Red Hat JBoss Enterprise Application Platform 7.4

7.4.0 Release Notes

For Use with Red Hat JBoss Enterprise Application Platform 7.4

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Legal Notice

Abstract

These release notes contain important information related to Red Hat JBoss Enterprise Application Platform 7.4. Beginning with JBoss EAP 7.4, we will be exclusively focusing on the Jakarta EE test suite for certification/compliance. In order to support our existing customers who may be migrating their applications from the previous JBoss EAP 7 versions, JBoss EAP 7.4 maintains backwards compatibility. Oracle donated Java EE 8 TCKs to Jakarta EE which are used by Jakarta EE 8 implementations (like JBoss EAP) to become Jakarta EE 8-compatible. Jakarta EE 8 APIs are equivalent to Java EE 8 APIs. Jakarta EE 8 specifications (technologies) are equivalent to Java EE 8 specifications (technologies).

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MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Due to the enormity of this endeavor, these changes will be gradually implemented over upcoming releases. For more details on making our language more inclusive, see our CTO Chris Wright's message.

PROVIDING FEEDBACK ON RED HAT DOCUMENTATION

We appreciate your feedback on our documentation. To provide feedback, you can highlight the text in a document and add comments. Follow the steps in the procedure to learn about submitting feedback on Red Hat documentation.

Prerequisites

- Log in to the Red Hat Customer Portal.
- In the Red Hat Customer Portal, view the document in **Multi-page HTML** format.

Procedure

1. Click **Feedback** to see existing reader comments.

NOTE

The feedback feature is enabled only in the **Multi-page HTML** format.

2. Highlight the section of the document where you want to provide feedback.
3. In the prompt menu that displays near the text you selected, click **Add Feedback**.
   A text box opens in the feedback section on the right side of the page.
4. Enter your feedback in the text box and click **Submit**.
   You have created a documentation issue.
5. To view the issue, click the issue tracker link in the feedback view..

CHAPTER 1. SUPPORTED CONFIGURATIONS

- MS SQL Server 2019 is supported in JBoss EAP 7.4.
- PosgreSQL 13.2 and EnterpriseDB 13.1 were tested and are supported in JBoss EAP 7.4.
- MariaDB 10.3 and MariaDB Galera Cluster 10.3 were tested and are supported in JBoss EAP 7.4.
- IBM DB2 11.5 was tested and is supported in JBoss EAP 7.4.

The Red Hat JBoss Enterprise Application Platform (EAP) 7 Supported Configurations knowledgebase article on the Red Hat Customer Portal lists databases and database connectors that were tested as part of the JBoss EAP 7.4 release.

CHAPTER 2. NEW FEATURES AND ENHANCEMENTS

2.1. SECURITY

Support for automatic update of credentials in a credential store

Elytron now automates adding and updating a credential to a previously defined credential store when you configure a credential reference that specifies both the **store** and **clear-text** attributes.

With this update, you do not need to add a credential to an existing credential store before you can reference it from a **credential-reference**. The automated process reduces the number of steps you need to perform for referencing new credentials in different subsystems.

New role mapper regex-role-mapper in Elytron

Elytron now provides a new role mapper, **regex-role-mapper**, to define a regular expression (regex) based mapping of security roles.

You can use **regex-role-mapper** to translate a list of roles to simpler roles. For example:

- ***-admin** to **admin**
- ***-user** to **user**

With **regex-role-mapper**, you do not need to implement your own custom component to translate security roles.

Accessing IP address of remote client

You can now add the **source-address-role-decoder** role decoder to the **elytron** subsystem. By configuring this role decoder, you can gain additional information from a remote client when making authorization decisions.

The **source-address-role-decoder** extracts the IP address of a remote client and checks that it matches the IP address specified in the **pattern** attribute or the **source-address** attribute. If the IP address of the remote client matches the IP address specified in either attribute, the **roles** attribute then assigns roles to the user. When you have configured **source-address-role-decoder**, you can reference it in the **role-decoder** attribute of the **security domain**.

The aggregate-role-decoder role decoder

The **aggregate-role-decoder** consists of two or more role decoders. After each specified role decoder completes its operation, it adds roles to the **aggregate-role-decoder**.

