11. Timeline

Android OS

Example: *WavePad Free*



1. Menu and Toolbar Buttons
2. Navigator
3. Time Display
4. Amplitude Scale
5. Play Cue
6. Waveform (sound wave)
7. Timeline

Folder and File Management

This page answers the question:

Is there a good way to manage folders and files?

Handling folders and files properly is one of the important, detailed tasks in recording and distribution projects. These files represent the incredible amount of work and investment contributed by many people. Much care must be given to their naming, organization, storage, backup and as well as formatting for maximum distribution potential that meets to the diverse needs of listeners. In this module we will discuss key concepts and principles of folder and file management.

Folder Naming and Structure

This page answers the question:

How should folders be managed?

Anticipating and creating a good folder structure or content management system is one of the most valuable steps in managing files well. We highly discourage using default folders or, for example, saving audio files in My Documents. Too much time can be lost trying to locate files on a computer that does not have good organization of folders. This is especially important as time passes and recording projects become more numerous, distribution versions are created, the focus of the recording work evolves, etc.

We recommend creating a master folder called Audio, Audio Projects or something similar. Inside of this folder, we recommend using subfolders according to language, project type, or whatever you find to be the best organizational structure for your projects. The main idea is that your audio-related files are always saved in a master audio folder. If all your work is in this folder, rather than scattered in different locations, it is easy to locate files, keep adding more subfolders in a logical manner, and keep your entire audio folder backed up.

File Naming

This page answers the question:

How should files be named?

Naming files with clarity and consistency is logically the most important step in managing files. We recommend using the file naming standard described in the File Naming Module. This will not only provide a consistent structure that works across any language and any resource, but it also has provision for dialects, sub-dialects and project specific variables such as versions, drafts, community distributions, specific format settings, etc.

Next we recommend you learn about:

File Naming Standard

Recording

Recording is the dynamic act of capturing, with the best possible clarity and fidelity to the source and its intended meaning, the live narration of content.

This page answers the question:

What is recording?

The Process

This page answers the question:

What is the process for recording?

In the most simple terms, the process follows these steps:

1. The recordist presses the RECORD button in the software or on the device.
2. The narrator speaks a section of content into the mic.
3. The recordist presses the STOP button or similar function in the software or device.
4. The recordist plays the recorded section for the Checker and Narrator to review.
5. Depending on the decision of the Checker, the team may edit that recorded passage or they may begin recording the next section.

These steps are repeated over and over throughout a project. While these steps are described rather simply, it is important to remember there is a tremendous depth of engagement occurring creatively, relationally and sensory among the team during these steps.

Wise recordists quickly adopt the approach of "recording with editing in mind". That is, recordists soon discover that *recording* is only the first part of a bigger process. The full process is made easier (or more difficult) because of decisions made during the recording step. In a sense, recording is simply capturing the sounds. But those sounds must come together into a meaningful, faithfully-created representation of content, which requires editing. If you want editing to go well, do what wise recordists do and "record with editing in mind".

Creating a New File

This page answers the question:

How is a new file created?

During the recording phase, you will capture the sounds as an audio file and give it a name (see File Naming Standards). In most software and on most hardware devices, you will create a new file in one of these ways:

- Press Ctrl+N
- Click or tap on the RECORD button

Some software will ask you to set the audio file properties before proceeding. If you are not asked this question, check the software or device setting to make sure it is set to the correct attributes. The standard we recommend is:

- Sample Rate: 44.1 kHz
- Bit Depth: 16
- Channels: Mono
- Format: WAV (or WAV PCM Linear)

Note: Some software may not prompt you to choose a format until you Save the file. Some software many not offer a Bit Depth selection, which usually means the software defaults to the widely-accepted standard of 16-bit.

Next we recommend you learn about:

Format; *File Naming Standard*

Audio Markers

A handy feature found in some audio recording software programs is the ability to place markers (or flags or cues) in the audio waveform. These markers are used to indicate special points or boundaries in the audio.

This page answers the question:

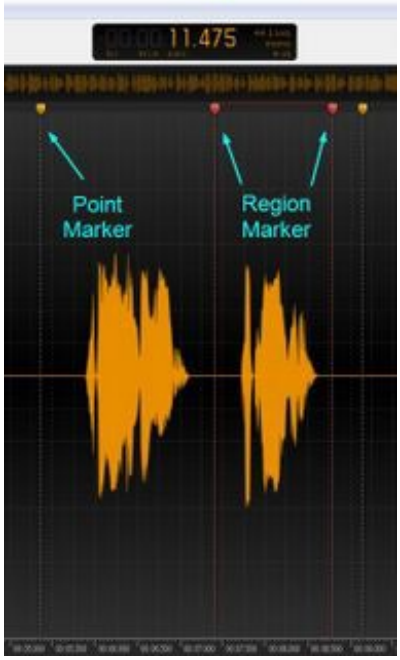
What are audio markers?

Markers can be used for any purpose that the recordist believes will be helpful. These are some common uses:

- Identifying the start of a new section of audio, such as a frame in Open Bible Stories or a verse in Scripture.
- Identifying a section of audio that needs to be fixed or reviewed.
- Identifying a point of progress in the review process.

Types

Most software programs that permit markers will allow two different types of markers, which can be used for different purposes.



Point Marker - A Point Marker identifies a single point in the time line. These are more often used for identifying sections of audio, such as verses or OBS frames. Ocenaudio gives point markers a yellow flag at the top.

Region Marker - A Region Marker identifies a region of audio in the time line marked with start and end boundaries. This type is often used to identify a section of audio that needs further attention for editing or review. Ocenaudio gives region markers a red flag at the top and red vertical boundary lines.

Placement

Point markers can be placed in the audio track in the following ways:

- Pressing the assigned keyboard shortcut key. The marker will be placed in the audio at the location of the play cue. The play cue can be placed in a location by clicking in the waveform. Point markers can also be placed while the audio file is recording or playing.
- Clicking in the waveform to choose location for marker. Then click on the Edit Menu and select Create Marker.

Region markers are identified with a red flag and can be placed by clicking in the waveform and selecting a range of audio. Then press the keyboard shortcut key or choose Create Marker from the Edit Menu.

Moving Markers

The location of point markers can be adjusted by clicking on the yellow flag and dragging the marker to the desired location. The boundaries of region markers can be adjusted by clicking on the red flags and dragging to the desired location.

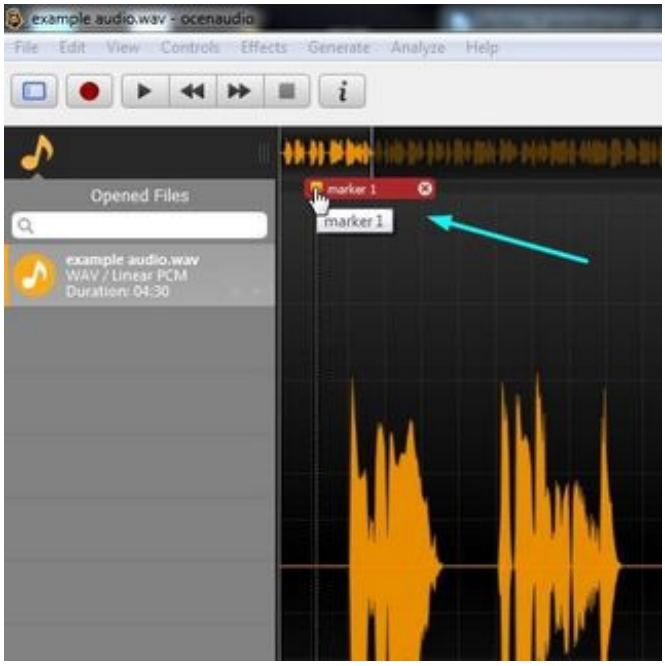
Deleting Markers

Caution must be used when choosing to delete point markers in Ocenaudio because the auto-numbering system will continue advancing to the next sequential number, even if a marker number is deleted. To preserve a numbering sequence it is recommended to move markers to the correct location rather than delete them. To delete a point marker, simply right click on the yellow flag and select "Delete Marker".

To delete a region marker, simply right click on the red flag and select "Delete Region". In Ocenaudio, region markers do not share a relationship or have an impact on the auto-numbering of point markers.

Naming Markers

Many software programs auto-name point markers. For example, Ocenaudio automatically names markers as they are placed as Marker 1, Marker 2, Marker 3, etc. The name of the marker can be viewed by moving the cursor over the flag on the marker. We recommend using the auto-naming function to your advantage as a simple way to identify verses or OBS frames. This saves time spent manually naming the markers on a lot of content types that only need sections marked intuitively, not specific descriptions in the marker name. If necessary, you can rename a marker by hovering the cursor over the marker name and clicking on it.


example audio.wav - ocenaudio
File Edit View Controls Effects Generate Analyze Help
Opened Files
example audio.wav
WAV / Linear PCM
Duration: 04:30
marker 1
marker 1

Playback Monitoring

This page answers the question:

What is playback monitoring?

Playback monitoring is the process of listening to a section of audio that has been recorded. This can be done using a variety of listening devices ranging from studio monitors (speakers), all-purpose speakers, headphones, earbuds or built-in speakers. Some pieces of monitoring equipment are better suited for the different types of listening described below.

General Listening

This kind of listening is done together by the team using studio monitors, an all-purpose speaker, earbuds or the device's built-in speakers. In this case, the audio quality is not being analyzed as much as simply reviewing the words for accuracy.

