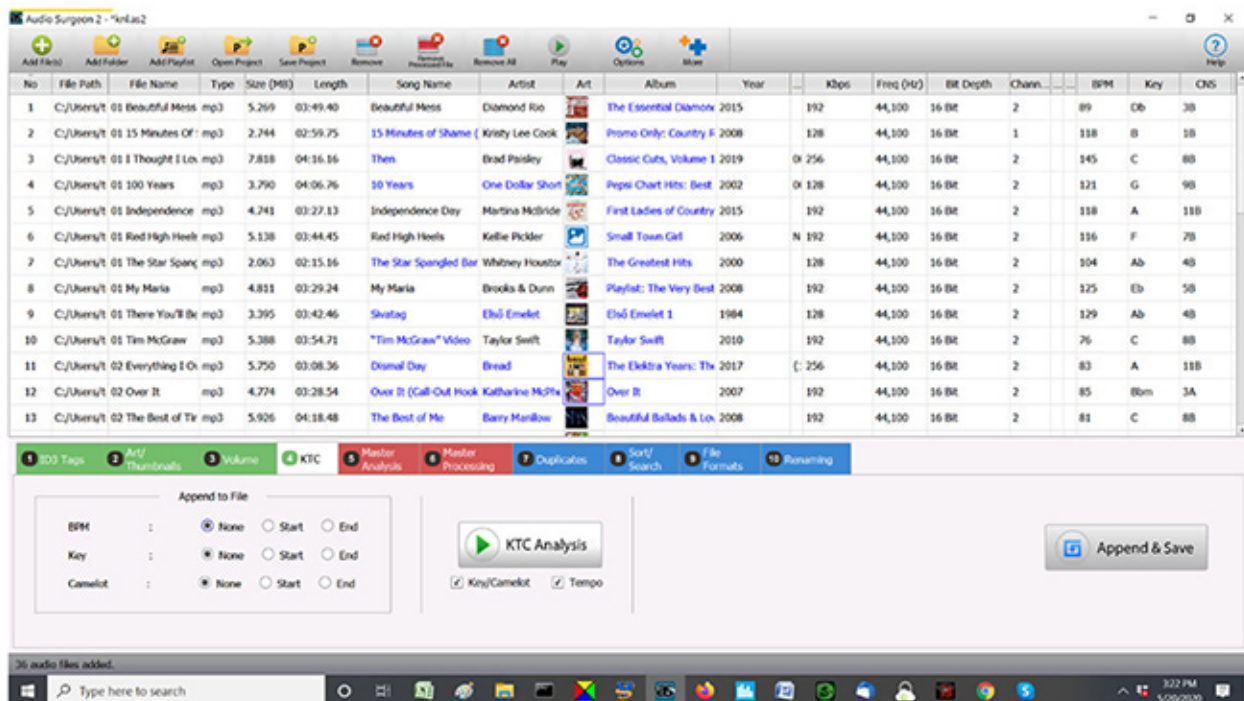


Audio Surgeon Version 2 User Guide

Audio Surgeon is the new name (and new version) for what used to be Audio Switch. Audio Surgeon (AS) is an audio file management tool that employs batch processing to allow users to process large numbers of files in a single operation. Audio Surgeon works with most common standard audio file formats. It will also allow you to add video files, but it does not process and save in a video format. When Video files are added it will strip the audio channel and allow this data to be saved in any standard audio format.

Audio Surgeon is available for both Windows (and soon will be for Mac OSx). There are several models available with the main differences being the maximum number of files you can process in a batch.

Below is a copy of the main user interface to which we'll be referring throughout this document.



When a file is opened in AS some data is **immediately available** and shown on the user interface. This includes the following parameters assuming the pre-exist before the file is added to AS: File path, file name, file type, file size, length (minutes/seconds), ID3 Title, ID3 Artist, ID3 Album, ID3 Year, ID3 Comments, Frequency, Bit Depth, # of Channels. Other data can be determined by analyzing the files in Audio Surgeon: These include: Volume, Track Gain/Loss, Tempo (bpm), Key, CNS (Camelot number).

AS has the ability to change the: file format, the volume; metadata, i.e. song name, album, artist, year; album art; append data to file names; sort/filter files; and it can find and delete duplicates.

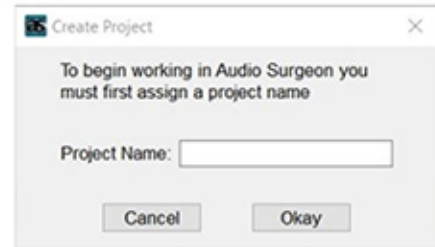
There are several models of Audio Surgeon sold. These are differentiated by the **number of files that can be loaded into the program**. The base model (AS1000) allows you to load 1000 or few files. There are a range of other models available between it and the Unlimited model, which begins at 25,000 files.

This manual contains all information about Audio Surgeon in text form; use the [Training Videos](#) to see demonstrations of common actions and narrated tutorials on the software. If there is a problem which cannot be resolved with the help of these two resources, contact the Help Desk.

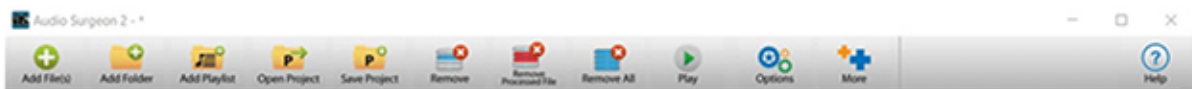
1. Create Project

Clicking any of the first three buttons on the AS user interface (shown above) will open this "Create Project dialog as shown to the right.

This dialog prompts you to enter a project name for your work and is used by AS to create and save Autorecovery back up files. As soon as you assign a name, in this dialog and click OKAY, then a second dialog will open allowing you to add Files, Folders, or Playlists as indicated by the button you have selected.

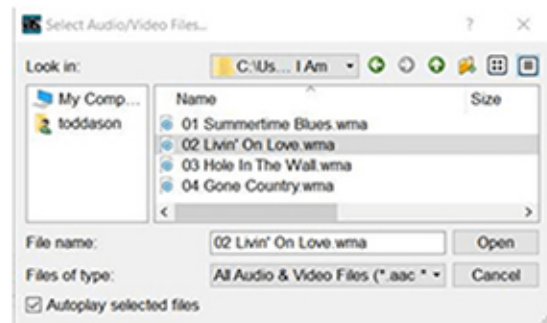


Let's start with the top navigation bar of the User Interface (UI) appears below, and review each of these items.



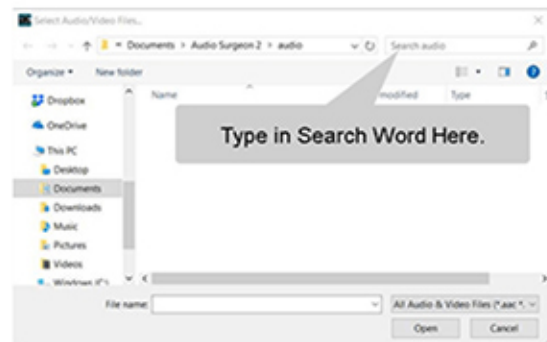
2. Add File(s)

Clicking this button opens a dialog window from where you can browse your computer's files and folders and select one or more files to add. Select multiple discontinuous files by holding down Ctrl while clicking. Alternatively, holding the Shift key and clicking a first and last file will select all files between these two files. After you completed the selection of files simply click the OPEN button and the selected files will be added to the AS interface. Also note that within this dialog there is an option to Autoplay the selected file. If this option is enabled, Audio



Surgeon will begin to play the file selected in the dialog window. Disable this feature by unchecking the box. This feature may be useful when you are not certain of the contents of the file. Lastly note the "Files of Type" box allows you to select Audio only or Video only or both.

Audio Surgeon will begin to play the file selected in the dialog window. Disable this feature by unchecking the box. This feature may be useful when you are not certain of the contents of the file. Lastly note the "Files of Type" box allows you to select Audio only or Video only or both.

