

APLNext Web Services

Simple Sample 2 – EntityBodyDecoded

Overview

Simple Sample 2 illustrates the following user workflow:

- Client browser opens the default web page: <http://localhost:9222/> for the application
- Client enters value in Name field and clicks the Submit button
- APLNext Desktop Server received the request and responds with a new web page

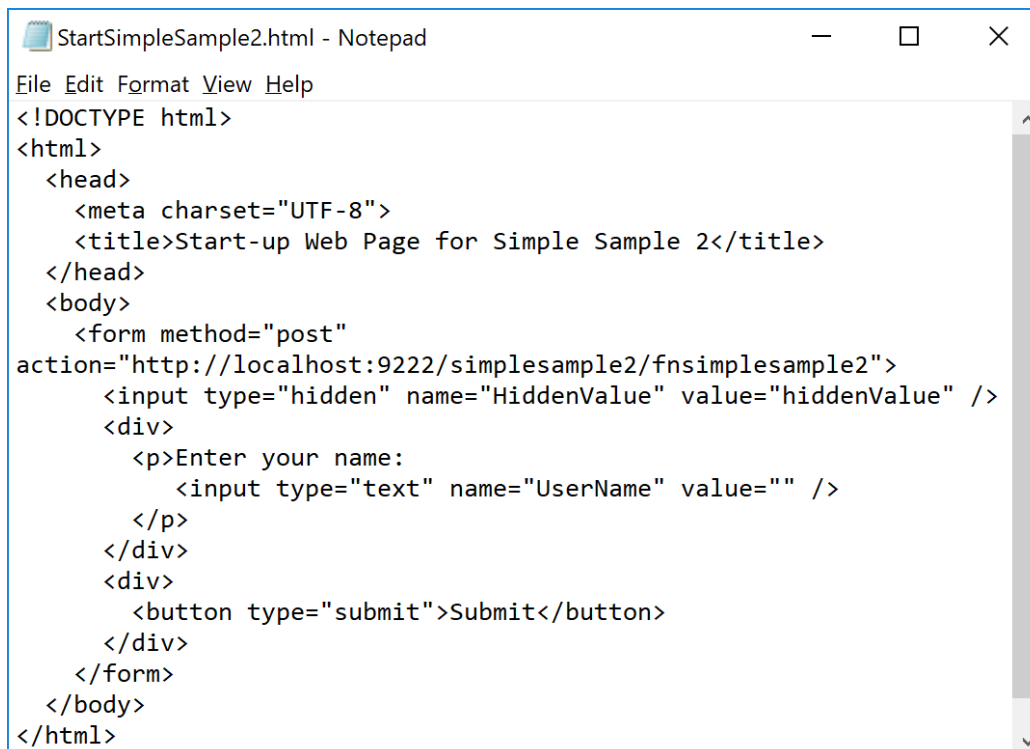
Default Web Page

The default web page file, 'StartSimpleSample2.html', includes an html form block with 'post' action to send a request to APLNext web services to run the APL+Win function associated with the 'simplesample2/fnsimplesample2' virtual directory.

The page has a hidden field, 'HiddenValue' with value 'hiddenValue'. Such fields are useful to capture information about the client without requiring user entries.

The page has a user-entry field, 'UserName' with an empty initial value. Generally additional application-specific validation would be included in the page to assure value user entries.

The page has a 'submit' button which when clicked by the user will initiate the request to the web server.



```
StartSimpleSample2.html - Notepad
File Edit Format View Help
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Start-up Web Page for Simple Sample 2</title>
  </head>
  <body>
    <form method="post"
action="http://localhost:9222/simplesample2/fnsimplesample2">
      <input type="hidden" name="HiddenValue" value="hiddenValue" />
      <div>
        <p>Enter your name:
          <input type="text" name="UserName" value="" />
        </p>
      </div>
      <div>
        <button type="submit">Submit</button>
      </div>
    </form>
  </body>
</html>
```

