DAISY Music Braille Project:

Q4 update 2021

Reporting on project activity in Q4: Oct, Nov, Dec 2021

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# Document purpose

This document gives an overview of work conducted by the DAISY Music Braille Project in October, November and December 2021, towards tool development, a music braille production network, metadata for music braille and upcoming work, as well as sharing news from around the sector. With acknowledgements to our funders.

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# Executive summary

Q4 2021 activity has seen the completion of the funded 2-year intensive development and testing period of MakeBraille, the online professional automated conversion tool. It has substantially increased in functionality and reliability ready for international use, and delivered against our collated DAISY requirements. dzb lesen will announce an official launch of the product soon. We would like to record our thanks to Matthias Leopold, the MakeBraille developer, for his vision, expertise and dedication to music braille creation.

We’ve also seen good progress on the interactive user tools: several MusicXML output and keyboard accessibility improvements in MuseScore, and more music braille conversion rules and functionality being built into the SMB music braille conversion tool, ready for wider testing in early 2022.

We started our trial of the Music Braille Production Network with 12 agencies late in the quarter, trying to find an efficient and effective way to locate/procure music braille between each other. We expect this to pick up pace now Christmas is behind us to generate good feedback for future improvements.

Music braille metadata started to come under scrutiny to review existing and required metadata for sharing and ingesting files into online collections to make searches and retrieval more effective. So far, fruitful discussions between NLS, ABC and BookShare should lead to proposals which can be shared for consideration during 2022. Your views are still welcome on your experiences of searching for existing scores in online collections.

We’re still looking for your feedback on teaching and learning resources for music braille, what you can recommend and any gaps, so please do get in touch.

We’ll shortly be looking for a music publisher to trial incorporating our guidelines into their music setting workflow, so that scores they distribute are more likely to be born accessible. If you have any suitable contacts we’d be grateful to be introduced.

Related news from around the sector includes: ONCE’s new online collection of accessible resources available under the Marrakesh Treaty; new major works freely available from BrailleOrch; and an update on the SMB Music Reader app.

Finally, huge thanks to all our funders for supporting the project so far, and to those who have been able to contribute to the amount needed to secure the final year of the project. We are most grateful for your support and belief in the work we’re doing: CNIB, DAISY Strategic Development Fund, Friends of dzb lesen, MTM, NLB, Norwegian Association of the Blind, NOTA, ONCE, RNIB, SBS, Vision Australia; as well as in-kind contributions from the agencies undertaking development work: dzb lesen, MuseScore and Sao Mai Centre for the Blind.

The rest of the report describes these areas in more detail

# 1. Professional music braille conversion tool (MakeBraille)

## 1.1 MakeBraille developments at dzb lesen

Lead: Matthias Leopold

**Aim**: At least one improved tool is available for rapid professional, accurate and automated music braille transcription which produces global formats and is linked to a production workflow. Note that this does not remove the need for skilled music braille staff.

**Update**: After two years of project-funded development to build on dzb’s existing tool Hodder, now called MakeBraille, the online automated conversion tool is now significantly more functional, robust, reliable and suitable for international use, and has delivered a substantial set of the essential and desirable features in the collated DAISY requirements document. With intensive testing over that time by a variety of international agencies we have steadily implemented: country requirements for conversions and layout, the conversion of MusicXML input files as well as capx files, use-profiles, as well as numerous options for easy customization and creating individual user profiles to ensure the resulting file is as useful to the end-user as it can be, whether reading on a braille display or from an embossed score.

An important point: the key to any automated conversion is to have a good input file - so the more preparation you can do to obtain/create a high-quality well marked-up master file, the better the resulting music braille file will be, and these skills are more easily mastered than music braille transcription itself.

We would like to record our thanks to Matthias Leopold, the MakeBraille developer, for his vision, expertise and dedication to music braille creation.

From our proposed workplan for Q4 the following have been completed:

* Ongoing implementation of country-specific requirements
* Guidance on marking up/checking MusicXML files for effective conversion
* Reading direction (order of intervals and voices)
* Selection of selected parts/voices for output in braille
* Editable full instrument names and abbreviations in the part selector
* Individual customer profiles (i.e. when a producer wants to save separate Config settings for different customers e.g. John, Jane, library, or instrument)
* New option on Config page to include full list of Config settings at end of each converted file
* Maintain Wiki support pages in English and German: updating to match new features/functionality, including updated User Guide
* Server upgrade (to provide greater stability and processing capacity)
* Document the process for translating interface and Wiki for any future translations
* Liaise with developers of interactive music tool, for compatibility and effective conversions
* Prepare business proposal for service offering.