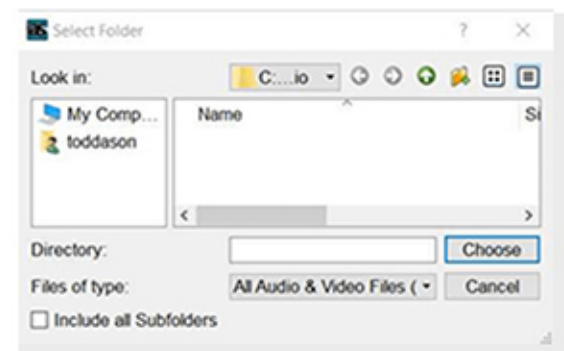


NOTE: The ESCAPE key can be tapped to abort the importing or opening of files. This same key can also be used to stop the analysis of any parameters that may be in process in the bottom tabs.

3. Add Folder

This button opens a new dialog window which allows users to browse the folder structure on their computer and select one or more folders. In the lower left corner is a checkbox titled "Include all Subfolders"; if this option is not selected, Audio Surgeon will import only files within this folder and ignore any files located in subfolders. If this option is selected, Audio Surgeon will import all files in the folder, including all files nested in any subfolders.

Opening the dropdown menu titled "Choose Files by Type" allows the choice between audio files only, video files only, or both.



Right clicking the Add Folder button opens a search dialog box allowing a search to be conducted by the folder name. This is essentially the same search functionality found in the right clicking of the Add File button described above, except the search is by folder name, not file name.

4. Add Playlist

This button allows you to import a playlist file from Windows Media Player, iTunes, or any other playlist in the . M3U, .xml, or .wpl format. You can select more than one playlist by using your Control key or Shift key and holding it down while clicking on playlist files. Importing a playlist adds ALL of the files from that playlist into the AS interface.



5. Open Project

When you click this button, you will see a drop down with two options: Open Project and Add Project. Open project means you can select a single project file to open - and when it is opened it will remove all other open files from the AS interface. The Add Project option allows you to open one or more project files, and when these are opened they are ADDED to any existing files that already appear in the AS interface.



6. Save Project

The Save Project button saves the currently in-use list of files that are open in Audio Surgeon. This includes all audio data currently visible on the AS screen as well as ID3 Tag data and album art data.



The Project concept in Audio Surgeon serves two important purposes. The first is that it allows AS to create an Auto-Recovery file, so if the program crashes or your machine crashes and you are working on a large number of files files, you don't loose all of your work.

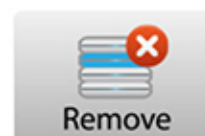
The second reason is that it allows you to save your work, in case you haven't finished it, thereby allowing you to re-open it and pick up where you last left off. In this case, you'll need to click the Save Project button which will save all of your work, using the project name you first assigned it in the "Create Project" dialog.

If you want to save the project with a different name or different path, then right click this button and you'll open a Save Project dialog window that will allow you to do this. If you have completed work on a group of files that you opened or added to the AS interface, there is no need to save it as a project.

PLEASE NOTE: Once you have completed work on a project (i.e. the files currently open in AS) you will ultimately want to save your changes by using the SAVE CHANGED FILES Button to save and make the changes permanent. Once that is done there is no longer a need for the project file that you may have created and you should Delete it because project files, often times, can be large due to art files which are associated with such files.

7. Remove

This option removes the currently selected file(s) in the main window of the product. This does not delete files from your hard disk. To remove more than one file you can select files by using either your Control Key or Shift key. Tapping the DELETE key on your keyboard will also remove a file(s) from AS.



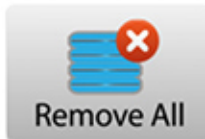
8. Remove Processed File

Clicking this button will automatically remove all processed files from the AS interface. A Processed file is one that has been modified or edited AND saved using Audio Surgeon. These include changing volume, appending file names, converting among file formats, Saving ID3 tag and changes to album art or thumbnail. Once a file has been processed that text for that file as it appears in the AS UI will turn Red. Selecting this option will remove all such files from the product interface (not from your computer)



9. Remove All

This button when clicked will remove all the current files displayed in the main window. It only removes them from the interface, it does NOT remove or delete the files from where they are stored.



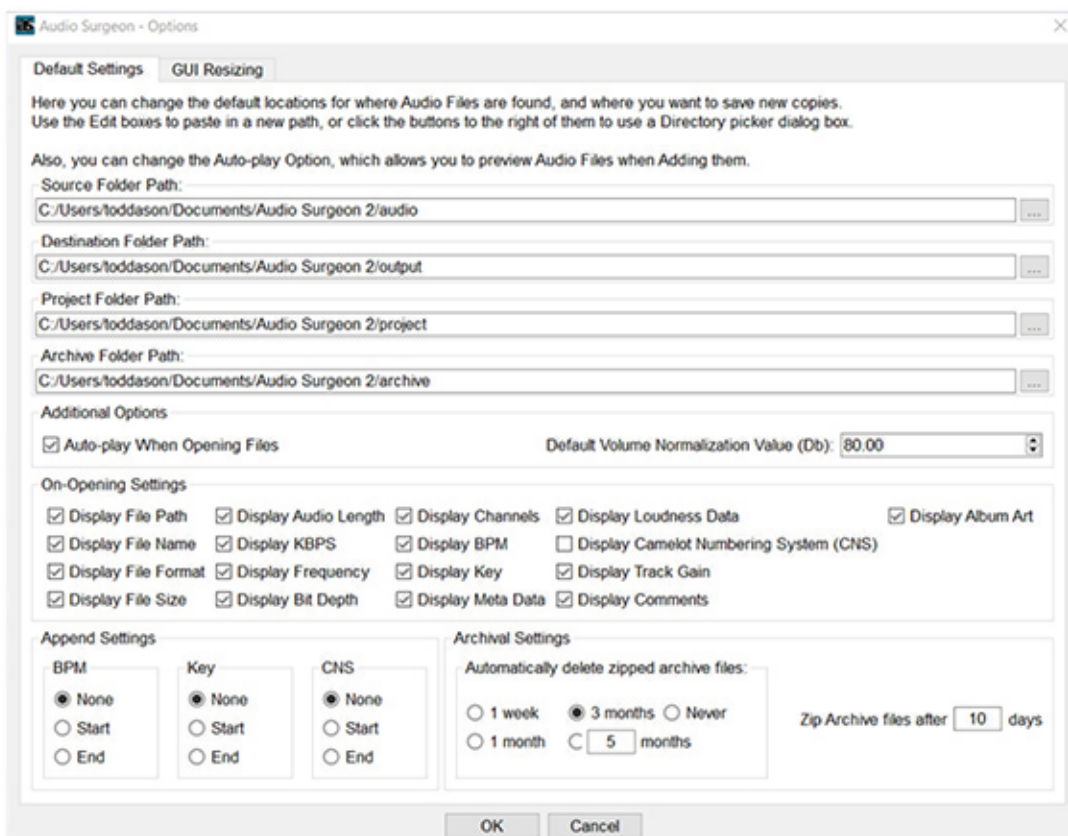
10. Play

The play button will play and allow you to hear the content of the selected file. If you have more than one file selected it can only play a single file at a time and it will always play the file nearest the top of the UI. After clicking Play, note that there are two options. One is to pause it, which means that when play is resumed it will pick up from where it left off. The second, which is Stop, will reset playback to the beginning of the file.



11. Options

This button opens the Options window, where various defaults can be set. It contains two tabs. Under the Default Settings tab let's review what appears, starting at the top and proceeding to the bottom



The first items shown are default file locations. These are set up when AS is installed. You may change these locations by clicking the small button with three dots on it - to the far right of the path. This will open a dialog window where you can browse and select an alternative path to use.

The Source Folder path is the location AS uses when adding files, viz. so when you use the Open Files or Folders button this is where it looks by default.

The Destination or Output path is the default path used by AS when it saves files.

The Project path is the location AS uses for saving Project files.

The Additional Options section contains two settings. One is for setting the Autoplay default to On or Off, as it appears in the various dialog windows.

