# <html>

## Document Outline

| | |
|---|---|
| <!DOCTYPE> | Version of (X)HTML |
| <html> | HTML document |
| <head> | Page information |
| <body> | Page contents |

## Comments

<!-- Comment Text -->

## Page Information

| | |
|---|---|
| <base /> | Base URL |
| <meta /> | Meta data |
| <title> | Title |
| <link /> | Relevant resource |
| <style> | Style resource |
| <script> | Script resource |

## Document Structure

| | |
|---|---|
| <h[1-6]> | Heading |
| <div> | Page section |
| <span> | Inline section |
| <p> | Paragraph |
| <br /> | Line break |
| <hr /> | Horizontal rule |

## Links

| | |
|---|---|
| <a href=""> | Page link |
| <a href="mailto:"> | Email link |
| <a name="name"> | Anchor |
| <a href="#name"> | Link to anchor |

## Text Markup

| | |
|---|---|
| <strong> | Strong emphasis |
| <em> | Emphasis |
| <blockquote> | Long quotation |
| <q> | Short quotation |
| <abbr> | Abbreviation |
| <acronym> | Acronym |
| <address> | Address |
| <pre> | Pre-formatted text |
| <dfn> | Definition |
| <code> | Code |
| <cite> | Citation |
| <del> | Deleted text |
| <ins> | Inserted text |
| <sub> | Subscript |
| <sup> | Superscript |
| <bdo> | Text direction |

## Lists

| | |
|---|---|
| <ol> | Ordered list |
| <ul> | Unordered list |
| <li> | List item |
| <dl> | Definition list |
| <dt> | Definition term |
| <dd> | Term description |

## Forms

| | |
|---|---|
| <form> | Form |
| <fieldset> | Collection of fields |
| <legend> | Form legend |
| <label> | Input label |
| <input /> | Form input |
| <select> | Drop-down box |
| <optgroup> | Group of options |
| <option> | Drop-down options |
| <textarea> | Large text input |
| <button> | Button |

## Tables

| | |
|---|---|
| <table> | Table |
| <caption> | Caption |
| <thead> | Table header |
| <tbody> | Table body |
| <tfoot> | Table footer |
| <colgroup> | Column group |
| <col /> | Column |
| <tr> | Table row |
| <th> | Header cell |
| <td> | Table cell |

## Images and Image Maps

| | |
|---|---|
| <img /> | Image |
| <map> | Image Map |
| <area /> | Area of Image Map |

## Common Character Entities

| | | |
|---|---|---|
| &#34; | " | Quotation mark |
| &#38; | & | Ampersand |
| &#60; | < | Less than |
| &#62; | > | Greater than |
| &#64; | @ | "At" symbol |
| &#128; | € | Euro |
| &#149; | • | Small bullet |
| &#153; | ™ | Trademark |
| &#163; | £ | Pound |
| &#160; | | Non-breaking space |
| &#169; | © | Copyright symbol |

## Objects

| | |
|---|---|
| <object> | Object |
| <param /> | Parameter |

## Empty Elements

| | |
|---|---|
| <area /> | <img /> |
| <base /> | <input /> |
| <br /> | <link /> |
| <col /> | <meta /> |
| <hr /> | <param /> |

## Core Attributes

| | |
|---|---|
| class | style |
| id | title |

*Note: Core Attributes may not be used in base, head, html, meta, param, script, style or title elements.*

## Language Attributes

| | |
|---|---|
| dir | lang |

*Note: Language Attributes may not be used in base, br, frame, frameset, hr, iframe, param or script elements.*

## Keyboard Attributes

| | |
|---|---|
| accesskey | tabindex |

## Window Events

| | |
|---|---|
| onLoad | onUnload |

## Form Events

| | |
|---|---|
| onBlur | onReset |
| onChange | onSelect |
| onFocus | onSubmit |

## Keyboard Events

| | |
|---|---|
| onKeydown | onKeyup |
| onKeypress | |

## Mouse Events

| | |
|---|---|
| onClick | onMouseout |
| onDblclick | onMouseover |
| onMousedown | onMouseup |
| onMousemove | |

*Available free from AddedBytes.com*

# CSS

## Selectors

| | |
|---|---|
| * | All elements |
| div | <div> |
| div * | All elements within <div> |
| div span | <span> within <div> |
| div, span | <div> and <span> |
| div > span | <span> with parent <div> |
| div + span | <span> preceded by <div> |
| .class | Elements of class "class" |
| div.class | <div> of class "class" |
| #itemid | Element with id "itemid" |
| div#itemid | <div> with id "itemid" |
| a[attr] | <a> with attribute "attr" |
| a[attr='x'] | <a> when "attr" is "x" |
| a[class~='x'] | <a> when class is a list containing 'x' |
| a[lang\|='en'] | <a> when lang begins "en" |

## Pseudo-Selectors and Pseudo-Classes

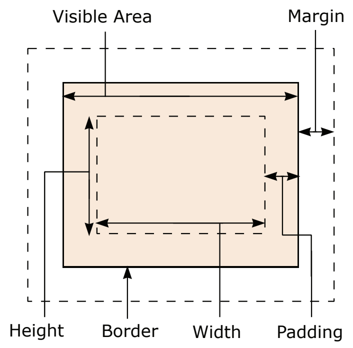
| | |
|---|---|
| :first-child | First child element |
| :first-line | First line of element |
| :first-letter | First letter of element |
| :hover | Element with mouse over |
| :active | Active element |
| :focus | Element with focus |
| :link | Unvisited links |
| :visited | Visited links |
| :lang(var) | Element with language "var" |
| :before | Before element |
| :after | After element |

## Sizes and Colours

| | |
|---|---|
| 0 | 0 requires no unit |
| **Relative Sizes** | |
| em | 1em equal to font size of parent (same as 100%) |
| ex | Height of lower case "x" |
| % | Percentage |
| **Absolute Sizes** | |
| px | Pixels |
| cm | Centimeters |
| mm | Millimeters |
| in | Inches |
| pt | 1pt = 1/72in |
| pc | 1pc = 12pt |
| **Colours** | |
| #789abc | RGB Hex Notation |
| #acf | Equates to "#aaccff" |
| rgb(0,25,50) | Value of each of red, green, and blue. 0 to 255, may be swapped for percentages. |

| | |
|---|---|
| **Note** | Shorthand properties are marked x<br>Properties that inherit are marked + |

## Box Model



## Positioning

| | |
|---|---|
| display | clear |
| position | z-index |
| top | direction + |
| right | unicode-bidi |
| bottom | overflow |
| left | clip |
| float | visibility |

## Dimensions

| | |
|---|---|
| width | min-height |
| min-width | max-height |
| max-width | vertical-align |
| height | |

## Color / Background

| | |
|---|---|
| color + | background-repeat |
| background x | background-image |
| background-color | background-position |
| background-attachment | |

## Text

| | |
|---|---|
| text-indent + | word-spacing + |
| text-align + | text-transform + |
| text-decoration | white-space + |
| text-shadow | line-height + |
| letter-spacing + | |

## Fonts

| | |
|---|---|
| font + x | font-weight + |
| font-family + | font-stretch + |
| font-style + | font-size + |
| font-variant + | font-size-adjust + |

