



## **DefleMask - a Multi-System Tracker**

DefleMask is one of the most ambitious chipmusic projects to date; it is a donationware aiming to have one unique tracker interface for making chiptunes for many old school sound chips.

**Supported Soundchips:**

- 1: YAMAHA YM2612 FM Soundchip
- 2: Texas Instruments SN76489 PSG Soundchip
- 3: Z80 Variant used by the Nintendo Game Boy
- 4: Hudson Soft HuC6280
- 5: Ricoh 2A03 APU
- 6: MOS Technology SID
- 7: YAMAHA YM2151 FM Soundchip
- 8: SEGA PCM

**Supported Systems:**

- SEGA Genesis (Soundchip 1 + Soundchip 2)
- SEGA Master System (Soundchip 2)
- Nintendo Game Boy (Soundchip 3)
- NEC PC-Engine/TurboGrafx-16 (Soundchip 4)
- Nintendo NES (Soundchip 5)
- Commodore 64 (Soundchip 6)
- Arcade Machine (SEGA X/Y Board, Soundchip 7 + Soundchip 8)

**Attention:**

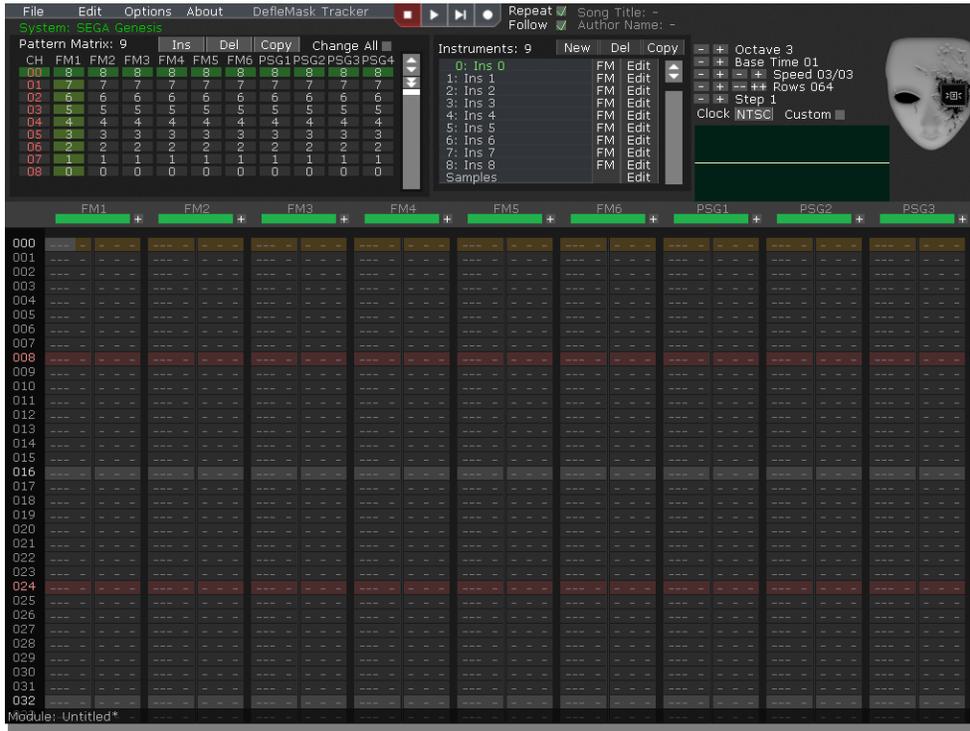
\* Please provide Administrator/Root privileges to DefleMask, it needs to have write permission in its directory.

\* DefleMask character support is standard 8-bit ASCII

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# Main Interface



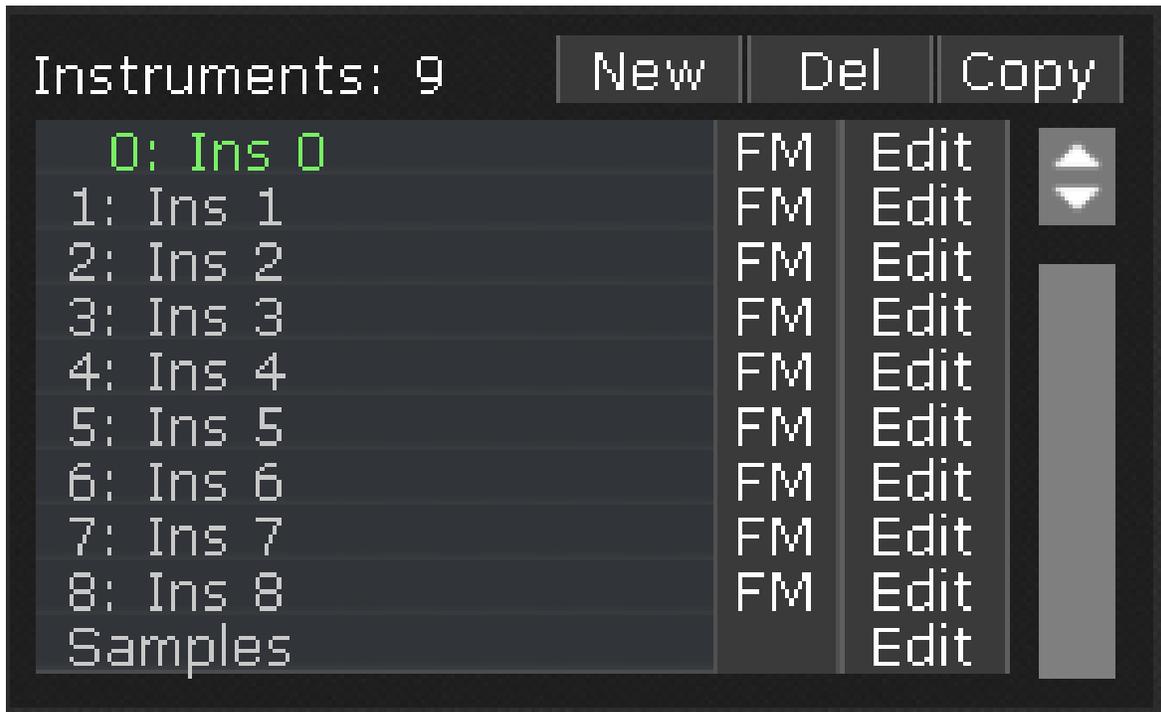
- **1: Pattern Matrix**

Pattern Matrix: 9	Ins	Del	Copy	Change All						
CH	FM1	FM2	FM3	FM4	FM5	FM6	PSG1	PSG2	PSG3	PSG4
00	8	8	8	8	8	8	8	8	8	8
01	7	7	7	7	7	7	7	7	7	7
02	6	6	6	6	6	6	6	6	6	6
03	5	5	5	5	5	5	5	5	5	5
04	4	4	4	4	4	4	4	4	4	4
05	3	3	3	3	3	3	3	3	3	3
06	2	2	2	2	2	2	2	2	2	2
07	1	1	1	1	1	1	1	1	1	1
08	0	0	0	0	0	0	0	0	0	0

In the pattern matrix you can arrange the positions of your song’s parts (patterns). It is possible to create different orders for all channels. The pattern matrix is actually a sequencer and it will help you to control how your song will evolve through time.

**IMPORTANT:** By using the effect Bxx you can create loops, the loop entrance point will be marked with a “L>” in the pattern matrix. It is important to consider that, when you enter in the loop start pattern, all current instruments will be re-written. Any effect in the past that modified the instrument sound should have a new instance after the loop point, this is needed to guarantee correct playback on exported files.

- **2: Instrument List**



When you start a new song, there are no instruments at all; you have to click on "New" in order to create a new instrument.