In addition, we have also implemented the following new features in Q4:

* Updated capella optimizers
* Option to show page breaks/numbers
* Part selector for MusicXML and capx files
* Section by Section options as standard or short sections
* PEF and BRF output for all formats
* PEF creation from zip files
* Exam/worksheet profile
* MakeBraille interface in Spanish
* ‘Mixed’ output option – outputs separate files for each part plus an accompaniment/full score
* Use of capitals as per country requirements.

Improvements and fixes:

* There have also been hundreds of improvements and fixes during Q4, which are too numerous to list here. Testers have been notified of all development updates on a frequent basis.

Areas which are being considered by dzb lesen for continuation in 2022:

* Continuation of country-specific requirements (as feedback is received)
* MusicXML checker to test and report back on quality of MusicXML files uploaded
* Set page option for embossing as single-sided/duplex
* Offering a ‘Getting Started’ one-to-one session with all new users
* Test workflow production of music textbook in an agency
* Make information on country-specific requirements available to the team revising the New International Manual of Braille Music Notation.

## 1.2 What next for MakeBraille?

Hannes Kaden, Head of Production, dzb lesen writes: After two years of technical development, building support materials and extensive testing, we are confident that MakeBraille has taken a huge step forward and can make a significant contribution to making braille accessible. A big thank you goes to Sarah Morley Wilkins, Haipeng Hu, Matthias Leopold, everyone involved in the testing and the financial supporters from around the world. It's great to see what can be created through collaborative work! An official announcement of the launch will be made shortly.

# 2. Interactive end-user music braille tool (SMB with Musescore)

**Aim:** At least one improved interactive music braille user tool is available for blind musicians to independently read, write, convert and explore music in accessible ways, in education, for work and leisure.

**Update:** Four issues relating to MuseScore accessibility were addressed, as well as some in-kind development contributions by MuseScore themselves.In SMB, some main new features were implemented and supported in SMB’s Braille music translation engine: repetitions, music words dictionary, doublings, advanced slurs and ties, dashes and brackets, as well as new features in the SMB editor itself (which apply to both music and text conversions): outputs as PEF, BRF, BRL as well as SMB format, select braille output files from LibLouis tables for ascii and Unicode braille, volume-creator from large files, margin and indentation rules, document property metadata.

## MuseScore developments

Lead: Peter Jonas

### 2.1.1 Q4 Project-funded improvements

In the fourth quarter of 2021, three tasks were completed for the interactive user tool project, including fixing one MusicXML issue and two accessibility issues. In addition, progress was made towards a fourth task, which also relates to accessibility. This final task will be completed in the first quarter of 2022.

* + Implement cross-staff or cross-voice slur input via keyboard
  + No speech for symbols from symbols palette
  + Composite articulations not exported
  + Loss of keyboard accessibility for Inspector on elements with handles

### 2.1.2 Additional accessibility improvements funded by MuseScore

**Accessibility System:** MuseScore’s internal development team has continued to improve the new accessibility interface for MuseScore 4. We are thrilled to report that this system is now working reasonably well on all platforms and with all screen readers. Basic input of musical symbols and navigation of most parts of MuseScore 4’s user interface is now working with NVDA and Narrator on Windows, VoiceOver on macOS, and Orca on Linux. For comparison, NVDA was the only screen reader supported by MuseScore 3. The internal team will continue to improve the accessibility system in 2022, extending it to support text editing and other notation features that are not currently accessible to screen readers.

### 2.1.3 Plans for Q1 2022 development of MuseScore

The next set of prioritized accessibility improvements, with a focus on exporting to MusicXML, and keyboard accessibility:

1. Loss of keyboard accessibility for Inspector on elements with handles
2. Unable to export score in concert pitches
3. Home / End / Page Up / Page Down don't change cursor position
4. Customized instrument change not exported

## 2.2 SMB developments at Sao Mai Centre for the Blind

Lead: Phúc Hoai Dang

### 2.2.1 Q4 developments

Main features were implemented and supported in SMB’s Braille music translation engine in quarter 4 are:

* Repetition improvements:
  + Supported partial repetition for all popular types of beat-dividable and undividable time signatures. The engine will base on the time signature to correctly divide beat groups to check for repetitions.
  + Supported partial repetition for irregular beamed groups, including repetitions inside a group and adjacent irregular groups in a measure.
  + Supported feature to repeat up to 4 levels of continuous passages with different durations. This works in conjunction with partial repetition option as whole, ½ or ¼ beat depth.
  + Supported regular note grouping simultaneously with irregular grouping.
  + Supported tuplet cases: in-tuplet repetition; detecting tuplets without numbering in print; correct tuplet doubling as combining with both in-tuplet and tuplet repetitions; and adding in-tuplet repetition option.
  + Supported all repetition cases for pedal covered in MBC document.
  + Supported repetition for partially tie cases.
  + Supported repetition for multiple voices.
  + Supported combined translation options between in-accord and repetition modes, including full/partial/stem in-accords with partial/full measure repetition modes for both single and multiple voices.
* Music words dictionary: created XML-based music words dictionary in which, users can flexibly add terms for different text categories and define translation rules. Main features include:
  + Supported text categories with default and custom definitions: common, tempo, repetition, dynamics and hairpins.
  + Supported Braille translation rules for music text: writing inline, on separate line and signature line for four different text appearance locations (beginning at first measure, beginning at first measure in score, in-measure and at the end of measure). In addition, text with separate line option will have optional feature to apply left indentation, open and close indicators.
  + Supported one direction with multiple words, multiple directions shown at the same place and text directions are re-ordered based on its category as: common + dynamics + hairpin.
  + Supported options for parallel/section breaking based on segno, coda, repetition text; and music words dictionary processing (off, default and custom).
* Supported doublings for following music elements and toggling option for each: tuplet, slur, tie, articulation, grace/cue, noteheads, trill-mark, tremolos, bows, string, open-string/natural harmonic, arpeggiate and intervals.
* Supported to translate music dash and bracket when they are attached to string element, and correctly placed dash and bracket Braille signs after music text.
* Supported advanced slurs and ties: cross staff/cross voice slurs and ties, convergent slurs, grace note slur, L.V. slur/tie, enharmonic tie, nested cross staff/voice slurs and ties, and improvements for chord slurs and ties.
* Supported new slur/tie related options: use tie sign for both slur and tie case, use grace slur with dots 56-14, show hand sign when changing to new staff, use long slur bracket or dots 14-14.
* SMB editor new features:
  + Supported to select Braille output files from LibLouis display tables for ascii and Unicode Braille.
  + Supported additional translation rules for right margin and list indentation.
  + Supported to save in Braille formats, including: Portable Embosser Format (.PEF), formatted Braille (.BRF) and unformatted Braille (.BRL). Rich-text Braille document is saved in Sao Mai Braille document type (.SMB).
  + Supported document property: to add meta data for both print and Braille documents.
  + Supported document splitter: to manage big file by splitting into volumes.
* And many more minor improvements and bug fixes for both SM music Braille translation engine and the SMB editor related features.

### 2.2.2 Plans for Q1 development of SMB

In first quarter of 2022, we will be

* releasing the final version 21.6 of Sao Mai Braille,
* implementing full score translation and preparing the development environment for Musescore. This involves:
* Instrument detection: automatically based on original score, user preferences and custom Braille tags.
* Supporting different translation options for orchestra and chamber for 9 different instrument types.
* Environment for Musescore development: this is to install and configure Musescore and LibLouis on server-base in order to prepare for the development of Braille related features for Musescore in upcoming quarters.

# 3. Other project news

## 3.1 Music Braille Production Network (previously ‘Global Virtual Competence Centre’)

We started our trial of the Music Braille Production Network with 12 agencies this quarter, trying to find an efficient and effective way to locate/procure music braille between each other. We expect this to pick up pace now Christmas is behind us to generate good feedback for future improvements.

We have 12 agencies taking part from across the world: Golden Chord, Braille Orch, NLS, NLB, RNIB, SBS, Vision Australia, Helen Braille Music Group, Italian Library for the Blind, ONCE, dzb lesen and Dedicon.

Some are taking part both as Producers and Customers, some as just one or the other, so we have a good mix of agencies wanting to locate scores/request production, and those able to do score production. We have standardized forms to request scores and production to streamline the processes. So far only a few scores have been sought, and we are gathering feedback on the process, trying to find ways to maximise efficiency throughout the workflow.

## 3.2 Finding music braille scores from online collections/libraries – questions to the sector

Our first two calls about metadata for music braille collections enabled agencies to share and discuss the metadata they use when creating and ingesting scores into their collections. So far NLS, ABC and BookShare have discussed their metadata together. They are now working together to propose a common set of metadata which would allow agencies greater efficiency when sharing files, and greater success when searching for scores. We look forward to sharing the proposals more widely for consideration and further engagement during this year.

Your views are still welcome on your experiences of searching for existing scores…

Thank you to those who already replied to our questions, but we’d still like to hear from others - if you have any immediate feedback on how easy/hard it is right now to find existing music braille scores from online or library collections, please send us a few comments to [musicbraille@daisy.org](mailto:musicbraille@daisy.org) (we may ask for more feedback later on):

1. Which collections/libraries do you use to search for music braille scores?
2. What helps you to make an efficient search?
3. If you face any difficulties in your search please describe them.
4. Can you think of any improvements which would make your searches more effective?

## 3.3 Teaching and learning of music braille – questions to the sector

As reported in the last report, we’re considering how we could help to promote existing resources on the teaching and learning of music braille across the sector during 2022. We know that resources do exist in various countries, but people reported difficulty in finding them, and gaps in what’s available.