Critical Listening

Critical listening is something typically done by the recordist, but potentially also the entire team in some situations. In a critical listening scenario, the recordist is often using quality headphones to carefully analyze the audio. The recordist may do this to investigate if there is:

- echo in the recording,
- if an instance of background noise is noticeable in the recording, or
- if an edit process was performed with precision

Next we recommend you learn about:

Playback Monitoring

Further Considerations

This page answers the question:

What are further considerations for recording?

Over time the recording team should develop a good rhythm to the process, a sense of how long of a section to record and many other things that make a recording project flow well. In addition, the following ideas are worth considering to help the recording process.

- Begin your day of work with time spent in prayer as a recording team. The recording is not so important or so urgent that there is no time to spend a few minutes with the Lord as a team.
- Don't push too hard in recording. When it is evident that taking a break will help the team recharge, take a short break.
- A happy team will be more productive and work in much better unity together, which is really valuable when faced with difficult recording circumstances or passages. Discover how to enjoy working together and valuing each other. It will help greatly.
- Some passages will be more difficult to narrate due to the phrasing or the presence of Proper Names or unusual words. Do not hesitate to make those difficult areas into smaller sections for recording. Struggling through long sections of difficult reading can be discouraging and there is no reason to do that. Instead, gain confidence and momentum by breaking the difficult passages into small pieces to record.
- Have the narrator preview the text before the recording session begins. This will give the narrator an opportunity to consider how to read certain passages properly, perhaps even making notes on when to pause, which passages to read as smaller sections, etc.
- Some passages will have unfamiliar Proper Names or words that are more complicated to pronounce. Take time to identify them and determine the proper pronunciation in advance of recording. Pronunciation guides are available in some languages and the narrator or checker can make notations to aid the narrator in proper pronunciation during the recording.

One last tip.... Save your work often. Don't wait to save your progress until you reach the end of a story or chapter. Otherwise, you could lose a lot of hard earned progress if the file is not saved when the recordist makes a serious error, the electricity goes off or a software program crashes.

Editing

Editing is the process of making corrections and modifications to a recorded file. This is done to improve aspects such as accuracy, natural flow, volume fluctuation and removal of unwanted or distracting content.

This page answers the question:

What is editing?

Editing is perhaps the most underestimated skill and component of a recording project. There is a well-known principle held among experienced recordists, and that is "record with editing in mind". The better the techniques used and the wiser the decisions made during the recording phase, the better the editing phase goes. In fact, a seemingly small poor decision during recording can greatly impact the amount of work required in the editing phase. Some poor recording decisions cannot be corrected during editing regardless of the amount of time spent.

Decisions - Objective vs Subjective

This page answers the question:

What kind of decisions must be made during editing?

When editing, many decisions will need to be made about what you hear and see. Some decisions will be objective, such as:

- are the words correct?
- should the long pause be shortened to a natural pause length?
- should a loud expression that peak (clipped) in amplitude be re-recorded?

Other decisions will be more subjective:

- was the best tone used when narrating a passage?
- the narrator repeated a phrase several times, which one is the best one to keep?

Some editing decisions will be easy to make because they are objective, either it meets standards and audio principles or it does not. However, many editing decisions are subjective in nature and cannot be independent decisions made by the recordist. These are decisions that must be made by the checker and narrator.

Decisions - Edit or Re-record

This page answers the question:

Is it better to edit or re-record?

With the conveniences of modern editing software, there is a danger to spend too much time editing a recording that should have been recorded better the first time. The idea that there are many editing tools available, some software capable of amazing precision-grade surgical editing, can easily lead a recordist to make poor decisions in the area of time management. Sophisticated editing should only been done if there is no good alternative.

Most of the time, it is a much better decision to simply re-record a small section of audio. Consider a 1-minute section of audio. It took 1 minute to record it. It will take 1 minute to play it back when checking for quality. Any editing will quickly add time invested on that 1-minute piece of audio. Without good discernment about when to edit and when to re-record, 10 or even 15 minutes could go by trying to fix a small error that could have been re-record and resolved in much less time.

Most of the time a re-recorded section that does not need to be edited will be of much better quality that a section that required complex editing.

There will, of course, be situations when it makes sense to spend a little extra time editing. However, most of the time inexperienced recordists will spend too much time editing sections of audio that should be re-recorded. Do your best to be aware of this risk and strengthen your skills for assessing when to edit and when to re-record.

Use Your Ears

This page answers the question:

How important is listening compared to watching the screen?

When beginning in audio editing, there is a tendency to focus too much on the visual display of the waveform. Too easily, a recordist can start to edit based on what is seen without even considering how the audio actually sounds. That is a common mistake. When editing, remember that your ears are your most valuable and important assessment tool, not your eyes.

Common Editing Procedures

This page answers the question:

What are common editing procedures?

There are a handful of editing procedures that will be utilized over and over through out a project. These include:

- Selecting a section of audio
- Copying and pasting audio
- Deleting a section of audio
- Adjusting length of gaps and breaks
- Zooming in and out of sections for a better view of the audio

For information on keyboard shortcuts for these common procedures, please see the Guide section of this manual.

Next we recommend you learn about:

Keyboard Shortcuts - Ocenaudio; *Keyboard & Mouse Shortcuts for Audacity*

Making Corrections

During the editing process there will be times when a phrase, sentence or even whole section that should be re-recorded. We recommend the following approach as the safest and easiest way.

This page answers the question:

How do I make corrections?

- With your cursor, select the phrase that needs to be corrected. Leave this phrase selected.
- Create a new file that will serve as the place where corrections are recorded.
- In the new file, record the narrator speaking the phrase or sentence that needs to be corrected. Often it may be necessary to begin one phrase earlier in the content so that the narrator can effectively resume a natural voice and rhythm.
- Playback the newly recorded phrase to make sure that it is excellent. If yes, proceed to the next step. If no, re-record until it is excellent.
- Select the corrected phrase and copy it.
- Switch back to the original audio file. You will find the bad phrase is already selected so no time is lost searching for it.
- Zoom in enough that you can make precise decisions about the selection boundaries. Re-select the exact length of bad audio you want to cover up.
- Paste (Ctrl+V) the corrected audio over the selected section.
- Begin playback at the preceding sentence to ensure natural pauses are intact and that the correction blends naturally with the surrounding voice characteristics.

Timeline Navigation

This page answers the question:

How do I navigate the timeline?

If there is one skill that greatly improves your effectiveness as an audio editor, it is the ability navigate quickly throughout the recorded audio file. Over time you will gain proficiency at quickly zooming in/out of the viewable area for effective assessment of the waveform, for good precision in selecting sections and for making changes to that section (copying, pasting, deleting, changing amplitude, etc). Good audio editing software will allow you fast navigation and excellent zoom functionality by using the mouse and scroll-wheel.

Modifying Pauses

This page answers the question:

What is the best way to adjust the length of pauses?

One of the common editing procedures is making adjustments to the pauses between sentences or sections in order to ensure a natural flow. Recordings should also have approximately 1 second of silence at the beginning and end of the recording. While many software programs offer an effect that places an adjustable amount of absolute silence where you would like to in the timeline, we recommend against using this feature. The reason is that these "silence" areas will not match the general feel of the rest of the recording. Those spots will seem awkward, almost as if a vacuum sucked all of the sound away momentarily.

Instead of using the silence feature, we recommend a technique that maintains the natural feel of the recording.

1. In the recorded file, simply find a quiet section in the audio that represents the natural ambient sound and is free of any random sounds such as the narrator moving in his chair or taking a breath.
2. Copy this section and paste it in place where you need more pause or silence.
3. Playback again to make sure the amount added gave the right length of natural pause. Adjust as needed by pasting more or deleting excess.

Note: Avoid the assumption that there is a standard length for pauses between sentences (for example 0.7 seconds). Each language is unique and so is each narrator and the speed at which they are narrating. The correct length of the pause must always be natural and is determined by the speakers of the language in the context of that narrated recording.

Measuring Length of Audio Selection

At times it will be helpful to know the length of a section of audio. In most editing software, this can be measured by selecting that section of audio and observing the value displayed in the time clock.

This page answers the question:

How can I measure how long a selection of audio is?

Finalizing

This page answers the question:

How are audio files finalized?

Once you have completed all the necessary checking and editing of the files, it is time to finalize your recorded audio. We are choosing to use the term "finalizing" rather than "mastering" because, in the professional audio industry, mastering often includes many steps that are not included in this manual. Many aspects of mastering are not necessary or are simply quite impossible for the sub-optimal context in which we must work, especially without high-end equipment or specialized skills in how to do mastering properly.

Many of the steps of finalizing can be accomplished as the team progresses through the editing phase. We will list the criteria for finalizing an audio file below in a just a moment. No matter if finalizing is done during the editing phase or as a concluding step, it is the responsibility of the recordist to make sure this has been done to every file.

If possible, it is a wise idea to make a backup copy of the "unfinished" audio files before beginning the finishing work. If an error is made in finalizing, you will be thankful to have the original files still available.

Criteria for finished audio files include:

- 1 second of silence is at the beginning and end of each chapter or story.
- Markers have been placed in the audio file at each verse or frame.
- The audio track has been normalized to -3dB (see Guide in Reference section for tips on normalizing)
- The correct number of files are present in the master project folder.
- A backup copy of the finished master WAV files has been made and stored in a secure location.

