PROGRESS SOFTWARE

Artix® ESB

Release Notes

Version 5.5, December 2008

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Artix ESB 5.5

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OSGi

The Artix 5.5 Java runtime components now ship as OSGi-enabled bundles. This allows you to deploy Artix Java applications into an OSGi-enabled container such as Apache ServiceMix 4 or Eclipse Equinox.

OSGi allows for better dependency management in how service implementations are packaged, bundled and deployed. Additionally, OSGi allows for managing common activities, such as service lookup and discovery and service lifecycling, using standard APIs.

See the *Configuring and Deploying Artix Solutions, Java Runtime* guide for details. In addition, the following Java runtime samples have been updated to include OSGi support:

- `basic/wsdl_first`
- `advanced/high_availability/static_failover`
- `advanced/high_availability/dynamic_failover`
- `advanced/locator/discovery`
- `advanced/ws_addressing`
- `security/https`
- `security/authentication`

New Security Service for Java Runtime

Artix 5.5 introduces a new security service for the Java runtime. The Security Token Service (STS) is a pure Java rearchitecture of the older ISF service. See the *Artix ESB Security Service, Java Runtime* guide for details on this and the following security-related features:

- WS-Trust
- SAML
- WS-Policy Authentication Expression Support
- Support for Multiple Authentication Adaptors in the Security Service
- Credential Propagation

WS-Trust

The WS-Trust specification defines a standard security infrastructure for brokering trust. The Artix security service can act as a WS-Trust Security Token Service (STS) for issuing and validating tokens.

SAML

Artix 5.5 now supports issuing and validating Security Assertion Markup Language (SAML) tokens. The Artix WS-Trust STS functionality supports the issuing of signed or unsigned SAML tokens, and supports a TLS holder-of-key mode which ensures that the token can only be used by the entity that it was issued to.

Artix server applications can now verify signed SAML assertions issued by the Artix STS, and can also verify TLS holder-of-key usage.

WS-Policy Authentication Expression Support

Artix 5.5 provides significantly enhanced functionality for expressing authentication requirements. You can use WS-Policy expressions to express flexible authentication and authorization requirements that can relate to different credential types over different protocols.

For example, you can express requirements such as “a user must satisfy HTTPS protected basic authentication *or* TLS x.509 client authentication”.

Support for Multiple Authentication Adaptors in the Security Service

Artix 5.5 allows you to load multiple authentication adaptors (for example, LDAP, file, or Kerberos) into a single security service instance.

Previous versions of the security service allowed only a single authentication adaptor per security server instance. Support for multiple adaptors previously required establishing a federated cluster of security server instances, each with a different adapter loaded.

Credential Propagation

Security credentials can now be propagated through the Artix Java router, whenever the router contains JAX-WS endpoints.

A JAX-WS route starts with a CXF component-based consumer endpoint, which can receive requests from remote clients, and ends with a CXF component-based producer endpoint, which can forward requests on to a remote server.

In the context of the Java router, the aim of credentials propagation is to extract credentials from a message received on the consumer endpoint and transform them into another form of credential that is then marshalled into the outgoing message.

Actional Support for Managing Camel Routes

Artix ESB's integration with the Progress Actional SOA management and monitoring application has been enhanced in this release. You can now use Actional to monitor Apache Camel (FUSE Mediation Router) routes. See the *Artix Management Guide, Java Runtime* for details.

Updated Versions of Core Java Runtime Components

The core Apache components on which the Artix Java runtime is based have been updated as follows:

- CXF 2.1 from 2.0
- Camel 1.5 from 1.3
- ActiveMQ 5.1 from 4.1.2

See "Migration Issues" on page 11 for details.

New Update Tool

Artix 5.5 introduces an Update tool that allows developers and administrators to more easily patch their Artix installations.

The Update tool provides a simple mechanism to ensure that distributions of Artix are kept up to date with the latest service packs, enhancements and security alerts. See the *Installation Guide* for details.

VMware Virtualization Support

Select platforms supported in Artix 5.5 have been tested and certified against VMware in order to provide virtualization support with the leading industry vendor. This allows developers to maintain isolated development environments, allows test administrators to scale on reduced hardware, and permits production deployments on fewer hardware resources or even in grid/cloud based environments. See the *Installation Guide* for details.

MTOM Support in Artix C++

The Artix C++ runtime now fully supports Message Transmission Optimization Mechanism (MTOM), a specification for efficiently sending binary to and from Web services without having to re-encode the data as text. MTOM uses the XOP convention to mix textual and binary data in streams for transmission. See the *Artix Bindings and Transports, C++ Runtime* guide for details. In addition, MTOM support has been added to C++ projects in Artix Designer

Enhanced Schema Type Support in Artix C++

The number of schema types supported by the Artix C++ runtime has been augmented to include SimpleType facet validation, abstract complexTypes and attribute qualification.

