



Title	App::Basis::ConvertText2
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This document may not be easily readable in this form, try [pdf](#) or [HTML](#) as alternatives. These have been generated from this file and the software provided by this distribution.

This is a perl module and a script that makes use of `App::Basis::ConvertText2`

This is a wrapper for [pandoc](#) implementing extra fenced code-blocks to allow the creation of charts and graphs etc. Documents may be created a variety of formats. If you want to create nice PDFs then it can use [PrinceXML](#) to generate great looking PDFs or you can use [wkhtmltopdf](#) to create PDFs that are almost as good, the default is to use pandoc which, for me, does not work as well.

HTML templates can also be used to control the layout of your documents.

The fenced code block handlers are implemented as plugins and it is a simple process to add new ones.

There are plugins to handle

- ditaa
- mscgen
- graphviz
- uml
- gnuplot
- gle
- sparklines
- charts
- barcodes and qrcodes
- and many others

As a perl module you can obtain it from <https://metacpan.org/pod/App::Basis::ConvertText2> or install

```
cpanm App::Basis::ConvertText2
```

Alternatively it is available from

You will then be able to use the [ct2](#) script to process files

1 Document header and variables

If you are just creating simple things, then you do not need a document header, but to make full use of the templating system, having header information is vital.

Example

```
title: App::Basis::ConvertText2
format: pdf
date: 2014-05-12
author: Kevin Mulholland
keywords: perl, readme
template: coverpage
version: 5
```



As you can see, we use a series of key value pairs separated with a colon. The keys may be anything you like, except for the following which have special significance.

- *format* shows what output format we should default to.
- *template* shows which template we should use

The keys may be used as variables in your document or in the template, by upper-casing and prefixing and postfixing percent symbols ‘%’

Example

```
version as a variable %VERSION%
```

If you want to display the name of a variable without it being interpreted, prefix it with an underscore ‘_’, this underscore will be removed in the final document.

Example

```
%TITLE%
```

Output

```
App::Basis::ConvertText2
```

2 Table of contents

As documents are processed, all the HTML headers (H1..H4) are collected together to make a table of contents. This can be used either in your template or document using the TOC variable.

Example

```
%TOC% will show
```

Contents

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Note that if using a TOC, then the HTML headers are changed to have a number prefixed to them, this helps ensure that all the TOC references are unique.

3 Fenced code-blocks

A fenced code-block is a way of showing that some text needs to be handled differently. Often this is used to allow markdown systems (and [pandoc](#) is no exception) to highlight program code.

code-blocks take the form

Example

```
~~~~{.tag argument1='fred' arg2=3}  
contents ...  
~~~~
```

code-blocks **ALWAYS** start at the start of a line without any preceding whitespace. The 'top' line of the code-block can wrap onto subsequent lines, this line is considered complete when the final '}' is seen. There should be only whitespace after the closing '}' symbol before the next line.

We use this construct to create our own handlers to generate HTML or markdown.

Note that only code-blocks described in this documentation have special handlers and can make use of extra features such as buffering.

4 Buffering data for later use

Sometimes you may either want to repeatedly use the same information or may want to use the output from one of the fenced code-blocks .

To store data we use the **to_buffer** argument to any code-block.



Example

```
~~~~{.buffer to_buffer='spark_data'}  
1,4,5,20,4,5,3,1  
~~~~
```

If the code-block would normally produce some output that we do not want displayed at the current location then we would need to use the **no_output** argument.

Example

```
~~~~{.sparkline title='green sparkline' scheme='green'  
  from_buffer='spark_data' to_buffer='greenspark' no_output=1}  
~~~~
```

We can also have the content of a code-block replaced with content from a buffer by using the **from_buffer** argument. This is also displayed in the example above.

To use the contents (or output of a buffered code-block) we wrap the name of the buffer once again with percent '%' symbols, once again we force upper case.

Example

```
%SPARK_DATA% has content 1,4,5,20,4,5,3,1  
%GREENSPARK% has a generated image 
```

Buffering also allows us to add content into markdown constructs like bullets.

Example

```
* %SPARK_DATA%  
* %GREENSPARK%
```

Output

- 1,4,5,20,4,5,3,1
- 

5 Sparklines

Sparklines are simple horizontal charts to give an indication of things, sometimes they are barcharts but we have nice smooth lines.

The only valid contents of the code-block is a single line of comma separated numbers.

The full set of optional arguments is

- title
 - used as the generated images 'alt' argument
- bgcolor
 - background color in hex (123456) or transparent



27escape

- line
 - color or the line, in hex (abcdef)
- color
 - area under the line, in hex (abcdef)
- scheme
 - color scheme, only things in red blue green orange mono are valid
- size
 - size of image, default 80x20, widthxheight

Example

```
~~~~{.buffer to_buffer='spark_data'}
1,4,5,20,4,5,3,1
~~~~
```

here is a standard sparkline

```
~~~~{.sparkline title='basic sparkline' }
1,4,5,20,4,5,3,1
~~~~
```

or we can draw the sparkline using buffered data

```
~~~~{.sparkline title='blue sparkline' scheme='blue' from_buffer='spark_data'}
~~~~
```

Output

here is a standard sparkline



or we can draw the sparkline using buffered data



6 Charts

Displaying charts is very important when creating reports, so we have a simple **chart** code-block.

The various arguments to the code-block are shown in the examples below, hopefully they are self explanatory.