*Available free from*
*www.AddedBytes.com*

## Boxes

| | |
|---|---|
| margin x | border-color x |
| margin-top | border-top-color |
| margin-right | border-right-color |
| margin-bottom | border-bottom-color |
| margin-left | border-left-color |
| padding x | border-style x |
| padding-top | border-top-style |
| padding-right | border-right-style |
| padding-bottom | border-bottom-style |
| padding-left | border-left-style |
| border x | border-width x |
| border-top x | border-top-width |
| border-bottom x | border-right-width |
| border-right x | border-bottom-width |
| border-left x | border-left-width |

## Tables

| | |
|---|---|
| caption-side + | border-spacing + |
| table-layout | empty-cells + |
| border-collapse + | speak-header + |

## Paging

| | |
|---|---|
| size | page-break-inside + |
| marks | page + |
| page-break-before | orphans + |
| page-break-after | widows + |

## Interface

| | |
|---|---|
| cursor + | outline-style |
| outline x | outline-color |
| outline-width | |

## Aural

| | |
|---|---|
| volume + | elevation |
| speak + | speech-rate |
| pause x | voice-family |
| pause-before | pitch |
| pause-after | pitch-range |
| cue x | stress |
| cue-before | richness |
| cue-after | speak-punctuation |
| play-during | speak-numeral |
| azimuth + | |

## Miscellaneous

| | |
|---|---|
| content | list-style-type + |
| quotes + | list-style-image + |
| counter-reset | list-style-position + |
| counter-increment | marker-offset |
| list-style + x | |

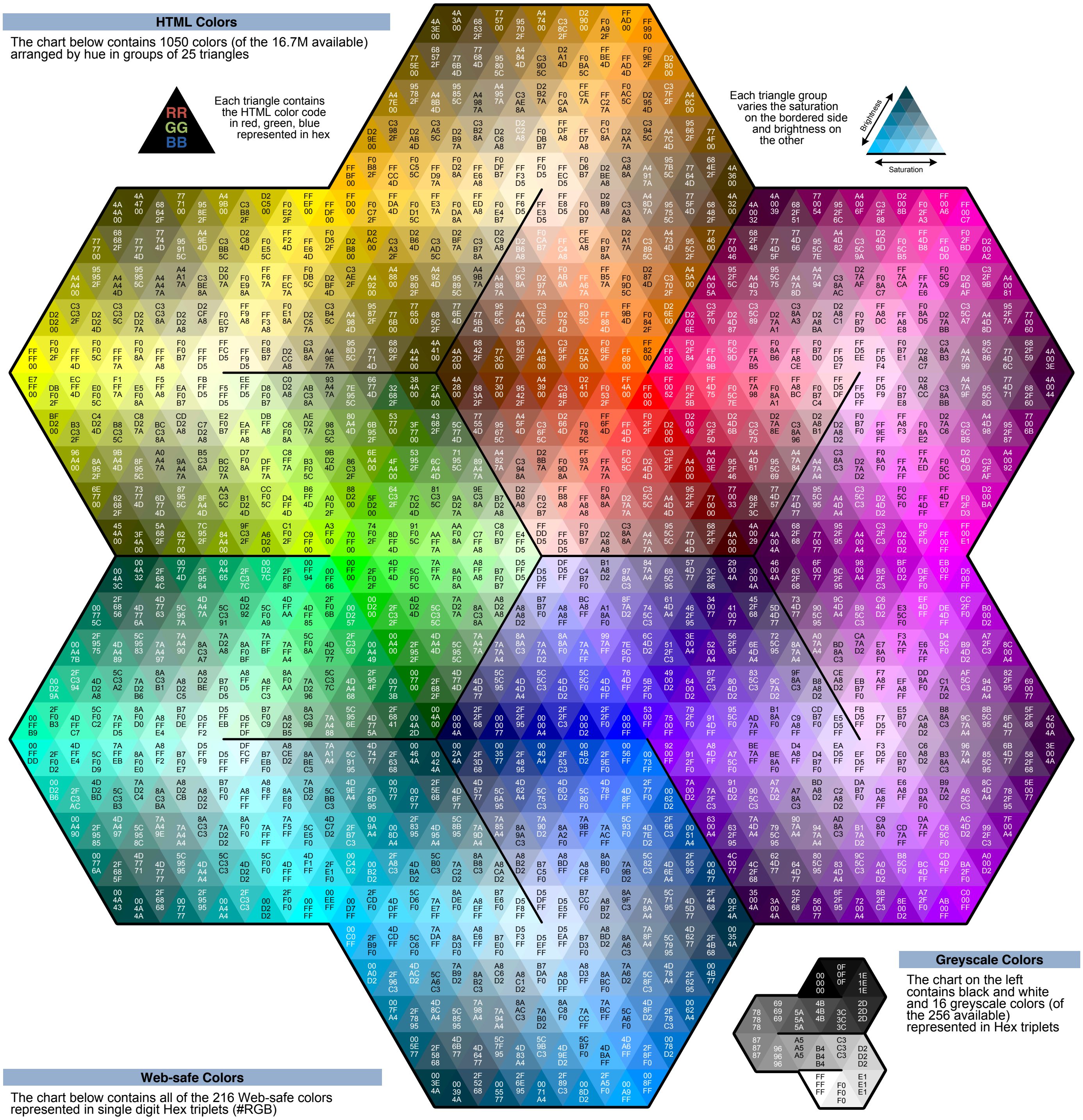
# HTML Colors Cheat Sheet

## HTML Colors

The chart below contains 1050 colors (of the 16.7M available) arranged by hue in groups of 25 triangles

RR
GG
BB

Each triangle contains the HTML color code in red, green, blue represented in hex



Each triangle group varies the saturation on the bordered side and brightness on the other

Brightness

Saturation

## Greyscale Colors

00 00 00

0F 0F 0F

1E 1E 1E

2D 2D 2D

3C 3C 3C

4B 4B 4B

5A 5A 5A

69 69 69

78 78 78

87 87 87

96 96 96

A5 A5 A5

B4 B4 B4

C3 C3 C3

D2 D2 D2

E1 E1 E1

F0 F0 F0

FF FF FF

The chart on the left contains black and white and 16 greyscale colors (of the 256 available) represented in Hex triplets

## Web-safe Colors

The chart below contains all of the 216 Web-safe colors represented in single digit Hex triplets (#RGB)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FFF | FCF | F9F | F6F | F3F | F0F | CF0 | CC0 | C90 | C60 | C30 | C00 | 60F | 63F | 66F | 69F | 6CF | 6FF | 900 | 930 | 960 | 990 | 9C0 | 9F0 | 3FF | 3CF | 39F | 36F | 33F | 30F | 0F0 | 0C0 | 090 | 060 | 030 | 000 |
| FFC | FCC | F9C | F6C | F3C | F0C | CF3 | CC3 | C93 | C63 | C33 | C03 | 60C | 63C | 66C | 69C | 6CC | 6FC | 903 | 933 | 963 | 993 | 9C3 | 9F3 | 3FC | 3CC | 39C | 36C | 33C | 30C | 0F3 | 0C3 | 093 | 063 | 033 | 003 |
| FF9 | FC9 | F99 | F69 | F39 | F09 | CF6 | CC6 | C96 | C66 | C36 | C06 | 609 | 639 | 669 | 699 | 6C9 | 6F9 | 906 | 936 | 966 | 996 | 9C6 | 9F6 | 3F9 | 3C9 | 399 | 369 | 339 | 309 | 0F6 | 0C6 | 096 | 066 | 036 | 006 |
| FF6 | FC6 | F96 | F66 | F36 | F06 | CF9 | CC9 | C99 | C69 | C39 | C09 | 606 | 636 | 666 | 696 | 6C6 | 6F6 | 909 | 939 | 969 | 999 | 9C9 | 9F9 | 3F6 | 3C6 | 396 | 366 | 336 | 306 | 0F9 | 0C9 | 099 | 069 | 039 | 009 |
| FF3 | FC3 | F93 | F63 | F33 | F03 | CFC | CCC | C9C | C6C | C3C | C0C | 603 | 633 | 663 | 693 | 6C3 | 6F3 | 90C | 93C | 96C | 99C | 9CC | 9FC | 3F3 | 3C3 | 393 | 363 | 333 | 303 | 0FC | 0CC | 09C | 06C | 03C | 00C |
| FF0 | FC0 | F90 | F60 | F30 | F00 | CFF | CCF | C9F | C6F | C3F | C0F | 600 | 630 | 660 | 690 | 6C0 | 6F0 | 90F | 93F | 96F | 99F | 9CF | 9FF | 3F0 | 3C0 | 390 | 360 | 330 | 300 | 0FF | 0CF | 09F | 06F | 03F | 00F |