Changes to C++ Compiler Support on Linux, AIX

C++ compiler support has changed for Linux and AIX.

On Linux, the default compiler is now GCC 3.4. If you are using the previous default version, GCC 3.2, you need to specify it explicitly by running `artix_env -compiler gcc32` the first time you source the Artix environment.

On AIX, the only supported compiler is now XL C/C++ (XLC) 7.0. The previous default version, XLC 6.0, is no longer supported.

Supported Standards

Artix 5.5 supports the following XML and Web services specifications:

XML

- XML Namespaces 1.0
- XML Schema 1.0
- XPath 1.0
- XQuery 1.0
- XML Information Set

Messaging

- SOAP 1.1/1.2
- MTOM SOAP 1.2, 01-2005
- WS-Addressing 08-2004

Metadata

- WS-Policy 1.2, 04-2006
- WS-PolicyAssertions (partial)
- WS-PolicyAttachment (partial)
- UDDI v2

Security

- WS-Security 1.1 with SAML, Kerberos, X.509 profiles
- XML Signature 02-2002
- XML Encryption 12-2002
- WS-Trust 1.3
- SAML 1.1, 2.0 Token Profiles

Reliable Messaging

- WS-ReliableMessaging 1.1

Web Services Interoperability

- WS-I Basic Profile 1.1
- Simple SOAP Binding Profile

Business Processes

- WS-BPEL 1.1, 2.0

Transactions

- WS-AtomicTransaction (C++/JAX-RPC runtime only)

Migration Issues

Users migrating from Artix ESB 5.1 to 5.5 should bear the following in mind:

- Migrating to CXF 2.1
- Final JAX-RPC Release
- Java 1.4.2 No Longer Supported

Migrating to CXF 2.1

The upgrade to Apache CXF 2.1 has the following migration implications:

- New JAX-WS WS-Addressing Support
- New java2ws Tool
- Possible ASM Dependency Clash
- JAX-WS and JAXB Dependency Clash on Java 6
- Actional XML Namespace Change

New JAX-WS WS-Addressing Support

In the Artix Java runtime (CXF 2.1), JAX-WS support has been upgraded to 2.1 from 2.0.

This has implications for the way in which user applications create a proxy for a WS-Addressing endpoint reference (EPR). The proprietary extension `org.apache.cxf.jaxws.support.ServiceDelegateAccessor` used in CXF 2.0 has been deprecated. You can now use the `getPort()` method in the `javax.xml.ws.Service` class instead. See the *Developing Artix Applications with JAX-WS* guide for details.

You can disable the new type mapping when running `wsdl2java` using a `-noAddressBinding` flag, but the generated code is not JAX-WS compliant as a result.

New java2ws Tool

The CXF `java2wsdl` tool is deprecated in version 2.1 and has been replaced by the `java2ws` command. This means that users of the Artix Java runtime should use the `artix java2ws` wrapper command with the `-wsdl` flag to generate WSDL from Java.

Possible ASM Dependency Clash

Artix Java relies on the ASM bundle (`org.apache.servicemix.bundles.asm-2.2.3_1.jar`) to process JAXB annotations. This may clash with the ASM requirements of other dependencies. For example, Hibernate requires ASM 1.x. The workaround in this case is to replace the `cglib.jar` shipped with Hibernate with `cglib-nodeps.jar`.

JAX-WS and JAXB Dependency Clash on Java 6

JDK 1.6 users must add the 2.1 versions of the JAX-WS, JAXB and JAXB-impl JARs into their Java endorsed directory in order to avoid a clash with the versions shipped with the JRE.

Actional XML Namespace Change

The XML namespace that identifies the Actional management feature in Artix Java configuration files has been changed from `http://www.iona.com/management/actional/` to `http://www.iona.com/management/cxf/`.

Final JAX-RPC Release

This the final Artix release in which the JAX-RPC programming model will be supported. JAX-RPC will be deprecated in the next release and Java developers are recommended to adopt the JAX-WS programming model.

Java 1.4.2 No Longer Supported

Java 1.4.2 support has been dropped in Artix 5.5 as it became EOL in October 2008. Java 6 support has been added in its place.

Java 5 and Java 6 have been certified on the latest available patch levels as of October 2008. For a full list of supported platforms, compilers and JDKs, see the *Installation Guide*.