The second setting found herein is the default normalization value used by the program. By default this is set to 90 Db, but it can be changed. Whatever value is designated here is the default value used by the program when it normalizes the volume of files when that function is used. This value can be changed on a 1-time basis in Tab 3 - Adjustments.

The On-Opening Settings are a list of all of the information which can be displayed in the main user interface. Deselecting a setting not only means it won't be shown in the main interface, but it also means it will not be calculated. This is important to note because if you are adding thousands of files, deselecting parameters that are not of interest will reduce the time required by AS to complete and display the analysis of file characteristics. All characteristics can be detected and displayed by the simple process of opening them in AS, with some exceptions. These are key, tempo, and loudness, missing metadata and missing album art. An analysis must be done in AS before these values can appear. These Analysis can only be done AFTER loading files into the AS interface.

The settings on the right-hand side are append settings. Selecting or deselecting these parameters will change the default settings applied in Tab 4 (KTC) in the bottom work area of Audio Surgeon.

The settings on the right bottom are for the archival system. This is discussed in detail in Section 29 of this document. Briefly the archival system creates copies of any files that are changed, in case you need to recover your original files. These settings allow you to customize when these backup files are zipped and when they are deleted.

The GUI Resizing tab lets you adjust the size of Audio Surgeon elements to a preferred size to match your screen. Use the dropdown menu to select an adjustment and click "Apply". A resizing value of less than 1.0 will make the interface components smaller. A number larger than one will increase it.

The settings for resizing are calculated dynamically based upon the screen attached to your computer. If you change your screen you should close and then re-open AS again and this will allow AS to recalculate and determine what resizing values are available on the newly connect monitor.

12. More Button

The More Button provides links to a number of other products sold by TMJ Software.



13. Help Button

The Help Button found at the top, far right side of the UI, contains the following items.

User Guide: A link to this written document.

Training Videos: A link to a series of training videos for the product.

Help Desk: A link to our full service Help Desk for Audio Surgeon and all TMJ Software products.

Activate File Capacity Upgrade: If you purchase an upgrade to increase the number of files that AS will open, this option should be used to activate this increased capacity on AS on your machine. Select this option and provide the details required.

Offline Registration: This opens a dialog used for activating a machine that is NOT connected to the internet.



Deactivate Computer: Selecting this option will delete the license file from the machine and remove that machine from your list of registered machines.

Logging: On /OFF - These logs should be turned OFF unless one of our techs asks you turn these on. When on there will be a check mark to the left of this selection.

Show Logs: This opens the folder where the logs are saved for easy access to them.

Update/Rollback: The Update Audio Surgeon options checks to see if there is an updated version of the program available. If there is it will notify you and then walk you through the steps to download and install this update. Rollback is an option to remove a newly downloaded update and restore your previous version. This is provided in case the new version does not run correctly on your machine.

About Audio Surgeon: This selection shows a small dialog window that shows some basic information about the product, including the exact build number installed on your machine.

14. Main Window

File Path	File Name	Type	Size (MB)	Length	Title	Artist	Art	Album	Year	Comment	Kbps	Freq (Hz)	Bit Depth	Channels	Volume	Track Gain	BPM	Key
c:\Lindsay\i - TRSP (3		mp3	4.271	03:06.54						e Match Four	192	44,100	float	2	98.38	-18.38	134	Eb
c:\Alan Jack ember \		wma	5.265	04:30.65	ember	Alan Jackson		Hits, V	2003		1411	44,100	16 Bit	2	94.53	-14.53	125	A

The main window displays all open audio/video files and displays all file information in columns. Clicking and dragging on the lines between columns will shrink or expand them. **Right clicking on the top column labels** provides four additional choices for resizing and/or aligning the columns.

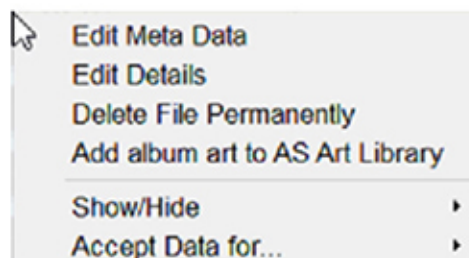
Most of the file parameters can be ascertained immediately upon adding a file to the UI. These include: file name, file path, file size, file type, bit depth, frequency, channels, bitrate, ID3 Tags and file length. Other parameters must be calculated before they will appear. These include key, tempo, volume, track gain/loss and CNS value.

Users can control which values appear in the main window by selecting default parameters from the **Options button**. A second way to select parameters is by right clicking anywhere in the main window. This will open a context menu (shown to the right) with several options including Show/Hide – and when this is selected the list of available parameters from the Options button is shown and you can select or deselect any of the options.

This **Right Click** menu contains several other options which are discussed below:

Edit Meta Data opens a new window and it allows you to make changes to the meta data (ID3 tags and album art or thumbnails) which appear.

Edit Details opens a new window and allows you to edit the key and tempo (BPM) values. These changes edit the values that appear, they DO NOT change the intrinsic key or tempo of a file. AS does not have this capability.



Delete File Permanently when selected, will not only remove the file from AS but, it will DELETE the original source file.

Add Album Art to AS Library when selected will place a copy of the album art from the row selected and Save it in the AS's default album art folder. This is a simple way to allow users to grab album art that appears in AS and save it for reuse.

The **Show/Hide** option allows you to select or deselect the data or columns that appear in the main interface. This is the SAME list of criteria which also can be selected from the Options Button.

The **Accept Data for...** is related to the ID3 Tags and album art and not discussed here because it is covered separately, in detail, in the ID3 Tag section which follows below.

15. Bottom Work Area



The bottom work area contains 10 tabs. The following sections will review the functions associated with each tab.

16. Tab 1. ID3 Tags/Meta Data

ID3 is a metadata container most often used in conjunction with audio file formats. It allows information such as the title, artist, album, track number, and other information about the file to be stored in the file itself. Audio Surgeon displays the most important of this ID3 tag data and also has the ability to find missing tag information.

In Tab 1 you have three options. These are shown to the right in this document. The selection at the top, will check all files (selected files) even those that already have ID3 tags. If you think the data associated with the songs loaded into AS is incorrect then you might want to select this option and have it check.

- Check, repair and replace ID3 tags for all files
- Add ID3 tags only for files with missing data
- Do not check for ID3 tags

The second option will check only for ID tags that are missing. If you select this, AS will only check songs that have missing tags and only add data that is missing. It will not check the ID3 tags that are already present. The last, do not check option, is for use in conjunction with the RED tabs which will be discussed in a few paragraphs.

Once you have selected Options 1 or 2, you next click the ID3 Analysis button, and AS will run an analysis and present you with the results.



It is important to understand that AS will analyze all files that match your selection that are loaded into the AS interface or, if you select one or some with your mouse by clicking on rows and highlighting them, then AS will analyze only those files selected.

This ID3 Tag function works by creating a "finger print" for a song, and comparing it against a data base of similar finger prints. If there is a match, then it pulls the stored data from the database and inserts it into the AS user interface. This database is for well known, commercial songs. It does not contain most independent artists, and therefore will not work in these types of songs.

When ID3 tags are found by AS the data will be inserted into the Main Window. If AS finds more than **one possible match**, which is common, it will highlight the text in that field in blue as shown in the graphic to the right.

For each file that has blue text you can right click and then choose the Edit Meta Data option in the context menu. When you do that the Edit Meta Data dialog window shown below will open.

The Christmas Song	Nat King		Christmas (2005
The Bells of St. Mary's	Andy Will		Merry Chris	1965
Tennessee Christmas	B.J. Thor		Christmas	1997
Christmas Present	Andy Will		Personal Cl	1994

The album art section near the top is covered in the next section so it is not discussed here.

