

# Using the Web Services Client

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# What are Web Services?

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- Web Services are a standards based approach to heterogeneous RPC
- Based on SOAP (Simple Object Access Protocol)
- XML encoded Remote Procedure Call (RPC) transported over standard protocols such as HTTP, Jabber, SMTP, POP3, etc.

# History of WebGUI SOAP Client

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- DonorWare has decades of “C” business logic for enterprise fundraising software
- 1999 - wrapped C binaries in Perl APIs
- 2000 - exposed Perl APIs over an HTTP broker
- 2001 – converted from HTTP broker to SOAP::Lite, wrote CGI.pm scripts that consumed the SOAP services.

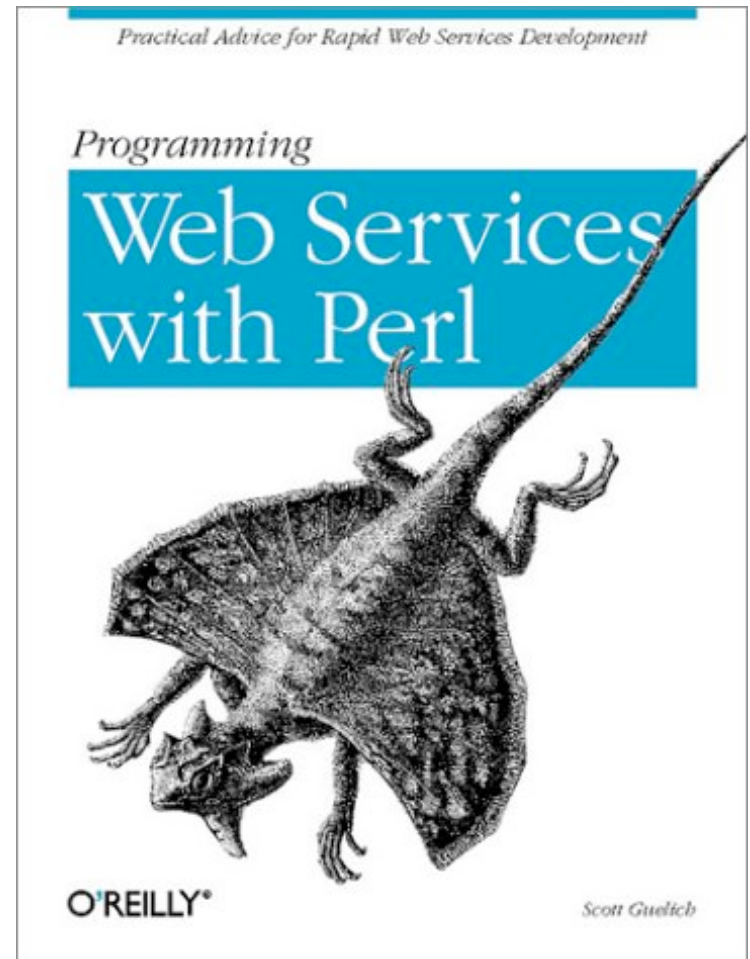
- 2004 – Enter WebGUI and SOAP
- Wrote first version of SOAP Client Wobject for WebGUI 5.x
- Contributed the SOAP Wobject to WebGUI 6.x and renamed to WebServices Client

# Additional SOAP Resources

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- CPAN: SOAP::Lite
- [www.soaplite.com](http://www.soaplite.com)
- O'Reilly Books



# About the WebServices Client

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- Client – this is a consumer of SOAP services, not a provider.
- You either need to consume someone else's services, or write your own.

# Creating a New WS Wobject

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- WSDL
  - *WSDL – the full WSDL path*
  - *Call/Method*
  - *Arguments*
- RPC
  - *Proxy – the remote server/script*
  - *URI – the path/module to access*
  - *Call/Method*
  - *Arguments*

## Edit Web Services Client

**Wobject Properties**

Layout

Privileges

save

Wobject ID

new

Title

Description

SOAP URI or WSDL

SOAP Proxy

SOAP Method/Call

SOAP Call Parameters

Execute by default?

 Yes  No

Debug?