Next we recommend you learn about:

How to Normalize an Audio Track

Distribution

This page answers the question:

What is distribution?

After many, many hours of recording and editing audio, the project is finally finished and ready to be shared. If you have done your recording and editing with excellence and wisdom, there will be a wide and powerful range of distribution opportunities for years to come.

As you prepare to distribute the content created in your recording project, there many considerations to make. In this module, we will discuss the many decisions and options that should be considered.

License

Distribution options depend significantly on the terms of the content license.

This page answers the question:

What does the license determine for distribution?

Open-licensed (CC BY-SA, Public Domain)

If you recorded and produced open-licensed content, you are free to distribute the audio content in the best ways of your choice and in any quantity.

Restricted-license (Copyright All Rights Reserved)

If you recorded and produced restricted-license content, the distribution requirements and limitations are set forth in the contract or agreement. If you want to distribute copyrighted content already produced by others, the copyright holder will have set terms for how the content may or may not be distributed. Therefore, some, or much, of what can be done to distribute CC By-SA content may not be legally possible for copyrighted content. This may lead to frustration, extra costs and missed opportunities. It is true that at no point in a project are the constraints of All Rights Reserved copyright so evident as when you want to share content with people in need of it.

These restrictions commonly cause broad challenges and frustrations for God's family in the real-world context. This can lead to decisions to break the license terms or, as the copyright holder, allow one group, but not others, to distribute content out of compliance with the license terms. Such actions are hurtful among God's family. There are also potential ramifications for recipients of restricted content. In some countries, breaking copyright law is a criminal offense. Legal action against the recipient of copyright restricted material can be pursued by the government without the request or consent of the copyright holder.

Our question is if this is the best way for God's family to participate in ministry together? Would it not be much better for God's family to work together in a way that did not require our brothers and sisters to break the law? This situation is not a problem created by the laws of governments. Instead this is a problem created by content producers choosing a license that legally restricts and controls access to Biblical content. Governments are only enforcing the license terms.

As a content producer, consider being part of the solution that avoids all of these restrictions and difficulties. Use a license that and allows all of us to work together and bless others with God's message in their heart language without all the problems mentioned above. More information on open-license Biblical content and the case for why it is so valuable can be found here:

- https://unfoldingword.org/license/

- http://thechristiancommons.com

Local Distribution

This page answers the question:

What considerations are there for local distribution?

Distributing excellent Biblical audio content is an exciting and memorable event after working hard for many, many hours as a team on a recording project. It is a good idea for distribution to be led and managed by the local Churches and ministry leaders for several reasons.

- Everyone working together makes this memorable moment in the history of the community more valuable.
- The local believers will know the best way to go about distribution in their culture, such as ways that give due honor and respect to elders or family clans.
- The local believers will know where the greatest needs are among their communities and region.
- The local Church leaders will be involved and able to build and strengthen relationships.

Uploading to door43

A system is in development that will make it possible to upload audio content directly to our file storage server, clearly identified and connected with the language and type of content that it is. At the time of this writing, the system is not complete. Please contact help@door43.org for more information.

This page answers the question:

How are audio files uploaded to door43?

Publishing to unfoldingWord

The unfoldingWord website provides the opportunity for publishing open-licensed content. For more information on how to do this, please contact help@door43.org.

This page answers the question:

How is audio content published on unfoldingWord?

Preparing the Audio Content

This page answers the question:

How is audio content prepared for distribution?

In most cases, a small amount of additional processing must be done to the audio content to optimize it for various local distribution opportunities. Optimizing an audio resource for local distribution may involve three things:

- creating a copy at format settings that reduce the file size to match the listening device capacity limitations
- possibly renaming or modifying the file names
- organizing the files into a folder structure compatible with the listening devices

Format Changes

While it is important to record the project at high quality, these file sizes are typically much too big for the capacity limits of listening equipment for the end-user. It is very easy to make a copy of the audio resource that is at the optimal file size for the end-user.

Generally speaking, in order to make the file size smaller for distribution, you will need to decrease the quality of the audio. This change is permanent. For example, when creating a standard quality MP3 file from a WAV master file, 80% of the audio quality is permanently deleted. This process cannot be reversed. Before you begin making smaller-sized, lower quality copies for distribution, make sure that you:

- have saved a backup copy of your master files
- are following a process that makes a new, separate set of files in the lower quality format. Do not permanently convert your high quality source files to low quality!

If you did a quality job making decisions during your recording and editing phases, you will have much greater ability to maintain good listening quality even when making the file sizes small for distribution.

Some recording software allows you to "batch process" or "batch convert" a group of files together at one time. This saves a tremendous amount of time over creating a distribution version of each file one at a time.

MP3 format is the most widely compatible format for distribution. Please refer to the File Format Standards module for the latest information on the file format settings we recommend for distribution.

Instructions for using a free format conversion software for WIN OS can be found in the Guides Section.

File Renaming

There may be reasons to rename a copy of an audio resource for distribution purposes (do not rename the master files). Renaming might be beneficial for:

- changing the file name to the full name of a Bible book or story
- adding a suffix to identify a draft version for community testing
- adding a suffix to identify the format settings
- changing the name to match the file naming convention required by the listening device
- meeting other needs specific to a culture or location

For instructions on how to rename groups or batches of files, please refer the module in the Guides section.

Next we recommend you learn about:

Format; *How to Convert File Format (Batch Process)*; *How to Rename Files with Bulk Rename Utility*

Offline Distribution and Listening

This page answers the question:

How is content distributed and listened to offline?

There are many ways to share and distribute audio resources in a local setting. Our focus is specifically on offline distribution and listening because the vast majority of people in the world:

- do not have internet access,
- cannot afford mobile data costs for content downloads or listening over data connection,
- are not skilled at navigating websites to find audio resources and
- have many other reasons why accessing online content is not practical or possible.

The most effective way to meet the needs of those interested to hear audio resources is to provide offline access suited to the listening platform and setting that works best for them.

For many years devices have been designed for the ability to play digital audio. These may be in the form of a versatile radio with ports for digital data, generic MP3 players or as audio players specifically designed for optimized delivery of Biblical content for the end-user. Some of these even have tamper proof memory which ensures that it is used for years to convey Biblical content, not re-programmed for other purposes.

Below we will briefly discuss a variety of options.

MicroSD Cards

This page answers the question:

How are microSD cards used?

MicroSD cards are small, inexpensive memory chips that typically have plenty of memory capacity to hold many hours of audio content in optimal audio format. Even a 2GB microSD card, which is compatible with most basic mobile phones, has enough space for a full Bible. MicroSD cards are easy to transport and distribute, people are widely familiar with them and they can be used with local technology.

Market availability and costs for 2GB cards are becoming less cost-effective as interest for more memory capacity has come into greater demand. For many distribution applications, a 4GB microSD card may be the ideal balance of all factors and can still deliver a tremendous amount of content at a very cost-effective price.

One disadvantage of microSD cards is that they are easy to erase, use for other media content or re-sell for a good profit in a local market. This has been the fate of countless microSD cards, including ones that are removable from mobile phones and dedicated audio players.

Mobile Phones

This page answers the question:

How are mobile phones used?

A significant amount of writing would be needed to accurately capture the impact and potential of mobile phones across the world for their ability to receive and play media content. Mobile phones:

- are not limited to the infrastructure of electrical grids, telephone lines or internet.
- are by far the most common personal electronic device capable of playing audio.
- most can accept a microSD card.
- can receive or send files by a built-in short range radio signal called Bluetooth.
- many can connect to local WIFI networks to send or receive data.
- most are capable of audio and video playback.

The mobile device is certainly an incredibly powerful tool for listening to audio resources and sharing them with others. With billions of mobile devices already owned and used by people across the world, they are extremely cost effective for listening to audio content (assuming content is in the correct format for the type of phone and the license permits distribution and sharing).

For all of the benefits of smart and basic mobile phones, there are also many misconceptions and limitations that may not be obvious depending on your own experience in your own cultural context. Below are some examples:

- Not every person, or even every family has a mobile phone.
- Not every person is familiar with how to read and navigate digital menus on a mobile phone.
- Most people do not have smartphones and cannot make use of smartphone apps.
- Many people do not have easy access to electricity to recharge their mobile phone regularly, which means that using it as an audio player depletes the

valuable battery life rapidly.
- Many phones do not have a quality built-in speaker for listening with a small group of people or while working.
- Many phones do not have menus that allow for fast, easy navigation in large-sized audio resources, such as OBS, NT's or Full Bibles. This is especially true for people that are less skilled with technology.
- For people that young, old, blind, disabled or are among the 1 billion non-readers, it may be very challenging or impossible to use a mobile device without someone else operating it for them.
- Personal mobile phones are not usually shared or given away to other people or other communities in the way that a Bible or audio Bible player is shared or given away.

It is important to realize that most of the people who historically and presently do not have good access to Biblical content in their language are also unlikely to be able to access content through smartphone apps or internet streaming. It is easy to make an incorrect assumption of which technology best fits the local needs if decisions are based on your own cultural experience or on the marketing and advertising of other ministries.

Audio Players

This page answers the question:

How suitable are audio players for offline use?

