

Oberheim OB-X8 OS 2.0 New Features Addendum

OS version 2.0 for the Oberheim OB-X8 adds a number of useful features, including a new 4-Pole filter mode, Lower and Upper split MIDI channels for true bi-timbral operation, MIDI Polyphonic Expression support (MPE), Arp MIDI clock sync, more LFO modulation destinations, the ability to expand available voices using the polychain feature, and many other new and exciting capabilities.

This addendum covers all these new features.

Checking Your Operating System Version

If you have recently purchased your OB-X8 new, you may already have OS 2.0 installed. If not, and you'd like to take advantage of the new features, you'll need to update your OS.

To update your OB-X8 OS, you'll need a computer and a USB cable, or a MIDI cable and MIDI interface. To download the latest version of the OB-X8 OS along with instructions on how to perform a system update, visit the OB-X8 Support page of the Oberheim website:

<https://oberheim.com/support/>

To check your OS version:

1. Turn on the OB-X8.
2. Press the GLOBAL button and look at the top right corner of the display. The current OS will be shown here.
3. The newest version of the OS is 2.0.
4. If your OS is out of date, download the latest version from the OB-X8 Support page of the Oberheim website and update your instrument using the instructions included with the download.

IMPORTANT: After installing the OS update, you must refresh the OB-X8's global parameters. Press the GLOBAL button, navigate to menu item **Reset Globals**, and then press the flashing WRITE button.

New Features in OS 2.0

1. Split MIDI channels
2. Assign Aftertouch to Volume
3. Poly Chain
4. MPE
5. Expanded Split and Double banks
6. Instant Double/Binaural mode
7. Arpeggiator Clock Sync, with clock divisions
8. New VCO Waveform combinations
9. A new 4-Pole Filter mode, with resonance gain compensation
10. New LFO mod destinations

Lower/Upper Split MIDI Channels

This new feature allows you to control the Lower and Upper programs of a Split program over separate MIDI channels. The Lower and Upper voices transmit and receive on separate MIDI channels, perfect for use with multi-channel sequencers and DAWs.

Separate Split Lower/Upper MIDI channels are active whenever Split mode is enabled with the Global MIDI Channel set to any channel but All. The Upper MIDI channel is automatically assigned as Lower channel +1. For example, if the Global MIDI Channel is set to 1, then the Upper program in Split mode will transmit and receive on MIDI Channel 2.

In operation, each program's full keyboard range can be addressed over its MIDI channel, while the program's keyboard split point will still function as expected when played on the OB-X8's local keyboard.

Note that separate MIDI channels are not available in Double mode. The Double program will only transmit and receive on the Global MIDI channel.

Poly Chain Mode

You can now connect up to four OB-X8 keyboards or modules using Poly Chain mode, increasing the total polyphony from 8 up to as many as 32 voices. Any combination of keyboards and modules can be connected.

To operate in Poly Chain mode, two to four OB-X8s must be connected using MIDI DIN cables.

1. Connect the primary unit's MIDI Out port to the secondary unit's MIDI In port, then from the secondary unit's MIDI Out to the next unit's MIDI In, and so on, up to four units.
2. Make sure all connected keyboards and/or modules have the same set of programs. If necessary, programs can be sent from the primary unit to connected units using the Global command Send MIDI All on the primary unit.
3. Enter the Global menu on the primary unit and use the SCROLL encoder to navigate to the MIDI Output parameter.
4. Use the VALUE encoder to set the global parameter to USB + 1 MIDI Chain, USB + 2 MIDI Chain, or USB + 3 MIDI Chain, depending on how many units are connected.
5. Set each successive unit's MIDI Output global to MIDI DIN only or MIDI + USB.

Now each connected OB-X8 will be controlled by the primary unit's keyboard and arpeggiator and by all panel controls. The primary unit will also send MIDI note and control messages from its USB port.

Pressing TUNE on the primary OB-X8 will cause all chained units to run through the oscillator calibration routine, useful for bringing several units closer together in pitch.

