



**MusicMaster**  
SCHEDULING



## WHAT'S NEW IN PRO VERSION 8

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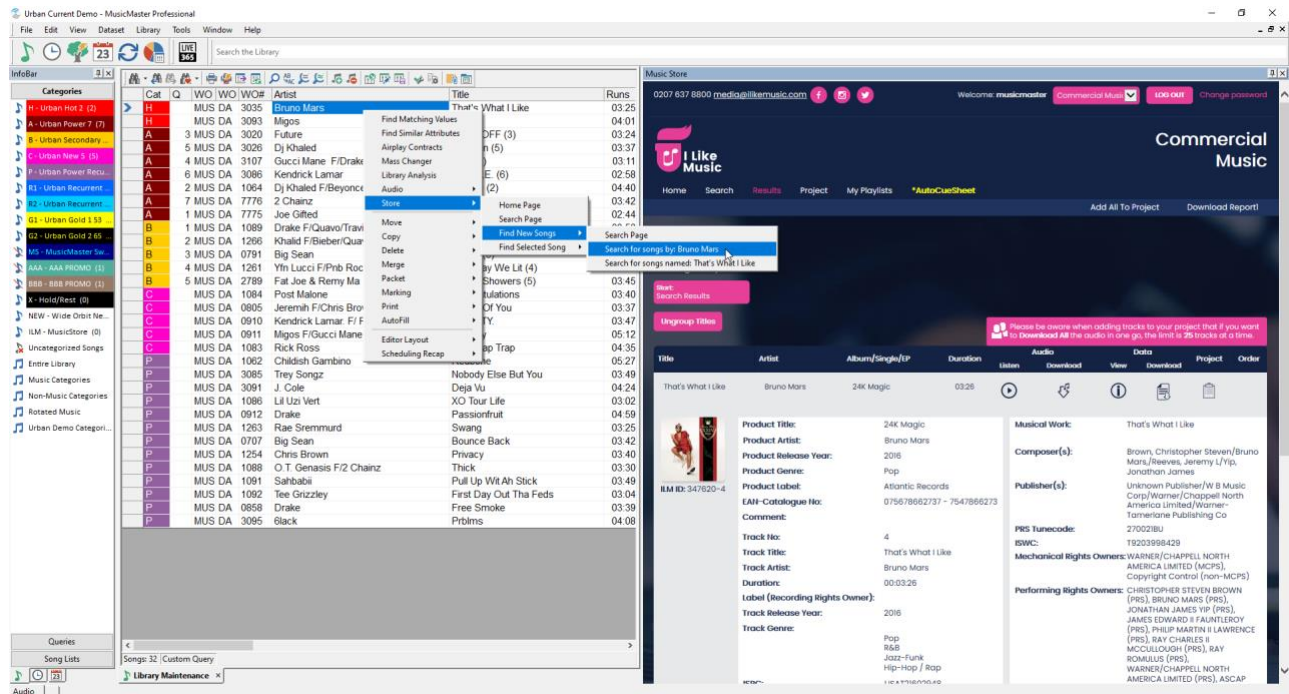
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# GENERAL INTERFACE

## MUSIC STORE

MusicMaster now has a built-in Music Store. Through our partnership with I Like Music (ILM), you can now search for and download high quality licensed music tracks right from within MusicMaster. You can search the store from the Music Store panel, or right-click on any song in your library to search by its artist, title or album.



With ILM, you'll find a large library of both new and charting hits as well as an archive of classic tracks with multiple versions. Downloads are in uncompressed wav format, for a per track rate that's lower than other comparable services. ILM is for professional broadcast use and covers the mechanical/dubbing license. It does not cover individual performance royalties, which you must report as you normally do with other songs.

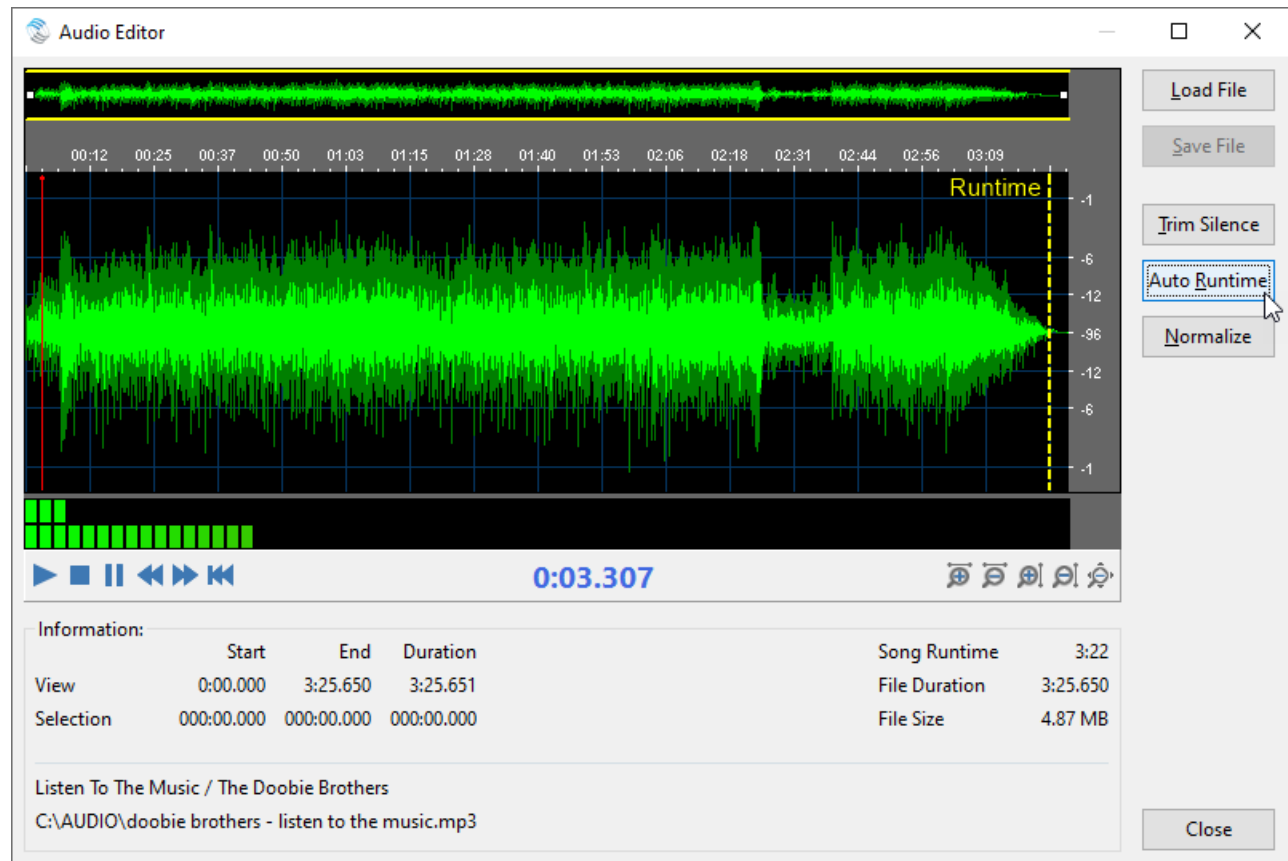
With our seamless interface, songs can be automatically added to your MusicMaster library with all the metadata filled in for you. Note that you can choose to have songs automatically ingested once they are downloaded to a special folder, or you can choose to have metadata retrieved only after a store song is added to MusicMaster by your automation system. You can also use the service to find and update metadata on the songs already in your library, at no cost.

The Music Store can be enabled and configured in Tools > Options > Music Store Options.

Before getting started, learn more about ILM on our website ([www.musicmaster.com/ILM](http://www.musicmaster.com/ILM)) and download the separate PDF guide which walks through the Music Store setup and use. You may also contact MusicMaster Support for assistance.

## AUDIO EDITOR

MusicMaster now includes a built-in audio editor. You can use it to normalize audio levels, trim silence, and set the runtime or end point. MusicMaster can even automatically set the segue point based on a silence threshold you choose.



You can open it by hitting Shift+F12 on a selected song (as long as you don't already have that hotkey set up to launch an external audio editor) or using the Tools menu.

In the interface, you can click the waveform to start playback at any point or drag to select a region to playback. You'll also find playback and zoom functions below. The yellow dashed line represents the segue (out) point and can be adjusted manually.

**Load File:** This will reload the original audio file from your hard drive, if you have not already saved an edited version

**Save File:** This will save changes to the audio file (trim, levels) to your hard drive.

**Trim Silence:** With this option, you can choose to trim silence at the beginning and/or ending of your track and set a threshold of volume for what is considered silence. This will edit the audio file itself.

**AutoRuntime:** For songs that fade out, you may wish to create an overlapping segue to the next song. You can set the segue point manually by dragging the yellow dashed line on the audio waveform. Or you can use AutoRuntime tool to have MusicMaster find it using the volume threshold you set. Either way, MusicMaster will adjust the song's runtime to match the segue point, so playback of the next song will begin once that time is reached.