There are many audio players being produced today by electronics manufacturers and ministry organizations. The ministry organizations have taken into consideration the many challenging contexts across the world in which people want to be able to listen to Biblical content and have designed players to meet that criteria. An example of a device designed for an incredible level of versatility, durability and utility is the MegaVoice Envoy S player. The Envoy S is approximately the size and shape of a basic mobile phone and has many features highly tuned to the needs of recording teams, ministry leaders and end-users. Some of these features include:

- Field programmable via miniUSB
- Tamper proof onboard memory
- Intuitive, tactile touch navigation buttons make navigation around any audio content such as Scripture, stories or lessons very easy (especially the book, chapter verse structure of Biblical content)
- End-user can bookmark their location at the end of a listening session
- Extremely durable (proven to withstand being crushed by heavy vehicles)
- Can withstand hot, cold, wet and dry climate conditions
- Includes built-in speaker for individual or small group listening
- Headphone jack for private listening
- Built-in solar panel for recharging long-life, lithium-ion battery
- MiniUSB port for additional recharging options including power adapter, laptop USB port or other recharging technology
- Can play continuously for hours on a single charge

A feature set such as this on an audio player can provide a tremendous degree of needed flexibility, intuitiveness and self-sufficiency valued by ministry leaders, families and communities alike.

Dedicated audio players offer many advantages over options like mobile phones or

radios, but they also have disadvantages that should also be considered. Typically, these audio players:

- are not readily available in many local areas, making the hardware more difficult to obtain and service locally (typically serviced through regional distributors)
- require a financial investment upfront, typically by a mission-minded church or organization that is able to absorb costs that would otherwise be too expensive for many end-users

It is important to mention that organizations creating audio players are not doing so in order to "sell hardware" as a lucrative money making idea. On the contrary, the task of designing, testing and manufacturing field-worthy devices is incredibly difficult and expensive. These devices are optimized for the needs of end-users and are more durable than cheap, consumer-grade electronics. To accomplish all of this and make them available at a mission-minded price point requires great vision and commitment to the goal of enabling people to hear God's message in their own language. Without these kinds of audio players, many people would not be listening to Biblical content.

WIFI Hotspot

This page answers the question:

How is content distributed and listened to offline?

An excellent way to distribute multimedia resources to people with mobile devices is by using WIFI or Bluetooth. This can be done using an existing network or from device to device. However, a device such as the LightStream designed by Renew Outreach creates its own local WIFI and Bluetooth radio transmission signal. Multiple end-users can simultaneously connect to these signals and download content from the LightStream to their mobile phone quite rapidly. In addition, the LightStream includes USB ports that can be used to copy content to USB sticks or microSD cards (adapters included).

Radios

This page answers the question:

How can radios be used?

There are advantages to providing audio content on a USB stick, SD card or microSD because many types of locally available radio devices can play content off these memory platforms. For example, the radio shown here is available in local markets in parts of Africa and it can be found in many homes and workplaces. Local tradesmen often know how to service them when they need repair. All that is needed is audio content.

Amplification & Recharging Systems

A tool useful for listening to audio content as a large group is the Solar Case Speaker by MegaVoice. This versatile piece of equipment can serve many purposes for a recording project, for ministry personnel working in remote locations and especially for churches and small groups.

This page answers the question:

What equipment can be used to amplify sound or recharge listening equipment?

The top of the case has dual speaker ports and a built-in solar panel that recharges the encased high-capacity lithium-ion battery. When unzipped, there is room to place a MegaVoice Envoy or mobile phone safely inside. Opening the case gives access to a 3.5mm stereo input cable that connects the speaker to an audio player. A second cable inside serves as a bi-directional charging cable. Utilizing the included adapters, an audio player or mobile device can be recharged from the case speaker battery. Likewise, a standard USB A adapter cable is included that allows the case speaker to be rapidly charged from a laptop USB charging port or other 5VDC source.

The speaker is capable of being very loud and, in an enclosed room, can provide listening coverage for dozens, perhaps even a hundred people. During the recording and editing phase, the solar case speaker can serve as a handy tool for general playback listening.

Wisdom About Best Solutions

This page answers the question:

How can best solutions for distribution be identified?

The best distribution and listening solutions are those which most fully meet the needs of the end-user in their local context. It requires wisdom and discernment to avoid assumptions that one particular method or listening device will work for everyone.
Take time to understand the dynamics of a community and identify the best solutions. With a diversity of needs, a combination of options may be the right solution. Thankfully, working with open-licensed content allows us to finally have the freedom to make the best decisions for distribution!

Recommended Equipment

This page answers the question:

What equipment is best-suited for simple voice recording projects?

There is no shortage of audio equipment being manufactured and it can be a daunting task for a new recordist to begin learning all of the design characteristics and determine which are of the best value for their recording context. In the sections below we will try to provide some helpful information about various types equipment in regard to design, purpose and recommended models for voice recording.

Microphones

A microphone, or mic, is the piece of equipment that captures the character and energy of a sound wave and converts it to an electrical pulse.

This page answers the question:

How is a good voice-recording microphone identified?

Design Types

Microphones are available today in many shapes and sizes, but the visible external differences are not a clear indicator of how the mic will perform in the recording environment. Instead, there are some important internal design characteristics of microphones that play the biggest role in determining its characteristic behaviors and its suitability for voice recording, particularly in sub-optimal conditions. Let's take a look at the common designs for signal transfer method and direction of sensitivity.

Signal Transfer Method

Signal transfer method is not a description any microphone manufacturer uses, but it is a good way to think about the design aspect that registers sound waves and converts them to an electronic signal passed through wires and eventually to the recording device. There are nearly a dozen designs that do this, but only two of them are widely used in the voice recording context this manual is intended to support so we will only focus on those two.

Dynamic - This is a more robust design that relies on sound waves vibrating a thin piece of material, which then moves a coil of wire in close proximity to a magnet, thus generating electrical current in the wires. Dynamic mics are a very solid design that are often characterized as more durable, yet less sensitive than the other common design.

Condenser - This is a design that makes use of a thin material (diaphragm) that is always electrically charged. When sound waves cause it to vibrate, it makes small changes to the electrical field between the diaphragm and a nearby metal plate, thus creating electrical current. This design requires an external DC power source to electrically charge the diaphragm. While dynamic and condenser designs have some general similarities, the constantly charged diaphragm of the condenser design is much more sensitive to sound waves, especially in sensitivity to high frequencies. Condenser mics are considered to be more fragile that dynamic mics. However, many designs are quite durable and condensers have become the design chosen in nearly all consumer electronic devices manufactured today, including mobile phones.

Direction of Sensitivity

Often described as a mic's polar pattern, there are many different designs for how

strongly a mic senses (hears) or rejects sound from different directions. There are three major classifications for polar patterns, only one of which we recommend using for voice recording.

Unidirectional – Unidirectional mics are sensitive only on one side. This design is best for voice recording. Examples of this design include cardiod, hypercardioid and supercardioid patterns.

Omnidirectional – Omnidirectional mics are equally sensitive from all directions. These are not good for voice recording.

Bi-directional – Bi-directional mics are equally sensitive on two opposite sides. These are also not good for voice recording.

Connectivity Types

Microphones are available with a variety of cable connection types. The mics are designed to be compatible with the standard electrical specifications of the intended connecting interface or device. Below we will identify the most common types of connections that consistently produce the best results, are the most reliable and versatile, and are the easiest to use for the task of audio recording.

XLR Connection

This is the most common connection type for professional microphones. Mics with an XLR connection will typically produce the very best audio quality.

XLR mics cannot connect directly to a laptop or tablet. They require the use of an intermediate device like an audio interface or mixing console to convert the signal and/or cable type to one compatible with a recording device. Audio interfaces typically connect to a laptop by USB connection or Firewire connection. Most interfaces provide the recordist with simple analog controls for adjusting mic gain levels and playback listening volume.

USB Connection

USB Mics are becoming more popular because they can simply connect directly to a computer. Originally having poor audio quality, many professional mic manufacturers are beginning to produce USB mics capable of excellent sound quality. Currently, the tradeoff for direct USB connectivity to a computer can be the loss of simple analog controls for both mic gain and playback volume. For many USB mics, these controls are now contained in digital menus in the mic or in the computer control panel settings. In some cases, recording software includes handy shortcuts or features to make level adjustments.

Our testing and research with Android tablets indicates a significant degree of

unreliability among most tablets in recognizing a connected USB mic. So we only suggest that USB mics be used dependably with laptops at this time.

3.5 mm TRRS

TRRS mics are a newer connection style that are compatible with many mobile devices and some laptops wired with a 4-conductor audio jack. TRRS wiring handles incoming audio signals and outgoing audio signals through a single jack. TRRS mics will vary in sound quality and design. Most are ill-suited for quality audio recording due to design. However, there is at least one excellent option available for voice recording at a very affordable price.

It is important to be aware that even if a quality TRRS mic, such as an IK Multimedia iRig Mic Cast, is used the quality of the recorded audio may still be poor. The problem is not with the mic itself, but rather with the trend of poor quality audio conversion hardware in most Android devices.

Recommended Mics

- Audio Technica AT2020USB+ (USB)
- Rode NT-USB (USB)
- IK Multimedia iRig Studio Mic (USB)
- IK Multimedia iRig Mic Cast (TRRS)
- Audio Technica AT2020 (XLR)
- Studio Projects B1 (XLR)
- Shure SM57a (XLR)

Audio Interfaces

Audio interfaces are used to connect a standard professional XLR mic to a laptop.

This page answers the question:

How are good options for audio interfaces?