We will buffer some data to start

Example

```
~~~~{.buffer to='chart_data'}
apples,bananas,cake,cabbage,edam,fromage,tomatoes,chips
1,2,3,5,11,22,33,55
1,2,3,5,11,22,33,55
```



27escape

1,2,3,5,11,22,33,55

1,2,3,5,11,22,33,55

~~~~

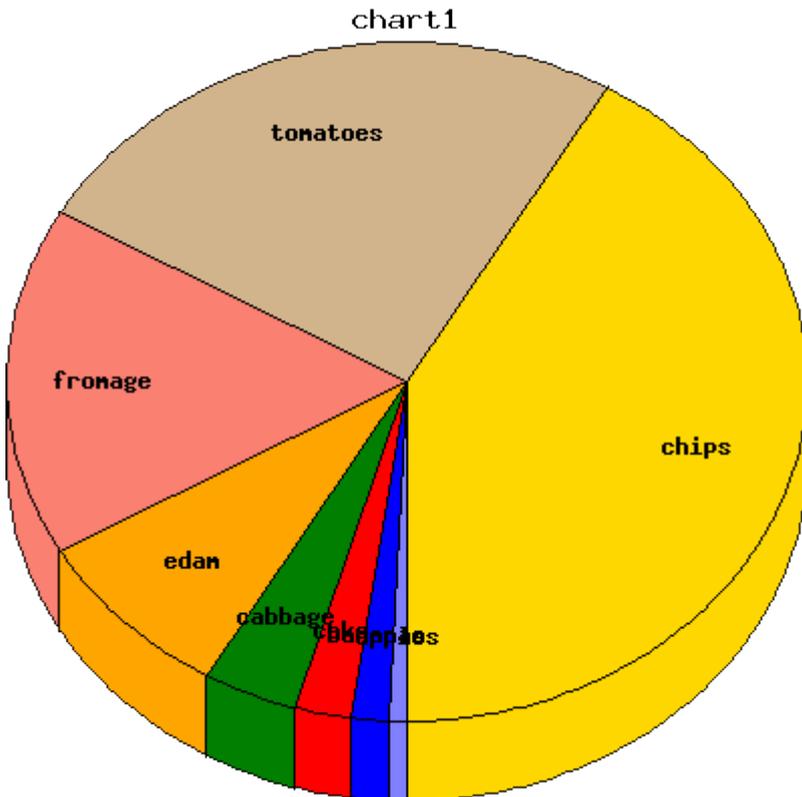
The content comprises a number of lines of comma separated data items. The first line of the content is the legends, the subsequent lines are numbers relating to each of these legends.

## 6.1 Pie chart

### Example

```
~~~~{.chart format='pie' title='chart1' from_buffer='chart_data'  
 size='400x400' xaxis='things xways' yaxis='Vertical things'
 legends='a,b,c,d,e,f,g,h' }
~~~~
```

### Output



## 6.2 Bar chart

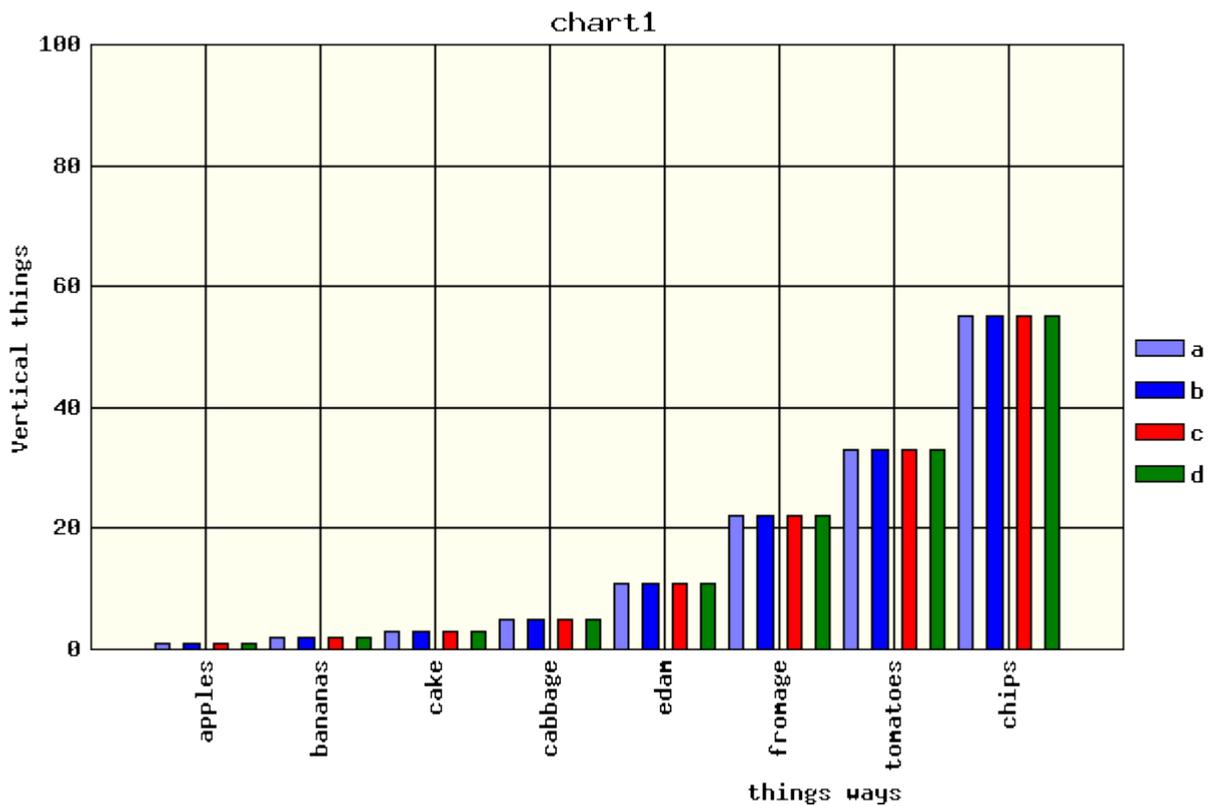
### Example

```
~~~~{.chart format='bars' title='chart1' from_buffer='chart_data'  
 size='600x400' xaxis='things ways' yaxis='Vertical things'
 legends='a,b,c,d,e,f,g,h' }
~~~~
```