You can use **aggregate-role-decoder** to make authorization decisions by adding role decoders that assign roles for a user. Further, **aggregate-role-decoder** provides you with a convenient way to aggregate the roles returned from each role decoder.

Using TLS protocol version 1.3 with JDK 11

Elytron now provides the ability to use Transport Layer Security (TLS) Protocol version 1.3 for JBoss EAP running against JDK 11.

TLS 1.3 is disabled by default. You can enable TLS 1.3 by configuring the new **cipher-suite-names** attribute in the SSL Context resource definition in the **elytron** subsystem.

Compared with TLS 1.2, you might experience reduced performance when running TLS 1.3 with JDK 11. Diminished performance might occur when a very large number of TLS 1.3 requests are being made. A system upgrade to a newer JDK version can improve performance. Test your setup with TLS 1.3 for performance degradation before enabling it in production.

Enable support for the TLS 1.3 protocol with the OpenSSL provider for TLS

JBoss EAP 7.4 includes support for the Transport Layer Security (TLS) protocol version 1.3. The use of TLS 1.3 protocol with the OpenSSL provider for TLS is disabled by default.

You can enable support for the TLS 1.3 protocol with the OpenSSL provider for TLS by configuring the **cipher-suite-names** attribute in the **ssl-context** configuration.

Compared with TLS 1.2, you might experience reduced performance when running TLS 1.3 with JDK 11. Diminished performance might occur when a very large number of TLS 1.3 requests are being made. A system upgrade to a newer JDK version can improve performance. Test your setup with TLS 1.3 for performance degradation before enabling it in production.

Re-enable support for the TLS 1.1 protocol in your JDK configuration

Newer versions of JDK might disable the Transport Layer Security (TLS) protocol version 1.1 by default. If your JBoss EAP 7.4 configuration must comply with the Federal Information Processing Standard (FIPS), you might need to re-enable support for the TLS 1.1 protocol in your JDK configuration.

For more information about TLS protocols compatible with JBoss EAP 7.4, see the Red Hat JBoss Enterprise Application Platform (EAP) 7 Supported Configurations page on the Red Hat Customer Portal.

Using SSH credentials to connect to a remote Git SSH repository

With JBoss EAP 7.4, you can use SSH credentials to connect to a remote Git SSH repository. This repository can manage your server configuration data, properties files, and deployments.

You must use the **elytron** configuration file to specify SSH credentials. You can then start your standalone server instance and have a remote Git SSH repository manage your server configuration file history.

If necessary, you can generate SSH keys by using one of the following methods:

- The **elytron-tool.sh** script
- The OpenSSH command line

For information about connecting to a remote Git SSH repository, see Using a remote Git SSH repository.

New principal transformer added to the elytron subsystem

JBoss EAP 7.4 includes a new principal transformer, **case-principal-transformer**, in the **elytron** subsystem. You can use the **case-principal-transformer** to change a principal's username to either uppercase or lowercase characters.

Ability to automatically generate a self-signed certificate

With JBoss EAP 7.4, you can automatically generate a self-signed certificate.

Use a self-signed certificate only in a test environment. Do not use a self-signed certificate in a production environment.

To use this new feature, in the **undertow** subsystem, update the configuration of the **http-listener**.

```
batch
/subsystem=undertow/server=default-server/https-listener=https:undefine-attribute(name=security-realm)
/subsystem=undertow/server=default-server/https-listener=https:write-attribute(name=ssl-
```

```
context,value=applicationSSC)
    run-batch
    reload
```

After you update the configuration, and if no keystore file exists, the first time JBoss EAP receives an HTTPS request, the system automatically generates a self-signed certificate. JBoss EAP logs a warning when a self-signed certificate is used.

Configuration of multiple security realms to support failover

With JBoss EAP 7.4, you can configure a failover security realm. If the security realm is not available, JBoss EAP uses the failover realm. The following code illustrates an example configuration:

```
    <failover-realm name="myfailoverrealm" delegate-realm="LdapRealm" failover-realm="LocalRealm"
/>
```

Distributed identities across multiple security realms

With JBoss EAP 7.4, you can configure a distributed security realm, which sequentially invokes a list of configured realms until a realm with the identity is found. The following code illustrates an example configuration:

```
    <distributed-realm name="mymainrealm" realms="realm1 realm2 realm3" />
```

Access to external credentials over HTTP in the elytron subsystem

With JBoss EAP 7.4, JBoss EAP can authenticate a user based on credentials established externally when using HTTP authentication.

