

### Conventions:

**n** : natural number

**z** : integer number

**r** : “real” number (actually finite-precision floating-point, thus rational)

**r+** : non-negative “real” number

**s** : contiguous string of characters (string without spaces)

**p** : one among a list of predefined strings for the parameter (multiple choice)

**< >** : mandatory parameter

**[ ]** : optional parameter

**[ ] ... [ ]** : variable number of optional parameters

### Required arguments:

<b>Parameter:</b>	--stdft_win_len <n>
<b>Shorthand:</b>	-w <n>
<b>Description:</b>	Short-Time Discrete Fourier Transform Window Length (a.k.a Frame Size)
<b>Associate variable:</b>	unsigned int fft_prop->window->length
<b>Observações:</b>	It is possible to use the “k” multiplier (e.g. “-w 4k” instead of “-w 4096”)

<b>Parameter:</b>	--input_file <s>
<b>Shorthand:</b>	-i <s>
<b>Description:</b>	Input File Name
<b>Associate variable:</b>	char stream->file_name[FILENAME_MAX]

### Configuration arguments (override defaults):

<b>Parameter:</b>	--stdft_apod_fun <p> [r] ... [r]
<b>Shorthand:</b>	-a <p>
<b>Description:</b>	STDFT Apodization Function (a.k.a tapering or smoothing function)
<b>Associate variable:</b>	Apodization_Function APOD_FUN
<b>Possible values:</b>	rectangular, triangular, hamming, hann, blackman, blackman-harris, nuttall3~12, nuttall14~15, gaussian, hanning-poisson, helie_a_w1, helie_a_w6

<b>Parameter:</b>	--stdft_win_step <n>
<b>Shorthand:</b>	-s <n>
<b>Description:</b>	STDFT Window Step (a.k.a. window hop or frame stride)
<b>Associate variable:</b>	unsigned int fft_prop->step

<b>Parameter:</b>	--zero_padding_ratio <n>
<b>Shorthand:</b>	-z <n>
<b>Description:</b>	Zero Padding Ratio
<b>Associate variable:</b>	unsigned short fft_prop->zero_padding_ratio

<b>Parameter:</b>	--min_abs_f0 <r+>
<b>Description:</b>	Minimum Absolute F0 (in Hertz)
<b>Associate variable:</b>	double MIN_ABSOLUTE_F0

<b>Parameter:</b>	--min_rel_f0 <r+>
<b>Description:</b>	Minimum Relative F0 (in Frequency Resolution units)
<b>Associate variable:</b>	double MIN_F0_TO_FREQ_RES_RATIO
<b>Observações:</b>	setting to 0 disables this constraint

<b>Parameter:</b>	--max_abs_f0 <r+>
<b>Description:</b>	Maximum Absolute F0 (in Hertz)
<b>Associate variable:</b>	double MAX_ABSOLUTE_F0

<b>Parameter:</b>	--max_bands <n>
<b>Description:</b>	Maximum Critical Bands
<b>Associate variable:</b>	unsigned char MAX_CRITICAL_BANDS

<b>Parameter:</b>	--min_interonset_gap <r+>
<b>Description:</b>	Minimum Interonset Gap (i.e., Minimum Distance Between Onsets) (in seconds)
<b>Associate variable:</b>	double MIN_DISTANCE_BETWEEN_ONSETS

<b>Parameter:</b>	--min_onset_win <r+>
<b>Description:</b>	Onset Threshold Window Minimum Length (in seconds)
<b>Associate variable:</b>	double ONSET_THRESHOLD_WINDOW_MIN_LENGTH

<b>Parameter:</b>	--max_onset_win <r+>
<b>Description:</b>	Onset Threshold Window Maximum Length (in seconds)
<b>Associate variable:</b>	double ONSET_THRESHOLD_WINDOW_MAX_LENGTH

<b>Parameter:</b>	--percentile <r+>
<b>Shorthand:</b>	-p <r+>
<b>Description:</b>	Onset Threshold Percentile (in per-unit)
<b>Associate variable:</b>	double ONSET_THRESHOLD_PERCENTILE
<b>Observação:</b>	Rounded to nearest discrete possibility