After you create an instrument, you can change the type by clicking on "FM" or "STD" if the current system supports both "FM" and "STD" instruments, STD instruments are controlled by macros, and FM instruments are controlled by its FM envelopes and operator registers.

You can enter on the properties of the instruments by clicking on edit button. Inside that window, you can name it, edit its behavior, load another instruments, save your changes, etc.

If you want a copy of the instrument, you should click "Copy" button, and a copy will be created at the bottom of the list with "COPY" added at the end.

You can use the arrows from the upper right corner to move them freely; also by pressing "Del" you will delete the selected instrument (all instruments under it will be moved one position up).

If the current system supports PCM Samples, a Samples line will appear. You can press "Edit" button in order to load and assign samples to notes.

**Supported instruments formats:**

- .dmp (DefleMask preset)
- .bin (RAW SMPS dump)
- .tfi (TFM Music Maker format)
- .y12 (GENS KMod dump)
- .ins (MVS Tracker format)
- .vgi (VGM Music Maker format)
- .opm (YM2151 dumps, you have to select the last instrument in the list to load up to 8 opm instruments)

- **3: Instrument Editor Windows:**

The instrument editor window in DefleMask is a floating sub window, you can use the side button ">" to switch the position of the window to the right part of the screen, after that you can use the "<" button to move it to the left.

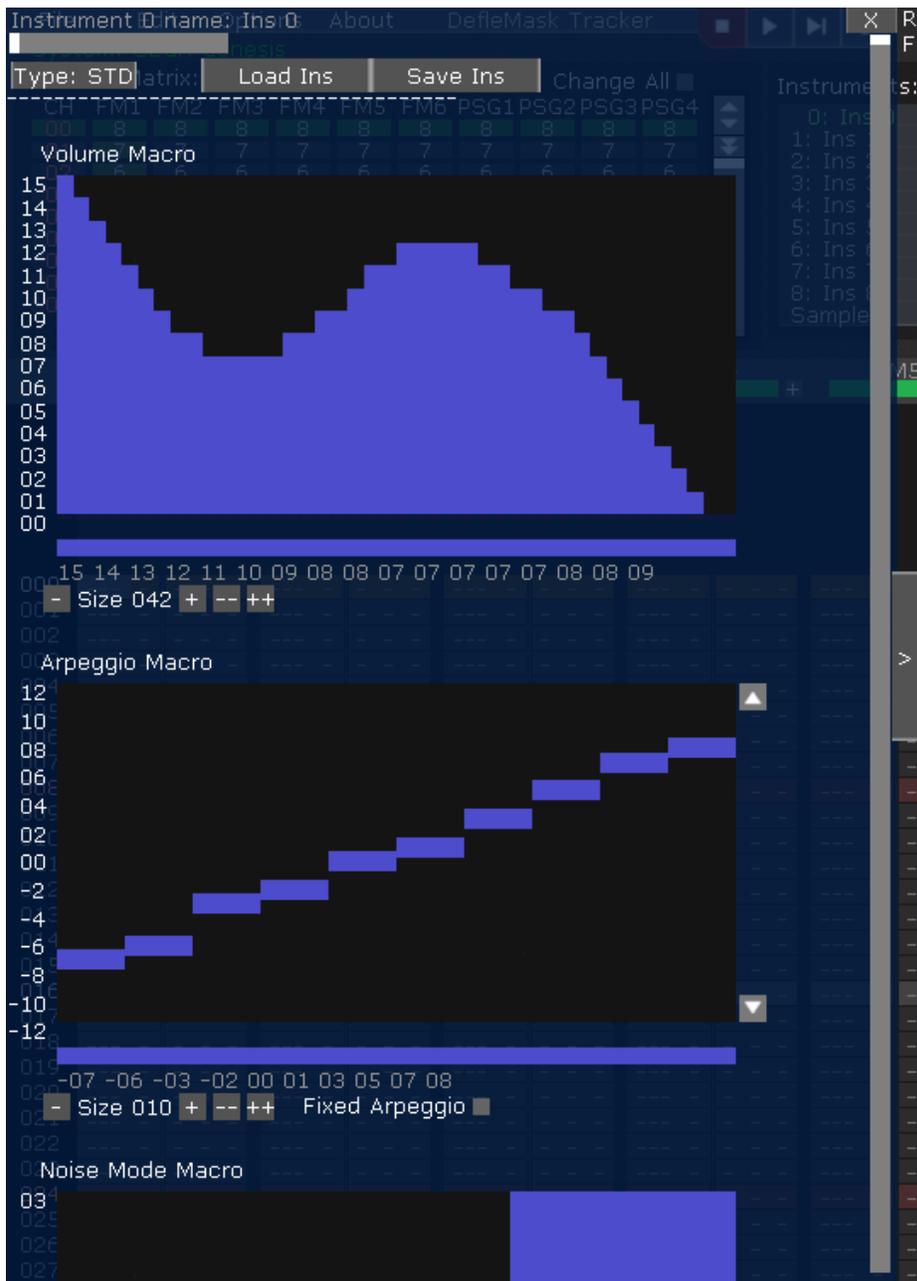
This is very useful while you are editing a song and you want to check the instrument at the same time.

In order to close the window, you have to press the "X" button at the top of the screen.

Because DefleMask is a Multi-System Tracker there are two types of instruments edition windows: STD, FM, WAVETABLES and Samples.

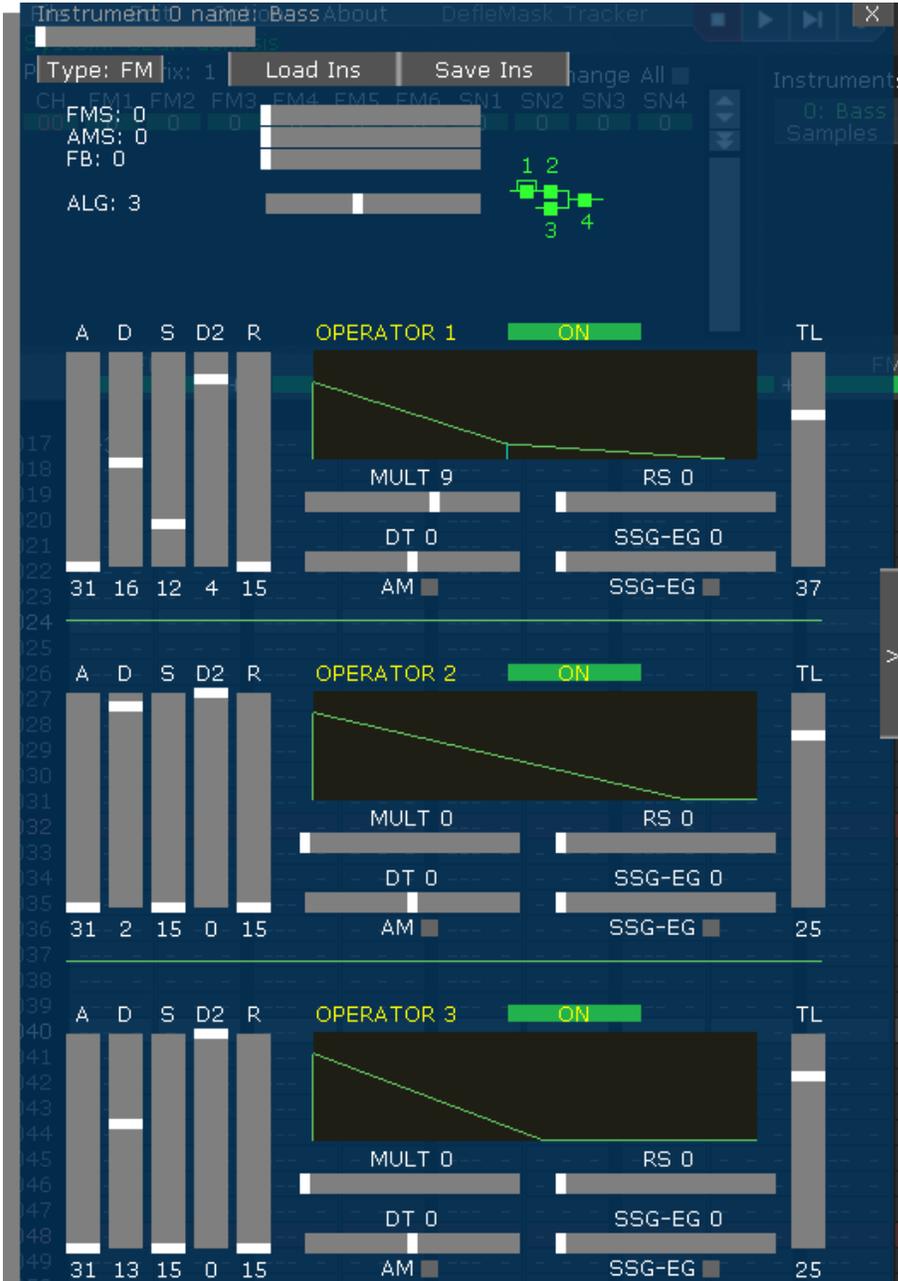
They are explained in the next pages.

