

BWFmerge Manual

June 2019

Version 1.2.1

Platforms: Windows and Mac

www.VideoToolShed.com

What's new:

Way faster processing on longer / bigger files

Output automatically to subfolder named after recording date

'Spanned clips' (those going over the recording time you have set, or the 2/ 4 gig limitation are now also supported when working with a Master folder.

Bugfixes

Older changes

Added support for sample rates other than 48K

Added an option for custom output naming

1 General remarks

1.1 Purpose

Merging BWF files (mono or poly) with or without same start times to a new poly BWF file, while retaining the BWF metadata, and create a Sound Report.

1.2 File formats supported

You can work with

For input:

- Wave (BWF) files Mono or Poly

If the output goes over the 4 gig Wave limit, the new file will be RF64

1.3 Who should use this?

Anyone who uses multiple recorders or records mono, and wants to deliver one big file with all tracks in sync.

Typically used when you run out of tracks on one recorder and have to add a second, or have multiple recorders (eg on Reality soap shows)

1.3.1 Please read the manual before you start.

A lot of questions you might have will be answered here. To make this manual easier to read:

on the left side of your PDF viewer there is probably a button that gives you an interactive table of contents while scrolling. Or, enable 'bookmarks' in your PDF viewer.

If you run into trouble, do check the [Errors chapter](#).

1.4 Demo limitations.

The demo allows you to process just one merged clip, and then will quit.

2 Index

Table of Contents

1 General remarks	1
1.1 Purpose	1
1.2 File formats supported	1
1.3 Who should use this?	1
1.3.1 Please read the manual before you start	1
1.4 Demo limitations	1
2 Index	2
3 Installation	3
3.1 Installing for Mac	3
3.2 Installing for Windows	3
3.3 Registration	3
3.4 Uninstalling	3
4 Introduction	4
4.1 Before you start	4
4.2 Good practice for storing your Wave files	4
4.3 If you are afraid going over 4 gig	4
5 How to operate	5
5.1 General	5
5.2 Patching	5
5.3 Clips with no match	5
5.4 New Tape Name	5
6 The interface	6
6.1 The Menu functions	6
6.2 Menu 'file'	6
6.3 Menu 'Setup'	6
6.4 Menu 'Help'	6
6.5 The graphical interface	6
7 Metadata	7
7.1 About BEXT	7
7.2 About iXML	8
7.3 Relinking and UMID	8
7.3.1 Avid MC and BWF metadata	8
7.4 Avid ALE	8
8 The 4 gig limitation	9
9 Errors	10
9.1 App will not start or behaves strange	10
9.2 If the application seems to hang	10

3 Installation

All VideoToolShed products come without an installer.
Nothing gets changed to your operating system!

3.1 Installing for Mac

Drag the entire folder to your applications folder on your harddisk.
You can make shortcuts on your desktop / toolbar if you like, just drag the main application there.
DO NOT try to run the application from within the Disk Image, this will NOT work!

3.2 Installing for Windows

Drag the ENTIRE folder to your harddisk. Avoid long pathnames, so you could make a Directory called 'videotoolshed' and put the application directory in there.
Right click the application, and select either 'pin to taskbar', or 'pin to Start menu'.
Alternatively, you can drag the icon to your taskbar or start menu.

3.3 Registration

Choose 'Register' from the file menu. A new window opens. If you have bought the program, you've got a mail with a serial number. Copy / paste the serial number in the Register window, and press 'done'.

3.4 Uninstalling

Just delete the entire application folder. That's it!

4 Introduction

WARNING

IF YOU DO NOT USE A CUSTOM FILENAME PREFIX:

On output, if a file already exists, a new one will be made with the extension `_newXX.wav`

This `_newXX` will NOT match the metadata inside the clip, so rename it back if you want to use that specific version. Sound Report and ALE will always be overwritten.

4.1 Before you start

Edit the 'CSV_Header.txt' file in the UserSettings folder. (Using a simple text editor like NotePad)

Note, the CSV is comma delimited, if you use a comma (eg in the Notes) it will be swapped out for an underscore (`_`)

After running a batch, there is a CSV saved next to the output files, called 'soundreport.csv'.

4.2 Good practice for storing your Wave files

Keep your source files in separate folders for each recorder and have folders per day if you want to process multiple days at once.

Eg:

Day1

Rec_A

Rec_B

Day2

Rec_A

Rec_B

But, if you want to work with a Master folder, it's better to do it like this:

Rec_A

Day_1

Day_2

Rec_B

Day_1

Day_2

For processing multiple shooting days, make sure you have checked 'Date must match', and / or 'Userbits must match', and indeed your files have matching metadata along different recorders. (And are different per day of course.)

If there is a problem with the metadata, you have no other option than to make batches per day, or you might end up merging files from different days together.

4.3 If you are afraid going over 4 gig.

You CAN output over the 4 gig limitation, but if that happens, the output file will be RF64.