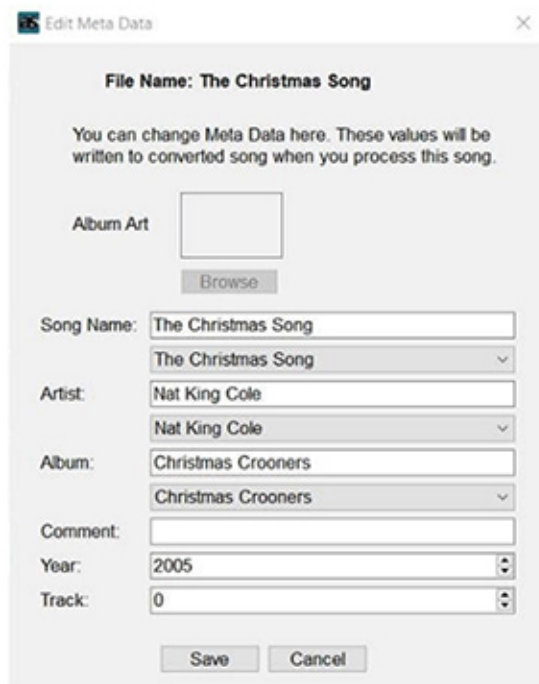
Those ID3 Tag fields, where there are duplicate matches, have a second form field with a drop down arrow next to them. Clicking this arrow opens a list showing you all of the possible matches.

Users can review these matches, select the one they'd like to use and this one will then appear as the selected item to be used.

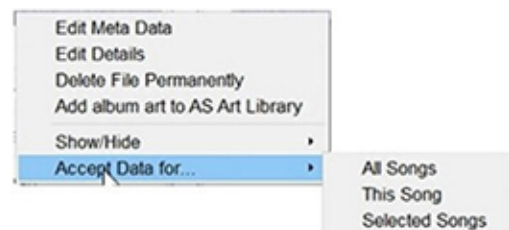
Users also have the option to type directly into the form field the text they'd like to have.

Once you have done this for any/all fields with multiple matches and are finished editing the ID3 Tags, click the Save button to save this data and close this dialog window. **Clicking the SAVE button will remove the drop down boxes with multiple choices.**

If you choose **Cancel**, **ASI will retain any changes you have made while retaining the optional choices within the dialog window.** Regardless of which of these two options you choose changes that have been made in the AS interface are NOT YET saved permanently to the file.



From the menu that opens when right-clicking in the work area you also have an option to **Accept Data** as shown in the image to the right, for one, some, or all songs where there are more than one match. While AS displays what it thinks is the best match in the Main Window, **it will not always be correct.**



Using this "Accept Data" option will save you time, especially when you are dealing with a large number of files, **however it will not be as accurate as doing a manual review of each song.**

When you have files for which AS has not been able to find any matches - it will insert into the Comments column of the main AS interface "No Match Found." If you have files or songs with no meta data and want to edit and add them manually you can do this using the same Edit Meta Data dialog window. You can also do this on multiple files at the same time - which is useful when all files, for example, are from the same album.

When you select multiple files and then select the Edit Meta Data option, the dialog window AS opens is blank and will look like this.

In each of these blank fields users can type in the text they'd like to use, and this SAME text will appear for all of the file selected. If a user selects groups of files that are related, the only field that may be different for each file is the "Song Name" field. In many cases the file name used is also the song name so selecting the checkbox "Use File Name" will fill each of the song name fields with the file name associated with each song. If these names are not correct or, if you want to edit or fill them individually then users should select only a single file and then open this dialog window.



Once you have reviewed and accepted the ID3 tags for all of the songs, or edited the data for one or more songs, **the last step is to save these changes.** To do that you must click the Save Changes button found on the right side of Tab 1.



When you click this button a SAVE dialog window opens, with several saving options. This will be the same SAVE dialog window used by many of the Tabs contained in AS, therefore it is important that we review this dialog window now. **It is only when files are save using this button that changes are made permanently to the individual files.**

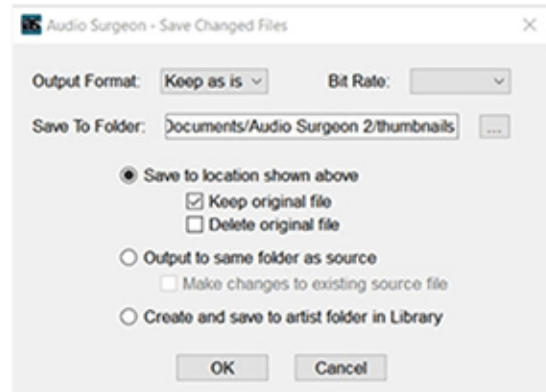
In concluding this section, please note that AS has the ability to sort columns so you can have it show the files with multiple matches grouped together at the top, for easier processing. To do this simply left click on Song Name, Artist, or Album fields and select: Show Files with Multiple Matches at the top, and this will sort the song loaded into AS.

17. Save Options

a. The output format refers to the file type. That is, mp3, m4a, .wav, etc. You can select a specific file type which the files open in AS or selected in the AS screen will be saved. Alternatively you can also use the default which is "Keep As Is". This options will save each of the files in the format in which they currently exist (as shown in the AS screen).

b. The Bit Rate setting will become active if you choose mp3, m4a, or wma. These compressed files allow you to select a low quality setting (low number) or a higher value which will result in a high quality file and will take up more space. A general rule of thumb is that you should maintain a bit rate higher than 128 for adequate quality.

c. The next option in this dialog is the Save To Folder. This path will, by default, be a path that is created by AS when it is installed on your machine. The button to the right of it with three dots can be clicked and this will allow you to browse and select an alternative path or location.



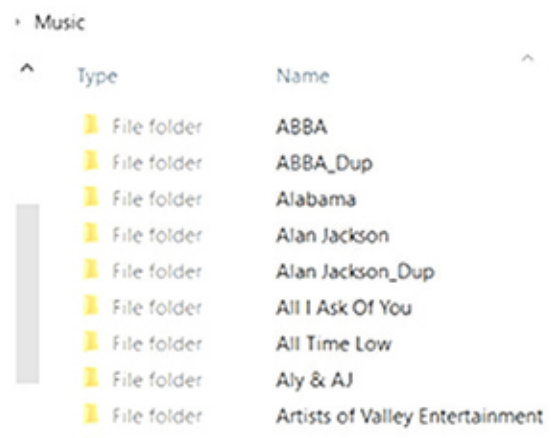
d. The radio button below it which is selected in this example, MUST be selected if you want to send the files about to be processed to the locations specified in the above Save To Folder. Below this radio button you will notice two self explanatory options. Keep or Delete the original file.

e. As we move downward the next radio button is Output to the same folder as source. If this option is selected AS will SAVE the processed file in the same folder as the original one that you are changing. It will do this by appending the word "COPY000001" to the end of the file name.

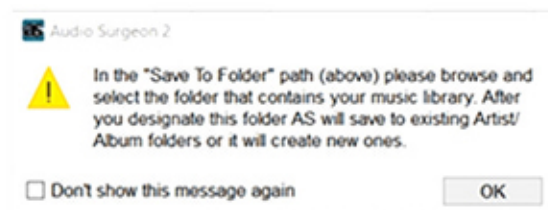
f. When you select this radio button option, the box below it becomes active. If you select this checkbox AS will write the changes to the EXISTING or ORIGINAL file. That means it will over-write the existing file.

g. The last option here is to "Save to Artist Folder In Library". If you are saving a group of files that are already in a well organized music library (Artists Folder >> Followed by Album) then this option may not be appropriate.

However, if you have an organized music library and you are working with a group of files outside of this library that you'd like to add to this Music library, this option is useful.



When you select this option, AS will browse your music library folders/subfolders and look for matching artists and matching albums, and when it finds them it will save the files in AS in the correct Artist / Album folder. If AS finds an artist but cannot find a matching album, it will create and store them in an "Unknown" album folder inside of the matching Artist folder. And lastly, if it cannot find a matching artist, it will CREATE an Artist folder and inside of it will create an appropriate album subfolders and place the appropriate files in these.



When you select the radio button for this option, you will be prompted to designate the location of your music folder, so AS knows WHERE to check for Artists folders. For example in the folder structure image above you would select the "Music" folder, as it is the folder in which all of your Artist subfolders reside.

After you have designated your Music library folder, click the Okay button and AS will then begin searching and placing files in the appropriate matching Artist/Album folders or creating new Artist/Album folders.

