IONA

Artix™

Artix Orchestration
Release Notes

Version 4.2, March 2007

Making Software Work Together™

Contents

CONTENTS

Artix 4.2 Orchestration Release Notes

In this document   This document contains the following sections:

About This Release

Artix 4.2 Orchestration is an add-on kit that must be installed into an existing Artix 4.2 installation. The installation requirements are described in the Artix Orchestration Installation Guide.

Artix Orchestration adds support for designing an orchestrated set of Web services using the standard Business Process Execution Language (BPEL), and for integrating your orchestrated set of services into your Artix environment.

Artix 4.2 Orchestration adds the following features to Artix 4.2 for all supported platforms:

- Artix Orchestration BPEL engine server
- Web-based Admin Console for the orchestration BPEL engine server
- Persistent storage option for the orchestration BPEL engine server

Artix 4.2 Orchestration adds the following orchestration development tools to Artix 4.2 for the Windows, Linux, and Solaris platforms:

- BPEL Designer
- Artix Orchestration perspectives for Eclipse
- Demonstration code
- Documentation embedded as Eclipse Help
- Artix Orchestration tutorial

Orchestration Designer

Artix Orchestration Designer is an Eclipse-based application that helps you design BPEL releationships with a GUI design tool. Orchestration Designer integreated with Artix Designer.

To learn to use Orchestration Designer, go through the tutorial as described below.

Artix Orchestration Eclipse perspectives

Artix Orchestration adds the **Artix Orchestration** and **Artix Orchestration Debug** perspectives to the instance of Eclipse installed by Artix 4.2. Artix Designer and Artix Orchestration Designer share the same Eclipse runtime, and can optionally share the same workspace.

Artix Orchestration BPEL Engine Server

The Artix Orchestration BPEL engine server provides a host for deploying BPEL processes. Start the orchestration server from the command line:

```
ArtixInstallationDir\artix\version\bin\start_bpel
```

For Windows, the command prompt window in which you invoke start_bpel must remain active. You can minimize the window, but if you close it, you also inadvertently stop the orchestration server.

To stop the orchestration server correctly, run:

```
ArtixInstallationDir\artix\version\bin\stop_bpel
```

Admin Console for the orchestration server

While the orchestration BPEL engine server is running, you can administer and monitor its progress with the web-based Admin Console. Access the Admin Console in any browser at the location http://localhost:8080/BpelAdmin.

The use of the Admin Console is documented in the embedded help system. Click the **Help** link at the bottom of the left column to open the Admin Console documentation.

Persistent storage option

You can run the Artix Orchestration database configuration tool as part of the initial installation, or anytime thereafter, as described in the Artix Orchestration Installation Guide.

The configuration tool sets up a database in a supported database management system, and configures the orchestration server to store its BPEL process deployment information in that database. This allows your BPEL processes to be automatically redeployed and restarted when the orchestration server restarts.

Demonstration code	A set of demonstrations of Artix Orchestration are installed in: `ArtixInstallationDir\artix\version\demos\bpel` Follow the steps in the `README.txt` files in each demo's directory.
Artix Orchestration documentation	The primary documentation for Artix Orchestration is embedded in the Eclipse Help system for the Orchestration instance of Eclipse. To read the documentation: 1. Start Artix Designer 2. From the **Help** menu, select **Help Contents**. 3. Select **Artix Orchestration Designer** in the **Contents** pane. The Artix Orchestration Help system is also available on the Web as part of the Artix Infocenter.
Artix Orchestration tutorial	The Help system includes a thorough tutorial that leads you through the steps of learning to use Artix Orchestration's features. To start the tutorial: 1. Open the **Artix Orchestration Designer** help system. 2. Select **Artix Orchestration tutorial**. 3. Go through the parts of the tutorial in order.

New in Artix 4.2 Orchestration

Artix Orchestration Designer 4.2 adds the following new features and functionality:

- HP-UX Added to Supported Configurations
- Support for WS-BPEL 2.0
- Enhanced Process Deployment Descriptor Wizard
- Enhanced Security Support
- Support for Highly Available Artix Services
- Eclipse 3.2 Support
- Orchestration Designer Integrated with Artix Designer
- Enhancements to Orchestration Designer
- Tutorial Fault Handling Updated

HP-UX Added to Supported Configurations

The Artix Orchestration 4.2 BPEL engine and server now installs and runs under HP-UX. This addition completes the list of supported platforms, and Artix Orchestration is now supported for all the same platforms as Artix 4.2. See the Artix Orchestration Installation Guide for details.

