

# **Music Draw**

**Music Draw version 3.2**

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# What Music Draw Is All About

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## What Makes Music Draw Different From The Rest

Welcome to the Music Draw program. Music Draw is a music sequencer which is tailored for people who want to make music without having to learn music theory or play an instrument. This sequencer lets you easily make decent sounding music by only letting you enter notes that sound good. Of course, you can still enter off-key notes, but you do that only if you choose to. The "key" of the song can be easily changed through a menu without moving the notes on the Music Draw "staff". Groups of notes can be entered and manipulated so you hear musically similar results no matter what key you pick. Rhythm is entered like most other "piano-roll" type sequencers, but it also helps by constraining where you can put the notes (like a drum style sequencer).

## Access To GS Instruments

This sequencer uses the Roland GS synthesizer standard to let you access hundreds of realistic sounding instruments without any cryptic MIDI commands. Instrument sounds are changed through a dialog box for all general instruments and another dialog box for drum instruments. Notes entered for each instrument are layered on top of each other (15 general and 1 drum instrument layer) and entry for each instrument is controlled by an instrument toolbar.

## Note View - The Center Of Music Draw

The Music Draw window is dominated by the Music Draw note view, which is an intelligent music staff (in fact, you can make it look very much like a regular staff view). This is where you enter and edit the notes for each instrument. Based upon the key and where you put the notes in the note view, Music Draw will choose a note which fits the key your in. If you enter notes which has a group assigned (multiple notes for each note entered), Music Draw will let you know if the group "fits" where you put it by the color the note is.

## Objects - Changing How The Song Is Played

In addition to entering notes, Music Draw lets you enter other things (objects) into the note view for tremendous flexibility. You can enter:

- Pitch Bend
- Instrument Change
- Controller
- Custom Group
- Marker
- Key Change

These objects are how you can modify the sound or do some song housekeeping. Pitch bend modifies the instrument pitch without moving the note. Instrument change lets you change the instrument sound during song play. Controller lets you access MIDI data which change many sound characteristics. Key change lets you change the key of the song while the song is playing. Custom group lets you choose a set of notes which is not already in the Music Draw's group list. Finally, marker objects let you find any point in the song via a search.

# Music Draw Reference

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## Menu

- [File](#)
- [Edit](#)
- [Song](#)
- [Instrument](#)
- [Preferences](#)

### Menu - File

- New

Creates a new song (no notes or object) document. If old song exists and it's file wasn't updated when NEW is selected, Music Draw asks if song should be saved. Previous song settings used (key, tempo, etc) used for new song. NEW resets the file assignment to the song document, so you will have to redo a FILE | SAVE after song entry.

- Open

Opens a song document from a DOS file. If old song exists and it's file wasn't updated when OPEN is selected, Music Draw asks if song should be saved.

- Save

Saves a song document on a DOS file. If a DOS file wasn't assigned to the song yet, Music Draw asks what the file name is.

- Save As

Saves a song document under a different DOS file.

- Export As

- MIDI TYPE 1

Saves a song document as a MIDI (type 1) file. Other music software which recognizes this format can open your Music Draw song with this file.

NOTE: Music Draw *CANNOT* open this file, so make sure you also save the file in Music Draw

format by doing a FILE | SAVE.

- Exit

Leave Music Draw and ask if unsaved changes to your song document should be changed.

## Menu - Edit

- Undo

Undoes previously performed operation. Undo is limited to the note or object deletion and most note changes. Undo only works on the previous operation (i.e., not multilevel undo), so if an undoable operation is performed and then another operation is performed, you will NOT be able to undo the first (undoable) operation.

- Cut

Removes selected notes / objects and places them in a buffer for future pasting. You cannot paste across instrument views. If you want to cut and paste notes into another program, you will have to use the FILE | EXPORT AS command.

- Copy

Duplicates selected notes / objects in a buffer for future pasting. You cannot paste across instrument views. If you want to cut and paste notes into another program, you will have to use the FILE | EXPORT AS command.

- Paste

Duplicates notes / objects placed in the buffer by COPY / PASTE and places them at the beginning of the leftmost measure shown on the view. The pasted notes are selected so you can move them if needed.

NOTE: Key change objects cannot be copied or cut.

NOTE: Copied marker object's names will be modified to prevent duplication.

NOTE: The Window's clipboard is not used in this program, so you cannot transfer Music Draw items to another program or another instance of Music Draw.

