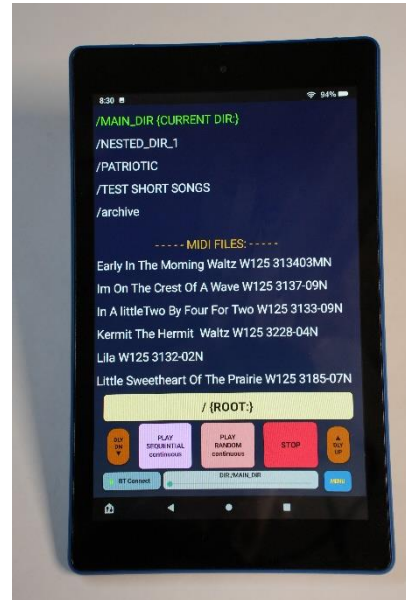


# *Mini Midi Sequencer+*

*Brotech Electronics*

## **Tablet Wireless Midi Controller - Sequencer – Player**



The Brotech Electronics Mini Midi Sequencer+ (mMS) is a tablet controlled midi player used to play midi files to a midi enabled instrument such as a band organ. It works with all midi to parallel interface boards and midi enabled instruments.

The custom hardware is controlled wirelessly via Bluetooth linked to an Android 7", 8" or 10" tablet using a custom App. One tablet can control an unlimited number of instruments one at a time. The tablet acts as a remote directory and file name viewer and selector, showing a sorted list of midi files and directories stored on a SD memory card that is local to the mMS hardware. Select any song in the scrolling list, tap on it and it plays. The system will also play songs in a playlist that can be created using a text editor, or our companion App, MMS Playlist Editor.

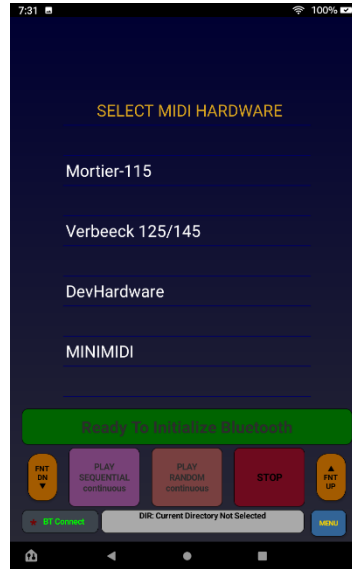
The mMS App has soft keys for Play Selection, Stop, Play Sequential, Play Random, Jukebox Play, Tempo change, Skip, Pause, and more... In addition, the mMS hardware has controls; rename the hardware to match the instrument; select the default boot directory; set the silence interval between songs during autoplay; unique random song play; pre and post play commands and delays to activate instrument settings before and after song play through midi notes; Tone status notes; and optionally, external switch activation and external relay control features.

## mMS Quick Start

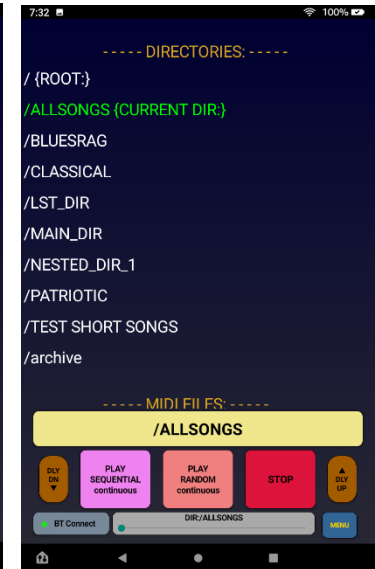
- Connect the mMS hardware to the instrument midi interface.
- Power on the tablet and the mMS checking that the front panel switch is set to Tablet Remote
- Start the mMS app on the tablet and see the hardware connection screen. Select the mMS hardware to control. Once selected the directories and song filenames on the local SD memory card are uploaded to the tablet.
- Tap on a song in the sorted scrolling song list, and the song name will be copied to the yellow selection bar.
- Tap on the selection bar and the song will begin playing.

**OR**

- Tap on either Play Sequential Continuous or Play Random Continuous, and songs begin playing in the selected mode.



mMS Connection Screen



mMS connected - scroll to select songs

## mMS Hardware and Controls

The mMS has a front panel Play Mode switch with three positions:

Remote: Center position for tablet remote control. The tablet cannot connect to the hardware if this switch is not set in Remote mode.

Auto Sequential: Continuously play songs sequentially from the current directory. At the end of the list, it restarts from the beginning

Auto Random: Continuously play songs randomly from the current directory.

## mMS Ports and Indicator

Midi Output Connector: Standard midi compliant 5-pin DIN

SD Memory: Standard SD Memory. Push to seat, push again to release.

DC Power Jack: Accepts 5.5mm x 2.1mm DC barrel plug

USB: not used (future feature)

Power Indicator and Bluetooth Status LED:

When power is applied this LED lights and indicates status:

Red = power on no Bluetooth connected

Blue = Bluetooth connected

Blinking red and blue = various operating conditions



## General Tablet Information

The system uses a standard Fire Tablet, 7", 8", or 10". It's a fully functional unmodified tablet and comes with original packaging and documentation (the end user is encouraged to refer to this for general operation). The tablet comes unregistered and can be registered by visiting the manufacturer website. The mMS and Playlist Editor Apps are preloaded and the mMS hardware is already paired (end user can also install the apps and pair devices).

## mMS Soft-Key Controls and Indicators

After the mMS App on the tablet is running and a link is made to the hardware, the following controls, buttons, and displays are available. (advanced menu display shown)

### Bluetooth Status light

When Bluetooth is active and connected, a blinking green indicator dot is displayed on the BTConnect button. When Bluetooth is disconnected or not active, this light changes from blinking green to blinking red. If Bluetooth had been connected and it disconnects, the App will try to reconnect automatically.