### Output



# 27escape



## 6.3 Mixed chart

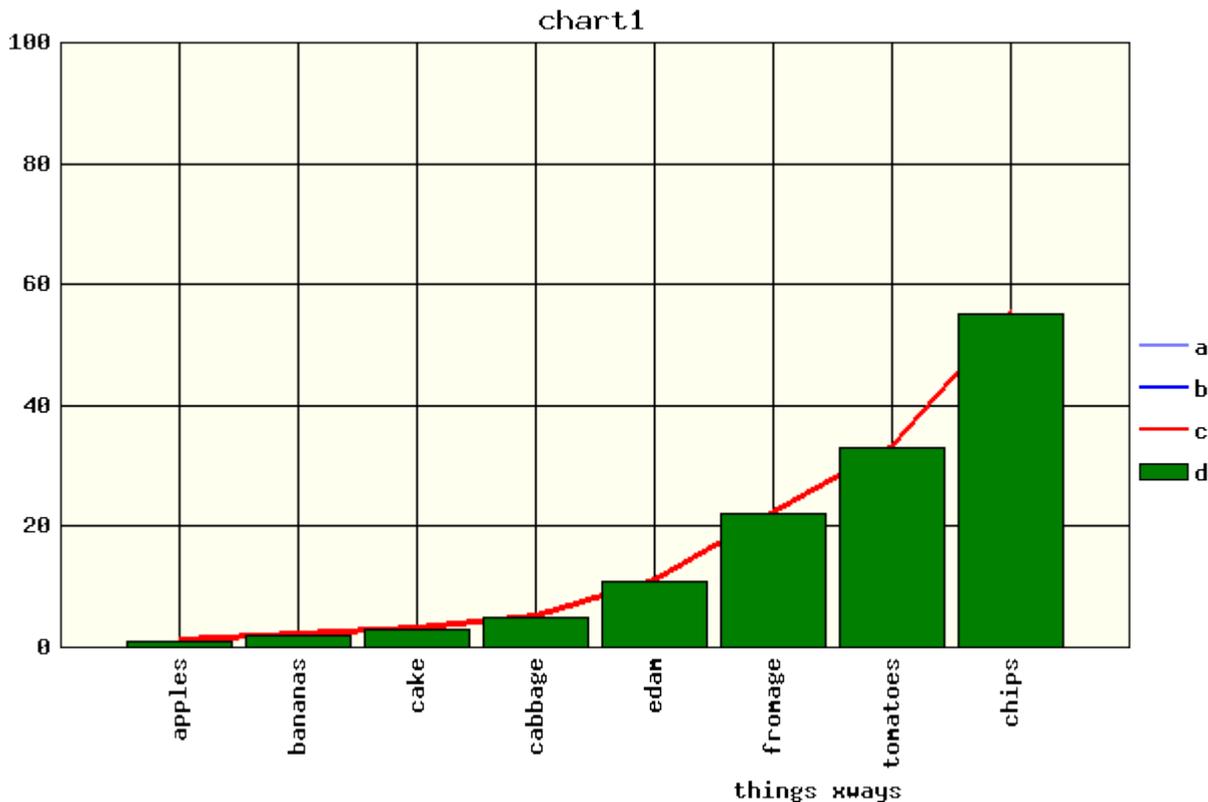
### Example

```
~~~~{.chart format='mixed' title='chart1' from_buffer='chart_data'  
 size='600x400' xaxis='things xways' axis='Vertical things'
 legends='a,b,c,d,e,f,g,h' types='lines linepoints lines bars' }
~~~~
```

### Output



# 27escape



## 7 Message Sequence Charts - mscgen

Software (or process) engineers often want to be able to show the sequence in which a number of events take place. We use the **msc** program for this. This program needs to be installed onto your system to allow this to work

The content for this code-block is EXACTLY the same that you would use as input to **msc**

There are only optional 2 arguments

- title
  - used as the generated images 'alt' argument
- size
  - size of image, widthxheight

### Example

```
~~~~{.mscgen title="mscgen1" size="600x400}  
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)"];
```



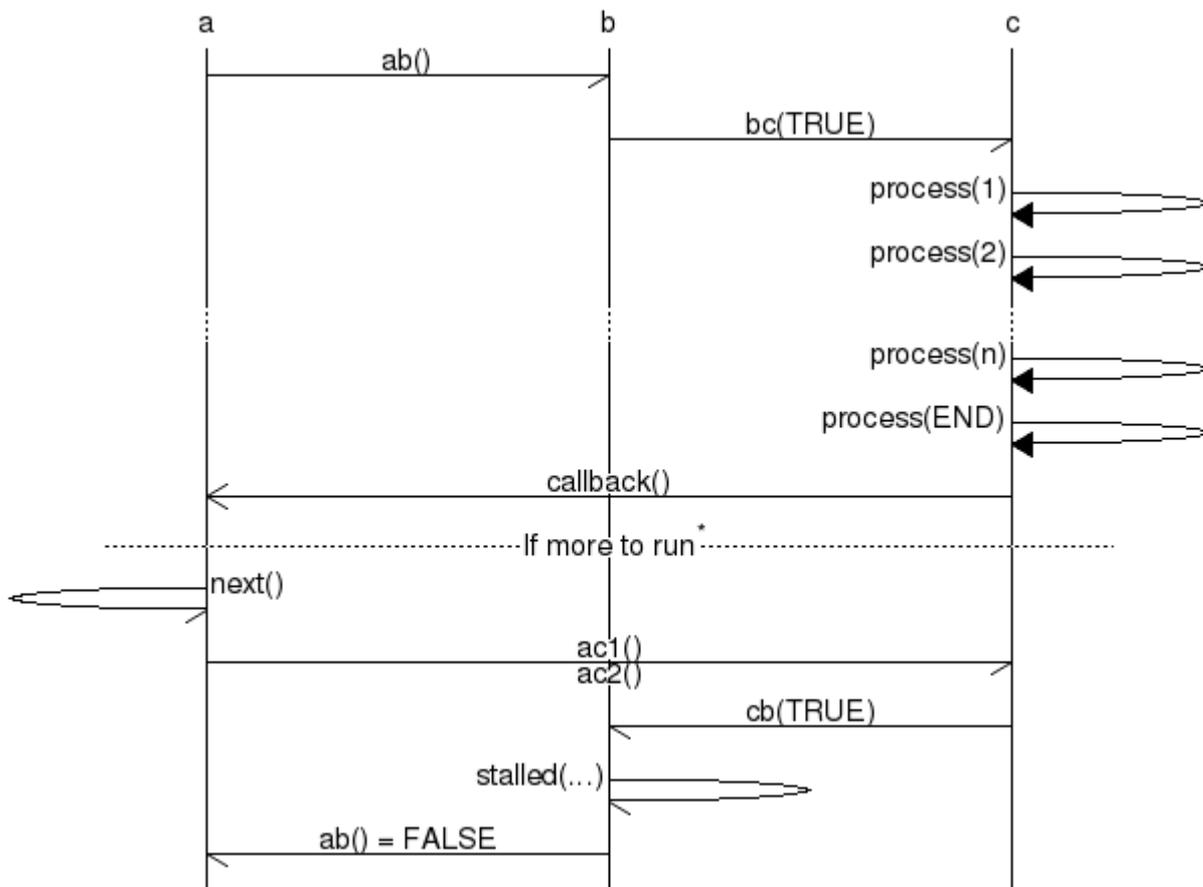
# 27escape