- Delete

Deletes selected notes / objects from the song document.

- Clear All

Deletes ALL notes / objects from all instrument views in the song documents. Unlike FILE | NEW, CLEAR ALL does not reset the file assignment.

- Select

NOTE: You must be in the ALL instrument view before using this menu operation.

NOTE: The select action works as though the SHIFT key was pressed. In other words, this action adds to the existing selection instead of replacing it.

Lets you select a set of instruments and a measure range of notes / objects within a song. Useful for cutting / copying large sections of the song around.

- Stretch

Precisely stretches the duration of all selected notes / objects. To do this:

- Select one or more notegroups (see Choosing NoteGroups To Change)
- Select EDIT from the main window menu, and then select STRETCH....
- A STRETCH dialog box will appear. Use the slider bar to change the stretch percentage. 100% means no stretch. Less than 100% means shrinking the selected items. More than 100% means expanding the selected items.
- Press the OK button.

- Measure

- Insert

Inserts blank measures into the leftmost measure in the view. All notes / objects from the leftmost measure in view to the end of the song will be moved to the left. All note durations which are pushed to the end of the song will be shrunk to fit.

- Delete

Deletes measures starting with the leftmost measure in the view.

NOTE: This operation is NOT undoable.

- Chord

- Define Group

Defines new USER group definitions within the group list. Dialog box includes group name, TAB chord entry, and "play as defined" checkbox. For more information about what to enter for custom groups, see Custom Note Groups .

To use this operation:

- Select the EDIT menu and the CHORD sub menu
- Select the DEFINE GROUP... menu item. A USER DEFINED GROUP dialog box will appear
- Choose a USER group to change in the combo box at the top of the USER DEFINED GROUP dialog box
- (OPTIONAL) Change the group name in the NAME edit area if you wish from USER X to whatever you want. The change in name will not take effect until you leave the dialog box
- (OPTIONAL) Choose PLAY AS DEFINED if you want the group to be heard exactly as entered in the definition area (see PLAY AS DEFINED action)
- Enter the group definition in TAB notation (often used for guitar transcription). Legal entries are from 0 to 12 and no entry.
- Press the OK button to leave the dialog box

- Use the NoteGroup Attributes window's GROUP list to select you defined chord and use it for a NoteGroup
  
- Goto Marker

Lets you move measure view to where marker object is located. Dialog box shows all marker objects entered through the object entry tool.

## Menu - Song

- Key Transpose

Choose the key of the song (shown at left of song view). Read Note Groups to see how the key affects how groups will sound.

- Tone Color

Choose tone color of the song. Works with the key to affect how notegroups will sound.

## Menu - Instrument

- Sounds

NOTE: You *CANNOT* be in the ALL instrument view before using this menu operation.

To change the GS sound of an instrument, do the following:

- Select INSTRUMENT from the main window menu, and then select SOUNDS...
- The INSTRUMENT SOUND dialog will appear. The current sound used for each instrument (EXCEPT the drum instrument) will be shown along with the GS BANK (see below). For an instrument, click on the instrument group box and select another sound.
- When you are through, click on the OK button.

For a non-drum instrument, the current sound selected will be shown in the upper left corner of the main Music Draw window.

The GS BANK column lets you choose a variation of a given sound, if your synthesizer supports GS MIDI. For example, a GUNSHOT with a GS BANK of 1 will sound different than a GUNSHOT with a GS BANK of 2 for a Roland SCC-1. However, if you have a General MIDI synthesizer or less, GS MIDI will do nothing. See your synthesizer's documentation about the BANK number and what instrument it represents (as each GS synthesizer will map different instruments to a given bank number / sound combination and this scheme is somewhat complex).

- Drum Sounds

To assign different sounds for each grid row of the drum instrument, do the following:



- Select INSTRUMENT from the main window menu, and then select DRUM SOUNDS...
- The DRUM SOUND dialog will appear. The current drum sound used for each grid row will be shown. For an row, click on the sound group box and select another sound.
- The SET group box lets you choose a different drum sound set for a GS MIDI synthesizer. Click on the set group box and select another set. This will do nothing for a non-GS MIDI synthesizer.
- When you are through, click on the OK button.

The current sound selected for each grid row in the drum instrument layer will be shown in the left side of the main Music Draw window.