APL+Win Function Exposed as a Web Service

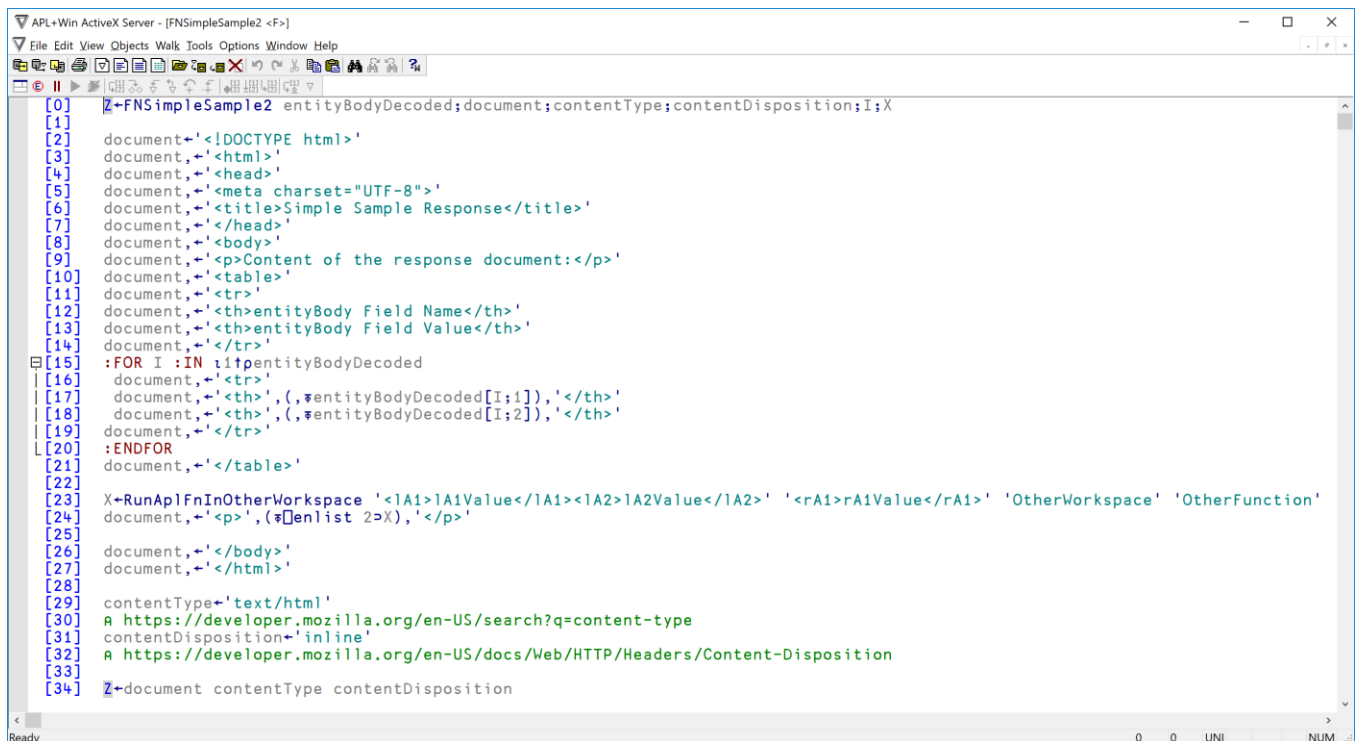
The 'FNSimpleSample2' APL+Win function in the APL+Win workspace 'simplesample2.w3' is exposed as a web service using APLNext Web Services.

The function has a single argument called 'entityBodyDecoded'. When the client browser makes a request using the virtual directory 'simplesample2/fnsimplesample2', APLNext Web Services will run the APL+Win function 'FNSimpleSample2' passing the function argument value. This value is an APL+Win 2-column matrix with one row for each field in the application's html form. Column #1 of this matrix is the field name, e.g. 'HiddenValue' and 'UserName'. Column #2 contains the values of these fields when the user clicked the Submit button in the form.

In this sample the response is a new html-format document displaying the entityBodyDecoded information. In a production environment, the APL+Win function would perform the application system's business rules algorithm using the input information and prepare an appropriate response.

The result of the 'FNSimpleSample2' function is returned by APLNext Web Services to the client browser as the document text, the content type (text/html) and the contentDisposition (replace the pre-existing document in the client browser).

Line [23] of the function illustrates the use of the APL+Win []wi 'Notify' method to cause the execution of the 'OtherFunction' with left and right argument. Since the required argument to the []wi 'Notify' method is an xml-format text vector, the elements of the arguments to the 'OtherFunction' have also been prepared in xml-format.