## STD Instruments:



The STD Instruments are controlled by Macro Generators, you can draw any type of shape using the mouse, you can also copy notes or volume values and paste its inside the Macro, or set a Loop point by clicking in the bottom part of the envelope, and you can remove that loop point with a click with the right mouse button. If the current system supports WAVE Channels, you can change the wave selected by the "Selected WAVE" display or by the button in the bottom of the instrument list.

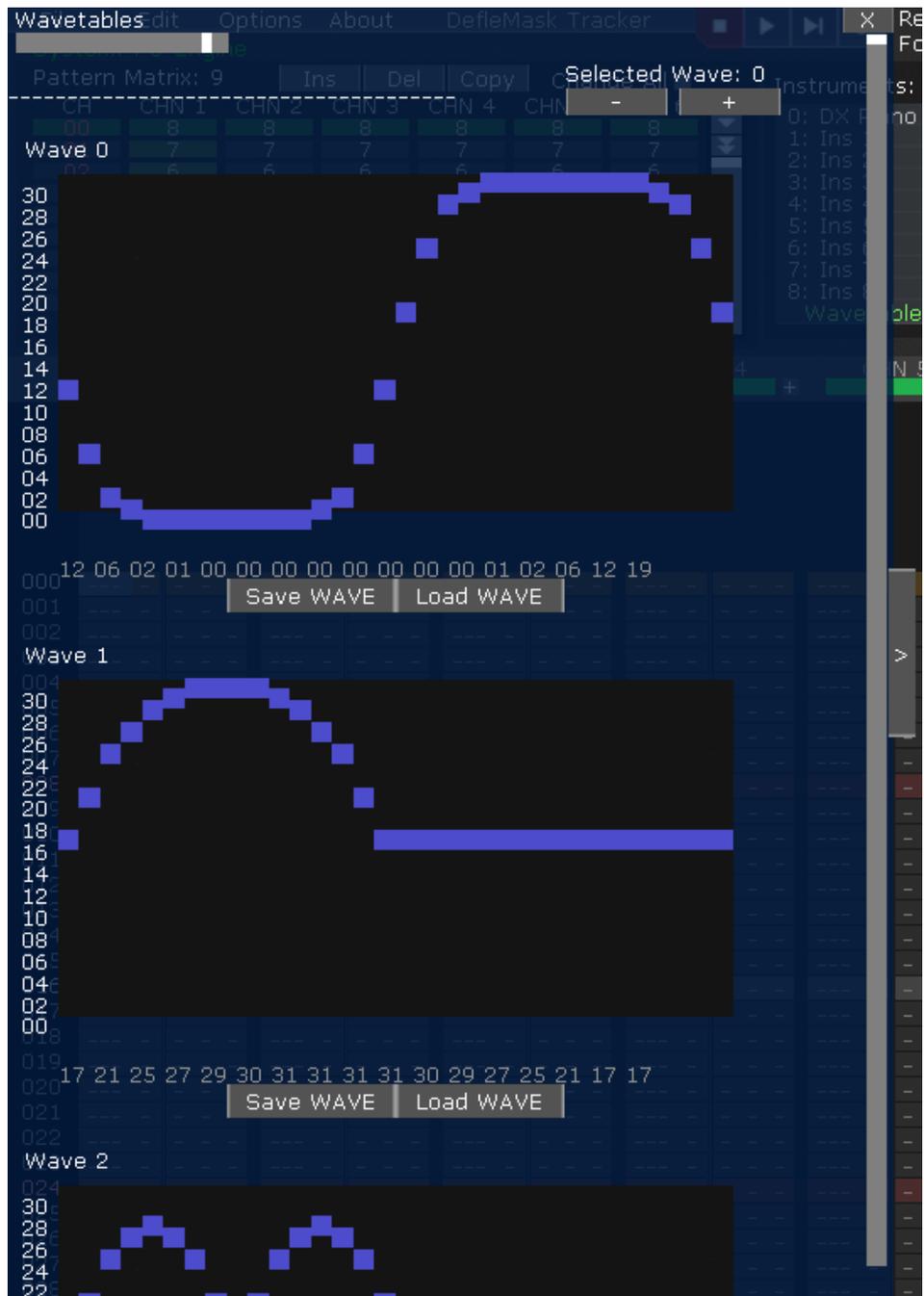
**FM Instruments:**



FM Instruments are controlled by many values that change how the envelopes of carriers (operators that produce sound) and modulators (operators that modify that sound) relates to each other. You can also mute some operators while editing an instrument to simplify the creation process (the muting will not have any effect on the actual song playback).

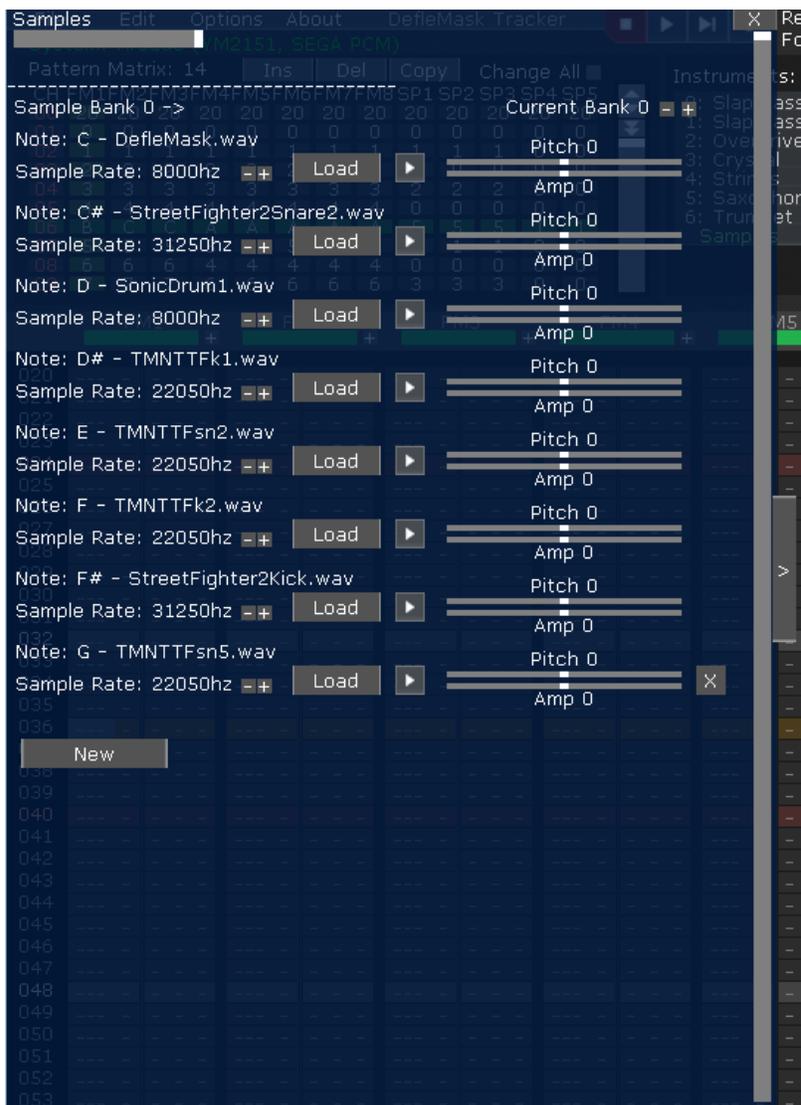
FM Synthesis is a very complex synthesis method and its explanation is outside of the scope of this manual. Please refer to specific FM Synthesizers soundchip manuals to master this wonderful sound synthesis method.