Updating Artix Designer

To ensure that Artix Designer is always up-to-date with the latest Artix 5.5 patch releases:

1. In Artix Designer, select **Help|Software Updates|Find and Install**. The Install/Update wizard launches.
2. In the Feature Updates panel, select **Search for new features to install**, then click **Next**.
3. In the Update Sites to Visit panel, click the **New Remote Site** button.
4. Enter the following details in the New Update Site dialog box:
   - Name: Artix Designer
   - URL: http://updates.progress.com/artix/5.5
5. Click **OK**.
6. Select the `Artix Designer` checkbox and clear all other boxes in the Sites to Include section.
7. Check the **Ignore Features** checkbox and click **Finish**.
8. Eclipse contacts the specified URL and returns with a list of available Eclipse plug-ins at that site.
9. In the Search Results panel, check the Show **the latest version** checkbox. Select the checkboxes beside all the Artix Plug-in entries, then click **Next**.
10. Accept the license agreement and click **Next**.
11. In the Installation panel, confirm the target installation location and click **Finish** to start the installation.
12. After installing the updated plug-ins, relaunch Artix Designer.

We recommend that you select a new workspace after relaunching. If you want to continue using the same workspace, first delete the LocalRepository folder under the workspace folder in your file system. A new local repository will be created for you when you next create an Artix Designer project.

You should also check that your Artix Designer installation details were not overwritten by the update process by selecting **Window|Preferences** and then selecting **Artix Designer**.

Documentation Updates

The Artix ESB 5.5 documentation is available at

http://www.iona.com/support/docs/artix/5.5/

The following books are new to the Artix library:

- Artix Java Router, Programmer's Guide
- Artix Java Router, Defining Routes
- Implementing Enterprise Integration Patterns
- Artix for J2EE (JAX-WS)
- Artix Java Router API Reference
- Artix Java Router Schema Reference

The following books have been updated in this release:

- Installation Guide—contains details of newly supported platforms, virtualization support, and the new autoupdater tool
- Configuring and Deploying Artix Solutions, Java Runtime—includes details of the OSGi support in Artix Java
- Developing Artix Applications with JAX-WS
- Artix Bindings and Transports, C++ Runtime—includes the new MTOM binding
- Management guides—previously separate guides on managing the Artix with JMX, AmberPoint, Actional, and BMC have been merged into two guides, one for each runtime
- Security guides—now two separate books, one for each runtime

The following books have been dropped:

- IBM Tivoli Integration Guide
- CA-WSDM Integration Guide

Known Issues

The following are known issues in Artix ESB 5.5:

LDAP Adapter Unsupported in OSGi Mode

Due to licensing restrictions, it has not been possible to create an OSGi bundle for the Sun LDAP SDK, on which the LDAP adapter depends.

Issues When Installing on Windows Vista

When installing Artix ESB on Windows Vista, you need to run the installer as a user with administrator rights. Otherwise, the **Artix Designer**, **Documentation**, and **Uninstall** shortcuts are not added to the Windows **Start** menu.

You also need to run the installer in Windows XP SP2 compatibility mode, as follows:

1. Right-click the Artix installer EXE file and select **Properties**.
2. In the Properties dialog, click the **Compatibility** tab.
3. Select the **Run this program in compatibility mode for** checkbox.
4. Select **Windows XP (Service Pack 2)** from the drop-down list.
5. Click **OK**.
6. Run the installer as normal.

Possible Race Condition in Artix Java Security

A race condition can occur when starting the Artix Java Security Service if it and an Artix-based service are pre-installed as bundles in the same OSGi container, and both bundles are

- started automatically

  or

- manually installed and started concurrently

We therefore recommend that when an OSGi container hosts the Artix Java Security Service and any other Artix Java service that you start the bundles sequentially and wait for each service to start completely before starting the next service.

This race condition can occur when running the security/authentication sample in OSGi mode.

Artix Designer Combo Boxes Broken on Linux, Solaris

Due to a bug in the Eclipse Standard Widgets Toolkit (SWT), combo box drop-down lists are not triggered in Artix Designer on some platforms. This problem has been identified on Red Hat Linux 4.0 Update 6 and Sun Solaris 10 running on SPARC.

Artix Designer Fails to Import Demos With Long Pathnames

If Artix ESB is installed in a location with a long pathname, Artix Designer may hang when importing demos. To workaround, install Artix in the default location.

