

# Tutorial on MODX7 Basic Procedures

By David Ezell

## Introduction

**The Reason for the Tutorial** After playing and programming various keyboards, some of them complicated and some more simple, over a period of 40 years, I acquired a Yamaha MODX7. I bought it because my best keyboard was too heavy to carry easily, and am delighted with the MODX7 for so many reasons. I love the sounds, the versatility, and the ability to store and access various combinations of sounds. However, of all of the keyboards I have had, I have found the MODX7 one of the most difficult, if not the most difficult, to get started with. This could be because my most recent keyboards have been consumer-level rather than pro-level and I haven't kept up with the evolution of the technology. It's also because the needed information is in more than one location. I found the info in the Owner's Manual, the Reference Manual, online and in Facebook groups. For the first time in my life I found it helpful to make a card file to keep track of all I was learning. Another factor is that when a device has more features and capabilities, it is necessarily more complicated. The MODX7 has an amazing amount of features and capabilities.

**How This Tutorial Was Written** Being a teacher at heart with over 40 years experience as a music educator, I have written this document to record and share what I have learned about my wonderful MODX7. When I taught graduate level courses to teach other teachers to use computers in the classroom, I saw that most people started using computers to do things they already know how to do, but in a different or easier way. Later, I encouraged members of the class to use computers for tasks that are not possible without a computer. I have approached the MODX7 in a similar way, starting by learning how to do things I already know how to do on other keyboards. Later I can learn to do things that are not possible on more limited keyboards. The first task I worked on was creating a basic setup, split into two zones with the upper part having two layers. Then I wanted to Save the setup and add it to a bank of similar setups that could be used in live performance. These are tasks that are relatively easy on less-complicated, less full-featured keyboards. In graduate school I took a course in how to teach music theory on a college level. The teacher said that you can't tell a freshman the whole truth because it's too much to comprehend all at once. He advised us to expose students to information gradually as they were able to understand it, and then to help them refine and expand their knowledge so that when they graduated they would know enough theory to function as professional musicians. When I taught Orchestra in grades 4-12, I told my beginning students that 1 sharp in the key signature meant to change all of the F's to F#. Only later did I tell them that this indicated the Key of G. Information was provided on a "need-to-know" basis. In this document I have left out a lot of information. I'm just recording a procedure that worked for me in getting started.

**How to Use the Tutorial** In this tutorial, Action items are in the left column, and Explanations are in the right column. You may find yourself following down the left column and not paying as much attention to the right. You will probably benefit from the explanations. Remember, if information is included here, you probably need to know it.

**How to Do the Work** All of the work will be done on the touch screen and with the buttons and the wheel to the right of the touch screen. When the instruction says "touch," use the touch screen. When the instruction says "press," use the buttons. To get fine detail for a task that requires using the wheel, you can press the Dec/No and Inc/Yes buttons instead. If you go an unexpected place, the best way to start over is usually to Press the Performance (Home) button. If you follow this tutorial, you can end up with an understanding of the MODX even though the end product is not exactly what you would use in your musical work. Then you can use the skills gained to explore the keyboard further.

## Building Block Hierarchy

In science we learn about sub-atomic particles, atoms, molecules, and compounds. In government we have city, county, state, national and United Nations. Similarly the MODX has its smallest building block, which is combined with other building blocks to create the next level, ultimately resulting in a collection of useful sounds. The smallest building block is either an element, an operator or a drum sound. This tutorial doesn't cover drum sounds. (If this page doesn't make sense yet, you can go through the entire tutorial and then come back to this page. Chances are very good that at that point you will understand it better.)

### Element, Operator or Drum Sound>Part>Performance(Category Search)>Live Set

**1A. Element** A component of an AWM2 Part. These components are derived from samples. To make a sample, a sound is recorded (many times an actual instrument) and the resulting sound wave is processed and used for the sound produced by the keyboard. There can be up to 8 Elements per Part.

