IT/MPTM Effect Commands

Effect Column:

Eff	Name	Description
Axx	Set Speed	Sets the module Speed (ticks per row).
Bxx	Position Jump	Causes playback to jump to pattern position xx. B00 would restart a song from the beginning (first pattern in the Order List). If Cxx is on the same row, the pattern specified by Bxx will be the pattern Cxx jumps in.
Cxx	Pattern Break	Jumps to row xx of the next pattern in the Order List. If the current pattern is the last pattern in the Order List, Cxx will jump to row xx of the first pattern. If Bxx is on the same row, the pattern specified by Bxx will be the pattern Cxx jumps in. Ranges from 00h to the next pattern's row length; higher values are treated as 00h.
Dxy	Volume Slide or Fine Volume Slide	Slides the current note volume up or down. • **D0y decreases** note volume by y units on every tick of the row except the first. If y is Fh, volume decreases on every tick. • **Dx0 increases** note volume by x units on every tick of the row except the first. Volume will not exceed 64 (40h). • **DFy finely decreases** note volume by only applying y units on the first tick of the row. y cannot be Fh. • **DxF finely increases** note volume by only applying x units on the first tick of the row. x cannot be Fh.
Exx	Portamento Down or Fine/Extra Fine Portamento Down	Decreases current note pitch by xx units on every tick of the row except the first. • **EFx finely** decreases note pitch by only x units on the first tick of the row. • **EEx extra-finely** decreases note pitch with 4 times the precision of EFx.
Fxx	Portamento Up or Fine/Extra Fine Portamento Up	Increases current note pitch by xx units on every tick of the row except the first. • **FFx finely** increases note pitch by only x units on the first tick of the row. • **FEx extra-finely** increases note pitch with 4 times the precision of EFx.
Gxx	Tone Portamento	Slides the pitch of the previous note towards the current note by xx units on every tick of the row except the first.
Hxy	Vibrato	Executes vibrato with speed x and depth y on the current note. Modulates with selected vibrato waveform.Shares memory with Uxy.
Ixy	Tremor	Rapidly switches the sample volume on and off. Volume is on for x ticks and off for y ticks. For instrument plugins, this command sends note-on and note-off messages instead of modifying the volume.
Jxy	Arpeggio	Plays an arpeggiation of three notes in one row, cycling between the current note, current note + x semitones, and current note + y semitones.
Kxy	Volume Slide + Vibrato	Functions like Dxy with H00. Parameters are used like Dxy.
Lxy	Volume Slide + Tone Portamento	Functions like Dxy with G00. Parameters are used like Dxy.
Mxx	Set Channel Volume	Sets the current channel volume, which multiplies all note volumes it encompasses. Ranges from 00h (off) to 40h (full).
Nxy	Channel Volume Slide	Similar to Dxy, but applies to the current channel's volume.
Oxx	Sample Offset	Starts playing the current sample from position xx × 256, instead of position 0. Ineffective if there is no note in the same pattern cell.

