

WebServices - Axis

1. Axis

1.1.

- ####
- ####
- ##### 0: ##
- ##### 1: webapp #####
- ##### 2: #####
 - Tomcat 4.x # Java 1.4
 - WebLogic 8.1
- ##### 3: #####
- ##### 4: #####
 - #####
 - happyaxis #### Axis #####
 - #####
 - SOAP #####
 - JWS #####
- ##### 5: ##Web#####
- ##### 6: Web#####
 - #####
 - #####
 - Admin #####
- ##### 7: ##
- ##### : ## Webapp # Axis #####
- #####
- ##
- #: SOAP #####

1.2.

Apache Axis #####Java #####XML #####

#####Jakarta Tomcat [##] ##### [## Tomcat ##### 4.1.x #####

Java 1.4 ### LE #####(LE ## XML ##### Xerces #####)#####]#####
2.2 ##### API #####Axis ##### Axis #### Java 1.3
#####

Axis #####

1.3.

Java ##### Java #SOAP#####Axis ##### Axis ##### Axis ##
SOAP ##### Java #####
HTTP

Web ##### :

1. #####Java #####
2. #####
3. #####"ClassNotFoundException" #####
4. ##### NullPointerException (NPE) #####
5. Web#####Web#####
6. #####Web#####
7. #####IP ##### API ##### TCP/IP#
8. HTTP#####HTTP ####(####)#####
9. XML#####well-formed XML (#### XML ##)# valid XML (### XML ##)#
#####

Axis # SOAP #####Axis (#####Web#####)####
#####Axis #####

Java #####Axis #####Sun ##### The Java
Tutorial #####Thinking in Java [##] #####Web#####
HTTP ##### Java ##### HTTP #####
Mastering the World Wide Web [##] #####
(Axis ##28#####)#####

Axis # SOAP ##### "#####
#####"

1.4. #### 0:

Apache Axis ##### SOAP #####SOAP #####
#####SOAP ##### HTTP ##### : ##### SOAP ####
POST #####HTTP ##### SOAP ##### HTTP #####
#####

```
SOAP ##### XML ##### SOAP #####  
##1#### SOAP #####SOAP #####SOAP ##### SOAP #  
2#####1###5#### XML RPC #####2#####(#####)#####  
XML #####Axis # Java #####Java ##### SOAP #####  
##### SOAP #####Axis #### Java #####
```

```
SOAP ##### Java #####  
#SOAP # Java #####RMI # Corba #####RMI #####  
Java #####Axis ##### : ## Axis # RMI ####  
Java ##### Java #####
```

```
Axis ## Java ##### JAX-RPC API #####Sun #####  
##### API #####JAX-RPC API #####Sun # BEA #####  
JAX-RPC API #####Axis # JAX-RPC API #####  
#####Axis ##### Axis #####  
#####
```

```
Axis # JAR #### axis.jar #####JAR #### jaxrpc.jar # saaj.jar ##### JAX-RPC  
API #####axis.jar #####WSDL #####  
#####Web##### axis.war #####Axis #####  
#SOAP ##### Axis # webapp ##### SOAP ###  
#####
```

```
#####Axis #####
```

1.5. #### 1: webapp

```
##### localhost #### 8080 #####  
##### 8080 #####
```

```
#####Web#####("webapps")#####  
##### xml-axis ### webapps/axis #####  
##### URL #####  
webapp ## "axis" #####
```

1.6. #### 2:

```
Axis ##### WEB-INF #####  
#####Web#####
```

```
Axis # XML ##### Java ##### XML ###  
#####XML #####Java 1.4 # Crimson
```

```
#####Axis #### Xerces #####

XML #####JAXP 1.1 XML #####
xml-xerces distribution [##] ### Xerces #jar ## ##### JRE #####
##### axis/WEB-INF/lib ##### Xerces #####
# Axis ##### AXISCLASSPATH # xml-apis.jar # xercesImpl.jar ##### (#####
##)

## Xerces # DOM #### ClassNotFound #####XML #####
CLASSPATH (#### AXISCLASSPATH) #####
```

1.6.1. Tomcat 4.x # Java 1.4

```
Java 1.4 # java.* # javax.* #####
endorsed ##### jaxrpc.jar # saaj.jar # javax #####
### happyaxis.jsp (#####) ##### axis/WEB-INF/lib ##
CATALINA_HOME/common/lib #####Tomcat #####
```