Note that control messages are only sent one way in this configuration; that is, from the primary unit to connected secondary units. Because of this, the primary unit is not aware of any changes to secondary units. For best operation in a poly chained system, power on any connected

secondary units at the same time as or before powering on the primary unit. The secondary units should be kept powered up, since any powered-down unit will break communication with any units “downstream” of it.

Aftertouch to Volume

You can now assign keyboard/mono aftertouch to program Volume. This modulation feature is additional to the existing Filter and Mod Aftertouch destinations found in the Page 2 menu and on the front panel via the TOUCH button.

To access the Aftertouch To Volume feature, enter the Page 2 menu by pressing PAGE 2. Scroll to menu item 48. *Aftertouch To Vol.* The available range is 0-127 – from no effect to maximum pressure to volume effect.

To hear this in the most obvious way, set Aftertouch To Vol to 127, then set the VOL/BALANCE knob to 0. Now as you apply pressure to the keyboard, the program volume will rise to the maximum level. This allows you to use finger pressure much like an independent volume envelope triggered by the keyboard. This can allow dramatic and highly expressive performance effects. It’s especially effective when MPE is enabled.

Note that unless MPE is enabled, Aftertouch To Volume functions as mono pressure. After the first key is pressed, any successive keys pressed will be brought in at the current pressure-determined volume level. To bring successive key presses at lower or higher volumes, release any currently-held keys and the successive key presses can each set independent volume levels.

If VOL/BALANCE is set at maximum, and Aftertouch To Vol is also set to maximum, applying pressure can slightly increase overall volume. This is because the Aftertouch To Vol amount is added to the overall program volume. Note, however, that if Program Volume is at maximum, Volume Envelope Sustain is at maximum, and a note is played with maximum velocity, then pressure will **not** increase the volume any further, and the Program Volume value will determine the maximum headroom.

Note that in Double, Split, Double+, Split+, and Binaural modes, Aftertouch to Vol does not map to the Balance parameter, which is used to crossfade between Lower and Upper program volumes. This means it’s not possible to set Program Volume to zero for either of the paired presets to use the Aftertouch to Volume feature.

A way to work around this would be to set the Volume Envelope Sustain amounts to zero for both presets in a Double/Split/etc. program. This way, Aftertouch to Volume can be used to control the effective volumes of both presets.

MPE

OS2.0 now allows each voice of the OB-X8 to be expressively controlled individually, using an MPE-capable controller. MPE controllers typically provide real-time per-voice control covering three axes:

1. X-axis, or left-right movement, sent as Pitch Bend.
2. Y-axis, or front-to-back movement, sent as MIDI CC74 (assignable per preset).
3. Z-axis, or up-down movement, sent as Channel Pressure/Aftertouch.

Each voice of an MPE-capable synthesizer is assigned a separate MIDI channel, allowing for independent parameter control per key played.

To enable MPE in the OB-X8 press GLOBAL and navigate to 3. *MIDI Channel*. Use the VALUE encoder to scroll through and select MPE Enabled. Now the OB-X8 will respond to any MPE-capable controller across eight MPE MIDI channels (as the OB-X8 has eight voices).

X-Axis – Pitch Bend: The connected controller's X-axis expression will introduce Pitch Bend. MPE Pitch Bend on the OB-X8 covers a range of +/-48 semitones by default, regardless of the program's Bend Lever Amount setting.

Y-Axis - MIDI #74 to OSC 2/MIDI #74 to Filter :Y-axis expression controls MIDI CC#74 on the OB-X8. You can assign CC#74 to either Oscillator 2 pitch, Filter cutoff, or both. Each has a range of 0-127.

MIDI CC#74 to OSC 2 can be useful for effects ranging from slight detune to wide-ranging pitch sweeps, adding hands-on expression to oscillator sync patches.

MIDI CC#74 to Filter similarly allows for precise, musical modulation of filter cutoff.