```

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"];
}
~~~~

```

## Output



## 8 Diagrams Through Ascii Art - ditaa

This is a special system to turn ASCII art into pretty pictures, nice to render diagrams. You do need to make sure that you are using a proper monospaced font with your editor otherwise things will go awry with spaces. See [ditaa](#) for reference.

The content for this code-block must be the same that you would use to with the [ditaa](#) software

- title
  - used as the generated images 'alt' argument
- size
  - size of image, default 80x20, widthxheight

## Example



# 27escape

~~~~{.ditaa }

Full example

```

+-----+ +-----+ +-----+
	--+ ditaa +-->	
Text	+-----+	diagram
Document	!magic!	
{d}		
+-----+ +-----+ +-----+
      :                               ^
      |           Lots of work         |
      \-----+
~~~~~

```

Output

Full example



9 UML Diagrams

Software engineers love to draw diagrams, [PlantUML](#) is a java component to make this simple.

You will need to have a script on your system called 'uml' that calls java with the component.

Here is mine, it is also available in the scripts directory in the

```

#!/bin/bash
# run plantuml
# moodfarm@cpan.org

```

```

# we assume that the plantuml.jar file is in the same directory as this executable
EXEC_DIR=`dirname $0`
PLANTUML="$EXEC_DIR/plantuml.jar"

```

```

INPUT=$1
OUTPUT=$2
function show_usage {
    arg=$1
    err=$2
    if [ "$err" == "" ] ; then
        err=1
    fi
}

```



27escape

```
"Create a UML diagram from an input text file
(see http://plantuml.sourceforge.net/ for reference)
usage: $0 inputfile outputfile.png
"
    if [ "$arg" != "" ] ; then
        echo "$arg"
    fi
fi
exit $err
}
if [ "$INPUT" == "-help" ] ; then
    show_usage "" 0
fi
if [ ! -f "$INPUT" ] ; then
    show_usage "ERROR: Could not find input file $1"
fi
if [ "$OUTPUT" == "" ] ; then
    show_usage "ERROR: No output file specified"
fi
# we use the pipe option to control output into the file we want
cat "$INPUT" | java -jar $PLANTUML -nbthread auto -pipe >$OUTPUT
# exit 0
```

The content for this code-block must be the same that you would use to with the [PlantUML](#) software

The arguments allowed are

- title
 - used as the generated images 'alt' argument
- size
 - size of image, default 80x20, widthxheight

Example

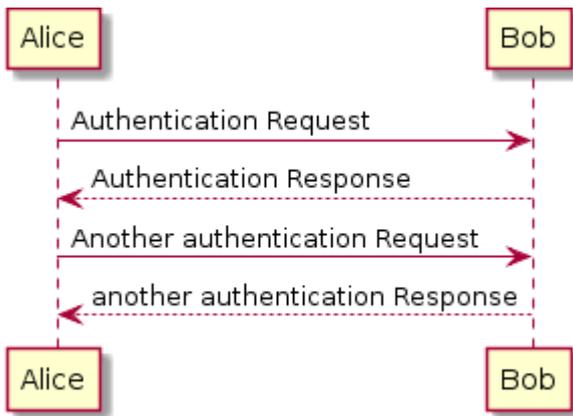
```
~~~~{.uml }
' this is a comment on one line
/' this is a
multi-line
comment'/
Alice -> Bob: Authentication Request
Bob --> Alice: Authentication Response

Alice -> Bob: Another authentication Request
Alice <-- Bob: another authentication Response
~~~~
```

Output



27escape



PlantUML can also create simple application interfaces [See Salt](#)

Example

```
~~~~{.uml }
@startuml
salt
{
  Just plain text
  [This is my button]
  () Unchecked radio
  (X) Checked radio
  [] Unchecked box
  [X] Checked box
  "Enter text here  "
  ^This is a droplist^

  {T
  + World
  ++ America
  +++ Canada
  +++ **USA**
  ++++ __New York__
  ++++ Boston
  +++ Mexico
  ++ Europe
  +++ Italy
  +++ Germany
  ++++ Berlin
  ++ Africa
  }
}
@enduml
~~~~
```

Output



27escape

Just plain text

This is my button

Unchecked radio

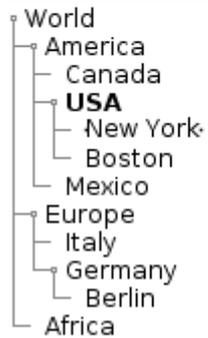
Checked radio

Unchecked box

Checked box

Enter text here

This is a droplist



10 Graphviz

graphviz allows you to draw connected graphs using text descriptions.