**1B. Operator** A component of an FM-X Part. FM stands for Frequency Modulation. This process was made famous in Yamaha's legendary DX-7 synthesizer which was manufactured from 1983 to 1989. A sound consisted of up to 6 waveforms (Operators), which were sine waves (the simplest kind of wave, having no harmonics.) Currently, FM-X Parts can have up to 8 Operators, which can be sine, square, or sawtooth waves. (Square waves have only odd-numbered harmonics. Sawtooth waves have all harmonics.) In Frequency Modulation some of the waveforms, called carriers, actually produce sounds, and some of the waveforms, called modulators, modify the sound. You can hear the effects of modulation by playing with the Mod Wheel on an electronic keyboard.

**2A. Part** One of the 16 elements or operators that make up a Performance. Parts 1-8 can be played on the keyboard. Parts 9-16 have to receive signals from an external computer or MIDI keyboard. Parts cover "zones" on the keyboard. Each part can be assigned to any number of keys, from only one key to the entire keyboard. Each zone can have its own discreet set of keys, or zones can overlap. Each key can be assigned to any or all of the 8 parts. On other keyboards I have seen this called splits and layers.

**2B. Instrument** One or more parts which combine to reproduce the sound of an instrument, such as piano or bass. (This is not official Yamaha terminology. I use it because it makes sense to me. In the Yamaha Manuals "instrument" refers the the synthesizer itself.)

**3A. Performance** A group of 16 parts that can be played by the MODX keyboard or an external device. On other keyboards I have seen this called program, combi, setup, voice, panel settings, etc.

**3B. Category Search** The place where you go to organize and find Performances. It's kind of like Finder on a Mac or Windows Explorer on Windows. When looking up Performances with Category Search, you will see that the names of some performances are colored green, and others are blue. Green indicates a performance that only includes one part. Blue is for performances that include two or more parts.

**4. Live Set** A group of up to 16 Performances that be accessed from the touch screen. Most frequently I have seen this called a bank on other keyboards.

## Other Definitions

**Mod Wheel** The inner of the two wheels at the left edge of the keyboard. It changes various aspects of the sound depending on what settings are included in the programming of the sound. In the Yamaha documentation it is sometimes abbreviated MW.

**Performance Merge** The process that involves adding more parts (instruments) to an existing performance. This is what you do when you create splits and layers.

**Pitch Wheel** The outer of the two wheels at the left edge of the keyboard. It changes the pitch of the sound.

**Velocity** A setting that controls volume, tone quality and other parameters. To begin with, it is good to know that playing a key more firmly (thus getting a louder sound) will correlate with a higher velocity setting.

**Zone** The area of the keyboard that plays the sound of a certain instrument or combination of instruments.

## The Procedure

### **Section I. Preparation**

*Objective I.1 Turn on the Keyboard.*

Turn on the Keyboard.	If original factory settings are intact, a Live Set will appear.
Plug the keyboard into an amplifier, sound system or headphones, using the L Mono Output jack or the Phones jack.	When the keyboard is plugged into an amp or sound system, make sure the amp or system is off before turning the keyboard on or off. This will prevent popping sounds and potential damage to the amp or system. Said another way: When turning on, do the keyboard first. When turning off, do the amp or system first.

*Objective I.2 Calibrate Touch Screen. (This step is optional, but recommended)*

Press Utility.	When you first use the MODX7 it may be difficult to get the touch screen to respond. This procedure will make it work better. If a spot on the screen doesn't respond easily, you can frequently find a hardware button, wheel, knob or slider that will do the job.
Touch Settings.	
Touch System.	
Touch Calibrate Touch Panel.	
Follow the Instructions.	

*Objective 1.3 Stop the Super Knob from flashing. (This step is optional)*

Press Utility.	When you first turn on the MODX7 the largest knob will probably be surrounded by a flashing light. The largest knob is called the Super Knob.
Touch Tempo Settings.	The flashing of the Super Knob shows the tempo of the Arpeggiator and the Motion Sequencer. These ways of controlling the output of the keyboard are beyond the scope of this tutorial.
Adjust Knob Flash.	The flashing may be distracting as you work. If so you can stop it from flashing, and then reset it in the future if necessary.