USB Audio Interfaces

The following USB Audio Interfaces are recommended for their excellent feature sets, ease of use, durability and stability in USB connectivity.

- Presonus Audiobox - excellent sound quality, quiet preamps, easy to setup and operate
- Focusrite Scarlet Solo - excellent sound quality, quiet preamps, extremely easy to setup and operate

Note: Firmware drivers must be obtained from the manufacturer's website or may be included on a CD with the interface.

Firewire Audio Interfaces

We currently have not tested any 1 or 2 channel Firewire audio interfaces for voice recording. Our experience with Firewire interfaces is several years old and primarily with an 8 channel configuration. Therefore, even though Firewire is still an excellent option, we are unable to provide any specific recommendations on equipment.

Firewire has become less popular in recent years as USB has become the preferred configuration (especially in 1-4 channel interfaces) because of advancements in USB data transfer speed, affordability and virtually 100% compatibility with any computer. In fact, Firewire connections have become extremely difficult to find on computers built in the last few years. For this reason and others, we do not recommend Firewire as a new investment for voice recording. However, if a Firewire device is available and your computer has a compatible Firewire port and chipset, the interface will likely yield excellent results.

Playback Monitoring

The following equipment is recommended for playback listening.

This page answers the question:

What listening equipment is recommended for the recording team?

Headphones

- Sony MDR-7506
- Audio Technica ATH-MX30

Monitors

- JBL LSR305 (quality studio monitors)
- MegaVoice Solar Case Speaker (general recording, editing and distribution listening)

Accessory Equipment

The following items are recommended accessory equipment items.

This page answers the question:

What other pieces of equipment are recommended?

Pop Filters & Windscreens

- WindTech PopGard 2000
- H2n Accessory Kit

Cables

- USB A to USB B
- USB A to miniUSB
- USB A to microUSB
- TRRS Extension
- Y-Adapter TRRS
- Y-Adapter TRS
- XLR

Mic Stands

- Gator GFW MIC 0250
- Gator GFW MIC 0821

Recording Devices

The following recording devices are recommended:

This page answers the question:

Which recording devices are recommended?

Laptops

We recommend a laptop with the following specs:

- OS: WIN7 (best) or WIN 8.1
- CPU: Intel Core i3 or i5 @ 2.0 GHz or faster
- RAM: 4 - 8 GB
- Size: 14" or 15.6"

Tablets (Android)

- LG G Pad 2 – 8"
- LG G Pad – 10"
- Lenovo Tab 2A – 10"
- Nvidia Shield K1 – 8"

Portable Handheld Recorders

- Zoom H2n

Recommended Software

This page answers the question:

What software is recommended for voice recording projects?

The software recommended in this module is selected based on design, functionality, ease of use, intuitive user interface and cost effectiveness. We are especially appreciative and like to use excellent open-source or free software whenever possible, knowing that costs and licensing are typically an access barrier for the global Church.

Recording & Editing Software

The following software is recommended for recording and editing audio.

This page answers the question:

What software do you recommend for recording and editing?

Windows OS

- **Ocenaudio** – Best free software for simple, efficient recording/editing. Intuitive interface and well-equipped for all basic tasks. Recordists familiar with Adobe Audition will recognize and appreciate the speed and functionality of essential procedures in Ocenaudio.
    - **Adobe Audition** – Best paid recording software for voice recording. New version (Adobe CC) can be very expensive and user interface is far more complex than earlier versions. However, for advanced level editing Adobe Audition's included tools are impressive and can accomplish things free programs cannot begin to do. If a discontinued copy of Audition 3.0 is obtainable, users will find it to be the ideal balance of a simple, intuitive user interface and well-equipped tool set.
- **Audacity** – Free recording/editing software, yet lacking in design and features that enable productivity and efficiency when compared to Ocenaudio and Adobe Audition. However, it possesses many editing and audio restoration tools not found in Ocenaudio's basic editing toolset (although not of comparable quality to Adobe Audition) that advanced level recordists may find very useful.
    - ***Notes about Audacity:*** *The conventional Save command will save your recorded audio files in Audacity's proprietary format which is not useful. Be sure to use the Export Audio command to save files in compatible formats such as WAV (best quality) or MP3 (low quality). If you plan to edit or save files in mp3 format you will need to download and install this* MP3 Encoder.

Android OS

Note: Audio quality results vary depending on device A/D convertors. Please refer to module with list of recommended tablets.

- **WavePad Free** - WavePad Free is the best free audio recording/editing app for the Android platform and is equipped with the essential tools needed for efficiency in nearly any recording/editing task. Upgrading to paid version eliminates advertising, allows for saving to MP3 format and several other tools and options.
- **translationRecorder (tR)** – translationRecorder is in early development stage. It is a simple recording app with an emphasis on intuitive function. It has marker cues, a good file naming system and the ability to save directly to microSD card. It has very limited editing capabilities.

Format Conversion Software

The following software is recommended for converting audio file formats.

This page answers the question:

What software do you recommend for converting file formats?

Windows OS

- Media Human Audio Converter - Free, easy to use batch file format convertor.
- Adobe Audition – Excellent, powerful format conversion available as a batch process.

File Renaming Software

The following software is recommended for renaming files.

This page answers the question:

What software do you recommend for renaming files?

Windows OS

- Bulk Rename Utility - This is a powerful tool providing a tremendous degree of versatility in renaming files. Provided instructions are minimal so we have created our own covering the most common file renaming tasks for audio.

Next we recommend you learn about:

How to Rename Files with Bulk Rename Utility

Metadata Encoding Software

The following software is recommended for coding the metadata properties of MP3 and MP4 files.

This page answers the question:

What software do you recommend for encoding metadata?

Windows OS

- Mp3Tag - Free software for writing and editing file tags/meta data properties of mp3 and mp4 files.

File Sharing Software

This page answers the question:

What software do you recommend for sharing files?

Windows OS

- SHAREit - This is an excellent file transfer app that makes use of a WIFI or LAN connection to transfer files (uses a network connection but not internet). This app is particularly helpful in the more difficult task of transferring files between laptops and mobile devices and is significantly faster than Bluetooth.
- Dropbox – This software provides 1 GB of free cloud storage with the ability to share files and folder with people across the world. Excellent way to transfer files long distance.

ANDROID OS

- SHAREit - This is an excellent file transfer app that makes use of a WIFI or LAN connection to transfer files (uses a network connection but not internet). This app is particularly helpful in the more difficult task of transferring files between laptops and mobile devices and is significantly faster than Bluetooth.
- Dropbox – This software provides 1 GB of free cloud storage with the ability to share files and folder with people across the world. Excellent way to transfer files long distance.

Guides

This section contains a variety of "how to" guides and tips for using equipment and software.

This page answers the question:

Are there any guides that explain how to use the equipment and software?

Optimize Your Laptop for Recording

This page answers the question:

How can I optimize my laptop for recording?

Audio recording requires a higher performance level from a computer than typical home or office use. If the health of your computer is poor, or its capacities are already stretched, it could have a negative impact on recording, ranging from slowed productivity to increased cost to file corruption. Here are some suggestions to get your computer in the best condition for recording.

Free Improvements

The following suggestions are steps that can be taken for no cost.

Disconnect unnecessary USB peripheral devices - It is a smart step to disconnect any USB devices not needed during recording. This will help your computer supply full, stable voltage to sensitive USB recording gear. Too many devices drawing power from USB ports can cause the voltage level to drop or fluctuate outside of required parameters.

Turn off scheduled tasks - Maintenance tasks such as a system backup or a virus scan can draw too much of your available power while recording. They can also force the computer to work very hard. These additional demands can cause the cooling fans to run faster and louder, which could add extra noise to the recording.

Turn off automatic updates - If you have programs set to auto-update, it is nearly a guarantee that at least one will decide your recording session is the ideal time to begin an update. At the very least, it will divert system resources to the updating process and interrupt your work with notifications. Sometimes updates can cause system crashes. None of these things are helpful or necessary to have happen during a recording session. Configure these settings to manual and take care of updates when it is convenient outside of recording time.

Empty temporary and deleted file caches - Use a light-weight software program such as CCleaner to remove old files that have built up in your system memory over time and claim valuable RAM and hard drive space.

Scan for viruses and malware - If you have viruses or malware busy in the background they can steal valuable power that you need for audio processing. Install and run excellent, free, light-weight programs such as BitDefender Free and Malwarebytes to remove any issues from your computer.

Uninstall unnecessary programs - Get rid of unnecessary programs and other items if you don't need them on your hard drive. Beside the possibility of those programs running in the background or wanting to update, they take up hard drive space. Most hard drives begin to lose speed and performance when more than two-

thirds full. So maximizing space for your new audio material and "empty" space will yield the best performance.

Log out of online services - Online services (email, IM, Facebook, media streaming, etc.) draw processing power and can give distracting notification messages and sound effects. Log out of those and close the programs. To be even more efficient, disconnect from the LAN or wireless network while recording.

Turn off Aero - Windows Aero is a feature that adds luxury to visual experience of using Windows. To do this Aero reduces the speed and performance of your laptop slightly. It is easy to turn off Aero so that that more processing power can be devoted toward your audio project. Follow these steps:

1. Right click anywhere on the desktop screen.
2. Select "Personalize" from the menu that appears.
3. Scroll to find the category called "Basic" themes and select one.

