

WPF Audio Player

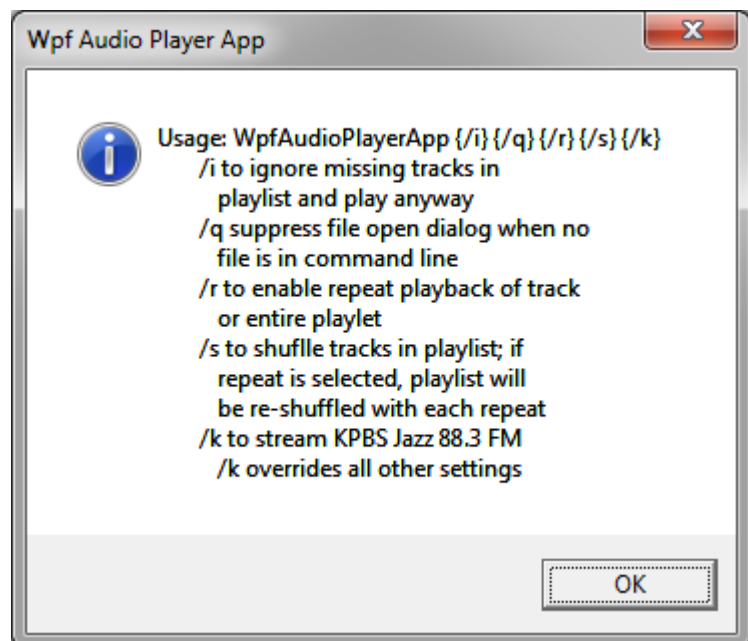
WPF Audio Player is a lightweight application for playing audio tracks, separately or in playlists, which was created as a replacement for Windows Media Player. The initial motivation for the app was Windows Media Player's lack of command-line switches for shuffling playlists and repeating playing tracks or playlists. There are occasions when it is desirable to initiate playing a track or playlist from a desktop shortcut, and with Windows Media Player, the shuffle and repeat settings must be changed via the app's GUI and can't be set by command-line switches. There are other features that Windows Player lacks, such as a simple user interface.



The user interface design was derived from the Wpf Clock App, also available on GitHub in another [repository](#). As can be seen in the first screenshot, the UI lacks the title bar and border common to other Windows applications. One of the design goals was to create as simple and uncluttered a user interface as possible. Like the Wpf Clock App, all the functionality is available by context menu. Also like Wpf Clock App, all the settings made through the settings menu (except for "Shuffle" and "Repeat") are saved in the system registry. No files are ever written, including shuffled playlist files.

The player is capable of playing and displaying tag data including album art for .mp3, .wma, and .wav format files, as well as .wpl and .m3u playlists. No other audio or playlist formats are supported.

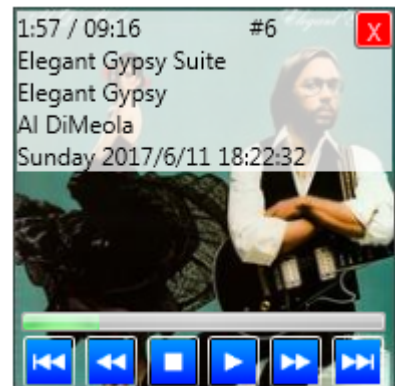
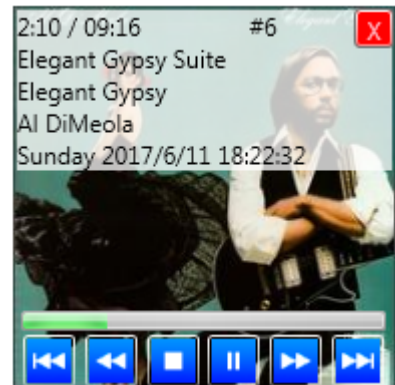
When the app is started, a filename may be specified along with any of the optional command-line switches, which are explained in the usage message box shown in the next screenshot. If no file is found in the command line, a dialog box will be presented to allow selection of a file or group of files to be played. The only files that are available for selection are audio files and playlists. If the open-file dialog box is dismissed without a file selected, the usage message box is displayed. When the "OK" button is clicked on, the app will close. The usage box may also be shown with the "/"? command-line switch.