To use this capability, configure a security domain to use the External mechanism when authenticating users.

Use the Elytron client authentication configuration with the RESTEasy client

The JBoss EAP 7.4 release integrates the RESTEasy client with the Elytron client. The RESTEasy client uses authentication information, such as credentials, bearer tokens, and SSL configurations, from an Elytron client configuration.

You can specify the Elytron client configuration that the RESTEasy client can use in the following ways:

- By providing the **wildfly-config.xml** file to the Elytron client. The Elytron client searches the class path for **wildfly-config.xml** or **META-INF/wildfly-config.xml**.
    - Alternatively, you can use the **wildfly.config.url** system property to specify the path for the **wildfly-config.xml** file.
- By using the Elytron client API to programmatically specify the authentication configuration.

Secret key credential store for providing initial secret key

You can now provide an initial secret key to the application server process using a new type of credential store named **secret-key-credential-store**. With this credential store, you get more robust security than password-based encryption because you can now manage your own initial secret.

Additionally, you can now generate secret keys, and also export and import previously generated secret keys, for all credential stores. You can also use existing credential stores for storing secret keys, and management operations to maintain them.

Encrypted expressions for securing security-sensitive strings

You can now use encrypted expressions to securely store security-sensitive strings in the management model. Elytron encrypts plain text strings using Advanced Encryption Standard (AES) encryption and

decrypts the encrypted expression dynamically at runtime using a **SecretKey** key stored in a credential store.

You can configure encrypted expressions using the new resource **expression-encryption** in the **elytron** subsystem. Use the **create-expression** management operation to create encrypted expressions.

NOTE

Use the credential store for storing passwords. The password vault is deprecated and will be removed in a future release.

Updates to elytron-tool

You can use the **elytron-tool** with both the existing and new credential stores. Use the **credential-store** command to manage secret keys and to generate encrypted tokens for use in expressions.

2.2. SERVER MANAGEMENT

Support for Microsoft Windows Server 2019

You can use the Microsoft Windows Server 2019 virtual operating system while using JBoss EAP 7.4 in Microsoft Azure.

Use a global directory to distribute shared libraries across deployments

In JBoss EAP 7.3 and earlier versions, you could not create and configure a global directory to distribute shared libraries across deployments running on a server. These capabilities have been added to the **ee** subsystem.

A global directory offers a better alternative to the global module approach. For example, if you want to change the name of a library listed in a global module, you must remove the global module, change the library's name, and then add the library to a new global module. If you change the name of a library that is listed in the global directory, you only need to restart the server to make the library name change available for all deployments.

Using a global directory is also a better solution if you want to share multiple libraries across deployed applications.

For more information, see Define global modules in the JBoss EAP *Configuration Guide*.

Support for read-only server configuration directories

In JBoss EAP 7.3 and earlier versions, servers fail to start if the configuration directory is configured as read-only. JBoss EAP 7.4 introduces the ability to use a read-only server configuration directory. If the configuration directory is read-only, include the **--read-only-server-config** switch in a command to start the server.

Ability to pass JBoss Module parameters

In the configuration files for JBoss EAP 7.3 and earlier versions, JBoss Modules did not include the ability to pass module parameters. In the script configuration files for JBoss EAP 7.4 you can now add a **MODULE_OPTS=-javaagent:my-agent.jar** environment variable to pass JBoss Module parameters.

You can use this capability when you previously were required to add the log manager on the boot class path.

Infinispan APIs

Previously, the Infinispan APIs were flagged as private within EAP as they are a part of the Red Hat Data Grid project. These APIs are now fully included and supported in JBoss EAP7.4. The modules included are:

- **org.infinispan**
- **org.infinispan.client.hotrod**
- **org.infinispan.commons**

Configurable option to allow requests during startup

Added the option for a graceful startup mode for when user requests need to occur earlier in the startup process. This is supported for both managed domains, and standalone servers.

- For servers in a managed domain, the **server-group** element now supports the **graceful-startup** argument. The default for this is set to **true**.
- In a standalone server, set the command line option **--graceful-startup=false** to the required value.