Low-cost Hardware Improvements

Audio recording can be an intensive process on CPU, RAM and Hard Drive read/write capacity. Most likely you cannot upgrade your CPU, but often the RAM and Hard Drive can be upgraded for significant results (be sure to check for compatibility and have skilled assistance, if needed, before purchasing new hardware or attempting upgrades).

Upgrade RAM - Many consumer-grade computers have room for additional RAM on the motherboard. If your computer has an unused memory channel or is rated for higher total RAM than you currently have, upgrading is typically inexpensive and not labor-intensive. Ideally you would like to have at least 4GB of total RAM, but 8GB would be much better.

Upgrade to a Solid State Drive - Changing your Hard Drive (HDD) to a Solid State Drive (SSD) will give a significant boost in performance. However, it is a much bigger process and significantly more expensive than a RAM upgrade. Prices are improving on SSD's, but expect to pay at least $US 0.75/GB for decent quality. Replacing your 512 GB or 1 TB HDD with an equal size SSD could easily be cost-prohibitive. But many times a SSD of 256 GB or less could revitalize a computer if new recordings were periodically transferred to other storage drives and the computer was not storing large amounts of other data.

Zoom H2n Setup (USB mode recording)

The following guide describes how to setup the Zoom H2n mic for USB recording.

This page answers the question:

How do I setup the Zoom H2n for voice recording?

Mic Settings

The H2n has 4 optional microphone pickup patterns that can be selected using the dial located on the top of the unit. Only one option is optimized for voice recording. Here is how to configure the proper settings:

The arrow on the dial should be turned to point to the MS setting. Next, toggle and hold the PLAY switch to the up position. This will cause the screen to display MS SIDE MIC LEVEL. Holding the PLAY switch upward will reduce the input sensitivity of the side stereo mics. Keep reducing until the screen indicates S:OFF (MONO).

Why these settings? As much as possible, we want maximum sound to be captured from the direction of the sound source (voice asset) and minimum sound to be captured from the other 3 directions (background noise & echo reflections of voice).

Connecting to Laptop

The Zoom H2n requires a USB → microUSB cable to connect to a laptop. A cable is not included with the mic, but is available with the Zoom H2n Accessory Kit. A USB cable with shielding is recommended.

Once the cable is connected, a few settings must be selected on the LCD screen before the mic will be activated to communicate with the recording software. On the LCD screen, take the following steps:

1. Toggle and select AUDIO I/F
2. In the AUDIO I/F menu, toggle and select CONNECT

The mic is now recognized by the software. However, one more step is necessary within the software to select the Zoom H2n as the input device. Depending on which software you are using, this if typically selected in the Preferences menu or Audio Hardware menu.

Mic Positioning

WARNING: The side of the mic that has the LCD screen is actually the back side of the mic! If you record from the LCD screen side you will get a horrible recording.

Be sure to record using the side opposite the screen (the side with the battery compartment). Another reference indicator is that the arrow on the dial will point to the correct side and a red LED is illuminated.

If possible, use a tripod stand or elevate the mic so that it is not sitting directly on a flat hard surface that will reflect sound. The threaded socket in the bottom of the H2n is compatible with Zoom stands and also should fit most camera tripod stands.

It is always a good idea to record using a pop filter or windscreen. If one is available, it will greatly raise the quality of your recording. The accessory kit includes a windscreen designed to fit the shape of the Zoom H2n mic capsule.

Position the mic 4 – 6 inches from the reader and at a 45 degree angle, offset from the path of the wind of their voice. This will help to prevent volume spikes, breath noises and bassy plosives from words that begin with "P".

Setting the Mic Gain

The H2n has a handy gain adjustment dial on the side. Adjust gain so that the input level consistently registers between -12 and -6 dB in your editing software waveform view. Momentary peaks registering slightly above -6 dB are fine. However, hitting 0 dB should be avoided because it means the audio recording will be distorted. Distorted audio is permanently ruined and cannot be fixed later through de-amplifying.

Ocenaudio Workspace Setup - WIN OS

This guide describes how to setup and optimize the workspace in Ocenaudio for voice recording projects.

This page answers the question:

What are the best workspace settings for Ocenaudio?

Step 1. Launch Ocenaudio

Launch Ocenaudio from taskbar, start menu or desktop shortcut.

Tip: - If you have WIN7, make launching Ocenaudio easy by right clicking on the Ocenaudio shortcut on your desktop. Select Pin to Taskbar. Now you will see the Ocenaudio icon in the task bar along the bottom of your screen. From the task bar you can launch Ocenaudio with a single click. If you like that option better, you can make your desktop cleaner by right clicking on the Ocenaudio shortcut again and selecting Delete.

Step 2. Set Audio File Properties Default

In this step we will create a new audio file and choose the audio file properties (these are different than file format). The properties we select will be remembered as the default settings for future new files.

1. In the main menu bar, click on File.
2. Select New.
3. In the small New Audio window, select the following:

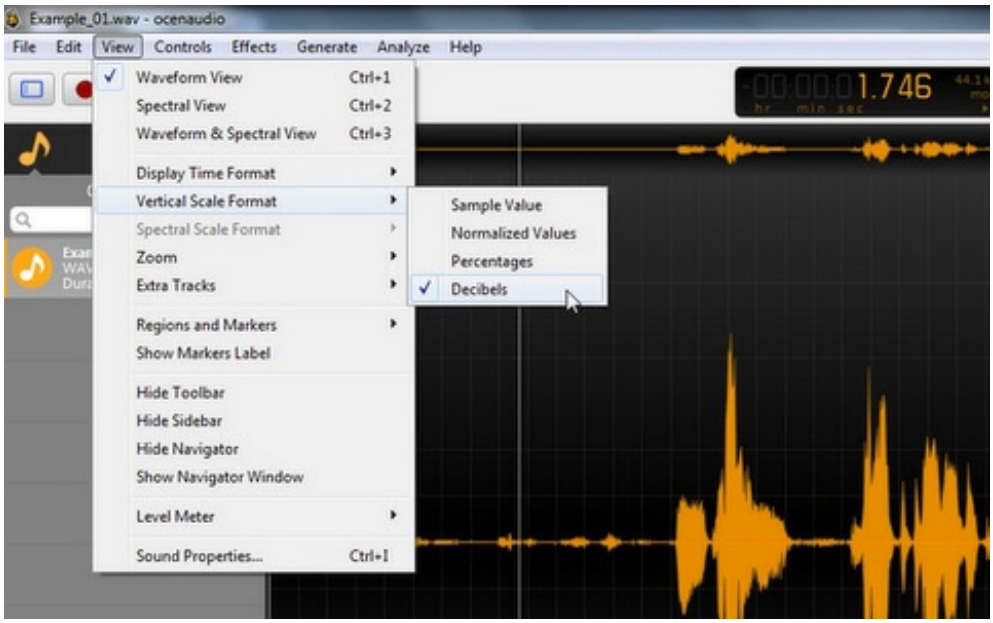
    - Sample Rate = 44100 Hz
    - Channels = Mono
    - Resolution = 16 bits

4. Click OK

Step 3. Choose Vertical Scale Format

In this step we will choose which measurement format will be displayed to the right of the Waveform Editor. We recommend using Decibels.

1. In the main menu bar, click on View.
2. Navigate down to Vertical Scale Format and select Decibels.



Step 4. Make Level Meter Full-size and Visible

1. In the main menu bar, click on View.
2. Navigate down to Level Meter and select Full-size Level Meter.

You will now see a digital meter along the right hand side of your screen. It displays the decibel level of your recording from -60dB to 0dB.

Keyboard Shortcuts - Ocenaudio

This guide describes helpful keyboard shortcut keys for recording and editing audio in Ocenaudio.

This page answers the question:

Are there any useful keyboard shortcuts for Ocenaudio?

Shortcut Keys

- Record/Stop Record = R
- Play/Stop = Space Bar
- Delete = Delete or Backspace
- Copy = Ctrl + C
- Paste = Ctrl + V
- Undo = Ctrl + Z
- Redo = Ctrl + Y
- Select All = Ctrl + A
- Create Marker = Ctrl + K
- Zoom = Use mouse scroll wheel to zoom at cursor location

Customizing Shortcut Keys

Keyboard shortcuts can be customized by:

1. Clicking on Edit in the toolbar menu
1. Selecting Preferences
1. Clicking on the Key Bindings tab

Keyboard & Mouse Shortcuts for Audacity

The following keyboard shortcuts are helpful for many routine operations of recording and editing audio. For a complete list of shortcuts, launch Audacity and go to: Edit → Preferences → Keyboard.

This page answers the question:

Are there any useful Keyboard or Mouse Shortcuts for Audacity?

Basic Functions

- Record = R
- Play/Stop = Space Bar
- Pause = P
- Delete = Delete or Backspace
- Copy = Ctrl + C
- Paste = Ctrl + V
- Undo = Ctrl + Z
- Redo = Ctrl + Y
- Select All = Ctrl + A
- Skip to Start = Home
- Skip to End = End

Zoom In/Out

There are several ways to accomplish zooming in/out of tracks:

- Zoom In/Out = Ctrl + mouse scroll wheel. Zooming will occur at the location of cursor.
- Zoom In = Ctrl + 1
- Zoom Out = Ctrl +3
- Zoom to default view = Ctrl + 2
- Zoom to full view of track(s) horizontally = Ctrl + F
- Zoom to full view of track(s) vertically = Ctrl + Shift + F

Timeline Navigation

- Move ahead/back = Shift key + mouse scroll wheel
- Move to start = J
- Move to end = K

Labels (Single location and Regional)

Labels can be added to mark important locations or entire sections of recorded audio. 1. Click at the location (or select a section) that you want to identify with a label. 1. Then press Ctrl + B.