**Section 2. Start with the Bass**

*Objective 2.1 Delete all parts except Part 1. (It is not possible to delete Part 1).*

Press the Performance (Home) button. It doesn't matter which Performance comes up.	One way to create a new Performance is to start with an existing Performance, edit it and store it with a new name and location. It is not possible to delete a Preset (factory-loaded) Performance. We will create and store a User Performance with Bass Guitar played by the left hand, and a layer of Electric Piano and Pad played by the right hand.
Touch the Name of Part 2 (if any).	The info for each individual part is in a vertical strip that looks like a channel on a mixer. The name of the Part is at the top of the strip, next to the Channel Number. Above the strips for the parts are Assign buttons (circles with numbers in them, mostly zero.) The Assign buttons are not used in this tutorial.
Touch Delete.	
Touch Delete to confirm.	
Delete Parts 3-8 (if any).	

*Objective 2.2 Create a Bass Instrument.*

Touch Part One.	I like to have the parts in order, with the lowest parts to the left in the Performance window.
Press Category.	
Touch Bass in the Main Category section.	At the top of this screen are Main categories of instruments. Below that are Sub Categories, which vary for each Main Category.
Touch the bass sound you would like to use.	You can find any bass sound you like. For this tutorial Upright Bass AF1 (the default setting) will be a good choice.
Go Home and check that Part 1 is the right instrument.	In the Type/Name button, if Type is selected, the column heading should be Bass Acoustic. If name is selected, the heading should be Upright Bass Af 1.

### *Objective 2.3 Determine the Split Point.*

Decide what your split point will be. It is not necessary to touch or press anything. Just make a decision.	The split point may depend on the song you're going to play with a particular Performance. For this tutorial we'll split at F3. (Yamaha and some other systems designate Middle C as C3. The majority of systems have Middle C as C4. In this tutorial F3 means the F above Middle C.)
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### *Objective 2.4 Set the Range for the Bass.*

Press the Performance (Home) button (or Touch the house at the top left of the screen).	From here on this will be called Go Home.
Touch the left side of the range area for Part 1.	When you're viewing Parts 1-8 there will be a horizontal slider in the range area for each Part. This shows the notes that the Part will respond to when the keyboard is played.
Turn the wheel clockwise or counterclockwise to C1.	Note that the lowest note in some parts starts out as a negative number.
Set the highest note of the Bass Instrument to F3.	For some reason I don't understand, Upright Bass AF1 produces strange noises below C1.

### *Objective 2.3 Check your work.*

Play the keyboard.	You should hear the bass sound from C1 to F3. The other keys should produce no sound.
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## **Section 3. Name and Store the Performance**

### *Objective 3.1 Name the Performance.*

Touch the name of the Performance.	It's the large writing across the top of the screen. If a list of instrument families comes up, remove it using the X at the top of the list.
Touch Edit.	
Touch the name of the Performance again.	It will change to a smaller font.
Name the Performance *Bs/EP+Pad.	/ indicates a split. + indicates a layer. I prefer to start my User Performance names with an asterisk, so that they will appear at the beginning of alphabetical lists. There are other ways to see User Performances together, but this is my preference. It is good to create clarity with the names of the Performances.
When you're satisfied with the name touch Done.	
Go Home.	

*Objective 3.2 Store your Work.*

Press Utility.	When you create or change a Performance, it is important to store the Performance. There will not be a reminder prompt, so you can easily lose your work if you're not careful.
Touch Contents.	
Touch Store /Save.	
Touch Store as New Performance.	Make sure not to overwrite an existing Performance. (If the Performance you used in starting the tutorial was a Preset, you will not be able to overwrite it.) In Section 6 there will be instructions for overwriting an existing performance.
Touch Done.	