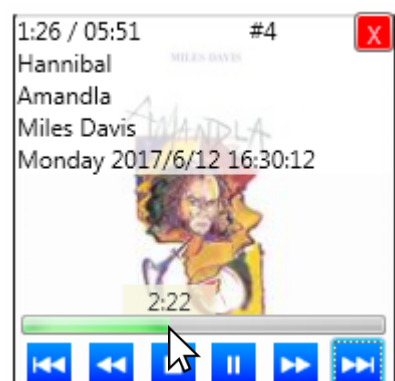
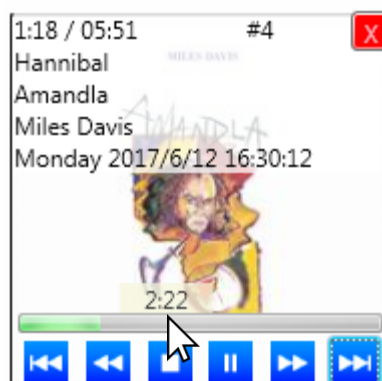
The next screenshot shows the user interface when the mouse is hovering over the window. Just above the row of buttons on the bottom is a progress bar which shows the current position in the track's playback.

This screenshot also shows the transport buttons available when a playlist is in use. From the left, the buttons are "Play previous track" which serves two functions depending on how long the track has been playing. If the track's elapsed time is less than 10 seconds, the button stops playing the currently playing track and starts playing the previous track in the playlist. If the playlist has been shuffled, it plays the previous track in the shuffled-order, not the previous track in the original playlist. If the track has been playing for 10 seconds or longer, the player returns to the beginning of the currently-playing track.

The next button is "Back up 10 seconds" which does exactly that. If the track has been playing for less than 10 seconds, it starts the track at the beginning. The next button is "Stop playback" which stops the track currently playing and returns the progress bar to the beginning position and replaces the album art image with the "no track playing" image shown in the next screenshot at the right. Next is "Play track / pause playback" which is shown with the image displayed while a track is playing. Click it to pause the track playback, and the button image changes to what's shown in the screenshot directly above the "no track playing" screenshot. The last 2 buttons are "Skip ahead 10 seconds" and "Skip to next track", the counterparts to the first 2 buttons. Unlike the "Back up 10 seconds" button, when the time remaining on the track is less than 10 seconds, clicking it will skip ahead to the next track.



In addition to the transport buttons, the progress bar may also be used to change the track playback position at random. When the mouse cursor hovers over the progress bar, a text block is displayed above the progress bar which displays the time at which the track will begin playing if the mouse is clicked at that point, as shown in the next two screenshots to the right.



The image on the left shows the text block hovering directly over the mouse cursor. The text block moves to follow the mouse cursor, unlike a tooltip which doesn't move once it appears. Also unlike a tooltip, the text block doesn't disappear after a few seconds, but remains visible as long as the mouse cursor is over the progress bar. The image on the right shows how the progress bar changes in response to the left mouse button being pressed down. The progress bar advances to the position indicated by the mouse cursor. When the button is released, playing begins at the new point in the progress bar. This also works when the player is either paused or stopped as shown in the next screenshot, with the controls shown on top of the "no track playing" image. A mouse click will start the playback at the specified point on the progress bar.



When the last track in a playlist either finishes or is advanced out of, whether or not the playlist has been shuffled, the player will either stop and display the "no track playing" image shown in the screenshot earlier, (indicating that the player is in the stopped state), or if Repeat has been selected (either in the command line or in the context menu), the player will repeat the playlist. If Shuffle has also been selected, the playlist will be shuffled once more before playing it again. This screenshot also shows a border with rounded corners, which will be described below.