- Playback

To select which instruments will be played back, do the following:

- Select INSTRUMENT from the main window menu, and then select PLAYBACK...
- The INSTRUMENT PLAYBACK SET dialog will appear. A set of checkboxes representing each instrument will be shown. Check or uncheck each instrument checkbox to turn on / off playback of an instrument.
- The SET ALL and RESET ALL buttons let you select or deselect all instruments at once.
- When you are through, click on the OK button.

## Menu - Preferences

- Show

- Other Instruments

Controls if notes / objects from instruments not currently being edited (see [Instrument View Select](#)) can be seen. Great for reducing screen clutter.

- MIDI Notes

When selected, shows MIDI note values for the current notegroup / key / color setting for all notes.

- Group Notes

When selected (default), will show group notes attached to root note in view. Deselecting this reduces screen clutter.

- Zoom

- Close In / Whole Note Range

Shows all notes in measure or part of measure. Choose whatever works best for editing.

- Grid

- Show It

Shows vertical (time) grid for note rhythm. Deselect it only when screen clutter is too much.

- Triplet Form

Shows grid in "triplet" increments. Useful only for entering three notes where you would normally enter two.

- Staff

- Traditional / Octave

Shows horizontal grid either in a traditional music staff view or an octave view (recommended for music not duplicated from an existing sheet) where notes are grouped into octaves.

- Drum Entry

- Manual Length Entry / Auto Length Entry

Drum note entry by click and dragging method (Manual Length Entry like other instruments) or by clicking (Auto Length Entry - default). Auto length entry gives drum note entry a "traditional drum editor" feel.

- Advanced

You can change the timing of Music Draw playback. The TIMER RATE (in milliseconds) changes how often notes are sent to the synthesizer. The QUANTIZE RATE (in horizontal grid ticks) changes how many horizontal grid ticks are played back for each clock tick. To change the playback parameters, do the following:

1. Select PREFERENCES from the main window menu, and then select ADVANCED...
2. Change the TIMER RATE and QUANTIZE RATE in the dialog box and press the OK button.

WARNING: Do not change the TIMER RATE to a lower value unless you have a fast machine (80486-33Mhz or faster).

NOTE: Changing any values in the advanced preferences will affect tempo.

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## Toolbars

### Top Toolbar



## Bottom Toolbar



## Toolbars - Top

- Note View Tools - 

Music Draw lets you do several things to the main window grid with the mouse through a series of "tools". When you select a tool, the mouse will behave a certain way when you click down on the grid, a notegroup, or an object. The tools available are (from left to right):

- [Edit Everything Tool](#)
- [Enter Notegroup Tool](#)
- [Enter Multiple Notegroups](#)
- [Entering Object Tool](#)
- [Editing Object Attribute Tool](#)

- Instrument View Select - 

The instrument select / playback toolbar (shown below), lets you select which instrument (numbers 1 through 16 and ALL) notegroup set to edit and it lets you see which instruments will be played back (green indicators at bottom).

To edit another instrument's notegroups, simply press the instrument button on the instrument select window. The ALL button lets you edit notegroups for all instruments at once. If the ALL button is selected, you cannot enter any notegroups nor can you change instrument sounds.

SHORTCUT: To switch instrument editing to a background instrument, do the following:

1. WHILE HOLDING DOWN THE SHIFT AND CONTROL KEY, click on the background notegroup with the right mouse button. Music Draw will switch to the instrument layer of that background notegroup.

- Rhythm Snap - 

When entering or editing notegroups and objects, the horizontal distance determines how long the note or object will be played. This control will force Music Draw to move or stretch notes a minimum of ticks specified in the control. This "snap" effect is very useful for maintaining a certain "rhythm" or beat, hence the name of the control.

- (DEFAULT) A value of "24" will force moves / stretches to fit within the solid grey vertical lines of the grid.
- A value of "6" will force moves / stretches to fit within the dotted grey vertical lines of the grid.
- A value of "1" is the same as turning rhythm snap off.

## Toolbars - Bottom

- Note Attributes - The toolbar for Note Attributes contains five buttons: a left arrow, a square, a right arrow, a left arrow, and a right arrow. To the right of these buttons are two dropdown menus, the first containing the text 'None' and the second containing the text 'none'.

The controls shown are (from left to right):

- Velocity
- Group Note Shift
- Pitch
- Group

See [Note Attributes](#) for more information.