Moving Sections of Audio Within Timeline

To move/align a section of audio within a track (for example, if you are pasting together separate audio track into one full tracks)

1. Click on the Time Shift Tool [↔],
2. Then click & drag sections of audio to the right location in the timeline.
3. Remember to return to the Selection Tool [I] when you are finished aligning sections.

Exporting (Saving) Your Files

Audacity will want to save your audio file in their own proprietary format (.aup) if you click Save Project or press Ctrl & S. We do not want to save audio in their format. We want WAV (best quality/large file size) or MP3 (standard quality/small files size). To save in either of these formats:

1. go to File → Export.
2. Name your file.
3. In the "Save as type" drop-down menu, select either WAV or MP3.
4. Click the Options button if you are saving as MP3. Choose these settings:

    - Bit Rate Mode: Constant
    - Quality: 128 kbps
    - Variable Speed: N/A
    - Channel Mode: Joint Stereo

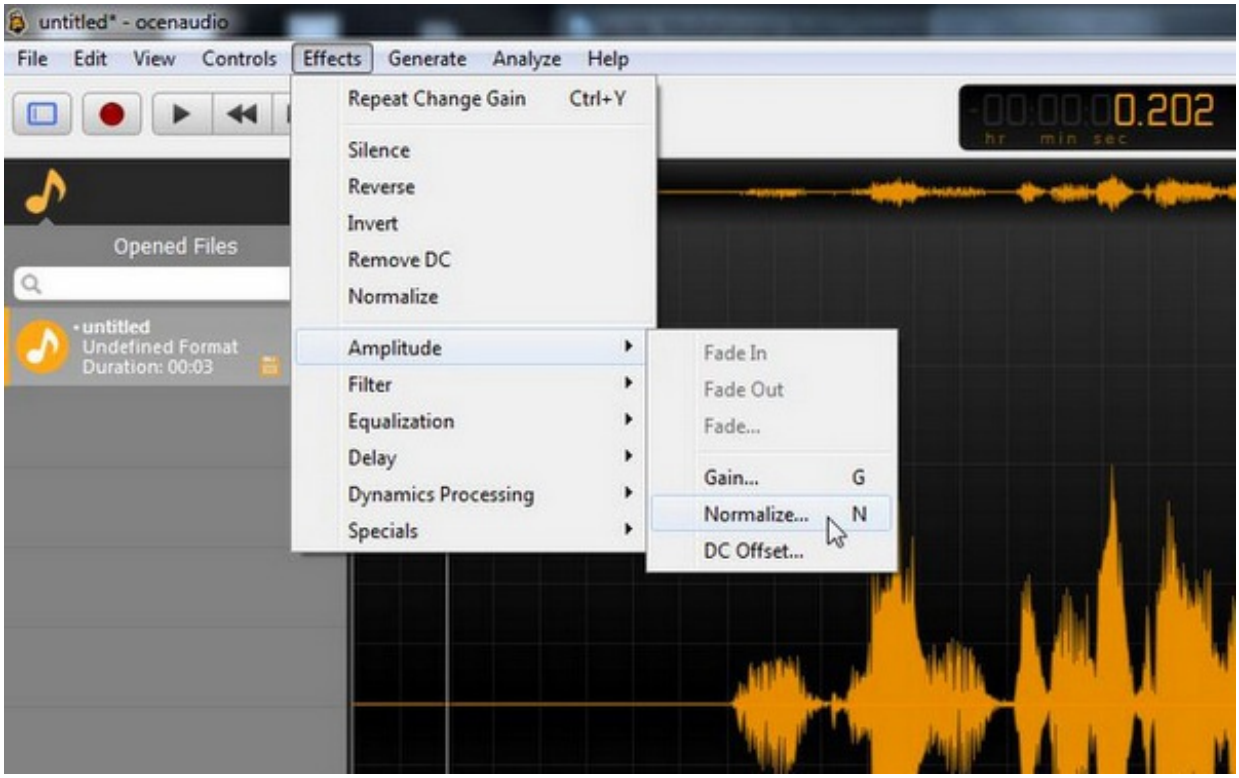
How to Normalize an Audio Track

This guide discusses how to normalize and audio track.

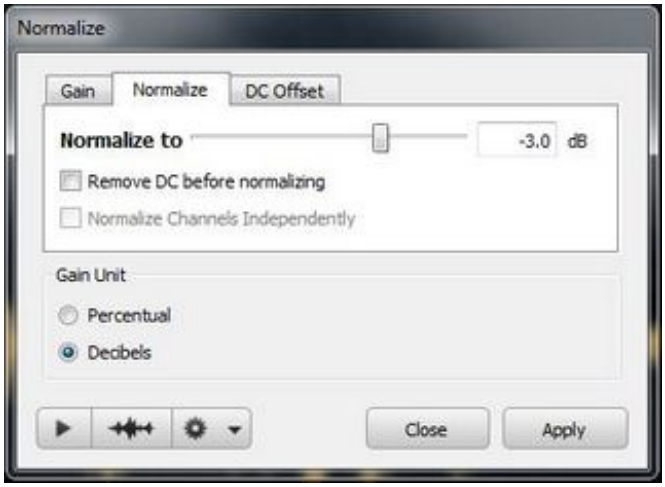
This page answers the question:

How do I normalize an audio track?

Normalizing is the process of setting the loudest point of an audio track to a specific amplitude level. In our work, we will be normalizing the audio track to -3 dB, which will raise or lower the entire track amplitude to make the loudest point exactly -3.0 dB. The following is how to normalize an audio track in Ocenaudio.



1. Make sure the file you would like to normalize is the active track in the waveform editor.
2. Click on Edit → Amplitude → Normalize... (or press the shortcut key, we assigned "N")
3. In the Normalize window, set the target to -3.0 dB and click Apply


Normalize
Gain
Normalize
DC Offset
Normalize to
-3.0
dB
Remove DC before normalizing
Normalize Channels Independently
Gain Unit
Percentual
Decibels
Close
Apply

How to Convert File Format (Batch Process)

This guide describes how to convert audio file formats.

MediaHuman Audio Converter is a free software that makes it easy to create formats for distribution.

This page answers the question:

Are there any guides that explain how to use the equipment and software?

In the example below, we will show how to use MediaHuman Audio Converter to create MP3 files from a set of WAV files. We are going to chose to make standard quality MP3 files (44.1 kHz, 128kbps).

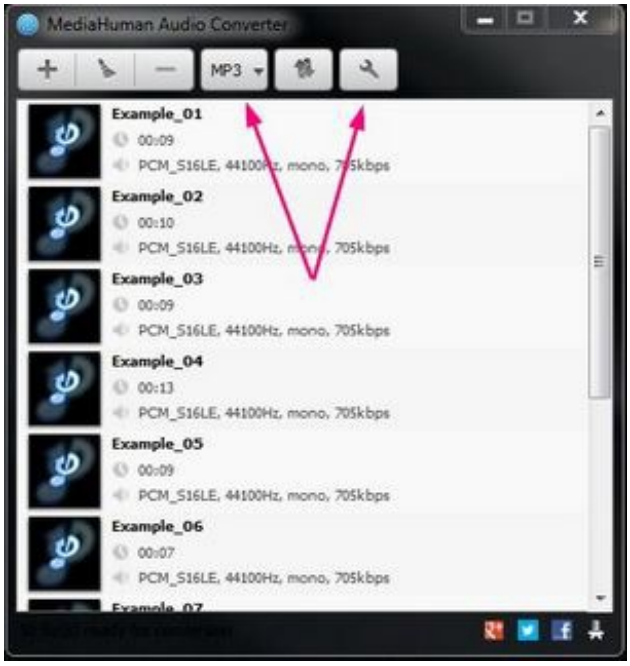
Step 1: Add files

Files can be added to MediaHuman Audio Converter in 2 ways. One option is to click on the + button to launch Windows Explorer and navigate to the folder with files you would like to convert. The other option is to simply select, drag and drop the files into the converter window.

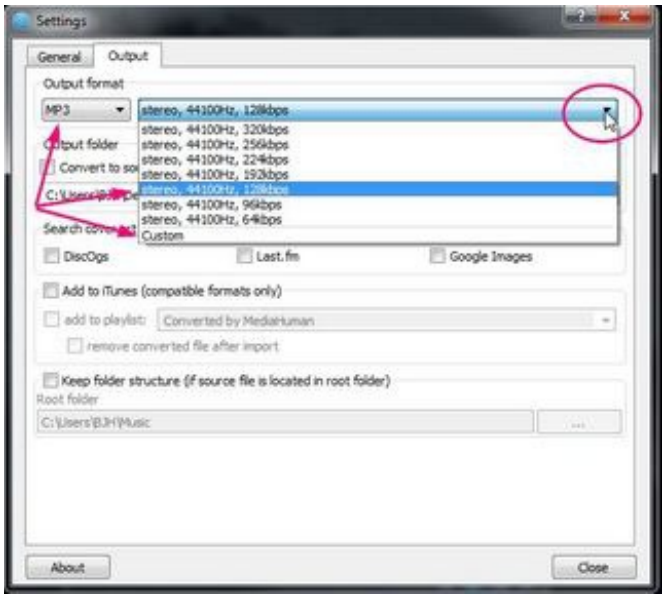
Step 2: Choose Output Format

There are 2 ways to reach the location where the output format can be changed.

