



Birdland-Qt Musician's Assistant - Qt Lite Version

Attention: The text of this document and most of the images are from Birdland 2022. It has been lightly edited for congruence with the current release but may not be completely accurate. Read it for background but not specifics. Most significantly, the Index Management features discussed here are NOT presently included. A later release will include those features.

The *Quick-Start Guide* and *Configuration Guide* found elsewhere agree with this release.

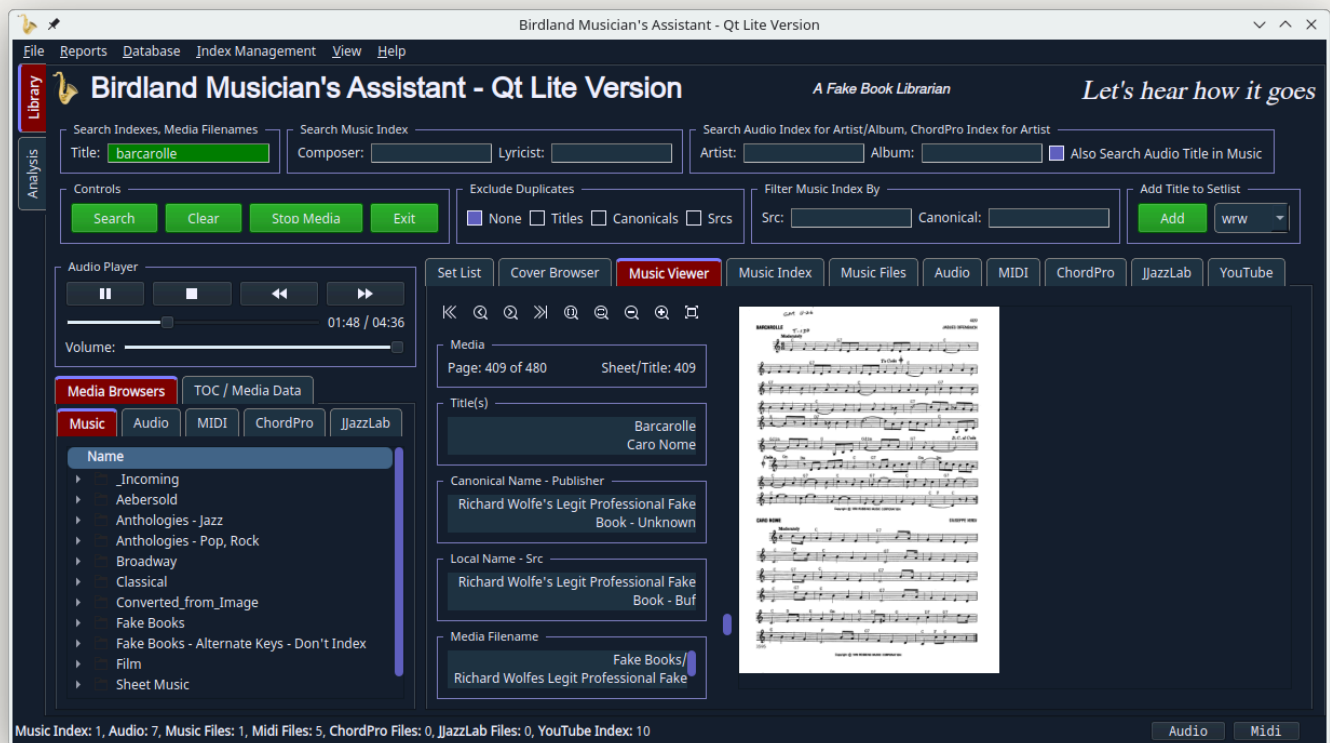
Birdland is a multimedia music viewer and library manager for music books in PDF form with specific attention to fakebooks. It displays a page of music by searching a database of titles and other metadata. Answering the *Let's hear how it goes* query it shows audio files, Midi files, ChordPro charts, and JJazzLab songs from your media library and YouTube links matching the search parameters. Birdland ships with index data from 9 sources covering over 100 books and over 20,000 titles.

A secondary feature of Birdland is *Index Management*. Birdland contains tools to quickly create indexes using OCR, harmonize indexes from disparate sources, compare them, and integrate them into one database. Users can edit existing indexes and add their own. Remember, this is not part of the current release.

Birdland Qt Lite supercedes a prior version of Birdland released in 2022. That version only ran on Linux, had a cumbersome installation, and the user interface was based on the PySimpleGui library, which had licensing issues and is now discontinued.

The current version runs on Windows, MacOS, and Linux, and is distributed as self-contained executable files with minimal host dependencies. The user interface was completely rewritten using the Qt library, the internal architecture was restructured, and a many of the internals were rewritten. It also includes a small number of new features but is otherwise similar to the 2022 version.

The current version is designated as *Lite* because it does not include the Index Management tools.



Terminology

Music vs Audio

The common (and ambiguous) terms - *music* and *audio* - are used formally here. You look at *Music*; you listen to *Audio*. That is, *Music* is derived from the printed page, *Audio* from performance. The term *Book* is used informally to refer to a *Music* book.

Raw Indexes

A key feature of Birdland is the ability to locate a title in a book by searching a database. This requires an index that maps song titles to pages in PDF files. Birdland ships with raw indexes compiled from several online sources, one extracted from the table of contents of a collection of music books (of those having a table of contents) and a small one created during testing.

Each raw-index source has a short, three character identifier called **Src**. Each raw-index source also has a longer, descriptive identifier called **Source** though that has less visibility than **Src**.

Music Book Identifiers

Every music book has three identifiers. The **Local Name** is specific (or local) to each raw-index source and created by the person compiling the index. *Local* names are often cryptic and non-unique across different index sources.

The **Canonical Name** is descriptive, is unique over all music books, and was selected by author of Birdland. It is typically the same or similar to the name of the book, possibly normalized and disambiguated, particularly for for *Real Books* from Sher, Hal Leonard and the originals from Berkeley Music College. The local name is mapped to the canonical name by a file, *Local2Canon.txt*, in each of the raw-index source directories.

The **File Name** is the name of the music file, i.e. the PDF file containing music, in **your** music library. The canonical name is mapped to the file name by a file, *Canonical2ile.txt* in the configuration directory. Birdland includes a tool for managing that file or you can use your favorite text editor.

The table below shows a few examples of names for a one popular fake book indexed by a few sources. The mapping between *Src* and *LocalName* is contained in the Birdland configuration file.

SRC	SOURCE	LOCAL NAME	CANONICAL NAME	FILE NAME
Skr	Skrivarna	realbook5th	Real Book Vol 1 - Orig	Real Book Vol 1 5th ed.pdf
Buf	Buffalo	Real Book, The	Real Book Vol 1 - Orig	Real Book Vol 1 5th ed.pdf
Asp	AdamSpiers	NewReal1	Real Book Vol 1 - Orig	Real Book Vol 1 5th ed.pdf

Note that Canonical2File.txt must exist before Birdland can find your music files.

Page Number, Sheet Number, Title Number

Two common (and ambiguous) terms, *Page* and *Sheet*, are also used formally here.

The **Page Number** of a title exists within the domain of a PDF file and what is shown by PDF readers. Page numbers are sequential starting with one, have no gaps, and increase by one for each page in a book. (Internally, page numbers start at zero but that's hidden from the user.) Some PDF files have non-numeric page numbers (yes, an oxymoron), often for front matter. Birdland does not deal with non-numeric page numbers.