The content for this code-block must be the same that you would use to with the **graphviz** software

The arguments allowed are

- title
 - used as the generated images 'alt' argument
- size
 - size of image, default 80x20, widthxheight

Example

```
~~~~{.graphviz title="graphviz1" size='600x600'}
digraph G {

    subgraph cluster_0 {
        style=filled;
        color=lightgrey;
        node [style=filled,color=white];
        a0 -> a1 -> a2 -> a3;
        label = "process #1";
    }

    subgraph cluster_1 {
        node [style=filled];
        b0 -> b1 -> b2 -> b3;
        label = "process #2";
        color=blue
    }

    start -> a0;
```

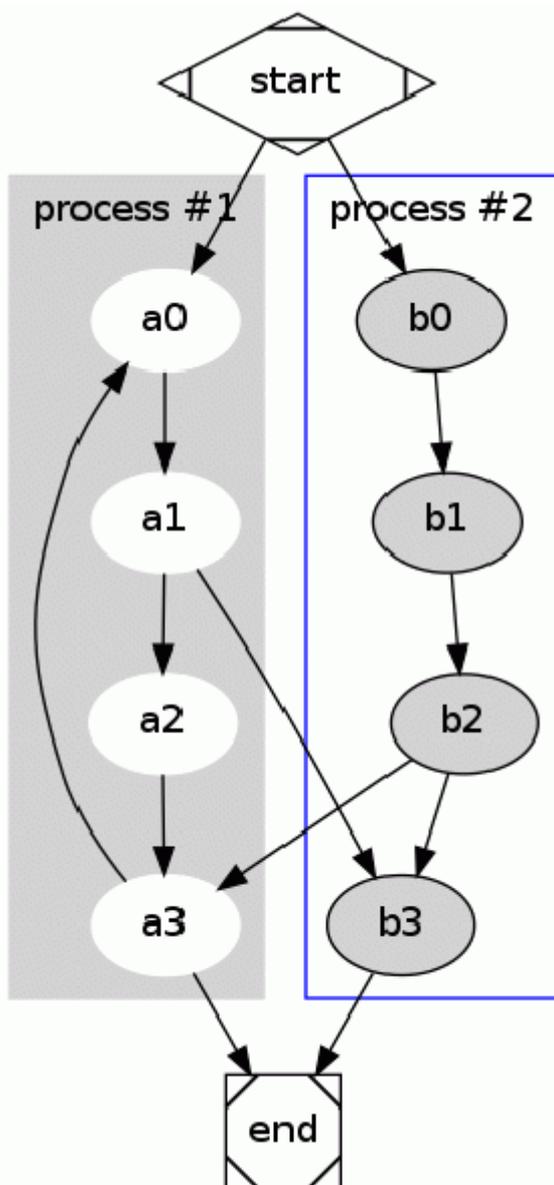


27escape

```
start -> b0;  
a1 -> b3;  
b2 -> a3;  
a3 -> a0;  
a3 -> end;  
b3 -> end;
```

```
start [shape=Mdiamond];  
end [shape=Msquare];  
}  
~~~~
```

Output



11 Venn diagram

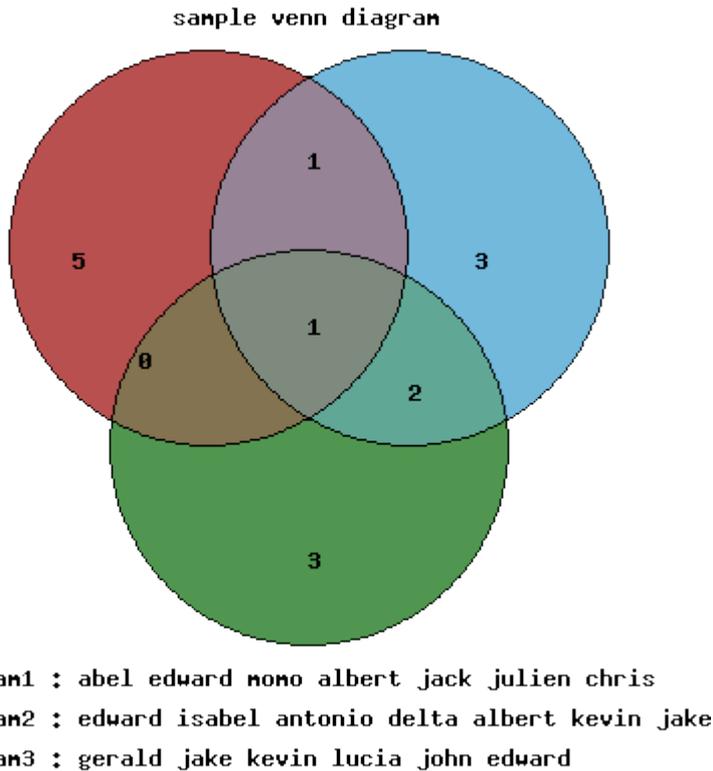
Creating venn diagrams may sometimes be useful, though to be honest this implementation is not great, if I could find a better way to do this then I would!



Example

```
~~~~{.venn title="sample venn diagram"
  legends="team1 team2 team3" scheme="rgb" explain='1'}
abel edward momo albert jack julien chris
edward isabel antonio delta albert kevin jake
gerald jake kevin lucia john edward
~~~~
```

Output



- only in team1 : julien momo abel chris jack
 - only in team2 : delta isabel antonio
 - team1 and team2 share : albert
- only in team3 : gerald john lucia
 - team1 and team3 share :
 - team2 and team3 share : jake kevin
 - team1, team2 and team3 share : edward

12 Barcodes

Sometimes having barcodes in your document may be useful, certainly qrcodes are popular.

The code-block only allows a single line of content. Some of the barcode types need content of a specific length, warnings will be generated if the length is incorrect.