### BT CONNECT

This is the Bluetooth Connect button (There are 2 of these buttons that work the same). Press And HOLD To Return To the main midi player (mMS) hardware selection menu, Or Tap To reassert the bluetooth connection - the Mini Midi bluetooth (BT) light on the mMS front panel will flash red And Then blue

### BPM DN/UP

These buttons are multi purpose and are used to change the song tempo or the song interval delay (BPM = Beats Per Minute), or the font size and line spacing. For tempo change it works only when a song is playing (otherwise it changes the song interval time). Each tap changes the tempo by 1 BPM. The changed BPM is temporarily shown on the Selection Bar. The tempo change is not permanent unless the Save BPM feature is active. Long-press the BPM UP button for 2X Forward Fast play; the BPM DN button for 0.5X Forward Slow play.

### DLY DN/UP

These buttons are multi purpose and are used to change silence interval (delay) between songs or the tempo (BPM), or the font size and line spacing. For interval change it works only when a song is not playing (otherwise it changes the BPM). Each tap changes the song interval silence by 1 second between songs playing automatically in Sequential or Random mode. The mMS hardware will retain the new setting. The delay can also be changed by using the configuration file

### DIR field

Shows the current active directory or the current active playlist (.lst file type). This is a grey status box at the bottom center of the screen. It is not clickable

### Exit

Press and HOLD to end the MMS App and return to the tablet home screen

### FNT DN/UP

These buttons are multi purpose and are used to change font size, or song list row spacing, or the song tempo or the song interval delay (BPM = Beats Per Minute). For font size change it works only when the BT is not



connected when the main BT connection menu is shown. Each tap changes the font size by +/-1. The changed font size is briefly displayed, and it immediately changes the BT Connection menu text size and the Selection Bar text size. The Selection Bar largest font size only is 32 and cannot increase beyond that, though the songlist font size can. If a song title length is greater than the line width, it wraps around and automatically expands the row height. When these buttons are long-pressed instead of tapped, they change the Row height +/-1 blank lines. You can only add up to two additional line spaces. The new Font Size and Row Height becomes the default each time the application is run

## HELP

Tap to display this scrolling help screen. Tap again to hide the help screen

## Jukebox

Tap on song selections, and then tap the selection bar to play the selected songs in the order that they were selected. This feature only works when the tablet is not sleeping, and the mMS screen is visible. If the tablet goes to sleep or otherwise switches to the background, the playlist will be cleared. The Jukebox button appears with the Advanced Menu Selections. When visible, click on the Jukebox button to enable the feature. Then, select the songs to be played in the order that they are selected. Each selected song illuminates yellow with an index number preceding the song title. If a previously selected song is tapped again, it is removed from the play list. There is no option for rearranging the songs in the list. Clicking the active Jukebox button again, will clear all of the selections. After making song selections, to initiate play, click on Jukebox Play: in the yellow selection bar. Once playing, you cannot make additional song selections or deletions. Clicking on the Jukebox button will close the playlist. The sequence can be stopped by pressing the STOP button

## Keyclick

Enable or disable keyclick sound (tablet audio must be enabled with volume turned up). This setting is automatically saved when the tablet connects to the mMS from the BT menu.

## Last Song

Show the last 5 songs played. If no songs have been played yet it shows - none. Press and HOLD this button to clear the last songs played list

## List Editor

Start the MMS Playlist Editor App. Press and HOLD to exit the MMS App and start the Playlist Editor App

## MENU

Show/hide the advanced buttons. Toggles through two menus

## PAUSE

Pause the currently playing song. A song must be playing for this button to work

## PLAY LIST ONCE

Play all songs in a playlist once, always starting from the first song. This command only appears when a playlist is selected, and only applies to playlist playback. When selected the skip forward and backwards buttons are disabled

## Play Random

Play songs automatically in random order. Every random song play resets the song index to the current random song. That means that sequential play will start from the currently shown song

### Play Sequential

Play songs automatically in sequential order starting with the last automatically played song. Every directory change resets the song index to the first song in the directory. Every random song play resets the song index to the current song shown in the selection bar

### REPEAT

Repeat play the currently playing song. Tap to repeat play the currently playing song. Tap again to end repeat play. A song must be playing for this button to work

### SAVE BPM

Save new song Tempo (BPM = Beats Per Minute). Permanently save the changed tempo of the currently playing song. This feature only works in selected song play and not in any of the automatic play modes. To use, begin playing a song and tap this Save BPM button while the song is playing to activate the save new tempo feature. A status box will appear in the middle of the screen. While the song is playing tap the BPM UP (faster tempo) or BPM DN (slower tempo) as desired. To save the new tempo, press and HOLD this Save BPM button - the song will stop playing and then save the new tempo. Confirmation of successful tempo change will be shown in the status box. To turn-off the feature after it's been activated, tap on this Save BPM button again. You can also cancel the tempo change by tapping on the STOP button. This button is disabled during song interval countdown. If a song has multiple tempo changes this feature will not work well because it only changes one the the tempos and not all of them

### Scrolling Song and Directory list

A list of files on the SD memory card in the currently selected directory. Scroll the list vertically to find and select songs or directories. There is a quick scroll slider control, bottom center.