The **Sheet Number** of a title is usually what is shown on the visual page. In the general case *Page* and *Sheet* numbers are not the same and vary by raw-index source.

Sheet numbers increase monotonically, there is only one per page, they are assigned for continuation pages, and they may have gaps, for example, because of omitted photos.

A small number of books identify titles with a **Title Number** instead of a *Sheet Number*. *Title Numbers* increase monotonically, there can be one or more per page, they are not assigned to continuation pages, and they may have gaps, for example, because of a structured title numbering system.

The relation between *Page* and *Sheet* (or *Title*) numbers is established by a file named *Sheet-Offsets.txt* in each of the raw-index source directories. It contains one or more pairs of numbers. Starting at the sheet represented by the first number the *Page* number is obtained by adding the second number to the sheet number. For some index sources the *Page* number and *Sheet* number are the same.

The distinction between *Sheet Number* and *Title Number* exists only for creating new indexes. It controls the automatic incrementing of the sheet/title number when skipping a page and displaying a nastygram when a sheet/title number is not given.

The indexes included with Birdland but which were obtained from external sources are inconsistent in sheet numbering and none make use of title numbering. For some, the page and sheet numbers are the same but the sheet numbers do not agree with the printed page. For others, the sheet number is offset from the page number and do agree with the printed page. The benefit of title numbering only accrue when creating new indexes with Birdland.

Editorial - *We assert that Sheet Number, not Page Number, should be published in raw indexes. The sheet number is constant, as fixed as the ink in the book, whereas the page number is not. Different people doing scans may have different approaches to front matter, photos, back matter, etc., resulting in multiple incompatible scans. A small, simple offset file, not an entirely new index, brings those divergent scans into agreement. And the sheet number can be used to locate a title in a physical book whereas the page number cannot.*

Foundational Concepts

No Copyrighted Media

Birdland ships with no copyrighted media - music, audio or midi. You must supply your own media, which is available from many online sources, or from your own scans. It does include music indexes for many popular books. Indexes are lists of facts and, as such, not subject to copyright.

Text-based Primary Input Files

The primary input files - raw indexes, local to canonical maps, canonical to file map, title corrections, etc., are all text-based. Birdland include tools for editing most or you may use your favorite text editor.

A corollary of this is that no user input is stored only in the Birdland database. The database may be rebuilt freely without the loss of data you have entered.

Multiple Raw Indexes

By comparing indexes from multiple sources it is possible to identify incorrect sheet numbers, alternate title spellings, and omitted titles. Of course, this is only meaningful if the sources were built independently, which does not appear to always be the case. And, of course, this only works when multiple sources exist. A book with only one index source may have error that can only be identified by

viewing each page.

At some point, we're not there yet, but at some point all index sources will agree. When we get there then there will no longer be a need for multiple raw indexes. Instead, we will consolidate all indexes into one and ship only that one with Birdland. We will also normalize all sheet numbers to agree with the printed sheet and include an offset file to map to PDF page. We hope users will contribute to this effort.

Normalized Titles

Titles for the same song in the raw indexes vary in several ways: capitalization, spelling errors, differences in punctuation, inclusion of subtitles, leading or trailing articles *A* and *The*, possibly in parens, key signatures, diacritical marks, certain source-specific quirks such as leading or trailing items, and more.

Ideally, there would only be one representation for each title. We're not there yet but Birdland includes the tools to move in that direction. At an early step in raw-index processing Birdland checks each title against sixteen patterns of potential mismatches including those described above and automatically corrects to a normalized form.

Using one of the tools in *Index Management* users can manually add corrections that cannot be done automatically. Those corrections are then applied on a subsequent raw-index processing step.

Punctuation in the raw index is preserved in the database so that the displayed titles appear the same as the printed titles. However, punctuation is generally ignored when searching.

Screen Size

Development of Birdland was done on both a desktop PC with a large monitor and a laptop with a 13.25" screen and resolution of 1366x768. The layout of the graphical user interface was designed to fit on the laptop screen though at that size the embedded PDF viewer is barely usable so the zoom viewer (Up-Arrow) is a better choice. The laptop screen also constrained the number and placement of UI features including buttons, textboxes, and tabs. We believe the compromises required to support smaller screens will be appreciated by some users.

Programming is More Fun Than Bookkeeping

Index management involves a lot of bookkeeping, e.g. identifying page mismatches between index sources, aligning page numbers, editing mapping files, etc. The time to develop the Birdland tools to minimize the bookkeeping effort likely exceeded manyfold the time to just do the bookkeeping manually. But it was more fun.

Features

Music Viewer Features

- Locate music by searching for the song title, composer or lyricist in the music index, the title in the music index matching the artist or album in the audio index, and the the title in the music filename.
- Locate audio by searching for the song title, artist, and album in data extracted from metadata in the audio files. Audio file names are not searched because they normally overlap the metadata. The titles obtained from searching the audio index may optionally be included in a search of the music index. This provides a means of identifying titles by artist and album metadata, which is in the audio files index but not in the music file index.
- Locate midi by searching for the song title in the midi filename. Midi files contain no reliable and uniform metadata so only the filename is searched. Some midi files, especially those from scanned piano rolls, include sidecar files with extensive metadata. A sidecar file has the same name as the midi file with a *.txt* extension in addition to the *.mid* extension, not replacing it. Metadata from a sidecar file, if found, is included in the database for searching and is displayed when the midi file is played.
- Locate ChordPro songs by searching for the song title and artist in data extracted from the ChordPro file and folder names. Presently no metadata is extracted from the ChordPro file content.
- Locate JJazzLab songs by searching for the song title the in data extracted from the JJazzLab filenames. Presently no metadata is extracted from the JJazzLab file content.
- Locate YouTube pages by searching a table created by looking up all titles in the authors library.
- Manage setlists.
- Edit the *Canonical to File* table.
- Built-in PDF viewer that can be expanded to full-screen.

Index Management Features

Remember, these are not part of the current release Birdland Qt Lite.

- Compare indexes from multiple sources. View the title indicated by sheet number of each source to determine the correct one. Go directly to the line in the raw index to edit incorrect titles or sheet numbers. Harmonize alternate title spellings by selecting one from two or more alternate choices.
- Inspect the raw index for each *Src* and *Local* book name and view the title to establish correct sheet offsets.
- Create an index for a book not previously indexed. Workflow-optimized user interface with user-guided title OCR. Automatic title OCR where titles are in the same location on successive pages. Automatic sheet number increment.

Where the song titles are clearly legible, i.e., not written over a staff lines as is the case in some of the *Real Books*, and especially if they are in the same location on all pages, it is possible to index a book quickly with user input only to enter the first sheet number and correct OCR errors.

- Edit the Local to Canonical file for each *Src* and *Local* book name.
- Screen magnifier for viewing small sheet numbers when creating an index.

Other Features

- Birdland uses the Sqlite3 database by default but will use MySQL via a command-line option. To use MySQL you must first manually create a MySQL database called *Birdland* with appropriate permissions. Thereafter, Birdland will create and populate the tables just as it does with Sqlite3.
- Support for use on multiple hosts using a shared configuration file with host-specific sections for settings likely to vary by host.

Installation

See the *Installation Notes* on the *Birdland* home page for platform-specific requirements and installation details. See the *Quick-Start Guide* for helper-applications you may wish to install.

Status

A wise sage posited that *Perfect is the Enemy of Good*. With that in mind I decided to release Birdland with a few known issues to expose it to a wider user base.

The Birdland application has been reasonably well tested during development but has not yet been exposed to many users or platforms versions. Corner cases, un-anticipated inputs and sequence of inputs, and differences between platforms will inevitably emerge.