The arguments allowed are

- title



27escape

- used as the generated images 'alt' argument
- height
 - height of image
- notext
 - flag to show we do not want the content text printed underneath the barcode.
- version
 - version of qrcode, defaults to '2'
- pixels
 - number of pixels that is a 'bit' in a qrcode, defaults to '2'

12.1 Code39

Example

```
~~~~{.barcode type='code39'}  
123456789  
~~~~
```

Output



12.2 EAN8

Only allows 8 characters

Example

```
~~~~{.barcode type='ean8'}  
12345678  
~~~~
```

Output



12.3 EAN13

Only allows 13 characters

Example

```
~~~~{.barcode type='EAN13'}  
1234567890123  
~~~~
```

Output



12.4 COOP2of5

Example

```
~~~~{.barcode type='COOP2of5'}  
12345678  
~~~~
```

Output



12.5 IATA2of5

Example

```
~~~~{.barcode type='IATA2of5'}  
12345678  
~~~~
```

Output



12.6 Industrial2of5

Example

```
~~~~{.barcode type='Industrial2of5'}  
12345678  
~~~~
```

Output



12.7 ITF

Example



27escape

```
~~~~{.barcode type='ITF'}  
12345678  
~~~~
```

Output



12.8 Matrix2of5

Example

```
~~~~{.barcode type='Matrix2of5'}  
12345678  
~~~~
```

Output



12.9 NW7

Example

```
~~~~{.barcode type='NW7'}  
12345678  
~~~~
```

Output



12.10 QR code

As qr codes are now quite so prevalent, they have their own code-block type.

We can do qr codes, just put in anything you like, this is a URL for bbc news

Example

```
~~~~{.qrcode }  
http://news.bbc.co.uk  
~~~~
```

To change the size of the barcode



27escape

```
~~~~{.qrcode height='80'}  
http://news.bbc.co.uk  
~~~~
```

To use version 1

Version 1 only allows 15 characters

```
~~~~{.qrcode height=60 version=1}  
smaller text..  
~~~~
```

To change pixel size

```
~~~~{.qrcode pixels=5}  
smaller text..  
~~~~
```

Output



To change the size of the barcode



To use version 1

Version 1 only allows 15 characters



To change pixel size





13 YAML convert to JSON

Software engineers often use **JSON** to transfer data between systems, this often is not nice to create for documentation. **YAML** which is a superset of **JSON** is much cleaner so we have a

Example

```
~~~~{.yamlasjson }
list:
  - array: [1,2,3,7]
    channel: BBC3
    date: 2013-10-20
    time: 20:30
  - array: [1,2,3,9]
    channel: BBC4
    date: 2013-11-20
    time: 21:00
```

~~~~

### Output

```
{
  "list" : [
    {
      "array" : [
        "1",
        "2",
        "3",
        "7"
      ],
      "channel" : "BBC3",
      "date" : "2013-10-20",
      "time" : "20:30"
    },
    {
      "array" : [
        "1",
        "2",
        "3",
        "9"
      ],
      "date" : "2013-11-20",
      "time" : "21:00",
      "channel" : "BBC4"
    }
  ]
}
```



## 14 Table

Create a simple table using CSV style data

- class
  - HTML/CSS class name
- id
  - HTML/CSS class
- width
  - width of the table
- style
  - style the table if not doing anything else
- legends
  - csv of headings for table, these correspond to the data sets
- separator
  - what should be used to separate cells, defaults to ','

### Example

```
~~~~{.table separator=', ' width='100%' legends=1
 from_buffer='chart_data'}
~~~~
```

### Output

| <u>apples</u> | <u>bananas</u> | <u>cake</u> | <u>cabbage</u> | <u>edam</u> | <u>fromage</u> | <u>tomatoes</u> | <u>chips</u> |
|---------------|----------------|-------------|----------------|-------------|----------------|-----------------|--------------|
| 1             | 2              | 3           | 5              | 11          | 22             | 33              | 55           |
| 1             | 2              | 3           | 5              | 11          | 22             | 33              | 55           |
| 1             | 2              | 3           | 5              | 11          | 22             | 33              | 55           |
| 1             | 2              | 3           | 5              | 11          | 22             | 33              | 55           |

## 15 Links

With one code-block we can create a list of links

The code-block contents comprises a number of lines with a reference and a URL. The reference comes first, then a '|' to separate it from the URL.

The reference may then be used elsewhere in your document if you enclose it with square ([]) brackets

There is only one argument

- class
  - CSS class to style the list

### Example

```
~~~~{.links class='weblinks' }
pandoc | http://johnmacfarlane.net/pandoc
PrinceXML | http://www.princexml.com
```



# 27escape

```
markdown | http://daringfireball.net/projects/markdown
msc | http://www.mcternan.me.uk/mscgen/
ditaa | http://ditaa.sourceforge.net
PlantUML | http://plantuml.sourceforge.net
See Salt | http://plantuml.sourceforge.net/salt.html
graphviz | http://graphviz.org
JSON | https://en.wikipedia.org/wiki/Json
YAML | https://en.wikipedia.org/wiki/Yaml
wkhtmltopdf | http://wkhtmltopdf.org/
~~~~
```

## Output

- **ditaa**
  - <http://ditaa.sourceforge.net>
- **graphviz**
  - <http://graphviz.org>
- **JSON**
  - <https://en.wikipedia.org/wiki/Json>
- **markdown**
  - <http://daringfireball.net/projects/markdown>
- **msc**
  - <http://www.mcternan.me.uk/mscgen/>
- **pandoc**
  - <http://johnmacfarlane.net/pandoc>
- **PlantUML**
  - <http://plantuml.sourceforge.net>
- **PrinceXML**
  - <http://www.princexml.com>
- **See Salt**
  - <http://plantuml.sourceforge.net/salt.html>
- **wkhtmltopdf**
  - <http://wkhtmltopdf.org/>
- **YAML**
  - <https://en.wikipedia.org/wiki/Yaml>

## 16 Version table

Documents often need revision history. I use this code-block to create a nice table of this history.

