

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
    distinct=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_permission('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
code, what:up
-----: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='SR2P8g4jEn7vFLQ',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 VirtualHost:

```
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 VirtualHost:

```
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
```