Development and testing was done on an up-to-date Arch Linux system with the Plasma (KDE) desktop environment. Incompatibilities with other Linux distributions are possible. Conflicts with the glibc library are specifically a concern.

The consolidation of the multiple index sources is not complete. The correct page is found for most titles in popular fakebooks but some page errors and alternate spellings of titles remain.

The power of *Full Text* searching is available only if using the MySQL database. Since most, if not all, users will prefer Sqlite3 for its simplicity and speed, MySQL *full text* searching is not possible. I was unable to use the *full text* feature of Sqlite3 either because it is buggy, I didn't understand it, or both. However, I did implement approximations of *full text* in a number of different ways. By default, Birdland uses a small C-language routine for *full-text* matching. Because of the uncertainties of access to that routine in some environments Birdland will fall back to an alternate implementation using SQL *LIKE* matching if the C implementation cannot be loaded. There will be small variation in search results between the two implementations and *LIKE* is a bit slower.

Troubleshooting

Kate Editor

If you have specified the *kate* editor for the *Text Editor for Raw Index* (our preference for this) then a recent update to *kate* broke the line-number option. It works fine if you also specify the column number. Thus the value for the *Editor line number option* for *kate* is:

```
1 -l ? -c 1
```

Getting Started

First Launch

When Birdland starts for the first time it:

- Creates a configuration folder in the location in the table below.
- It populates configuration folder with:
 - A configuration file, *birdland.conf*
 - An empty setlist file, *Setlist.json*
 - An empty canonical to file map, *Canonical2File.txt*
 - A sample canonical to file map, *Example-Canonical2File.txt*
 - An empty audio index, *hostname-Audio-Index.json.gz*
- Creates a data folder in the location in the table below
- It populates the data folder with:
 - Raw-index data from multiple sources in *Index-Sources*
 - Processed raw-index data in *Music-Index*
 - YouTube-Index data
 - An database file *Birdland.db* and builds the following tables from the above: canonical, local2canonical, raw_index, sheet_offsets, src_priority, title2youtube, titles, titles_distinct
 - An empty *Thumbnails* directory for the *Cover Browser* tab
 - Other files of possible interest to users but not used explicitly

Note that *hostname* above is the name of your host. The hostname is included in the audio index filename so you can run Birdland on multiple hosts with a common, shared configuration directory, each with different music and audio libraries. You may want to include your hostname in the *Canonical2File.txt* name, too.

File Locations

PLATFORM	CONTENT	LOCATION
Linux	Configuration	~/.config/birdland_qt
	Data	~/.local/share/birdland_qt
Window	Configuration	C:\Users\<user>\AppData\Roaming\birdland_qt
	Data	C:\Users\<user>\AppData\Local\birdland_qt
MacOS	Configuration	~/Library/Preferences/birdland_qt
	Data	~/Library/Application Support/birdland_qt

- Birdland then prompts you set up your configuration in the settings menu: *File->Settings*. The *birdland.conf* file is an ordinary text file, which you can edit it directly with a text editor if you prefer.
- There you tell Birdland the location of your music, audio, midi, ChordPro and JJazzLab libraries. Each of these is specified by a root directory and a list of one or more directories under the root.
- Birdland needs to know the mapping between the canonical music file names used in the index and the names of the music files on *your* system. You can populate the canonical-to-file map file using the build-in tool in the *Edit Canonical->File* tab or with a text editor. The file consists of one line per music file containing the canonical name and the music file name separated by a vertical bar. A reasonably-complete example is in *Example-Canonical2File.txt* to use as a starting point. You may find that the file names in that are quite close to your music file names and only minor edits are needed. Or you might prefer to change the names of your music files to match that file.
- Next click *Database->Scan Audio Library* if you intend to include your audio library in the Birdland database. This can take some time if you have a large audio library, perhaps around a half-hour for a half-terabyte of audio files. You can defer this until later if you are anxious to get started. Birdland gives you chance to cancel the scan if you accidentally click this item.
- Finally click *Database->Rebuild All Tables* to build the database from the index data shipped with Birdland and the additional data you entered above. This typically takes thirty seconds or so.

There are several more options that are not needed to get started. We'll get to those later.

Operation

- Enter a title in the green text box labeled *Title* and hit *Enter* or click *Search*.
Birdland searches for *all* the words entered in the order they appear. This is similar, but not identical, to *full text* supported by MySql and Sqlite databases.

Birdland searches for the title in the music index, the audio index, in the music filenames, the midi filenames, the ChordPro index, the JJazzLab index and the YouTube index and activates the tab for the first match found in the above order.

- Click on a row in the *Music Index* tab to view the music file found by title (or other search parameters), the *Audio Index* to play the audio file, the *Music Files* tab to view the music file found by filename, the *Midi Files* tab to play the midi file, the *ChordPro* tab to view the ChordPro file, the *JJazzLab* tab to launch JJazzLab for the title, and the *YouTube Index* to view the YouTube video for the title.

The number of matches of each type appears in *Status Bar* at the bottom of Birdland. Note that the maximum of number of matches returned is limited by an options in *Settings*, default 50.

"Let's hear how it goes."

- And now, the multimedia feature manifests.
An *Audio* button appears in the *Status Bar* if the title of an audio file matches the title in the music viewer. Click on the *Audio* button to go to *Audio of Title* tab in the *TOC/Media Data* Tab. Click on a line to play it.
- If a music notes icon appears in the *Status Bar* then the above applies but for midi files A *MIDI* button appears in the *Status Bar* if the title of a MIDI file matches the title in the music viewer. Click on the *MIDI* button to go to *MIDI of Title* tab in the *TOC/Media Data* Tab. Click on a line play it.
- Add a title to a set list by clicking the *Add* button in the *Add Title to Setlist* panel. Create a new set list by typing the new name in the drop-down menu in lieu of selecting an existing one.
- By default the *Include titles missing in music files* settings option is not selected. Select it so that you may explore the music index before you have added any music files and built the Canon2File.txt file. You may later deselect it to avoid littering search results with music books not in your library.

Set List	Music Viewer	Music Index	Music Files	Audio	Midi	ChordPro	JJazzLab	YouTube	Edit Canonical->File	Index Management
Title	Canonical	File	Sheet							
Agua De Beber	Standards Real Book - Chuck Sher	Fake Books/Standards Real Book.pdf	17							
And Now, The Queen	Real Book Vol 1 - Orig	Fake Books/Real Book Vol 1 5th ed.pdf	35							
Around Again	Real Book Vol 1 - Orig	Fake Books/Real Book Vol 1 5th ed.pdf	35							
None	None	Anthologies - Pop, Rock/Stevie Wonder/Stevie Wonder - I Can See	1							
None	None	Fake Books/Real Rock Book.pdf	10							

Manage Setlist
Default
☐ Edit Setlist
Move Up
Move Down
Delete
Save Setlist

Abbreviated Reference Manual

UNIX Programmer's Manual, Seventh Edition (now 46 years old) includes the following comment:

Within the area it surveys, this volume attempts to be timely, complete and concise. Where the latter two objectives conflict, the obvious is often left unsaid in favor of brevity.

In that spirit the function of most the user menus and controls should be self-explanatory from the tab, button, or panel labels. Here are just a few items that may not be obvious for reference while using Birdland.

Command Line (Linux only)

Birdland is executed from the comand line with *birdland_qt* and it may appear in the system menu if supported.