Support for WS-BPEL 2.0

Artix Orchestration 4.2 adds support for the WS-BPEL 2.0 specification, which is expected to be finalized later in 2007. Your existing BPEL4WS 1.1 process definitions continue to be supported without changes. WS-BPEL 2.0 support includes:

- New BPEL activities and syntax, as provided by the new specification.
- Assistance in migrating BPEL4WS 1.1 process definitions to WS-BPEL 2.0 syntax. When a BPEL4WS 1.1 process definition is open in the BPEL Editor, you can choose to save the process as a WS-BPEL 2.0 definition. During the Save As process, Artix Orchestration performs the following steps:
    - Converts the syntax of your process definition.
    - Replaces any activities as required by the new specification. For example, a Switch activity becomes an If activity.
    - Converts `bpws:getVariableData` expressions to $variable syntax, when possible.
    - Modifies the Catch activities of fault handlers to declare the variables as part of the Catch.
    - Converts event handler syntax to include the required scope and variable declarations.

Enhanced Process Deployment Descriptor Wizard

The PDD wizard was enhanced to support deployment of processes that use scope-level Partner Link definitions.

Enhanced Security Support

Artix Orchestration 4.2 includes enhanced support for securing access to BPEL processes. A security demo is installed in:

```
ArtixInstallationDir\artix\4.2\demos\bpel\BpelSecurity
```

Role-Based Access Control

Role-based access control can now be applied to a BPEL process. To enable security features, start the Orchestration BPEL Engine server with the `-secure` parameter. That is, run:

```
start_bpel -secure
```

This starts the server with a secure version of the BPEL configuration file, and changes the server's configuration domain to bpel_secure.cfg. The secure configuration file is installed by default in:

```
ArtixInstallationDir\artix\4.2\etc\bpel\domains\bpel_secure.cfg
```

Role mapping privileges are taken from a standard role mapping file. The certificates used by the BPEL engine are specified in this configuration domain. The server certificates are used to secure the connection between incoming requests and the BPEL server. If a BPEL process is required to run an invoke activity on a secure service, the certificates used for this must be specified as client certificates in the `bpel_secure.cfg` domain.

Credentials Propagation

Credentials propagation is now implemented in the BPEL server. If a client runs an invoke activity on a BPEL process, the client's user credentials are tied to that process, and all invoke activities on external services thereafter authenticate with the credentials of the user that created the process. If correlated operations are used, the identity of the process stays with the credentials of the original invoker. Certificates must be specified in the `bpel_secure.cfg` domain.

Support for Highly Available Artix Services

Artix Orchestration 4.2 includes support for deploying into the BPEL engine an Artix service that has been failover-enabled and/or load balanced using the Artix locator service.

Stateless HA Backend Services

Support for locator-enhanced Artix services is demonstrated in the demo installed in:

```
ArtixInstallationDir\artix\4.2\demos\bpel\loanapproval-ha
```

This demo shows the registration of highly available services with the Artix locator. A new locator WSDL file is included for use with the BPEL engine, installed in:

```
ArtixInstallationDir\wsdl\bpel\locator.wsdl
```

When a locator-enabled service is deployed to the BPEL engine, the address mode must be set to "Service" in the partner role in the PDD. Use the following setting:

```
invokeHandler="default:Service"
```

This entry can be seen in the `loanapproval-ha.pdd` file.

Load Balancing using the Locator

The BPEL engine supports load balancing of backend services using the Artix locator. The services to be load balanced must be registered with the locator, using the standard load-balanced service configuration as described in the *Artix Locator Guide*. In addition, add the following setting in the partner role of the partner link to be invoked on within the service's PDD:

```
invokeHandler="default:Service?cacheProxy=false"
```

Disabling Proxy Caching

The `cacheProxy=false` setting shown above can be useful in cases when you do not want Artix Orchestration to cache a proxy used on an invoke activity within a BPEL process. For performance reasons, the default setting is "true".