### WAVETABLE Instruments:



Some Systems, for example, the Game Boy, have WAVE Channels, they are edited using the mouse and drawing the shape of the desired wave. You can load and save wavetables any time. In order to change the current Wavetable selected by the "Selected WAVE" display or by the button in the bottom of the instrument list. Also you can copy volume or note values from the patterns and paste that directly in the graph.

## Sample Instruments:



You can load Wav files into DefleMask in order to use the PCM capabilities of the current system selected; the wav files must have 8/16 bits depth.

You can use a max of 12 PCM samples per bank (all notes from the keyboard). If you keep adding samples, a new bank will be created and you have to switch banks in your song by using EBxx - Set Sample Bank effect.

Pitch sliders are only a basic speed multiplier, detailed speed control should be done in your favorite digital audio editor. DefleMask will not re-sample the wav files.

To replace a loaded sample, simply reload a new sample over the desired one. To delete a sample, click on the "X". Only the latest loaded sample can be deleted! The samples are stored in a stack.

**Main menu:****File:**

- New:** Start a song from scratch.
- Load DMF:** Loads a DMF (DefleMask Module Format) into the tracker.
- Load Skin:** Loads a new Skin into DefleMask.
- Save DMF:** Saves a DMF (DefleMask Module Format).
- Save ROM:** Builds a rom for the system.
- Save VGM:** Saves the song in .vgm format.
- Export WAV:** Export the current song, in real time, to a WAV file.

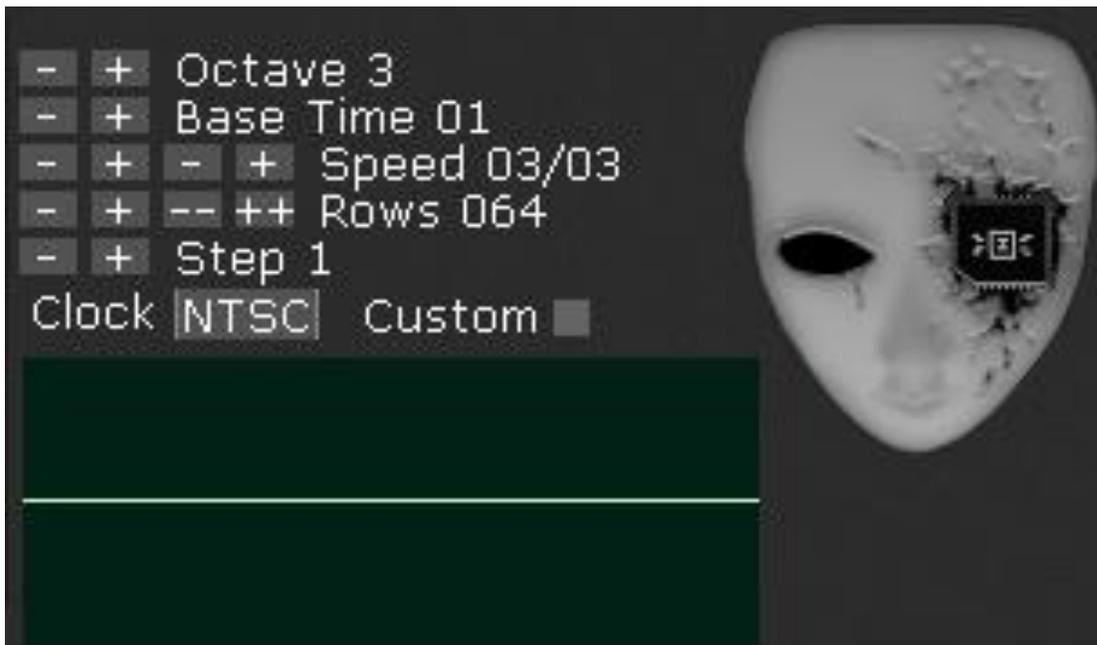
**Edit:**

- Undo:** Ctrl+Z
- Redo:** Ctrl+Y
- Cut:** Ctrl+X
- Copy:** Ctrl+C
- Paste:** Ctrl+V
- Paste Mix:** Ctrl+B
- Delete:** DEL
- Select All:** Ctrl+A
- Zap:** A new menu will appear to clear specific parts of the module file.

**Options:**

- Change System:** Select the sound system.
- Keyboard:** To customize your keyboard layout.
- MIDI Config:** A list to select from available MIDI IN devices.
- Global Shrink:** This will compress all patterns to half the size.
- Global Expand:** This will expand patterns to double the size.
- Play on Load:** To enable or disable auto play of a loaded song.
- Waveform:** To enable or disable Waveform output.
- Plane entry:** Move to right or down while entering effects.
- HighlightA/B xx:** Rows color highlighting.
- Buffer xxxx:** Change the Audio Buffer Size to improve the tracker performance.

**About:** About screen!

**Speeds, octave, pattern size and step values:**

**Octave:** Sound octave selector, can be changed also by keyboard shortcuts.

**Base Time:** The base time value multiplies the speed values.

**Speed:** The count of clock ticks (in Hz) of an even row and for an odd row.

**Rows:** Rows per pattern, "++" and "--" buttons will increase/decrease by 8.

**Step:** The count of rows that the tracker will skip after a new input data.

**NTSC/PAL/Custom:** You can choose the global tick value of the song, NTSC is 60 Hz and PAL is 50 Hz. You can also check "Custom" in order to set a custom clock Hz speed value.

**Repeat:** If it is checked, the song will start again when it reaches the end. This is only a value for the tracker, if you want a repeat in exported files, a Bxx effect should be placed in the end.

**Follow:** If it is checked, the camera will follow the playing row.

## Patterns

The screenshot displays a grid of 32 rows (000 to 031) and multiple columns. Each cell contains a sequence of characters representing notes, effects, volumes, and instruments. For example, row 000 contains 'D-3', '2', 'E-5 70', '0 0811', 'A-5 7A', '9 0315', 'E-5 72', '8 0810', 'G-5 72', '8 0801', 'E-2 A', '5 0310', 'G-2 9', '5 0'. The interface uses color coding: grey for row numbers, white for notes, green for volumes, blue for instruments, and red for effects. Some cells are highlighted with colored backgrounds (red, green, blue, yellow).