1.6.2. WebLogic 8.1

```
WebLogic 8.1 ## webservices.jar ##### Axis # saaj.jar #####Axis 1.2
#####WebLogic # Java Web Services Developer Pack [##]
Version 1.0 # javax.xml.soap.* #####Axis # J2EE 1.4 #####
#####
```

```
#####Axis ####Web##### Weblogic 8.1 #####2#####
```

- Axis #### webapp ### WEB-INF/weblogic.xml # <prefer-web-inf-classes> ### true
weblogic.xml

```
<weblogic-web-app>
  <container-descriptor>
    <prefer-web-inf-classes>true</prefer-web-inf-classes>
  </container-descriptor>
</weblogic-web-app>
```

```
## true #####<prefer-web-inf-classes> ### WebLogic #####
##### WEB-INF #####
Web#####
```

- WebLogic #####CLASSPATH #####WebLogic #
webservices.jar ### Axis # saaj.jar #####
##: ##### WebLogic #####
WebLogic # webservices #####

```
WebLogic #####WebLogic Server Application Classloading [##] #####
#
```

1.7. ##### 3: #####

```
#####  
#####
```

1.8. ##### 4: #####

```
Web#####Web#####
```

1.8.1. #####

```
webapp #####http://127.0.0.1:8080/axis/ #####  
##
```

```
### Apache-Axis #####webapp #####  
#####
```

1.8.2. happyaxis ##### Axis #####

```
### Validate the local installation's configuration #####  
##### happyaxis.jsp ##### URL #  
http://localhost:8080/axis/happyaxis.jsp #####
```

```
#####Axis #####  
##### happy #####  
##### internal server error #####  
##### XML ##### CLASSPATH (##### AXISCLASSPATH) #####  
#####
```

1.8.3. #####

```
##### View the list of deployed Web services #####  
#####Web#####Web##### (wsdl) #####  
Web#####
```

```
Axis ##### '#####' JWS Web#####  
#####
```

1.8.4. SOAP #####

```
#####SOAP 1.1 ##### XML ##### HTTP POST #####  
Axis ##### HTTP GET ##### getVersion #####
```

Axis ##### :

http://localhost:8080/axis/services/Version?method=getVersion

:

```
<?xml version="1.0" encoding="UTF-8" ?>
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getVersionResponse
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <getVersionReturn
        xsi:type="xsd:string">
        Apache Axis version: 1.1 Built on Apr 04, 2003 (01:30:37 PST)
      </getVersionReturn>
    </getVersionResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

Axis

1.8.5. JWS

JWS Web#####Axis # JWS Web##### Axis # webapp # WEB-INF ####
 #####.jws # java #####URL ###.jws #####
 JWS #####

JWS ##### EchoHeaders.jws (##### axis/ #####) #####
 #####

http://localhost:8080/axis/EchoHeaders.jws?method=list

XML

```
<?xml version="1.0" encoding="UTF-8" ?>
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <listResponse
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <listReturn xsi:type="soapenc:Array"
        soapenc:arrayType="xsd:string[6]"
        xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/">
        <item>accept:image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, */*</item>
        <item>accept-language:en-us</item>
        <item>accept-encoding:gzip, deflate</item>
        <item>user-agent:Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1)</item>
```

WebServices - Axis

```
<item>host:localhost:8080</item>
<item>connection:Keep-Alive</item>
</listReturn>
</listResponse>
</soapenv:Body>
</soapenv:Envelope>
```

#####webapp ## URL #####

1.9. #### 5: ###Web#####

Axis #####Web#####

#####(1) ##### Axis WAR ##### (2) #####
Axis #####(2) ##Admin ##### XML #####
AdminClient ##### Ant ### <axis-admin> ####
: Axis SOAP ##### SOAP ##### Axis
administration #####Axis administration #####1##### SOAP #####
##(#####)#####
#####

#####

WEB-INF ##### "classes" ##### (### axis/WEB-INF/classes) ##### (#####) #####
Java ### ##Java #####
####

JAR ##### WEB-INF/lib #####
#####

Axis # webapp ##### webapp #####
webapp

: #####Web##### xml-axis #####(#####
#####)##### users.lst ##### WEB-INF #####

1.10. #### 6: Web#####

JAR ####Web#####Web##### Axis #####
SOAP ##### XML #####Web#####
(WSDD) ##Axis

WSDD ##### Axis ##### WSDD ###
#####

1.10.1. #####

#####axis.jar#commons-discovery.jar#commons-logging.jar#jaxrpc.jar#
saaj.jar#log4j-1.2.8.jar (#####)##### XML #### jar ##### (### xerces.jar) # Java #
AXISCLASSPATH
AXISCLASSPATH #####xml-apis.jar # xercesImpl.jar ##### AXIS_LIB #####
#####XML #### jar ##### AXISCLASSPATH #####
CLASSPATH #####

Windows ##### Axis # C:\axis #####
WinNT/2000/XP #####"#####" ##### "#####" #####"##"
#####