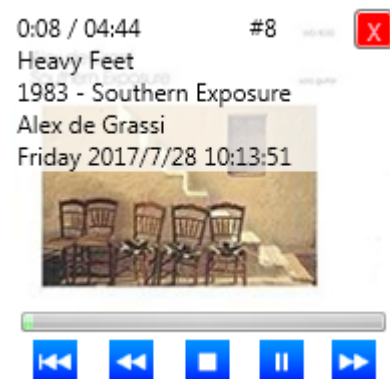
The tags that are displayed, in addition to the album art, from top down, are the elapsed playback time and track length, the track number, track title, album name, artist name, and the name of any featured artist(s). If the featured-artist tag is missing in the audio file, the file's last modification time stamp is shown instead. The next screenshot shows the default image, shown if the track contains no album art. This is the image for an .mp3 file without album art. It isn't hard to imagine what the default images would be for .wav and .wma files.

MP3

Playing Single Tracks

The next screenshot shows the buttons that are shown for single tracks instead of playlists. The only differences are:

- There is no "Skip to next track" button since there is no next track to skip to.
- The "Play previous track" only returns to the beginning of the track being played. It also shows a different tooltip: "Restart from beginning."
- The "Skip ahead 10 seconds" will stop playback if there are less than 10 seconds' track time remaining.



Streaming Audio

The command-line switches are described above in the usage messagebox. When “/k” is used, no track or playlist file is loaded and all the other command-line switches are ignored. Instead of playing a track or a playlist, KSDS, the San Diego commercial-free jazz radio station is streamed. Instead of track album art being displayed, a static internal image is display as shown in the next screenshot. At present, KSDS is the only streaming audio source supported. No transport controls are available when streaming.



Window Behavior

When an instance of the player is already up and playing and another instance is started, the currently-running instance will terminate to allow the next instance to start up. There is no option to override this feature.

The app window may be dragged anywhere on the desktop where it will remain. If the window is dragged past the edge of the desktop, it will snap back to the edge of the desktop so that the entire window is on the desktop. This is particularly useful when it is desired to place the window in a corner. If the window is dragged to span across monitors in a multi-monitor desktop, it will snap to the monitor in which most of the area is visible. It will never show on both monitors. The window can be dragged by default, but this can be changed in the context menu. The position is saved in the registry.

By default, the window behaves like other apps, on top of other windows only while it has the input focus. There are two other options for remaining on top: stay on top always, and stay on top only while a track is playing, both of which are available in the context menu.

Media Play/Pause keyboard Button

Most newer keyboards have an assortment of buttons that control media playback. Wpf Audio Player supports use of the Media Play/Pause button regardless of whether it has the input focus. Pressing it will pause and resume playback, and will also start playback if the app is in the stopped state. The app also supports using the Pause/Break key. Since not all keyboards have a Media Play/Pause button, the Pause/Break key is the default selection for pausing and resuming track playback. This selection can be changed in the context menu, and is also saved in the registry.

In addition to controlling playback, the currently-selected pause button can also change the on-top state by pressing it twice quickly, much like double-clicking with the mouse. For each such “double pressing” of the key, the on-top state will rotate to always-on-top, on-top-while-playing, normal behavior, and then loop around to always-on-top again.

Appearance Adjustments

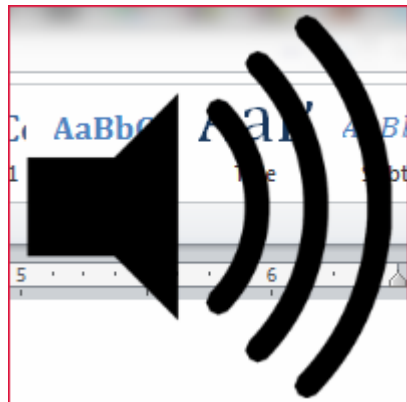
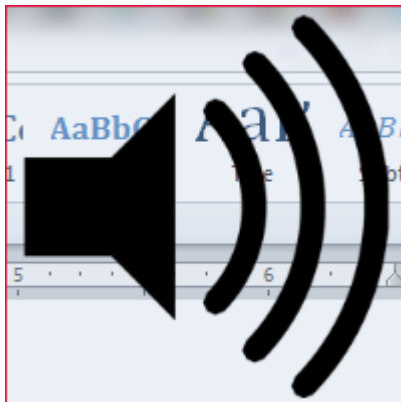
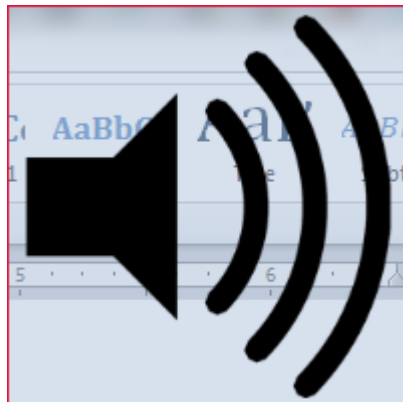
Wpf Audio Player's appearance can be adjusted through the context menu. The border can be thickened or hidden by using the "+" and "-" keys in either the main keyboard or the numeric keypad. The initial default setting is shown in the "no track playing" screenshot on the first page.