This is the main part of any tracker, in it you can enter notes, effects, volumes and instrument changes.

### A row

001	---	---
002	C-3 7F	2 0047
003	---	---

**Row (grey):** The number of the current row, the number of total rows can be changed using Total Rows changer on **4**.

**Note (white):** In this place you can put the actual notes that the tracker will play, check Controls chapter for a note-key relation.

**Vol (green):** Here you will be able to define a new volume; the max value depends on the current system selected.

**Ins (blue):** This value will define the instrument that will trigger the note.

**Effect (red):** In order to know the possible effects check the Standard Effects chapter + System information of the selected system.

**Value (white):** The effect's parameter.

**NOTE:** You can add up to 4 effects columns pressing the "+" button in the upper part of each channel.

## Default Controls

### General

COMMAND	KEY
Exit	Esc
Play song/stop	Return/F5
Play pattern	Alt+Return/F6
Play from current position	Shift+Return/F7
Global Play	Ctrl+Return (this will play all currently open DefleMask Instances on the OS)
Mutes Channel N	Ctrl+1/2/3/4/5/6/7/8/9/N
Recording mode	Space
More/Less step size	Ctrl+Add/Ctrl+Subtract
Quick save	Ctrl+S
Sliders precise change	Ctrl+Mouse Wheel over a slider
Open module	Ctrl+O
New module	Ctrl+N

### Top of Patterns

COMMAND	KEY
Mute/Unmute Channel	Click on the button under the channel's name
Solo Channel	Double Click on the button under the channel's name

### Pattern Matrix

COMMAND	KEY
Increase Pattern Number	Left Mouse Click on Pattern's ID
Pattern Number Equal To The Last One	Middle Mouse Click on Pattern's ID
Decrease Pattern Number	Right Mouse Click on Pattern's ID
Insert a Unused Frame	"Ins" Button
Delete Current Frame	"Del" Button
Copy Frame to Next Position	"Copy" Button
Move Frame Up	"/\ " Button
Move Frame Down	"\ " Button
Move Frame To Bottom as New	Double "\ " Button

### Instrument List

COMMAND	KEY
New Instrument	"New" Button
Delete Last Instrument	"Del" Button
Copy Selected Instrument	"Copy" Button
Edit Instrument	"Edit" Button/F1 Key

### Instrument Editor Window

COMMAND	KEY
Copy Instrument	Shift+Ctrl+C
Paste Instrument	Shift+Ctrl+V
Next Instrument	Alt+Right Arrow Key
Previous Instrument	Alt+Left Arrow Key

### Patterns

COMMAND	KEY
Movement	Arrow Keys
Movement Up/Down with 4 as step	Page Up/Page Down
Movement through Channels	Ctrl+Left/Right
Movement through Patterns	Ctrl+Up/Down
Translate Under Values Down	Insert/Alt+Down
Move Under Values Up	Backspace/Alt+Up
Go to the first row	Home
Go to the last row	End
Remove Selected Values	Delete/OS Key+Backspace
Multiple Selection	Ctrl+A
Custom Selection	Shift+Arrow Keys / Click+Drag
Custom Selection Expand	Ctrl+E
Custom Selection Shrink	Ctrl+W
Copy	Ctrl+C
Cut	Ctrl+X
Paste	Ctrl+V
Paste and Mix	Ctrl+B
Numerical Values	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F (HEX)
Notes	
Note-Off	Tab
Decrease selected Notes	Ctrl+F1
Increase selected Notes	Ctrl+F2
Decrease selected Octaves	Ctrl+F3
Increase selected Octaves	Ctrl+F4
Interpolate Values	Ctrl+I
Change current octave input	Divide Key/Multiply (numpad)

## Effects

DefleMask uses Protracker's standard MOD effect enumeration. Like other trackers, however, the speed and behavior of the commands can be processed differently.

Remember that the current system can change how effects are processed. In order to learn more about the changes and new effects available on a desired system, you will need to check that system's category in this manual.

### Effects list

[0xy - Arpeggio](#)

[1xx - Portamento up](#)

[2xx - Portamento down](#)

[3xx - Portamento to note](#)

[4xy - Vibrato](#)

[5xy - Portamento to note and volume slide](#)

[6xy - Vibrato and volume slide](#)

[7xy - Tremolo](#)

[8xx - Panning](#)

[9xx - Set Speed Value 1](#)

[Axy - Volume Slide](#)

[Bxx - Position Jump](#)

[Cxx - Retrigger](#)

[Dxx - Pattern Break](#)

[Exx - Extended Commands](#)

[Fxx - Set Speed Value 2](#)

**0xy - Arpeggio**

This effect changes the pitch of the note rapidly, the speed of this being set by the **E0xx** – Arpeggio Tick Speed effect. You can trigger 3 different notes, the first one is the base note, the second one is note + x semitones, and the third one is note + y semitones. The effect will work until the effect is turned off by setting xy to 00.

**1xx - Portamento Up**

This effect will change the frequency by adding the xx value on each tick. In other words, value xx defines speed of the portamento. The effect will continue until it is turned off by setting xx to 00.

**2xx - Portamento Down**

This effect will change the frequency by subtracting the xx value on each tick. In other words, value xx defines speed of the portamento. The effect will continue it is turned off by setting xx to 00.

**3xx - Porta to note**

This effect will change the frequency of the previous note to the new note with a speed of xx.

The effect will continue until a new note is triggered, it reaches the pitch of the second note, or the effect is turned off by setting xy to 00.

**4xy - Vibrato**

Sine vibrato, changes frequency up and down with specified depth and speed. Value x defines speed of the vibrato. 1 is minimum speed, F is maximum speed. Value y defines depth of the vibrato. Maximum depth is a full note. The effect will continue until the effect is turned off by setting xy to 00.

**5xy - Portamento to note and volume slide**

Continues previous 3xx effect and combine the result with a volume slide that works like Axy effect.

**6xy - Vibrato and volume slide**

Continues previous 4xx effect and combine the result with a volume slide that works like Axy effect.

**7xy - Tremolo**

Similar to the vibrato, but changes the volume amplitude instead of the pitch. x for speed, and y for depth.

**8xx - Panning**

Panning will change the sound output of the channel to the right or the left speakers, normally it is 0x01 right, 0x10 left, and 0x11 both. However, some systems have different stereo behavior. You will need to check these individually.

**9xx - Set Speed Value 1**

This command will set the playback speed 1 dynamically.

**Axy - Volume Slide**

Volume slide up or down. Positive x value and zero y value defines speed of the volume slide going up, positive y value and zero x value defines speed of the volume slide going down.

**Bxx - Position Jump**

This command will make the cursor jump to pattern position xx (hex). With xx lower than the current pattern index you can create a looped track, the loop entrance point will be marked with a "L>" in the pattern matrix.

Please take into account that only the first loop command (Bxx going to a previous position) will be taken into account, if you have more they will be ignored.

**Cxx - Retrig**

Retrig the current note xx times on a tick. If the parameter xx is equal or higher than tick time, the effect is ignored. This effect will work until the row ends.

**Dxx - Pattern Break**

This command will stop playing the current pattern and will jump to the next one in the pattern matrix. You can also select which row to start on in the next pattern. Note that the specified row xx is in Hex. This effect will not work on the last pattern of the song, because there is no "next pattern". If you want to make a loop, use Bxx instead.