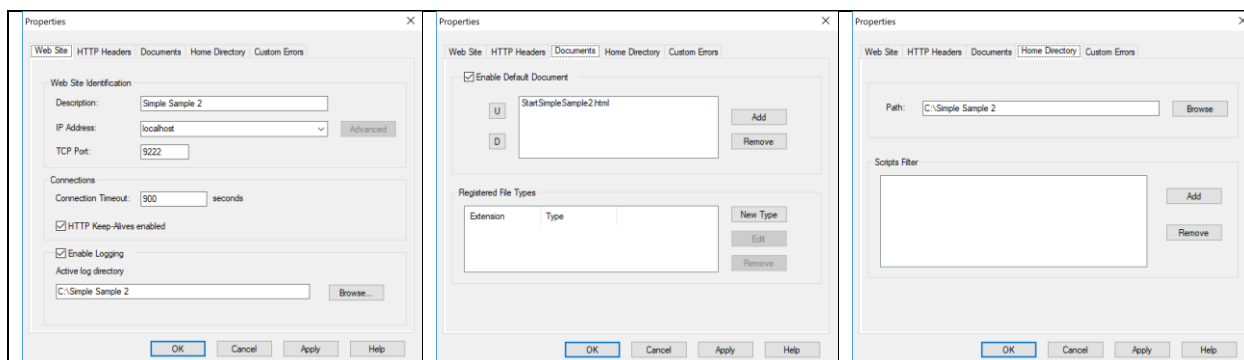


```
[0] Z←FNSimpleSample2 entityBodyDecoded;document;contentType;contentDisposition;I;X
[1]
[2] document←'<!DOCTYPE html>'
[3] document←'<html>'
[4] document←'<head>'
[5] document←'<meta charset="UTF-8">'
[6] document←'<title>Simple Sample Response</title>'
[7] document←'</head>'
[8] document←'<body>'
[9] document←'<p>Content of the response document:</p>'
[10] document←'<table>'
[11] document←'<tr>'
[12] document←'<th>entityBody Field Name</th>'
[13] document←'<th>entityBody Field Value</th>'
[14] document←'</tr>'
[15] :FOR I :IN 1↑entityBodyDecoded
[16] document←'<tr>'
[17] document←'<th>',(↑entityBodyDecoded[I;1]),'</th>'
[18] document←'<th>',(↑entityBodyDecoded[I;2]),'</th>'
[19] document←'</tr>'
[20] :ENDFOR
[21] document←'</table>'
[22]
[23] X←RunApI FnInOtherWorkspace ' <1A1>1A1Value</1A1><1A2>1A2Value</1A2>' ' <rA1>rA1Value</rA1>' 'OtherWorkspace' 'OtherFunction'
[24] document←'<p>',(↑enlist 2>X),'</p>'
[25]
[26] document←'</body>'
[27] document←'</html>'
[28]
[29] contentType←'text/html'
[30] A https://developer.mozilla.org/en-US/search?q=content-type
[31] contentDisposition←'inline'
[32] A https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Disposition
[33]
[34] Z←document contentType contentDisposition
```

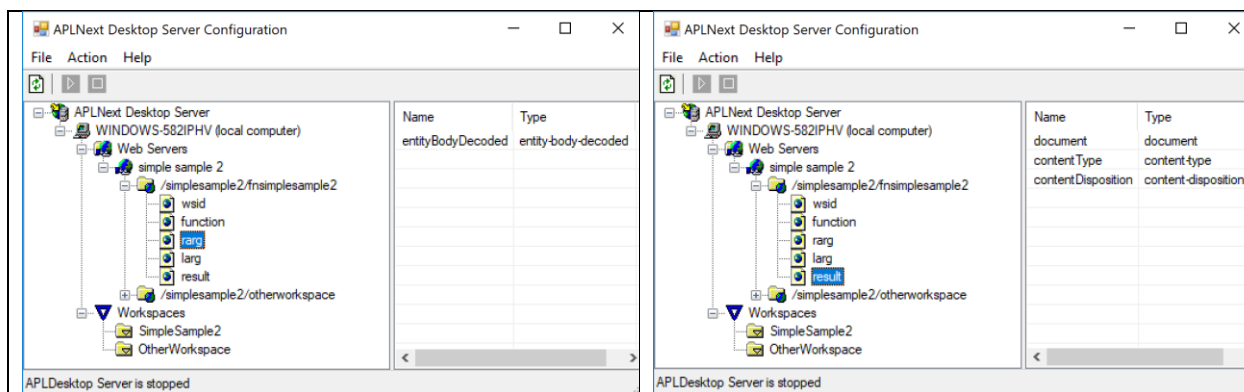
APLNext Web Services Configuration

The configuration of APLNext Web Services is contained in an xml-format file which can be created and edited using the APLNext Web Services Administration tool.

'localhost' is used when the application is programmed using the APL+Win programmer's workstation as the server machine. TCP port 9222 is the communication pathway between client browser and web server. The home directory for the web service is 'c:\simplesample2' and the default web page for the web site is 'StartSimpleSample2.html' in that folder.



The virtual directory '/simplesample2/fnsimplesample2' is associated with the APL+Win 'FNSimpleSample2' in the home directory folder. The web server will pass this function a right argument type of 'entity-body-decoded' and the server expects a 3-element result containing 'document' 'content-type' and 'content-disposition'.



The configuration illustrates multiple uses of the same physical workspace, 'C:\SIMPLE SAMPLE 2\SIMPLESAMPLE2.aws', with distinct APLNext web services names, 'SimpleSample2' and 'OtherWorkspace'. If desired there could be two separate physical workspace files.