### Scroll Slider Control

At the bottom of the screen there is a slider control for quickly scrolling through the song list. Slide left and right to quickly scroll through the song list. Do not press and hold this control without moving it for too long because eventually the tablet will interpret the screen contact ambiguously

### SELECTION BAR

The yellow selection bar is used to play individual songs and change directories. It is yellow when inactive, and dark green when active. Each time an item on the scrolling list is tapped, it is copied to the Selection Bar. Tapping on the Selection Bar then plays the selected song, or changes to the selected directory. During autoplay, Sequential or Random, the selection bar turns dark green and acts as a status bar showing the currently playing song

### SKIP>>>

Skip forward to the next song. When a song is playing there is a 2 second delay to when this button can be tapped again. If no song is playing, it skips to the next song in the sorted scrolling list. At the end of the list it returns to the first song. If a song is playing in Sequential play and a playlist is not selected, it skips to the next song in the order that the songs are stored on the SD memory card. This order is usually not the same as the sorted scrolling list. If a Playlist is selected, it will skip to the next song in the playlist. This button is disabled for Jukebox Play and if a Playlist is selected and PLAY LIST ONCE is selected

### <<<SKIP

Skip back to the previous song. When a song is playing there is a 2 second delay to when this button can be tapped again. If no song is playing, it skips to the previous song in the sorted scrolling list. At the first song in the list it skips to the last song. If a song is playing in Sequential play and a playlist is not selected, it skips to the previous song in the order that the songs are stored on the SD memory card. This order is usually not the same as

the sorted scrolling list. If a Playlist is selected, it will skip to the next song in the playlist. This button is disabled for Jukebox Play and if a Playlist is selected and PLAY LIST ONCE is selected

#### Status Messages

Status messages appear from time to time briefly on the display and then disappear.

#### Song Duration

For an actively playing song, the song duration and play time remaining will appear at the bottom of the screen. The play time runs on the tablet independently from the actual mMS song play and may be off by a few seconds. This feature only works when the tablet is not sleeping, and the mMS screen is visible. If the tablet goes to sleep or otherwise switches to the background, the song duration time will disappear

#### STOP

Stop the current play mode and the currently playing song or activity

#### Tablet Navigation Symbols

There are 3 tablet system symbols located at the bottom of the screen and are not part of the MMS App. Tap the triangle symbol to go to the previous tablet page. Tap the circle symbol to go to the tablet home page. Tap the square symbol to see all programs currently loaded in background

#### Tablet sleep mode

The tablet will not automatically enter sleep mode while the mMS application is running. It can be forced into sleep mode by briefly pressing the tablet power button. If the hardware is playing music and/or has been set to automatic sequential or random play, it will continue playing even if the tablet enters sleep mode. In fact, the tablet can be powered off and the hardware would continue playing. When the tablet wakes the Bluetooth will automatically reconnect without user intervention.

#### Use Saved List

Use a previously Saved Directory song list (intended for use by ADVANCED USERS). This feature is disabled on boot. It is a toggle ON/OFF control. When ON, any Saved Directory song lists display as purple text and the directory name is prefaced with Saved List:. To use, enable the feature and select a directory and load a new song list. Then press and hold the directory name in the yellow selection bar. After a moment, the directory song list will be saved, and the entry will be indicated by purple text. To load a previously Saved Directory, tap on the desired purple colored directory, and then (as usual) tap the yellow selection bar. To delete a previously saved Saved Directory List, tap on the desired selection copying it to the selection bar, then press and hold the directory name in the yellow selection bar. After a moment, the Saved Directory song list will be deleted, and the directory selection will change back to the standard directory. All Saved Directories reflect the song names that were on the card in that directory when the Saved Directory list was created. If a list is saved, and then files are deleted from or added to that directory on the SD memory card, the previously saved song list will no longer accurately reflect the contents of that directory. If any changes are made to the SD memory card directory, delete the existing Saved Directory, reload the updated directory and then resave the revised song list as a new Saved Directory. The software does not and cannot automatically update a previously saved directory list to match changes made to the SD memory card. Failure to keep the Saved Directory in sync with the SD memory card directory will likely result in file not found errors. Furthermore, if you're using multiple SD memory cards, if two cards have the same directory name but contain different song files, then the previously saved list will not match one of those same directories on one of those cards. You can avoid this confusion by ensuring that all directory names on all memory cards are slightly different, such as by appending a sequential number to the end of the directory name, i.e. SD card 1 might have Main\_DIR1, SD card 2 might have Main\_DIR2, SD card 3 might have Main\_DIR3 and etceteras...

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## Operation

### Midi File Storage and Organization

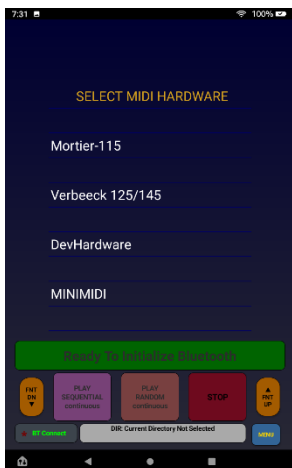
Midi Files are stored locally on the mMS SD memory card. The end user adds directories and songs to the memory card using a personal computer and SD memory card adapter. Multiple nested directories can be created. One can have a basic directory such as MAIN\_DIR, where all songs are kept, or theme named directories such as PATRIOTIC where all patriotic songs are kept, and etcetera. Any directory name is fine, conforming to standard file and directory naming conventions. There is no limit to the number of directories, and each directory can contain up to 1100 midi files (additional songs in a directory beyond 1100 are ignored).

### File and Directory Structure

The SD Memory card is formatted FAT32 (Windows/MSDos). The directories and midi filenames can consist of any combination of not reserved alphanumeric text in accordance with standard file naming convention. However, they cannot begin or end with a space character, and a space character can't appear just before the .mid ending. Examples; acceptable.mid    notacceptable .mid

Midi files can appear in any of the directories and the {/Root} directory (the Root directory is only a forward slash character “/”. We add the {/Root} to distinguish that it is the root directory, “/”. Other files can also appear on the memory card, as only filenames ending in mid and lst and the configuration file mmsConfig.txt (MegaMidiConfig.txt, deprecated) are used and all other files are ignored. The maximum filename and directory name lengths is 88 characters each. Files or directories with names greater than 88 characters are ignored.