The next two screenshots show the window with a thicker border with rounded corners (also the initial default setting), and with square corners and a thinner border. The screenshot at the top shows the app without a border. Those on this page show a thin red border.

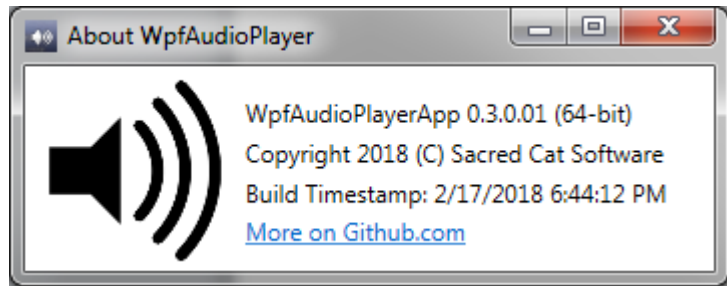


The next few screenshots show the app with varying degrees of background opacity, from 100% (the initial default setting), then 75%, 50%, 25%, and the 0% see-through settings.



About Box, ToolTip, and Systray Icon

The next screenshot shows the app's about box, shown by choosing the "About Wpf Audio Player" option in the context menu. Much of the same information is also available in the app tooltip, shown after enabling it with the "Show version/build date tooltip" option in the context menu, and putting the mouse cursor anywhere in the app window.



Additionally, the window can be hidden by <ctrl>-H or by clicking on "Display mode" -> "Hide Window" in the context menu. The window will be hidden and an icon placed in the systray as shown here.



When the "Show Taskbar Icon" option is selected in the context menu, this icon will be present in the taskbar when the app is running. This is the default state for this option.



Context Menu

The context menu will appear whenever the right mouse button is clicked anywhere on the app's window. Unlike most other Windows menus, Wpf Audio Player keeps the menu visible after clicking on most of the available options, which is very helpful while experimenting with various settings like colors and opacity. To close the menu, just click anywhere outside it, either inside or outside the window.

The context menu options are as follows:

- Repeat Repeats current track or playlist; default is off; also turned on by using the "/r" command-line switch
- Shuffle Shuffles current playlist and restarts playback with first track in the new shuffled playlist order; default is off; also turned on by using the "/s" command-line switch