Configurable common script file added

You can now use the file, **common.conf**, to customize your JBoss EAP instance environments. The file allows you to set common environment variables usable by all scripts in the **$JBOSS_HOME/bin** directory. You can add the file to **$JBOSS_HOME/bin** or add the path to the file in the **COMMON_CONF** environment variable. This functionality does support batch scripts and powershell scripts, with **common.conf.bat** and **common.conf.ps1** respectively.

2.3. MANAGEMENT CLI

Enhancement to the command CLI command

The CLI command **command** has a new **--node-child** argument that you can use to edit the properties or manage the operations of a specific child node.

NOTE

Before you use the **--node-child** argument, check that the child node exists in the management model.

Use the **command add --node-child --help** CLI command to view a description of the **--node-child** argument.

New role decoder added to the elytron subsystem

In JBoss EAP 7.4, you can use the management CLI to add the **source-address-role-decoder** role decoder to the **elytron** subsystem. By configuring this role decoder in the **mappers** element, you can gain additional information from a remote client when making authorization decisions.

You can configure the following attributes for **source-address-role-decoder**:

Attribute	Description
pattern	A regular expression that specifies the IP address of a remote client or the IP addresses of remote clients to match.
source-address	Specifies the IP address of the remote client.

Attribute	Description
roles	Provides the list of roles to assign to a user if the IP address of the remote client matches the values specified in the **pattern** attribute or the **source-address** attribute.

Exposing runtime statistics for managed executor services

In the previous JBoss EAP release, runtime statistics were not available for managed executor services in the **ee** subsystem.

You can now monitor the performance of managed executor services by viewing the runtime statistics generated with the new management CLI attributes. The following management CLI attributes have been added:

- **active-thread-count**: the approximate number of threads that are actively executing tasks
- **completed-task-count**: the approximate total number of tasks that have completed execution
- **hung-thread-count**: the number of executor threads that are hung
- **max-thread-count**: the largest number of executor threads
- **current-queue-size**: the current size of the executor's task queue
- **task-count**: the approximate total number of tasks that have ever been submitted for execution
- **thread-count**: the current number of executor threads

Terminating hung tasks

You can now manually attempt to terminate hung tasks in the EE subsystem. To do this, run the following command:

```
/subsystem=ee/managed-executor-service=default:terminate-hung-tasks()
```

A new attribute, **hung-task-termination-period**, is added to the managed-executor-service

You can now automatically attempt to terminate hung tasks in the EE subsystem. A new attribute, **hung-task-termination-period**, is added to the managed-scheduled-executor-service resources to facilitate this.

- **hung-task-termination-period**: the period, in milliseconds, for attempting hung tasks automatic termination, by cancelling such tasks, and interrupting their executing threads. If value is 0, which is the default, hung tasks are never cancelled.

Using property replacement for permissions files

Users upgrading from JBoss EAP 6 to JBoss EAP 7 were unable to migrate file permissions in the Java policy file to the **permissions.xml** or **jboss-permissions.xml** files. It was not possible to use property replacement to migrate file permissions in the **permissions.xml** and **jboss-permissions.xml** files.

You can now use property replacement for the **permissions.xml** and **jboss-permissions.xml** files.

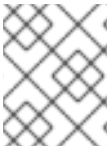
The property replacement for **jboss-permissions.xml** and **permissions.xml** files can be enabled or disabled using the **jboss-descriptor-property-replacement** and **spec-descriptor-property-replacement** attributes in the **ee** subsystem.

Configuring RESTEasy parameters

You can now use the JBoss EAP management CLI to change the settings for RESTEasy parameters. A global change applies the updated settings to new deployments as **web.xml** context parameters.

You can modify the settings of a parameter by using the **:write-attribute** operation with the **/subsystem=jaxrs** resource in the management CLI. For example:

```
/subsystem=jaxrs:write-attribute(name=resteasy-add-charset, value=false)
```



NOTE

When you change the settings of a parameter, the updated settings only apply to new deployments. Restart the server to apply the new settings to current deployments.

See the RESTEasy Configuration Parameters table for details about RESTEasy elements.

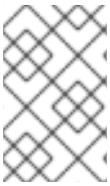
Configuring RESTEasy providers

In RESTEasy, certain built-in providers are enabled by default. You can now use the new RESTEasy parameter **resteasy.disable.providers** in the JBoss EAP management CLI to disable specific built-in providers.