-c confdir

Use *confdir* for the configuration folder instead of the default folder. You may want to do this to locate the configuration information in a shared or cloud-based directory such as Dropbox so that you can use the same configuration information on multiple systems.

This option does not affect the location of Sqlite3 database, which is always in data folder. It can be easily and quickly regenerated and you may not want it in cloud storage because of its size.

-d mysql

Use the MySql database in lieu of the default Sqlite3 database.

Additional Commands

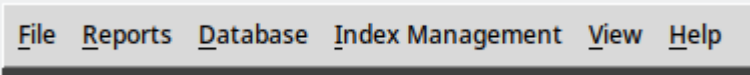
Birdland includes a few additional commands.

- *bl-build-tables* (links to *build_tables.py*)
- *bl-diff-index* (links to *diff_index.py*)

Ordinarily, the above are run via the menu in Birdland but are exposed for advanced users who prefer to run them outside of Birdland. These commands are not further documented. Use the *--help* option for some guidance on use.

- *Index-Sources/ExtractedIndex/extract-index-from-pdf.py* - This scans your music library and extracts indexes from PDF files containing indexes.
- *build-pdf-from-image.py* - This converts image files in your music library to PDF files and places them in the folder indicated by the *music_from_image* option in the configuration file, default the *Converted_from_Image* directory under the root of your music library. It assumes that all image files for a single song are in one folder and places the PDF output in a file named for that folder.

Menus



File->Settings

A screenshot of the 'File->Settings' dialog box. The dialog is divided into two main sections. The left section contains several groups of settings, each with a label and a list box. The right section contains a series of settings with labels and text input fields or dropdown menus. At the bottom left, there are 'Cancel' and 'Save' buttons.

Root of music files: ~/Library/DL-Music_Books

Folders containing all music files: Aebersold, Anthologies - Jazz, Anthologies - Pop, Rock, Broadway, Classical

Folders containing music files permitting Canon->File editing: Fake Books

Root of audio files: /mnt/music

Folders containing audio files: DL-Music, RIP-Copy, RIP-Original, RIP-Record, Little Silver Collection

Root of midi files: ~/Library/Midi

Folders containing midi files: DeDuplicated

Root of ChordPro files: ~/Library/ChordPro

Folders containing ChordPro files: getsome.org

Root of JJazzLab files: ~/JJazzLab

Folders containing JJazzLab files: ExampleSongs, JJazzLab-Realbook

Canonical->File map file(s): Paganini-Canonical2File.txt, Paganini-Ext-Canonical2File.txt

Editable Canonical->File map file: Paganini-Canonical2File.txt

Setlist file: setlist.json

Maximum number of rows returned: 100

Show index management tab: ☒

Show Edit Canonical-File tab: ☒

Text Editor for Raw Index: kate

Editor line number option: -1 ?

Include titles missing music files: ☐

Theme (restart required): Dark

Create Index Canonicals (rst reqd): With No Index

Use external music viewer: ☐

External Music Viewer: okular

External Audio Player: vlc

External Midi Player: timidity

External YouTube Viewer: qutebrowser --override-restore

Buttons: Cancel, Save

Folders containing music files permitting Canon->File editing

This was used to restrict the files in the *Canonical Name* table in the *Edit Canonical->File* tab to just files in the folders included in this option. It is not currently used.

Canonical->File map file(s)

This defines one or more files containing the canonical to file mapping. Presently, one map file was created by hand while the other was created by the program that built the *Ext* raw index by extracting index data from all PDF files in the music library containing an index.

Editable Canonical->File map file

Only the canonical to file map in this option is shown in the *Edit Canonical->File* tab. This is the file in the above option that was created by hand. There is no reason to edit the map created by the index extraction program and it cluttered the table.

Include titles missing in music files

When searching the music index titles without a corresponding music present are ordinarily excluded from the results shown in the *Music Index*. Check this option to include those files. You may want to do this to explore the music index before you have set up the canonical to file map for your music library.

Database

Rebuild Sheet-Offset Table, Rebuild Canonical to File Table

These items are a subset of *Rebuild All Tables* item. They are included separately so users working on the *Sheet Offset* and *Canonical to File* files don't have to rebuild the entire database when working on just those files.

Index Management

Process Raw-Index Sources

This executes each of the *do_*.py* scripts in the source-specific folders in the *Index-Source* directory. Each of those scripts converts their associated raw indexes into a consistent format in the *Music-Index* directory. It must be run after editing the raw index files. It does not have to be run after editing the *Sheet Offset* or *Canonical to File* files.

The remainder of the items show reports summarizing differences between index sources for the same book and another report showing the details of such differences. The summary reports show progress on harmonizing index sources and identify books needing attention. The detail report is redundant with the information on the *Index-Management -> Index Comparison* tab but some users might prefer to see the differences in a report.

View

The controls here are redundant with options in the *Settings* menu but are provided for users who want to quickly view one of the indicated tabs without going to *Settings*. Most users will have no need for *Index Management* and little need for *Edit Canonical->File* once they have configured Birdland for their system. Hiding these tabs reduces clutter and hides unused tabs.

Help

About Birdland

Please copy-and-paste the contents of the *About Birdland* window into the *Contact* form when contacting us with a problem. You may also find it handy as a reminder of the directories used by Birdland.



Birdland Musician's Assistant

Version: 1.0.10

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System:

Sysname: Linux
Nodename: Paganini
Release: 5.17.3-arch1-1
Version: #1 SMP PREEMPT Thu, 14 Apr 2022 01:18:36 +0000
Machine: x86_64

Python:

Python Version: 3.10.4
PySimpleGui Version: 4.57.0
TkInter Version: 8.6.12
Sqlite Version: 3.38.2
Sqlite Python Module Version: 2.6.0
MuPDF Library Version: 1.19.0
PyMuPDF Module Version: 1.19.6
ConfigObj Module Version: 5.1.0
MySQLdb Module Version: 2.1.0.final.0

Birdland:

Version: 1.0.10
Run Environment: Python process
Package Type: Development
Executable Timestamp: Wed, 23-Mar-2022, 19:05:40
Database: SQLite3, Database File: /home/www/.birdland/Birdland.db Using fullwordmodule

Directories:


Settings Directory: /home/www/Dropbox/Config/birdland
Program Directory: /home/www/Dropbox/Work/Birdland/src/birdland
Data Directory: /home/www/Dropbox/Work/Birdland/src

Executable Identity:

Executable: /usr/bin/python
Argv[0]: /home/www/Dropbox/Work/Birdland/src/birdland/birdland.py
__file__: /home/www/Dropbox/Work/Birdland/src/birdland/birdland.py

Close

Search and Search Controls

**Birdland Musician's Assistant**"Let's hear how it goes."

Search Indexes, Music/Midi Filenames

Title:

Search Music Index

Composer: Lyricist:

Search Audio Index, ChordPro Index for Artist

Artist: Album: ☒ Also Search Audio Title in Music

Exclude Duplicate

☒ None ☐ Titles ☐ Canonicals ☐ Srcs

Filter Music Index By

Src: Canonical:

Add Title to Setlist

Also Search Audio Title in Music

Search Audio Index for Artist/Album, ChordPro Index for Artist

Artist:

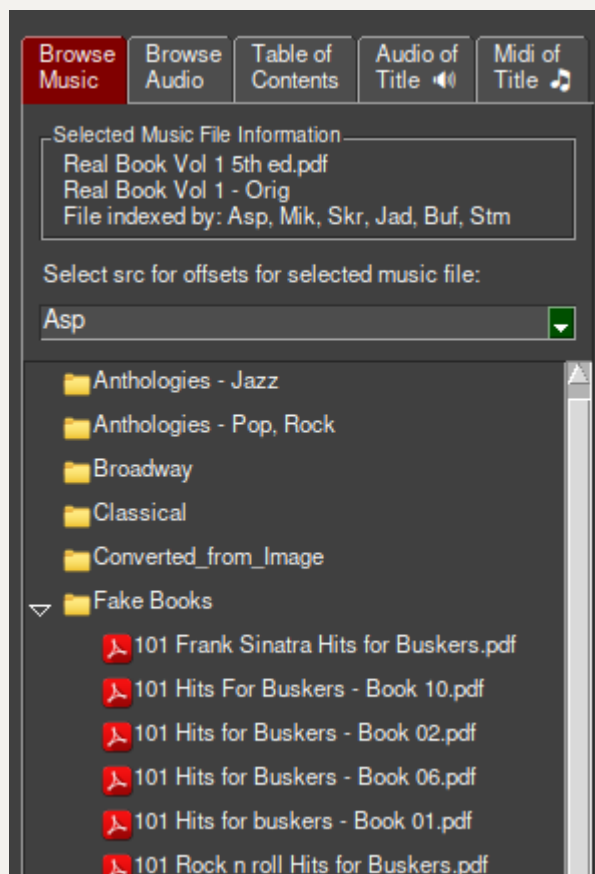
Album:

☒ Also Search Audio Title in Music

The metadata accompanying some titles includes composer and lyricist but never artist and album as neither has a unique mapping to a title. Nevertheless, users may want to search for a title based on an artist who recorded it or an album where it appears. With this option checked and with a value for artist and or album the audio index is first searched for these items. The titles found in the search are then searched for in the music index as if they were entered in the *Title:* search box.

Browse Music

Title shown in the *Music Index* tab include the *Src* and *Local* for the raw index from which the title was obtained. That is not the case for books selected from the the *Browse Music* tab in the left sidebar, a file browser for all books in your music library. Select the index *Src* in the drop-down menu to use the associated index when viewing the book it in the *Music Viewer* tab.



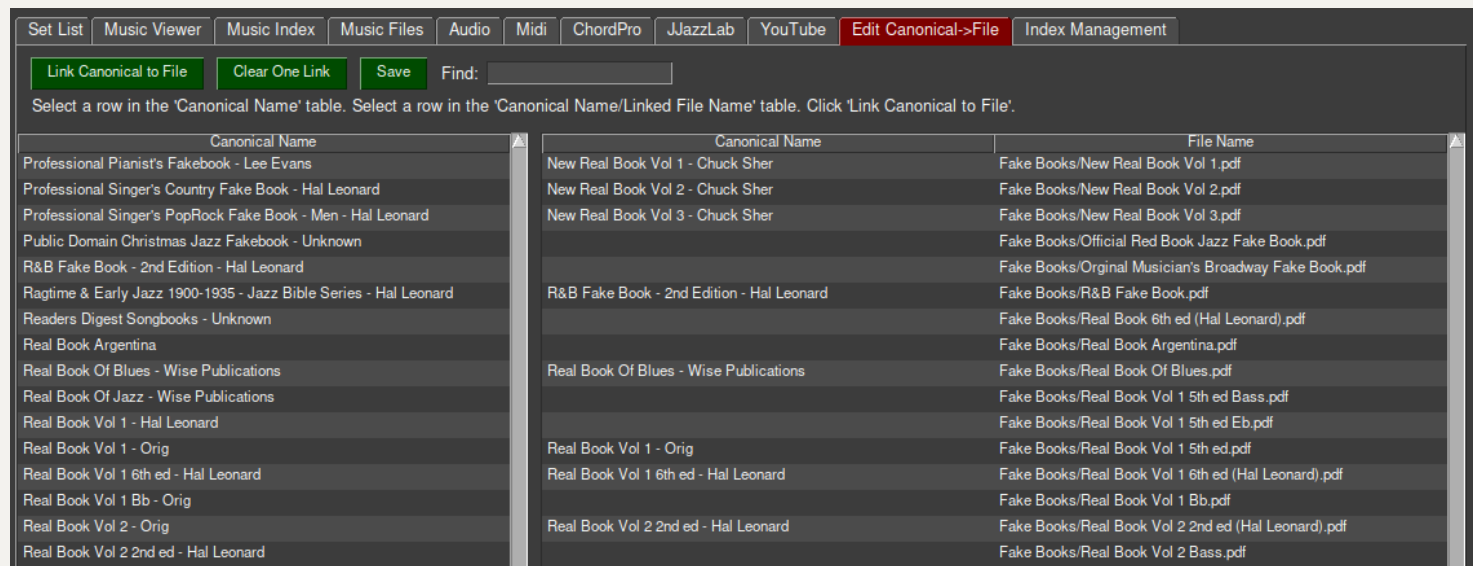
Audio of Title, Midi of Title

As each title is displayed in the *Music Viewer* tab the audio and midi tables are searched for the title. Titles found there are displayed in the *Audio of Title* and *Midi of Title* tabs in the sidebar on the left of the window. Click on an item in either tab to immediately hear the song while viewing the music for it without the need to locate it in the *Audio* or *Midi* tabs.

Tabs

Edit Canonical->File

Unless your music library directory structure and book names matches that in **Example-Canonical2File.txt* you will have to tell Birdland how to map canonical book names to your music files. This is done in the *Edit Canonical to File Tab*.



- Click on a book in the *Canonical Names* table and a book in the *Canonical Name / File Name* table.
- Click the *Canonical to File* button to link the selected canonical name to the file name.
- Click *Clear One Link* to undo a link.
- Click *Save* to save the table to the *Canonical2File.txt* file.

Presently there is no control on this tab to add a new canonical name or file name. This has to be done by manually editing the *CanonicalNames.txt* and *Canonical2File.txt* files.

Index Management

The material in this section is applicable only if you are working at the raw index level. This includes adding a new index source from an external source, correcting errors in the indexes shipped with Birdland, or creating a new index.

Many Birdland users will never deal with index management. For that reason you can hide the *Index Management* tab with an option in settings.

Here we use the term *Left Click* to indicate mouse button 1, and *Right Click* for mouse button 3. Apply the obvious correction if you have mapped your mouse buttons differently. The *Right Click* is often used for a quick view of a title in a pop-up window.

GER U-26

409

BARCAROLLE T-130 **JACQUES OFFENBACH**

Moderately

Copyright © 1978 ROBBINS MUSIC CORPORATION

CARO NOME **GIUSEPPE VERDI**

Moderately

Copyright © 1978 ROBBINS MUSIC CORPORATION

Index Comparison Tab

Here you compare the sheet number (and offset-mapped page number) for all *Srcs* covering all indexed books, correct errors in the raw indexes, and determine the offset between sheet and page.

Set List
Music Viewer
Music Index
Music Files
Audio
Midi
ChordPro
JJazzLab
YouTube
Edit Canonical->File
Index Management

Index Comparison
Index Page List
Create/Edit User Index
Edit Local->Canonical

Canonical:
Firehouse Jazz Band - Unknown

Notation:
Sheet -> Page
Click on column header to show sheet-offset graph.