The content for this code-block comprises a number of sections, each section then makes a row in the generated table.

```
version YYYY-MM-DD
  change text
  more changes
```

The version may be any string, YYYY-MM-DD shows the date the change took place. Alternate date formats is DD-MM-YYYY and '/' may also be used as a field separator.

- class



# 27escape

- HTML/CSS class name
- id
  - HTML/CSS class
- width
  - width of the table
- style
  - style the table if not doing anything else

## Example

```
~~~~{.version class='versiontable' width='100%'}
0.1 2014-04-12
 * removed ConvertFile.pm
 * using Path::Tiny rather than other things
 * changed to use pandoc fences
  ~~~~{.tag} rather than xml format <tag>
0.006 2014-04-10
  * first release to github
~~~~
```

## Output

| Version | Date       | Changes                                                                                                                                                                                                 |
|---------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.1     | 2014-04-12 | <ul style="list-style-type: none"> <li>• removed ConvertFile.pm</li> <li>• using Path::Tiny rather than other things</li> <li>• changed to use pandoc fences ~~{.tag} rather than xml format</li> </ul> |
| 0.006   | 2014-04-10 | <ul style="list-style-type: none"> <li>• first release to github</li> </ul>                                                                                                                             |

## 17 Start a new page - page

Nice and simple, starts a new page

### Example

```
~~~~{.page}
~~~~
```

## 18 Gle / glx

This is a complex graph/chart drawing package available from <http://glx.sourceforge.net/>

The full set of optional arguments is

- title
  - used as the generated images 'alt' argument
- size
  - size of image, default 720x540, widthxheight, size is approximate
- transparent
  - flag to use a transparent background



# 27escape

## Example

```
~~~~{.gle}

set font texcmr hei 0.5 just tc

begin letz
  data "saddle.z"
  z = 3/2*(cos(3/5*(y-1))+5/4)/(1+((x-4)/3)^2)
  x from 0 to 20 step 0.5
  y from 0 to 20 step 0.5
end letz

amove pagewidth()/2 pageheight()-0.1
write "Saddle Plot (3D)"

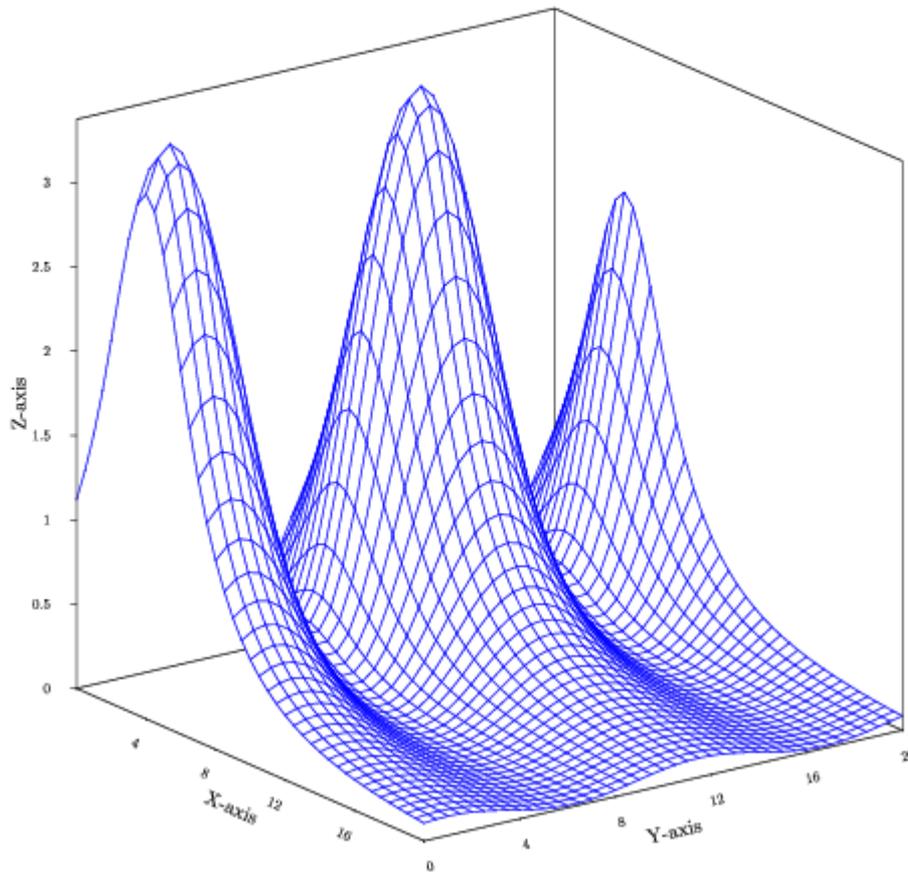
begin object saddle
  begin surface
    size 10 9
    data "saddle.z"
    xtitle "X-axis" hei 0.35 dist 0.7
    ytitle "Y-axis" hei 0.35 dist 0.7
    ztitle "Z-axis" hei 0.35 dist 0.9
    top color blue
    zaxis ticklen 0.1 min 0 hei 0.25
    xaxis hei 0.25 dticks 4 nolast nofirst
    yaxis hei 0.25 dticks 4
  end surface
end object

amove pagewidth()/2 0.2
draw "saddle.bc"
~~~~
```

## Output



Saddle Plot (3D)



## 19 Gnuplot

This is the granddaddy of charting/plotting programs, available from <http://gnuplot.sourceforge.net/>.

The full set of optional arguments is

- title
  - used as the generated images 'alt' argument
- size
  - size of image, default 720x540, widthxheight

### Example

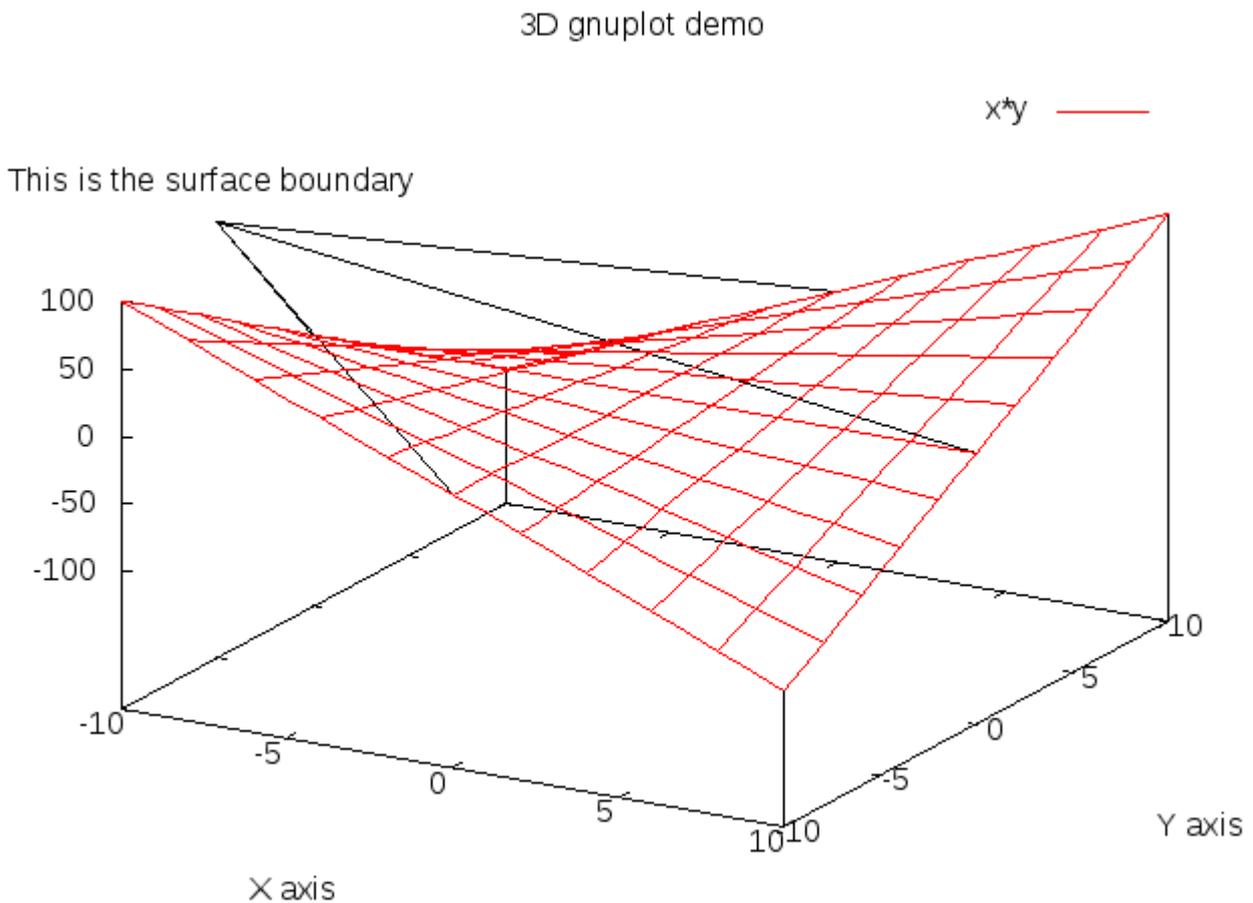
```
~~~~{.gnuplot}
# $Id: surfacel.dem,v 1.11 2004/09/17 05:01:12 sfeam Exp $
#
set samples 21
set isosample 11
set xlabel "X axis" offset -3,-2
set ylabel "Y axis" offset 3,-2
set zlabel "Z axis" offset -5
set title "3D gnuplot demo"
```