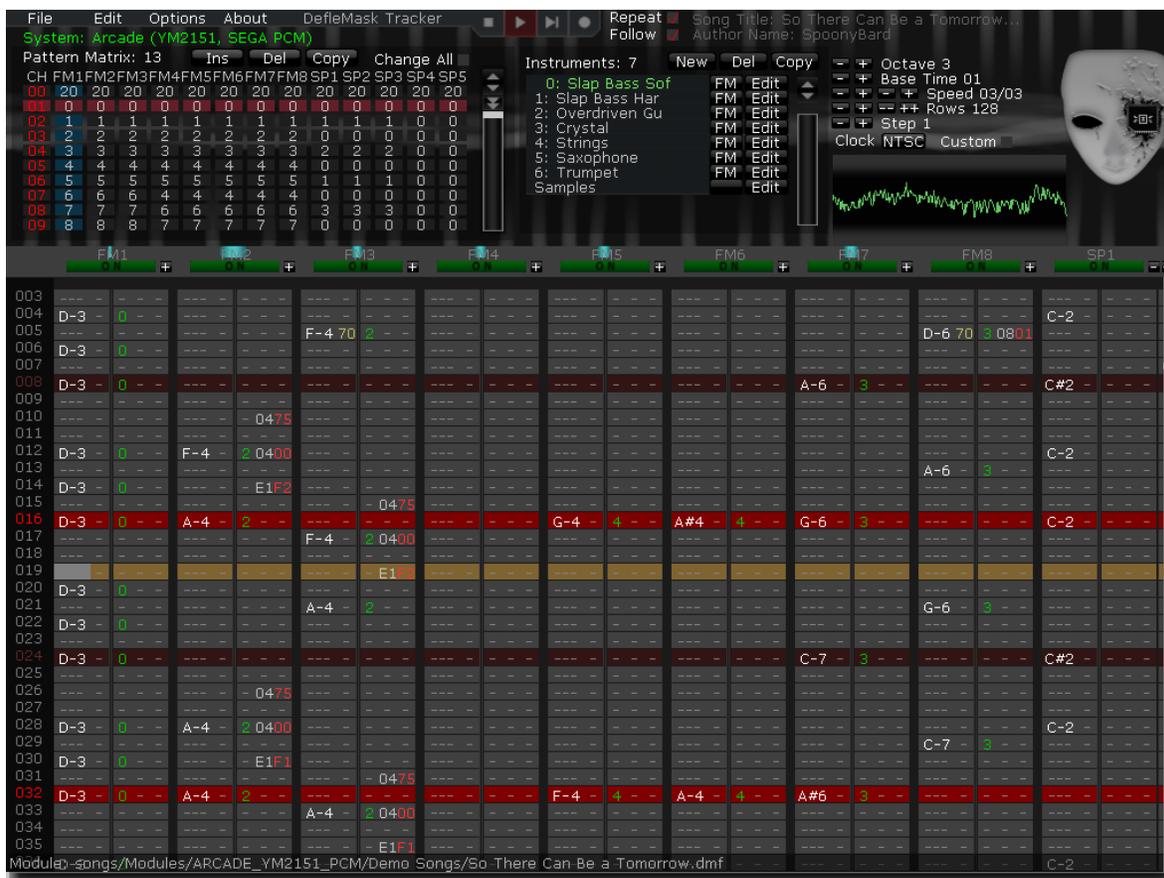
## Exx - Extended Commands

- **E0xx** – Arpeggio Tick Speed: Use xx to define the speed of the arpeggio (00xy) effect. Bigger numbers are slower.
- **E1xy** - Note Slide Up: Use x to define the speed, and y to define the number of semitones to increment. This effect is similar to 3xx - Portamento to Note.
- **E2xy** - Note Slide Down Use x to define the speed, and y to define the number of semitones to decrement. This effect is similar to 3xx - Portamento to Note.
- **E3xx** - Set Vibrato Mode: This command will define vibrato mode, 1 UP ONLY (like guitars), 2 DOWN ONLY, 0 both/normal mode.
- **E4xx** - Set Fine Vibrato Depth: This command will define the fine vibrato depth, default value is F.
- **E5xx** - Set Fine Tune: This command will change notes pitch in a precise way, it is a fine tweak offset with origin in E580. E5FF goes to current note + 1 semitone, E500 is current note – 1 semitone.
- **EBxx** - Set Samples Bank: This command will change the current sample bank to xx. A max of 12 sample banks can be used, from 0 to 11.
- **ECxx** - Note Cut: This command will rapidly cut a triggered note, a value greater than the speed of the current row will be ignored.
- **EDxx** - Note Delay: This command will delay a note a short period of time, a value greater than the speed of the current row will be ignored.
- **EFxx** - Set Global Fine Tune: This command will add or subtract to the global pitch of the entire song, a value greater than 80 will add, and a value lower than 80 will subtract (this effect is cumulative).

## Fxx - Set Speed Value 2

This command will set the playback speed 2 dynamically.

# Skins



Every user has different visual preferences, so it is available an easy system to customize the visual aspect of the software.

You can do a new skin for DefleMask by following 5 easy steps:

1. Enter to skins folder.
2. Copy "default\_classic" folder.
3. Rename your copy.
4. Edit the textures.
5. Edit colors.ini changing the RGB values.
6. Load it from File->Load Skin.

Enjoy!

## Config File

DefleMask Tracker uses a config file to store the configuration, instead of the registry or other platform-dependent solutions.

The file config.ini can be modified by hand; but almost all the parameters are modified through DefleMask.

NAME	POSSIBLE VALUES	COMMENTS
full_screen	0,1	Sets the full screen, it is saved automatically if you press Alt+Enter
window_width	>0	Sets the startup Window width.
window_height	>0	Sets the startup Window height.
max_fps	>0	Sets the speed of the rendering system, with lower values you can gain performance.
current_skin	Any skin name	Store the latest skin used, if an inexistent or invalid skin is detected, the default skin will be loaded.
sound_system	SYSTEMS	Store the latest System used.
sound_system_mode	SYSTEM MODE	Store the latest System Mode used.
highlight_a	>0	First Highlight value.
highlight_b	>0	Second Highlight value.
buffer_size	0,1,2,3	Store the last buffer size used.
play_on_load	0,1	Setting it to 1 will tell to DefleMask not to play a track after load it.
skip_intro	0,1	Setting it to 1 will tell to DefleMask not to show any intro screen.
waveform_viewer	0,1	Setting it to 1 will enable the waveform viewer.
horizontal_effects	0,1	Setting it to 1 will make the cursor move to the right rather than down while entering effects.
keyslayout	LAYOUT	Last used keyboard layout.
midi_in	>0	Stores the midi device used.

# **Systems information**

# SEGA Genesis



Soundchip 1: YAMAHA YM2612

Soundchip 2: Texas Instruments SN76489

Note Range: C#-0 -> C-8

Max Volume: 7F (Soundchip 1), F (Soundchip 2)

You can also select **SEGA Genesis (EXT.CH3)** mode, this mode divides the FM channel 3 into its 4 operators to control the frequency of them freely. This can increase the polyphony to 4 more channels of sine waves (if you use Algorithm 4), make 2 ops instruments, among other cool effects.

## Effects:

### YM2612:

#### **10xy - LFO Control:**

This effect controls the Low Frequency oscillator of the YAMAHA YM2612. The x value set if the LFO is on or off, a non-zero value turns the LFO on. The y value controls the speed of the LFO, you can set a value from 0 to 7.

#### **11xx - Feedback Control:**

The FB is a global parameter of a YM2612's channel. You can designate xx with a value from 0 to 7.

#### **12xx - TL Operator 1 Control:**

With this effect you can modify the TL of the operator 1. You can designate xx with a value from 0 to 7F.

#### **13xx - TL Operator 2 Control:**

With this effect you can modify the TL of the operator 2. You can designate xx with a value from 0 to 7F.