18. Tab 2. Art/Thumbnails

In Tab 2 you have three options. These are shown to the right in this document. The selection at the top will check all files (or only the selected files) even those that already have album art or thumbnails. If you think the album art associated with the songs loaded into AS is incorrect then you might want to select this option and have it check all files.

The second option, when selected, will check only for files with album art missing. If you select this second option AS will only check songs that do not have any associated album art as shown in the AS interface. It will not check

the album art for those songs or files where album art is present. The last, do not check option, is for use in conjunction with the RED tabs which will be discussed in a few paragraphs.




Once you have selected Option 1 or 2, you next click the Thumbnail Analysis button, and AS will run an analysis and present you with the results.



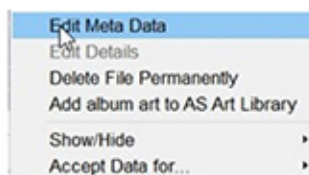
If you select one, some, or several files with your mouse by clicking on rows and highlighting them, then AS will analyze only those files selected. If you do not select ANYTHING, then AS will analyze all files loaded into it.

Finding album art or song thumbnail images works similarly to finding ID3 Tags. This function works by creating a "finger print" for a song, and comparing it against a data base of similar finger prints. If there is a match, then it pulls the stored data from the database and inserts it into the AS user interface. This database is for well known, commercial songs. It does not contain most independent artists, and therefore will not work in these types of songs.

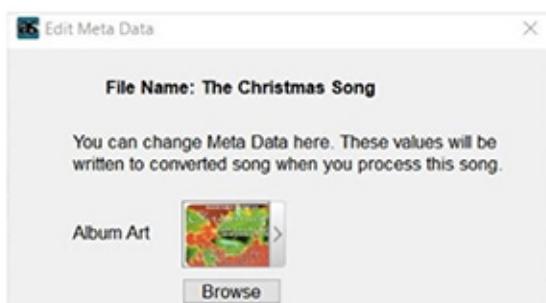
When you run the Thumbnail analysis, for records with more than one match (thumbnail), AS shows a blue line around the thumbnail (as shown below). For records with only a single match, AS simply shows the thumbnail (The Music of the Night - shown below)

Title	Artist	Art	Album
Lady	Styx		The 40 Greatest Power Ballads
The Best of Times	Styx		The Rock Collection, Volume 4: The Heat Is On
The Music of the Night	Gerard Butler		Phantom of the Opera: The Original Motion Picture Soundtr

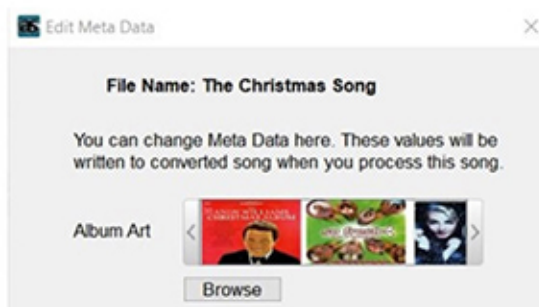
For each file that has blue line around the album art you can then choose the **Edit Meta Data** option from the Right Click menu that opens when you right click on a particular row of data. This dialog is shown to the right.



For album art, if there is more than one possible image, you will see a right pointed arrow. When clicked this arrow opens and will allow you to scroll through all of the matches found. Select the one you think is correct by simply clicking on it. It will then appear as your selected album art.



If you don't think any of images found by AS are correct you can right click on the Album Art and select **No Image**, and AS will insert the generic blue missing album art image.

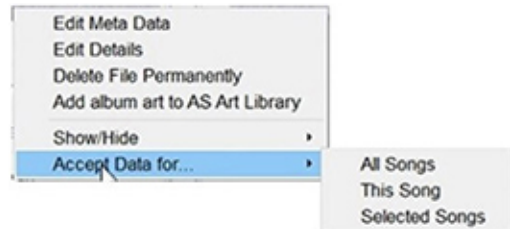


Alternatively, you can use the browse button below the album art area to browse and upload one of the nine generic art images found in AS. Additionally you can also use this browse button to browse to any location on your computer and select an image file to use. If you do this try to use a smaller image that is square and has a small file size.

Another option you have is to find a thumbnail that currently appears in AS and right click on this image and select Add Album Art to AS Library. This will make a copy of this image and save it in the default AS art library for you to use.

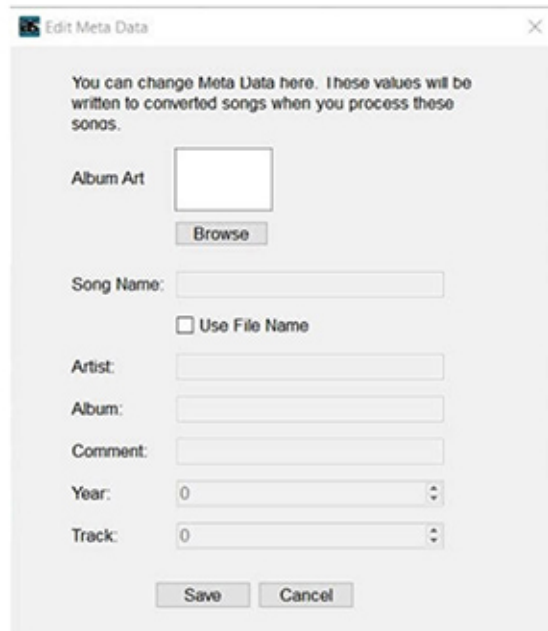


Another option you have for these songs with duplicates is shown to the right. From the menu that opens when right-clicking in the work area you also have an option to Accept Data as shown in the image for one, some, or all songs where there are more than one match. While AS displays what it thinks is the best match in the Main Window, it will not always be correct. **Using this "Accept Data" option will save you time, especially when you are dealing with a large number of files, however it will not be as accurate, as doing a manual review of each song.**



AS has the ability to sort columns so you can have it show the files with multiple matches grouped together at the top, for easier processing. To do this simply **left click** on the thumbnail column and select: **Show Files with Multiple Matches at the top**, and this will sort the songs loaded into AS.

When you have files for which AS has not been able to find any matches - it will insert into the Comments column of the main user interface, "No Match Found." If you have files or songs with no album art and want to edit and add them manually you can do this using the same Edit Meta Data dialog window. You can also do this on multiple files at the same time - which is useful when all files, for example, are from the same album.



When you select multiple files and then select the Edit Meta Data option, the dialog window AS opens is blank and will look like this.

From here you can select the browse button and from the AS default library choose a thumbnail, or you can browse to any location on your computer and select a file you'd like to use. If you do this, the same caveats apply as mentioned above for keeping file sizes small and shape-wise something that is rectangular or square.

Once you select a thumbnail and then click the Save button at the bottom, this dialog will close and the selected thumbnail will now appear in the AS user interface.

Within Tab 2, your last step is to click the Save Changed Files button on the right side of this tab.



When you click this button a SAVE dialog window opens, with several saving options. This will be the same SAVE dialog window used with many of the Tabs contained in AS, and previously discussed in **Section 17**.

It is only when these files are saved using this button that changes made to the album art in Audio Surgeon are made permanently to the individual files.

19. One last and important note about Album Art or Song Thumbnails.

Album art is typically stored in the album folder of an artist. In the example to the right if I move a song from the Greatest Hits, Vol.2 subfolder and place it in the Who I Am folder, it will display the album art for Who I Am.



If you move a song OUT one of these folders, it will no longer be able to FIND the album art in that folder and it will therefore display ANY album art, assuming it can find such an image, or it will not display any at all if it cannot find any.

The real world lesson here is that you should NOT move songs out of their album folder. If you do you'll cause a problem with the album art.

In Audio Surgeon, because of this issue, we have built AS to STORE the album art physically in the metadata of a song file. If stored in this way, it doesn't matter WHERE you move a file, the correct album art will ALWAYS remain associated with it.

Saving album art in this way only works with the following file formats: mp3, wma, and m4a. Consequently, when you are working in Tab 2 and you use the Save Changed Files button, you MUST use one of these three formats. If you do NOT, AS will attempt to save the album art as an AlbumArtSmall.jpg file and it is quite possible this may result in the incorrect thumbnail appearing for that file or for any other audio file stored in the same folder.

