# INTRODUCTION

This set of Python MIDI remote scripts provides added functionality for the APC40, through the use of shifted control mappings. It is compatible with Ableton Live 8, version 8.1.3 & higher, on PC or Mac. To install, simply copy the APC_64_40 folder into Ableton's MIDI Remote Scripts directory:

Mac OS X: /Applications/Live 8.x OS X/Live.app/Contents/App-Resources/MIDI Remote Scripts/APC_64_40

PC: C:\Program Files\Ableton\Live 8.x\Resources\MIDI Remote Scripts\APC_64_40

After installing, turn on the APC40, start Live, and then select APC_64_40 from the MIDI Preferences dialog drop-down menu. *Track Input* will need to be switched to on in order to use Note Mode (for more information about Note Mode, see below). For the various User Modes, which are designed for manual MIDI mapping, *Remote* will also need to be switched to on. You may wish to consider switching *Takeover Mode* to Value Scaling when using faders or knobs in one of the User Modes. The extra functions which these scripts provide are described in the following sections.
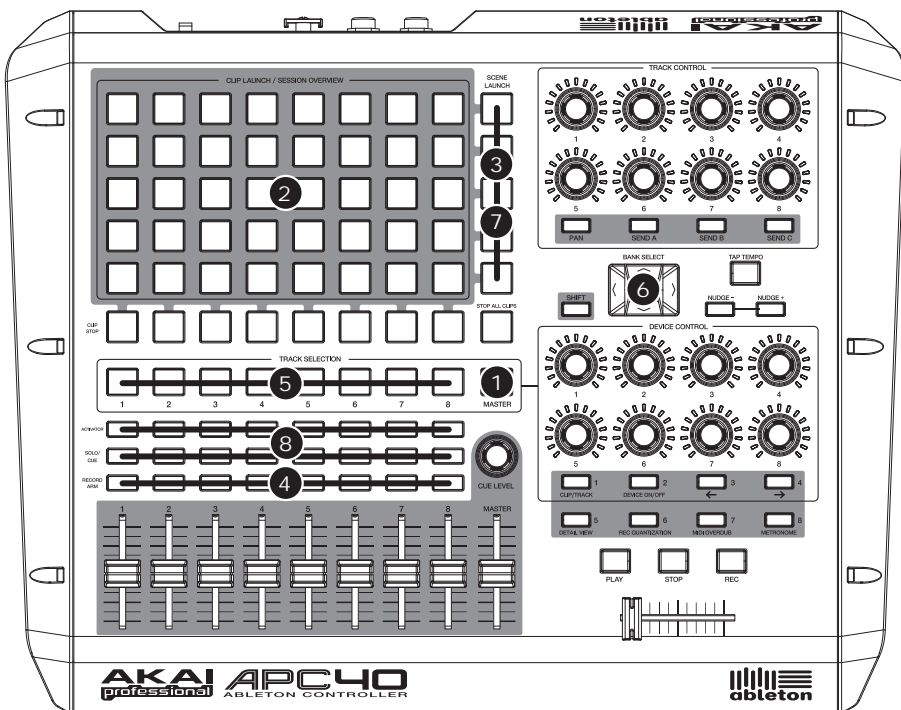
STEP SEQUENCER

1. **STEP SEQUENCER ON/OFF –** While holding the SHIFT button, press the MASTER button to turn Step Sequencer Mode on or off.

2. **NOTE GRID –** In Step Sequencer mode, the CLIP LAUNCH buttons represent the notes in the currently selected MIDI clip. The rows represent note values (pitch) and the columns represent time (step position). The note grid is 8 steps wide by 5 notes high. The starting note value for the first row is 36 (C1). Notes ascend from bottom to top and step time runs from left to right. To add a note, press an unlit button. To delete a note, press a lit button. Note velocity is represented by button colour:

    GREEN – velocity range 0-72

    AMBER – velocity range 73-100

    RED – velocity range 101-127

    Flashing buttons represent muted notes. To insert a muted note, press an unlit note button while holding down the SHIFT button. To unmute a note, press a lit button while holding down SHIFT.

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3. **LANE MUTE –** The mute state of an entire row of notes can be inverted by holding down the SHIFT button and pressing the SCENE LAUNCH button adjacent to the row. The mute state for all notes of the selected pitch will be inverted, including notes which may be outside of the grid's display range.

