

JMX adapters

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1. About

JAFS provides JMX adapter to manage the server. Those [adapters](#) are currently based on MX4J adapters.

These adapters are used to access/communicate with the JMX management beans that the server is exposing for administration.

The first adapter *net.sbbi.jafs.management.MX4JHttpConsole* can be used to start an small embeded HTTP server and access and administration console to manage the server from a browser.

The second adapter *net.sbbi.jafs.management.MX4JRemoteAdapter* can be used to start an JRMP (RMI) or IIOP adapter. Such adapter can be used with custom JMX administration console such as MC4J.

The third adapter *net.sbbi.jafs.management.UPNPMBeansAdapter* allows you to expose the JAFS JMX interface as UPNP devices.

The last adapter *net.sbbi.jafs.management.MX4JWSCconnector* still based on MX4J adapters can be used to communicate with the server using web services oriented technologies such as SOAP, and Caucho Hessian and Burlap protocols.

2. Create your own adapters

If the provided adapters are not scalable enough for you, you can develop your own adapter and plug it in the service configuration.

First create your adapter, it must implement the interface *net.sbbi.jafs.management.JMXAdapter*

When the adapter is ready add an [adapter](#) config entry in the [management](#) config element :

```
<management locale="en_US" manage-session="true" plug-to-server="false">
  ...
</management>
```

```
<adapter name="My very first adapter" class-name="foo.bar.MyAdapter">
  <setting name="myFirstSetting">someValue</setting>
  <setting name="myOtherSetting">someOtherValue</setting>
</adapter>
...
</management>
```

You're ready to start the application and pray ;)o)

3. Adapter `net.sbbi.jafs.management.MX4JHttpConsole` settings

3.1. port

The port to use to connect to the HTTP administration console. The port 80 will be used by the adapter when the setting is not provided.

3.2. allowedUser

The user names that are allowed to access the console within the defined JAAS authentication realm. All users will be accepted (as long as they provide a valid password..) by the adapter when the setting is not provided.

3.3. locale

The language of the administration console, french (fr_FR) or english (en_US). 'en_US' will be used by the adapter when the setting is not provided.

3.4. JAASRealm

The JAAS authentication realm name that will be used to authenticate users on the administration console. The setting is required.

3.5. securityProtocol

The security protocol used to access the http management console. Values can be 'TLS' (https), 'SSL' (https) or 'none' for clear connections. 'none' will be used by the adapter when the setting is not provided.

3.6. certsConfName

The server keystore, CA keystore and CRL entry setting [name](#) to be used when secure sockets are used by the adapter. 'default' will be used by the connector when the setting is not

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provided.

3.7. autoNatMapping

true will try to map the console port on the NAT ports mapper defined in the network interface config you use for this adapter (defined by the *ni* setting). 'false' will be used by the adapter when the setting is not provided.

3.8. useCache

Setting to enable cache during console operations, true or false. 'false' will be used by the adapter when the setting is not provided.

3.9. ni

The network interface [identifier](#) that you want to use with this adapter.

3.10. wantClientAuth

When the securityProtocol is set to TLS or SSL, this option will either ask the client that connect to the console an X509 certificate (true) or no certificate (false). The session will be created if no certificate is provided. 'false' will be used by the adapter when the setting is not provided.

3.11. needClientAuth

When the securityProtocol is set to TLS or SSL, this option will either ask the client that connect to the console an X509 certificate (true) or no certificate (false). The session will not be created if no certificate is provided. 'false' will be used by the adapter when the setting is not provided.

3.12. startBrowser

When this setting is set to true, the console will try to open a browser automatically to access the HTTP console after a successful startup. The *browserBinaryPath* setting will be used to launch the desired process. 'false' will be used by the adapter when the setting is not provided.

3.13. defaultUserNameAndPass

The default username and password to be used to log into the console. This avoid to have to

enter the username and password during the console startup (only). The username and password must be delimited by a ':' char (username:password). This setting will only have effect when the *startBrowser* setting is enabled.

Note:

This setting does not work with Internet Explorer and console in https mode due to an Internet Explorer security "feature".

3.14. browserBinaryPath

This setting defines the desired binary path (I.E /foo/bar/myBrowser.exe) to be used to launch the browser to access the console during startup. A default browser will be tried to be used when this setting is not provided.

4. Adapter net.sbbi.jafs.management.MX4JRemoteAdapter settings

4.1. jndiName

The JNDI name of the connector.

4.2. connectorType

The type of protocol to be used, can be 'JRMP' for RMI based protocol or 'IIOP' for CORBA based protocol. 'JRMP' will be used by the adapter when the setting is not provided.

4.3. startNamingService

true to start the naming service that will be used by JRMP or IIOP, false if you want to use a naming service that has been already started by some other application. 'true' will be used by the adapter when the setting is not provided.

Warning:

When using IIOP and startNamingService=true a 'tnameserv' process will be created. This process won't be stopped if you do not make a clean shutdown of the application. This could cause problems if you restart the application. If such problem occurs kill manually the 'tnameserv' process.

Warning:

When using JRMP only ONE naming service can be created on the JVM, if you want to use multiple naming service for JRMP you must start externally other 'rmiregistry' process. The executable is located in the bin directory of your JRE installation directory.

4.4. namingServicePort

The port of the naming service. The standard ports are 1099 for JRMP and 900 for IIOP. '1099' will be used by the naming service when the setting is not provided.