**Normalize:** Use this to adjust your audio file so the maximum peak level reaches a specific amplitude. This can help give all your audio files a more consistent volume, and when set below 0db, allows room for additional processing that may be added during playback. There is also an option for DC Offset removal, which will adjust the waveform if it's found to be off-center, which may be an issue on songs recorded on lower quality equipment.

**Close:** When you hit Close, you may be prompted to save changes to the audio file if you have not already done so. If you have made changes to the runtime, you will be asked to confirm.

*Note: If desired, station database administrators can restrict user access to the Audio Editor in Tools > Options > Dataset Security > Users and Rights. The Audio Editor is listed under Tools.*

## **WELCOME SCREEN UPDATES**

**Updated Layout:** The MusicMaster Welcome screen has an updated layout which includes contact information and links, a section for news and a section for featured videos.

**Recent Station List:** There are new context menu options on the Recent Stations list items. You can now remove stations from that list by right clicking each station. You can also view more info like the full filename and location.

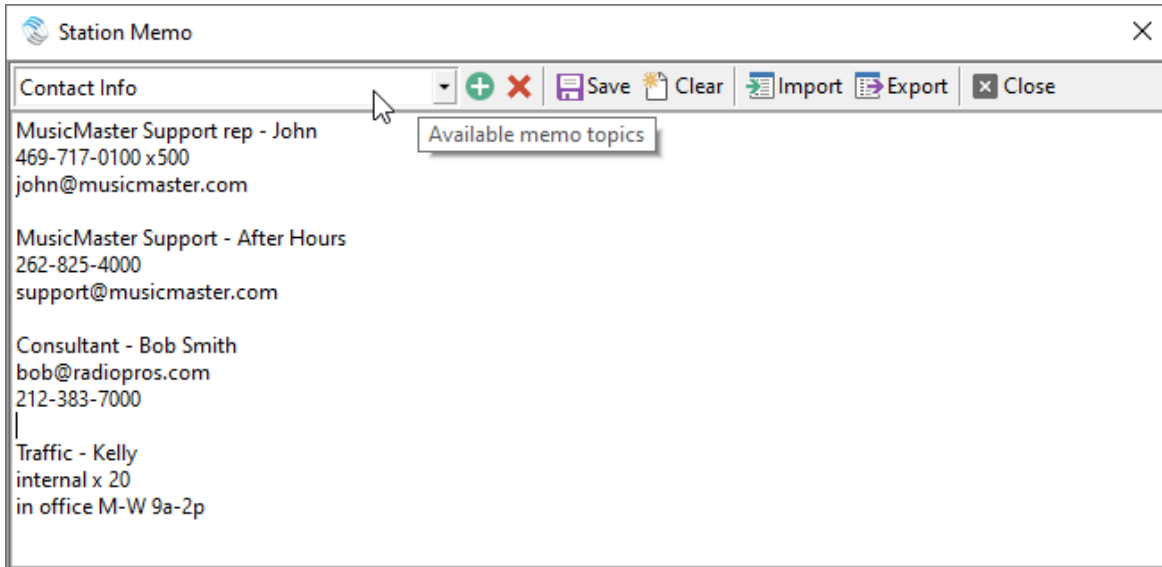
## **STATION MEMO**

The Dataset menu has a new Station memo option available. You might want to use this to keep track of general information, like reference notes, contact info, to do lists, or notes for other staff working in the same station database

They are like the Song Memo you can add as a library field, or the Log Memo you can edit on the Schedule Calendar or Schedule Editor.

Multiple memos can be saved as "Topics" and accessed from the dropdown list. The default topic is called "Station Memo". You can create new topics using the green plus icon, delete selected topics, save the topic, or clear the contents of the text editor.

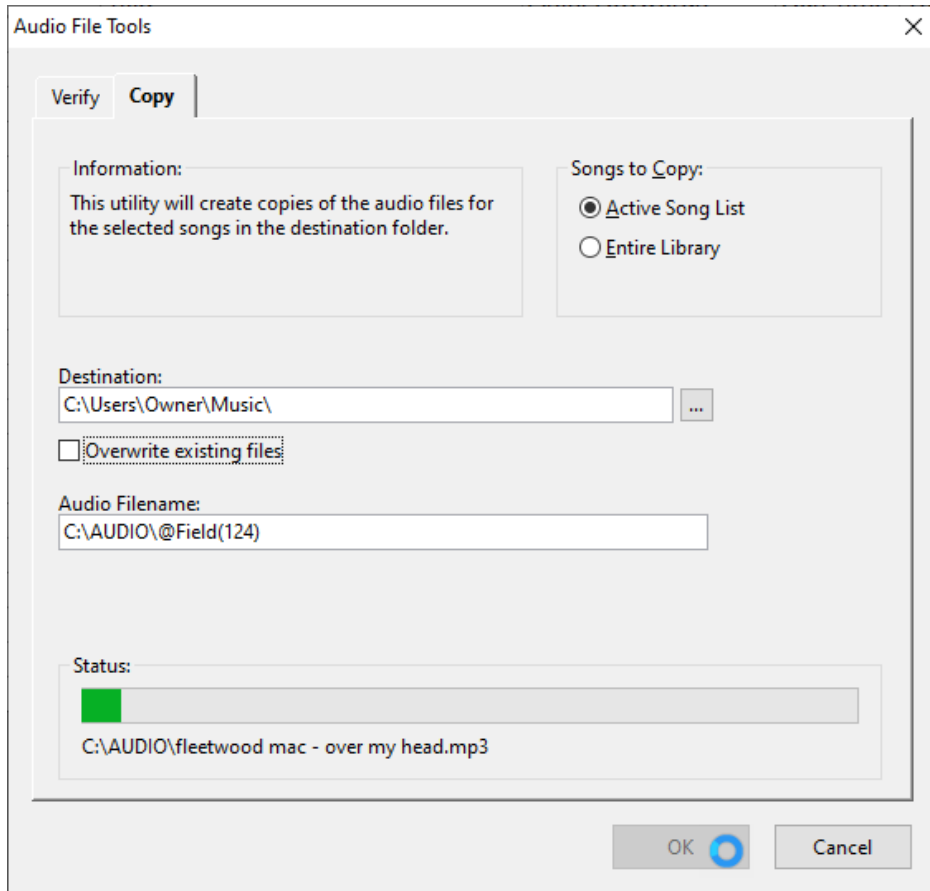
You can also import the contents of an external text file into the Memo editor. Note that you must first create a new topic to hold this text, otherwise you will be alerted that you are about to overwrite the currently open topic. You can also export the contents of an open Topic to a text file.



## **COPY AUDIO FILES WITH “AUDIO VERIFY”**

The Audio Verify dialog in Library Maintenance (Library, Audio, Verify) now contains a second tab that allows you to send a copy of the audio files linked to your songs to a specified folder on your hard drive.

You can either copy the Entire Library, or just the Active Song list. Remember, this is whatever is currently displayed in Library Maintenance: whether a query result, song list, category, or a multi-selection of categories.



If the song already exists in the destination folder, it will be automatically skipped. But there is a checkbox option to overwrite existing files.

After the copying is complete, a report will pop up that shows which songs were copied, which songs already existed (and were skipped), and any songs that had invalid filenames.

# LIBRARY MAINTENANCE

## **NEW LIBRARY QUERY FILTERS**

New Library Query Filters are available for Date fields:

- Matches Current Date
- Within Current Week
- Within Current Month
- Matches Last Scheduled Date
- Within Last Scheduled Week
- Within Last Scheduled Month
- Within Last X Days
- Within Next X Days
- Within Last X Scheduled Days
- Within Next X Scheduled Days

New Library Query Filters are also available for Multiple Keyword fields:

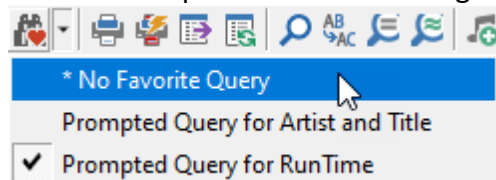
- Primary Keyword Equals
- Primary Keyword Contains
- Count Equals
- Count Does Not Equal
- Count Greater Than
- Count Greater Than or Equal To
- Count Less Than
- Count Less Than or Equal To

New Library Query Filters are also available for Keyword fields and for Song:

- Trivia Start Date Equals
- Trivia Start Date Does Not Equal
- Trivia Start Date Greater Than
- Trivia Start Date Greater Than or Equal To
- Trivia Start Date Less Than
- Trivia Start Date Less Than or Equal To
- Trivia Kill Date Equals
- Trivia Kill Date Does Not Equal
- Trivia Kill Date Greater Than
- Trivia Kill Date Greater Than or Equal To
- Trivia Kill Date Less Than
- Trivia Kill Date Less Than or Equal To