```
set AXIS_HOME=c:\axis
set AXIS_LIB=%AXIS_HOME%\lib
set AXISCLASSPATH=%AXIS_LIB%\axis.jar;%AXIS_LIB%\commons-discovery.jar;
%AXIS_LIB%\commons-logging.jar;%AXIS_LIB%\jaxrpc.jar;%AXIS_LIB%\saaj.jar;
%AXIS_LIB%\log4j-1.2.8.jar;%AXIS_LIB%\xml-apis.jar;%AXIS_LIB%\xercesImpl.jar
```

Unix #####Axis # /usr/axis #####bash #####
#####
#(###)#####

```
set AXIS_HOME=/usr/axis
set AXIS_LIB=$AXIS_HOME/lib
set AXISCLASSPATH=$AXIS_LIB/axis.jar:$AXIS_LIB/commons-discovery.jar:
$AXIS_LIB/commons-logging.jar:$AXIS_LIB/jaxrpc.jar:$AXIS_LIB/saaj.jar:
$AXIS_LIB/log4j-1.2.8.jar:$AXIS_LIB/xml-apis.jar:$AXIS_LIB/xercesImpl.jar
export AXIS_HOME; export AXIS_LIB; export AXISCLASSPATH
```

Axis #####Java ##### AXISCLASSPATH #####

```
java -cp %AXISCLASSPATH% ...
```

#####

```
java -cp "$AXISCLASSPATH" ...
```

#####CLASSPATH #####

AXISCLASSPATH ### CLASSPATH #####
AXISCLASSPATH ##### CLASSPATH #####
#

1.10.2. #####

axis/samples/stock ##### deploy.wsdd ##### Axis #####
Axis ### XML #####Web#####(#####)###Axis ##### Axis
#####Axis Administration Web##### AdminClient ##### Ant #####
WSDD #####Axis '####' #####

WebServices - Axis

```
Axis ##### axis/WEB-INF/server-config.wsdd #####  
#####Axis #####Axis #  
server-config.wsdd #####webapp #####  
#####Axis #####Web##### WEB-INF #####  
## WEB-INF #####
```

1.10.3. Admin

```
samples/stock #####  
"java.io.FileNotFoundException: deploy.wsdd (#####)" ##  
#####
```

```
Windows ##  
java -cp %AXISCLASSPATH% org.apache.axis.client.AdminClient  
-lhttp://localhost:8080/axis/services/AdminService deploy.wsdd  
UNIX ##  
java -cp $AXISCLASSPATH org.apache.axis.client.AdminClient  
-lhttp://localhost:8080/axis/services/AdminService deploy.wsdd
```

```
## java ##### (ClassNotFoundException) #####AXISCLASSPATH ( ##  
CLASSPATH) #####  
#### Java #####
```

```
## : localhost #####8080 #####Web#####Web#####  
"axis" ##### URL #####
```

```
## AxisFault ##### TCP ##### API ##Web#  
##### HTTP #####  
##### HTTP #####  
#Web#####
```

```
##### # AdminClient #####Ant ##### Axis ##### Ant ##  
[##] #####
```

1.11. ##### 7:

```
#####
```

- xml-axis #####:

```
Windows ##  
java -cp .;%AXISCLASSPATH% samples.stock.GetQuote  
-lhttp://localhost:8080/axis/servlet/AxisServlet  
-uuser1 -wpass1 XXX  
UNIX ##  
java -cp $AXISCLASSPATH samples.stock.GetQuote  
-lhttp://localhost:8080/axis/servlet/AxisServlet
```

