



# T320 E-business technologies: foundations and practice

## Block 3 Part 5 Activity 1: Axis2 and REST

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### Introduction

As you have seen, REST uses HTTP to support web services in a simple fashion without the need to add new protocols, as long as the web service is structured as a set of resources.

Earlier in this block you were shown how to deploy the 'Hello' service to Axis2 in your server account at the University. You have also seen how to create a simple client, using Eclipse, that accessed the web service. This used SOAP messages (which were displayed in the monitor) to send a request to the service, to which the service sent a response as a SOAP message.

The Axis2 server software is also capable of supporting access to services using REST (i.e. in a 'RESTful' fashion). I shall briefly examine this possibility using server-side Axis2.

### RESTful access to services

We can use a simple URL to make an HTTP `GET` request to the 'Hello' web service that will be used to call the web service directly. No special client is required in order to do this – any standard Internet browser will do the job.

You might have one question: what about the name that needs to be passed to the service? This is simply passed as a parameter to the URL in the standard format. So, for example, if the endpoint of the service is:

`http://t320webservices.open.ac.uk/axise_nks34_axis2_A11581/services/HelloService`

which is shown on the T320 server account list of Axis2 services, then 'helloName' can be called with the URL:

[http://t320webservices.open.ac.uk/axise\\_nks34\\_axis2\\_A11581/services/HelloService/helloName](http://t320webservices.open.ac.uk/axise_nks34_axis2_A11581/services/HelloService/helloName)

and the required value for the name can be passed to the service using the URL:

[http://t320webservices.open.ac.uk/axise\\_nks34\\_axis2\\_A11581/services/HelloService/helloName?name=Nick](http://t320webservices.open.ac.uk/axise_nks34_axis2_A11581/services/HelloService/helloName?name=Nick)

Call your own deployed 'Hello' web service in this manner using your own URL. You will see output in the browser similar to that shown in Figure 1.



**Figure 1** Response from 'Hello' service to RESTful GET

However, Axis2 provides only limited support for REST. This is outlined by Brogden (2008):

Digging into the documentation, we find that Axis2 support for a RESTful GET is accomplished by reformatting a REST style URL into a SOAP request that is forwarded to the normal SOAP request processing with the response in an XML format that does not include the normal SOAP envelope. While this is sufficient for Ajax style support of XML consuming rich Internet applications (RIAs), it does not handle other resource types an application might need and there is no provision for use of the PUT and DELETE methods.

## Summary

Axis2 supports RESTful access to a web service but does not support the full range of operations, based on HTTP operations, that may be required.

You have, however, seen a simple but good practical illustration of RESTful access to a web service, which may be readily contrasted with the SOAP and UDDI-based access methods I demonstrated earlier.

In fact the Axis server software appears, behind the scenes, to convert HTTP-based service requests into SOAP requests so that they can be handled in a SOAP fashion. If you are interested, you can read about Axis2 and REST at the Apache site (this paper also has some interesting references):

[http://ws.apache.org/axis2/1\\_1/rest-ws.html](http://ws.apache.org/axis2/1_1/rest-ws.html)