20. Tab 3 - Volume Normalization

Audio Surgeon has the ability to normalize the volume of audio files so all songs have the same relative volume. When you normalize volume AS will increase the volume of softer songs and decrease the volume of louder songs, for a more uniform playback experience. The default value used by AS is 90 dB. You are free to change this default value from the Options Button, or you may simply change this setting in Tab 3. Although AS employs a limiter to reduce clipping problems, it is possible that increasing the volume of files may cause clipping to occur, so be cautious about adding volume to files.

Before you can normalize volume you must analyze the volume of the files you have added to AS by selecting the Volume Analysis button in Tab 3

As Volume is analyzed, AS will show you the calculated volume for each song. It will also display the Gain or Loss of volume that would be applied to each specific file or song if you normalized the volume to the value shown in the Tab 3 setting. In this example we are using the default value of 90 Db.

192	44,100	float	2	93.17	-3.17
192	44,100	float	2	96.60	-6.60
192	44,100	float	2	87.27	2.73

As shown in the example to the right there are three files. Two are louder than 90Db and therefore will be reduced in volume by the amount shown and the other one is below 90 Db and that one would be increased if volume normalization were applied.

To apply Volume Normalization click the Save Changed Volume button. When you do this the Save Dialog window will open. Please refer Section #17 for the specific options in this Save Dialog, where they are previously described in detail



21. Tab 4: KTC

KTC stands for key, tempo and Camelot Numbering system. Most people know what key and tempo are, when applied to music or a song. The Camelot Numbering System or CNS is much less familiar to most people. CNS is a system used by DJ's, that is derived from the key of a song. DJ's sometimes use this criteria by which to group songs together when creating playlists.

AS has the ability to detect the tempo and key (and thereby the CNS) of files. These values may not be of value to everyone but there are certainly situations where it is useful to know this information, if you are a musician, a DJ, and yes, even for the average consumer.

To analyze for Key, or Tempo, or both select the checkbox(es) below the KTC Analysis button and then click the button and AS will analyze the loaded files and return these values.

Once key and/or tempo is analyzed and displayed you can append these values to the file name. This may be useful or valuable for musicians, DJ's, or others but likely not something the average consumer would want to do.

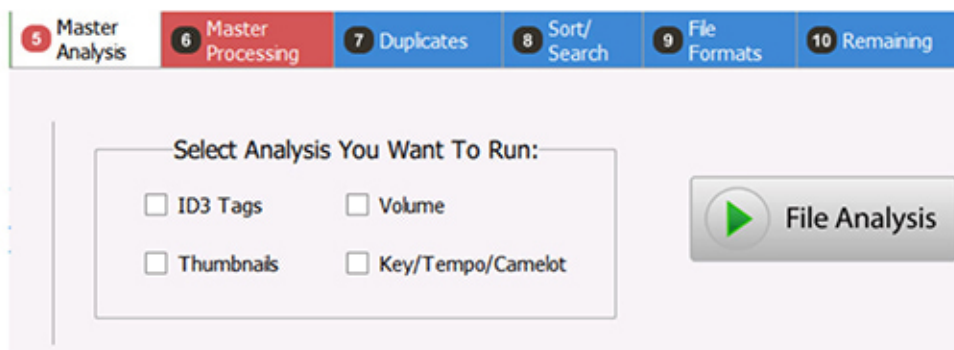
To Append these values select the Append To File settings of interest on the left side of the menu shown above and then select the "Append & Save Values" button. AS will open the Save Dialog (See #17) in which you can choose the appropriate setting for saving.

Before concluding this section there is one last note. AS has the ability to use key and tempo as a means of determining duplicates, in addition to simply knowing this information as a musician. Using key and tempo can be a very powerful way for determining duplicates, and is likely a good reason for running the key and tempo analysis on a set of files. See the Duplicate Detection - Tab 7 section for more details.

22. Tab 5: Master Analysis

Tab 5 is labeled the Master Analysis tab because it allows you to run the same analyses found in Tabs 1-4 all at once, rather than one at a time.

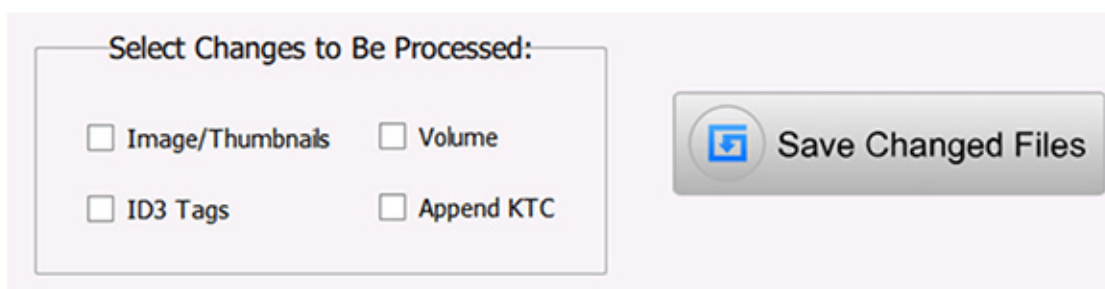
If you are trying to fix or change only one parameter such as volume, or album art, or Id3 tags, it is best to do that from the specific tab dedicated to that parameter. However, if you need to run more than one, that is 2, 3 or 4 of these, then it is quicker and more efficient to run them collectively here in Tab 5.



The analyses available in Tab 5 are the same ones found in Tabs 1-4. You can select any or all of these. AS will use the settings found in Tabs 1-4, so make sure you select the setting you want from these individual tabs first. Once you have selected the criteria for analysis, select the File Analysis button and AS will analyze the files loaded in AS for the analysis you select here. As it completes these analyses the values will be shown in the user interface.

23. Tab 6: Master Processing

Tab 6 is similar to Tab 5 with the exception that it doesn't analyze, rather it allows you to process or SAVE any changes you would normally save individually in Tabs 1, 2, 3, and 4 except that in Tab 6 any /all of the changes you would make individually **can be saved at one time.**



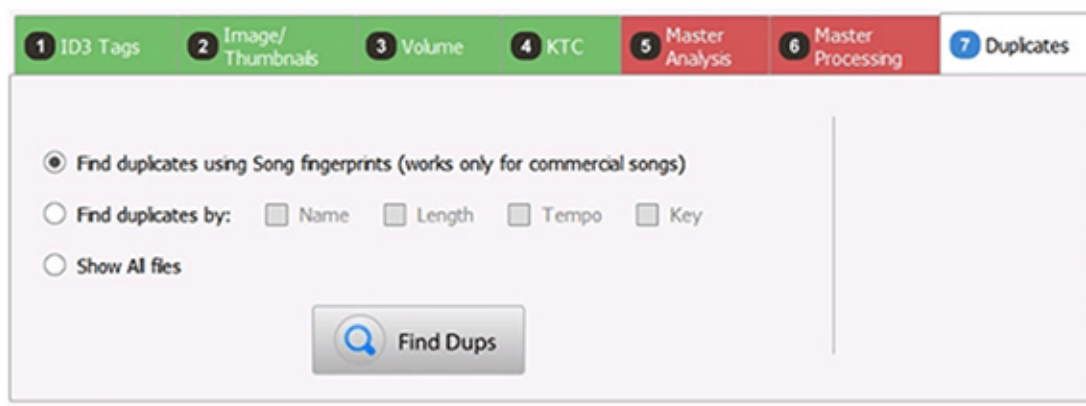
Select the changes you'd like to process and then click the "Save Changed Files" button. Once you click this button the default "Save" Dialog window will open. We refer you to Section #17 for a detailed explanation of what each of the options in the Save dialog does.

24. Tab 7: Duplicates

There are two ways to detect duplicates in AS. The first utilizes the same “finger print” technology used in Tabs 1 and 2 for finding ID3 Tags and Album Art. This method is nearly 100% accurate however it is slow and it only works for songs that are found in the matching database. While this database of songs is large, it contains only well known, commercially available songs. It does not contain lesser known or independent songs.

