1 GNMIDI user tool toolreplacetext

Purpose

The tool can be used to **search and replace text in MIDI files** (single and batch conversion).
It supports simple text and mighty regular expression replacing.
It supports complex conditional replacing (replace only when certain condition is true).
It supports interactive replacing (check self where replacing is ok) or trying without changes.

Options

- *text type*
  (default: any type) or one from the combobox list (e.g. trackname, lyric, text,marker ...). Copyright is not used by this tool.
- *pattern*
  the text that should be found and replaced if found
- *replace*
  the text that will replace the matching pattern
- *ignorecase*
  when check box is selected then the pattern also matches characters that only differ by letter case e.g. A matches also a (else the pattern must be written exactly as it occurs in the field.
- *whole only*
  matches only the whole text (default: parts inside text are matching)
- *words only*
  matches only parts that are at beginning or end of text or beginning and at ending of a word. A word character is a letter, digit, _, or ä ö ü Ä Ö Ü ß
- *regular expressions*
  pattern and replace are regular expressions to describe a complex matching using wildcards and sets and alternatives and more (see below).
  Regular expressions are for experts.
- *encodenotascii*
  using this option translates characters in byte range 80-FF to hexadecimal text Q_xHH_E before searching and these code patterns back to characters in replaced result text.
  Since regular expression \xHH only allows smaller ASCII code values 00-7F and some character might be difficult to enter into the edit box this option gives possible access to these characters
  e.g. Q_xC3_EQ_x84_E is utf-8 sequence C3 84 for utf-8 character encoded Ä
  Only use this option if your patterns or replace field uses these coding.
- *no changes*
  the matches are only tried and no changes to files are done. The found matches are listed in log file.
- *condition* (for programmers only)
  (default: empty, no condition) allows to specify a condition in which case the match is accepted. Some attributes from the MIDI event are available for testing.

Hint: the options are displayed in a dialog before the tool starts searching

character set

Currently only ascii and latin-1 character sets are supported.
Special characters are currently not supported (e.g. binary characters or newline).

Overwriting files

when the input and output folders are identical then before overwriting a file by the modified version a backup file will be created from the original file with a name that starts with _ and contains the original UTC file date.
It is recommended to specify a new empty output folder for batch conversion.
When an input file does not match the pattern then no output file is generated.

Regular expressions in pattern

- regex may reference groups using (...) in pattern
- replace may reference groups used in regex $1 $2 ... ($0 references whole match)
- special characters start with \ (backslash).
- backslash itself must be written as \\
- ( ) [ ] . * | ^ $ and more characters with special meaning must be written with \ (e.g. \(if the usual character is meant).
- \xHH references a character by its ASCII hexadecimal number (e.g. \x20 is space character)
- . matches any character inside a line (does not match line break)
- character matches the character only. If ignore case is used then it also matches the character with different case e.g. a matches also A
- [characters] matches the listed characters or character range e.g. [a-z]
- expr* matches the expr 0 or several repeated times (e.g. [0-9]* is an optional number)
- expr+ matches the expr 1 or several repeated times (e.g. [a-z]+ is one or more letters)
- expr1|expr2 matches alternative expr1 or expr2
- (expr) matches expr and defines a group that can be referenced by $1, $2...
- ^expr matches expr only at the beginning of the text
- expr$ matches expr only at the end of the text
- \1 matches the text found in first matching group
- \2 - \9 match the text found in nth matching group

Hint: .* does not search over more lines (only within each line self). use (.|\n)* to search over more lines

Hint: only \x00-\x7F are allowed, use option encodenotascii for replacing characters 80-FF

Replace expressions

- $0 uses the whole match
- $1,$2,... uses the ith group match used in pattern (...)
- $' uses the part behind the whole match
- $` uses the part before the whole match
- $$ is used for $ character

Hint: using groups gives possibilty to change some part only if there is some context around is matching (e.g. pattern=(sounds.*)melody replace=$1MELODY replaces melody only if there is word sounds before)

referencing groups in replace supports rearranging the matching parts.

Regular expression examples

text=hello pattern=^h[el]+o$ matches whole text

text=hello pattern=^h[al]+o$ does not match (hallo would match)

text=hello pattern=ll the part ll matches

text=hello pattern=E does only match the part e if ignorecase is used

text=hello pattern=^h([el]+)o$ pattern matches the whole text and group $1 matches part ell

text=hello pattern=^h([al]+)o$ pattern does not match, group $1 does not match

text=its all about geeksforgeeks pattern=(geeks)(.*)' replace=$2 matches geeksforgeeks and groups $1=geeks $2=forgeeks and replaces it against the second group result=its all about forgeeks

text=hello hello pattern=llo$ replace=lp! matches the llo at end of text and replaces only this one result=hello help!

text=hello helmut pattern=^hel replace=hal matches only the first hel and replaces only this one result=hallo helmut;

text=hello\nmy dear\nfall in love\nmy dear\n pattern=\n replace=\n\n matches newline characters and replaces them by two newlines

text=hello pattern=h([el]+)(o+) replace=h$1...$2 matches whole text and groups ell as $1 and o as $2 and uses them to build a new result

text=Guenter Nagler pattern=(..).*\1 replace=$1   result=Guenter
(\1 refers to the first group defined inside pattern ( ), $1 refers to the found matching text in first group)
text=hello\nmy dear\nfall in love\nmy dear\n pattern=^.*$ matches each line separately match1=hello match2=my dear match3 =fall in love
text=hello\nmy dear\nfall in love\nmy dear\n pattern=^(.|\n)*$ matches the whole text which contains multiple lines

Condition expressions

- compare operators < > <= >= == != (similar to C syntax)
- regular expression operators   =~ !~   (second argument must be a literal with regular expression, be sure that all special characters in literal are escaped by \ sequences, similar to C syntax)
- logical operators   && || (similar to C syntax)
- priority using parenthesis   (...)
- string functions: containstext(text, sub)   toupper(text) tolower(text) mid(text, pos, len) left(text, len)   right(text, len)
- usable attributes about matching events in condition expression:
```
ev.startunit
ev.startms
ev.track
ev.text
ev.texttype
```

Example conditions

```
 ev.track >= 3 && ev ev.track <= 5
  ev.startms == 21200
  ev.startunit >= 10000 && ev.startunit <= 12000
  ev.text.tolower() =~ 'na.*er'
  ev.text =~ '[0-9]+'
  ev.text =~ '\\(.*\\)'
```

(double backslash is important here! because a (in regular expression has group meaning but we mean the character (self here)

```
ev.text =~ '(..).*\\1'
```

(the first part in parantheses defines group 1 with two characters the \\1 forces that same characters as found there must occur later again   e.g. in text Guenter Nagler the two characters er occur twice

If the condition contains a syntax error or if an attribute is not available then the tool will abort with an error message.

Copyright

this tool requires a license obtained from author (contact info@gnmidi.com) for permission to use it.

Plugin applications

The tool can be added to GNMIDI convert and batch menus and started within **GNMIDI 3 Professional**. The tool can be started also within application **gnbatchdialog** (which is included in package)
Hint: a similar tool for searching and replacing text in text files is available:user tool toolreplacetextinfile

Guenter Nagler
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