 Yes  No

Cache

 Session  Global

Cache expires



# Simple Example: xmethods getTemp

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- Current Temperature in Beverly Hills, CA
- Uses standard Web Service from xmethods.org
- Result:

  
Weather by WSDL  
Result: 73.0

# Temperature Example: Properties Tab

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- Set WSDL
- Set Call
- Set Params

## Edit SOAP Client

**Object Properties** | **Layout** | **Privileges** | **save**

Wobject ID	206
Title	<input type="text" value="Weather by WSDL"/>
Description	<input type="text"/>
SOAP URI or WSDL	<input type="text" value="http://www.xmethods.net/sd/2001/Ten"/>
SOAP Proxy	<input type="text"/>
SOAP Method/Call	<input type="text" value="getTemp"/>
SOAP Call Parameters	<input type="text" value="'90210'"/>
HTTP Header Override	<input type="text"/>
Execute by default?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Debug?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Decode utf8 data?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Cache	<input checked="" type="radio"/> Session <input type="radio"/> Global
Cache expires	<input type="text" value="1"/>

# Temperature Example: Layout Tab

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- Set up / choose Template

## Edit SOAP Client

HELP

**Wobject Properties** | **Layout** | **Privileges** | save

Display the title?  Yes  No

Page Template Position

Template  [Manage templates.](#)

Preprocess macros on query?  Yes  No

Pagination after

Pagination variable

- WS Wobject creates a top level loop of the results of the SOAP call
- You need to loop through this one "record"

## Edit Template

HELP

Template ID 1084

Template Name

WSDL Weather

Template

```
<h1><tmpl_var title></h1>
<tmpl_loop results>
Result: <TMPL_VAR result> <p>
</tmpl_loop>
```

save

# Templating for WS: Trapping Errors

## Example One:

```
<tmpl_if results>  
  <tmpl_loop results>  
    The current temp is: <tmpl_var  
result>  
  </tmpl_loop>  
<tmpl_else>  
  Failed to retrieve temp.  
</tmpl_if>
```

# Templating for WS: Trapping Errors

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## Example Two:

```
<tmpl_if soapError>
  There was an error: <tmpl_var
  name="soapError">
</tmpl_if>
<tmpl_if results>
  <tmpl_loop results>
    The current temp is: <tmpl_var
  result>
  </tmpl_loop>
</tmpl_if>
```

# Templating for WS: Conditional Sections

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```
<h1><TMPL_VAR name="title"></h1>
...PUT SOAP ERROR MESSAGE HERE IF DESIRED
<TMPL_UNLESS soapError>
<TMPL_IF results>
  <TMPL_LOOP name="results">
    <TMPL_IF return_message>
      ... PUT CONFIRMATION MESSAGE HERE
    </TMPL_IF>

    <TMPL_UNLESS hide_pre_mode>
<TMPL_IF errors>
  There were errors in the form. Please correct these errors and try again.<p>
  <TMPL_LOOP errors>
    <font color="red"><TMPL_VAR message></font><BR>
  </TMPL_LOOP>
</TMPL_IF>
  ...PUT THE FORM HERE
</TMPL_UNLESS>

</TMPL_LOOP>
</TMPL_IF>
</TMPL_UNLESS>
```

# Caching Results of Remote Calls

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Debug?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Decode utf8 data?	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Cache	<input checked="" type="radio"/> Session	<input type="radio"/> Global
Cache expires	<input type="text" value="1"/>	

- Session: Cache is user specific
- Global: Cache is cross-user
- Duration: number of seconds



# Debug Output During Setup

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```
Sat Sep 18 14:58:03 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: session cache_key=df373a39813f3152767f419cbd9e19b6 md5_hex(getTemp, '90210')
Sat Sep 18 14:58:03 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: uri=http://www.xmethods.net/sd/2001/TemperatureService.wsdl
Sat Sep 18 14:58:03 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: wsdl=http://www.xmethods.net/sd/2001/TemperatureService.wsdl
Sat Sep 18 14:58:04 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: getTemp(90210)
Sat Sep 18 14:58:04 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: SOAP return is type: scalar
Sat Sep 18 14:58:04 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: $VAR1 = {
'result' => '73.0'
};

Sat Sep 18 14:58:04 2004 /usr/local/web/domains/webware.dwvpn.net/www/index.pl
WARNING: SOAP timing [getTemp]: 1 wallclock secs ( 0.07 usr + 0.00 sys = 0.07 CPU)
```

Something more interesting...