- Song Playback Control - The toolbar for Song Playback Control contains five buttons: a left arrow, a square, a right arrow, a button labeled 'Stop', a button labeled 'Song', a button labeled 'View', and a button labeled 'Select'.

The controls shown are (from left to right):

- Tempo - Controls how fast song is played
  - Stop Song - Stops playback of song
  - Play Whole Song - Plays back whole song
  - Play Song in View - Plays back song viewed in window
  - Play Selected Song - Plays back selected notes of song
- 

## Mouse

Also see [Note View Tools](#) as it affects how mouse operates within view.

- [Edit Everything Tool](#)
- [Enter Notegroup Tool](#)
- [Enter Multiple Notegroups](#)
- [Entering Object Tool](#)
- [Editing Object Attribute Tool](#)

### Edit Everything Tool

#### Choosing NoteGroups To Change (Using Edit Everything Tool)

To select one notegroup:

1. Move the cursor over the notegroup to change, and then press the LEFT mouse button. The selected notegroup will change to include a dotted red border as shown below.

To add another notegroup to the selection:

1. Move the cursor over the notegroup to change, and then WHILE HOLDING DOWN THE SHIFT KEY,

press the LEFT mouse button.

To select a whole group of notes:

1. Move the cursor over the grid (outside of any notegroups), and press the LEFT mouse button.
2. Drag the mouse button down and right to create a box. All notegroups within this box will be chosen.
3. Release the LEFT mouse button.

To cancel the selection:

1. Move the cursor over the grid (outside of any notegroups), and then press the LEFT mouse button.

### **Change How Long Notegroup Plays (Using Edit Everything Tool)**

To change the length of each selected notegroup, do the following:

1. Select one or more notegroups (see Choosing NoteGroups To Change)
2. Click with the LEFT mouse button on the selected notegroup's length handle (the white rectangle on the right) and move the cursor to change the notegroup's length (left or right). The notegroup length handle is shown below.

### **Change How Long Song Plays**

To change how long selected notegroups play, do the following:

1. Select more than one notegroups (see Choosing NoteGroups To Change)
2. Click with the LEFT mouse button on any selected notegroup's length handle (the white rectangle on the right) and WHILE HOLDING DOWN THE SHIFT KEY, move the cursor to change the notegroup's length (left or right). The notegroup length handle is shown below.

### **Moving Notegroups**

To move selected notegroups, do the following:

1. Select one or more notegroups (see Choosing NoteGroups To Change)
2. Click with the LEFT mouse button on a selected notegroup (NOTE: NOT on the length handle) and move the cursor to change the notegroup's time position (left or right) or pitch (up or down).

### **Enter Notegroup Tool**

To enter notegroups:

1. Choose note attributes
2. Move mouse to start of new notegroup
3. FOR NON-DRUM INSTRUMENTS and MANUAL LENGTH DRUM ENTRY, click and drag mouse to

end of notegroup horizontally.

## Enter Multiple Notegroups

1. Choose note attributes
2. Move mouse to start of new notegroup
3. FOR NON-DRUM INSTRUMENTS and MANUAL LENGTH DRUM ENTRY, click and drag mouse to end of notegroup horizontally.
4. Choose how many notes will be entered in the length you've chosen and press OK.

## Entering Object Tool

See object section for more information about them.

### To enter a pitch bend or custom group object:

1. Move the mouse cursor to where you want the object to start
2. While holding down the left mouse button, drag the mouse cursor to the right. You should see a rectangle forming underneath the mouse cursor
3. After positioning the mouse to where you want the object to stop, release the mouse button. An object properties dialog box will appear along with the object on-screen.
4. Enter the object properties in the dialog box and press OK

### To enter key change, program change, markers, and controller objects:

1. Move the mouse cursor to where you want the object to start
2. Click and release the left mouse button. An object properties dialog box should appear along with the object on-screen.
3. Enter the object properties in the dialog box and press OK

NOTE: The multiple notegroup entry tool will NOT work with objects. You cannot enter objects in the drum view (instrument) or EDIT ALL instrument mode.

## Editing Object Attribute Tool

See object section for more information about them.

To edit objects (including notegroups!):

1. Move cursor to the object to edit
2. Click on object. Change object attributes via the dialog box given. Press the OK button.

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## Note View

The Note View area is the grid in between the two toolbars. To the left is a label area which shows the current instrument sound and song key. **For non-drum instruments**, each row represents the pitch (high or low) of the notes. **For the drum instrument**, each row represents a drum instrument. You can tell which instrument is currently being edited by looking at what's selected in the instrument entry select toolbar in the [top toolbar](#).