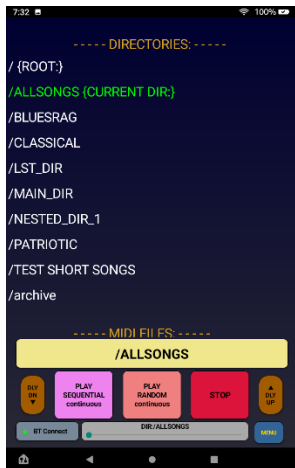
### Connecting to the Tablet



When first running the mMS App on the tablet, the user must select the Bluetooth Device to connect to (MINIMIDI default name). On the mMS custom hardware, the Play Mode switch must be set to Remote. ***IF THIS SCREEN DOES NOT APPEAR***, Press and **HOLD** the BTConnect button (at any time) to force it on.

Immediately after selecting the Bluetooth device and establishing connection, all midi and playlist file names and subdirectories in the current directory are uploaded to the tablet. This happens very quickly at 115k baud. Only the file and directory names are uploaded and not the actual and complete midi song files - only the names. After connecting and automatically uploading the directory and file names, a scrolling list is created on the tablet.

## Standard Remote Tablet Control



In standard remote tablet play mode, the tablet acts as a remote directory and midi file name viewer and selector. The directory and filenames are shown in a sorted vertical scrolling list on the tablet, with directory names always listed first, any playlist names listed second, and midi file names shown last.

One can vertically scroll through the list and select and play any song by tapping on it. In a similar way, one can select a new directory by tapping on it which is equivalent to changing directories on a computer. Whenever a new directory is selected, a new scrolling list is automatically created with only the midi and playlist file names found in that directory. For example, if the user selects TEST\_DIR, a new scrolling list is created showing only the midi songs and playlists in the TEST\_DIR directory.

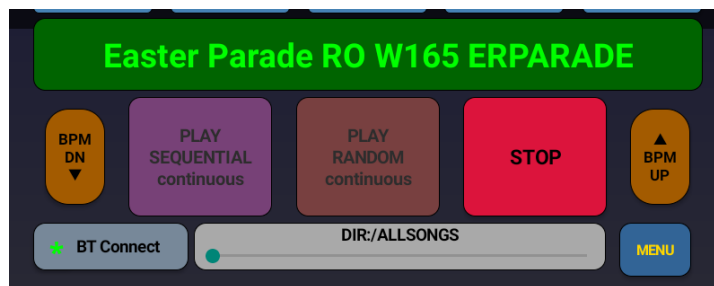
Any individual song can be selected and played - just tap on the song in the scrolling list and it is immediately copied to the yellow Selection bar. Tapping on the yellow bar sends the file name to the mMS hardware, and it begins playing it. As this happens, the selection bar text and background turns green indicating that the song is playing. When the song ends if the tablet is awake and connected, the selection bar will turn back to yellow.

Similarly, one can select a directory from the scrolling list, and it is copied to the selection bar. Tapping on the bar causes the mMS+ hardware to change directories. Immediately a new scrolling list is created on the tablet showing all of the midi songs in the new directory.

If one selects a playlist, then only the songs in the playlist are shown in the scrolling list, appearing in order as they appear in the playlist.

## Soft-Keys Sequential Continuous Play and Random Continuous Play

Besides selecting and playing individual songs, one can press the tablet soft keys PLAY SEQUENTIAL CONTINUOUS, or PLAY RANDOM CONTINUOUS. When tapped the playing mode will be indicated with bright green text, and the mMS hardware will continuously play all files in the current directory until the STOP button is pressed. The song name of each new song that is playing is displayed on the tablet on the Selection Bar. Before each song plays, if a delay is set, a countdown timer to next song play will be shown. For Sequential play, the songs will play in the order that they were copied to the SD memory card, and not usually the way they appear on the tablet, which is a sorted list. Use a Playlist file if you want songs to play sequentially in a particular order. Play starts with the first song in the directory when it is first loaded, or with the next song after the current song.



*Play Continuous Random – the currently playing song is displayed on the Selection Bar (previous App version display shown)*

## Tempo Change using Soft-Keys BPM UP and BPM DN

When any song is playing, the user can press the BPM UP or BPM DN soft keys on the tablet to change the song tempo up or down (faster or slower). Each soft-key press is a change of 1 BPM, plus or minus, and is briefly display



on the selection bar. The tempo change is not permanent and only affects the currently playing song, unless the Save BPM feature is enabled. If a tempo change has been made and the song is stopped and started again, the original tempo is used. Tempo changes can be saved in the midi file using the SAVE BPM button found in the advanced menus.

### Auto Play and Tablet Sleep Mode

When the mMS hardware is set by the tablet into any of the playing modes; single song or Random or Sequential Continuous auto play, the tablet can be put into sleep state to conserve battery power and the mMS hardware will continue playing uninterrupted in the current play mode.

During sleep there is no active communication between the tablet and the hardware. Upon waking, the Bluetooth automatically reconnects. It takes a few seconds to completely wake-up and reconnect and the user should wait for status message Bluetooth Connected Successfully, before pressing any of the soft keys.

Also, after sleep and waking, it may take one song cycle (one song finish playing, and then the next song) to see the currently playing song refreshed on the tablet Selection Bar.

### mMS Stand-Alone Operation – without Tablet

The mMS hardware can play in a very limited way autonomously without the tablet. Simply power on the mMS and using the Play Mode selector control select either of Auto Sequential Play or Auto Random Play. The mMS hardware immediately begins playing all songs in the current directory in the selected mode. It will play continuously until the selection is reset to Remote and the song ends. For sequential autoplay, the mMS sequences through all of the midi files, and when finished starts over again. If there is an interval delay running, the play can be immediately interrupted before starting by switching the front panel switch to remote.

### mMS Song Interval Control

On the mMS App home screen, when STOP and no song playing, the two buttons labeled DLY UP and DLY DN can be used to adjust the in-between song interval time. The range is 0 thru 60 seconds. Tap the DLY UP key to increase the delay, and DLY DN to decrease it in 1 second increments. The change is briefly indicated on the App selection bar. The change is not permanent and will reset to default delay anytime the mMS hardware is reset. The default delay can be set by editing the configuration file keyword, PlayDelay.