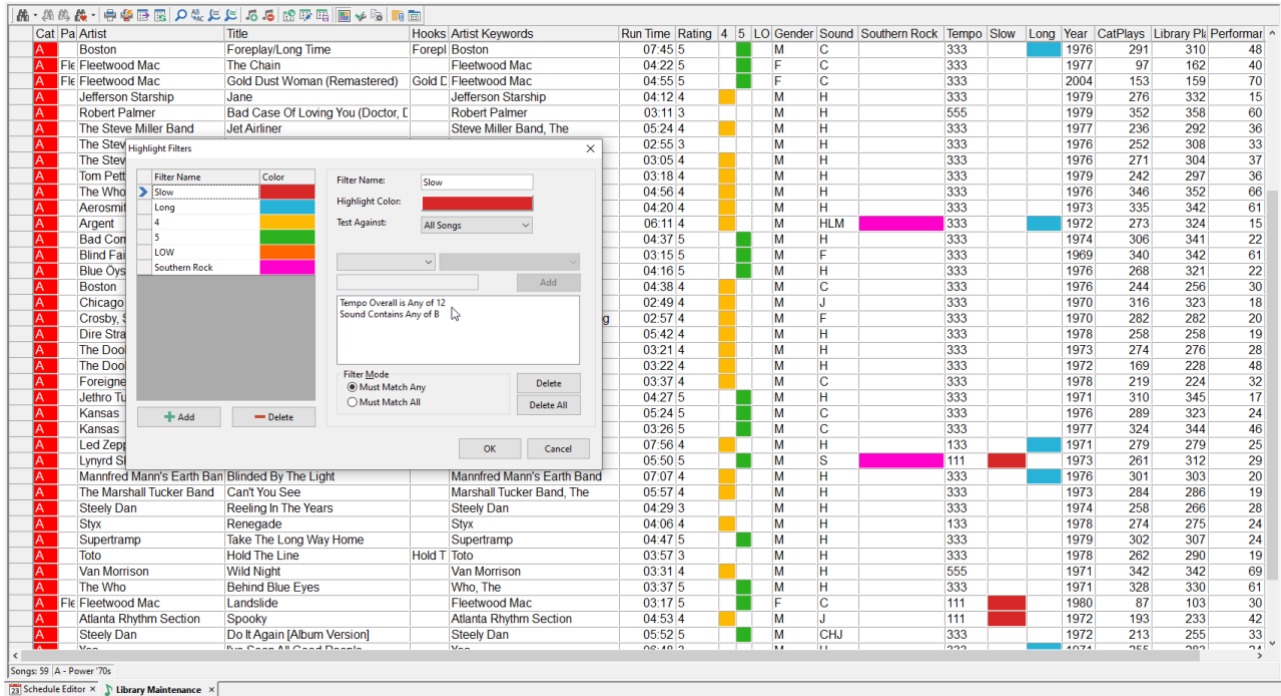
## **CLEAR FAVORITE QUERY**

It is now possible in Library Maintenance to clear the Favorite Query using a new item at the top of the list of queries when selecting the Favorite Query.



## HIGHLIGHT FILTERS IN LIBRARY MAINTENANCE

Just as in the Schedule Editor, highlight filters are now available to setup in Library Maintenance. Highlight Filters are quick way to get a birds' eye view of the type of songs in your library, by assigning different colored cells to certain attributes. The colored cells appear in columns you can add to your Library grid.



For example, as seen in the image above, you might want to set up a Slow Song filter that displays a red cell for all songs that match either Tempo 1 or 2 or have the sound code of Ballad. You can combine attributes in this manner. Now when glancing through your library, you can easily see what proportion of slower songs you have in each category.

You can also right click on a highlight and select all songs that match that color, so you can easily copy and move songs that share certain criteria.

Because you can share Highlights between your Library and Schedule Editor, we've now made it possible to add as many as you'd like.



# FORMAT CLOCKS

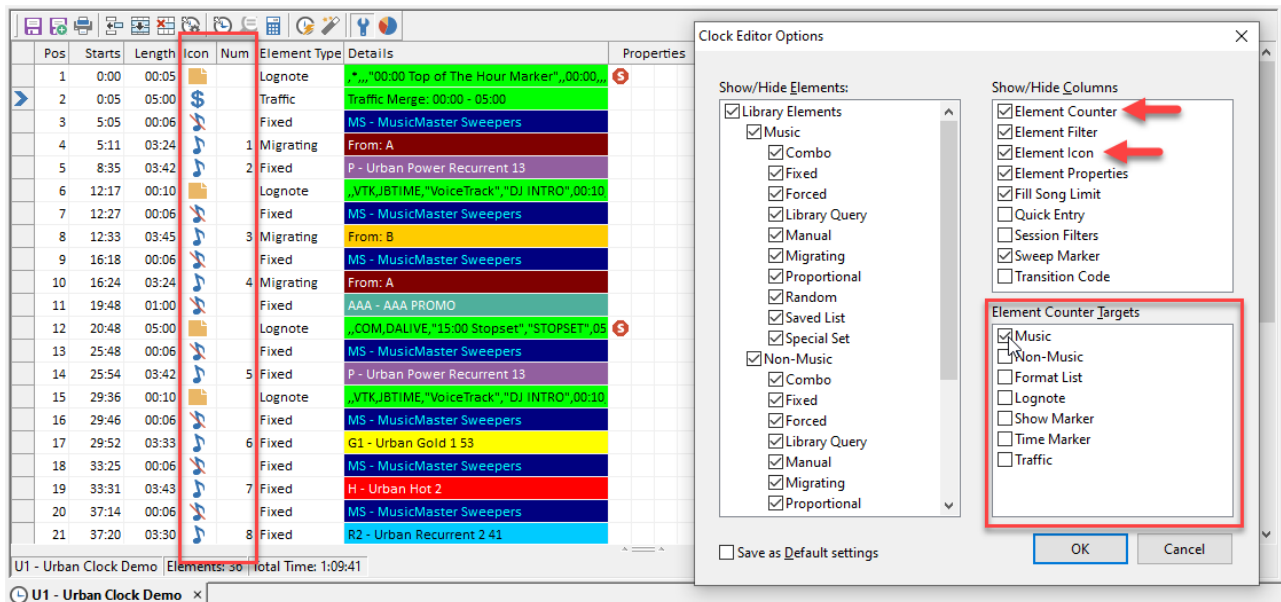
## FORMAT CLOCK EDITOR ENHANCEMENTS

The Format Clock Editor now has a new column that shows different icons to represent the type of element, such as music, non-music, traffic or lognotes.

The Format Clock Editor also has a new column available (Num) that shows a custom element counter, which you can configure to show a count of specific elements. For example, you can select Music only to visualize the count and location of music elements within the hour.

To activate these items, go to Clock Editor Options (wrench icon). On the right side, under Show/Hide Columns, click the checkbox to turn on “Element Icon” and/or “Element Counter” (red arrow in image below)

To configure what the Element Counter is showing, look for the box below Show/Hide Elements (outlined in red below).



## CLOCK ASSIGNMENT GRID – SELECTION PATTERNS

The Clock Assignment Grid now makes it easier to assign clocks in complex combinations or patterns of hours.

Previously, you could select an individual cell or drag the mouse to mark a block of neighboring cells, before selecting a clock in the dropdown, pasting or typing in a clock code. In Version 8, you will now find additional multi-selection options:

1. You can now hold Control down and click individual hour cells to multi-select them, even if they are not next to each other.
2. You can now hold Control down and click both row and column headers to multi-select all hours within. While still holding down Control, you can build any kind of pattern you need. Note that you cannot unselect highlighted cells, so you'll want to build *around* excluded areas.

C2 - CLOCK TWO																								
	12	1A	2A	3A	4A	5A	6A	7A	8A	9A	10	11	12	1P	2P	3P	4P	5P	6P	7P	8P	9P	10	11
Mon	C2		C2		C2		C2		C2		C2		C2								C2		C2	
Tue	C2		C2		C2		C2		C2		C2		C2								C2		C2	
Wed	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2
Thu	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2
Fri	C2		C2		C2		C2		C2		C2		C2								C2		C2	
Sat	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2
Sun	C2		C2		C2		C2		C2		C2		C2								C2		C2	

3. There is a new **Selection Wizard** icon on the toolbar that will select patterns of hours for you. You can select patterns of hours or days, shifts that you have defined, or all cells that match the clock in the current cell (“Match Current Hour”).
4. To only apply a Wizard pattern to selected blocks, first hold Ctrl to select the desired cells, then add the Shift key and select a Wizard option from the dropdown.