<b>Parameter:</b>	--scale_factor <r>
<b>Shorthand:</b>	-f <r>
<b>Description:</b>	Onset Threshold Percentile Scaling Factor
<b>Associate variable:</b>	double ONSET_THRESHOLD_PERCENTILE_SCALING_FACTOR
<b>Observação:</b>	threshold = const_part + scale_factor * percentile(threshold_win)

<b>Parameter:</b>	--const_part <r>
<b>Shorthand:</b>	-c <r>
<b>Description:</b>	Onset Threshold Constant Part
<b>Associate variable:</b>	double ONSET_THRESHOLD_CONSTANT_PART

<b>Parameter:</b>	--max_delay <r+>
<b>Description:</b>	Maximum After Onset Delay Before F0 Evidence (in seconds)
<b>Associate variable:</b>	double MAX_AFTER_ONSET_DELAY_BEFORE_F0_EVIDENCE

<b>Parameter:</b>	--max_gap <r+>
<b>Description:</b>	Maximum F0 Evidence Gap Inside Note (in seconds)
<b>Associate variable:</b>	double MAX_F0_EVIDENCE_GAP_INSIDE_NOTE

<b>Parameter:</b>	--min_duration <r+>
<b>Description:</b>	Minimum Note Duration (i.e., minimum note evidence time)
<b>Associate variable:</b>	double MIN_NOTE_DURATION

<b>Parameter:</b>	--ref_a4_freq <r+>
<b>Description:</b>	A4 Reference Frequency (in Hertz)
<b>Associate variable:</b>	double FREQ_REF_A4

<b>Parameter:</b>	--pow_norm_level
<b>Shorthand:</b>	-n
<b>Description:</b>	Power Normalization Level (in dB)
<b>Associate variable:</b>	double POWER_NORMALIZATION_LEVEL

<b>Parameter:</b>	--lowest_note <n>
<b>Description:</b>	Pitch Range Lowest Note
<b>Associate variable:</b>	unsigned char PITCH_RANGE_LOWEST_NOTE

<b>Parameter:</b>	--highest_note <n>
<b>Description:</b>	Pitch Range Highest Note
<b>Associate variable:</b>	unsigned char PITCH_RANGE_HIGHEST_NOTE

<b>Parameter:</b>	--f0_estimation_method <p> [p] [r] ... [r]
<b>Shorthand:</b>	-m
<b>Description:</b>	F0 Estimation Method
<b>Associate variable:</b>	F0_Estimation_Method ESTIMATION_METHOD
<b>Possible values:</b>	(max_index, hps, hsc, bw_hsc, fft_fft) [mag pow lp wd], klapuri

<b>Parameter:</b>	--unpred_method <p> [r] ... [r]
<b>Shorthand:</b>	-u
<b>Description:</b>	Unpredictability Estimation Method
<b>Associate variable:</b>	Unpredictability_Estimation_Method UNPRED_METHOD
<b>Possible values:</b>	complex, lp, ilp, sam, ph, new

<b>Parameter:</b>	--klap_ic <r+>
<b>Description:</b>	Klapuri Multiple F0 Estimation Iteration Control parameter
<b>Associate variable:</b>	double KLAPURI_ITERATION_CONTROL

<b>Parameter:</b>	--piano_roll
<b>Description:</b>	Print Notes as Gnuplot Arrows (piano-roll like)
<b>Associate variable:</b>	PRINT_NOTES_AS_GNUPLOT_ARROWS

Parameters that change the system overall behaviour (operation mode):

<b>Associate variable:</b>	Asymut_Operation_Mode OPERATION_MODE
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<b>Parameter:</b>	--transcribe
<b>Description:</b>	Transcribe (i.e., default system operation mode)

<b>Parameter:</b>	--print <p>   <p> <p> [p]
<b>Description:</b>	Prints
<b>Possible values:</b>	samples, apod_win_time, apod_win_freq, <spec loc_max> <ph uph mag pow lp wd pn [doubled_linebreaks]>, unpred, threshold, bands_response, bands_response_summary, bands_sum, onset, f0_estimate

<b>Parameter:</b>	--ruminare <p>
<b>Description:</b>	Ruminates (process but don't print anything, essentially for benchmarking)
<b>Possible values:</b>	spec, unpred, f0_estimate