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## **Playlist – Playing Songs in a Playlist, and Creating a playlist**

### Playing Songs in a Playlist

The mMS can play songs in a playlist that the user can create. From the scrolling list select an existing playlist and tap on it, and it is copied to the yellow selection bar. Tap on the bar and the playlist opens and a new scrolling list appears showing all of the files in the playlist. In addition, the lower right directory field now shows the playlist filename as the selected directory, LST:/some\_list\_filename.lst. The new scrolling list shows the playlist songs listed in order as they appear in the playlist (the list is not sorted).

At the beginning of the midi file list in the scrolling list is the playlist name prefixed with PLAY LIST ONCE. Tapping on this will copy it to the selection bar. If the selection bar is tapped the mMS will play through all songs in the list one time, and in the order that they appear in the list. It stops playing at the end of the last song. If one instead selects Play Sequential Continuous, then the list is played from beginning to end, and then loops back again to the beginning and keeps playing. If one selects Play Random Continuous, then all songs in the list are played in random order until the STOP button is pressed.

### Creating a Playlist

A playlist can be created using the MMS tablet and our MMS Playlist Editor App, or by using a personal computer. These instructions are for using a personal computer, while the MMS Playlist Editor App has its own user instructions.

The playlist can be created using any text editor such as Notepad, but whatever program is used it must be a basic text editing program without formatting. The playlist is stored on the local SD memory card in any directory including the {/Root} directory. Create the playlist and copy it to the SD card. Then restart the mMS hardware, link the tablet and the list can be opened and played.

Each line in a playlist can contain 1 complete midi song name, and end with a standard carriage return. There can be no other alphanumeric characters on the same line as a song name. Each song name must be complete including “.mid”, and including THE DIRECTORY LOCATION on the SD memory card. If a song name is inaccurate, or not found in an indicated directory, the mMS hardware will skip playing it. For example, this is a complete song name;

Lila W125 3132-02N.mid

... and this is an incomplete song name because it is missing the ending “.mid”, and it will not play;

Lila W125 3132-02N

... and this is a complete song name that has extraneous characters on the same line and it will not play;

Lila W125 3132-02N.mid (I really like this song)

Furthermore, if this song is located in directory MAIN\_DIR, then it must appear in the playlist file as

MAIN\_DIR/Lila W125 3132-02N.mid

Or

/MAIN\_DIR/Lila W125 3132-02N.mid

If it is missing the directory reference, it cannot be found and cannot be played

A properly formatted playlist might therefore look like this;

Early In The Morning Waltz W125 313403MN.mid

MAIN\_DIR/Lila W125 3132-02N.mid

BLUESRAG/Bull Frog Blues W125 3035-06N.mid

IRISHDIR/My Wild Irish Rose Waltz W125 3103-09N.mid

PATRIOTI/PTRC Under The Double Eagle March W125 3143-060.mid

Notice that except for the first line, all the songs begin with their directory location. The first line implies that the song exists in the {/Root} directory.

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## **Operating Tips**

**Reconnecting Bluetooth:** **Press and HOLD** the BTConnect softkey on the tablet to restart, reselect, and reconnect the Bluetooth link. Example: if after connecting, the mMS hardware is powered off and powered on again while the tablet App is running, **press and HOLD** the BTConnect button to go to the Bluetooth link screen. This button may also be tapped once quickly to reassert the Bluetooth connection - it verifies Bluetooth link and if disconnected tries to reestablish the connection.

Removing the SD Memory card while operating or playing a song: Whenever the SD memory card is removed and replaced while the mMS hardware is powered on, the hardware will go through a soft-reset – the mMS firmware will start again as though first powered on. However, soft reset does not change the status of the Bluetooth, and so if it was linked to the tablet, it will remain linked during the soft reset. While the bluetooth may be unaffected by a soft reset, the tablet and mMS still need to be **resynchronized** – do so by selecting the {/Root} or any known directory. Avoid removing the SD card during active communication directory change.

Autoplay delay: During autoplay, new songs will begin playing after the Song Interval Timer counts down to zero. Pressing the STOP button will terminate the countdown and play. The countdown will appear on the selection bar with the next song to play indicated.

Tablet Sleep Mode: After wirelessly linking the tablet and Bluetooth, the tablet can be put into sleep mode to conserve battery power. When sleeping there is no active communication between the tablet and mMS. When the tablet wakes it will try to automatically reconnect the bluetooth link. Avoid pressing any of the softkeys until the BTConnect status indicator is again blinking green.

Active Communication Interruption: This system relies upon active communication between the tablet and the mMS hardware. If the communication link is broken during directory change command, the App or mMS hardware or both may appear to pause, but will self recover. Yet if a directory change has been initiated, let the process complete before changing the Bluetooth status, such as putting the tablet to sleep.

Filename Transfer Speed: Transferring filenames to the tablet should take approximately 4 seconds per 500 songs with average filename length of 37 characters. If the transfer takes much longer than this, try reformatting the SD memory card, using FAT32 file system.

Tablet and mMS synchronization: After linking the tablet and mMS hardware, if the hardware is powered off and on again, or the SD card removed and reinstalled, even though the bluetooth may relink automatically, the mMS hardware will not be synchronized with the tablet. To resynchronize, select the {/ROOT} directory on the tablet, or press and HOLD the BTConnect button to relink the Bluetooth from the App start screen.

mMS Status LED: The LED on the mMS generally indicates power on (red) or power on and bluetooth linked (blue). The LED blinks status information, on boot – blink 2, then 3, then 4 times, as it initializes. When linked to the tablet, each soft-button press causes the LED to blink indicating active connection. Repeated pattern blinking during boot means there is an SD memory card error: check the card and correct.