Considering that if you use this program, you work in a high end environment where that should be no problem whatsoever. But, some outdated software (Eg QuickTime 7, Wave Agent) are not able to handle these files.

5 How to operate

5.1 General

Either use the graphical interface to add folders, or drop one or more clips / folders onto the application.

You'll see the clips in the left column. Click on one to get detailed info on that clip.

If one or more clips with overlap are found, they are shown in the right column.

If you **double** click on one in the right column, you get info on what clips end up in the output.

If you **single** click on one in the right column, a timeline is shown how the clips relate.

(Note, clips with overlap should live in separate folders, as the timeline displays clip(s) on a track1 from folder 1, clips on track 2 from folder 2 and so on. If overlapping files are in the same folder, it will still work, but the timeline will not show meaningful info.)

There are two ways of merging, with or without a Master folder.

With a Master folder:

The application will use the in/out time of all clips in the master folder, and find overlapping clips in other folders. It will merge them, and in/out time of the output file will be those of the master folder.

(Thus potentially trimming something off the other clips.)

Without a Master folder:

The application will find all overlapping clips and create a new clip that has the start time of the lowest clip, and the end time of the highest clip. This allows for 'checker-boarding'.

So, if all recorders start / stop a couple of times at different times than another, but at least one of the recorders is running, a huge clip is created with all the sound in it.

5.2 Patching

After loading clips, on the right side of the interface, you can re-order the tracks to your liking.

Click on one of the clips in the right column to show the names.

If the track names change over the clips, that won't be a problem, the track names as in the source clips still will be used.

If the output track amount changes, it will also not be a problem, but obviously that will imply that unexpected things WILL happen.

If you patch other than 1 to 1, the color of the buttons for the custom patched channels will change.

Red indicates that a track is double used (and thus one track will be missing), green indicates that all channels will be in the output file, but some (or all) on a different track.

If you do not patch, the amount of input / output channels is unlimited.

If you DO want to patch, do NOT patch more than 25 channels, or unexpected things might happen.

5.3 Clips with no match

They will be copied as well. If patching is set, the same patching will apply. If not, they will simply be re-wrapped, and the metadata will be in the ALE and SoundReport

5.4 New Tape Name

If you need to set the Tape Name for your output file (Eg if you use Titan or EdiLoad), you can check the 'Use outputfolder as Tape' checkbox. If unchecked, the Tape info from the original is used. (If present of course)

6 The interface

6.1 The Menu functions

On Windows, the Menu is on the top of the application window.

On Mac, the File menu is on top of your screen, if the application is active. (Click on it to make it active.)

6.2 Menu 'file'

- **Register:** Opens the Registration window where you can put your serial
- **Quit:** Ends the program

6.3 Menu 'Setup'

- **Reset Master folder:** sets the master folder to nothing, so you run without Master
- **Reset Patch:** output track order will be 1 to x file 1, then add 1 to x from file 2 etc.
- **Config BEXT contents:** will give you the option what to put in / leave out the BEXT chunk.
- **ALE is CUSTOM instead of HD:** will set the ALE to CUSTOM instead of 1080

6.4 Menu 'Help'

- **Open Help:** Shows this manual
- **About:** Shows the version of the software you are running

6.5 The graphical interface

The buttons:

- **Add input folder:** Select your source folder files. There can be sub-folders in there.
- **Pick Master folder:** Point to a folder that you want to assign as a Master folder. Again, there can be sub-folders in there. (Or it could already have been picked, that won't be a problem.)
- **Make Poly:** It will ask you for an output folder and start the process.
- **Clear input list:** Removes all the loaded files for a new batch.
- **Reset Patch:** output track order will be 1 to x file 1, then add 1 to x from file 2 etc.

The checkboxes:

- **Use Outputfolder as tape:** When selected, Tape metadata will be the folder the new clips en up.
- **Date must match:** When selected, only files with matching Shoot Date will be merged.
- **Userbits must match:** When selected, only files with matching Userbits merged.
- **Use Outputfolder as Tape:** If you need to set the Tape Name for your output file (Eg if you use Titan or EdiLoad), you can check the checkbox. If unchecked, the Tape info from the original is used.
- **Use Filename Prefix:** If you check this, the output file name will be created from the text input before the checkbox. If Unchecked, the filename of the first input track will be used.

The Custom Filename prefix textbox:

By default, the current date is inserted there. If you want to keep the original filename, make the textbox empty. If there is text inserted, output filename will be the text, followed by a dash, followed by a three digit number (upnumbering by itself) and the extension.

So, if you leave the date as it is, your files will be named 02282019-001.wav.
It will NOT overwrite existing files now, it will just upnumber!

7 Metadata:

BWF files can hold metadata in two places:

Old style is in the BEXT chunk, new style is iXML chunk

(A chunk is a piece / block in the .Wav file.)