- POEhouse – home interaction using POE, SOAP, Jabber, etc.
- X10 control of lights via Jabber or SOAP
- Streaming MP3 “radio” station controlled via Jabber or SOAP

# Lessons from POEhouse

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- Using SOAP calls to pre-populate forms, then submit form back to SOAP call
- Pagination of large result loops

# Templating for WS: Prepopulating Forms

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- Use `^FormParam()`; to “bind” variables between the HTML form and the SOAP call
- Execute by default to get form pre-population values

## Edit Web Services Client

<b>Object Properties</b>	<b>Layout</b>	<b>Privileges</b>	<b>save</b>
Wobject ID	13		
Title	<input type="text" value="POEhouse::X10"/>		
Description	<input type="text"/>		
SOAP URI or WSDL	<input type="text" value="http://mbs.dwvpn.net:8080"/>		
SOAP Proxy	<input "="" type="text" value="http://mbs.dwvpn.net:8080/?session="/>		
SOAP Method/Call	<input type="text" value="do_this"/>		
SOAP Call Parameters	<input type="text" value="module =&gt; 'X10',&lt;br/&gt;method =&gt; 'onoff',&lt;br/&gt;room =&gt; '^FormParam(&quot;room&quot;);',&lt;br/&gt;action =&gt; '^FormParam(&quot;action&quot;);'"/>		
Execute by default?	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Debug?	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Cache	<input type="radio"/> Global <input checked="" type="radio"/> Session		
Cache expires	<input type="text" value="1"/>		

# Templating for WS: Prepopulating Forms

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```
<h1><tmpl_var title></h1>
<tmpl_loop results>
  <FORM METHOD="POST">
    <input type="hidden" name="targetWobjects" value="do_this">
```

Choose a room:

```
  <select name="room">
    <tmpl_if rooms>
      <tmpl_loop rooms>
        <option ><tmpl_var room></option>
      </tmpl_loop>
    </tmpl_if>
  </select>
```

Action:

```
  <select name="action">
    <option>on</option>
    <option>off</option>
    <option>dim</option>
  </select>
  <input type="submit" name="submit" value="Do It!">
</FORM>
```

```
Result: <TMPL_VAR result> <p>
</tmpl_loop>
```

# Templating for WS: Prepopulating Forms

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## POEhouse::X10

Choose a room:  Action:

Result: No room specified

- Room gets pre-populated
- Action gets pre-populated
- Button calls WS Wobject again
  - *Remember targetWobjects hidden variable?*

# Templating for WS: Paginating Results

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- Uses standard WebGUI pagination

The screenshot displays the 'Object Properties' configuration window for a template. The 'Layout' sub-tab is selected, and a 'save' button is visible in the top right corner. The configuration options are as follows:

- Display the title?**: Radio buttons for 'Yes' (selected) and 'No'.
- Page Template Position**: A dropdown menu set to '1', with a preview box below it showing the number '1'.
- Template**: A dropdown menu set to 'POEhouse MP3 filter', with a 'MANAGE' button to its right.
- Preprocess macros on query?**: Radio buttons for 'Yes' (selected) and 'No'.
- Pagination after**: A text input field containing the value '25'.
- Pagination variable**: A text input field containing the value 'matches'.



# Templating for WS: Paginating Results

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```
<h1><tmpl_var title></h1>
<tmpl_loop results>
  <FORM METHOD="POST">
    <input type="hidden" name="targetWobjects" value="do_this">
    <input type="text" name="filter">
    <input type="submit" name="submit" value="Do It!">
  </FORM>
```

Result: <TMPL\_VAR result> <p>

<TMPL\_IF matches>

Page <TMPL\_VAR name="pageNumber"> of <TMPL\_VAR name="numberOfPages"><br/>

<TMPL\_LOOP matches>

<TMPL\_VAR match><BR>

</TMPL\_LOOP>

<TMPL\_VAR name="previousPage">

<TMPL\_VAR name="pageList">

<TMPL\_VAR name="nextPage">

</TMPL\_IF>

</tmpl\_loop>

A few more examples  
and time for questions...