A second way to detect duplicates is to use key, tempo and file length (song duration) expressed in time. In order to use this method you need to first analyze for key and tempo which takes time. However, once done, this method very quickly can detect duplicates and its accuracy is almost as good as the finger print method. Additionally it has one BIG advantage, it will work for any song or file.

As you can see from the image below for this second method of finding duplicates you can use any combination of name, length, tempo and key. Because Names can sometimes contain variations, for example “Dust in the Wind” vs. “07 Dust in the Wind” you may want to consider omitting this from the criteria you select.



Once you have selected your criteria you select the Find Dups button. If you have selected the first option AS will begin creating finger prints of the song. If you have many songs loaded in AS you may want to walk away and return later as this process will take a significant amount of time.

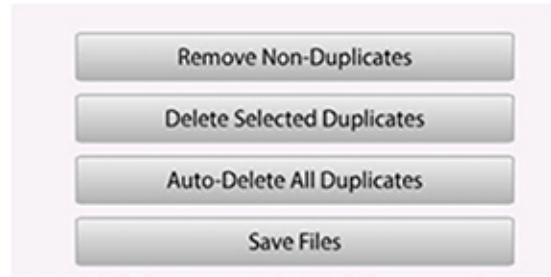
If you have selected option 2 - and if you have already run the key and tempo analysis - the Finding Dups button will identify dups immediately upon clicking it.

When AS finds dups it groups them as shown below. **AS creates a new column labeled “Group”**. In this column with each group of duplicates it finds, it creates and assigns a Group number as shown. Whether there are 2 duplicate files or 6 or 10 they will all be part of the SAME group.

File Name	Group	Type	Size (MB)	Length
01 Dancing Queen 1	A_0001	mp3	3.546	03:52.24
01 Dancing Queen 1	A_0001	mp3	3.546	03:52.24
04 Mamma Mia	B_0001	mp3	3.261	03:33.53
04 Mamma Mia	B_0001	mp3	3.261	03:33.53
06 Super Trouper	C_0001	mp3	3.883	04:14.31
06 Super Trouper	C_0001	mp3	3.883	04:14.31
18 Remember When	D_0001	wma	5.265	04:30.65
18 Remember When	D_0001	wma	5.265	04:30.65
01 Summertime Blues	E_0001	wma	2.983	03:13.37
01 Summertime Blues	E_0001	wma	2.983	03:13.37

Once AS finds and shows you the duplicates you have several processing options. The first is to Auto-Delete Duplicates. When you select this AS will automatically DELETE the duplicates files found and KEEP only the first file in each group.

AS ranks files found as duplicates by placing the file or song with the most complete metadata (ID3 tags and album art) at the top of each group. That means when you select Auto-Delete this file will be kept and others with less complete metadata will be deleted.



The second option Delete Selected Duplicates requires that you manually select the files you want to delete. You might want to do this to ensure that the files found are truly dups. This gives you complete control over deletion. It allows you to make a decision based upon metadata priorities or the location of the files on your machine or any other number of factors. Once you have selected the files you want to delete, clicking this button DELETES them from your computer.

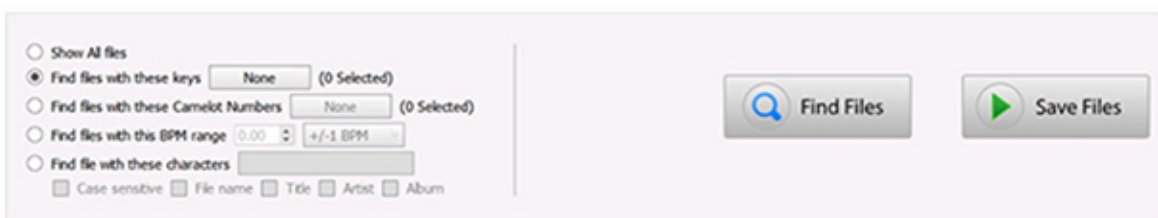
The next button is to Save Files. This option will allow you to save the dups found to some alternative location on your machine, or external drive. If you leave the original files on your computer and save the files in AS to an alternative location, this process will create dups so in most situations it does not make sense, but there may be some situations in which it does, so we have provided this as an option.

The last button we'll discuss is the button at the top of these four: Remove Non-Duplicates. When you use the Find dups button it returns a list of files and groups that are duplicates and that is ALL you see in the AS interface. However, if you click the radio button on the bottom left that says "Show All", it will again show all of the files in the AS interface - both dups and non-dups. Clicking the button "Remove Non-Duplicates" automatically removes these non-duplicate files from the AS interface.

25. Tab 8: Sort/Search

As an introduction to this tab, users should know that any of the fields displayed in the main user interface can be sorted in ascending or descending order by clicking the field name at the top of the UI. This simple sorting may be helpful or useful in some cases, however you may need more robust capabilities and, for that, this tab will be useful.

As can be seen in the image below, this tab contains options to sort by key, by Camelot number, by BPM and by your customized entries. Below we'll briefly review each of these options.



When you select the radio button for searching by key, and then CLICK the default None button to its right you are then able to select a specific key or a group of keys for which you want AS to search. Obviously to use this capability you will need to have run previously the key analysis so the key of each song is known and appears in the UI. Once you have selected a key (s) and click the Find Files button, AS will return those files that match your search. If you'd like to return to and view all of the files in the UI after conducting a search select the radio button at the bottom for "Show all Files". Also, if you search and the UI is blank or empty, this means NO matches were found for your search query and you again should select the "Show All Files" option to see the file loaded in AS.

The search function for Camelot Numbers and BPM works precisely the same way. You select the radio button, then fine tune the selection for each option and then click the button to Find Files.

The last option at the bottom of the list is to "Find files with these characters". This option allows users to type any alphanumeric character (s) which may be of interest. This is followed by a series of checkboxes. These checkboxes allow you to more narrowly specify where to search. If none of the checkboxes is selected then any match in any field will be returned. If one or more checkbox(es) is/are selected then matches only in the field(s) selected will be found.

Once you have completed your sorting and searching and have identified a group of files you'd like to save, click the "Save Files" button. This will open the default SAVE dialog window. (see Section #17 for details) from where you will be able to save this group of files.

26. Tab 9: File Formats

Throughout all of the tabs in AS there is a save button which, when used, allows you to save files in the specified format you choose. However, the primary function of these other tabs is to do something else. Here in Tab 9, this tab has one singular purpose and that is to allow you to convert all of the files loaded in AS to a single, common file format.

Convert files to the following format

wav wma
 mp3 aif
 aac aiff
 m4a flac

If a compressed format is selected you will be prompted to select the bitrate in the next screen

As the interface text states, if you select a compressed file format such as mp3, m4a, or wma, AS will ask you to select a bit rate quality. The CONVERT button for this function uses AS' s default SAVE dialog window ([see Item #17 for details](#)) from which you can select settings to convert and save the files.

27. Tab 10: Renaming

The Renaming function found in AS allows users to rename or change the names of files that are loaded in AS. This is done by adding characters to the beginning or end of a file name as shown on the left. This can also be done by deleting characters from the beginning or end of file names as shown on the right.

Add to File Name

Beginning

End

Delete From File Name

AlphaNumerics: Beginning End Case Sensitive

of Characters: Beginning End

Everything to divider: Beginning End Include Divider

When you click the "Rename" button on the right, AS will rename the files according to your instructions and these revised names will be immediately visible in the file name column of the UI. If you need to Undo these changes click the Undo button.

Note that clicking the Rename button applies your desired changes and these appear in the File Name field of the UI - HOWEVER - these changes have not been permanently saved. To do that you must click the Save Changes button on the right. When you click this button you will see again the default Save dialog windows used by AS and discussed in detail in Section #16.

The Use of the Add to File Name is straight forward, AS adds exactly **what and where** you tell it to add.