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### **mMS Configuration File**

The mMS can use a configuration file to set certain operating defaults. The configuration file filename is, mmsConfig.txt (previously MegaMidiConfig.txt, deprecated), and must be located in the {/Root} directory only. If the configuration file is missing, then defaults are automatically used, and so this file is not necessary for operation using default settings only.

The format of this file is very specific; each keyword must be followed by -> and then the variable, terminated with a semicolon. Any text following a semicolon is ignored. If you are using the configuration file, but want some features to use default settings, you can force the use of a default by beginning the keyword assignment line with a semicolon. Only use a basic text editor to edit the configuration file, such as Notepad.

The configuration can set the power-on default directory, such as “MAIN\_DIR”. There are also audible status cues available that can alert for directory changes, SD memory card error, and midi file errors. Each cue uses a single playable note on the instrument, and so one can tell by tone what the status is (a leitmotif of sorts).

## **Configuration File Keywords**

- **AllNotesOffMode**: During a mid-play STOP command, any playing notes are silenced using any of 3 All Notes Off modes; 1 = normal manual mode, 2 = midi command 120 *All Sounds Off*, 3 = midi command 123 = *All Notes Off*. If either of 2 or 3 can be used, there is a slight efficiency gain silencing all notes. Some midi to parallel controllers might employ these built-in midi commands. Default is 1 = manual
- **BootAllNotesOff**: on mMS power-up, it will automatically turn all notes off on all active channels; notes 0 thru 127, and channels 1 thru 16. The assignments are ENABLE (default), or DISABLE
- **DeclencheNote**: During an abnormal STOP mid-song play, it might be important for some instruments to reset the *Declenche* or *General Cancel* feature on their instrument, though it is usually not required because songs should reset the declenche at the beginning of each new song play. The format is Declenchenote -> nn:nnn, with 0:0 = default disabled. The declenche event plays at the very end of a STOP command, timed as - 100mS delay, 1sec note on, then note off, effectively resetting the registers. Don't use this feature if it's not necessary, as it will delay the STOP time.
- **DefaultDirectory**: When the mMS powers-on, the default directory is normally {/Root}. This can be changed to any directory. The format is, DefaultDirectory -> Some\_Directory\_Name.
- **DisplayUserSettings**: Diagnostic Tool to display all user settings on the tablet and LCD (MMS) during boot. Usually NOT necessary, and will significantly slow boot time. Can be ENABLE or DISABLE (Default). To use this diagnostic feature, in the Configuration File set the keyword to DisplayUserSettings -> YES. Set the hardware Play Mode switch to default tablet play, and put the tablet into any of sequential or random play modes. Swap the memory card, and the user default settings will appear on the selection bar two at a time with a 5 second delay between. This means the boot time will take nearly 2 minutes to boot, so only use it as a diagnostic tool. Schematically, it works like this,
  - 1) Change the setting in the configuration file to YES, DisplayUserSettings -> YES; (default = NO)
  - 2) Link the tablet to the mMS hardware
  - 3) Put the tablet in any of the autoplay modes - random or sequential
  - 4) Reset the mMS by removing and reinstalling the SD card. As it boots, the user settings are displayed on the tablet selection bar
  - 5) After use, ensure that this command is reset to OFF
- **DoubleOff**: Adds timing delay to Notes Off all modes. Usually NOT necessary and NOT recommended. Can be ENABLE or DISABLE (Default)
- **NotesOffAllSongs**: Ensure silence between all songs. Usually NOT necessary and NOT recommended. Can be ENABLE or DISABLE (Default)
- **NumberOfChannels**: the user can restrict the number of channels that the mMS will work with, anywhere 1 thru 16 inclusive. The default is 16. It is usually not necessary to set this
- **PrePlayCommand, PrePlaySongDelay, PostPlayCommand, PostPlaySongDelay** These can be used to trigger an event before a song begins playing, and then another event after a song ends; useful for powering on and off a blower or an instrument. One can also set a delay time between the PrePlayCommand and the actual song play with keyword *PrePlaySongDelay*, and after the song ends set a delay time, *PostPlaySongDelay*, to wait prior to playing the PostPlayCommand note. The delays can be set 0 thru 600 seconds. Also, the post play delay is retriggerable; if another song begins playing the countdown is reset and stopped. If the STOP button is pressed on the tablet, the countdown is reset and started over again. The sequence is,  
play PrePlayCommand note -> wait PrePlaySongDelay time -> play song or group of songs -> wait PostPlaySongDelay time (no songs playing) -> play PostPlayCommand note

Schematically, it works as follows,

- 1) Start play in any mode, selected song, random or sequential, using the tablet or external switch song play
- 2) play PrePlayCommand note
- 3) wait PrePlaySongDelay time
- 4) play song once
- 5) initialize PostPlaySongDelay time and start countdown timer
- 6) (wait PostPlaySongDelay time) WHILE (continuously checking for new song play)
- 7) IF new song play, stop PostPlaySongDelay timer AND jump to 4
- 8) OR IF STOP button is pressed, stop the PostPlaySongDelay timer AND jump to 5
- 9) ELSE IF no new song play AND no STOP and finish countdown THEN play PostPlayCommand note

This feature is especially useful for instrument collectors and demonstrating an instrument. Select a song and the instrument or blower powers up and the song plays. Then, after the song completes, just keep playing songs or pressing the STOP button prior to the post play countdown, to interrupt and reset the countdown timer. When the demonstration is finished, just stop playing songs and the post play delay timer will count down to zero and power off the blower or instrument.