The 'FnNotUsed' is necessary when configuring the '/SimpleSample2/otherworkspace' web service which loads the 'OtherWorkspace' instance.

```

[0] R←FnNotUsed
[1] R←''

```

The 'OtherFunction' is the function which will be run by the 'FNSimpleSample2' function via the 'RunApI FnInOtherWorkspace' function. The 'OtherFunction' could be an example of a shared function in a shared workspace which is used by many separate web services in the web server configuration. Other function could be modified to parse the xml-elements of its arguments and use them to execute the desired algorithm.

```

[0] Z←left OtherFunction right
[1] A Deserialization of the xml-format arguments may be needed here
[2] Z←'OtherFunction result: left: ',(⍉left),', right: ',⍉right|

```

The 'RunApI FnInOtherWorkspace' is a utility function to set up the []wi 'Notify' method argument.

```

[0] X←RunApI FnInOtherWorkspace arg;left;right;aplurl;aplfunction
[1]
[2] (left right aplurl aplfunction)←arg
[3]
[4] aplArg←'<apIresult>'
[5] aplArg,+'<apImethod>apI</apImethod>'
[6] aplArg,+'<apIurl>',aplurl,'</apIurl>'
[7] aplArg,+'<apIfunction>',aplfunction,'</apIfunction>'
[8] aplArg,+'<apIarg>',(⍉left),'</apIarg>'
[9] aplArg,+'<apIarg>',(⍉right),'</apIarg>'
[10] aplArg,+'</apIresult>'
[11]
[12] X←'#[]wi 'Notify' aplArg

```

APLNext Desktop Server configuration for Simple Sample 2

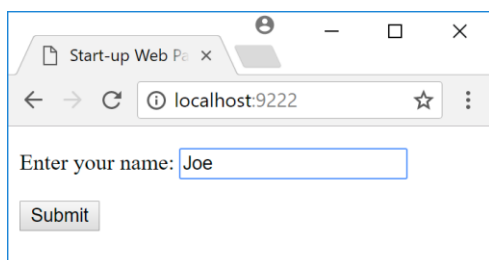
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Prerequisites

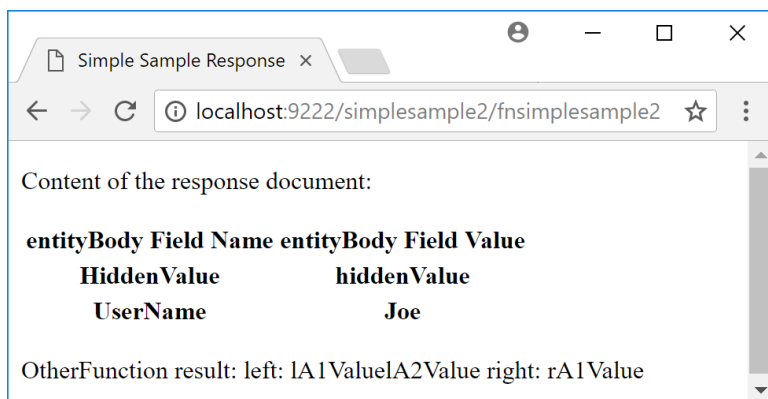
- Download and install [APLNext Desktop Server](#) to the APL+Win programmer's workstation
- Download the [zip-format file for the Simple Sample 2 example](#) and unzip its contents to a new folder on the APL+Win programmer's workstation called 'c:\SimpleSample2\'.
- Download and read the [APLNext Desktop Server Hints](#) pdf-format document
- If necessary open TCP port 9222 on the APL+Win programmer's workstation using Windows > Control Panel > Windows Firewall > Advanced Settings /Inbound Rules and OutBound Rules dialogs
- Start the APLNext Desktop Server Admin tool dialog
 - Use the Action > Import menu item to import the 'ConfigSimpleSample2.txt' configuration file
 - Select the Simple Sample 2 node and use the Action > Start menu option if necessary
 - Select the 'Web Servers' node and use the Action > Start menu option if necessary

See it In Action

- In a browser on the APL+Win programmer's workstation go to the URL: <http://localhost:9222>
- On the default web page, 'StartSimpleSample2.html', enter a value in the name field and click the Submit button:



- APLNext Web Services processes the request and refreshes the web page in the browser with the response document prepared by the APL+Win function. The browser URL is now the virtual directory value from the APLNext Web Services configuration for this example because of the 'post' action in the default web page for the application system.
- The content of the response document indicates that APLNext Web Services provided the APL+Win function with the 'entity-body-decoded' information.



More Information:

The [APL2000 Web Services Forum](#) contains additional detailed information and samples.

Contact [APL2000](#) with questions or suggestions.