* Select Format Clock																								
	12	1A	2A	3A	4A	5A	6A	7A	8A	9A	10	11	12	1P	2P	3P	4P	5P	6P	7P	8P	9P	10	11
Mon		■		■		■		■		■		■											■	
Tue	■		■		■		■		■		■		■									■		■
Wed		■		■		■		■		■		■		■		■		■		■		■		■
Thu	■		■		■		■		■		■		■		■		■		■		■		■	
Fri		■		■		■		■		■		■		■		■		■		■		■		■
Sat	■		■		■		■		■		■		■		■		■		■		■		■	
Sun		■		■		■		■		■		■		■		■		■		■		■		■

Note that (as described in the Wizard’s menu) days are defined by the Broadcast Week settings (set in Tools > Options) with the first day of the Broadcast week (1) being odd. On the other hand, hours are determined by a standard 24-hour clock, so even you’ve set Hour 1 in your Broadcast Day to 2am, it will still be considered even.

## MIGRATING POSITION WIZARD & FLEXRULES ANALYSIS

In Version 8, it's easier than ever to use Migrating Positions with Flex Rules. There's a new wizard for adding Migrating Positions, a Pattern Builder which shows you sample clock assignments, and more display information to indicate potentially problematic FlexRules settings.

### About Migrating Positions

Migrating Positions are not new to MusicMaster Pro Version 8, but in case you have never used them before, here is an overview of how they work.

With this clock element type, you can add variety and spontaneity to your clocks, while still maintaining control. You can add a certain number of Migrating Positions into the clock and specify which categories these slots may be filled by. While scheduling, MusicMaster will assign one of those specified categories to each available Migrating Position. That assignment can be totally random, or you can add layers of control using **FlexRules**.

Here's an example of a clock that uses all Migrating Positions.

The screenshot displays the MusicMaster Pro interface. The top panel shows a clock schedule with 15 positions. The bottom panel shows a FlexRules analysis table.

Pos	Starts	Length	Element Type	QuickEntry	Details	Properties
1	0:00	03:39	Migrating		From: A, B, C, D, F, G, H	
2	3:39	03:39	Migrating		From: A, B, C	
3	7:18	03:39	Migrating		From: A, B, C, D, F, G, H	
4	10:57	03:39	Migrating		From: A, B, C, D, F, G, H	
5	14:36	03:39	Migrating		From: A, B, C, D, F, G, H	
6	18:15	03:39	Migrating		From: A, B, C, D, F, G, H	
7	21:54	00:00	Fixed		NEW - New Songs	
8	21:54	00:30	Lognote		TALK BREAK	
9	22:24	04:00	Traffic		Traffic Merge: 20:00 - 24:00	
10	26:24	00:09	Fixed		IMG - Generic Station Imaging	
11	26:33	03:39	Migrating		From: A, B, C, D, F, G, H	
12	30:12	03:39	Migrating		From: A, B, C	
13	33:51	03:39	Migrating		From: A, B, C, D, F, G, H	
14	37:30	03:39	Migrating		From: A, B, C, D, F, G, H	
15	41:09	03:39	Migrating		From: A, B, C, D, F, G, H	

Category	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue
A - CATEGORY A	14	2	2			A, B, C
B - CATEGORY B	14	2	2			A, B, C
C - CATEGORY C	14	1	1			B, C
D - CATEGORY D	12	1	4			
F - CATEGORY F	12	1	4		2	G, H
G - CATEGORY G	12	1	3		2	F, H
H - CATEGORY H	12	1	2		2	F, G
NEW - New Songs						
KIK - Kickoff Category						
TD - TOP OF HOUR TD						

M1 - Migrating Elements: 22 Total Time: 1:00:24

The FlexRules are set up in the bottom panel. Here's what each column indicates:

**Usage** tells you how many Migrating Positions are available for that category.

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Next, you can specify the **Minimum or Maximum** number of category plays you want per hour or sweep, counted amongst Migrating Positions only.

You can also set a **Minimum Separation** you want to have between plays of the same category. Unlike the Min/Max, this will take into consideration all other category positions in your clock.

*Note: If you don't want Non-Music categories to be counted, go to Tools > Options > Additional Properties, and under the Clocks header change FlexSkipNonMusic to 1*

Finally, in the **NoSegue** column, you can specify any other categories that *this* category is not allowed to play against. This also looks at all other category assignments in your clock.

For more on Migrating Positions, check out this blog article: <https://musicmaster.com/?p=866>

## New to Version 8

### Live Entry Warning

Previously, MusicMaster would warn users if some of their FlexRules were potentially problematic or not mathematically possible. In Version 8, MusicMaster will now detect even more potential issues.

Just like before, you will be warned if the minimum category plays exceed the number of available migrating positions. But now, as an example, you'll also be warned if your minimum separation value or "no segue" settings will prevent that category from meeting the minimum quota. The entry will appear red, and you can mouse over that cell to see a tooltip that explains what the problem is.

	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue
GHT	13	1	1			
	13		1			
	13	5	5		3	
	13	4	4		1	
	13		1			S A, B, F, I
	13		1			S A, B, E, I
MENTALS	13		1			S E, F
MAS						
	2	1	1			
	2	1	1			
DNGS						
N						
	15	12	16			

ating Clock | Elements: 19 | Total Time: 1:01:52

Note that this real-time FlexRule analysis will not uncover every single impossible condition that can be created by these settings, because a full real-time analysis of a very complex clock would create unwanted delay.

### New Information Panel

There is also a new Migrating Positions tab on the information panel that can be displayed on the right side of the Format Clock Editor. This new Migrating panel shows:

- **Information** about the Migrating Positions currently in use, or if no Migrating Positions are in use, a link to Help Documentation about them
- **Wizard** function to create Migrating clock elements. (More details later)
- **Pattern Builder:** There is an Analysis button that uses the same functionality as the Automatic Scheduler to create an actual set of category assignments for the elements in your clock, which you can use to see sample outcomes. When used, a “Sample” column will open on the clock grid showing the category assignments. You can click the button again to see another potential pattern. If you make a change to your Migrating Positions, the column will close and you can run the analysis again to test your new settings. (More details below)
- **Analysis Results:** FlexRules that cause conflicts and issues will be noted in the results grid at the bottom of the editor, and are also highlighted in the FlexRules grid with explanatory tooltips. When running the Analysis multiple times, you will see statistics on the ongoing success or failure rate, which indicate how easily the Automatic Scheduler will be able to fulfill your chosen settings. (More details later)

The screenshot displays the software interface for managing a clock. It features a main grid with columns for Position (Pos), Start time, Length, Icon, Number (Num), Element Type, Details, Sample, and Operation. Below this is a table for Category Usage, and on the right, an Analysis panel with various statistics and warnings.

Pos	Starts	Length	Icon	Num	Element Type	Details	Sampl	Operate
1	0:00	00:03			Special Set	From: N (Next Hooks - Pass 1)		
2	0:03	04:11			Proportional	A (33.33%), A2 (33.33%), B (33.33%)	A2	
3	4:14	04:38			Migrating	From: A3, B2, 9, 6, AS	6	
4	8:52	04:11			Fixed	A2 - Secondary '70s	A2	
5	13:03	04:06			Fixed	A - Power '70s	A	
6	17:09	04:38			Migrating	From: A3, B2, 9, 6, AS	A3	
7	21:47	04:16			Fixed	B - Power '80s	B	
8	26:03	04:38			Migrating	From: A3, B2, 9, 6, AS	AS	
9	30:41	02:02			Fixed	COM - Commercials	COM	
10	32:43	00:03			Fixed	N - Imaging	N	
11	32:46	04:11			Proportional	A (50.00%), B (50.00%)	A	
12	36:57	04:38			Migrating	From: A3, B2, 9, 6, AS	6	
13	41:35	04:11			Proportional	A (33.33%), A2 (33.33%), B (33.33%)	A2	
14	45:46	04:38			Migrating	From: A3, B2, 9, 6, AS	A3	
15	50:24	02:02			Fixed	COM - Commercials	COM	
16	52:26	00:03			Special Set	From: N (Next Hooks - Pass 1)		
17	52:29	04:11			Proportional	A (33.33%), A2 (33.33%), B (33.33%)	B	
18	56:40	04:38			Migrating	From: A3, B2, 9, 6, AS	B2	
19	1:01:18	04:11			Fixed	A2 - Secondary '70s	A2	
20	1:05:29	04:06			Fixed	A - Power '70s	A	
	1:09:35							

Category	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue	Sample
A - Power '70s							
A2 - Secondary '70s							
A3 - Tertiary '70s	6	2			2	A, A2, B2	2
AR - Tertiary '70s REST							
B - Power '80s							
B2 - Secondary '80s	6		2			A3	1
BR - Secondary '80 Rest							
9 - '90s	6		1			6	
6 - '60s	6	1	2			9	2
6R - '60s Rest							
AS - Specials	6	1	1				1
S8 - Super 80s							