4.5. remoteObjectPort

The connector will be exposed as a remote object, this setting let you define the listening port of the remote object. '35340' will be used by the adapter when the setting is not provided.

4.6. autoNatMapping

true will try to map the console port on the NAT ports mapper defined in the network interface config you use for this adapter (defined by the *ni* setting).

Warning:

Only JRMP connectors can work behind NAT enabled devices. IIOP type connectors cannot work with this network configuration.

4.7. remoteServerHostName

If you want to allow WAN access and that you are behind a NAT firewall, you'll need to set this value with an IP or hostname that match your NAT firewall IP address. This IP will be 'localhost' will be used by the adapter when the setting is not provided.

Warning:

When the remoteServerHostName property is set, the connector will probably not work anymore from the LAN especially if you are behind a NAT firewall.

4.8. JAASRealm

The JAAS authentication realm name that will be used to authenticate users on the remote adapter. If the setting is not provided, no authentication will be needed to access the remote adapter. This could cause potential security issues.. You are now warned.

4.9. allowedUser

The user names that are allowed to access the adapter within the defined JAAS authentication

realm. All users will be accepted (as long as they provide a valid password..) by the adapter when the setting is not provided.

4.10. securityProtocol

The security protocol used to access the JRMP (only) remote adapter. Values are usually 'TLS' or 'SSL'. Secure connections will use the configured CRL and keystores defined with the adapter *certsConfName* setting to check certificates and provide the server certificate. Clear connections will be used by the JRMP adapter when the setting is not provided.

4.11. certsConfName

The server keystore, CA keystore and CRL entry setting [name](#) to be used when secure sockets are used by the adapter. 'default' will be used by the connector when the setting is not provided.

4.12. ni

The network interface [identifier](#) that you want to use with this adapter.

4.13. cosNSStartupWait

This settings is used when the connector is used with IIOP and startNamingService setting is set to true. Basically the IIOP connector must wait for the COS naming service to be started. This setting is used to define how many miliseconds the connector must wait. 2500 ms is the default value when no setting is provided. If you have problems to start the connector try to increase this value.

5. Adapter net.sbbi.jafs.management.MX4JRRemoteAdapter restrictions

The remote adapter can't be used due to JRE restrictions on both LAN and WAN with JRMP mode on the same JVM if you are behind a NAT firewall. If you want to have a LAN and WAN enabled console on the same JVM, you'll have to use the following setup:

- The first adapter for LAN must be of type IIOP and must start its own naming service.
- The second adapter for WAN must be of type JRMP, you must setup correctly the remoteServerHostName setting and make sure that it is starting its own naming service.

If you do not want to use IIOP but want both adapters LAN and WAN in JRMP, proceed as follows :

- The first adapter for LAN (WAN won't work) must be of type JRMP and must use a

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naming service **started externally** with the command `rmiregistry <registryPort>` located in your `bin` java home directory.

- The second adapter for WAN access must be of type JRMP, you must setup correctly the `remoteServerHostName` setting and make sure that it is starting its own naming service.

6. Adapter `net.sbbi.jafs.management.UPNPMBBeansAdapter` settings

6.1. `ni`

The network interface [identifier](#) that you want to use with this adapter.

6.2. `port`

The port of the web container adapter. 9080 will be used by the adapter when the setting is not provided.

6.3. `exposeUPNPDevicesAsMBeans`

Boolean setting to instruct the adapter to expose UPNP devices found on the network as MBeans, default to false.

6.4. `discoveryTimeout`

Timeout in ms to discover UPNP devices, only usefull when `exposeUPNPDevicesAsMBeans` is set to true.

7. Adapter `net.sbbi.jafs.management.MX4JWSCConnector` settings

7.1. `ni`

The network interface [identifier](#) that you want to use with this adapter.

7.2. `port`

The port of the web container adapter. 80 will be used by the adapter when the setting is not provided.

7.3. `ni`

The network interface [identifier](#) that you want to use with this adapter.

7.4. protocol

The protocol to be used by the adapter. 'soap', 'hessian' and 'burlap' are currently the only available protocols. 'soap' will be used by the adapter when the setting is not provided.

7.5. path

The path to access the adapter via HTTP (I.E if path = /jmxconnector, the url would be http://foo.bar.com/jmxconnector) 'jmxconnector' will be used by the adapter when the setting is not provided.

7.6. jettyConfigPath

The jetty configuration file path. Since this adapter is using jetty as the web container for the adapters you can define a jetty configuration file to fine tune the adapter settings on the web container. When no setting is provided a default jetty instance will be created on the defined port, using the network interface settings defined by the 'ni' setting.

7.7. securityProtocol

The security protocol used to access the http web service. Value can be 'https' for SSL connections or 'none' for basic http transport. 'none' will be used by the adapter when the setting is not provided.

7.8. storeSettingsName

The name of the key store settings entry defined in your service config that you want to use when https is enabled. This will define the server certificate. 'default' will be used by the adapter when the setting is not provided.

7.9. needCertificate

This setting is used to define if the server will require a valid client certificate for SSL/TLS connections or not. Values can be true or false. 'false' will be used by the adapter when the setting is not provided.

Warning:

The setting causes a bug when set to true and when the protocol is set with soap. Works with burlap and hessian protocols