# jQuery 1.7 API Cheat Sheet

## Selectors

### Basics
**#id**
**element**
**.class, .class.class**
*****
**selector1, selector2**

### Basic Filters
**:first**
**:last**
**:not(selector)**
**:even**
**:odd**
**:eq(index)**
**:gt(index)**
**:lt(index)**
**:header**
**:animated**
**:focus**

### Child Filters
**:nth-child(expr)**
**:first-child**
**:last-child**
**:only-child**

### Forms
**:input**
**:text**
**:password**
**:radio**
**:checkbox**
**:submit**
**:image**
**:reset**
**:button**
**:file**

### Hierarchy
**ancestor**
**descendant**
**parent > child**
**prev + next**
**prev ~ siblings**

### Content Filters
**:contains(text)**
**:empty**
**:has(selector)**
**:parent**

### Visibility Filters
**:hidden**
**:visible**

### Attribute Filters
**[attribute]**
**[attribute=value]**
**[attribute!=value]**
**[attribute^=value]**
**[attribute$=value]**
**[attribute*=value]**
**[attribute|=value]**
**[attribute~=value]**
**[attribute]**
**[attribute2]**

### Form Filters
**:enabled**
**:disabled**
**:checked**
**:selected**

## Core

### jQuery function
$ **.jQuery**( selector [, context] | element | elementArray | jQueryObject ), **.jQuery**( )
$ **.jQuery**( html [, owner] | html, props )
$ **.jQuery**( fn )
def **.when**(deferreds)
fn **jQuery.sub**( )
$ **.holdReady**( hold )

### jQuery Object Accessors
$ **.each**( fn(index, element) )
num **.size**( ), **.length**
str **.selector**
el **.context**
$ **.eq**( index )
**jQuery.error**( str )
[el],el **.get**( [index] )
num **.index**( ), **.index**( selector | element )
$ **jQuery.pushStack**( elements, [name, args] )
arr **.toArray**( )

### Interoperability
$ **jQuery.noConflict**( [extreme] )

**http://futurecolors.ru/jquery/**

## Attributes

### Attributes
str **.attr**( name | name , value )
$ **.attr**( name, val | map | name, fn(index, attr) )
$ **.removeAttr**( name )
$ **.prop**( name )
$ **.removeProp**( name )

### Class
$ **.addClass**( class | fn(index, class) )
bool **.hasClass**( class )
$ **.removeClass**( [class] | fn(index, class) )
$ **.toggleClass**( class [, switch] | fn(index, class) [, switch] )

### HTML, text
str **.html**( )
$ **.html**( val | fn(index, html) )
str **.text**( )
$ **.text**( val | fn(index, html) )

### Value
str,arr **.val**( )
$ **.val**( val | fn() )

## Traversing

### Filtering
$ **.eq**( index )
$ **.first**( )
$ **.last**( )
$ **.has**( selector ), **.has**( element )
$ **.filter**( selector ), **.filter**( fn(index) )
bool **.is**( selector | function(index) | jQuery object | element ) **1.7***
$ **.map**( fn(index, element) )
$ **.not**( selector ), **.not**( elements ), **.not**( fn( index ) )
$ **.slice**( start [, end] )

### Tree traversal
$ **.children**( [selector] )
$ **.closest**( selector [, context] | jQuery object | element )
arr **.closest**( selectors [, context] )
$ **.find**( selector | jQuery object | element )
$ **.next**( [selector] )
$ **.nextAll**( [selector] )
$ **.nextUntil**( [selector] )
$ **.offsetParent**( )
$ **.parent**( [selector] )
$ **.parents**( [selector] )
$ **.parentsUntil**( [selector] )
$ **.prev**( [selector] )
$ **.prevAll**( [selector] )
$ **.prevUntil**( [selector] )
$ **.siblings**( [selector] )

### Miscellaneous
$ **.add**( selector [, context] | elements | html )
$ **.andSelf**( )
$ **.contents**( )
$ **.end**( )

## CSS

### CSS
str **.css**( name )
$ **.css**( name, val | map | name, fn(index, val) )

### Positioning
obj **.offset**( )
$ **.offset**( coord | fn( index, coord ) )
$ **.offsetParent**( )
obj **.position**( )
int **.scrollTop**( )
$ **.scrollTop**( val )
int **.scrollLeft**( )
$ **.scrollLeft**( val )

### Height and Width
int **.height**( )
$ **.height**( val | fn(index, height ) )
int **.width**( )
$ **.width**( val | fn(index, height ) )
int **.innerHeight**( )
int **.innerWidth**( )
int **.outerHeight**( [margin] )
int **.outerWidth**( [margin] )

## Manipulation

### Inserting Inside
$ **.append**( content | fn( index, html ) )
$ **.appendTo**( target )
$ **.prepend**( content | fn( index, html ) )
$ **.prependTo**( target )

### Inserting Outside
$ **.after**( content | fn() )
$ **.before**( content | fn() )
$ **.insertAfter**( target )
$ **.insertBefore**( target )

### Inserting Around
$ **.unwrap**( )
$ **.wrap**( wrappingElement | fn )
$ **.wrapAll**( wrappingElement | fn )
$ **.wrapInner**( wrappingElement | fn )

### Replacing
$ **.replaceWith**( content | fn )
$ **.replaceAll**( selector )

### Removing
$ **.detach**( [selector] )
$ **.empty**( )
$ **.remove**( [selector] )

### Copying
$ **.clone**( [withDataAndEvents], [deepWithDataAndEvents] )

## Events

### Page Load
$ **.ready**( fn() )

### Event Handling
$ **.on**( events [, selector] [, data], handler ) **1.7+**
$ **.on**( events-map [, selector] [, data] ) **1.7+**
$ **.off**( events [, selector] [, handler] ) **1.7+**
$ **.off**( events-map [, selector] ) **1.7+**
$ **.bind**( type [, data ], fn(eventObj) )
$ **.bind**( type [, data], false )
$ **.bind**( array )
$ **.unbind**( [type] [, fn])
$ **.one**( type [, data ], fn(eventObj) )
$ **.trigger**( event [, data])
obj **.triggerHandler**( event [, data])
$ **.delegate**( selector, type, [data], handler)
$ **.undelegate**( [selector, type, [handler]]) | selector, events | namespace )

### Live Events
$ **.live**( eventType [, data], fn() )
$ **.die**( ), **.die**( [eventType] [, fn() ])

### Interaction Helpers
$ **.hover**( fnIn(eventObj), fnOut(eventObj))
$ **.toggle**( fn(eventObj), fn2(eventObj) [, ...])