**Analysis Panel:**

- Information:** Migrating positions help you create dynamic Format Clocks that move your music elements around to keep your station sounding fresh and less predictable. You control which categories can be moved and set limits to ensure that this variety conforms to your music rotation needs.
- 6** This Format Clock contains 6 Migrating Positions. FlexRules are in use.
- Create Migrating Positions using a wizard**
- Analysis:** Build a sample hour from this Format Clock and FlexRules by clicking the button below. New columns will open in both grids that show what categories would be scheduled in each position and how many Migrating Positions will use each Category.
- Perfect Pattern Found**  
Average Time: 0.068 sec.
- This Pattern**  
Patterns Considered: 2  
Calculation Time: 0.079 sec.
- All Patterns**  
Number of Attempts: 12  
Total Patterns Considered: 24  
Total Calculation Time: 0.815 sec.
- A3 - Tertiary '70s**  
Minimum Separation - Failure Rate: 25.0%
- AS - Specials**  
Maximum per Hour - Failure Rate: 12.5%
- 6 - '60s**  
Maximum per Hour - Failure Rate: 8.33%
- A3 - Tertiary '70s**  
No Segue - Failure Rate: 8.33%

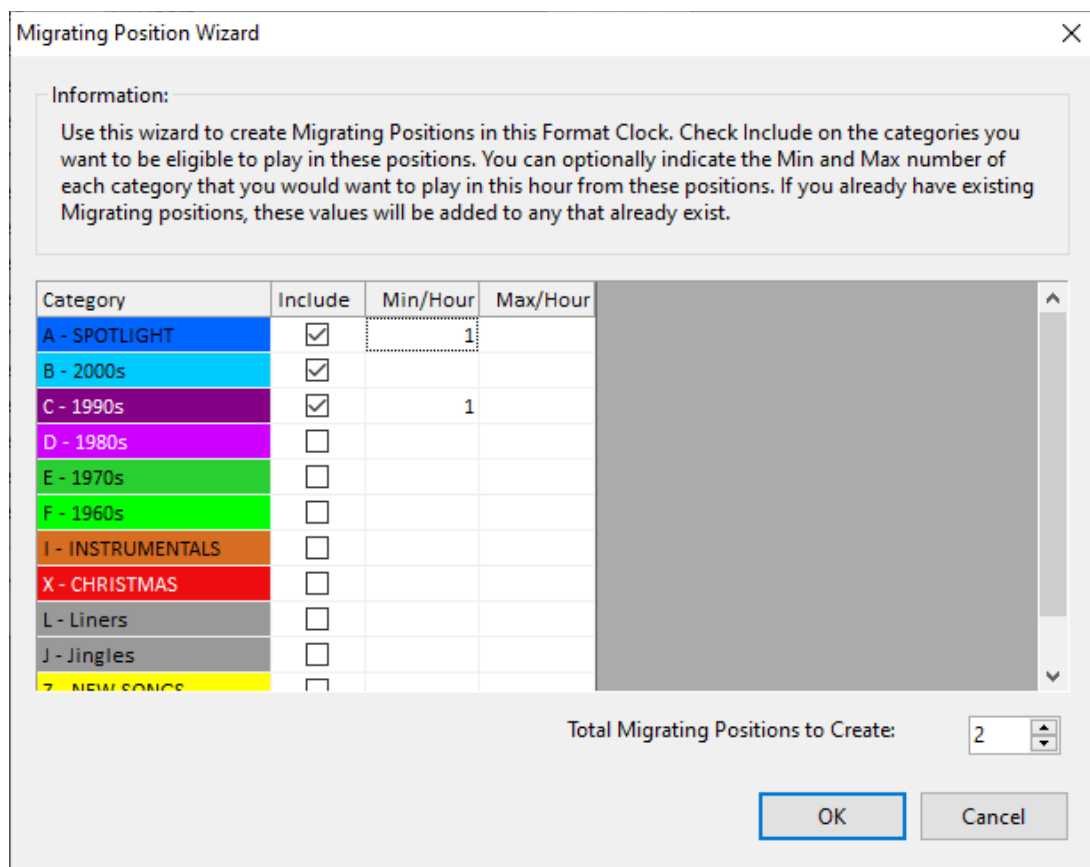
## Migrating Positions Wizard

You can run the Wizard to set up a set (or sets) of Migrating Positions in your clock. You can

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select the categories that you wish to include in these new clock elements by checking the “Include” box. Then, if you wish, you can set a minimum and/or maximum quota for those categories. The Wizard will calculate the number of positions required to make this possible, which you can adjust to a higher value if you like. Then click OK to create the positions. If you entered Min/Max quota settings, those will be transferred to the FlexRules. Your new positions will appear at the end of your clock, and you can move them to the desired slots.

This is a simple tool designed to create one set of clock elements that all have the same category assignments. You can run it more than once to create more. If you try to use it to create multiple sets of elements that include overlapping categories, it will do the best it can to adjust the FlexRule settings properly, but there are limits to the complexity that this will achieve.



If the Wizard is run with the settings shown above, it will add to the clock and Flex Rules as shown:

19	1:02:23	00:00		Time Marker	Hour Timing: 59:00 - 60:00
20	1:02:23	00:00		Lognote	
21	1:02:23	04:08		Migrating	From: A, B, C
22	1:06:31	04:08		Migrating	From: A, B, C
23	1:10:39	04:08		Migrating	From: A, B, C
	1:14:47				

Category	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue
A - SPOTLIGHT	3	1				
B - 2000s	3					
C - 1990s	3	1				
D - 1980s						

### Pattern Builder Tool Analysis

The Analysis section contains the Pattern Builder tool which assigns a category to every music element in your clock, attempting to create a complete and valid hour that satisfies all of your settings. When it does this, it will open new "Sample" columns in both the Clock and FlexRule grids to show you the results. This gives you a nice way to show a "What If" version of how this clock might look like as part of an actual log. Here is an example clock:

Pos	Starts	Length	Icon	Num	Element Type	Details	Sampl	Properties
1	0:00	00:10			Fixed	L- Legal ID's	L	
2	0:10	04:14			Migrating	From: A, B, C	A	
3	4:24	04:00			Fixed	A - Power '70s	A	
4	8:24	04:14			Migrating	From: A, B, C	C	
5	12:38	04:33			Fixed	B - Secondary '70s	B	
6	17:11	04:14			Migrating	From: A, B, C	B	
7	21:25	04:09			Fixed	C - Power '80s	C	
8	25:34	04:14			Migrating	From: A, B, C	B	
9	29:48	04:14			Proportional	A (33.33%), B (33.33%), C (33.33%)	C	
	34:02							

Category	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue	Sample
A - Power '70s	4	1	5			B	1
B - Secondary '70s	4	1	4			A	2
C - Power '80s	4	1	4			A	1
D - Secondary '80s							
E - '90s							

Pie View | Category Usage | Element Usage | Migrating

Information:

Migrating positions help you create dynamic Format Clocks that move your music elements around to keep your station sounding fresh and less predictable. You control which categories can be moved and set limits to ensure that this variety conforms to your music rotation needs.

**4** This Format Clock contains 4 Migrating Positions. FlexRules are in use.

Create Migrating Positions using a wizard

Analysis:

Build a sample hour from this Format Clock and FlexRules by clicking the button below. New columns will open in both grids that show what categories would be scheduled in each position and how many Migrating Positions will use each Category.

Perfect Pattern found  
Calculation Time: 0.094 sec.

**This Pattern**  
Patterns Considered: 1

As you can see, after the Pattern Builder was run, the Sample column in the clock shows an example of category assignments that may have been made by the Scheduler. Not only will you see Migrating Positions, but also selections from all other element types in the clock.

Any Fixed or Forced elements will reflect the assigned category. For a Combo position, you'll always see the primary category selected. If you have a Proportional Element, each time you run the Pattern Builder, it will choose a category at random based on the proportions you've

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specified. For Format Lists, the category that is chosen depends on your list settings. For example, you may have specified that the Scheduler should pick the First, Next or a Random element from the list. The Pattern Builder will do the same. Note that “Next” will reflect the item that would have been used in the next scheduling session.

When the Pattern Builder finds issues, it will show highlighting in the FlexRule Grid along with explanatory tooltip text. Like a status bar, the highlighting will show the relative failure rate of each FlexRule setting, with the worst offending settings in red. The information panel also displays things like how many attempts resulted in a valid pattern, the overall success rate, and explanatory text of each FlexRule that contributed to the problem. This is sorted to show the most difficult to pass FlexRules first.

After running the Pattern Builder a few times on this example clock, you will start to see a problem emerge. Any time Category A is selected for the last Proportional element, no valid pattern can be found. However, when the Proportional element is B or C, there is a pattern that works. This is reflected in the success rate, which is around 63%.

The screenshot shows the Pattern Builder interface. The main grid lists FlexRules with columns for Position, Start, Length, Icon, Number, Element Type, Details, Sample, and Properties. Below the grid is a table showing category usage and failure rates.

