```
                                \\\///
                               / _  _ \
                             (| (.)(.) |)
            .--------------.OOOo--()--oOOO.--------------.
            |                                            |
            |                                            |
            |     _ __ ___  ___  ___ __ _  ___ _ __      |
            |    | '_ ` _ \/ __|/ __/ _` |/ _ \ '_ \     |
            |    | | | | | \__ \ (_| (_| |  __/ | | |    |
            |    |_| |_| |_|___/\___\__, |\___|_| |_|    |
            |                       |___/                |
            |                                            |
            '--------------.oooO-------------------------'
                            (   )   Oooo.
                             \ (    (   )
                              \_)    ) /
                                    (_/
Codeblock class: mscgen

    sudo apt-get install mscgen
    http://www.mcternan.me.uk/mscgen

    runs:
    > mscgen -T {im_fmt} -o <fname>.{im_fmt} <fname>.mscgen

    class->cmd
      mscgen -> mscgen

Metadata options
    imagine.im_out: img,fcb
    imagine.im_log: 4
    imagine.mscgen.im_fmt: svg
```

Notes:

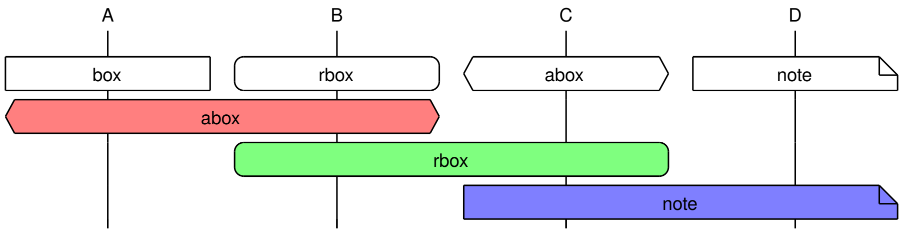
- metadata sets mscgen's default output format to `svg`

Local installation

```
GNU/Linux
4.15.0-70-generic #79-Ubuntu SMP Tue Nov 12 10:36:11 UTC 2019

Package: mscgen
Version: 0.20-11
Priority: optional
Section: universe/devel
Origin: Ubuntu
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>
Original-Maintainer: Niels Thykier <niels@thykier.net>
Bugs: https://bugs.launchpad.net/ubuntu/+filebug
Installed-Size: 127 kB
Depends: libc6 (>= 2.14), libgd3 (>= 2.1.0~alpha~)
Enhances: doxygen
Homepage: http://www.mcternan.me.uk/mscgen/
Download-Size: 43,2 kB
APT-Manual-Installed: yes
APT-Sources: http://archive.ubuntu.com/ubuntu bionic/universe amd64 Packages
Description: Message Sequence Chart (MSC) generator
 mscgen is a small program that parses Message Sequence Chart
 descriptions and produces PNG, SVG, EPS or server side image
 maps (ismaps) as the output. Message Sequence Charts (MSCs)
 are a way of representing entities and interactions over some
 time period and are often used in combination with SDL. MSCs
 are popular in Telecoms to specify how protocols operate.
 .
 mscgen can be used to create in-line MSC-charts in documentations
 parsed by doxygen. Extensions also exists for Python's Sphinx and
 mediawiki that can use mscgen.
```

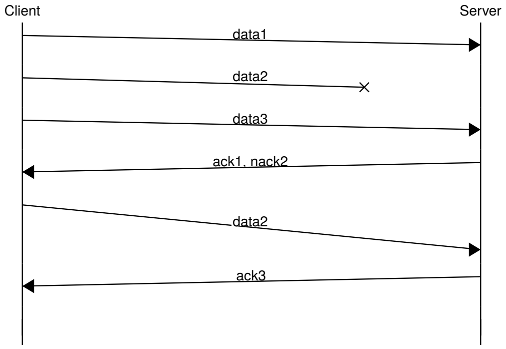
Examples

Boxes



```mscgen
msc {

   # The entities
   A, B, C, D;

   # Small gap before the boxes
   |||;

   # Next four on same line due to ','
   A box A [label="box"],
   B rbox B [label="rbox"],
   C abox C [label="abox"],
   D note D [label="note"];

   # Example of the boxes with filled backgrounds
   A abox B [label="abox", textbgcolour="#ff7f7f"];
   B rbox C [label="rbox", textbgcolour="#7fff7f"];
   C note D [label="note", textbgcolour="#7f7fff"];
}
```