- Draggable Allows the window to be repositioned by clicking anywhere in the window and dragging it to a new location on the desktop where it will stay; default is on
- Topmost mode Also rotates by pressing <ctrl>-T or “double-pressing” the currently active pause/play button
 - Always-on-top
 - Topmost only while playing
 - Normal behavior
- Pause button mode
 - Use Media Play/Pause button
 - Use Pause/Break key Default setting
 - No keyboard control
- Increase border thickness (+ key) Default is no border, thickness = 0; disabled after 30 presses/repeats
- Decrease border thickness (- key) Only available when thickness > 0
- Increase corner radius (<ctrl>+) Only available when thickness > 0; disabled after 30 presses/repeats
- Decrease corner radius (<ctrl>-) Only available when thickness > 0 and corner radius > 0
- Display mode (<ctrl>-P rotates through the first five options)
 - See-through background
 - 25% opacity
 - 50% opacity
 - 75% opacity
 - 100% opacity Default setting
 - Show Mouse Hovering (<ctrl>-M) Hides the controls and text tags until the mouse cursor passes over the app window, otherwise shows tags and controls always; default is to show the tags and controls only when the mouse hovers over the app window
 - Show Taskbar Icon (<ctrl>-I) Default is to always show the icon in the taskbar
 - Hide Window (<ctrl>-H) Hides the window and adds an icon to the systray; clicking on the systray icon will restore the window and remove the systray icon
- Colors
 - Sort Colors by Name Alternative is to sort the colors by their hue, and saturation values which is the default setting
 - Border outline Enabled only when border thickness > 0
 - Window background Enabled only when background opacity > 0%
- Copy
 - Title Copies the track title text tag to the clipboard
 - Album Copies the album name text tag to the clipboard
 - Artist Copies the artist name text tag to the clipboard
 - Featured artist Copies the featured artist name tag to the clipboard
 - All text tags (<ctrl>-C) Copies all text tags to the clipboard
 - Track Path Copies the full path of the current track to the clipboard

- | | |
|-----------------------------------|--|
| ○ Album art | Copies the album art image to the clipboard |
| ● About | Displays the about box (playing continues) |
| ● Show version/build date tooltip | Enables showing a tooltip with the version, build timestamp, and whether the app is the 32-bit or 64-bit version; default is off |
| ● Restore saved settings | Restores the settings last saved to the registry; initially unavailable until settings have been saved |
| ● Save settings | Saves settings to the registry, keeps app running |
| ● Close & save settings | Saves settings to the registry and closes the app |
| ● Close, don't save settings | Closes the app but doesn't save settings |
| ● Close and remove settings | Close the app and remove all app settings; to remove the app, do this before deleting the .exe and .dll |

Installing Wpf Audio Player

The 64-bit version works better at detecting a new instance of the app starting up on 64-bit systems. For 32-bit OS environments, the 32-bit version is the only one that will run. Once downloaded from GitHub, simply pick a place to unzip the 2 binaries to, and they're ready to go. The DLL HookWrapper.dll must be in the same folder as WpfAudioPlayer.exe or the app won't start. Ever.

Starting with the “Open With ...” Option

Select a track or playlist file in Windows Explorer and right-click on it. In the context menu, choose “Open with” -> “Choose default program”. In the “Open with” dialog box, click on the “Browse” button and navigate to the WpfAudioPlayer.exe file where it was installed. To make Wpf Audio Player the default application for the selected file extension, click on “Always use the selected program to open this kind of file”. This will make Wpf Audio Player the player of choice whenever the file type is double-clicked on in Windows Explorer.

Starting with a Desktop Shortcut

To create a desktop shortcut to start Wpf Audio Player with a particular playlist, folder, or single audio track, follow these steps:

1. Right-click on the WpfAudioPlayer.exe file where it was installed and select “Create shortcut”.
2. Right-click on the new shortcut file and select “Properties”.
3. In the “Target” edit control, append the full path of the playlist, folder, or audio track desired, and add “/r” for repeat if desired. For folders and playlist files, “/s” may be added to shuffle the playlist each time the shortcut is used. Without either of the switches, the playlist will play in its

original track order, and track or playlist will only be played once, after which the app will remain open in the “no track playing” state.

4. Add a shortcut key sequence if desired by moving the input focus to the “Shortcut key” edit control and typing the desired shortcut key to start playing the track(s).
5. Close the dialog box and optionally rename the shortcut file to something that indicates what the shortcut will cause Wpf Audio Player to start playing.
6. Drag the new shortcut to the Windows desktop and give it a try.