Title	M	Asp	Buf	Ext	Jad	Mik	Shr	Skr	Stm	Usr
(Back Home Again In) Indiana						360->361			360->361	
(Here Comes The) Hot Tamale Man						596->597			596->597	
(I Wish I Wasn't In) Peoria						158->159			158->159	
A Good Man Is Hard To Find						111->112		112->112	111->112	
A Huggin' & A Chalkin'						201->202		202->201	201->202	
A Hundred Years From Today						241->242		242->242	241->242	
A Kiss To Build A Dream On								420->420		
A Porter's Love Song To A Chambermaid						775->776		776->776	775->776	
Afghanistan (A Romance Of Asia)						685->686		686->686	685->686	
After I Say I'm Sorry						318->319		319->319	318->319	
After You've Gone						88-> 89		89-> 89	88-> 89	
Aggravatin' Papa (Don't You Try To Two-T						567->568		568->568	567->568	
Ain't Misbehavin'						374->375		375->375	374->375	
Alabama Jubilee						67-> 68		68-> 68	67-> 68	
Alabama Bound						26-> 27		27-> 27	26-> 27	
Alcoholic Blues						294->295		295->295	294->295	
Alexander's Ragtime Band						364->365		365->365	364->365	
Algiers Strut						292->293		293->293	292->293	

Canonical Book Name

557 Jazz Standards Swing to Pop - Unknown
Bill Evans Fake Book - Hal Leonard
Charlie Parker Omnibook - Atlantic Music
Colorado Cookbook - Unknown
Django Fakebook - Unknown
Firehouse Jazz Band - Unknown
Great Gig Book (Blue Book) - Unknown
Jazz Fake Book - Unknown
Jazz Ltd - Over 500 Tunes the Real Book Miss
Latin Real Book - Chuck Sher

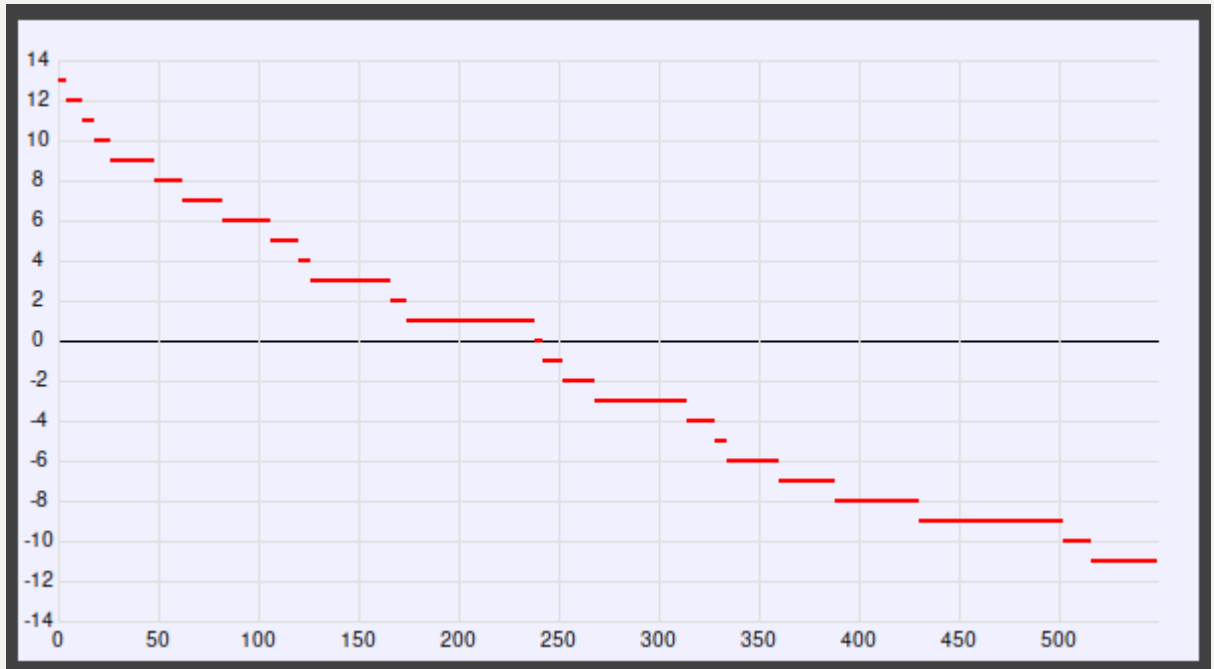
Show Titles

☒ All
☐ With Page Mismatches
☐ With Partial Src Coverage

Select One Among Similar Titles
☐ Enable Select
Show Select

- Click in the *Canonical Book Name* table on in the column on the right to display all titles from that book and the sheet number and page number mapped from the sheet number for all *Srcs* covering the book.
- Left click on a value in the *Src*-specific columns to view the page indicated by the number to the right of the arrow (the page number). Use this to identify pages with incorrect sheet numbers in the raw index.
- Left Click on the column headers of the *Index Comparison* table to display a chart of the *Sheet Offsets* for *Src* indicated by the column header. This is pure eye candy and will likely disappear. Most of the fakebooks have a constant sheet offset. Only the *Standards Real Book - Chuck Sher* with a *Src* of *Buf* or *Shr* have an interesting chart. The original book included many photographs of performers but those sheets were omitted in the scanned PDF. The *Buf* and *Shr* indexes have correct sheet numbers and, thus, the sheet offset has to be adjusted for each photograph. The *Asp* and *Mik* indexes have sheet numbers matching page numbers so that a constant sheet offset of 0 is used for the entire book.

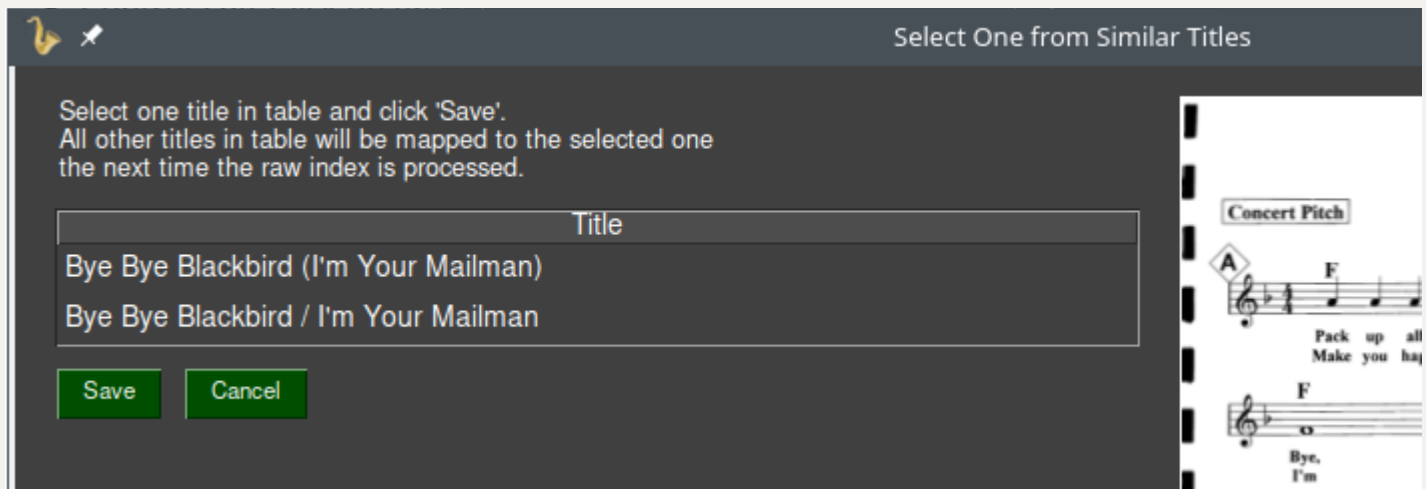
BUG - because of a limitation of the user-interface software this feature only works when the table is scrolled to the top. Otherwise, a PDF page is displayed.