Music Draw selects which MIDI note each row represents, based on the row location and key chosen. Columns lined with grey lines are rhythm markers which let you know where the notes are in time. Columns lined with black lines are called "measures", to break up the song into small chunks. Songs repeat themselves across measures, so keep repeating note themes within the measures by using the measure lines.

The rhythm snap control in the [top toolbar](#) controls the minimum distance which you can enter or change notes. As you drag the cursor over the note view to enter / change notes, the note will move only in increments which the rhythm snap specifies. You can use the grey lines to see where the notes are entered within the measure.

One song has 101 measures. One measure has 32 rhythm columns.

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## Notes

- [Attributes](#)
- [Groups](#)
  - [Group Note Rhythm Spacing \(Shift\)](#)
  - [Custom Groups](#)

The note is the center theme of the Music Draw program. The basic note has two things associated with it:

- Pitch - position in the note view row
- Rhythm - position and length in the note view row

As mentioned before, the pitch is determined automatically by Music Draw through vertical position in the Note View and what key is used. You can see what MIDI note value Music Draw picked through the "MIDI Note" selection in the [Preferences, Show](#) menu item. Rhythm is somewhat trickier to define, as it is determined not by where the note is in the note view, but where a note is *in relation to other notes!* As you enter more notes along the horizontal space in note view, the notes played back will develop a rhythm. The length of the note just means how long the note is played. Some instruments such as a banjo will have short note lengths, while others such as a flute will typically have long note lengths.

## Note Attributes

Once you've been comfortable with how to enter and manipulate notes in Music Draw, you will want to change how notes are played. Here, Music Draw can influence how notes are played through note attributes you can change:

- Velocity - how loud notes are played
- Pitch - Off normal pitch chosen by Music Draw
- Group / Shift - assign multiple notes to a note entered (see [Note Groups](#))

Velocity is controlled by the leftmost scroll bar on the [bottom toolbar](#) . The leftmost position is 0 velocity where the note is silent. The rightmost position is 255 where the note is at it's loudest. The pitch is the leftmost popup menu in the [bottom toolbar](#) . You can select "none" which lets Music Draw pick the note pitch for you, "sharp" (#) which lets you pick a slightly higher note pitch than "none", and "flat" (b) which lets you pick a slightly lower note pitch than "none".

A notegroup may have more than one note. If it does, it will have a GROUP LABEL and one or more GROUP NOTES. The vertical position of the group notes are determined by the group label selection. The group notes may be offset timewise, so you can specify the SHIFT of the group.

## Note Groups

- [Group Note Rhythm Spacing \(Shift\)](#)
- [Custom Groups](#)

You may have already entered "chords" in Music Draw by vertically stacking notes in the note view so they play at the same time. But, if you now change the key, the chord doesn't sound the same anymore, does it. Why? Because chords generally are meant for a certain key, and that chord will not "fit" another key unless you change one or more note positions. Specifically, as you change the key, the MIDI note spacing between the notes almost always changes, thus sounding different. So, how can you get a group of notes to keep that MIDI spacing through all keys? Read on!

Music Draw lets you keep the note spacing through all keys by assigning multiple notes to a note entered (a "root" note). This assignment is called a "group" and *NOT* a chord. You can change the number of notes assigned and their spacing by changing the note group value in the fourth control (popup menu) in the [bottom toolbar](#) . "None" means only one note is assigned for one note entered (default value). Other groups assign two or more notes to the root note and the name will appear on the root note itself. The group names (and note spacings) are derived from existing chords, but they are not the same as their chord counterparts unless they're played in a certain key (see explanation above).

When more than one note is assigned to a root note, the spacing of the notes and the current key used may not let all notes "fit" exactly into a horizontal row. When this occurs, the note and it's group notes will turn green. The green color does not mean the group is incorrectly placed, it just lets you know that one or more notes will be sharp or flat and may not (or may!) sound quite right for that key.

## Note Group Shift

With groups, you have multiple notes assigned to the root note. However, all notes are played exactly at the same time. If you want to keep the group properties, but also want each note in the group to play some clock ticks later, than use the shift attribute. Change the group shift though the second control (scroll bar) in the [bottom toolbar](#) . The leftmost value aligns the group notes directly above each other. As you move the scroll bar right, each higher group note will be moved to the right of the preceding lower



note.