Keywords:

- PrePlayCommand -> 0:0; Play this note before playing each single or group of songs; it is held on for ¼ second. Default = 0:0 (disabled)
- PostPlayCommand -> 0:0; Play this note after playing each single or group of songs; it is held on for ¼ second. Default = 0:0 (disabled)
- PlayCommandDuration -> 1; Pre/Post Play Command multiplier. The default Pre/Post Play Command duration is 1/4 second. Setting this keyword increases the duration n number of times. Can be 1 thru 40, 1/4sec thru 10 seconds. Default = 1 (set/reset type)
- PrePlaySongDelay -> 8; Pre song or group of songs play delay in seconds, 0 – 600. Default = 8seconds
- PostPlaySongDelay -> 8; Post song or group of songs play delay in seconds, 0 - 600. Default = 8 seconds

\* Operating Note: once PrePlaySongDelay timer is started it cannot be interrupted

- **RenameBT**: Units are shipped with Bluetooth already named MININMIDI. The end user can rename it, which is especially useful for multiple instrument setups. The name can be any combination of alphanumeric characters up to 30 characters in length. Renaming is done by pressing and holding a switch located on the bottom of the mMS, and through the configuration file by setting the keyword,

RenameBT -> {bluetooth name up to 30 characters};

- 1) Edit the Configuration File keyword RenameBT. Insert the card into the player
- 2) Power Off the mMS hardware
- 3) On the bottom of the unit, press and hold the tiny pushbutton switch located by the SE memory card.
- 4) While holding the pushbutton, power on the mMS hardware. When the front light starts blinking rapidly, a pattern of one blink through 6 blinks. When blinking, you can release the pushbutton.
- 5) After renaming the Bluetooth, disable the keyword by again beginning the line with a semicolon.

If the rename was successful, the unit will continue to boot normally, otherwise it will halt on error and the front panel LED will blink Red continuously. It can only be reset by power Off and On again.

After changing the hardware link name, go to the Bluetooth settings on the tablet. Press and hold the current Bluetooth named device and select "Forget" the current Bluetooth name. On the tablet, turn the Bluetooth off and on again, and then select Pair a Bluetooth Device, or Search for a new Bluetooth device.

- RollSpeedAdjust: Fine adjustment of the midi file play speed for all files, in increments of plus or minus 0.1 percent. The format is + or - followed by an integer 1 thru 9. Examples: +2 (increase speed by 0.2%), -7 (decrease speed by 0.7%). The default = 00 = no speed adjustment. This is a set/reset operation - the setting is stored in mMS nonvolatile memory and whatever it is set to will be used until changed, even without the configuration file.
- ShowRootDirectories: Always show the directories in the {/Root}, no matter what directory or subdirectory is active. Depending on how one sets up the SD memory card directory and file structure, this can help with navigation. Only works with units shipped after 2020-01-01. Can be ENABLE (Default), or DISABLE
- ShowSongDuration: Calculate and show the current playing song length/duration on the tablet. This calculation takes some mMS hardware processing time causing an apparent slight delay just prior to the song play. The calculation time is dependent on the length and complexity of the song to be played. Normally it's about 1/2 second per minute of actual song duration. So a 2 minute song will have a ~1 second delay of silence prior to it being played. If the delay cannot be tolerated this feature can be disabled. Can be ENABLE (Default) or DISABLE. This is a set/reset operation - the setting is stored in mMS nonvolatile memory and whatever it is set to will be used until changed, even without the configuration file.
- SyncFileList: Normally the alphabetically sorted tablet display of midi files does not match the SD Card organization which is usually not alphabetically arranged (think of the tablet as a phone book, and the SD memory card as home addresses). Without this set, if the mMS hardware is set to play sequentially, the order of play usually won't match the alphabetic order shown on the tablet. When this is enabled, the SD memory card directory is temporarily sorted to match the tablet order. Enabling this will increase the midi file names transfer time by 12 percent. This is a set/reset keyword - the setting is programmed into mMS hardware memory and it will always be used even without the configuration file being present until it is changed again (or disabled). Can be ENABLE or DISABLE (default)
- ToneStatusBegin: When the mMS powers-on or is directed to change directory, it can briefly play a single note, an audible confirmation that the mMS and midi instrument are both active. The format is, ToneStatusBegin - > nn:nnn, where nn = midi track 1-16, and nnn = note 0-127. Example: on our test organ, 1:93 causes a single snare drum strike. Default is 0:0 = disabled.
- ToneStatusEnd: This complements and follows the ToneStatusBegin setting. When the action completes, such as change directory, the ToneStatusEnd plays a single note, providing an audible confirmation of the activity end. The format is, ToneStatusEnd - > nn:nnn. Example: on our test organ, 1:94 causes a single cymbal strike. Default is 0:0 = disabled (and so for a change directory effect we have; snare, change directory complete, cymbal).
- ToneStatusFileError: if the mMS detects an SD card error, or SD card directory or file read error, a repeating error note is played to the instrument. The format is, ToneStatusFileError - > nn:nnn. The default is 0:0 = disabled.
- ToneStatusMidiFileError: if the mMS detects a problem with a midi file format, or the file is otherwise corrupted, a repeating error note is played to the instrument. The format is, ToneStatusMidiFileError - > nn:nnn. The default is 0:0 = disabled.
- UniqueRandomPlay: When enabled and the player is set to Random Play using either the tablet soft-key or the front panel switch, the mMS will play each song in the current directory randomly once before it repeats playing a previously played song. This works with directories containing up to 550 midi file names. Above that the unique play benefit is linearly reduced by  $1100-n$ , where
  - 1100 = maximum number of files allowed in any directory
  - n = the number of songs in the current directory

Examples:

- 250 songs in a directory: 250 songs will uniquely play, and then all 250 songs would be available again for random play
- 550 songs in a directory: 550 songs will uniquely play, and then all 550 songs would be available again for random play
- 555 songs in a directory: 545 songs will uniquely play, and then all 555 songs would be available again for random play
- 750 songs in a directory: 350 songs will uniquely play, and then all 750 songs would be available again for random play

At 1080 or more songs in a directory, this feature self-disables

This is a set/reset keyword - the setting is programmed into mMS hardware memory and it will always be used even without the configuration file being present until it is changed again (or disabled). Can be ENABLE (default) or DISABLE

- **Verbose:** Send a verbose midi stream that always includes the channel number that the event is acting on. This ensures that every single event is preceded by the channel number, including note ON and note OFF events to identify the channel the note is to be played on. Can be ENABLE (Default) or DISABLE

### **Special Order Features**

ExternalSwitchPlay, SwitchCountPerPlay, SwitchDebounceTime (extra cost optional feature): Play music with an external switch closure. This can be used with a coin trip mechanism, an external switch, or external keyfob style button RF switch.