The following example demonstrates how to disable the built-in provider **FileProvider**:

```
/subsystem=jaxrs:write-attribute(name=resteasy-disable-providers, value=
[org.jboss.resteasy.plugins.providers.FileProvider])
```

You can use the **resteasy.disable.providers** parameter with the pre-existing parameter **resteasy.use.builtin.providers** to customize a specific provider configuration that applies to all new deployments.



NOTE

When you change the settings of the **resteasy.disable.providers** parameter, the updated settings only apply to new deployments. Restart the server to apply the new settings to current deployments.

2.4. MANAGEMENT CONSOLE

New role decoder added to the elytron subsystem

In JBoss EAP 7.4, you can use the management console to add the **source-address-role-decoder** role decoder to the **elytron** subsystem. By configuring this role decoder in the **mappers** element, you gain additional information from a remote client when you make authorization decisions.

You can configure the following attributes for **source-address-role-decoder**:

Attribute	Description

Attribute	Description
pattern	A regular expression that specifies the IP address of a remote client or the IP addresses of remote clients to match.
source-address	Specifies the IP address of the remote client.
roles	Provides the list of roles to assign to a user if the IP address of the remote client matches the values specified in the **pattern** attribute or the **source-address** attribute.

2.5. LOGGING

The Apache Log4j2 API

In JBoss EAP 7.4, you can use an Apache Log4j2 API instead of an Apache Log4j API to send application logging messages to your JBoss LogManager implementation.

The JBoss EAP 7.4 release supports the Log4J2 API, but the release does not support the Apache Log4j2 Core implementation, **org.apache.logging.log4j:log4j-core**, or its configuration files.

2.6. INFINISPAN SUBSYSTEM

Using Infinispan APIs in deployments

You can now use the Infinispan subsystem to create remote and embedded JBoss EAP caches without the need to install separate modules. This allows you perform read and write operations to caches from your deployment but does not include support for all Data Grid capabilities or the following APIs:

- **org.infinispan.query**
- **org.infinispan.counter.api**
- **org.infinispan.lock**

Additionally the Data Grid CDI modules are not available from the Infinispan subsystem.

If you have questions about using JBoss EAP with any Data Grid features or capabilities, contact the Red Hat support team.

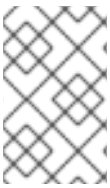
2.7. EJB3 SUBSYSTEM

Default global stateful session bean timeout value in the ejb3 subsystem

In the **ejb3** subsystem, you can now configure a default global timeout value for all stateful session beans (SFSBs) that are deployed on your server instance by using the **default-stateful-bean-session-timeout** attribute. This attribute is located in the JBoss EAP server configuration file. You can configure the attribute using the Management CLI.

Attribute behavior varies according to the server mode. For example:

- When running in the standalone server, the configured value gets applied to all SFSBs deployed on the application server.
- When running in the managed domain, all SFSBs that are deployed on server instances within server groups receive concurrent timeout values.



NOTE

When you change the global timeout value for the attribute, the updated settings only apply to new deployments. Reload the server to apply the new settings to current deployments.

By default, the attribute value is set at **-1** milliseconds, which means that deployed SFSBs are configured to never time out. However, you can configure two other types of valid values for the attribute, as follows:

- When the value is **0**, SFSBs are eligible for immediate removal by the **ejb** container.
- When the value is greater than **0**, the SFSBs remain idle for the specified time before they are eligible for removal by the **ejb** container.

You can still use the pre-existing **@StatefulTimeout** annotation or the stateful-timeout element, which is located in the **ejb-jar.xml** deployment descriptor, to configure the timeout value for an SFSB. However, setting such a configuration overrides the default global timeout value to the SFSB.

Forcing Jakarta Enterprise Beans timer refresh in database-data-store

You can now set the **wildfly.ejb.timer.refresh.enabled** flag using the EE interceptor. When an application calls the **TimerService.getAllTimers()** method, JBoss EAP checks this flag. If this flag is set to **true**, JBoss EAP refreshes the Jakarta Enterprise Beans timers from database before returning the result.

In the previous JBoss EAP releases, the Jakarta Enterprise Beans timer reading could be refreshed in a database using the **refresh-interval** attribute found in **database-data-store**. Users could set the **refresh-interval** attribute value in milliseconds to refresh the Jakarta Enterprise Beans timer reading.