- Right click on a value in the *Src*-specific columns to launch a text editor with the raw index file opened to the line containing the title. This is an important feature, which makes it easy to correct errors in the raw index without the need to navigate the raw-index directories and search for titles.
- Right click on in the *Title* column to launch a text editor with the raw indexes for each of the *Srcs* opened. Only one of the lines will be correctly selected - you will have to search for the title in the other raw index files.
- Changes you make to the raw index will appear the next time the raw index is processed.

Titles from different index *Srcs* for the same song frequently differ in small ways such as punctuation, sub-title, parenthesis, and more. While it would be possible to edit the raw indexes to bring them into agreement that can get tedious. Instead, Birdland has a much faster solution.

- Click on *Enable Select* in the *Select One Among Similar Titles* panel in the right sidebar.
- Control-Left-Click on two or more similar titles.
- Right-Click on any of the selected titles or click *Show Select* in the right sidebar to display a popup with all the selected titles.
- Click the desired title and *Save*.
- That will add an entry to a corrections file (*Canonical/Corrections.A.txt*) that will be applied to the raw index the next time it is processed.



Index Page List Tab

Here you view the index details for one book from one Src. Use this to determine the sheet offset for the manual creation of the *Sheet Offset* file.

Set List Music Viewer Music Index Music Files Audio Midi ChordPro JJazzLab YouTube Edit Canonical->File **Index Management**

Index Comparison **Index Page List** Create/Edit User Index Edit Local->Canonical

Src: Stm Local: Real Book 1 Canonical: Real Book Vol 1 - Orig File: Fake Books/Real Book Vol 1 5th ed.pdf Pages: 512

Page	Sheet	Offset	Title	Composer
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14	14	0	A Call For All Demons	None
14	14	0	_TitleFirst	None
15	15	0	A Child Is Born	None
16	16	0	A Fine Romance	None
17	17	0	A Family Joy	None

Index Source Name

- Asp
- Buf
- Ext
- Jad
- Mik
- Shr
- Skr
- Strm**

Local Book Name

- New Real 1
- New Real 2
- New Real 3
- Real Book 1**
- Real Book 2
- Real Book 3
- The Latin Fake Book
- The Real Book Of Blues

- Click on a *Src* in the *Index Source Name* table in the column on the right. That will display a list of *Local* book names covered by the *Src*.
- Click on a book in the *Local Book Name* table to display index information for that *Src* and *Local* name combination in the main table.
- Left click anywhere in a row in the table to view the PDF page indicated by the *Page* column.

Create/Edit User Index Tab

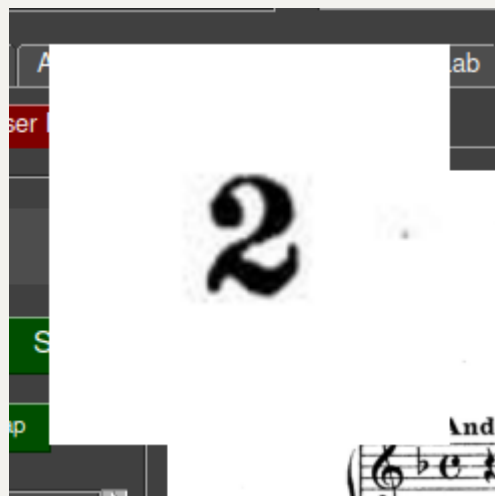
Here you create an index for books that have not yet been indexed or continue work on an index you already started here. Books for indexing are shown in the table at the bottom of the left side of the tab. By default this shows *Canonical Books - With No Index*. This can be changed with a *Settings* option though the default setting is likely suitable for most needs.

The screenshot shows the 'Create / Edit User Index' window. The 'Title' field is 'Fantaisie 1'. The 'Sheet #' field is '2'. The 'Auto OCR' checkbox is checked. The 'Canonical Books - All' list shows 'Mozart - Fantaisie I - K385g' selected. The right pane displays the musical score for 'FANTASIE I' by W. A. MOZART, showing the first page of the score.

- Click the *Title Number* check box if the book you are indexing has *Title Numbers*, otherwise they will be considered *Sheet Numbers*. Remember, the distinction only concerns how the number is incremented on *Skip*.
- Click on a canonical book name in the *Canonical Books - With No Index* table. This will display the PDF file for that book in the PDF display. Page 1 is shown if this is the first time you are working on this book. The last page you indexed is shown if you are returning to a book on which you previously worked.

Reminder, you have already entered a sheet and title for this page. Click the Next button to advance to the first page that has not been labeled.

- Draw a box around the title by left click and drag. The title will be processed by OCR and displayed in the *Title* box. Correct any OCR errors. Alternatively, you can type the title in the *Title* box but there is little reason to do so when the title is clear and easily recognized.
- Enter the *Sheet/Title* number. This is the number printed in the book, not the PDF page number. On subsequent pages the number will increment automatically. If the book does not have sheet/title numbers then, and only then, use the page number.
- Right-Click and drag in the viewer window to magnify sheet numbers or other content that is too small to see.



- Click *Save* to save the current title but stay on the page. Appropriate when the page contains multiple titles.

- Click *Save+* to save the current title and advance to the next page. Appropriate when the page contains one title or on the last title when it contains multiple titles.

For both Save or Save+ the current entry is added to the raw-index file and the sheet-offset file is updated.

- Click *Skip* to save a dummy title of *__Skip__* and advance to the next page. Appropriate when the page contains a continuation of a page previously indexed page, a photo, or other non-titled content. The *__Skip__* title is a marker to indicate that the page was processed in the *Coverage Map* but is not included in the database.
- If the *Auto OCR* box is checked (the default) when *Save+* or *Skip* is clicked then the title selection box is retained and the content of that box on the next page is processed by OCR. This is appropriate where titles are in the same location on the page and are not obscured by staff lines.
- Save*, *Save+*, and *Skip* require a title and sheet/title number to prevent inadvertent errors. For the same reason they do not permit saving a title that has already been saved for the same page. You must first *Update* it or *Delete* it.
- The navigation buttons *Go To*, *Prev*, *Next*, and *Last* have no such requirements. Be careful. *Last* navigates to the last page indexed, not the last page in the book.
- Click on *Show Map* to display an index coverage map.

Jazz of the 50s - Jazz Bible Series - Hal Leonard

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
51	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
101	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
151	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
201	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Green box: title saved.

Blue box: page skipped.

Red box: title not saved or page not skipped.

Click in square to go to page.

Number of titles on page shown in box.

OK

Edit Local->Canonical

Set List Music Viewer Music Index Music Files Audio Midi ChordPro JazzLab YouTube Edit Canonical->File **Index Management**

Index Comparison Index Page List Create/Edit User Index **Edit Local->Canonical**

Index Src: **Jad** **Link Local to Canonical** **Clear One Link** **Save** **Show Profile for Local/Src** Find:

Select an index source from the 'Index Src' menu. Select a row in the 'All Canonical Names' table. Select a row in the 'Local Name/Linked Canonical Name' table. Click 'Link Local to Canonical'.