Eff	Name	Description
Pxy	Panning Slide or Fine Panning Slide	Slides the current channel's panning position left or right. • **P0y** slides the panning to the **right** by y units on every tick of the row except the first. • **Px0** slides the panning to the **left** by x units on every tick of the row except the first. • **PFy finely** slides the panning to the right by only applying y units on the first tick of the row. y cannot be Fh. • **PxF finely** slides the panning to the left by only applying x units on the first tick of the row. x cannot be Fh.
Qxy	Retrigger	Retriggers the current note every y ticks and changes the volume based on the x value (see the Retrigger Volume table for more details).
Rxy	Tremolo	Executes tremolo with speed x and depth y on the current note. Modulates with selected tremolo waveform (see Waveform Types table for more details).
S1x	Glissando Control	***(This effect is not widely supported and behaves quirky in OpenMPT)*** Configures whether tone portamento effects slide by semitones or not. • **S10 disables** glissando. • **S11 enables** glissando.
S2x	Set Finetune	Overrides the current sample's C-5 frequency with a MOD finetune value. *(legacy)*
S3x	Set Vibrato Waveform	Sets the waveform of future Vibrato effects (See waveform)
S4x	Set Tremolo Waveform	Sets the waveform of future Tremolo effects (types table for)
S5x	Set Panbrello Waveform	Sets the waveform of future Panbrello effects (more details).
S6x	Fine Pattern Delay	Extends the current row by x ticks. If multiple S6x commands are on the same row, the sum of their parameters is used.
S70	Past Note Cut	**Cuts** all notes playing as a result of New Note Actions on the current channel.
S71	Past Note Off	**Sends a Note Off** to all notes playing as a result of New Note actions on the current channel.
S72	Past Note Fade	**Fades out** all notes playing as a result of New Note Actions on the current channel.
S73	NNA Note Cut	Sets the currently active note's New Note Action to **Note Cut**.
S74	NNA Note Continue	Sets the currently active note's New Note Action to **Continue**.
S75	NNA Note Off	Sets the currently active note's New Note Action to **Note Off**.
S76	NNA Note Fade	Sets the currently active note's New Note Action to **Note Fade.**
S77	Volume Envelope Off	**Disables** the currently active note's **volume** envelope.
S78	Volume Envelope On	**Enables** the currently active note's **volume** envelope.
S79	Panning Envelope Off	**Disables** the currently active note's **panning** envelope.
S7A	Panning Envelope On	**Enables** the currently active note's **panning** envelope.
S7B	Pitch Envelope Off	**Disables** the currently active note's **pitch** or **filter** envelope.
S7C	Pitch Envelope On	**Enables** the currently active note's **pitch** envelope.
S8x	Set Panning	(*Xxx is a much finer panning effect)* Sets the current channel's panning position. Ranges from 0h (left) to Fh (right).
S9x	Sound Control	Executes a sound control command (see the Sound Control table for more details).
SAx	High Offset	Sets the high offset for future Oxx commands. x × 65536 (10000h) is added to all offset effects that follow this command.
SB0	Pattern Loop Start	Marks the current row position to be used as the start of a pattern loop.
SBx	Pattern Loop	Each time this command is reached, jumps to the row marked by SB0 until x jumps have occurred in total. If SBx is used in a pattern with no SB0 effect, SBx will use the row position marked by any previous SB0 effect. Pattern loops cannot span multiple patterns. Ranges from 1h to Fh.

Eff	Name	Description
SCx	Note Cut	Stops the current sample after x ticks. If x is greater than or equal to the current module Speed, this command is ignored. If x is 0, it will be treated as if it were 1.
SDx	Note Delay	Delays the note or instrument change in the current pattern cell by x ticks. If x is greater than or equal to the current module Speed, the current cell's contents are not played. If x is 0, it will be treated as if it were 1.
SEx	Pattern Delay	Repeats the current row x times. Notes are not retriggered on every repetition, but effects are still processed. If multiple SEx commands are on the same row, only the leftmost command is used.
SFx	Set Active Macro	Sets the current channel's active parametered macro.
T0x	Decrease Tempo	Decreases the module Tempo by x BPM on every tick of the row except the first.
T1x	Increase Tempo	Increases the module Tempo by x BPM on every tick of the row except the first.
Txx	Set Tempo	Sets the module Tempo if xx is greater than or equal to 20h.
Uxy	Fine Vibrato	Similar to Hxy, but with 4 times the precision. Shares memory with Hxy.
Vxx	Set Global Volume	Sets the global volume. Ranges from 00h (off) to 80h (full).
Wxy	Global Volume Slide	Similar to Dxy, but applies to the global volume.
Xxx	Set Panning	Sets the current channel's panning position. Ranges from 00h (left) to FFh (right).
Yxy	Panbrello	Executes panbrello with speed x and depth y on the current note. Modulates with selected panbrello waveform (see the Waveform Types table for more details).
Zxx	MIDI Macro	Executes a MIDI Macro.
\xx	Smooth MIDI Macro	Executes an interpolated MIDI Macro. (***this is a ModPlug hack)***