Category	Usage	Min/Hour	Max/Hour	Max/Sweep	Min Sep	No Segue	Sample
A - Power '70s	4	1	5			B	1
B - Secondary '70s	4	1	4			A	1
C - Power '80s	4	1	4			A	1
D - Secondary '80s							
E - '90s							
G - '60s							
D2 - Secondary '80 Rest							
B2 - Secondary '70s Rest							
G2 - '60s Rest							

The information panel on the right shows the following analysis:

- 4** This Format Clock contains 4 Migrating Positions. FlexRules are in use.
- Create Migrating Positions using a wizard
- Analysis:** Build a sample hour from this Format Clock and FlexRules by clicking the button below. New columns will open in both grids that show what categories would be scheduled in each position and how many Migrating Positions will use each Category.
- No Pattern Found**
- This Pattern:** Patterns Considered: 54, Calculation Time: 0.111 sec.
- All Patterns:** Number of Attempts: 8, Total Patterns Considered: 179, Total Calculation Time: 0.827 sec, Perfect Patterns Found: 5, Success Rate: 63%
- B - Secondary '70s:** No Segue - Failure Rate 52.94%
- C - Power '80s:** No Segue - Failure Rate 47.06%

In the above image, you can see high rates of failure for the category B and C No Segue settings. This tells you where the problem lies. Category A cannot play before B, B cannot play before A, and C cannot play before A. When you factor in the other Fixed Elements, only A can be used the first Migrating Position, only C can go in the second and only B can go in the third. Not much for variety!

This also explains why no pattern can be found when the Proportional Element happens to



come up as Category A, because it can't segue with Category C in the Migrating Position above.

It's important to note here that Proportional and other multiple-category type elements are assigned according to their own properties and are not influenced by the FlexRules. Depending on the order in which categories are scheduled, these various elements will need to work around each other in ways that are difficult to predict through this Analysis.

### **How to Make Adjustments**

After seeing the results of multiple attempts, you must decide if and how you want to adjust your FlexRules.

First, if *no* valid pattern is ever found after many attempts, your FlexRule settings may be impossible to fulfill and the Scheduler may end up having to leave a position unscheduled. You'll probably want to make some kind of adjustment.

If a valid pattern is only found *some* of the time (lower Success Rate), you know that while not impossible, the Scheduler will have a harder time filling your Migrating Positions and this may slow things down. If you can get away with some adjustments, it is recommended.

But what to change? In many cases, it will be obvious which Flex Rule setting is the problem. However, some of these issues are due to a combination of settings, and you'll have to decide which is your *priority*.

For example, if you require a minimum of three category plays but this will not be possible due to your NoSegue rules, you'll have to decide what's more important to you and which you'd rather sacrifice: you could lower the minimum quota of plays or remove the segue restrictions.

In the example used throughout the previous section you may decide to remove your segue restrictions. But if those are really important to you, you could change the Proportional element so it never has a conflict. Or, since you know it works *some* of the time, you could leave it alone. If you do that, then for those times when the Auto Scheduler can't find a pattern that works, you can fill in the position manually. Whichever route you takes depends on your own programming style.

Once you've made changes to your clock and Flex Rules, you can try running the Analysis again and see if these issues improve. Keep trying until you get a result you are happy with. As always, if you'd like assistance, MusicMaster support is here to help.

## SCHEDULE EDITOR

### RECOMBINANT SCHEDULING

With every major version release, we try to introduce an innovative Scheduling method that works under the hood to give better results. In Version 8, there is a new mode called Recombinant Scheduling. It appears as an option in the Search Depth window (Schedule Properties).

This is a special function that was designed for fast rotation priority categories (search depth of 1) and for stations that struggle to separate multiple songs by the same contributing artists that are in high rotation.

This situation creates difficulties in passing artist separation rules because the songs in your priority categories can only play in the schedule order defined for their category. This can lead to Unscheduled Positions, which previously, users have had to fill and juggle manually.

Likewise, even if users only use Breakable separation rules for their priority categories, there are still going to be some instances where those breakable rules can't be met, and the artist separation is not ideal.

Recombinant Scheduling allows MusicMaster to juggle these songs around within the positions available for that category in the same hour they would naturally play in to find the best combination. Just like a programmer would do manually, it relaxes both the Unbreakable and/or Breakable rules only so far as needed to make *something* work. The goal is to have no Unscheduled positions, and the best position of those songs within the hour to reduce conflicts.

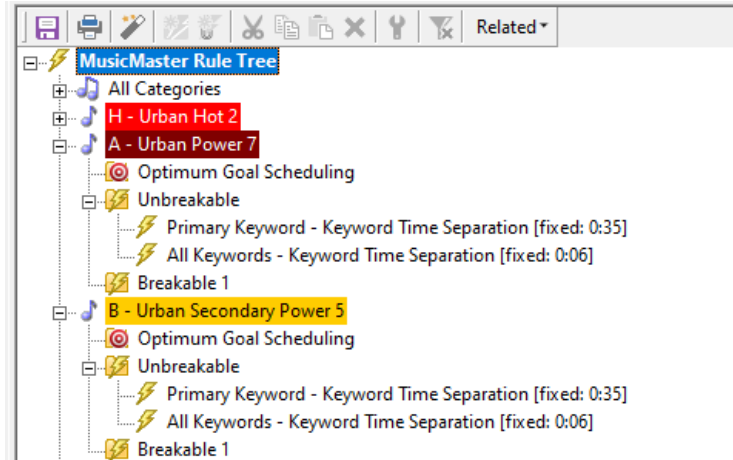
This saves the programmer time trying to make those changes manually and is more likely to find the least rule violating pattern.

**NOTE:** While the Scheduler is of course looking backwards across hours to find artist conflicts, the shuffling itself only happens within the hour. That way, Hour Rotation for those songs are not impacted, as they will still play within the intended hour, just in a different order within that hour.

To use Recombinant Scheduling mode on a category, go to Schedule Properties and select it as an option from the Search Depth dropdown. Note that if you want to use Recombinant Scheduling in some dayparts and not others, you can use the Levels feature. This allows you to assign a certain selection of search depth settings to a specific daypart, stored as a Level.

#### **Example Use**

The following shows an example of how Recombinant Scheduling helps schedule two priority categories with overlapping artists.



Your rule settings are up to you, and either Breakable or Unbreakable rules will still work in conjunction with Recombinant Scheduling. As always, you can adjust your rule settings until you get the results you desire. For this example, we choose the rule settings illustrated above.

You can see the result in the following log. Here, the song schedule order is marked using the numbers in the Q column, as well as within the song title.

The blue highlighted songs by DJ Khaled would have been in conflict if they'd scheduled in order at 1:44am and 2:11am (less than 35 min apart). As you can see, MusicMaster instead played the third song in the stack at 2:11am, and saved Song 2 ("Shining") for the next position.

s	AirTime	Cat	Q	Int / Artist	Title	Primary Keyword	All Keywords	Runs	Sound	Tempo	Mood	Mood 1	CHR
	12:41:21a	A	2 08	Dj Khaled F/Beyonce & Jay Z	Shining (2)	DJ KHALED	DJ KHALED	04:40	H	5	2		
	12:55:50a	C	03	Jeremih F/Chris Brown	I Think Of You	JEREMIH	JEREMIH	03:37	R	5	2		
	01:00:00a			UT - Urban Clock Recombinar	Sunday, August 15, 2021 1AM			00:00					
	01:00:05a	A	6 02	Kendrick Lamar	HUMBLE. (6)	KENDRICK LAMAR	KENDRICK LAMAR	02:58	H	2	3		
	01:07:07a	B	5 03	Fat Joe & Remy Ma	Money Showers (5)	FAT JOE	FAT JOE	03:45	H	2	2		
	01:10:58a	A	7 03	2 Chainz	Good Drank (7)	2 CHAINZ	2 CHAINZ	03:42	H	1	1		
	01:28:23a	H	01	Migos	T-Shirt	MIGOS	MIGOS	04:01	H	2	2		
	01:40:04a	B	1 03	Drake F/Quavo/Travis Scott	Portland (1)	DRAKE	DRAKE	03:56	H	1	2		
	01:44:06a	A	5 12	Dj Khaled	Location (5)	DJ KHALED	DJ KHALED	03:37	R	3	1		
	01:57:32a	C	20	Kendrick Lamar. F/ Rihanna	LOYALTY	KENDRICK LAMAR	KENDRICK LAMAR	03:47	H	5	1		
	02:00:00a			UT - Urban Clock Recombinar	Sunday, August 15, 2021 2AM			00:00					
	02:00:05a	A	1 05	Joe Gifted	Water (Dirty) (1)	JOE GIFTED	JOE GIFTED	02:44	H	1	2		
	02:06:53a	B	2 06	Khalid F/Bieber/Quavo...	I'm The One (2)	KHALID	KHALID	04:48	CH	3	2		
	02:11:47a	A	3 04	Future	MASK OFF (3)	FUTURE	FUTURE	03:24	H	2	3		
	02:28:54a	H	00	Bruno Mars	That's What I Like	BRUNO MARS	BRUNO MARS	03:25	C	1	2		
	02:39:59a	B	3 00	Big Sean	Moves (3)	BIG SEAN	BIG SEAN	02:20	H	2	2		
	02:42:25a	A	2 08	Dj Khaled F/Beyonce & Jay Z	Shining (2)	DJ KHALED	DJ KHALED	04:40	H	5	2		
	02:56:54a	C	05	Migos F/Gucci Mane	Slippery	MIGOS	MIGOS	05:12	H	2	2		
	03:00:00a			UT - Urban Clock Recombinar	Sunday, August 15, 2021 3AM			00:00					
	03:00:05a	A	6 02	Kendrick Lamar	HUMBLE. (6)	KENDRICK LAMAR	KENDRICK LAMAR	02:58	H	2	3		
	03:07:07a	B	4 11	Yfn Lucci F/Pnb Rock	Everyday We Lit (4)	YFN LUCCI	YFN LUCCI	03:17	H	2	2		
	03:10:30a	A	4 28	Gucci Mane F/Drake	Both (4)	GUCCI MANE	GUCCI MANE	03:11	H	2	2		
	03:27:24a	H	01	Migos	T-Shirt	MIGOS	MIGOS	04:01	H	2	2		
	03:39:05a	B	5 03	Fat Joe & Remy Ma	Money Showers (5)	FAT JOE	FAT JOE	03:45	H	2	2		
	03:42:56a	A	5 12	Dj Khaled	Location (5)	DJ KHALED	DJ KHALED	03:37	R	3	1		
	03:56:22a	C	08	Rick Ross	Trap Trap Trap	RICK ROSS	RICK ROSS	04:35	H	1	2		