### Event Helpers
function ( [data,] [fn] )
$ **.blur**,
**.change**,
**.click**,
**.dblclick**,
**.error**,
**.focus**,
**.focusin**,
**.focusout**,
**.keydown**,
**.keypress**,
**.keyup**,
**.load**( [data,] fn ),
**.mousedown**,
**.mouseenter**,
**.mouseleave**,
**.mousemove**,
**.mouseout**,
**.mouseover**,
**.mouseup**,
**.resize**,
**.scroll**,
**.select**,
**.submit**,
**.unload**( [data,] fn )

## Effects

### Basics
$ **.show**( [ duration [, easing] [, fn] ] )
$ **.hide**( [ duration [, easing] [, fn] ] )
$ **.toggle**( [showOrHide] )
$ **.toggle**( duration [, easing] [, fn] )

### Sliding
$ **.slideDown**( duration [, easing] [, fn] )
$ **.slideUp**( duration [, easing] [, fn] )
$ **.slideToggle**( [duration] [, easing] [, fn] )

### Fading
$ **.fadeIn**( duration [, easing] [, fn] )
$ **.fadeOut**( duration [, easing] [, fn] )
$ **.fadeTo**( [duration,] opacity [, easing] [, fn] )
$ **.fadeToggle**( [duration,] [, easing] [, fn] )

### Custom
$ **.animate**( params [, duration] [, easing] [, fn] )
$ **.animate**( params, options )
$ **.stop**( [queue] [, clearQueue] [, jumpToEnd] ) **1.7***
$ **.delay**( duration [, queueName] )

### Settings
bool **jQuery.fx.off**
num **jQuery.fx.interval**

# jQuery 1.7 API Cheat Sheet

## AJAX

### Low-Level Interface

```
jqXHR jQuery.ajax( options, [settings] )
         map accepts                          bool async = true
          fn beforeSend( jqXHR, config)        bool cache = true
          fn complete( jqXHR, status)         map contents
         str contentType                       obj context
         map converters                       bool crossDomain
    obj, str data                               fn dataFilter( data, type )
        bool global = true                     map headers
        bool ifModified = false                str jsonp
          fn jsonpCallback                     str password
        bool processData = true                str scriptCharset
         map statusCode                        num timeout
        bool traditional                       str type = 'GET'
         str url = curr. page                  str username
          fn xhr
         str dataType ∈ {xml, json, script, html}
          fn error( jqXHR, status, errorThrown )
          fn success( data, status, jqXHR )
      jQuery.ajaxSetup( options )
```

### Miscellaneous

```
  str .serialize(  )
[obj] .serializeArray(  )
  str jQuery.param( obj, [traditional] )
```

### Shorthand Methods

```
    $ .load( url [, data] [, fn( responseText, status, XHR )] )
jqXHR jQuery.get( url [, data] [, fn( data, status, XHR )] [, type] )
jqXHR jQuery.getJSON( url [, data] [, fn( data, status )] )
jqXHR jQuery.getScript( url [, fn( data, status )] )
jqXHR jQuery.post( url [, data] [, fn( data, status )] [, type] )
```

### Global Ajax Event Handlers

```
$ .ajaxComplete( fn( event, XHR, options ) )
$ .ajaxError( fn( event, XHR, options, thrownError ) )
$ .ajaxSend( fn( event, XHR, options ) )
$ .ajaxStart( fn(  ) )
$ .ajaxStop( fn(  ) )
$ .ajaxSuccess( fn(event, XHR, options) )
```

## Event object

```
event = {
     el currentTarget,
      * data,
   bool isDefaultPrevented(),
   bool
        isImmediatePropagationStopped(),
   bool isPropagationStopped(),
    str namespace,
    num pageX,
    num pageY,
        preventDefault(),
     el relatedTarget,
    obj result,
        stopImmediatePropagation(),
        stopPropagation(),
     el target,
    num timeStamp,
    str type,
    str which
}
```

## Deferred

```
deferred object = {
   def .always(alwaysCallbacks [,
        alwaysCallbacks])
   def done(doneCallbacks)
   def fail(failCallbacks)
  bool isRejected()
  bool isResolved()
   def .notify( args ) 1.7+
   def .notifyWith(context, [args]) 1.7+
   def .pipe([doneFilter] [, failFilter] [,
        progressFilter] ) 1.7*
   def .progress( progressCallbacks ) 1.7+
   def reject([args])
   def rejectWith(context, [args])
   def resolve([args])
   def resolveWith(context, [args])
   str state()
   def then(doneCallbacks, failCallbacks [,
        progressCallbacks]) 1.7*
}
def .promise([target])
```

## Callbacks

```
callbacks object = { 1.7+
   und .add(callbacks)
   und .disable()
   und .empty()
   und .fire(arguments)
  bool .fired()
   und .fireWith([context] [, args])
  bool .has(callback)
   und .lock()
  bool .locked()
   und .remove(callbacks)
}
cb $.Callbacks( flags )
```

## Utilities

### Browser and Feature Detection

```
 obj jQuery.support
 obj jQuery.browser deprecated
 str jQuery.browser.version deprecated
bool jQuery.boxModel deprecated
```

### Basic operations

```
 obj jQuery.each( obj, fn( i,
     valueOfElement ) )
 obj jQuery.extend( [deep,] target, obj1 [,
     objN] )
 arr jQuery.grep( arr, fn( el, i ) [, invert] )
 arr jQuery.makeArray( obj )
 arr jQuery.map( arrayOrObject, fn( el, i ) )
 num jQuery.inArray( val, arr )
 arr jQuery.merge( first, second )
  fn jQuery.noop
  fn jQuery.proxy( fn, scope | scope, name )
 arr jQuery.unique( arr )
 str jQuery.trim( str )
 obj jQuery.parseJSON( str )
```

### Data functions

```
   $ .clearQueue( [name] )
   $ .dequeue( [name] ), jQuery.dequeue(
     [name] )
 obj jQuery.data( el, key ), jQuery.data(  )
 obj .data(  ), .data( key )
   $ .data( key, val | obj )
   $ .removeData( [name] |[list]) 1.7*
[fn] .queue( [name] ) jQuery.queue(
     [name] )
   $ .queue( [name,] fn( next ) ),
     jQuery.queue( [name,] fn(  ) )
   $ .queue( [name,] queue ), jQuery.queue(
     [name,] queue )
```

### Test operations

```
 str jQuery.type( obj )
bool jQuery.isArray( obj )
bool jQuery.isEmptyObject( obj )
bool jQuery.isFunction( obj )
bool jQuery.isPlainObject( obj )
bool jQuery.isWindow( obj )
bool jQuery.isNumeric( val ) 1.7+
```

http://futurecolors.ru/jquery/

# Python 2.5 Reference Card

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## 1 Variable Types

### 1.1 Numbers

| | |
|---|---|
| `42 052 0x2A 42L 052L 0x2AL` | 42 (dec, oct, hex, short/long) |
| `0.2  .8  4.  1.e10  1.0e-7` | floating point value |
| `z = 5.0 - 2.0J;` | complex number |
| `z = complex(real, imag)` | complex number |
| `z.real; z.imag` | real and imag part of z |
| `True; False` | constants for boolean values |
| `abs(n)` | absolute value of n |
| `divmod(x, y)` | `(x/y, x%y)` |
| `hex(n)` | create hex string |
| `oct(n)` | create octal string |
| `ord(c)` | unicode code point of char |
| `round(x,n)` | round x to n decimal places |
| `cmp(x,y)` | x<y: -1, x==y: 0, x>y: 1 |
| `coerce(x, y)` | `(x,y)`, make same type |
| `pow(x,y,z)` | `(x**y) % z` |
| `float("3.14")` | `float from string` |
| `int("42", base)` | `int from string` |
| `import math; import cmath` | more math functions |
| `import random;` | random number generators |