4. **VELOCITY –** The RECORD ARM buttons are used to control the velocity of added notes. Velocity levels increase from left to right in increments of 16. New notes added to the Note Grid will have a colour corresponding to the selected velocity level:

> **ARM BUTTON 1 –** 15 (green)
>
> **ARM BUTTON 2 –** 31 (green)
>
> **ARM BUTTON 3 –** 47 (green)
>
> **ARM BUTTON 4 –** 63 (green)
>
> **ARM BUTTON 5 –** 79 (amber)
>
> **ARM BUTTON 6 –** 95 (amber)
>
> **ARM BUTTON 7 –** 111 (red)
>
> **ARM BUTTON 8 –** 127 (red)

5. **BANK SELECTION –** There are 8 banks of 8 steps, for a total of 64 steps. Use the TRACK SELECTION buttons to select a bank, which will then be displayed on the Note Grid. The button corresponding to the currently selected bank will turn on.

6. **NAVIGATION –** To scroll through banks, use the left and right BANK SELECTION buttons. To scroll through notes, use the up and down BANK SELECTION buttons. Press and hold navigation buttons for rapid scrolling.

7. **QUANTIZATION / ZOOM –** The length of each individual step is determined by the quantization setting. The default quantization value is 1/4 beat, which is equivalent to one 16th note in 4/4 time. The corresponding zoom level is 1/2 measure per bank, or 4 measures across 8 banks. The SCENE LAUNCH buttons are used to select the note quantization value and corresponding zoom level. From top to bottom, the available quantization values are:

> **QUANTIZATION LEVEL 1 –** 1/4 note; 2 measures per bank; 16 measures total
>
> **QUANTIZATION LEVEL 2 –** 1/8th note; 1 measure per bank; 8 measures total
>
> **QUANTIZATION LEVEL 3 –** 1/16th note; 1/2 measure per bank; 4 measures total
>
> **QUANTIZATION LEVEL 4 –** 1/32nd note; 1/4 measure per bank; 2 measures total
>
> **QUANTIZATION LEVEL 5 –** 1/64th note; 1/8 measure per bank; 1 measure total

Note that zoom level and quantization work together, so that when the grid is zoomed out (quantization set to a large value), added notes will be longer; when zoomed in, added notes will be shorter.

Examples: When fully zoomed out, the 8 banks will cover an area which is 16 measures long, each individual bank will cover 2 measures, and added notes will be 1/2 notes. When fully zoomed in, the 8 banks will cover an area one measure long, each individual bank will cover 1/8 measure, and added notes will be 1/64th notes.

8. **LOOP START / LOOP LENGTH –** The Track ACTIVATOR and SOLO/CUE buttons can used to set the loop start position and the loop length, respectively. Press the ACTIVATOR button corresponding to one of the 8 bank positions to set the loop start to the start position of that bank. The loop length can be adjusted by using the SOLO/CUE buttons. Loop length can be increased or decreased in increments corresponding to bank widths, which will vary depending on quantization/zoom level.

Examples: When fully zoomed out (1/4 note quantization), the maximum loop length is 16 measures long, the minimum loop length is 2 measures long, and loop start can be moved forward or backward 2 measures at a time. When fully zoomed in (1/64th note quantization), the maximum loop length is 1 measure long, the minimum loop length is 1/8th measure long, and loop start can be moved forward or backward 1/8 measure at a time.

Note that audio clips can be manipulated using the Loop Start and Loop Length buttons, in conjunction with the Quantization/Zoom buttons, however, the Note Grid will only be updated when the currently selected clip is a MIDI clip.

9. **FOLLOW –** Press the MASTER button to turn Follow Mode on or off. When Follow Mode is on, the Note Grid will automatically refresh to display the notes in the bank which corresponds to the current play position. The bank buttons will also update automatically to indicate current bank position. In Follow Mode, the entire row of TRACK SELECTION buttons will be turned on, except the current bank button, which will be turned off.

MATRIX MODES

To access the Matrix Modes, press one of the 8 TRACK SELECTION buttons while holding down the SHIFT button. There are 8 Matrix Modes available, which are set up by default as follows, from left to right:

MATRIX MODE 1 – CLIP LAUNCH (default). Select this mode for standard Clip Launch behaviour.