Fixed Bugs

The following bugs have been closed in Artix ESB 5.5:

Table 1: *Bugs Fixed in Artix ESB 5.5*

Bug #	Description
70858	Session manager prints a dependency on `locator_endpoint`
71374	`it_container` crash with core dump when shutting down
71621	Problem with message handlers and three-tier system
71637	`wsdltoservice` generates invalid WSDL when using the mq transport
71793	Crash in Artix Client [XMLParseException] on loading / producing XML
71815	Problem generating Java from WSDL/schema
71821	Locator endpoints gets lost
71823	Artix with HTTPS leaks memory under a DDOS style attack (from a hardware loadbalancer)
71835	Remove nodes from the Locator's sender's list
71865	XSD type with `xsd:totalDigits` results in `UnknownElementException`
71870	Artix Designer JAX-WS DB project test operation fails if parameter type is `smallint`
71882	`wsdl2java` cannot generate an implementation class and an ant build file from a logical WSDL
71886	Artix locator is holding stale endpoints
71887	Artix HTTP client crashes if the server drops connection
71896	Race condition in `IT_ATLI2_HTTP::HttpEndpointAdapterImpl::resolve_service(), Platform`

Table 1: *Bugs Fixed in Artix ESB 5.5 (Continued)*

Bug #	Description
71897	Race condition in xercesc_2_4::`UnixHTTPURLInputStream ::UnixHTTPURLInputStream(), platform`
71900	SIGSEGV in `IT_ORB_ORBImpl::resolve_initial_references()`
71902	Unexpected exception in `IT_Bus::MessagingClientOperation::do_invoke ()`
71903	Unexpected exception in `IT_Bus::DBReplicationMgr::init ()`
71904	Abort freeing memory in `IT_Bus::DBReplicationMgr::engage_request_forwardi ng ()`
71905	Locator exhibits unreclaimed memory growth for list_endpoints and registerEndpoint under certain conditions
71914	SOAP Fault message not being serialized or processed properly
71915	Logging of binary buffers is ridiculously slow
71919	Locator downloads full application WSDL (and imported XSDs) during endpoint registration
71923	Problem processing `xsi:type(s)`
71950	Bogus “transfer-encoding: chunked” header being set on outgoing callback invocation
71953	Partial Message Protection not working
71955	SOAP with Attachment supporting MIME type application/octet-stream
71958	Client proxy constructor is leaking memory
71967	WebSphere Crash - WAS core dumps

Table 1: *Bugs Fixed in Artix ESB 5.5 (Continued)*

Bug #	Description
71968	Inbound J2EE demo fails when deployed in WebpShere 6.1
71972	JNI crash compressing large messages
71975	A JAX-WS endpoint deployed in Tomcat is not able to re-register when the locator is restarted.
71977	`BinaryBuffer::allocate`—Out of memory error
71979	Offsets calculation correction for unbounded sequences.
71980	Artix Designer displaying the wrong length for WSDL bounded strings of the same name but a different length.
71981	When generating code via `wsdl2java` on an MTOSI v2 based WSDL, the generated `ObjectFactory.java` contains an annotation which throws an `IllegalAnnotationsException` at runtime.
71996	`policies:soap:security:enforce_must_understand = "false"` not obeyed by client binding for responses
72003	`wsdltojava` generates code that will not compile
72004	In certain conditions, `wsdl2java` will run out of memory regardless of how much heap memory you provide to the JVM using the `-Xmx` flag
72011	Locator Endpoints lost under certain timing circumstances
72022	`18nClientInterceptor` can cause a Tuxedo server crash
72025	Artix 5.1 Java JCA connector cannot be used with WS-Security programmatically
72026	Artix 5.1 Java JCA connector cannot be used with WS-Security via configuration
72054	JCA connector should be able to create service facade when WSDLlocation is provided

Table 1: *Bugs Fixed in Artix ESB 5.5 (Continued)*

Bug #	Description
72056	Resolve incorrect `soap:mustUnderstand` and `ultimateReceiver` role behavior
72061	JAX-WS customized SOAP fault detail not propagated back correctly
72063	Artix 5.1 Java router problem with WSDL operation beginning with uppercase letter when using POJO data format
72069	Stale endpoints are registered at the locator after restarting an endpoint
72075	SIGSEGV can occur in `checkForCrossListenerPolicy` depending on the order of listener creation
72079	Allow access to request/response contexts when using the Artix 5.1 JCA connector
72080	JCA connector does not work in the Websphere 6.1 inbound demo.
72081	LogLevel configuration property in `ra.xml` is ignored.
72084	Memory growth in HTTPS proxy
72091	Artix 5.1 Java JCA connector cannot be used with WS-Security for inbound communication
72102	Loading custom JAX-WS handler in combination with `SAAJOutInterceptor` generates runtime SOAP message with empty SOAP body
72105	Problem with Artix and HTTP chunking
72112	No support for standard JAX-WS handlers in a camel router
72123	`handleFault()` not getting called on client side jax-ws handlers
72149	missing `it_atli2_ip_tunnel` in Solaris

Table 1: *Bugs Fixed in Artix ESB 5.5 (Continued)*

Bug #	Description
ART-10201	Need a configuration variable for the Peer Manager to specify the time allowed for failover detection in milliseconds