### 1.2 Sequences (lists are mutable, tuples and strings are immutable)

| | |
|---|---|
| `s=l=[1, "bla", [1+2J, 1.4], 4]` | list creation |
| `s=t=(1, "bla", [1+2J, 1.4], 4)` | tuple creation |
| `l=list(t); t=tuple(l)` | list/tuple conversion |
| `l=range(1000)` | list of integers (0-999) |
| `s=xrange(1000)` | immut. xrange-sequence |
| `i=iter(s); i.next()` | iterator from sequence |
| `s[2][0]` | get list element (1+2J) |
| `s[-2][-1]` | get list element (1.4) |
| `s1+s1` | sequence concat |
| `n*s1` | repeat `s1` `n` times |
| `s[i:j]; s[i:]; s[:j]` | slicing (`i` incl., `j` excl.) |
| `s[i:j:k]` | slice with stride `k` |
| `s[::2]; s[::-1]` | every 2nd Element / reverse `s` |
| `x in s; x not in s` | is `x` a member of `s`? |
| `len(s)` | number of elements |
| `min(s); max(s)` | min/max |
| `l[i:j]=['a','b','c','d']` | replace slice |
| `l[i:i]=['a','b']` | insert before position `i` |
| `l.count(x)` | number of occurances of `x` |
| `l.index(x)` | first index of `x`, or error |
| `l.append(x)` | append `x` at end of `l` |
| `x=l.pop()` | pop off last element |
| `l.extend(l2)` | append `l2` at end of `l` |
| `l.insert(i,x)` | instert `x` at pos. `i` |
| `l.remove(x)` | delete first `x` |
| `l.reverse()` | reverse `l` |
| `l.sort(f)` | sort using `f` (default `f` =cmp) |
| `zip(s,t,...)` | `[(s[0],t[0],...),..]` |

### 1.3 Dictionaries (Mappings)

| | |
|---|---|
| `d={'x':42, 'y':3.14, 'z':7}` | dict creation |
| `d['x']` | get entry for 'x' |
| `len(d)` | number of keys |
| `del(d['x'])` | delete entry from dict |
| `d.copy()` | create shallow copy |
| `d.has_key(k)` | does key exist? |
| `d.items()` | list of all items |
| `d.keys()` | list of all keys |
| `d.values()` | list of all values |
| `i=d.iteritems(); i.next()` | iterator over items |
| `i=d.iterkeys(); i.next()` | iterator over keys |
| `i=d.itervalues(); i.next()` | iterator over values |
| `d.get(k,x)` | get entry for k, or return x |
| `d.clear()` | remove all items |
| `d.setdefault(k,x)` | return d[k] or set d[k]=x |
| `d.popitem()` | return and delete an item |

### 1.4 Sets

| | |
|---|---|
| `s=set(s); fs=frozenset(s)` | create set |
| `fs.issubset(t); s<=t` | all `s` in `t`? |
| `fs.issuperset(t); s>=t` | all `t` in `s`? |
| `fs.union(t); s\|t` | all elements from `s` and `t` |
| `fs.intersection(t); s&t` | elements both in `s` and `t` |
| `fs.difference(t); s-t` | all `s` not in `t` |
| `fs.symmetric_difference(t);s^t` | all either `s` or `t` |
| `fs.copy()` | shallow copy of `s` |
| `s.update(t); s\|=t` | add elements of `t` |
| `s.intersection_update(t); s&=t` | keep only what is also in `t` |
| `s.difference_update(t); s-=t` | remove elements of `t` |
| `s.symmetric_differ...(t); s^=t` | keep only symm. difference |
| `s.add(x)` | add `x` to `fs` |
| `s.remove(x); fs.discard(x);` | remove `x` (/ with exception) |
| `s.pop();` | return and remove any elem. |
| `s.clear();` | remove all elements |

### 1.5 Strings and Regular Expressions

| | |
|---|---|
| `"bla"; 'hello "world"'` | string (of bytes) |
| `"""bla""", '''bla'''` | triple quotes for multiline |
| `\    \\    \0` | cont., backslash, null char |
| `\N{id} \uhhhh \Uhhhhhhhh` | unicode char |
| `\xhh \ooo` | hex, octal byte |
| `u"Ünic\u00F8de"; u"\xF8"` | unicode string (of characters) |
| `r"C:\new\text.dat"; ur"\\Ü"` | raw string (unicode) |
| `str(3.14); str(42)` | string conversion |
| `"%s-%s-%s" % (42,3.14,[1,2,3])` | string formatting |
| `'\t'.join(seq)` | join sequences with separator |
| `s.decode('utf-8')` | latin-1 string to unicode string |
| `u.encode('utf-8')` | unicode string to utf-8 string |
| `chr(i), unichr(i)` | char from code point |
| `str(x)` | string from number/object |

**Other String Methods:**

*search and replace:* `find(s,b,e), rfind(s,b,e),`
`index(s,b,e), rindex(s,b,e), count(s,b,e),`
`endswith(s,b,e), startswith(s,b,e), replace(o,n,m)`

*formatting:* `capitalize, lower, upper, swapcase, title`

*splitting:* `partition(s), rpartition(s), split(s,m),`
`rsplit(s,m), splitlines(ke)`

*padding:* `center(w,c), ljust(w,c), lstrip(cs),`
`rjust(w,c), rstrip(cs), strip(cs), zfill(w),`
`expandtabs(ts)`

*checking:* `isalnum, isalpha, isdigit, islower, isspace,`
`istitle, isupper`

**String Constants:** `import string`
`digits, hexdigits, letters, lowercase, octdigits,`
`printable, punctuation, uppercase, whitespace`

**Regexes:** `import re`

| | |
|---|---|
| `r=re.compile(r'rx',re.ILMSUX)` | comile 'rx' as regex |
| `(?P<id>...)` | named group |
| `m=r.match(s,b,e)` | full match |
| `re.match(r'(?iLmsux)rx',s)` | direct regex usage |
| `m=r.search(s,b,e)` | partial match |
| `l=r.split(s,ms)` | split and return list |
| `l=r.findall(string)` | list of all matched groups |
| `s=r.sub(s,r,c)` | replace c counts of s with r |
| `(s,n)=r.subn(s,r,c)` | n is number of replacements |
| `s=re.escape(s)` | escape all non-alphanumerics |
| `m.start(g);m.span(g);m.end(g)` | group-match delimiters |
| `m.expand(s)` | replace \1 etc. with matches |
| `m.group(g); m.group("name")` | matched group no. g |
| `m.groups()` | list of groups |
| `m.groupdict()` | dict of named groups |