MATRIX MODE 2 – SESSION OVERVIEW. This is the standard Session Overview mode, also directly accessible by holding down the SHIFT button. Selecting this mode will lock the matrix into Session Overview mode. To unlock, simply select another mode.

MATRIX MODE 3 – USER/NOTE MODE 1. This is an 8 x 6 Note Mode grid, which can be used to send MIDI notes to Live tracks on Channel 10. This mode includes a Drum Rack mapping which is represented by a block of green buttons, 4 notes wide by 4 notes high. The Drum Rack selection block is automapped to MIDI notes 36 through 72. Note velocity is fixed at 127 for all Note Modes (hardware limitation).

MATRIX MODE 4 – USER/NOTE MODE 2. This is an 8 x 6 Note Mode grid, which can be used to send MIDI notes to Live tracks on Channel 11. In this mode, notes are laid out from left to right in rows which are 8 notes wide.

MATRIX MODE 5 – USER/NOTE MODE 3. This is an 8 x 6 Note Mode grid, which can be used to send MIDI notes to Live tracks on Channel 12. This mode is similar to the previous mode, however, only the buttons corresponding to the diatonic scale on C ("white notes") are lit. The sharps are not lit in this mode, however, they will continue to send notes to Live when pressed.

MATRIX MODE 6 – USER/NOTE MODE 4. This is an 8 x 5 Note Mode grid, which can be used to send MIDI notes to Live tracks on Channel 13. In this mode, the grid is arranged in the form of two vertical blocks of notes, each 4 notes wide, to match the typical Drum Rack layout. This mode does not include the CLIP STOP buttons as part of the matrix.

MATRIX MODE 7 – USER/NOTE MODE 5. This is an 8 x 6 Note Mode grid, which can be used to send MIDI notes to Live tracks on Channel 14. In this mode, the notes have been arranged vertically in columns.

MATRIX MODE 8 – USER/NOTE MODE 6. This is an 8 x 6 User Mode grid, which has been mapped to MIDI Channel 15. This mode is intended for use with manual MIDI mappings. In this mode MIDI notes are not sent to Live tracks - they are interpreted by Live as a remote control notes only.

Any of the 6 User/Note Modes (Matrix Modes 3 through 8) can be customized by editing the Matrix_Maps.py file in the MIDI Remote Scripts directory. This file can be edited with any text editor. For each of the User/Note Modes, several options can be customized, including: colour assignment for each button in the matrix; MIDI note assignment for each button in the matrix; channel assignment for the entire matrix; inclusion or exclusion of the CLIP STOP buttons; choice of Note Mode or User Mode. (In Note Mode, the matrix buttons send MIDI notes for use on tracks - except for buttons which have been manually mapped. In User Mode, the matrix buttons do not send MIDI notes for use on tracks.)

FADER MODES

The Track Volume Faders can be re-assigned by pressing one of the 8 RECORD ARM buttons while holding down the SHIFT button. There are 8 Fader Modes available, as follows, from left to right:

FADER MODE 1 – VOLUME (default). In this mode the faders control Track Volume. This is the default mode.

FADER MODE 2 – PAN. In this mode the faders control Track Pan.

FADER MODE 3 – SEND A. In this mode the faders control Track Send A amount.

FADER MODE 4 – SEND B. In this mode the faders control Track Send B amount.

FADER MODE 5 – SEND C. In this mode the faders control Track Send C amount.

FADER MODE 6 – USER 1. This is a User Mode, designed for use with manual MID mappings.

FADER MODE 7 – USER 2. This is a User Mode, designed for use with manual MID mappings.

FADER MODE 8 – USER 3. This is a User Mode, designed for use with manual MID mappings.

TRACK CONTROL MODES

The TRACK CONTROL knobs and buttons can be assigned to various functions by selecting from among one of the 4 Track Control Modes. These modes are accessed by pressing PAN, SEND A, SEND B, or SEND C while holding down the SHIFT button.

TRACK CONTROL MODE 1 (SHIFT + PAN) – PAN / SEND A / SEND B / SEND C (default). This is the default mode, used for standard Track Control behavior. As an added feature, in this mode you can press and hold the PAN button to switch the 8 knobs from Pan Control to Volume Control and back again.

