

Tools for Visually Impaired People



<http://www.wedelmusic.org>

“Tools for Visually Impaired People” is a software module of the WEDELMUSIC system, referring to a collection of tools and methods that render the modalities of the common WEDEL User Interface to a form accessible from the blind people.



❖ Load, Edit and Print in accessible form, music and text.

The visually impaired can *transcribe* music into Braille format, *print* through a Braille printer and *read* the symbolic notation with a Braille bar.

❖ Get audible feedback.

The computer informs the user through *synthetic speech*, about the symbolic content of the music score currently open. They can thereby navigate through parts, measures, layers and notes of the score much as an ordinary user can do with the graphical Interface.

❖ Listen to the contents of a score – or a selected portion of it – through the *Spoken Music component* of the module.

The screenshot shows the WEDELMUSIC VIP Tools Module interface. The main window displays a list of measures and layers, with a 'Caret Information' section showing the current position. A 'Menu Command hints' section provides keyboard navigation hints. The interface is accessible via a 'Vertical Caret Layout Window'.

Callouts and features shown:

- Internet Download Accessible Music Content:** A box with musical notes and a Braille symbol.
- Duplication of WEDEL-Editor Services:** A box pointing to the top of the application window.
- Spoken output in Different Languages: English, French and Italian:** A box pointing to the 'Caret Information' section.
- Spoken Keyboard-Navigation Hints:** A box pointing to the 'Menu Command hints' section.
- Normal and Braille Printing:** A box pointing to the 'Caret Information' section.
- Note: Insert or Edit:** A dialog box for editing notes, showing fields for Octave, Pitch, Value, Notehead, and Small Note Attributes.
- Menu Command hints (Eventually for SVB Braille output):** A list of commands including 'Repeat...', 'Note...', 'Rest...', 'Accidental...', 'Augmentation dot', 'Refrain Symbol...', 'Expression...', 'Orientation...', 'Fingering...', 'Mute...', 'Harmonic...', 'Breath, Glass', 'String...', 'Pedal', 'Violin Symbol...', 'Percussion', and 'Interval Symbol...'.

General Issues of the Module

The “*Tools for Visually Impaired*” or **VIModule**, handles the access to WEDELMUSIC functionality from Visually Impaired Persons (VIs). This is achieved through the duplication of the majority of WEDEL services, as well as the extension of the user interface with modalities appropriate for individuals with sighting disabilities. **VIModule** integrates existing accessible UI technologies into a single service that enables the impaired user to download a music score and associated information remotely, navigate through the content of the music score using the keyboard and get spoken hints of the content.

The **VIModule** represents the WEDELMUSIC System’s extensions for visually impaired persons. However, the module contains tools that need to be accessible from sighted persons as well, such as the Spoken Music Module and the Braille Printing Module. Aside from these tools, the main role of the **VIModule** is to render the WEDELMUSIC Editor’s functionality accessible to VIs.

It makes implicit or explicit use of the following services:

- **Screen-Reader:** The **VIModule** does not actually communicate directly with this component, but it certainly relies on its presence to handle focus changes, menu navigation, etc. providing appropriate audible feedback. After all, the WEDELMUSIC **VIEditor** is a typical Windows application itself and can be treated by the screen-reader the same standard way.
- **Speech Synthesiser:** In order to provide additional information to the user, when appropriate, a Text to Speech (TtS) converter is required that supports the three project languages. This TtS converter will be explicitly controlled by the system.

The WEDELMUSIC **VIModule** itself is divided into the following independent modules and components:

- The **WEDELMUSIC VIEditor**. It is a simplified version of the WEDELMUSIC Editor targeted to the visually impaired persons. It contains a set of commands for:
 - **Retrieving** information related to the WEDELFormat header of the file opened for editing, as well as classification, identification, structural, and other information. The VI user will be able to download a music piece in the same way as with the WEDELMUSIC Editor. The VI Module duplicates all the functionality needed for the user authentication and copyright protection of the music piece.
 - **Browsing** through a score using a caret-like mechanism. Spoken information is automatically provided relatively to both the current caret location and the symbols in the vicinity of it. The VI user has full navigation capabilities using the computer keyboard. They can move to the preceding or the next part, measure or note relative to the position of the caret or define where they want the caret to be located within the symbolic representation of the music score.
 - **Editing** by means of inserting, deleting, modifying, marking, copying and pasting isolated symbols or entire measures or parts.
 - **Reproduction** of any portion of the score. This involves diverse actions such as playback, producing a hardcopy using a Braille printer, or transforming the part of the score to the Spoken Music component.
- **Multilingual TTS.** Spoken messages are involved in all the previously described actions, both to assist the VI users to select the respective commands and to provide feedback on the results of their actions on the currently opened score. All messages related to musical information can be issued in English, French and Italian according to the language selection made by the user.
- **Braille Printing:** This module handles all the details for printing a portion of a score to a Braille printer, e.g. selecting the target printer, setting the printing options, and performing the actual data transmission.
- **Spoken Music:** This is a separate module of the VI Editor that handles all the details for music-to-speech conversion in the language selected by the user. The VI user can direct the system to start “saying” the content of the music piece. The speech output can be saved in an audio file.

For further information on the WEDELMUSIC or demos please send an email to **WEDELMUSIC@dsi.unifi.it**
To be kept informed about the music distribution send an email to our discussion forum **WEDELMUSIC@dsi.unifi.it**