Volume Column:

Eff	Name	Description
A0x	Fine Vol Slide Up	Functions like DxF (slides the volume up x units on the first tick).
B0x	Fine Vol Slide Down	Functions like DFy (slides the volume down x units on the first tick).
C0x	Volume Slide Up	Functions like Dx0 (slides the volume up x units on all ticks except the first).
D0x	Volume Slide Down	Functions like D0y (slides the volume down x units on all ticks except the first).
E0x	Portamento Down	Similar to Exx. Compared to Exx, parameters are 4 times coarser (eg e01 = E04).
f0x	Portamento Up	Similar to Fxx. Compared to Fxx, parameters are 4 times coarser (eg f01 = F04).
g0x	Tone Portamento	Similar to Gxx. Below is a table that translates g0x parameters to Gxx parameters: **g0x Gxx g0x Gxx** g00 G00 g05 G20 g01 G01 g06 G40 g02 G04 g07 G60 g03 G08 g08 G80 g04 G10 g09 GFF
h0x	Vibrato Depth	Executes a vibrato with depth x and speed from the last Hxy or Uxy command.
pxx	Set Panning	Sets the current channel's panning position to xx. Ranges from 0 to 64.
vxx	Set Volume	Sets the current note volume to xx. The behaviour of this command when sent to instrument plugins can be configured in the Instrument Editor.

MPTM Only Effect Commands

OpenMPT's MPTM format is heavily based on the IT format and its effect command set, but it does add several new features.

Effect Column:

Eff	Name	Description
S7D	Force Pitch Envelope	Enables the currently active note's pitch envelope and forces it to act as a pitch envelope (rather than a filter cutoff envelope).
S7E	Force Filter Envelope	Enables the currently active note's pitch envelope and forces it to act as a filter cutoff envelope (rather than a pitch envelope).
:xy	Note Delay + Cut	Delays the note in the current pattern cell by `x` ticks and cuts it after `x` + `y` ticks. If `x` is greater than or equal to the current module Speed, the note will be ignored (and as such, cannot be cut with `y`). If `x` + `y` is greater than or equal to the current module Speed, only the note cut will be ignored.

#xx	Parameter Extension	Extends the parameter of the last `Bxx`, `Cxx`, `Oxx`, `Txx`, `+xx` or `*xx` command. If placed after such a command, the parameter values are combined. If there is only one `#xx` command below the actual command (the limit for `Bxx`, `Cxx`, and `Txx`), the original command is multiplied by 256 and then parameter `xx` is added to it. For `Oxx`, up to 4 rows can be combined. The fourth row is multiplied by 1, the third by 256 (100h), the second by 65536 (10000h), and so on.
		
		Example:
		`|C-501...O21`
		`|........#02`
		`|........#01`
		
		In this example, the **hexadecimal** sample offset is (21h × 10000h) + (2h × 100h) + 1h = 210201h. In **decimal**, it is (33 × 65536) + (2 × 256) + 1 = 2,163,201.

+xx	Finetune	Changes the current note's tuning. `+80` is center (no change to the tuning), lower values decrease the tuning and higher values increase the tuning. In sample mode, the depth of this command is fixed at ±1 semitone. For sample-based instruments, the depth is defined by the instrument's pitch bend range setting. For plugins, this command directly translates to MIDI pitch bend commands, so the depth is whatever the pitch bend depth of the plugin or MIDI device is set to. This command can be extended by `#xx` Parameter extensions for even finer control over the tuning.
***xx**	Finetune (Smooth)	Exactly the same as `+xx`, but slides from the previous finetune value to the new value on every tick of the row.