Note group shift is useful for creating effects such as guitar strumming, and playing a group of horns.

### Custom / User Note Groups

A group defines multiple MIDI notes played "at the same time" at a fixed MIDI note difference from the bottom (root) note. As you move the root note up or down the view, all other notes change along with the root note (keeping the same MIDI note distance.) You may define your own set of MIDI note spacings (groups) as follows.

- Changing a USER definition in the NoteGroup Attribute's GROUP list. All NoteGroups with that USER definition will have a common definition.
- Entering a custom group object. The group definition will be only for that object.

The figure below shows how Music Draw generates MIDI notes from the different group definitions.

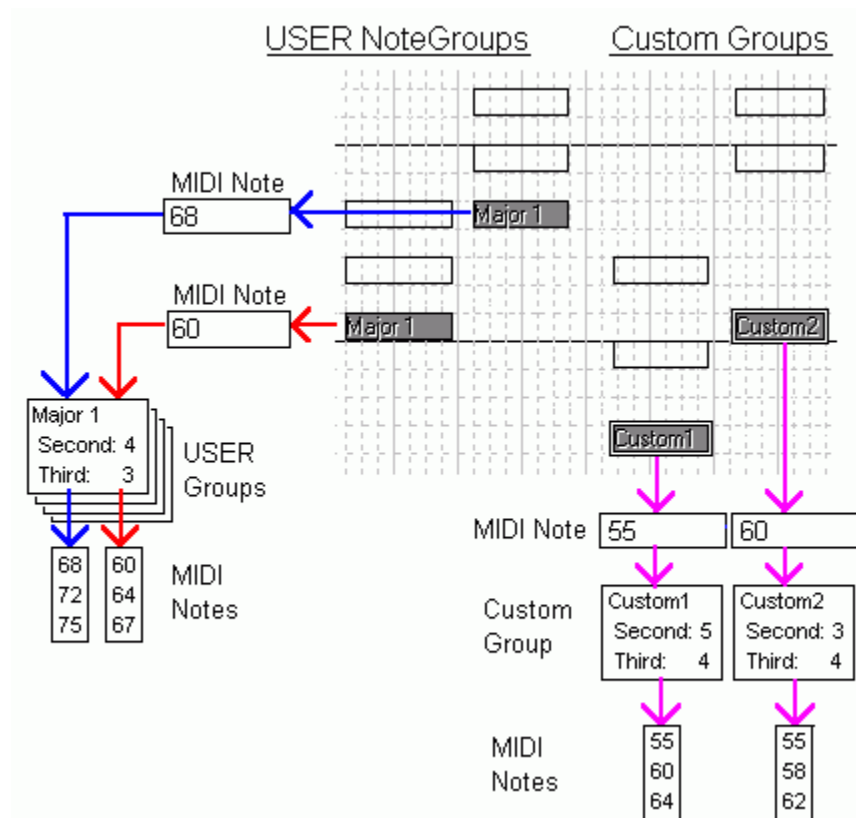


Figure: NoteGroup / Group Object to MIDI Note process

Why two ways? You can only enter up to 20 USER defined chords for a song. Many groups will be repeated in a song, but quite often many unique groups will have to be entered. For a typical song, 20 USER groups will not be enough. Thus, a custom group object is very handy for unique settings which are not repeated. On the other hand, defining a USER NoteGroup attribute will let you change all chords using that group instantly and globally.

For repetitive groups, use the USER group definition (in the NoteGroup Attributes window.) For unique or non-repetitive groups, use the custom group object.

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# Objects

Other "objects" can be entered and changed along with NoteGroups in Music Draw. These objects add various qualities to your song. Most of these objects are directly related to MIDI functions available. They are:

- Pitch Bend - bend pitch of instrument notes continuously
- Instrument Change - change instrument of instrument during play back
- Controller - change MIDI controller value during playback
- Custom Group - NoteGroup with own group definition
- Markers - Mark positions in the song you may want to go to later
- Key Change - Change Key and Tone Color within the song

Technically, notes or notegroups are objects and have attributes also, but they are treated differently from other objects. So, notegroups are not on the object list above.