Thank you to those who already replied to our questions, but we’d still like to hear from others - and you can return answers to [musicbraille@daisy.org](mailto:musicbraille@daisy.org):

1. Which teaching and learning resources do you find most valuable regarding music braille?
2. Do you have any teaching and learning resources on music braille which you’d be willing to share, or have translated?
3. Can you describe any gaps in resources which you’d like to see filled?

## 3.4 Publisher workflow

We know from our work so far that when creating music for printing, if music setters (also known as engravers) use their tools in a particular way following our guidelines, that their digital score would include elements which permit more effective conversion into accessible music. We have demonstrated this during the project already with freelance engravers for our own productions.

During 2022 we will be looking for a music publisher to consider and trial incorporating our guidelines into their music setting workflow, so that scores they distribute are more likely to be born accessible.

If you have any contacts with publishers who might be willing to try this with us, we would be most grateful for an introduction please, and we will also try via DAISY publisher networks.

# 4. Related news from around the sector

## 4.1 ONCE’s new online collection of accesible materials (including braille music) for Marrakesh Authorized Entities

From: Carmen Bayarri, Bibliographic Service Director, ONCE, Spain

After the entry into force of the Marrakesh Treaty in the EU in 2019, the ONCE Bibliographic Service launched a specific platform to manage the new workflows that this new situation would bring. This platform is [marrakech.once.es](http://www.marrakech.once.es/) and it works as a mirror of our own digital library with the difference that the works that we receive from foreign entities do not appear on this platform. Only works produced by the ONCE Bibliographic Service are available. This means that through this platform, the entities that access it can see and download our entire catalogue, including 3464 braille music scores, 30335 braille works and 37996 DAISY works. This platform is updated every week with new works added. It also provides other features like recommendations or the most downloaded works.

The access is limited to authorised entities. To check this status, we have two ways. If the entity is a member of the Global Book Service of the Accessible Book Consortium, we only need a written consent of the data collection. If not, we ask for some documents that can prove the status of authorised entity such as an official record supporting this status, articles of association or founding act of the requesting entity, details of the inscription in the competent public register and the tax identification number or equivalent document. Once the status is acknowledged, a username and password to register and access to the platform will be provided.

## 4.2 More freely available major score transcriptions available from BrailleOrch

From: Haipeng Hu, BrailleOrch, China

As usual, Haipeng Hu has been transcribing lots of wonderful pieces, making them freely available on his BrailleOrch website (<http://www.brailleorch.org/en/>). This quarter, he launched The Firebird Project, aiming on transcribing Stravinsky's famous ballet The Firebird and its 3 suites (1911, 1919 and 1945) into braille. He used the latest critical editions from Schott, and engaged two excellent Musescore engravers. He has finished the complete 1910 ballet (a 188-page large score with 32 pages of English, French and German preface texts) and 1911 suite. The other two are nearly completed on the engraving side, and will be soon ready for braille transcription.

## 4.3 SMB Music Reader app for Android and iOS

From: Phúc Hoai Dang, Executive Director, Sao Mai Centre for the Blind, Vietnam

SM Music Reader is a free and fully accessible Android + iOS app for everyone to read music scores written in MusicXML format, especially for visually impaired users. For Android version, it has some additional tools, including: a simple guitar tuner and the Metronome. Users with visual impairment can also have access to a free online music sharing library.

Some of its main features are:

* Read music files written in MusicXML format.
* Draw sheet music for exchanging scores among both sighted people and people with visual impairment at the same time.
* Playing score with different options such as playing whole score, by staff, by measure and highlighted passage; forward/rewind/loop and tempo/instrument settings.
* Supporting many options for screen reader users: select staff or voice to speak, read note by note or bar by bar, toggle speaking options for different music elements.
* And other general score navigation and management related features.

For more information, please visit the site at: <https://saomaicenter.org/en/smsoft/sm-music-reader>

## 4.4 Do you have music braille news to share next time?

I’ll happily collate other news from around the sector and send it out. Our next quarterly update will go out in May 2022, so please send me your news by **Wednesday 11 May 2022.**

This mailing goes out to around 150 music braille experts worldwide, including transcribers, teachers, composers, end-users and developers, among others. Please send your updates to [musicbraille@daisy.org](mailto:musicbraille@daisy.org)

# 5. With thanks to our funders

We’d like to express our huge thanks to all our funders for supporting the project so far, and to those who have recently been able to contribute to the amount needed to secure the final year of the project. We are most grateful for your support and belief in the work we’re doing:

* CNIB
* DAISY Strategic Development Fund
* Friends of dzb lesen
* MTM
* NLB
* Norwegian Association of the Blind
* NOTA
* ONCE
* RNIB
* SBS
* Vision Australia

As well as in-kind contributions from the agencies undertaking development work:

* dzb lesen
* MuseScore and
* Sao Mai Centre for the Blind