# 27escape

```
set label 1 "This is the surface boundary" at -10,-5,150 center
set arrow 1 from -10,-5,120 to -10,0,0 nohead
set arrow 2 from -10,-5,120 to 10,0,0 nohead
set arrow 3 from -10,-5,120 to 0,10,0 nohead
set arrow 4 from -10,-5,120 to 0,-10,0 nohead
set xrange [-10:10]
set yrange [-10:10]
splot x*y
~~~~
```

## Output



## 20 Gotchas about variables

- Variables used within the content area of a code-block will be evaluated before processing that block, if a variable has not yet been defined or saved to a buffer then it will only be evaluated at the end of document processing, so output may not be as expected.
- Variables used in markdown tables may not do what you expect if the variable is multi-line.



## 21 Using ct2 script to process files

Included in the distribution is a script to make use of all of the above code-blocks to alter **markdown** into nicely formatted documents.

Here is the help

```
$ ct2 --help
```

```
Syntax: ct2 [options] filename
```

```
About: Convert my modified markdown text files into other formats, by default will create HTML in same directory as the input file, will only process .md files.
```

```
If there is no output option used the output will be to file of same name as the input filename but with an extension (if provided) from the document, use format: keyword (pdf html doc).
```

```
[options]
```

```
-h, -?, --help Show help
-c, --clean Clean up the cache before use
-e, --embed Embed images into HTML, do not use this if
 converting to doc/odt
-o, --output Filename to store the output as, extension will
 control conversion
-p, --prince Convert to PDF using princexml, can handle
 embedded images
-s, --template name of template to use
-v, --verbose verbose mode
-w, --wkhtmltopdf Convert to PDF using wkhtmltopdf, can handle
 embedded images
```

If you are creating HTML documents to send out in emails or share in other ways, and use locally referenced images, then it is best to make use of the **-embed** option to pack these images into the HTML file.

If you are using **PrinceXML** remember that it is only free for non-commercial use, it also adds a purple **P** to the top right of the first page of your document.