



703128 PS/2 Web Services

XML-RPC

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Outline

- XML-RPC
 - Overview
 - Request / Response
 - Datatypes
- Exercises
- Project Updates

XML-RPC

What is XML-RPC?

- It is a specification and a set of implementations that allow software running on disparate operating systems, running in different environments to make procedure calls over the Internet.
- It is a remote procedure calling using HTTP as the transport and XML as the encoding.
- XML-RPC is designed to be as simple as possible, while allowing complex data structures to be transmitted, processed and returned.

XML-RPC History

- Dave Winer working for UserLand ¹ designed a protocol called “RPC” (1998)
- Dave Winer started to work with Microsoft on something called “SOAP” based on “RPC”
- The specification forked and “XML-RPC” was published
- XML-RPC gained quite a bit of popularity
- Hannes Wallnöfer implemented an XML-RPC library in Java (Helma XML-RPC) migrated now to Apache
<http://ws.apache.org/xmlrpc/>

¹ Web CMS, object database, scripting, tools, HTTP server, Windows & Mac

XML-RPC Implementations

- C/C++
- ObjectiveC
- Delphi/Kylix
- Java
- Perl
- PHP
- Python
- TCL
- Ruby
- Rebol
- Scheme
- Lisp
- Lingo client
- AppleScript
- JavaScript
- ASP
- Cold Fusion
- WebObjects
- Zope
- Flash client

XML-RPC Request example

```
POST /RPC2 HTTP/1.0
User-Agent: Frontier/5.1.2 (WinNT)
Host: betty.userland.com
Content-Type: text/xml
Content-length: 181
```

HTTP Request Header

```
<?xml version="1.0"?>
<methodCall>
  <methodName>examples.getStateName</methodName>
  <params>
    <param>
      <value><i4>41</i4></value>
    </param>
  </params>
</methodCall>
```

Method

Parameter

(*) <http://xmlrpc.scripting.com/spec.html>

XML-RPC Response example

HTTP/1.1 200 OK
Connection: close
Content-Length: 158
Content-Type: text/xml
Date: Fri, 17 Jul 1998 19:55:08 GMT
Server: UserLand Frontier/5.1.2-WinNT



HTTP Request Header

```
<?xml version="1.0"?>
<methodResponse>
  <params>
    <param>
      <value><string>South Dakota</string></value>
    </param>
  </params>
</methodResponse>
```



Result

(*) <http://xmlrpc.scripting.com/spec.html>

XML-RPC Datatypes

- `i4`, or `int` → A 32-bit, signed, and non-null, integer value
- `boolean` → A non-null, boolean value (0, or 1)
- `string` → A string, non-null
- `double` → A signed, non-null, double precision, floating point number
- `dateTime.iso8601` → A pseudo ISO8601 timestamp, like `19980717T14:08:55`
- `base64` → A base64 encoded byte array
- `struct` → A key value pair. The keys are strings. The values may be any valid data type, including another struct
- `array` → An array of objects. The array elements may be any valid data type, including another array

(*) <http://ws.apache.org/xmlrpc/types.html>

Exercises

Task

Assignment:

1. Download the worksheet from the course webpage
2. Complete the exercises in the worksheet
3. Upload it to the OLAT before the next session

Project Updates

Your task until 2017-11-10:

1. You should have consumed (successfully) all selected services
2. You should have a clear idea about the interface for your application
3. Prepare Project Progress Report Presentation Slides
 - Content:
 - i) Explain how to access services you have selected. All encountered difficulties should be clarified and discussed
 - ii) Explain your idea about user interface(s) for your application
 - Present it in the next session (2017-11-10)

Thank You