Eclipse 3.2 Support

Artix Orchestration Designer for 4.2 is based on Eclipse 3.2 and installs into the same Eclipse instance as Artix Designer. Orchestration Designer is no longer compatible with Eclipse 3.1, due to changes in some of the underlying APIs, and no longer installs into a separate Eclipse instance.

Orchestration Designer Integrated with Artix Designer

Artix Orchestration Designer is now completely integrated with Artix Designer. A separate start script is no longer needed, and one is not installed. To start Orchestration Designer, just start Artix Designer normally, then switch to the Artix Orchestration perspective.

Enhancements to Orchestration Designer

Artix Orchestration Designer contains a number of enhancements that improve its BPEL design and layout capabilities. These include:

- Snap-to-Grid. All activities are now snapped into a grid location when dropped onto the canvas
- Anchoring Drawing objects. The two methods of anchoring a drawing object are:
  - Automatically anchored to the location they are placed, unless overridden as described below. These objects will not be moved when using auto-layout.
  - Anchored to another object on the canvas. In this case, the drawing object maintains a fixed positional relationship with the object that it is anchored to during movement.
- New Link router style. The new link router (Shortest Path) causes the links to be drawn around objects in the same container, rather than through them
- Layout improvements:
  - Auto-layout can now be applied to an individual container rather than only at the process level.
  - Containers automatically resize when adding activities and drawing objects.
  - Auto-scroll is enabled when dragging an object to a part of the canvas that is not visible.
  - The Scope layout was modified to be more consistent with other containers.
- Auto expand collapsed containers. When selecting or executing (during simulation or remote debugging), a collapsed container is now automatically opened so that the activity and its properties can be viewed on the canvas.

Tutorial Fault Handling Updated

The loan approval tutorial contains a revised section on fault handling that conforms to the WS-BPEL 2.0 specification. In addition, the fault variable is based on a schema element, which gives you the opportunity to create and load an instance document to use for sample data.

Known Issues for Artix 4.2 Orchestration

The following are known issues for Artix 4.2 Orchestration:

- Use a Separate JDK for BPEL Engine
- Artix Orchestration Installer Run Twice
- Linux: No artix_env Before Installing
- Source artix_env for Loan Approval Demo in UNIX Eclipse
- Manual Setup for Orchestration Designer with 64-bit Eclipse
- AIX Installer Fails to Create Uninstaller
- Potential Port Conflicts
- Adding Partner Link Also Adds Import
- BPEL Simulator/Debugger Leaves Terminate Button Active
- Deployment Log Not Updated
- Uninstallation Leaves Directory

Use a Separate JDK for BPEL Engine

During installation of Artix 4.2, you are offered the opportunity to install an Artix-bundled Java Runtime Engine (JRE) for exclusive use by Artix. This bundled JRE should not be used to run the Artix Orchestration BPEL Engine server. Instead, as described in the Artix Orchestration Installation Guide, install a separate JDK, and set the JAVA_HOME environment variable to point to it.

On AIX, the BPEL Engine server must run using a separately installed JDK, and not the JRE installed with Artix.

Artix Orchestration Installer Run Twice

Running the Artix Orchestration installer twice over that same Artix installation results in some files being inadvertently removed. If you want to repeat an installation of Artix Orchestration, you must first uninstall the first instance of Artix Orchestration.

Linux: No artix_env Before Installing

On Linux platforms, do not run the Artix Orchestration installer from a shell in which you have already run the `artix_env` script. The setting of the LD_PRELOAD environment variable interferes with the installer. Workarounds include:

- (Preferred) Run the Artix Orchestration installer from a newly opened shell, without the settings from `artix_env`.
- Unset the LD_PRELOAD environment variable.

Source artix_env for Loan Approval Demo in UNIX Eclipse

As of release 4.2, Artix Designer no longer requires a `start_eclipse` script, and now starts directly from the Eclipse executable. The Artix development environment is sourced automatically by Artix Designer and Artix Orchestration Designer.

However, the Artix Orchestration Loan Approval demo still needs the Artix environment sourced when running on Linux and UNIX systems. For purposes of running the demo as described in its `README.txt` file, source the `artix_env` script before starting Artix Orchestration Designer.