To assign MIDI CC#74, press PAGE 2 and use the SCROLL encoder to select 49. *MIDI #74 to OSC 2* or 50. *MIDI #74 to Filter*. Set a modulation amount for each of these parameters using the VALUE encoder.

Z-Axis - Channel Pressure: In MPE mode, channel pressure can polyphonically affect Filter and Mod aftertouch destinations. This can be enabled by pressing the front panel TOUCH button. Press TOUCH once to enable Channel Pressure to Filter cutoff (the yellow LED will light). Press twice to enable Channel Pressure to vibrato Mod depth (the red LED will light). Press three times to enable Channel Pressure to both Filter cutoff and Mod depth (both LEDs light). Press a fourth time to disable both.

To set the amount of Filter or Mod Channel Pressure modulation, press PAGE 2 and scroll to 47. *Aftertouch Amount*. Use this parameter to set a range of modulation from 0 to 127. This parameter functions to scale both Filter and Mod modulation ranges equally.

Channel Pressure can also be used to control individual voice volumes, just like when using the Aftertouch to Vol parameter via mono aftertouch. To enable this feature press PAGE 2 and scroll to 48. *Aftertouch to Vol*. Use this parameter to set the range of Program Volume modulation. This MPE feature functions the same as it's mono aftertouch equivalent – that is, to get the most obvious effect, set the VOL/BALANCE parameter to zero and set Aftertouch to Vol amount to 127. Now, each finger can act as a precise volume control for each of the OB-X8's eight voices.

Expanded Split and Double banks

There are now expanded locations for exclusive storage of Split and Double programs, with direct storage of program parameters saved as part of a Split or Double. In the original Split and Double banks, programs were only pointers to existing presets. Changing the Upper or Lower program of a Split or Double would change to the original preset the Split or Double referenced.

Now, using the Split+ and Double+ banks, you can store new Split/Double programs with the capability to edit the Upper and Lower independently from their sources in the regular Banks and Groups. Split+ and Double+ banks each have 16 Groups of 8 Programs each.

To use the new banks:

1. Press either DOUBLE or SPLIT and turn the BANK encoder until you see Double+ or Split+ on the OLED display.
2. Press LOWER or UPPER to select a preset for that part of the Double+ or Split+ program using the BANK and GROUP encoders.
3. When an Upper and Lower preset have been selected, save the Split+ or Double+ program by pressing WRITE.
4. The WRITE button will flash.
5. While it's flashing, select a Group for program storage by using the GROUP encoder to select one of 16 Double+ or Split+ Groups.
6. Then press a Program button to select a storage location.
7. The new Double+ or Split+ program is stored in that Group and Program location.
8. To give the new Double+ or Split+ program a unique name, press PAGE 2.
9. Use the BANK/SCROLL encoder to move the cursor forward and back, and the GROUP/VALUE encoder to select a letter, number, or symbol.
10. To cancel saving a Double+ or Split+ program simply hit WRITE without pressing a Program button.

To save any independent parameter changes to the Lower or Upper preset of a Double+/Split+ program, press LOWER or UPPER to exit the Lower or Upper Preset that you have edited. Then use the same process as saving a Double+ or Split+ program to save the parameter changes locally to the combined Double+ or Split+ program. The original presets in their non-Split or Double programs will not be altered.

Instant Double/Binaural Mode

This feature can be used to set any selected program to a doubled and hard-panned "Binaural" mode. This can be used to instantly thicken and widen any program, creating a lush and powerful sound. The OB-X8 becomes a four-voice stereo synthesizer, with two voices playing on each key press.

To use the feature, press DOUBLE and scroll to the Binaural bank. Now press either LOWER or UPPER to select a program. Both the LOWER and UPPER LEDs will light. Use the BANK and

GROUP encoders and the Program buttons to select the chosen program. When selected, it will automatically be set to Pan Mode 4L/4R.

All Double Page 2 parameters are accessible in Binaural mode by pressing PAGE 2 while DOUBLE is lit.