- Click on the output format button
- Click on the settings button

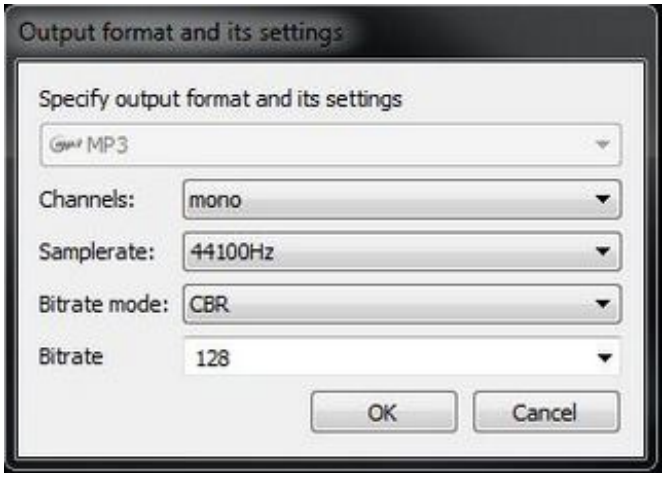


From the drop-down menu boxes, select the desired format settings. In this example, we are selecting MP3 format, 44100Hz, 128kbps. By default, MediaHuman offers this setting in stereo format, even though our source files are mono. We can either leave the setting as stereo, or we can make a custom setting for mono by choosing "Custom" from the format settings.



Creating custom settings is easy and these settings will be remembered by MediaHuman for future conversion projects. To create custom settings for the format we are creating in this example, we would make the following selections.

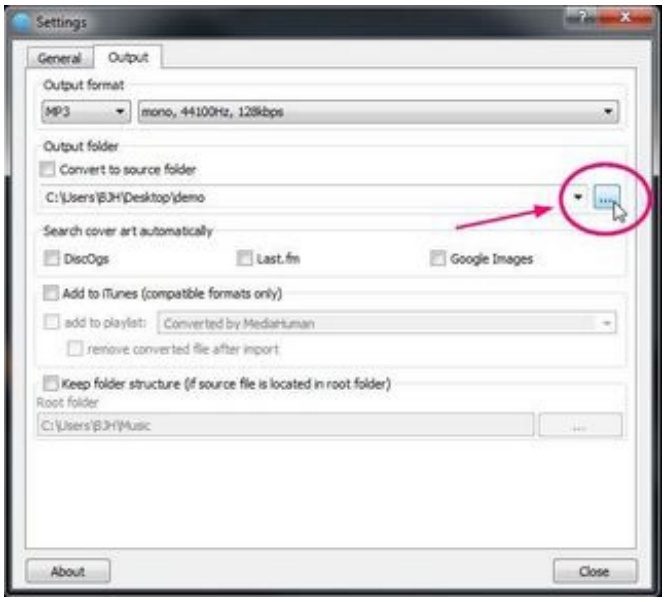
- Channels: mono
- Sample rate: 44100Hz
- Bitrate mode: CBR
- Bitrate: 128



Step 3: Choose Output Folder

Click on the ... button to choose the output folder. You have two options.

- Use an existing folder
- Create a new folder



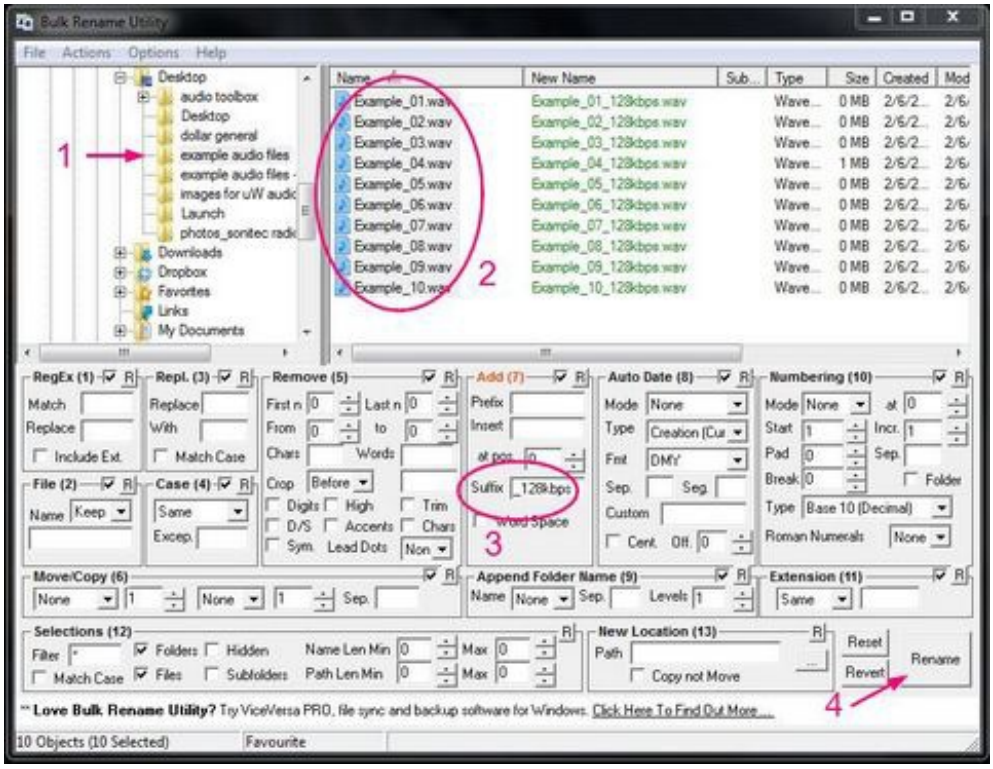
How to Rename Files with Bulk Rename Utility

This page answers the question:

How do I rename groups of files?

Before proceeding with renaming files, make sure you have made a backup copy of your files. We also recommend using Mp3Tag to create metadata tags that clearly identify every audio track by its official name according to the File Naming Standards. This will allow you to always be sure of what the original file was, even if the file name has been changed.

Below we will describe how to add a suffix to an audio file name.



1. Navigate to the folder containing the files you would like to rename.
2. Select all the files you would like to rename
3. In the suffix field, enter _128kbps
4. Click Rename

Checklists

This section contains checklists to aid in the planning and process of audio recording projects.

This page answers the question:

Are there any helpful checklists?

Checklist - Preparing for a Recording Project

This page answers the question:

What things need to be remembered for preparing recording projects?

The Team (recruit and explain responsibilities)

- Narrator
- Checker
- Recordist/Technician

Recording Location

- Have arrangements been made to use the location?
- Transportation arranged?
- Recording schedule made and agreed upon?

Sound Treatment

- Does the recording location have problems with sound quality (external or internal)?
- Are any materials needed to improve the room?
- Are any materials needed to isolate the mic?

Layout of Space

- How will the team be positioned in the recording area?
- Can the team adequately communicate orally and visually with one another?
- Are any tables or chairs needed

Logistics, Lodging & Meals

- Have all transportation needs been planned for?
- Have any lodging needs been planned for?
- Have all food needs been planned for (onsite or offsite)?

Equipment (test and bring all that apply)

- Laptop for recording
- Laptop mouse
- Laptop power adapter
- Tablet for recording or viewing text
- Power adapter for tablet
- Mic
- Cable for mic (USB or XLR)
- Audio Interface (for XLR mics only)
- Pop filter or windscreen for mic (to reduce wind from voice)
- Mic stand
- Headphones
- Small speaker or other listening equipment for team, unless laptop is loud

enough
- 3.5mm TRS Y-Splitter Cable to connect both headphones and speaker
- Hard Drive or flash for backing up original files
- Electrical outlets and extension cords

Software

- Recording software installed
- Recordist is trained on using the software

Text

- Copy of text for each team member in best format for them
- How will they view it? If digital format, are tablets or laptops needed?

Daily Schedule

- Does everyone know the daily recording schedule?

Checklist - Recording Process

This page answers the question:

What things need to be remembered for the recording process?

Getting Setup

- Is team positioned and comfortable?
- Can the team see each other and communicate well?
- Does everyone of the team have easy access to seeing the text?
- Is mic placed in correct position
    - hand-length from narrator?
    - angled and offset from direct blast of wind from voice?
    - not pointing toward noise sources such as laptop fans?
- Does each person understand their responsibilities?
- Setup and connect recording and listening equipment
- Create folder on laptop for this recording project audio files
- Pray together and encourage the team

Set Mic Gain level

- Create a new file with proper settings and begin a test recording
- Is voice signal at correct level? (-6dB typical peak, ranging to -12dB, with no peaks reaching 0 dB)
- Is noise floor at correct level? (-45dB or less)

Recording

- Create new file, save as WAV format
- Record small sections at a time, then play back to check for quality
- Save frequently during process
- Place markers at the beginning of each frame (picture)
- Is narrator being consistent?
- Is checker checking for quality?

Editing

- Edit gaps/breaks for natural flow
- 1 second of silence at beginning
- 1 second of silence at end
- Save final version
- At break time, save a backup copy of newly finished files to a flash drive

REMEMBER: Save audio in WAV format and make a backup copy of your files.