To use this feature, assign the keyword to RANDOM or SEQUENTIAL, and set the mMS Play Mode switch to Tablet Normal. Wire the two contacts from the mMS to the common and normally open contacts of the external switch, momentary or latching close. When the switch closes, a song will begin playing, either randomly or sequentially depending on the keyword assignment.

During play the mMS will monitor the input even while playing, and keep track of the number of times the external switch closes. It will continue playing songs in the selected play mode, until the switch counter goes to zero.

If at any time the tablet connects to it, it disables the external switch and zeros the switch counter, and the mMS can be used normally with the tablet. The Tablet takes priority over the external switch keyword.

- ExternalSwitchPlay: SEQUENTIAL or RANDOM or DISABLE. The default = DISABLE
- SwitchCountPerPlay: Set the number of external switch trips to play one song, 0 - 254 allowed. Default = 1
- SwitchCountPerPlay set to zero, special mode: When set to zero it will play one song per switch closure, and only looks for switch closures when no song is playing. While a song is playing it will not monitor the input or count switch closures. The external switch must be held closed for at least 3 seconds to activate (held until music starts playing). It will only play one song and when finished playing, the external switch has to be pressed and held again for 3 seconds to start another song. This mode is meant for installations where visitors/guests/owners can walk up to an instrument, press a button to hear it play. If at any time the tablet connects to it, it disables the external switch, and can be used tablet normal.
- SwitchDebounceTime: Set the switch debounce time in milliseconds, 100 – 1000. Default = 500 msec. The larger the debounce time, the more it rejects false triggers (switch contact chatter).

- **SongsPerPlay:** Set the number of songs to be played for each completed SwitchCountPerPlay, 1 - 254 allowed. Default = 1. When set to 1, one song will play for each completed SwitchCountPerPlay. When set to 2, two songs will play for each completed SwitchCountPerPlay. When set to n, n songs will play for each completed SwitchCountPerPlay.

Example - play 3 songs per dollar bill external coin trip

Operating note: Even when this feature is enabled, the unit can still be operated normally with the front panel switch, setting it to either Sequential or Random play, or setting it to Tablet Remote, and then connect to it with a tablet.

- **External Relay Control (purchased option):** If configured with the External Relay option, the mMS will have an 8 position DIN connector in place of the 5 position midi connector and will be supplied with an interface cable that converts the 8 position to a standard 5 position midi cable and brings out the two electrical connections through a pluggable terminal block that are connected to the external UL Recognized opto-isolated solid state relay. A standard 5 position midi cable could be plugged directly into the mMS without using the interface cable and it will fit and work normally as a standard midi connection, but access to the relay signals would be lost. This optional feature is asserted ON and OFF with the Pre and Post play command keywords. These must be set to some midi channel and note for it to work.

Two electrical connections are brought out through the pluggable terminal block, one positive (red wire), and one negative (black wire). Connect this output to a UL Recognized opto-isolated solid state relay input. These UL Recognized opto-isolated solid state relays only require low voltage and low current to operate. The mMS external relay output signal is rated 5VDC/12.5mA nominal (minimum 4.2VDC/10.5mA) and is sufficient to work with most UL Recognized opto-isolated solid state relays (SSR). When connecting to the UL Recognized opto-isolated solid state relay input, observe correct polarity. Since the UL Recognized opto-isolated solid state relay will likely be connected to a hazardous building AC line source, consult with and have the UL Recognized opto-isolated solid state relay installed by a qualified electrician, and observe all electrical safety requirements when wiring. User assumes all risks.

- **SecurePlay:** The mMS hardware will only play authorized midi songs that have an embedded key. This feature is available to system integrators and music resellers. Contact us for additional information.

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## **Miscellaneous**

### **Bluetooth**

The standard Bluetooth RF range is at least 10M (30 feet). When changing directories or when first powering on a lot of information needs to be sent from the mMS hardware to the tablet, therefore be within clear sight range of the mMS custom hardware when first running the App or when changing directories.

When connecting the tablet to Bluetooth, MINIMIDI should appear as one of the recognized devices. If the tablet has in some way been reset or Bluetooth devices has somehow been lost, go to the wireless configuration screen on the tablet, then Bluetooth, and Search for new Bluetooth devices. With the MMS on, it should find device MINIMIDI. Select the desired device and it will ask for a pass key – the key is located on the serial tag of the mMS hardware but is usually 0248.

### **mMS System Status Messages**

System status messages will either briefly appear on the tablet selection bar, or in a disappearing balloon window.

### **Other**

Maximum directory and midi filename length = 88 characters (will ignore longer named files)

Maximum number songs in any single directory = 1100 (will ignore files over 1100)



Midi type song = will only play midi type 0 songs  
SD memory = SDHC, maximum 32G, speed class at least 4 (as tested)  
A/C adapter = 9VDC/1A, center positive, 2.1 x 5.5mm barrel plug

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Product Warranty: Guaranteed free from defects in material and workmanship for a period of 90 days from date of purchase. If a problem arises, first contact us to see if they might be resolved. If the product needs to be returned for repair, contact us to arrange shipping. Customer pays for tracked and insured shipping one way. Brotech does not warranty the tablet. Any tablet warranty or operating problems must be resolved through the manufacturer directly.

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