## 2 Basic Syntax

| | |
|---|---|
| `if expr: statements`<br>`elif expr: statements`<br>`else: statements` | conditional |
| `if a is b : ...` | object identity |
| `if a == 1` | value identity |
| `while expr: statements`<br>`else: statements` | while loop<br>run else on normal exit |
| `while True: ... if cond: break` | do... while equivalent |
| `for target in iter: statements`<br>`else: statements` | for loop |
| `for key,value in d.items():...` | multiple identifiers |
| `break, continue` | end loop / jump to next |
| `print "hello world",` | print without newline |
| `[ expr for x in seq lc ]` | list comprehension |
| `lc = for x in seq / if expr` | with lc-clauses |
| `pass` | empty statement |
| `def f(params): statements` | function definition |
| `def f(x, y=0): return x+y` | optional parameter |
| `def f(*a1, **a2): statements` | additional list of unnamed, dict of named paramters |
| `def f(): f.variable = 1 ...` | function attribute |
| `return expression` | return from function |
| `yield expression` | make function a generator |
| `f(1,1), f(2), f(y=3, x=4)` | function calls |
| `global v` | bind to global variable |
| `def make_adder_2(a):`<br>`def add(b): return a+b`<br>`return add` | closure |
| `lambda x: x+a` | lambda expression |
| `compile(string,filename,kind)` | compile string into code object |

| | |
|---|---|
| `eval(expr,globals,locals)` | evaluate expression |
| `exec code in gldict, lcdict` | compile and execute code |
| `execfile(file,globals,locals)` | execute file |
| `raw_input(prompt)` | input from stdin |
| `input(prompt)` | input and evaluate |

## 3 Object Orientation and Modules

| | |
|---|---|
| `import module as alias` | import module |
| `from module import name1,name2` | load attr. into own namespace |
| `from __future__ import *` | activate all new features |
| `reload module` | reinitialize module |
| `module.__all__` | exported attributes |
| `module.__name__` | module name / "__main__" |
| `module.__dict__` | module namespace |
| `__import__("name",glb,loc,fl)` | import module by name |
| `class name (superclass,...):` | class definition |
| `    data = value` | shared class data |
| `    def method(self,...): ...` | methods |
| `    def __init__(self, x):` | constructor |
| `        Super.__init__(self)` | call superclass constructor |
| `        self.member = x` | per-instance data |
| `    def __del__(self): ...` | destructor |
| `__str__, __len__, __cmp__,__` | some operator overloaders |
| `__iter__(self): return self` | use `next` method for iterator |
| `__call__` | call interceptor |
| `__dict__` | instance-attribute dictionary |
| `__getattr__(self, name),` | get an unknown attribute |
| `__setattr__(self, name, value)` | set any attribute |
| `callable(object)` | 1 if callable, 0 otherwise |
| `delattr(object, "name")` | delete name-attr. from object |
| `del(object)` | unreference object/var |
| `dir(object)` | list of attr. assoc. with object |
| `getattr(object, "name", def)` | get name-attr. from object |
| `hasattr(object, "name")` | check if object has attr. |
| `hash(object)` | return hash for object |
| `id(object)` | unique integer (mem address) |
| `isinstance(object, classOrType)` | check for type |
| `issubclass(class1, class2)` | class2 subclass of class1? |
| `iter(object, sentinel)` | return iterator for object |
| `locals()` | dict of local vars of caller |
| `repr(object), str(object)` | return string-representation |
| `vars(object)` | return __dict__ |
| `None` | the NULL object |
| `if __name__ == "__main__":` | make modul executable |

## 4 Exception Handling

| | |
|---|---|
| `try: ...` | Try-block |
| `except ExceptionName:` | catch exception |
| `except (Ex1, ...), data:` | multiple, with data |
| `    print data` | exception handling |
| `    raise` | pass up (re-raise) exception |
| `else: ...` | if no exception occurred |
| `finally: ...` | in any case |
| `assert expression` | debug assertion |
| `class MyExcept(Exception): ...` | define user exception |
| `raise MyExcept(data)` | raise user exception |

## 5 System Interaction

| | |
|---|---|
| `sys.path` | module search path |
| `sys.platform` | operating system |
| `sys.stdout, stdin, stderr` | standard input/output/error |
| `sys.argv[1:]` | command line parameters |
| `os.system(cmd)` | system call |
| `os.startfile(f)` | open file with assoc. program |
| `os.popen(cmd, r\|w, bufsize)` | open pipe (file object) |
| `os.popen2(cmd, bufsize, b\|t)` | (`stdin, stdout`) fileobjects |
| `os.popen3(cmd, bufsize, b\|t)` | (`stdin, stdout,stderr`) |
| `os.environ['VAR']; os.putenv[]` | read/write environment vars |
| `glob.glob('*.txt')` | wildcard search |

**Filesystem Operations**

**os module:** `access, chdir, chmod, chroot, getcwd, getenv, listdir, mkdir, remove, unlink, removedirs, rename, rmdir, pipe, ...`

**shutil module:** `copy, copy2, copyfile, copyfileobj, copymode, copystat, copytree, rmtree`

**os.path module:** `abspath, altsep, basename, commonprefix, curdir, defpath, dirname, exists, expanduser, expandvar, extsep, get[acm]time, getsize, isabs, isdir, isfile, islink, ismout, join, lexists, normcase, normpath, pardir, pathsep, realpath, samefile, sameopenfile, samestat, sep, split, splitdrive, splitext, stat, walk`

**command line argument parsing:**

```
restlist, opts = \
  getopt.getopt(sys.argv[l:],\
    "s:oh",\
    ["spam=", "other", "help"])
for o, a in opts:
    if o in ("-s", "--lol"): spam = a
    if o in ("-h", "--help"): show_help()
```

## 6 Input/Output

| | |
|---|---|
| `f=codecs.open(if,"rb","utf-8")` | open file with encoding |
| `file = open(infilename, "wb")` | open file without encoding |
| `codecs.EncodedFile(...)` | wrap file into encoding |
| `r, w, a, r+` | read, write, append, random |
| `rb, wb, ab, r+b` | modes without eol conversion |
| `file.read(N)` | N bytes ( entire file if no N ) |
| `file.readline()` | the next linestring |
| `file.readlines()` | list of linestring |
| `file.write(string)` | write string to file |
| `file.writelines(list)` | write list of linestrings |
| `file.close()` | close file |
| `file.tell()` | current file position |
| `file.seek(offset, whence)` | jump to file position |
| `os.truncate(size)` | limit output to size |
| `os.tmpfile()` | open anon temporary file |
| `pickle.dump(x, file)` | make object persistent |
| `x = pickle.load(file)` | load object from file |

## 7 Standard Library (almost complete)

**String Services:** `string, re, struct, difflib, StringIO, cStringIO, textwrap, codecs, unicodedata, stringprep, fpformat`

**File/Directory Access:** `os.path, fileinput, stat, statvfs, filecmp, tempfile, glob, fnmatch, linecache, shutil, dircache`

**Generic OS services:** `os, time, optparse, getopt, logging, getpass, curses, platform, errno, ctypes`

**Optional OS services:** `select, thread, threading, dummy_thread, dummy_threading, mmap, readline, rlcompleter`

**Data Types:** `datetime, calendar, collections, heapq, bisect, array, sets, sched, mutex, Queue, weakref, UserDict, UserList, UserString, types, new, copy, pprint, repr`

**Numeric and Math Modules:** `math, cmath, decimal, random, itertools, functools, operator`

**Internet Data Handling:** `email, mailcap, mailbox, mhlib, mimetools, mimetypes, MimeWriter, mimify, multifile, rfc822, base64, binhex, binascii, quopri, uu`