For information about Jakarta Enterprise Beans clustered database backed-timers, see Jakarta Enterprise Beans clustered database timers in the *Developing Jakarta Enterprise Beans Applications* guide.

Access to runtime information from Jakarta Enterprise Beans

With JBoss EAP 7.4, you can access runtime data for Jakarta Enterprise Beans. Stateful session beans, stateless session beans, and singleton beans each return different runtime information. For example, the following command returns runtime data for a stateless session bean:

```
/deployment=ejb-management.jar/subsystem=ejb3/stateless-session-
bean=ManagedStatelessBean:read-resource(include-runtime)
```

Dynamic discovery of Jakarta Enterprise Beans over HTTP

With JBoss EAP 7.4, you can use dynamic discovery of Jakarta Enterprise Beans over HTTP. To use this capability, add a configuration similar to the following to the **ejb-remote** profile:

```
<remote connector-ref="http-remoting-connector" thread-pool-name="default">
    <channel-creation-options>
        <option name="MAX_OUTBOUND_MESSAGES" value="1234" type="remoting"/>
    </channel-creation-options>
```

```
    <profiles>
      <profile name="my-profile">
        <remote-http-connection name="ejb-http-connection" uri="http://127.0.0.1:8180/wildfly-
services"/>
      </profile>
    </profiles>
</remote>
```

Global configuration of compression for remote Jakarta Enterprise Beans calls

With JBoss EAP 7.4, you can configure compression of calls to remote Jakarta Enterprise Beans globally. To configure compression globally on a stand-alone client, specify the **default.compression** property in the **jboss-ejb-client.properties** file. To configure compression globally on a server, include the **default-compression** attribute in the **<client-conext>** element in the **jboss-ejb-client.xml** descriptor file in the application deployment unit.

```
<jboss-ejb-client xmlns="urn:jboss:ejb-client:1.4">
    <client-context default-compression="5">
        <profile name="example-profile" />
    </client-context>
</jboss-ejb-client>
```

New attribute for setting the principal propagation behavior in Elytron

In JBoss EAP 7.4, a new optional attribute is added to the **application-security-domain** element of the **ejb3** subsystem. With the new attribute, **legacy-compliant-principal-propagation**, you can control the principal propagation behavior of your Jakarta Enterprise Beans application that uses Elytron security.

The default value of **legacy-compliant-principal-propagation** is **true**. Therefore, the principal propagation behavior is legacy **security** subsystem compliant by default.

If you configure the attribute to **false**, Elytron provides any local unsecured Jakarta Enterprise Beans that have no incoming **run as** identity with an anonymous principal. This configuration complies with Elytron's previous behavior.

For information about Elytron integration with the **ejb** subsystem, see Elytron integration with the **ejb** subsystem in the *Developing Jakarta Enterprise Beans Applications* guide.

2.8. HIBERNATE

Configuring the wildfly.jpa.skipquerydetach persistence unit property

You can configure the **wildfly.jpa.skipquerydetach** persistence unit property from the **persistence.xml** file of a container-managed persistence context.

The default value for **wildfly.jpa.skipquerydetach** is **false**. Use this setting to set a transaction-scoped persistence context to immediately detach query results from an open persistence context.

Configure **wildfly.jpa.skipquerydetach** as **true**, to set a transaction-scoped persistence context to detach query results when a persistence context is closed. This enables a non-standard specification extension.

For applications that have the non-standalone specification extension **jboss.as.jpa.deferdetach** set as **true**, you can also set **wildfly.jpa.skipquerydetach** as **true**.

2.9. WEB SERVICES

Integrating Elytron with web services clients

You can now configure web services clients to use the Elytron client configuration to obtain its credentials, authentication method, and SSL context.

When you use JBossWS API to assign any configuration properties to the web services client, then the username, password, and SSL context from the Elytron client are also loaded and configured. The following authentication methods are configurable:

- UsernameToken Profile authentication
- HTTP Basic authentication
- TLS protocol

You can use the **<webservices/>** element in **wildfly-config.xml** to specify that the credentials are for either HTTP Basic authentication,g UsernameToken Profile authentication or both.

