OTF Tools

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Introduction

The Open Trace Format Library (OTF) comes with some support tools that perform frequent tasks. The `otfmerge` tool will help to change the number of streams for existing traces. For adding snapshot and statistics information to an otf trace there is `otfaux`. For translating VTF3 traces to OTF `vtf2otf` is provided. The backwards translation can be done with `otf2vtf`. For compressing and decompressing OTF traces there is `otfcompress` available.

For all OTF tools the `-V` option will print the OTF version. See below for detailed description of each tool.

otfmerge

The **`otfmerge`** tool allows to merge an existing OTF trace to a different number of streams. The `-n` option specifies the number of output streams. At maximum there will be as many output streams as there are trace processes. Setting `-n 0` will create the maximum number of streams automatically.

The output file name is set via the `-o` option. With `-f` it is possible to restrict the number of file handles used concurrently by `otfmerge`. This is necessary if the number of files exceeds the limit of file handles as set by the environment.

Via `-rb` and `-wb` the internal input resp. output buffer sizes per stream can be changed. However, the default buffer sizes should be suitable most of the time. The `-stats` and `-snaps` options allow to include statistics and snapshot records when merging. By default they are ignored.

Global definition records are copied to the output trace. Local definitions are also copied even though this is invalidates the trace! Local definitions are not expected and should have been translated to global definitions beforehand by the resp. creator.

The following short help message is given when `otfmerge` is called with the `-h` option:

```
otfmerge - converter program of OTF library.

otfmerge [Options] <input file name>

  Options:
     -h, --help     show this help message
     -V             show OTF version
     -n <n>         set number of streams for output
     -f <n>         set max number of filehandles available
     -o <name>      namestub of the output file (default 'out')
     -rb <size>     set buffersize of the reader
     -wb <size>     set buffersize of the writer
     -stats         cover statistics too
     -snaps         cover snaphots too
     -z <zlevel>    write compressed output
                    zlevel reaches from 0 to 9 where 0 is no
                    compression and 9 is the highest level
     -p             show progress
```

otfaux

The `otfaux` tool appends auxiliary information to an existing OTF trace. The event records are read but not modified.

There are two kinds of auxiliary data. First, there are snapshot information that provide the complete status of a trace process at a given time stamp. This contains call stack information, pending messages, current performance counter values, etc. Second, there are statistics information accumulated from the beginning of the trace until the current time stamp. Statistics involve the number of calls, exclusive and inclusive time for per function resp. function group or accumulated message count and message volume for communication, etc. Statistics are always monotone increasing not unlike program profiles. Let S_a and S_b two statistics at time stamps $a < b$ then $S := S_b - S_a$ is the profile information for the time interval $[a, b]$.

Both, snapshots and statistics are generated at certain break point, which can be specified in several ways: First, `-n x` allows to have `x` break points distributed regularly over the trace's time interval. Second, `-p y` will generate a break point every `y` ticks starting from the beginning of the trace. If both options are given the one producing more break points wins. In addition break points can be specified with `-t z` which will add a single explicit break point regardless of`-n` and `-p` options.

If the `-g` switch is set then function statistics are replaced by function group statistics. This produces more terse output. The option `-v` switches on verbose mode which prints break point time stamps while processing.

In case there are auxiliary information already present the `-o` option forces otfaux to overwrite it. Otherwise otfaux exits with an error message. Via `-b` internal buffer size per stream can be adjusted although the default setting is suitable most of the time.

The `-h` switch provides the following short help message:

```
otfaux - append snapshots and statistics to existing
           otf traces at given 'break' time stamps

otfaux [Options] <file name>

Options:
    -h, --help       show this help message
    -V               show OTF version
    -b <size>        buffer size for read and write operations
    -n <n>           number of breaks (distributed regularly)
                     if -p and -t are not set, the default for -n is 2
                     breaks
    -p <p>           create break every 'p' ticks
                     (if both, -n and -p are specified the one produci
                     more breaks wins)
    -t <t>           define (additional) break at given time stamp
    -F               force overwrite old snapshots and statistics
    -R               delete existing snapshots and statistics only
    -f <n>           max number of filehandles output
    --funcgroups     create functiongroup summaries instead of
                     function summaries
    --filegroups     create file group summaries instead of file
```

```
                  summaries
    -v            verbose mode, print break time stamps
    -a            show advancing progress during operation

    --snapshots   write ONLY snapshots but NO statistics
    --statistics  write ONLY statistics but NO snapshots

    -s a[,b]*     regard given streams only when computing statisti
                  expects a single token or comma separated list.
                  this implies the '--statistics' option!
    -l            list existing stream tokens
```

vtf2otf

The `vtf2otf` tool translates a VTF3 trace to OTF. With `-o` the output file name is specified. If it has no '.otf' suffix already then it is appended automatically. This tool supports only those record types supported by OTF. Some deprecated or experimental VTF3 records are ignored.

The number of output streams to be generated is given with `-n n`. The `-f` option allows to restrict the number of file handles to be opened concurrently in case there are too many streams. Again, `-b` adjusts the output buffer size per stream if the default is not suitable. If the `-h` switch is set the following help message is provided:

```
vtf2otf - Convert VTF3 trace files to OTF format.

vtf2otf [Options] <input file name>

Options:
    -h, --help    show this help message
    -V            show OTF version
    -o <file>     output file
    -f <n>        max count of filehandles
    -n <n>        output stream count
    -b <n>        size of the writer buffer
    -z <n>        use zlib compression
    -io           compute io events. This is neccessary for getting
```

```
                   correct durations in IO-operations. Result of thi
                   step is a file with extra information. This file
                   is used for creating correct duration-informatio
                   a normal run.
                   If you do not have these extra-information-file,
                   duration of every IO-operation will be zero.
```

otf2vtf

The `otf2vtf` tool performs the backward transformation from OTF to VTF3. Again, `-o` gives the VTF3 output file name including file suffix. Via `-b` OTF's input buffer size per stream can be adjusted if necessary.

With `-A` resp. `-B` the VTF3 sub-format can be set to ASCII (default) resp. binary. The `-h` switch produces a short help message like follows:

```
otf2vtf - Convert OTF trace files to VTF format.

otf2vtf [Options] <input file name>

Options:
    -h, --help     show this help message
    -V             show OTF version
    -o <file>      output file
    -b <n>         size of the reader buffer
    -A             write VTF3 ASCII sub-format (default)
    -B             write VTF3 binary sub-format
```

otfcompress

The `otfcompress` tool performs compression and decompression on traces.

```
otf(de)compress - compression program for single OTF files.
```

```
Usage: otf(de)compress [OPTIONS] <FILES>

  -h, --help     show this help message
  -V     show OTF version
  -c     compress (default action when called as ’otfcompress’)
  -d     decompress (default action if called as ’otfdecompress’)
  -h     show this help message
  -k     keep original file (compressed resp. uncompressed)
  -[0-9] use given compression level (default 4)
            0 - plain
            1 - minimum compression, fastest
            9 - maximum compression, slowest
```

otfconfig

The `otfconfig` tool shows various installation parameters of OTF, which are important for developers.

```
otf-config - shows parameters of the otf configuration.

otf-config [Options]

  Options:
     -h, --help    show this help message
     --version     show the otf version
     --have-zlib   is zlib enabled
     --includes    path to the otf headers
     --libs        libline needed for linking otf
```