TRACK CONTROL MODE 2 (SHIFT + SEND A) – ALTERNATE DEVICE MODE. In this mode, the Track knobs function as Device Control knobs for the currently selected device. The track knob LEDs will be refreshed automatically when the current device or device parameters change. In Alternate Device Mode, the Track Control buttons will operate as follows:

DEVICE LOCK/LOAD – Press the PAN button to lock the Track Control knobs to the currently selected device (the device showing the "Blue Hand"). The knobs will remain assigned to this device even if another track or device is selected. Press the PAN button a second time to unlock from the device. If the current device has changed in the mean time, the Track Control knobs will then be assigned to the new device.

DEVICE ON/OFF – Press the SEND A button to turn the currently selected device on or off.

DEVICE BANK LEFT – Press the SEND B button to access the previous bank of parameters for the currently selected device (scroll left). This button will turn on if there are additional banks to the left.

DEVICE BANK RIGHT – Press the SEND C button to access the next bank of parameters for the currently selected device (scroll right). This button will turn on if there are additional banks to the right.

TRACK CONTROL MODE 3 (SHIFT + SEND B) – EQ/FILTER/SEND MODE. This mode is used to control track EQ and Filter parameters and Send amounts. In this mode, Track Control knobs 1 & 5 will automatically map to the current track's Device Filter & Cutoff controls if the track contains one of the following devices: *AutoFilter, Operator, OriginalSimpler, MultiSampler, UltraAnalog,* or *StringStudio*. Track Control knobs 1 & 5 can also be used with *Audio Effects Rack* controls 1 & 5, if this device is the last device in the Track's chain. Track Control knobs 2, 3 & 4 will automatically map to the current track's Send A, Send B & Send C amounts respectively. Track Control knobs 6, 7 & 8 will automatically map to the current track's first three EQ controls, if the track contains an *EQ3* or *EQ8* device. If the last device in the track's device chain is an *Audio Effects Rack*, Track Controls 6, 7 & 8 will automatically map to *Audio Effects Rack* controls 2, 3 & 4 and the SEND A, B & C buttons will be mapped to *Audio Effects Rack* controls 6, 7 & 8 respectively. In EQ/Filter/Send Mode, the Track Control buttons will operate as follows:

EQ LOCK/LOAD – Press the PAN button to lock to the Track Control knobs and buttons to the current track's EQ, Filter and Send parameters. The knobs and buttons will remain assigned to the current track and to these parameters, even if another track is selected. Press the PAN button a second time to unlock from this track and these parameters. If the current track has changed in the mean time, the Track Control knobs and buttons will be assigned to the new track's EQ, Filter and Send parameters.

EQ 1 CUT (Low Cut) – Press the SEND A button to turn EQ band 1 on or off, or to toggle between values of 0 and 127 for *Audio Effect Rack* control 6. This button will turn on when EQ cut is active or when the mapped parameter is non-zero.

EQ 2 CUT (Mid Cut) – Press the SEND B button to turn EQ band 2 on or off, or to toggle between values of 0 and 127 for *Audio Effect Rack* control 7. This button will turn on when EQ cut is active or when the mapped parameter is non-zero.

EQ 3 CUT (High Cut) – Press the SEND C button to turn EQ band 3 on or off, or to toggle between values of 0 and 127 for *Audio Effect Rack* control 8. This button will turn on when EQ cut is active or when the mapped parameter is non-zero.

TRACK CONTROL MODE 4 – USER MODE. This is a User Mode, designed for use with manual MIDI mappings on Channel 13. Each of the 8 Track Control knobs and 4 Track Control buttons can be mapped separately in this mode.

OTHER FUNCTIONS

DEVICE LOCK – Press the TAP TEMPO button once while holding down the SHIFT button to turn Device Lock on or off. This will lock the DEVICE CONTROL knobs and buttons to the currently selected device.

UNDO – Press the NUDGE- button while holding down the SHIFT button to perform an Undo operation.

REDO – Press the NUDGE+ button while holding down the SHIFT button to perform a Redo operation.

TEMPO CONTROL – Turn the CUE LEVEL knob while holding down the SHIFT button to adjust song tempo.

REVISION INFORMATION

2010-10-16 – APC 64-40 revision 1. Added support for Audio Effects Racks in Track Control Mode 3. Added support for audio clip loop start/length control in Step Sequencer Mode.

Visit http://remotescripts.blogspot.com for the latest updates and more information, or if you find these scripts useful and would like to make a donation.

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