Ability for RESTEasy 3.x to access all standard MicroProfile ConfigSources

RESTEasy 3.x can now access all standard MicroProfile **ConfigSources**. The following additional **ConfigSources** are also added to RESTEasy 3.x:

- **servlet init-params** (ordinal 60)
- **filter init-params** (ordinal 50)
- **servlet context-params** (ordinal 40)

Previously, these capabilities were only included in RESTEasy 4.x. With this update, RESTEasy can access configuration parameters with or without the MicroProfile **ConfigSources**. In the absence of a MicroProfile Config implementation, RESTEasy falls back to the older method of gathering parameters from **ServletContext** parameters and **init** parameters.

Configuring SameSite cookie attribute

You can now configure the **SameSite** attribute for cookies in the current JBoss EAP release with a **samesite-cookie** predicated handler in the **undertow** subsystem. With this handler, you can update your server configuration without having to change your applications. This enhancement supports changes to the processing of cookies that were recently implemented in major web browsers to improve security.

Configuring Eclipse MicroProfile REST client API in resteasy CDI modules

The Eclipse MicroProfile REST client API is now an optional dependency that you can configure in **resteasy** CDI modules.

2.10. MESSAGING

Duplicate messages on the JMS core bridge

On rare instances for a server with an overloaded target queue, sending large messages over the JMS core bridge might cause duplication of your messages.

Ability to pause a topic

With JBoss EAP 7.4, you can pause a topic in addition to pausing a queue. When you pause a topic, JBoss EAP receives messages but does not deliver them. When you resume the topic, JBoss EAP delivers the messages. To pause a topic, issue a command similar to the following example:

```
/subsystem=messaging-activemq/server=default/jms-topic=topic:pause()
```

To resume a topic, issue a command similar to the following example:

```
/subsystem=messaging-activemq/server=default/jms-topic=topic:resume()
```

Ability to detect network isolation of broker

You can now ping a configurable list of hosts to detect network isolation of the broker. You can use the following parameters to configure this functionality:

- **network-check-NIC**
- **network-check-period**
- **network-check-timeout**
- **network-check-list**
- **network-check-URL-list**
- **network-check-ping-command**
- **network-check-ping6-command**

For example, to check the network status by pinging the IP address **10.0.0.1**, issue the following command:

```
/subsystem=messaging-activemq/server=default:write-attribute(name=network-check-list,
value="10.0.0.1")
```

call-timeout attribute

The **call-timeout** attribute on the JMS core bridge is configurable as a part of ActiveMQ Artemis. In this release, you are able to configure the **call-timeout** variable in EAP itself with the management API.

Red Hat AMQ connection pools

Red Hat AMQ recently began supporting connection pools in addition to single thread DB connections. With JBoss EAP 7.4, you can now use a connection pool when using Red Hat AMQ with JBoss EAP.

2.11. SCRIPTS

New environment variable for starting your server

You can now add the **MODULE_OPTS** environment variable to the script configuration files in your JBoss EAP 7.4 instance.

In a standalone server, use the following files:

- On RHEL, the startup script uses **EAP_HOME/bin/standalone.conf** file.
- On your Windows server, at the command prompt, use the **EAP_HOME\bin\standalone.bat** file.
- On your Windows server, at the PowerShell, use the **EAP_HOME\bin\standalone.ps1** file.

For servers in a domain, you can add the **module-options** attributes to a host JVM configuration or a server's JVM configuration.

The **MODULE_OPTS** environment variable affects the entire server. For example, if you have a Java agent that requires logging, set the value of **MODULE_OPTS** to **-javaagent:my-agent.jar**. This will initialize your agent after you configure logging.

2.12. OPENSHIFT

Providing custom Galleon feature-pack support to your JBoss EAP S2I image

You can use three new environment variables to provide custom Galleon feature-pack support for your JBoss EAP S2I image. You can use the environment variables outlined in the following table during your S2I build phase:

Table 2.1. Custom Galleon feature-pack environment variables

Environment variable	Description
GALLEON_DIR=<PATH>	*<PATH>* is the relative directory to the application root directory that contains your optional Galleon custom content. Directory defaults to **galleon**.
GALLEON_CUSTOM_FEATURE_PACKS_MAVEN_REPO=<PATH>	*<PATH>* is the absolute path to a Maven local repository directory that contains custom feature-packs. Directory defaults to **galleon/repository**.
GALLEON_PROVISION_FEATURE_PACKS= <LIST_OF_GALLEON_FEATURE_PACKS>	*<LIST_OF_GALLEON_FEATURE_PACKS>* is a comma-separated list of your custom Galleon feature-packs identified by Maven coordinates. The listed feature-packs must be compatible with the version of the JBoss EAP 7.4 server present in the builder image. You can use the **GALLEON_PROVISION_LAYERS** environment variable to set the Galleon layers, which were defined by your custom feature-packs, for your server.