All Canonical Names	Local Name	Linked Canonical Name
05. Albert Ammons - Swanee River Boogie	Colorado	Colorado Cookbook - Unknown
08. Clarence 'Pine Top' Smith - Pinetop's Boogie Woogie	EvansBk	Bill Evans Fake Book - Hal Leonard
09. Jimmy Yancey, Meade Lux Lewis - Yancey Special	JazzFake	Jazz Fake Book - Unknown
100 Jazz & Blues Greats - Wise	JazzLTD	Jazz Ltd - Over 500 Tunes the Real Book Missed - Unknown
1001 Jumbo Song Book - Unknown	Library	Library of Musicians' Jazz - Unknown
101 Frank Sinatra Hits for Buskers - Music Sales Ltd	NewReal1	New Real Book Vol 1 - Chuck Sher
101 Hits For Buskers - Book 10 - Unknown	NewReal2	New Real Book Vol 2 - Chuck Sher
101 Hits for Buskers - Book 01 - Music Sales Ltd	NewReal3	New Real Book Vol 3 - Chuck Sher
101 Hits for Buskers - Book 02	RealBk1	Real Book Vol 1 - Orig
101 Hits for Buskers - Book 02 - Wise	RealBk2	Real Book Vol 2 - Orig
101 Hits for Buskers - Book 06 - Music Sales Ltd	RealBk3	Real Book Vol 3 - Orig
101 Latin Hits For Buskers - Wise		
101 Rock n roll Hits for Buskers - Wise		
1467 Sheets - Unknown		
150 American Jazz Standards (Russian) - Muzyka		
1950s Jazz Fake Book		

- Select an *Src* from the *Index Src* drop-down menu. This populates the *Local Name / Linked Canonical Name* table with all books indexed by the selected *Src*.
- Click on a book in the *All Canonical Names* table and a book in the *Local Name / Linked Canonical Name* table.
- Click the *Link Local to Canonical* button to link the selected canonical name to the local name.
- Click *Clear One Link* to undo a link.
- Click *Save* to save the table to the *Local2Canon.txt* file for the selected *Src*.
- Click *Show Profile for Src/Local* to display the first 25 titles from the index for the selected *Src/Local*, the number of pages, and a list of books from other *Src/Local* indexes similar to the selected book based on the Levenshtein distance (a measure of similarity) between the titles. That metric is shown next to the *Src/Local* names. Use this feature to help identify the correct *Src/Local* to link to the canonical.

```
Titles for the first 25 sheets ordered by sheet for index from:
src: 'Shr'
local: 'New Real Book: Vol. 1'
current canonical: 'New Real Book Vol 1 - Chuck Sher'
Sheets in book: 238
```

```
1 Affirmation
2 Airegin
3 All Of Me
4 All The Things You Are
5 Always There
7 Ana Maria
9 Angel Eyes
11 Anthropology
12 Autumn Leaves
13 Baby, I Love You
15 The Basin Street Blues
16 Beautiful Love
17 Bernie's Tune
18 Bird Food
19 Black Ice
21 Black Narcissus
22 Blame It On My Youth
23 Blizzard Of Lies
25 Blue Bossa
26 Blue Daniel
27 Blues Connotation
28 Blues On The Corner
29 Boogie Down
35 Both Sides Of The Coin
37 Bouncin' With Bud
```

```
Other books similiar in the first 10 titles:
```

```
0 Buf/New Real Book, The
0 Jad/NewReall
0 Stm/New Real 1
```

OK

Adding A New Music Book

- Add book to one of the folders in *music_file_folders* item in the `[[hostname]]` section in `birdland.conf`.
- Add/verify canonical book name in *Canonicals/CanonicalNames.txt*
- Add/verify the canonical to file mapping in *Hostname-Canonical2file.txt* in your Birdland config directory.
- Verify that the canonical names in *Canonicals/CanonicalNames.txt* and *Hostname-Canonical2file.txt* match.
- Rebuild the *canonical* and *canonical2file* table.

Adding An Index Source

- Create new folder in *Index-Sources*.
- Add new *Src* to the *source_priority* item in *birdland.conf*.
- Add a new section named for the new *Source* in the *[System]* section of *birdland.conf*

```
1  [[User]]
2  src = Usrc
3  folder = User
4  command = do-user.py
```

- Build and run the `do_<source name>.py` script in the folder for your new source.

Raw-Index Source-Specific Processing

For each source there is a python script, `do-<source name>.py`, in a source-specific directory. That script reads the raw data in a source-specific form and writes a *json* file in a common form in the data directory *Music-Index*. The json file is named with the *src* and *local* name. It contains:

- Local book name
- Source name
- Title and page number for each song in the book.

A few lines from the file:

```
1  {
2    "book": "ColoBk",
3    "source": "AdamSpiers",
4    "contents": [
5      {
6        "title": "Afternoon In Paris",
7        "page": "17"
8      },
9      {
10       "title": "Algo Bueno",
11       "page": "274"
12     },
13     {
14       "title": "All Blues",
15       "page": "18"
16     },
```

Future Work

- Harmonize all raw-index sources.
- Port to Windows.
- Expand ChordPro support with lyrics search and key transposition.
- Add GUI tool to build *Sheet Offset* file. This happens so infrequently that manual editing may be sufficient.
- New feature to add entries to CanonicalNames.txt and Canonical2File.txt
- Package in Linux distribution-specific formats.

Random Comments

Symmetry

We are generally sticklers on symmetry in design - if a feature applies in one case it should apply in all similar cases. Unfortunately, there are a few instances in Birdland where this was either not possible or desirable.

The sidebar on the left side of the window include tabs for browsing music and audio files. With perfect symmetry it would also include tabs for browsing midi, ChordPro, and JJazzLab files. Real estate constraints prevent this and, we believe, with little loss of functionality.

Book Errors

The *Standards Real Book* music file as found online had a couple of groups of pages out of order. Two of the raw indexes indexed the sheets as found out of order while two others indexed them with the correct sheet number. We're not sure if this was a scanning error or done intentionally by the person doing the scanning as a means of tracing copies of the work. Rather than jumping through hoops to correct the out-of-order pages with sheet offsets it was much easier to just rearrange the pages in the book using the linux *PdfArranger* tool. If you have such a copy of *Standards Real Book* consider rearranging using *PdfArranger*.

Raw Index Independence

We found a number of cases where the same errors existed in the raw index from different sources. This strongly implies the one of them is a copy of the other. Despite this we continued to harmonize all the sources because of the possibility that there were also differences worth correcting.

Indexes vs Indices

While using *Indexes* as the plural of *Index* may sound a bit strange it is correct for textual work with *Indices* being used in mathematics.

Credits

First and foremost we are indebted to the developers of *PySimpleGUI*. That library, more than any other, enabled the development of Birdland. Jason and Mike answered many questions and quickly resolved issues in *PySimpleGUI*. Earlier work based on the *Qt* library moved at a much, much slower pace.

We acknowledge the indexing work done by creators of each of the raw indexes: Alan Spiers, Jason A. Donenfeld, Mike Nelson, Stomp Box, Skrivarna Software, the Library at the University of Buffalo, and Sher Music. It was specifically the indexes Alan Spiers published on *GitHub* that rekindled our interest to resume the work on Birdland that we started many years ago.

In early testing Volker Heggemann identified several rough edges in the installation process and his review of the code found several problems in edge cases.

Dedication

When I, the author of Birdland, was a child my dad gave me a piano lesson every night from the time I was four until I was twelve, when he gave up out of frustration with my attitude towards lessons and practice. I had a good ear but was not very good at sight-reading so I would often ask him ***Let's hear how it goes.*** Once I heard him play the lesson I had no trouble with it. Eventually, he got wise to my ways and forced me to sight read on my own. While I may not have appreciated them at the time, in hindsight, his piano lessons were his greatest gift to me. I dedicate Birdland to the memory of my dad. He would have loved to have a library of thousands of songs at his fingertips.