Starting with the “Send To ...” Option

Another way to start the app is with a “Send To” link, created with these steps:

1. Right-click on the WpfAudioPlayer.exe file where it was installed and select “Create shortcut”.
2. Right-click on the new shortcut file and select “Properties”.
3. In the “Target” edit control, optionally append “/r” for repeat and/or “/s” to shuffle playlist files.
4. Rename the shortcut to give it a meaningful name like “Wpf Audio Player (repeat)”, “Wpf Audio Player (shuffle)”, “Wpf Audio Player (shuffle & repeat)”, or “Wpf Audio Player”.
5. If desired, make copies of the shortcut to allow for all 4 command-line switch combinations.
6. Open the “Send To” folder by entering “%AppData%\Microsoft\Windows\SendTo” into the “Run” dialog box (<Windows Key>-R) and clicking “OK”.
7. Drag the new shortcut file(s) into the “Send To” folder”.
8. To try it out, right-click on any playlist file, folder, or audio track and expand the “Send to” option, and select one of the new shortcuts.

Uninstalling Wpf Audio Player

To completely remove Wpf Audio Player, first select “Close and remove settings” in the context menu. This will remove all settings from the registry before closing the app. Then delete the files WpfAudioPlayer.exe and HookWrapper.dll from their installed location. All done.

Do you Like It?

If you like it, please tell me and tell your friends. If you don’t like it or run into a problem either with the app or the documentation, please tell me by sending me email: greghub@pobox.com

Enjoy!

What's New in Version 0.4.0.02

Command Line

- Added /l option to limit number of files to be added to internal playlist. The default value is 1000. The minimum value is 2. Example: “/l500” sets the limit to 500 files.
- Added /n option to recursively search folders for audio and playlist files and sets the recursion depth. The default is 0, no recursive searching. Example: “/n3” sets the search depth to 3.
- Added /h option to start the app hidden with an icon in the systray.
- Added /u option to pause between tracks after finishing the first track. Good for when you want to pause for an undetermined length of time before going to the next track.

Context Menu

- Added menu option to select double-pressing pause key/button actions. The new action available is to back up 10 seconds instead of rotating the topmost mode.
- Added menu option to pop up on top when resuming from pause without maintaining the topmost position in the window order.
- Added menu option to always show progress bar and only show the remaining controls when the mouse hovers over the window.
- Changed ctrl-M to ctrl-S in code and in menu for rotating through options in the “Show Controls Mode” menu group.

Window Behavior

- The mousewheel advances the current position in the track forward or backs it up, the same as the “Advance” and “Back Up” buttons.
- The current track's bit rate is displayed on the top tag data row between time and track #.
- Bit rates are shown for all supported audio file formats.
- If the window is hidden, it is restored by double-pressing the pause button.
- Dragged audio and playlist files are now accepted and added to the current internal list of files to be played. Dragged playlist files are parsed and their audio tracks are added. Duplicate files are filtered and not added. The “Shuffle” and “Repeat” options are not changed, and if “Shuffle” is selected, the internal playlist is shuffled again after add the new files.

Application

- Replaced embedded tif images with jpg, reducing the app's file size by more than 50%.

What's New in Version 0.5.0.04

Context Menu

- Added menu item & code to pop up window on opening new track
- Added code & Show Controls menu option to display controls & progress bar for 5 seconds after pause button/key is pressed

Player behavior

- Added code to begin track playing immediately in pause /p mode when the "skip to next track" button is clicked
- Added code to reset position to beginning without playing if in pause on <ctrl>-Home & added to "Show Supported Keystrokes" message box
- Fixed issue: pause-before-playing affects next and previous track buttons
- Fixed numerous playing & tag-showing issues found before refactoring

Window Behavior

- Added code to update track position & length when pausing on new track
- Fixed issue: cover art cleared on /r repeat with single track
- Added code to hide desktop icon in "Always on top" Topmost mode
- Added code to display list of all supported keystrokes and functions
- Added .NET version to About box
- Added code to close About box when app closes
- Reduced About box width to better fit text
- Updated KSDS image with instruments outline
- Fixed issue that prevented About box from showing the first time
- Fixed issue that caused controls to remain hidden when "Always Show Controls" checked

Application

- Added code to write missing file paths in playlist to clipboard
- Fixed multiple file-not-found exceptions
- Fixed issue: send-to with folder containing audio tracks doesn't open
- Fixed issue: KSDS mode aborts w/ no files in command line