Manual Setup for Orchestration Designer with 64-bit Eclipse

Linux installations of Artix 4.2 now include both 32-bit and 64-bit instances of the Eclipse executable. The 64-bit version is installed in

> `ArtixInstallationDir\artix\version\eclipse_64`

However, the Artix Orchestration installer fails to install certain symbolic links that allow the 64-bit Eclipse to use the same plug-ins as the 32-bit version. To use the 64-bit Eclipse executable, first run the following commands at the shell command line:

```
cd $IT_PRODUCT_DIR/artix/4.2/eclipse_64/plugins
ln -s ../../eclipse/plugins/com.iona.bpel.cheatsheets_3.0.2
ln -s ../../eclipse/plugins/com.iona.bpel.core.doc_3.0.2
ln -s ../../eclipse/plugins/com.iona.bpel.core_3.0.2
ln -s ../../eclipse/plugins/com.iona.bpel.doc_3.0.2
ln -s ../../eclipse/plugins/com.iona.bpel.url_3.0.2
ln -s ../../eclipse/plugins/com.iona.bpel_3.0.2
```

AIX Installer Fails to Create Uninstaller

When installing Artix Orchestration 4.2 under AIX, the installer fails to generate an uninstallation script. If you must uninstall Artix Orchestration 4.2 from AIX (for example, to comply with licensing requirements), you can instead leave the installation in place and adjust the Artix license on that machine. Contact IONA Professional Services for assistance with adjusting your Artix license file.

Potential Port Conflicts

The Artix Orchestration server runs an instance of the Apache Tomcat server on port 8080 by default. The Tomcat servlet engine hosts the Admin Console. The orchestration server also runs an instance of the Artix WSDL Publish server on port 8081.

If you have other services running on these ports, you can either disable the conflicting services, or change the orchestration server's default ports as described in the Artix Orchestration Installation Guide.

Adding Partner Link Also Adds Import

When adding a partner link type to an existing WSDL file, BPEL Designer adds an import, even if there is already an appropriate import in the file.

BPEL Simulator/Debugger Leaves Terminate Button Active

When using the BPEL simulator or debugger, the red Terminate button in the Console toolbar remains enabled after the BPEL process under test terminates. However, clicking the Terminate button has no effect. The expected behavior is a disabled Terminate button after the simulation or debugging session runs to completion.

Similarly, after completion, the Remove Terminated Processes button should clear terminated BPEL processes from the Console window, but does not.

Deployment Log Not Updated

After undeploying a BPEL process, the Deployment Log in the orchestration server's Admin Console is not updated with the undeployment information.

Uninstallation Leaves Directory

You can uninstall Artix Orchestration independently of Artix as described in the Artix Orchestration Installation Guide.

Uninstalling leaves the following directory in place. Remove it manually before reinstalling Artix Orchestration.

```
ArtixInstallationDir\artix\version\etc\bpel
```

Reporting Problems

Contact customer support at http://www.iona.com/support/contact/.

Other Resources

If you need further help, you can take advantage of the following resources:

- Artix TechZone (`http://www.iona.com/devcenter/artix`) is a free online forum where IONA developers, your peers, and other professionals come to share tips on Artix Web Services development. Visit the Artix TechZone today to start making the most of your Artix development experience.
- IONA University (`http://www.iona.com/info/services/ps/`) delivers practical and insightful courses that cover technical and product issues as well as standards-based best practices gleaned from real-world projects.
- IONA Professional Services (`http://www.iona.com/info/services/consulting/`) provide product expertise and consulting solutions that empower end-users, system integrators, and software vendors with the knowledge to fully leverage IONA products. Together, IONA consultants and products equip you with a single platform for integrating and developing extremely reliable, scalable, and secure e-Business systems.
- IONA Security Mailing List (`security-alert@iona.com`): The mailing list provides security updates associated with all IONA products. To receive security updates from IONA, send e-mail to listserver@iona.com with no subject and the body text `subscribe security-alert youremail`.

  Note: Please do not post queries to this e-mail alias; it has been set up only to notify you of security alerts.

- Online Documentation (`http://www.iona.com/support/docs/index.xml`): The latest updates to the Artix documentation are posted on-line.
- Knowledge base articles (`http://www.iona.com/support/index.xml`): A database that contains practical advice on specific development issues, contributed by IONA developers, support specialists, and customers.

Powered by
*active*BPEL