Both can be used in the same file. (And BWFmerge uses both!) Now, in an ideal world, only the iXML part should be used by an application. (It will not surprise you we sadly live on another planet...)

7.1 About BEXT

The BEXT chunk has limited space to put info. (That's why later on iXML was added.)

You want track names, recording date, comments (Notes) etc.

Now that info must fit into 256 bytes (read: characters.)

With lots of tracknames that space is easily filled. (Mind you, per item inside the BEXT metadata, 8 characters extra are added to describe what it is.)

Bext metadata looks like this:

vTAKE=01

vSCENE=35T-1

vTAPE=17Y09M27

vTRK1=MixL

vTRK2=MixR

For maximum compatibility, you should make good use of the space available here.

To decide what is really important to see for the guy after you, you can select what to add / leave out of the BEXT chunk.

To do so, go into the Setup menu, and choose 'Config BEXT contents'

Do note. The metadata you leave out in the BEXT chunk is NOT lost!.

It will end up in the Ixml, and it will end up in the Sound Report.

You can enable / disable the following metadata:

- Speed: If you disable this, some software might ask you how to interpret the timestamp
- Take: Up to you if you need it
- Userbits: Up to you if you need it
- Project: Up to you if you need it
- Scene: Up to you if you need it
- Filename: Up to you if you need it, I don't think it's important.
- Tape: MANDATORY if you want to use an ALE!
- Tracknames: Up to you if you need it
- Note: Up to you if you need it

If you have enabled 'Notes', but the BEXT will be too long, notes are left out automatically to ensure good compatibility.

7.2 About iXML

BWFmerge uses SoundDevices style iXML metadata.

This means, if you use a Cantar, some metadata might get lost.

(Cantar writes tons and tons of metadata.)

If there is something missing in the iXML, let us know and we'll see if we can add it.

7.3 Relinking and UMID

A BWF file has a UMID. This stands for Unique Media Identifier.

This is a number guaranteed to be unique across the galaxy.

So, no matter the filename / file location, any application that understands this will be able to re-link to the correct file.

To make sure the new clips are unique, a new UMID is created.

(This means you have to jump hoops if you want to relink back to the source files. Also, if you re-create the merged clips, the fresh ones WILL have a new UMID!)

7.3.1 Avid MC and BWF metadata

There is a difference between AMA linking and importing BWF files.

(At least on my Avid, other versions might behave different.)

If you AMA link, metadata is taken from the iXML (which is good.)

If you IMPORT, metadata is taken from the BEXT (which might not contain all info.)

But, if you want the audio as Avid MXF instead of AMA linked, you need to consolidate. And for some reason consolidating AMA BWF is way slower than importing.

It is possible to work with imported BWF, and once you relink your sequence to the AMA files, your metadata is again taken from the iXML.

7.4 Avid ALE

On output, an Avid ALE can be created (if you have enabled this with the 'add Avid ALE' checkbox.

If you have too much metadata for the BEXT chunk, you can relink the metadata from the ALE to the clips.

To do so, make sure at least TAPE is selected in the BEXT options.

Then, in Avid:

- 1) Import the BWF clips.
- 2) Select them all, and choose 'Import Media'. (Either from the menu or bin.)
- 3) In the dialogue that opens, click on 'Options', and go to the 'Shot Log' tab. There, select 'Merge events with known master clips' and press 'Ok'
- 4) Pick the corresponding ALE, and the metadata will be merged.

One gotcha, Track Names will NOT be shown as TRK1 / TRK2 etc, but as Trk 1 / Trk 2 etc.

(If the track names were in the BEXT to begin with, they will both show.)

8 The 4 gig limitation

Wave files used to be limited to 4 gig in size.

(Inside the file, there are 4 bytes describing the size. That is max FF FF FF FF (in hex), and that corresponds with 4 gig.)

To overcome this problem, a very simple adjustment was made to overcome this.

BWF / Wave files bigger than 4 gig still have the extension .wav, but are called RF64 files.

They contain EXACT the same data, with the only difference that the sizes are now stored in a different place where there are 8 bytes available, giving you a virtually unlimited possible file size.

There should be no issue using RF64 files if you have up to date equipment.

(The format was introduced in 2009)

BUT, Wave Agent and Quicktime (and also the OSX default finder playback) will not like it.
No worries, any Pro application will accept the files!

9 Errors

In case you run into trouble, first things to check:

9.1 App will not start or behaves strange.

On Mac, if your language is set to Russian, the application might not start. Switch to another language.

Make sure you run the application with Admin rights. The application needs Read / Write permissions in it's own folder, and subfolders.

(Right click on the folder and choose 'properties', it should be set to Read and Write.)

9.2 If the application seems to hang

Currently the interface does not get updated during rendering, only in between output files.

Look in the target folder to see if files are growing. If so, it's still working, just stay put.

If you get an error message, please mail that to us: bouke@videotoolshed.com