#### **14xx - TL Operator 3 Control:**

With this effect you can modify the TL of the operator 3. You can designate xx with a value from 0 to 7F.

#### **15xx - TL Operator 4 Control:**

With this effect you can modify the TL of the operator 4. You can designate xx with a value from 0 to 7F.

#### **16xy - MULT Control:**

The Multiplier factor is a frequency multiplier, all of the 4 operators are capable of have its own values of MULT.

The x value is the operator to modify, you can designate a value from 1 to 4. The y value controls the MULT value; you can designate a value from 0 to F.

#### **17xx - DAC Enable:**

This effect will enable the sample features of the last FM Channel.

A non-zero value will enable the sample output, and a zero value will disable it.

**18xx – EXT. CHN3 Mode Enable:**

This effect will disable/enable the independent frequency for operators. Only available in SEGA Genesis (Ext. CH3)

**19xx - Global AR Control:**

This effect will control all the AR values of all operators of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Axx - AR Operator 1 Control:**

This effect will control the AR value of the operator number 1 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Bxx - AR Operator 2 Control:**

This effect will control the AR value of the operator number 2 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Cxx - AR Operator 3 Control:**

This effect will control the AR value of the operator number 3 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Dxx - AR Operator 4 Control:**

This effect will control the AR value of the operator number 4 of the current instrument, a value higher than 0x1F (31) would be ignored.

**SN76489:****20xy - Change Noise Mode:**

This effect only works on SN76489 (PSG) channels.

This effect will change the way in which the SN76489 makes the noise.

Value x sets the special noise mode, if it is set to 0 only 3 frequencies are available: C, C# and D.

If it is set to 1, the noise can reach any frequency at the cost of losing the third Square channel.

Value y sets the type of noise, setting it to 0 will enable the periodic noise mode, if it is set to 1, white noise generation will be enabled.

Keep in mind that, after changing this value, you have to play the current track in order to update the emulator noise mode.

# SEGA Master System



Soundchip: Texas Instruments SN76489

Note Range: A-0 -> A#-7

Max Volume: F

A maximum of 4 notes can be sounded on the SN76489 if the noise mode is not in the special mode, if it is, a maximum of 3 notes can be sounded.

**Effects:****20xy - Change Noise Mode:**

This effect only works on SN76489 (PSG) channels.

This effect will change the way in which the SN76489 makes the noise.

Value x sets the special noise mode, if it is set to 0 only 3 frequencies are available: C, C# and D.

If it is set to 1, the noise can reach any frequency at the cost of losing the third Square channel.

Value y sets the type of noise, setting it to 0 will enable the periodic noise mode, if it is set to 1, white noise generation will be enabled.

Keep in mind that, after changing this value, you have to play the current track in order to update the emulator noise mode.

# Nintendo Game Boy



Soundchip: Z80 Variant

Note Range: C-1 -> C-8

Max Volume: F on SQ1/SQ2/Noise Channel, 3 on WAVE Channel.

**Attention!** Due to how volume is handled inside the soundchip, you should always use Volume Envelopes to shape your volume fades. Using the volume column directly is only available at the start of the notes, while the note is sounding the volume envelope controls it all.

**Effects:****10xx - Set WAVE:**

This effect will change the current wave defined in the WAVE Channel Instrument Editor Window.

**11xx - Set Noise Polynomial Counter Mode:**

This effect will set the current Polynomial counter for the Noise Channel, 0 will set it to 15 steps, and 1 will set it to 7.

**12xx - Set Duty Cycle:**

This effect will set the duty cycle value of the current Square Channel, you can set a value from 0 to 3. 0=12.5%, 1=25%, 2=50% and 3=75%.

**13xy - Set Sweep Time and Shift:**

Value x will set the Sweep time, and value y will set the Sweep Shift. Both have a valid range from 0 to 7. A zero value will disable the sweep.

**14xx - Set Sweep Direction:**

A zero value will make the sweep to go upwards, a non-zero value downwards.

## NEC PC-Engine



Soundchip: Hudson Soft HuC6280

Note Range: C#-0 -> B-6

Max Volume: 1F

The stereo 08xy effect in PC Engine is X for LEFT and Y for Right. 0-F values are allowed.

**Effects:****10xx - Set WAVE:**

This effect will change the current wave defined in the WAVE Channel Instrument Editor Window.

**11xx - Enable Noise Channel:**

This effect will enable the features of the Channels 5 and 6 to produce Noise, a value different from zero will enable the noise channel in the current channel. This command will only take Effect in channels 5 and 6.

**12xx - Set LFO Mode:**

Enabling the LFO will mute the Channel 2. This effect will set the current LFO mode, a value of 00 will turn off the LFO, a value of 01 will add the LFO data directly to channel 0's frequency, a value of 02 will shift the LFO data left by four places and then it will be added to the frequency, a value of 03 will shift left the LFO data by eight places and then it will be added to the frequency.

**13xx - Set LFO Speed:**

This effect will set the LFO speed if it is enabled by 12xx effect.

**17xx - Enable Sample Output:**

Setting xx to 1 will enable the sample output in the selected channel, setting it to 0 will enable again the wavetable output.

# Nintendo NES



Soundchip: Ricoh 2A03 (APU)

Note Range: A-0 -> C-7

Max Volume: F

You have 5 channels, 2 square channels with variable duty cycle, a Triangle Channel, a Noise Channel and a 7Bits PCM channel (RAW PCM NES Samples)

**Effects:****12xx - Change Duty Cycle/Noise Mode:**

This effect will change the duty cycle or the noise output mode.

If you are in a square channel (SQ1 or SQ2), you will change the Duty Cycle (possible values are 00, 01, 02 and 03), if you are in the Noise Channel (NOI) you could change the noise mode, possible values are 00 and 01. Keep in mind that you can change them too by using the Duty Cycle Macro of the instrument.

# Commodore 64



Soundchip: MOS Technology SID

Note Range: A-0 -> C-7

Max Volume: F (global parameter of the soundchip, you have to use the ADSR to modify the volume per channel)

You have 3 channels, with selectable Waveforms (Triangle, Saw, Noise, Pulse) and ADSR generators.

There are two version of the SID chip, the 6581 and the 8580. DefleMask supports both of them, and the differences are: better mixing of waveforms for the 8580, and more aggressive filters for 6581.

## **WARNINGS:**

The SID have something called "ADSR bug", if you hear a note not triggering maybe you have to increase the ADSR Hard Reset Time (effect 15xx).

The filter is only one, you should be careful and use only one instrument at a time that have enabled the "Initialize the filter with this instrument's parameters"

**Effects:****10xx - Set WAVE:**

This effect will set directly the waveform for the current channel, the parameter is a 4bits bitmask, a detailed list could be found in the Instrument Editor category of Commodore 64 in this manual.

**11xx - Filter Cutoff Set:**

This effect will set the filter cutoff to a specific value, you can set values from 0 to 64 (hex).

**12xx - Pulse Width Set:**

This effect will set directly the pulse width; xx could be from 0 to 64.

**13xx - Filter Resonance Set:**

This effect will change the current Filter Resonance value, xx goes from 0 to F.

**14xx - Filter Mode Set:**

xx is a bitmask to enable or disable the filter modes:

0 = Low Pass Disabled, Band Pass Disabled, High Pass Disabled.

1 = Low Pass Enabled, Band Pass Disabled, High Pass Disabled.

2 = Low Pass Disabled, Band Pass Enabled, High Pass Disabled.

3 = Low Pass Enabled, Band Pass Enabled, High Pass Disabled.

4 = Low Pass Disabled, Band Pass Disabled, High Pass Enabled.