**Section 4. Add Electric Piano**

*Objective 4.1 Create Electric Piano Instrument.*

Go Home.	
Touch the + for Part 2.	You will be taken to the Category Search Screen, and at the top you will see "Performance Merge."
Touch Piano for the Main Category.	
Touch a chosen piano sound.	To follow this tutorial, it will be best to choose CFX + FM EP. If you don't see CFX + FM EP, check that Sub-Category is set to All.
Go Home.	You will see that it takes 5 parts to create this instrument. You can notice that the 5 parts have different ranges but they all go together to make one instrument. Some of the reasons for multiple parts for an instrument can be: (1) The instrument being imitated sounds different in the high range than in the low range. (2) The instrument sounds different when played louder. (3) The instrument being imitated may have a noise (like a hammer noise or a fret noise) that is part of the attack or release of each note. (4) Some parts actually produce sound, whereas other parts are modifiers (modulators) for the sound-producing parts.
Touch View.	Some parts will only sound at certain velocities (firmness of touch). When you touch View, only 4 Parts will be visible, but with more available information. The range area now includes the keyboard velocity range that the Part responds to. Its possible range is 0 to 127. If you were to set the range to 101-127 you would have to use a firm touch to get that part to work. When you are in this View, you can see that you can access information for Parts 1-16, in groups of 4. For more information see Part in Definitions.
Touch View again.	This returns you to the display of all 8 parts that can be controlled by the keyboard.

*Objective 4.2 Set the Ranges for the Parts that make up the Electric Piano instrument.*

On Part 2 set the the lowest note in the range to F#3.	We're starting at F#3 to add a zone for Electric Piano. For more detail see Objective 2.4
Set the highest note of the range to G6.	
Repeat the above two steps for Parts 3 and 5.	
Set the Range of Part 4 to G7-G8.	
Set the Range of Part 6 to F#3-G8.	

*Objective 4.3 Move Electric Piano down an octave.*

Touch the part name for Part 2.	In addition to setting the range of notes that will sound as electric piano, we are going to transpose the instrument down an octave, and compensate by playing it up an octave. This will give sufficient and optimum range for both the bass and piano to perform their roles within a musical arrangement. This works for keyboards with 61, 76 or 88 keys. There will be more possibilities when you have 76 or 88 keys rather than 61.
Touch Edit.	
Touch Pitch.	
Touch the number in the Note Shift Area.	It should be +0 (the default setting).
Turn the wheel and set the value to -12.	
Go Home.	
Repeat the above for Parts 3-6.	Part 6 will have Pitch/Filter rather than Pitch.
Go Home.	

*Objective 4.3 Check your work.*

Mute Part 1.	
Play the keyboard.	You should hear the piano sound from F#3 up to the top and nothing below.
Touch the mute button again to toggle it off.	

## **Section 5. Add Pad**

### *Objective 5.1 Create Pad Instrument.*

Touch the + for Part 7.	
Choose a Pad instrument. Type Warm into the Search Box at the top right.	You can find any pad sound you like. For this tutorial Warm Pad will be a good choice.
Touch Warm Pad.	
Go Home.	

### *Objective 5.2 Set up the Pad.*

Set the Range of Part 7 to F#3-G6.	For more detail see Objective 2.4
Set the Note Shift of Part 7 to -12.	For more detail see Objective 4.3
Go Home.	

### *Objective 5.3 Adjust the volume of the Pad.*

Touch the up and down slider at the bottom left of Part 7.	When pads are layered with other instruments I like them to be subtle and in the background.
Turn the dial until the number at the bottom is 20.	

### *Objective 5.4 Check your work.*

Play the entire keyboard, checking that it sounds as expected.	The lower part should be a bass sound. The upper part should be a combination of piano and strings. The bass is originally programmed by Yamaha to be like a 16' stop on an organ. It sounds an octave lower than written, and an octave lower than the keyboardist would expect. You would expect an octave leap at the split point, but because the piano and pad sounds were transposed down an octave, you have a straight chromatic scale across the split point.
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## **Section 6. Store Your Work.**

### *Objective 6.1 Overwrite Existing Performance*

Press Utility.	You have to decide whether to store under a new name, or overwrite the previous performance. The last time we stored a Performance the only Part we had was the bass. We have no use for the bass sound by itself, so we will Overwrite Current Performance, replacing the previously-stored Performance with the current one
Touch Contents.	It may already be selected.
Touch Store /Save.	It may already be selected.
Touch the name of the previous Performance.	
Touch Done.	