<b>Aug 15</b>	<b>2AM</b>	Primary Keyword	Primary Keyword	All Keywords	All Keywords
		- 2:08 + 2:45	08/15/21 12:00a 08/15/21 5:00a	- 2:08 + 2:45	08/15/21 12:00a 08/15/21 5:00a

Sun 8/15/2021 2AM | 66:02 (+06:02) | 16:06 | Shift 1 | 2AM Total Elements: 35

## SCHEDULE:CLOCK CATEGORY

A new column can be displayed in the Schedule Editor grid layout. 'Schedule:Clock Category' shows the category originally called for from the Format Clock for Fixed Category type clock elements. This will help you keep better track of changes as you are editing your log. Non-fixed categories will show a question mark, as they did not have a specified category assignment prior to scheduling

In the below example, we've replaced a song from A2 at 4:29am with a song from the AR category. You can see the original category A2 reflected in the s:ClockCategory column.

s: AirTime	Cat	s: ClockCategory	Artist	Title	Tem	SLO	s: Run	Long	R	4
04:00:00a			C2 - CLOCK TWO	Tuesday, August 10, 2021 4AM			00:00			
04:00:00a	L	L	Legal ID	Top of Hour ID Four			00:10			
04:00:10a	B	B	Aerosmith	Dude (Looks Like A Lady)	33		04:23		3	
04:04:33a	A3	A3	Gregg Allman	Midnight Rider	33		04:23			
04:08:56a	9	?	The Doobie Brothers	What A Fool Believes	33		03:39		2	
04:12:35a	A2	A2	Bob Dylan	Knockin' On Heaven's Door	11		02:29		4	
04:15:04a	A	A	Steely Dan	Reeling In The Years	33		04:29		3	
04:19:33a	B2	?	John Mellencamp	Rain On The Scarecrow	33		03:41		2	
04:23:14a	COM	COM	Live365	ADBREAK_120000			02:00			
04:25:14a	B	B	ZZ Top	Sharp Dressed Man	33		04:09		3	
04:29:23a	AR	A2	Blackfoot	Train, Train	33		02:54		2	
04:32:17a	A	A	Robert Palmer	Bad Case Of Loving You (Doctor, Doctor)	55		03:11		3	
04:35:28a	9	?	Fleetwood Mac	Peacekeeper (Single Mix)	33		03:39		3	
04:39:07a	A3	?	Supertramp	Bloody Well Right	11		04:11		4	
04:43:18a	B	B	Three Dog Night	One	33		02:59		4	
04:46:17a	COM	COM	Live365	ADBREAK_120000			02:00			
04:48:17a	A	A	Joe Cocker	Feeling Alright	33		04:05		3	
04:52:22a	6	6	The Moody Blues	Nights In White Satin	33		07:20		5	

Current Date	Current Hour	Min Rest	Artist Keywords	Artist Keywords	Hour Rotation	Fail Alert
Aug 10	4AM	- 30d 4:44	- 29d 11:51	07/11/21 4:31p	10p 3p 2a 11p 4am	

Now 12A 1AM 2AM 3AM 4AM 5AM 6AM 7AM 8AM 9AM 10A 11A 12P 1PM 2PM 3PM 4PM 5PM 6PM 7PM 8PM 9PM 10P 11P

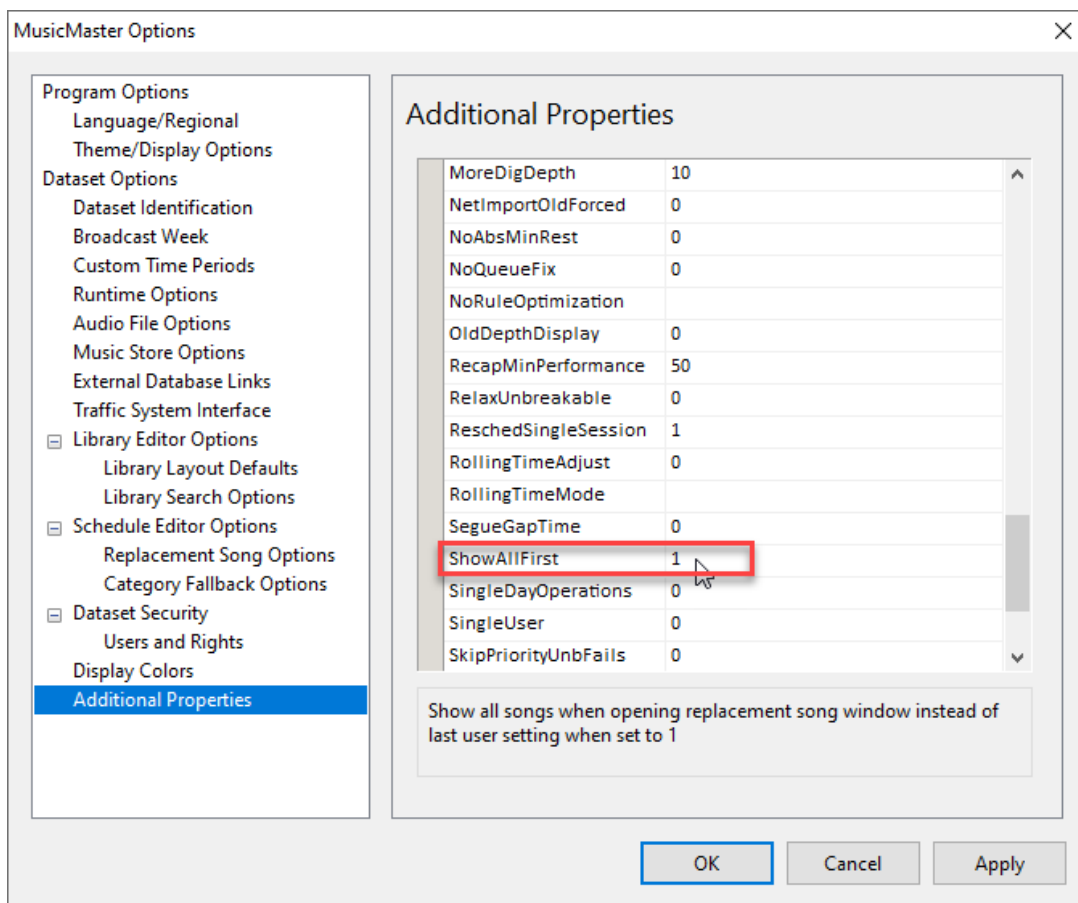
Tue 8/10/2021 4AM | 59:42 (-00:18) | 99:59 | Morning Drive | 4AM Total Elements: 17

## **REPLACEMENT SONGS WINDOW: SHOW ALL AVAILABLE SONGS BY DEFAULT**

Normally, the Replacement Songs window (F9) in the schedule editor will open with the last test filter mode active. Test filter mode refers to the flag icons, which allow you to see a list of songs within your search depth that broke no rules (perfect songs), those that only failed Breakable Rules, and all available songs in the search depth.

If you prefer to always start with all available songs and narrow down from there, you can now program the Schedule Editor Replacement Songs (F9) window to start by showing all available songs by default, rather than loading that last used test filter mode.