5 = Low Pass Enabled, Band Pass Disabled, High Pass Enabled.

6 = Low Pass Disabled, Band Pass Enabled, High Pass Enabled.

7 = Low Pass Enabled, Band Pass Enabled, High Pass Enabled.

**15xx - ADSR Hard Reset Time Set:**

This effect will set the amount of frames that the ADSR Reset effect (1Axx) will take to perform the reset of the envelope, a value of 3 should be enough to avoid all types of ADSR Bugs presents in the SID (default value: 1).

**1Axx - ADSR No Reset:**

This effect will prevent the reset of the ADSR on note on, if xx is a non-zero value, then all the next notes of the channel will continue the envelope, a value of zero will reset the ADSR on every note on (keep in mind that the SID chip has a bug regarding to the ADSR, to reset it effectively the software should wait some frames, you can set the count of frames to wait using 15xx effect).

**1Bxy - Filter Cutoff Reset:**

This effect will reset the filter cutoff to the current instrument filter cutoff, very useful to finish a Dynamic Macro Filter Cutoff change. An y value different from zero will change it instantly, and the x value, if it is not set to zero, will reset it on every new note. Keep in mind that the filter cutoff is a global value on the Commodore 64, so this command will change the behavior of all the channels that are using the filter.

**1Cxy - Pulse Width Reset:**

This effect will reset the pulse width to the current instrument pulse width, very useful to finish a Dynamic Macro Pulse Width change. An y value different from zero will change it instantly, and the x value, if it is not set to zero, will reset it on every new note.

**1E0X - Extended 0 - Attack Set:**

This effect will change dynamically the attack of the selected channel. x can go from 0 to F.

**1E1X - Extended 1 - Decay Set:**

This effect will change dynamically the decay of the selected channel. x can go from 0 to F.

**1E2X - Extended 2 - Sustain Set:**

This effect will change dynamically the sustain of the selected channel. x can go from 0 to F.

**1E3X - Extended 3 - Release Set:**

This effect will change dynamically the release of the selected channel. x can go from 0 to F.

**1E4X - Extended 4 - Ring Modulation Set:**

This effect will set or clear the ring modulation of the selected channel. x can be 0 or 1.

**1E5X - Extended 5 - Sync Set:**

This effect will set or clear the sync of the selected channel. x can be 0 or 1.

**1E6X - Extended 6 - Channel 2 OFF Set:**

This effect will set the CH2OFF command of the SID's chip dynamically. x can be 0 or 1.

# Arcade



Soundchips: YAMAHA YM2151 + SEGA PCM  
Note Range: C#-0 -> B-7  
Max Volume: 7F

Effect 08 works 08xy where x is left speaker and y is right speaker.  
Max sample rate of PCM data: 31250hz

## Effects:

### YM2151:

#### **10xx – Noise Mode Set:**

This effect will enable the noise output of the 4<sup>th</sup> operator of the last FM channel. 00 means disabled, standard behavior as a FM operator. From 0x01 to 0x20 (HEX) you will set the white noise frequency. This provides independence from the main frequency of the other operators (to make noise and kick at the same time at different pitches, for example)

#### **11xx - Feedback Control:**

The FB is a global parameter of a YM2612's channel. You can designate xx with a value from 0 to 7.

#### **12xx - TL Operator 1 Control:**

With this effect you can modify the TL of the operator 1. You can designate xx with a value from 0 to 7F.

#### **13xx - TL Operator 2 Control:**

With this effect you can modify the TL of the operator 2. You can designate xx with a value from 0 to 7F.

#### **14xx - TL Operator 3 Control:**

With this effect you can modify the TL of the operator 3. You can designate xx with a value from 0 to 7F.

#### **15xx - TL Operator 4 Control:**

With this effect you can modify the TL of the operator 4. You can designate xx with a value from 0 to 7F.

#### **16xy - MULT Control:**

The Multiplier factor is a frequency multiplier, all of the 4 operators are capable of have its own values of MULT.

The x value is the operator to modify, you can designate a value from 1 to 4. The y value controls the MULT value; you can designate a value from 0 to F.

#### **17xx – Set LFO Speed:**

This effect will set the LFO's speed. It starts disabled (00), the max value is FF.

**18xx – Set LFO Waveform:**

This effect will change the LFO waveform, 0 SAW, 1 SQUARE, 2 TRIANGLE, 3 NOISE.

**19xx - Global AR Control:**

This effect will control all the AR values of all operators of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Axx - AR Operator 1 Control:**

This effect will control the AR value of the operator number 1 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Bxx - AR Operator 2 Control:**

This effect will control the AR value of the operator number 2 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Cxx - AR Operator 3 Control:**

This effect will control the AR value of the operator number 3 of the current instrument, a value higher than 0x1F (31) would be ignored.

**1Dxx - AR Operator 4 Control:**

This effect will control the AR value of the operator number 4 of the current instrument, a value higher than 0x1F (31) would be ignored.

**SEGA PCM:****20xx – Set Sample Delta:**

This effect will set the speed of sample playback, very useful to make tonal samples. The formula is:  $\text{delta} * (31250/255) \text{hz} = \text{sample hz}$

## FAQ

**Q:** How can I associate the files extension with DefleMask?

**A:** DefleMask automatically associate files extension under Windows, in Windows 7 you should start it as Administrator to let DefleMask to write into the registry. In Linux/OS X you should done the association manually.

**Q:** I saved a track in VGM format, but there are some problems with the playback of the file, why?

**A:** Remember that DefleMask can export in various versions of the VGM format; some players maybe do not support that particular version.

**Q:** I've made a Skin for DefleMask and some Textures are not loaded, what I'm doing wrong?

**A:** Remember that you need to copy all textures from the default skin, if some texture is missing DefleMask will simply load the default skin. If the problem persist, please create a thread on the forum explaining your problem.

**Q:** How can I speed up the performance of DefleMask?

**A:** You could try to increase the Buffer's size, under options menu. Also you can try to decrease the max\_fps value inside the config.ini file.

**Q:** My computer crashed, my work is lost?

**A:** DefleMask saves automatically a backup module in the folder where the executable is located. You should search for "backup.dmf", it is the latest module played.

**Q:** I cannot run DefleMask, I got a "Impossible to create the Window.

**A:** This should be a problem in the OpenGL drivers or video drivers, try to search for an OpenGL installation package and to update the video drivers and the problem should be fixed.

**Q:** On my Linux DefleMask won't start, why?

**A:** This is usually due to a missing library, remember to get OpenGL (sudo apt-get install freeglut3), if you are on a 64Bits distro you have to Download 32Bits libraries (sudo apt-get install ia32-libs).

**Q:** On my Mac OS X I get "Library not loaded: /usr/local/lib/libSDL-1.2.0.dylib" and DefleMask won't start, why?

**A:** You have to move libSDL-1.2.0.dylib file included with DefleMask to usr/local/lib to correctly load the Library.

## Links

DefleMask Website:

<http://www.deflemask.com>

DefleMask Forum:

<http://www.deflemask.com/forum>

Delek's Website:

<http://www.delek.net>

Delek's YouTube Channel:

<http://www.youtube.com/Dele1000>

Delek's SoundCloud:

[http://www.soundcloud.com/Delek\\_Music](http://www.soundcloud.com/Delek_Music)

DefleMask Wiki:

<http://deflemask.wikia.com>

## Thanks!

Thank you for using DefleMask! consider a donation using PayPal (to [deeleek@gmail.com](mailto:deeleek@gmail.com)) or Bitcoin!

My Bitcoin address:

1DELEKif32CbB4FJRWW6gGoYzxiy7bxepU