Client - Server



~~~
```mscgen
msc {
 hscale="1.3", arcgradient = "8";

 a [label="Client"],b [label="Server"];

 a=>b [label="data1"];
 a-xb [label="data2"];
 a=>b [label="data3"];
 a<=b [label="ack1, nack2"];
 a=>b [label="data2", arcskip="1"];
 |||;
 a<=b [label="ack3"];
 |||;
}
```
~~~

Documentation

mscgen -h

```
Usage: mscgen -T <type> [-o <file>] [-i] <infile>
       mscgen -l

Where:
 -T <type>   Specifies the output file type, which maybe one of 'png', 'eps',
             'svg' or 'ismap'
 -i <infile> The file from which to read input.  If omitted or specified as
              '-', input will be read from stdin.  The '-i' flag maybe
              omitted if <infile> is specified as the last option on the
              command line.
 -o <file>   Write output to the named file.  This option must be specified if
              input is taken from stdin, otherwise the output filename
              defaults to <infile>.<type>.  This may also be specified as '-'
              to write output directly to stdout.
 -F <font>   Use specified font for PNG output.  This must be a font specifier
              compatbile with fontconfig (see 'fc-list'), and overrides the
              MSCGEN_FONT environment variable if also set.
 -p          Print parsed msc output (for parser debug).
 -l          Display program licence and exit.

Mscgen version 0.20, Copyright (C) 2010 Michael C McTernan,
                                        Michael.McTernan.2001@cs.bris.ac.uk
Mscgen comes with ABSOLUTELY NO WARRANTY.  This is free software, and you are
welcome to redistribute it under certain conditions; type `mscgen -l' for
details.

PNG rendering by libgd, www.libgd.org
```

man page

```
MSCGEN(1)                    User Commands                   MSCGEN(1)

NAME
       mscgen - Message Sequence Chart Renderer

SYNOPSIS
       mscgen -T type [ -o file ] [ -i ] infile

       mscgen -l

DESCRIPTION
       Mscgen  is  a  small  program  that  parses Message Sequence Chart
       descriptions and produces PNG, EPS, SVG or server side image  maps
       (ismaps)  as  the output. Message Sequence Charts (MSCs) are a way
       of representing entities and interactions over  some  time  period
       and  are  often used in combination with SDL.  MSCs are popular in
       Telecoms to specify how protocols operate although MSCs  need  not
       be  complicated  to create or use. Mscgen aims to provide a simple
       text language that is clear to create, edit and understand,  which
       can also be transformed into images.

OPTIONS
       -T type
              Specifies  the  output file type, which maybe one of 'png',
              'eps', 'svg' or 'ismap'

       -i infile
              The file from which to read input.  If omitted or specified
              as  '-',  input  will  be read from stdin.  The '-i' option
              maybe omitted if <infile> is specified as the last option.

       -o file
              Write output to the named file.  This option must be speci-
              fied  if  input  is  taken from stdin, otherwise the output
              filename defaults to <infile>.<type>.

       -F font
              Use specified font for rendering PNG output.  This is  only
              supported  if  mscgen  was  built  with USE_FREETYPE and is
              ignored otherwise.

       -p     Display the parsed msc as text to stdout.  This  is  useful
              only for checking the parser.
```

-l Display program licence and exit.

EXAMPLE

The language interpreted by mscgen is similar to that of Graphviz dot, using simple text instructions to add entities and then message arcs. The following example shows the input for a simple message sequence chart.

```
# MSC for some fictional process

msc {
  a,b,c;

  a->b [ label = "ab()" ] ;
  b->c [ label = "bc(TRUE)"];
  c=>c [ label = "process(1)" ];
  c=>c [ label = "process(2)" ];
  ...;
  c=>c [ label = "process(n)" ];
  c=>c [ label = "process(END)" ];
  a<<=c [ label = "callback()"];
  ---  [ label = "If more to run", ID="*" ];
  a->a [ label = "next()"];
  a->c [ label = "ac1()\nac2()"];
  b<-c [ label = "cb(TRUE)"];
  b->b [ label = "stalled(...)"];
  a<-b [ label = "ab() = FALSE"];

}
```

More information on the input can be found at http://www.mcternan.co.uk/mscgen/.

COPYRIGHT

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Michael.McTernan.2001@cs.bris.ac.uk

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PNG rendering by libgd, www.libgd.org.

SEE ALSO

http://www.mcternan.co.uk/mscgen/