**Structured Markup Processing Tools:** `HTMLParser, sgmllib, htmllib, htmlentitydefs, xml.parsers.expat, xml.dom.*, xml.sax.*, xml.etree.ElementTree`

**File Formats:** `csv, ConfigParser, robotparser, netrc, xdrlib`

**Crypto Services:** `hashlib, hmac, md5, sha`

**Compression:** `zlib, gzip, bz2, zipfile, tarfile`

**Persistence:** `pickle, cPickle, copy_reg, shelve, marshal, anydbm, whichdb, dbm, gdbm, dbhash, bsddb, dumbdbm, sqlite3`

**Unix specific:** `posix, pwd, spwd, grp, crypt, dl, termios, tty, pty, fcntl, posixfile, resource, nis, syslog, commands`

**IPC/Networking:** `subprocess, socket, signal, popen2, asyncore, asynchat`

**Internet:** `webbrowser, cgi, scitb, wsgiref, urllib, httplib, ftplib, imaplib, nntplib, ...lib, smtpd, uuid, urlparse, SocketServer, ...Server,, cookielib, Cookie, xmlrpclib`

**Multimedia:** `audioop, imageop, aifc, sunau, wave, chunk, colorsys, rgbimg, imghdr, sndhdr, ossaudiodev`

**Tk:** `Tkinter, Tix, ScrolledText, turtle`

**Internationalization:** `gettext, locale`

**Program Frameworks:** `cmd, shlex`

**Development:** `pydoc, doctest, unittest, test`

**Runtime:** `sys, warnings, contextlib, atexit, traceback, qc, inspect, site, user, fpectl`

**Custom Interpreters:** `code, codeop`

**Restricted Execution:** `rexec, Bastion`

**Importing:** `imp, zipimport, pkgutil, modulefinder, runpy`

**Language:** `parser, symbol, token, keyword, tokenize, tabnanny, pyclbr, py_compile, compileall, dis, pickletools, distutils`

**Windows:** `msilib, msvcrt, _winreq, winsound`

**Misc:** `formatter`

# WEB2PY 2.0 Cheat Sheet

`http://web2py.com`

## URL Parsing

`http://`*host:port*`/admin` (admin interface)
`http://`*host:port*`/`*app*`/static/`*file* (app static file)
`http://`*host:port*`/`*app*`/appadmin` (database interface)
`http://`*host:port*`/`*app*`/`*c*`/`*f(.e)*`/!`*args*`?`*vars*

| | |
|---|---|
| *host* | → `request.http_host` |
| *port* | → `request.http_port` |
| *app* | → `request.application` |
| *c* | → `request.controller` |
| *f* | → `request.function` |
| *e* | → `request.extension` |
| *args* | → `request.args` (list) |
| *vars* | → `request.vars` (dict) |
| *'c/f.e'* | → `response.view` |

## Global Objects

### `request.`*obj*

`application`, `controller`, `function`, `now`, `client`, `is_local`, `is_https`, `ajax`, `args`, `vars`, `get_vars`, `post_vars`, `env.method`, `env.path_info`, `env.query_string`, `env.http_*`, `env.wsgi_*`

### `response.`*obj*

`status=200`, `view='filename.html'`, `flash='flash me'`, `js = 'alert("run me")'`, `download(request,db)`, `stream(file)`, `render(template,**vars)`

### `session.`*obj*

`connect(request,response,db,separate=False)`, `flash`, `secure()`, `forget()`, `_unlock(response)`

### `cache`

```
@cache('key',3600,cache.ram)
@cache('key',3600,cache.disk)
cache.ram.clear(regex='k.*')
```

### `T` (internationalization)

`T('hello %(key)s',dict(key='thing'))`
`T.current_languages = ['en']` (no translate)
`T.force('en')` (use languages/en.py)

### `URL`, `redirect`, and `HTTP`

`URL('function')`
`URL('controller','function')`
`URL('app','controller','function')`
`URL('function',args=[...],vars={...})`
`URL('function',scheme=True)` (full url)
`URL('function',user_signature=True)`
  (then use `@auth.requires_signature()`)
`redirect(URL('index'))`
`raise HTTP(500,'message')`

## Database Abstraction Layer

```
db = DAL('sqlite://storage.sqlite',pool_size=1)
db.define_table('thing', Field('name','string'))
id = db.thing.insert(name='max')
query = db.thing.name.contains('m')&(db.thing.id==1)
db(query).update(name='max')
db(query).delete()
things = db(query).select(db.thing.ALL,
    orderby=~db.thing.name, groupby=db.thing.id
    dictinct=True, cache=(cache.ram,60))
thing = db.thing(id) or redirect(URL('error'))
thing.update_record(name='max')
things.export_to_csv_file(open(filename,'wb'))
db.thing.import_from_csv_file(open(filename,'rb'))
```

### Field Types

`string`, `text`, `boolean`, `integer`, `double`, `decimal(n,m)`, `date`, `time`, `datetime`, `password`, `upload`, `blob`, `list:string`, `list:integer`, `reference` *table*, `list:reference` *table*

### Field Attributes

```
Field(fieldname, type='string', length=None,
   default=None, required=False, requires=None,
   ondelete='CASCADE', notnull=False, unique=False,
   uploadfield=True, widget=None, label=None,
   comment=None, writable=True, readable=True,
   update=None, authorize=None, autodelete=False,
   represent=None, uploadfolder=None,
   uploadseparate=False, compute=None, ...)
```

## Validators

`CLEANUP`, `CRYPT`, `IS_ALPHANUMERIC`, `IS_DATE`, `IS_DATETIME`, `IS_DATETIME_IN_RANGE`, `IS_DATE_IN_RANGE`, `IS_DECIMAL_IN_RANGE`, `IS_EMAIL`, `IS_EMPTY_OR`, `IS_EQUAL_TO`, `IS_EXPR`, `IS_FLOAT_IN_RANGE`, `IS_GENERIC_URL`, `IS_HTTP_URL`, `IS_IMAGE`, `IS_INT_IN_RANGE`, `IS_IN_DB`, `IS_IN_SET`, `IS_IN_SUBSET`, `IS_IPV4`, `IS_LENGTH`, `IS_LIST_OF`, `IS_LOWER`, `IS_MATCH`, `IS_NOT_EMPTY`, `IS_NOT_IN_DB`, `IS_NULL_OR`, `IS_SLUG`, `IS_STRONG`, `IS_TIME`, `IS_UPLOAD_FILENAME`, `IS_UPPER`, `IS_URL`

## Helpers

`A`, `B`, `BEAUTIFY`, `BODY`, `BR`, `CAT`, `CENTER`, `CODE`, `COL`, `COLGROUP`, `DIV`, `EM`, `EMBED`, `FIELDSET`, `FORM`, `H1`, `H2`, `H3`, `H4`, `H5`, `H6`, `HEAD`, `HR`, `HTML`, `I`, `IFRAME`, `IMG`, `INPUT`, `LABEL`, `LEGEND`, `LI`, `LINK`, `MARKMIN`, `MENU`, `META`, `OBJECT`, `ON`, `OL`, `OPTGROUP`, `OPTION`, `P`, `PRE`, `SCRIPT`, `SELECT`, `SPAN`, `STYLE`, `TABLE`, `TAG`, `TBODY`, `TD`, `TEXTAREA`, `TFOOT`, `TH`, `THEAD`, `TITLE`, `TR`, `TT`, `UL`, `XHTML`, `XML`

```
DIV(SPAN('hello'),_id='myid',_class='myclass')
A('link',_href=URL(...))
SPAN(A('link',callback=URL(...),delete='span'))
TABLE(*[TR(TD(item)) for item in [...]])
div = DIV(SPAN('hello',_id='x'))
div.element('span#x').append("world")
div.element('span#x')['_class'] = 'myclass'
DIV('1<2').xml()==DIV(XML('1&lt;2',sanitize=True)).xml()
div = TAG.DIV(TAG.SPAN('hello',_id='x'))
div = TAG('<div><span id="hello">hello</span></div>')
```