## **Section 7. Include your new Performance in a Live Set.**

### *Objective 7.1 Open Live Set Area.*

Press Live Set.	When you are playing live, it will be convenient to have all of the Performances you are using for the occasion in one Live Set. Then you can easily touch one of 16 chosen Performances all from the same screen. The number of Live Sets you can create and name is virtually without limit.
A preset Live Set called Best of MODX 1 will probably appear.	This and the other preset Live Sets may or may not be useful to you.

### *Objective 7.2 Create your own Live Set.*

Touch the down arrow next to Preset.	An empty User Live Set should appear. If not, continue touching the down arrow until a User Live Set appears.
Touch Edit.	
Touch the name of the Live Set.	The name will probably be User 1.
Change the name of the Live Set.	You can call it Joe's Live Set #1, or something else logical that will remind you how you're going to use the Live Set. I use names like Orchestra, Church, Jazz or Avant-Garde.
Touch Done.	
Touch Done again to confirm.	

*Objective 7.3 Put your Performance into the new Live Set.*

Press Category.	
Select your Performance.	Find *Bs/EP+Pad by going to All or Bass in the Main area, and then sorting by Name or Date. *Bs/EP+Pad will be at the top of the list.
Press Live Set.	
Touch Edit.	
Touch one of the rectangles with a plus inside.	This will put the currently active Performance into that slot in the Live Set. It's not too important which slot you use, because you can move things around later.
Press Done.	This will store the changes you have made to your Live Set.

## **Appendix**

### **Section Z. Deleting items or moving them around.**

*Objective Z.1 Delete a Part from a Performance.*

Go Home.	
Touch the Name of the Part.	Remember that you can't delete Part 1. To remove Part 1, replace it with another Part.
Touch Delete.	
Touch Delete again to confirm.	

*Objective Z.2 Copy or Exchange Parts within a Performance.*

Go Home.	
Touch the name of the part you want to copy or exchange.	
Touch Copy.	
Choose Copy or Exchange at the top of the Window.	
Touch the Part Number at the top right.	
Adjust the Part number as desired, using the wheel.	
Touch Copy or Exchange at the bottom of the window.	

*Objective Z.3 Delete a User Performance from the Keyboard altogether.*

Go Home.	
Touch Contents.	
Touch Store/Save.	
Touch Job.	
Touch the Name of the Performance.	
Touch Delete.	

*Objective Z.4 Remove a Performance from a Live Set.*

Press Live Set.	
Navigate to the Live Set in question.	
Touch the Performance you wish to delete.	
Touch Edit.	
Touch Delete.	

*Objective Z.5 Move an Instrument to different slot(s) in a Performance.*

Go Home.	This procedure can be useful in keeping the Parts in a desired order, such as having the lowest to the left and the highest to the right.
Touch the Part to select it.	Remember that Part 1 cannot be empty.
Press and Hold Shift.	
Press Edit.	
Release Shift and Edit.	
Press Dec (No) and Inc (Yes) to move Part to new slot.	If an instrument has more than one Part, you have to have enough available empty Parts for all of the Parts to move together and stay in the same order.

*Objective Z.5 Move a Performance to a different slot in a Live Set.*

Press Live Set.	
Navigate to the Live Set you want to Edit.	
Touch the Performance you want to move.	
Touch the slot where you want it to go.	

**Section Y. Other Useful Procedures**

*Objective Y.1 Find all of your User Performances.*

Press Category.	See also XI.
Touch All in Main area.	
Touch Name at the bottom.	If you have started the names of all of your User Performances with an asterisk, they will appear at the beginning of the list.
Alternatively, Touch Date.	If you don't remember the name of a User Performance, it may be easier to find it if you sort by Date, bringing the most recently created Performances to the top of the list.
Alternatively, Touch Bank/ Favorite and select User.	

**Section X. Other Useful Info**

X.1 Categories for User Performances

When you create a User Performance, it will be categorized under the category of Part 1. Since Part 1 of the Performance we created in this tutorial is a Bass, you will be able to find \*Bs/EP+Pad in the Bass category in Category Search.

X.2 Drum Machine

So far I have not found a way I can easily use the drum machine on the MODX7. I have had better results using rhythm styles from less expensive keyboards and dedicated drum machines. In writing avant-garde music the drum sounds on the MODX7 have provided me with a wealth of scintillating material.

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