Volume Column:

Eff	Name	Description
o0x	Sample Cue	Starts playing the current sample from cue point `x`, instead of position 0. Cue points can be chosen in the Sample Editor. Ineffective if there is no note in the same pattern cell. Shares effect memory with `Oxx` and can be combined with that command.

Combined Commands:

By combining the volume column `oxx` and effect column `Oxx` commands, two special offset behaviours can be achieved:

- `o00` + `Oxx`: A cue point command with a parameter of 0 turns the effect column offset into a percentage offset, i.e. the command jumps to `xx` × $^{1}/_{256}$th of the total sample length. For example `o00` + `O80` plays the second half of any sample.
- `o0x` + `Oyy`: For `x` > 0, the effect column `Oyy` is added on top of the cue point, so `o05` + `O01` plays from the 5th cue point of the sample + 256 samples

Common Effect Parameters

Most effect parameters follow a simple scheme, but some effects also use a look-up table for their parameters. Depending on the effect, different parameters might do completely different things. Some common look-up table effects are described below.

Waveform Types

Some oscillator effects (namely Vibrato, Tremolo and Panbrello) use preset oscillator waveforms. They can be changed using special commands; the possible parameters of these commands are listed here.

IT/MPTM Formats	
Parameter	**Waveform**
0 (default)	Sine (Retrigger)
1	Sawtooth (retrigger)
2	Square (retrigger)
3	Random (retrigger)

Retrigger means that the oscillator waveform is played from its starting point when a new note is played.
Continue means that the waveform continues at its last playback position when a new note is played. This waveform type is exclusive to the MOD and XM formats.

Every oscillator waveform is 64 points long, and the speed parameter denotes by how many points per tick the play position is advanced. So at a vibrato speed of 2, the vibrato waveform repeats after 32 ticks.

Retrigger Volume

The Retrigger command `Qxy` in the MPTM formats does not only retrigger the note every `y` ticks, but also changes the note volume depending on the `x` value.

The following table explains the meaning of every possible `x` parameter:

Parameter	Effect	Parameter	Effect
0	MPTM No volume change	**8**	No volume change
1	Volume - 1	**9**	Volume + 1
2	Volume - 2	**A**	Volume + 2
3	Volume - 4	**B**	Volume + 4
4	Volume - 8	**C**	Volume + 8
5	Volume - 16	**D**	Volume + 16
6	Volume × ⅔	**E**	Volume × 1.5
7	Volume × ½	**F**	Volume × 2

Sound Control:

The sound control effect (`S9x` in the IT / MPTM formats) can be used to control various aspects of sound playback. Possible parameters are listed here.

Parameter	Name	Description
0	Surround Off	Disables surround playback on the current channel. This should only be used when using Quad Surround Panning. To keep compatibility with other trackers, a normal panning effect should be used in Center Surround mode.
1	Surround On	Enables surround playback on the current channel. When using stereo playback, the right channel of a sample is played with inversed phase . When using quad playback, the rear channels are used for playing this channel.
8	Reverb Off	Disables Reverb on the current channel.
9	Reverb On	Enables Reverb on the current channel. (*use is discouraged, use a reverb plugin instead)*
A	Center Surround	Sets the surround mode to Center Surround for all channels. This is the default mode. The `S91` command will place the channel in the center of the rear channels. Any panning command will bring it back to the front channels.
B	Quad Surround	Sets the surround mode to Quad Surround for all channels. In this mode, panning commands can adjust the position of the rear channels. Switching between the front and rear channels can only be done by using the `S91` and `S90` commands.
C	Global Filters	Sets filter mode to Global on all channels. In this mode, when resonant filters are enabled with a `Zxx` effect, they will stay active until explicitly disabled by setting the cutoff frequency to the maximum (`Z7F`), and the resonance to the minimum (`Z80`).
D	Local Filters	Sets filter mode to Local on all channels. In this mode, the resonant filter will only affect the current note and will revert when a new note is played.
E	Play Forward	Forces the current sample to play forward.
F	Play Backward	Forces the current sample to play backward.