## Forms

`form = SQLFORM(db.thing,record=None)`
`form = SQLFORM.factory(Field('name'))` (no db)
`form = SQLFORM.dictform(d)` (for `d={...}`)

```
form = SQLFORM(db.thing).process()
if form.accepted: ...
elif form.errors: ...
```

## Grids

```
grid = SQLFORM.grid(query)
grid = SQLFORM.smartgrid(table, linked_tables=[])
```

```
SQLFORM.grid(
   query, fields=None, field_id=None, left=None,
   headers={}, orderby=None, searchable=True,
   sortable=True, paginate=20, deletable=True,
   editable=True, details=True, selectable=None,
   create=True, csv=True, links=None, ...)
```

## Auth

`@auth.requires_login()`
`@auth.requires_membership('groupname')`
`@auth.requires_premission('edit','tablename',id)`
`@auth.requires(`*condition*`)`
`auth.(has|add|del)_membership(...)`
`auth.(has|add|del)_permission(...)`

## Full Example

### models/db.py

```
from gluon.tools import *
db = DAL('sqlite://storage.sqlite')
auth = Auth(db)
auth.define_tables()
db.define_table('thing',
    Field('name',requires=IS_NOT_EMPTY()), auth.signature)
auth.enable_record_versioning(db) # for full db auditing
```

### controllers/default.py

```
def index(): return auth.wiki() # embed a wiki
def download(): return response.download(request,db)
def user(): return dict(form=auth) # login/etc.

@auth requires_login()
def manage_things(): # access you data
    grid = SQLFORM.grid(db.thing.created_by==auth.user.id)
    return locals()
```

### views/default/manage_things.html

```
{{extend 'layout.html'}}
<h1>Your things</h1>
{{=grid}}
{{# any python between double braces}}
```

## Generic views

```
generic.html
generic.rss
generic.ics
generic.map # google map
generic.pdf # html -> pdf
generic.json
generic.jsonp
```

## Web services

```
from gluon.tools import Service
service = service()
def call(): return service()
@service.rss
@service.xml
@service.json
@service.xmlrpc
@service.jsonrpc
@service.amfrpc3('domain')
@service.soap('name',args={'x':int},returns={'y':int})
@service.run
```

## REST

```
@request.restful()
def index():
    def GET(a,b,c): return dict()
    def PUT(a,b,c): return dict()
    def POST(a,b,c): return dict()
    def DELETE(a,b,c): return dict()
    return locals()
```

## MARKMIN

```
text = """
# section
## subsection
**bold** ''italic'' ``code``, ``what``:up
-----------------------------------------------
image  | http://example.com/image.jpg
audio  | http://example.com/audio.mp3
video  | http://example.com/video.mp4
iframe | embed:http://example.com/page.html
-------------------------------------:css_class
@{variable} and @{controller/function/args}"""
{{=MARKMIN(text,
    url=True,environment=dict(variable='x'),
    extra=dict(up=lambda t:cgi.escape(t.upper()))}}
```

## Login Methods

```
from gluon.contrib.login_methods.basic_auth import *
auth.settings.login_methods.append(
    basic_auth('http://server'))
```

```
from ....ldap_auth import *
auth.settings.login_methods.append(ldap_auth(
    mode='ad', server='my.domain.controller',
    base_dn='ou=Users,dc=domain,dc=com'))
```

```
from ....pam_auth import *
auth.settings.login_methods.append(pam_auth())
```

```
from ....openid_auth import *
auth.settings.login_form = OpenIDAuth(auth)
```

```
from ....email_auth import *
auth.settings.login_methods.append(
   email_auth("smtp.gmail.com:587","@gmail.com"))
```

```
from ....browserid_account import *
auth.settings.login_form = BrowserID(request,
   audience = "http://127.0.0.1:8000"
   assertion_post_url = 'http://...//user/login')
```

```
from ....dropbox_account import *
auth.settings.login_form = DropboxAccount(request,
    key="...",secret="...",access_type="...",
    url = "http://.../user/login')
```

```
from ....rpx_account import *
auth.settings.login_form = RPXAccount(request,
    api_key="...",domain="...",
    url='http://.../user/login'
```

```
from ....x509_auth import *
auth.settings.login_form = X509Account()
```

## Payment Systems

### Google wallet button

```
from gluon.contrib.google_wallet import button
{{=button(merchant_id="123456789012345",
   products=[dict(name="shoes",
      quantity=1, price=23.5, currency='USD',
      description="running shoes black")])}}
```

### Stripe

```
from gluon.contrib.stripe import Stripe
Stripe(key).charge(amount=100,currency='usd',
    card_number='4242424242424242',
    card_exp_month='5',card_exp_year='2012',
    card_cvc_check='123', description='test charge')
Stripe(key).check(d['id'])
Stripe(key).refund(d['id'])
```

### Authorize.Net

```
from gluon.contrib.AuthorizeNet import process
process(card_number,expiration,total,cvv=None,
   tax=None,invoice=None, login='cnpdev4289',
   transkey='SR2P8g4jdEn7vFLQ',testmode=True)
```

## Deployment

`web2py.py -i` *ip* `-p` *port* `-a` *password*  
`web2py.py -S` *app* `-M -N -R` *script.py* (run script)  
`web2py.py -S` *app* `-M -N` (shell)  
`web2py.py -K` *app* (task queue worker)  
`anyserver.py -s` *server* (third party server)  
servers: bjoern, cgi, cherrypy, diesel, eventlet, fapws, flup, gevent, gnuicorn, mongrel2, paste, rocket, tornado, twisted, wsgiref

### Apache + mod_proxy

```
sudo aptitude install libapache2-mod-proxy-html
sudo a2enmod proxy
cd /etc/apache2
sudo ln -s mods-available/proxy_http.load \
           mods-enabled/proxy_http.load
```

In VirutualHost:

```
ProxyRequests off
ProxyPass /myapp http://127.0.0.1:8000/myapp
ProxyHTMLURLMap http://127.0.0.1:8000/myapp /myapp
```

### Apache + mod_wsgi

```
sudo apt-get install libapache2-mod-wsgi
sudo a2enmod wsgi
```

In VirutualHost:

```
DocumentRoot /path/web2py/
WSGIScriptAlias / /path/web2py/wsgihandler.py
WSGIDaemonProcess web2py user=apache group=web2py \
   home=/path/web2py/ processes=5
<LocationMatch "(/[\w_]*/static/.*)">
  Order Allow,Deny
  Allow from all
</LocationMatch>
<Location ""/">
  Order deny,allow
  Allow from all
  WSGIProcessGroup web2py
</Location>
```

### uWSGI

```
hg clone http://projects.unbit.it/hg/uwsgi
cd uwsgi; make -f Makefile.Py27
uwsgi/uwsgi --pythonpath /path/web2py --async 24 -t 20 \
  --ugreen --module wsgihandler -s /tmp/we2py.sock
```