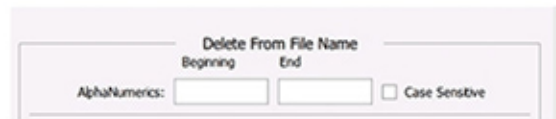
The Delete From File Name is more sophisticated to help you address files you might find in your library that you'd like to rename. For example, some file names might have track numbers appended to the front of the name, which often happens when a file is ripped from a CD - and these additional sophistications allow you to deal with this and other circumstances.

AlphaNumeric Option

The primary sophistication when selecting this option is the use of wildcards in the Delete From File Name section of the Tab. These wildcards **ONLY** work in the "AlphaNumerics" field (Beginning or End). The wildcard used by AS is the **asterisk "*" symbol**. This symbol when used in the alphanumeric fields (either beginning or end), represents or takes the place of any alpha numeric character.

The wildcard can be **FORCED** to substitute **EXCLUSIVELY** for numbers only by putting a **# (number sign)** in front of it. For example, if you used this string in the beginning alphanumeric field ******, it would find and delete any/all instances where there were two numbers at the beginning of the file name.

Below are some examples of how this works. The first set of examples assume you have inserted the following wildcard strings into the "Beginning" field:



File Name: 01 Listen to the Music

Insert: 0* (If you have 0* (zero followed by an asterisk) this will delete the characters in any file name that begin with 0 and a second alphanumeric.)

Result: Listen to the Music

File Name: "06 Listen to the Music" or "0A Listen to the Music"

Insert: 0*

Result: Listen to the Music (for both)

If you have a "#**" (number sign followed by two asterisks this tells AS to find and remove the first 2 numeric characters found at the beginning of a file name. For example:

File Names: 01 Listen to the Music, 17 Listen to the Music, 991 Listen to the Music

Insert: #**

Result: Listen to the Music, Listen to the Music, 1 Listen to the Music

Similar to the above, three asterisks (#***) tells AS to remove the first three number characters. For example:

File Name: 719 Listen To The Music

Insert: #***

Result: Listen To The Music

If you are using the wildcard asterisk without the number sign or a numeral in front of it, then it simply acts or substitutes for a text character. For example:

L* deletes "L" plus the next character after it, assuming the name begins with "L"

Lis* deletes "Lis" plus any fourth character after these three, assuming the name starts with "Lis"

*is if there is an "is" in the second and third position in a name, it will delete those characters plus ANY first character.

L*s deletes any file name characters that begin with "L" in the first position and "s" in the third position. The middle position can be ANY character as it is a wildcard.

L**t deletes the first four characters of a file name which begins with "L" and has "t" as a fourth character.

Lastly, if the checkbox at the end of this radio button is also selected it will make your search CASE sensitive.

Of Characters Option

The second option is the "# of characters" row. Here one simply inserts the number of characters to be deleted, either at the beginning or the end of a file name. AS will delete the number of characters you tell it to, regardless of whether they are text, numbers, or symbols.

Everything to Divider

The third radio button options is "Everything to Divider". As an example if you have a group of files which contain a parenthetical expression you could use the closing parenthesis as the divider. To be more specific if you had file names such as: Asoname(1) , Bsoname(2), Csoname(3), Dsoname(4) one could insert this closing parenthesis ")" in the END field and AS would delete the first parenthesis bracket and the number leaving only "(" at the end of each song name. If the **checkbox** for including the divider was also checked, this closing parenthesis bracket would also be deleted.

28. Auto recovery:

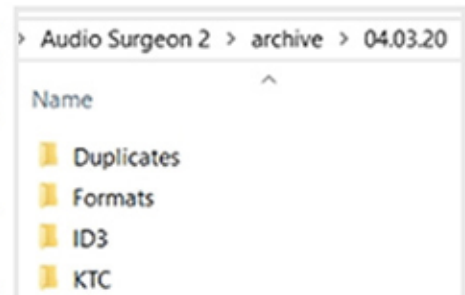
AS saves a backup file automatically every 30 seconds. If Audio Surgeon crashes or your computer crashes, upon reopening the program AS will prompt you to re-open this autorecover file. Opening this file will add back the data that was previously in AS at the time the crash occurred. If you were analyzing data you can begin the analysis again, and AS will pick up where it left off.

29. Archival System

AS's ability to process batches of files means that it can rapidly make changes to hundreds or thousands of files quickly. Any time a file is changed by AS, it creates an archival back-up of the original file, in case there is a problem with a change that you have made in AS.

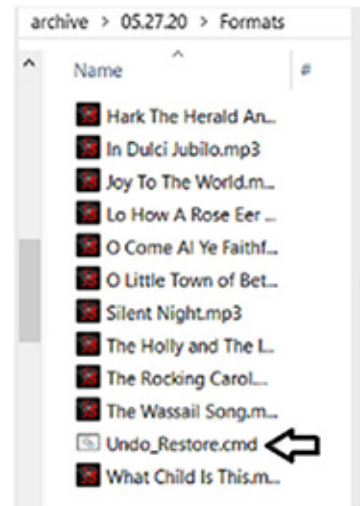
This Archive fold is by default created and found here. C:\Users\XXX\Documents\Audio Surgeon 2\archive

Inside of this "archive" folder there are subfolder for each day you used the product, and inside of these subfolder are addition subfolders for each of the tabs (or functions) you used that day. If you discover some kind of a problem with a file or small group of files processed you should be able to find the original file(s) - before changes were made - in the appropriate folder and manually restore the original file(s).



If there is a problem with a large group of files or, a significant number of files that makes manually restoring them impractical then you have a second option. In each of the tab subfolders not only is there a copy of the **original files** but, as shown in the graphic to the right, there is a **script named Undo_Restore.cmd**. Clicking this script will run it. What this script will do is to **DELETE all of the files created at the time you processed that group or batch** in that specific tab. After deleting these it will then **RESTORE the original files** by moving the backup files from the folder where the script resides back to their original location.

If AS is used frequently, with large batches of files, this archival system can quickly consume a lot of space. To deal with this potential issue AS will automatically zip the folder for each specific day to compress the files and save space. Secondly, AS will automatically delete these compressed folders after a specified period of time.



These two settings are found in the Options button of the software. By default they are set to 10 days for zipping the files, and NEVER for deleting this zipped files. The concept or approach is that after you have made changes in AS, if you notice an issue or problem, you may want to go to the archives and retrieve an original file. AS waits to zip files for a period of time, so if you do go back to the archive folder you do not need to unzip folders. However, after a specified period of time these daily folders are zipped and then at a further specified time, they can be set to be automatically deleted - assuming the a sufficient period of time has passed and if there was a problem or concern from an operation conducted on AS, it would have been found.

30. Working with Phone and Mobile Devices

Many people have their music library on their phone or mobile device. Audio Surgeon is designed to work with any music library, regardless of where it resides. However, to do so, a copy of that library must be made and stored on your computer, external hard drive, USB memory stick or other similar storage device that can be connected to your computer. Both iOS (Apple) and Android (non-Apple) mobile device operating systems have restrictions for accessing and/or copying and writing data directly to a device.

Apple uses a system which encrypts and hides the folders on its iPhone an iPad. Since you are unable to see the files you cannot select them to add them to the Audio Surgeon interface. However if you use an apple device then you likely have iTunes software installed on your computer. iTunes should have a copy of all of your music stored within it. So while you cannot access music files directly on your Apple devices you can access the music on these devices via iTunes.

Android phones and tablets are somewhat easier to deal with. Though you can browse and see your music files as they are stored directly on a phone or tablet, and while you can copy and delete files directly, you cannot access these files directly with Audio Surgeon (or other programs). As an example, if you tried to load files from you phone directly into AS, what you would see loaded into AS is a copy of the files on your phone. The path that you'll see in Audio Surgeon to these files is not directly to the phone but it is a path to a temporary folder where copies of the files were placed as they were loaded from your phone.

So regardless of what type of mobile device you have the best way to work with files on these device is to make a copy of them (Song Library) and save them to your hard drive or a USB storage device and then load them into AS. Manipulate and change the files in AS as you normally would and write any changes to the folder(s) which contains the copy of the files. When you are finished in AS and have written all of the changes to this copied Song Library, copy these files/folders back to your mobile device.