All selection and editing functions performed on NoteGroups apply to objects. However, objects may react differently to various editing functions:

- Pitch Bend - stretches like NoteGroups, but does not respond to changes in NoteGroup attributes
- Program Change - Doesn't change length and does not respond to changes in NoteGroup attributes
- Controller - Doesn't change length and does not respond to changes in NoteGroup attributes
- Custom Group - almost identical to NoteGroups, but does not respond to changes in the NoteGroup GROUP attribute
- Marker - Doesn't change length and does not respond to changes in NoteGroup attributes
- Key Change - cannot move (EXCEPT for insert/delete measure), stretch, or copy / paste. To move a key change, you must delete existing key change object and reenter.

## Notegroup Object Attributes

**NoteGroup Position** The position of a notegroup (either a drum or non-drum instrument) can be edited by using the edit objects mouse tool. The dialog window which appears when a notegroup is selected is shown below:

The start / stop time and the root note value can be typed in the edit windows.

The CHANGE VALUES NOW button actually modifies the notegroup after new values are entered.

NOTE: Simply pressing OK after entering new values will NOT change the notegroup position! Also, when pressed, Music Draw will perform valid entry checks prior to making the change. You cannot enter the following for start / stop times:

- Enter values beyond Music Draw's window.
- Enter values which would move either the start or stop time beyond it's current measure
- Enter a stop time before the start time

The DON'T CHANGE LENGTH checkbox will let you change only the start tick of the notegroup. When checked, the STOP edit window will be disabled and follow what is typed in the START edit window.

The USE EXACT checkbox within the VALUE group lets you override Music Draw's automatic assignment

of the root note's value through the key and vertical note position. When checked, the MIDI NOTE value of the root may be entered (0 through 127).

NOTE: When USE EXACT is checked, the root note may turn green if the current MIDI NOTE value doesn't fit into the current key. Also, the notegroup's vertical position doesn't affect the MIDI note value.

### **Pitch Bend Attributes**

As the name implies, the pitch bend object bends the pitch of an instrument's notes by the amount specified in the attributes. The way the pitch is bent is also selectable. The pitch bend object has two attributes:

- SEMITONES - how much the pitch is bent
- STYLE - how the pitch is bent over time

### **Instrument Change Attributes**

The program change object can change the sound of an instrument during playback. The program change attributes looks almost identical to the instrument change dialog box. The attributes are:

- INSTRUMENT - which GS instrument will play
- GS BANK - which GS bank will be used

### **Controller Attributes**

The controller object lets you enter MIDI controller items in your song. MIDI controller items let you change synthesizer specific parameters during playback. The controller object has the following attributes:

- VALUE - what value will the controller have (the knob)
- TYPE - MIDI controller type (the combo box)

The combo box list includes MIDI controller numbers and GS MIDI names (where defined). If your synthesizer is not GS compatible or if you pick non-GS controller numbers, refer to your synthesizer operators manual to see what each controller number does. To change the value for the knob:

1. Move the cursor over the knob
2. Click the left mouse button to increase the value. Click the right mouse button to decrease the value.

### **Measure Marker Attributes**

In a long song, you may want to mark a particular measure for future reference. A marker should appear as below. The marker attribute is simply it's name. You may have multiple markers with the same name, but Music Draw will only find the marker closest to the beginning of the song.

IMPORTANT NOTE: The GOTO MARKER dialog box works for ALL markers, no matter what instrument view they were entered in. Unlike other objects, markers work globally for searching. However, a marker will still be entered for a specific instrument, so to edit a marker, you have to be in that instrument or EDIT ALL view. To avoid confusion, all markers should be entered in the same instrument view.

## Key Change Attributes

The key change object lets you change the key and tone color of the song during playback. When you enter a key change object, all notegroups to the right of the object will use the new key and tone color for MIDI note computation. The left side of the main Music Draw window will show the last key change values in effect for the leftmost measure. The key change object has the following attributes:

- KEY - new key of song
- TONE COLOR - new tone color of song

IMPORTANT NOTE: The key change object changes the key for ALL instrument notegroups, no matter what instrument view the key change object was entered in.

## Custom Group Attributes

A custom group object is defined the same way as a USER group definition . In fact, this object will behave exactly like a USER defined NoteGroup, except you change the object's group from the CUSTOM GROUP ATTRIBUTE window. See Custom / User Note Groups for an explanation on their differences.

The attributes for the object are:

- NAME - name of object
- PLAY AS DEFINED - see PLAY AS DEFINED action
- TAB DEFINITION - see Changing a USER group definition