```
-uuser1 -wpass1 XXX
```

- ##### "55.25" #####

: #####localhost #####8080 #####Web#####Web##
 ##### "axis" ##### URL #####

1.12. ##### : ### Webapp # Axis

#####Web##### webapp #Web#####Axis
 #####Axis # webapp ##### Axis ###
 #####

#####

1. ##### WAR ##### axis.jar#wSDL.jar#saaj.jar#jaxrpc.jar#####
2. axis/WEB-INF/web.xml ##### Axis ##### web.xml #####
3. ##### webapp #####
4. ##### webapp # URL #####Axis ##### webapp ### Axis AdminClient ###
 ###

PDF ##### [##] ##### Java Development with Ant [##] #15#####

1.13.

Axis #####
 #####

axis-user #####Axis ##### Axis #####
 #####

Axis #####
 #####
 #####

1. #####
 #####
 #####
 #####
2. Axis ##### Axis # SOAP #####
 MS Soap ##### .NET #####
 Axis ##### Sun Java Web Services Developer Pack # Jboss.net #####
3. soapbuilders ##### SOAP #####
 #####
4. #####

```
##### "#####" #####  
5. #####1#2#####1#2#####  
#####  
6. #####1#####  
#####SOAP ##### HTTP ### '404' #####'###' #####  
##### HTTP #####404 #####Java #####  
#####  
7. #####'Axis ###'Axis ####  
###' #####  
8. ##### [##] #####  
#####  
9. jira [##] ##### Axis ## (#####) #####  
10. ##### (FAQ)#####Axis Wiki #####  
11. #####  
#####(#####)#####  
#####'#####'  
12. ##### happyaxis.jsp ####  
#####  
13. ##### Axis #####  
##### '#####' ###  
14. #####  
Axis #####  
##### Axis #####  
##### Java #####  
#####  
#####Axis #####
```

1.14.

```
Axis ##### webapp ##### SOAP#####Web##### webapp ###Axis #####  
##### Java 1.4 #####happyaxis #####  
#####Axis #####
```

1.15. ##: SOAP

```
SOAP #####(Java plug-in 1.3 #####)#### SOAP #####  
#####SOAP #####  
SOAP #####SOAP ### Java #####SOAP ###  
Web#####Web#####
```

1. \$AXIS_HOME/webapps/axis (#### %AXIS_HOME%\webapps\axis) ####
SOAPMonitorApplet.java #####

```
Windows ##
javac -classpath %AXIS_HOME%\lib\axis.jar SOAPMonitorApplet.java
Unix ##
javac -classpath $AXIS_HOME/lib/axis.jar SOAPMonitorApplet.java
```

```
##### (### SOAPMonitorApplet*.class) ##SOAP #####Web#####
##### (### ../tomcat/webapps/axis) #####
```

2. admin client # deploy-monitor.wsdd ####(#####)##### SOAPMonitorService ####
#####

```
deploy-monitor.wsdd #####/axis #####Web#####
##### 8080 #####
```

```
Windows ##
java -cp %AXISCLASSPATH% org.apache.axis.client.AdminClient
-lhttp://localhost:8080/axis/services/AdminService deploy-monitor.wsdd
UNIX ##
java -cp $AXISCLASSPATH org.apache.axis.client.AdminClient
-lhttp://localhost:8080/axis/services/AdminService deploy-monitor.wsdd
```

SOAPMonitorService Deployment Descriptor (deploy-monitor.wsdd)

```
<deployment xmlns="http://xml.apache.org/axis/wsdd/"
xmlns:java="http://xml.apache.org/axis/wsdd/providers/java">
  <handler name="soapmonitor"
    type="java:org.apache.axis.handlers.SOAPMonitorHandler">
    <parameter name="wsdlURL"
      value="/axis/SOAPMonitorService-impl.wsdl"/>
    <parameter name="namespace"
      value="http://tempuri.org/wsdl/2001/12/SOAPMonitorService-impl.wsdl"/>
    <parameter name="serviceName" value="SOAPMonitorService"/>
    <parameter name="portName" value="Demo"/>
  </handler>
  <service name="SOAPMonitorService" provider="java:RPC">
    <parameter name="allowedMethods" value="publishMessage"/>
    <parameter name="className"
      value="org.apache.axis.monitor.SOAPMonitorService"/>
    <parameter name="scope" value="Application"/>
  </service>
</deployment>
```

3. #####(#####)#####requestFlow # responseFlow ### <service> #####

```
...
  <service name="xmltoday-delayed-quotes" provider="java:RPC">
    <requestFlow>
      <handler type="soapmonitor"/>
    </requestFlow>
    <responseFlow>
```

WebServices - Axis

```
<handler type="soapmonitor"/>  
</responseFlow>
```

4. ##### http[s]://host[:port][/webapp]/SOAPMonitor (####Web#####
http://localhost:8080/axis/SOAPMonitor) #####
SOAP #####
##