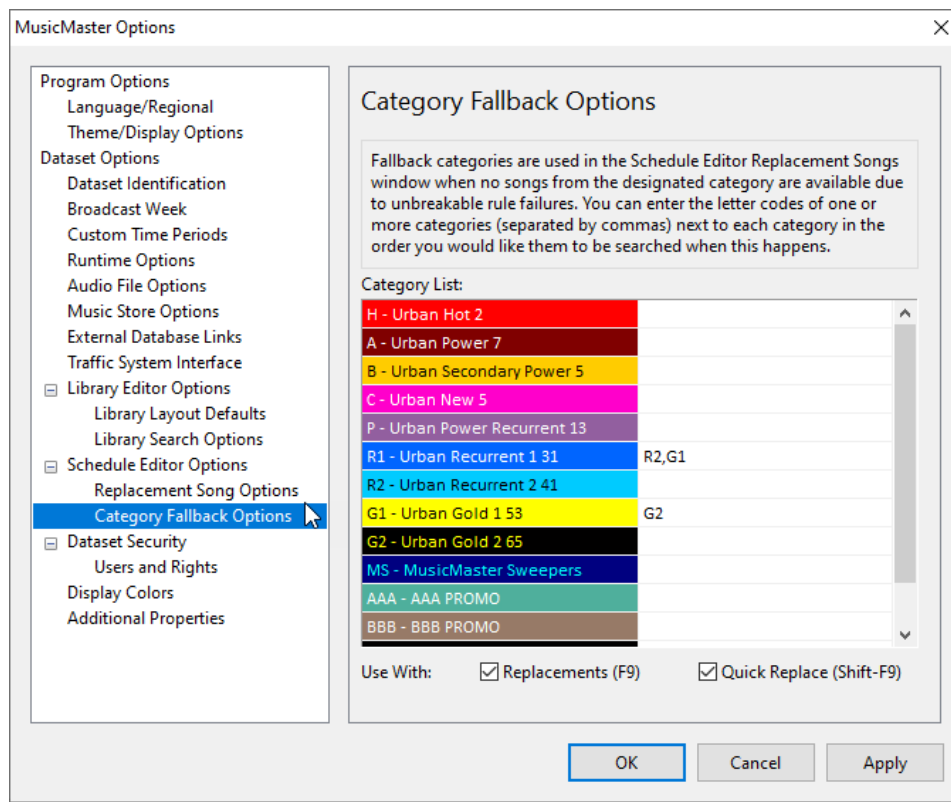
This setting is in Tools, Options, Additional Properties under Schedule > ShowAllFirst



## **FALLBACK CATEGORY**

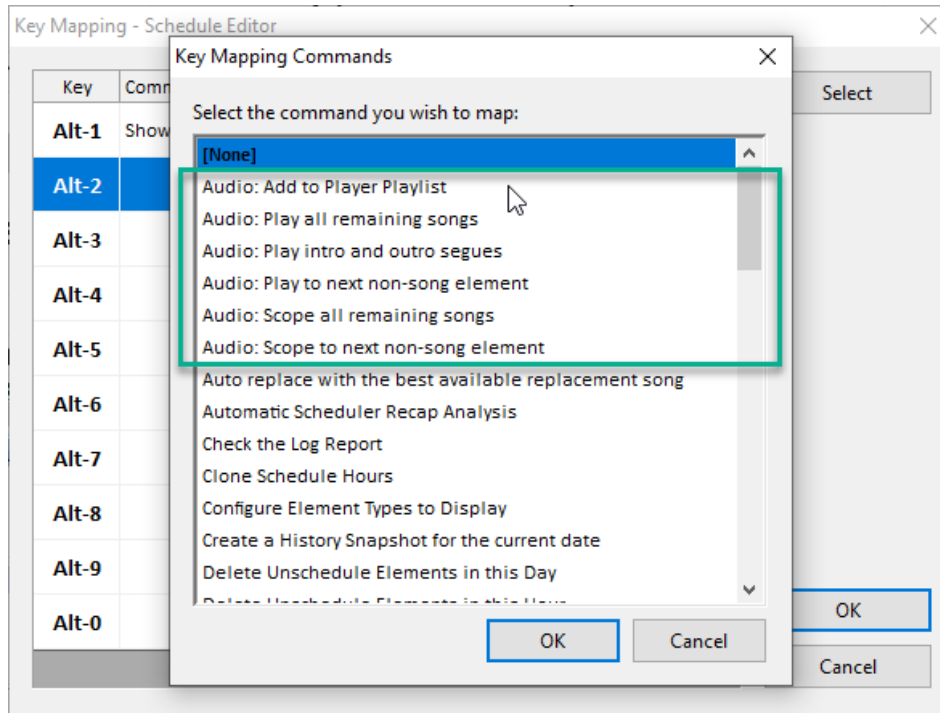
A new Fallback Category feature is now available in the Schedule Editor. This allows you to assign one or more alternate categories for each available category that can be searched if the Replacement Songs window or Shift-F9 cannot find any songs that do not violate unbreakable rules. The Schedule Editor will show you songs from the first listed category, and then if there are no perfect songs there, it will fall back to the next category listed, and so on.

You can enable this feature for use with F9, Shift-F9 or both in the setup for this feature, which is found in Tools, Options in the Schedule Editor section. Note that its use for F9 is checked on by default.



## **NEW CUSTOM KEY MAPPING OPTIONS**

There are several new options in the Key Mapping tool in the Schedule Editor (Schedule menu > Key Mapping). These give quick access to various audio playback functions which are also found on the Schedule Editor context menu.



## **READY CHECK ADDED TO DATASET MENU**

For convenience, the Schedule Ready Check function is now available on the main menu under Dataset > Schedule. If you're not familiar, Ready Check will help you see if certain important criteria have been met in your scheduled log. For example, you can check for missing audio, unscheduled positions, loose or missing traffic spots, whether your Airplay Contracts are being met, and that your hours and days are timing out as you expect. In addition to now being able to find Ready Check in the Dataset menu, you can also add it as an operation button to the bottom toolbar in the Scheduling Calendar (right click and select Customize). Or you can right click on a day in the Calendar and select Perform Ready Check from the context menu.

## HISTORY BROWSER

### HISTORY BROWSER: FIRST/LAST PLAY

The History Browser can now show the first and/or last play of songs or coding values that you may be studying in the grouped history modes (anything but Individual plays). It will show the date and time of the first or last play within the time period you are studying. To access this, go to Display Options settings (wrench icon).

If your display mode is set to something other than Individual Plays, then you'll see two new options in the Properties box below. Change Show First Play and/or Show Last Play to Yes. Like other properties set here, once changed, Show First/Last Play will remain turned on for all display modes (except Individual Plays) each time you run the History Browser.

The screenshot displays the History Browser interface. The main window shows a table of song plays with columns for Description, Spins, Min, Avg, Max, Dev, First Play, and Last Play. Below the table is a pie chart showing the distribution of spins, with a legend indicating 'This Element: 10 (5.95% Percent)' and 'Remainder: 158 (94.05% Percent)'. The 'Spins Density' dropdown is set to '6/7/2020 12A through 6/7/2020 11P' and 'Unique Values: 19 (Total Spins: 168)'. The 'History Browser Options' dialog box is open, showing the 'Display' tab. The 'Display Mode' is set to 'Artist'. Under 'Properties', the 'Display Options' section is expanded, and 'Show First Play' and 'Show Last Play' are both set to 'Yes'.

Description	Spins	Min	Avg	Max	Dev	First Play	Last Play
2 Chainz	10	1:56	2:16	2:45	0:49	Sun 06/07/2020 12:43am	Sun 06/07/2020 9:43pm
Big Sean	10	1:56	2:31	2:58	1:02	Sun 06/07/2020 12:08am	Sun 06/07/2020 11:08pm
Bruno Mars	12	1:55	1:56	1:59	0:04	Sun 06/07/2020 1:29am	Sun 06/07/2020 11:27pm
DJ Khaled	11	1:55	2:14	2:39	0:44	Sun 06/07/2020 12:00am	Sun 06/07/2020 11:00pm
DJ Khaled F/Beyonce & Jay Z	10	2:05	2:15	2:30	0:25	Sun 06/07/2020 1:10am	Sun 06/07/2020 10:11pm
Drake F/Quavo/Travis\$ Scott	9	1:55	2:25	2:56	1:01	Sun 06/07/2020 2:07am	Sun 06/07/2020 10:07pm
Fat Joe & Remy Ma	9	2:23	2:26	2:30	0:07	Sun 06/07/2020 1:40am	Sun 06/07/2020 9:39pm
Future	10	2:08	2:16	2:31	0:23	Sun 06/07/2020 1:44am	Sun 06/07/2020 10:46pm
Gucci Mane F/Drake	10	2:07	2:18	2:32	0:25	Sun 06/07/2020 2:00am	Sun 06/07/2020 11:10pm
Jeremih F/Chris Brown	5	4:56	4:57	4:59	0:03	Sun 06/07/2020 12:57am	Sun 06/07/2020 8:58pm
...Gifad	10	1:56	2:17	2:45	0:49	Sun 06/07/2020 1:00am	Sun 06/07/2020 10:00pm

**This concludes the list of new major features in Version 8. For a full list of bug fixes and minor enhancements, you can view the ReadMe file in Help > Release Notes. If you have questions on how to use any of these new features, please contact MusicMaster support.**