Binaural programs can be saved to any of the Double banks. However, Double+ programs that have been set to Binaural Mode can only be saved in the Double+ bank.

Arpeggiator Clock Sync/Arp Clock

The OB-X8 arpeggiator can now be externally MIDI synced to run in musically useful clock divisions, rather than only in 16th note division. The arpeggiator also responds to external MIDI Song Position Pointer messages, specifically Song Start, Song Continue, and Song Position Pointer.

To access this feature, press GLOBAL and scroll to *10. Arp Clock*. Use VALUE to select MIDI In DIN or MIDI In USB. Now turn the RATE knob located in the Mod Box section. As you turn it, you'll see clock divisions shown on the right side of the Arp Clock Global screen.

Available MIDI clock divisions are:

RATE Position	Note Value	# of MIDI Clock Ticks
1	Whole Note	96
2	Dotted Half	72
3	Whole Triplet	64
4	Half Note	48
5	Dotted Quarter	36
6	Half Triplet	32
7	Quarter Note	24
8	Dotted 8th	18
9	Quarter Triplet	16
10	8th Note	12
11	Dotted 16th	9
12	8th Triplet	8
13	16th Note	6
14	16th Triplet	4
15	32nd Note	3
16	32nd Triplet	2

Note that Song Position Pointer implementation functions to keep the phase of the arpeggiator clock consistent with a DAW or sequencer's current position within a beat but cannot cause the current arpeggiation to always be on the same note each time the external MIDI clock is started.

VCO Waveform Combos

This feature allows any combination of the three available waveforms (Triangle + Saw, Triangle + Pulse, Triangle + Saw + Pulse, as well as Saw + Pulse). This can allow for thickening certain types of sounds with the addition of the less-harmonic rich Triangle waveform.

To combine waveforms, first select Saw, Pulse, or Saw + Pulse by pressing SAW, PULSE, or both buttons. To add a Triangle waveform, press and hold the currently-selected waveform button for two seconds. The LED on the selected button will now blink, indicating that both waveforms are active.

If you want to select all three waveforms at once, first select a single waveform. Then press and hold the unselected waveform button for two seconds. Now both waveform LEDs will light and blink, indicating that all three waveforms have been selected.

To deselect a Triangle waveform that has been previously selected, press and hold either currently-selected waveform button for two seconds. The currently-selected waveform LEDs will now stop blinking to indicate that no additional Triangle waveform is active.

If Triangle + Saw or Triangle + Pulse are selected, you can add the third waveform by pressing the unselected button. For example, if Pulse + Triangle are selected, pressing SAW will cause both waveform LEDs to blink, indicating that all three waveforms are now active.

Note that Page 2 parameters Osc 1 Level and Osc 2 Level affect the volumes of any selected waveforms equally, i.e. there is no way to set individual waveform volumes per oscillator.

New Lowpass Filter Mode/Modified 4-Pole Lowpass

The OB-X8 now features an additional Lowpass Filter mode with gain compensation. This mode automatically adjusts Xa4 Filter gain based on Resonance level, compensating for the drop in level at high resonance. This allows a fuller bass sound at high resonance settings.

To access the new filter mode, press PAGE 2 and scroll to *11. Filter Type*. Use VALUE to select Modified 4-Pole Lowpass.

Just as with the SEM 2-Pole Highpass, Bandpass, and Notch filter types, the Filter TYPE LEDs will stay unlit to indicate selection of the new mode.

New LFO Mod Destinations/LFO Volume Dest

OS 2.0 adds two new LFO Modulation destinations, Osc1 and Osc2.

Previously, the LFO Volume Destination affected only Program Volume. Now it's possible to modulate the volume of either Oscillator independently, if so desired. The original selection is retained as Voice Volume.

To access the new feature, press PAGE 2 and scroll to 23. *LFO Volume Dest.* Use VALUE to select Voice Volume, Osc1, or Osc2. Now, when VOLUME is selected for Mod 2 Destination the LFO will modulate the Volume destination selected in Page 2.