Read-only server configuration directory

JBoss EAP supports a read-only server configuration directory. You can use the **--read-only-server-config** command line parameter to lock down the server configuration when the server configuration directory is a read-only directory. This functionality is available only when running JBoss EAP as a standalone server.

Instructions to deploy JBoss EAP quickstarts on OpenShift

For a JBoss EAP release, all OpenShift-compatible quickstarts now include instructions to deploy JBoss EAP quickstarts on OpenShift. The **readme.html** file of the quickstarts include the following sections:

- Getting Started with OpenShift
- Prepare OpenShift for Quickstart Deployment
- Import the Latest JBoss EAP for OpenShift Image Streams and Templates
- Deploy the JBoss EAP for OpenShift Source-to-Image (S2I) Quickstart to OpenShift
- OpenShift Post Deployment Tasks

New Galleon layer for the Distributable Web subsystem

JBoss EAP provides the **web-passivation** layer to supply the **distributable-web** subsystem configured with a local web container cache. The **web-passivation** layer is a decorator layer.

2.13. RED HAT CODEREADY WORKSPACES (CRW)

Red Hat CodeReady Workspaces supports JBoss EAP 7.4 development files

You can use a JBoss EAP 7.4 development file, **YAML** file, to define a JBoss EAP development environment on CRW. You can download example JBoss EAP 7.4 development files from the **jboss-eap-quickstarts** *GitHub* web page.

A development file includes the following components:

- A browser IDE configuration
- A list of predefined commands
- The application runtime environment
- The location of the repository that you must clone

On CRW, you can choose one of the following ways to create a JBoss EAP 7.4 workspace environment:

- Copy and paste the URL of a JBoss EAP development file directly into the **Devfile** section of the **Get Started** page on your CRW dashboard. You must select the **Load devfile** button to add the development file to your CRW dashboard.
- Open your CRW instance on OpenShift and enter the URL of a JBoss EAP development file in the **Devfile** tab on the **Workspace** menu. Save the development file and then restart your CRW instance.

IMPORTANT

If you want to use a Java 8 development file in your JBoss EAP 7.4 workspace environment, do not install a Java 11 plug-in because it conflicts with the Java 8 plug-in.

Additional resources

- For information on how to download example JBoss EAP 7.4 development files, go to the **kitchensink-jsp** subdirectory in the **jboss-eap-quickstarts** directory on the *GitHub* web page.
- For more information about downloading and installing the latest version of CRW that is compatible with JBoss EAP 7.4, see Installing CodeReady Workspaces in the CRW *Installation Guide*.
- For more information about configuring CRW, see Configuring a CodeReady Workspaces 2.9 workspace in the CRW *End-user Guide*.

CHAPTER 3. UNSUPPORTED FUNCTIONALITY

3.1. UNSUPPORTED FEATURES

Support for some technologies are removed due to the high maintenance cost, low community interest, and better alternative solutions.

Platforms and features

JBoss EAP deprecated the following platforms in version 7.1. These platforms are not tested in JBoss EAP 7.4.

- Oracle Solaris 10 on x86_64
- Oracle Solaris 10 on SPARC64
- Oracle Solaris 11 on x86_64
- Oracle Solaris 11 on SPARC64

JBoss EAP 7.4 does not include the Wildfly SSL natives for these platforms. As a result, SSL operations in Oracle Solaris platforms might be slower than they were on previous versions of JBoss EAP.

Databases and database connectors

- IBM DB2 11.1
- PostgreSQL/EnterpriseDB 11
- MariaDB 10.1
- MS SQL 2017

Lightweight Directory Access Protocol (LDAP) servers

- Red Hat Directory Server 10.0
- Red Hat Directory Server 10.1

Keystore defect with Java jdk8u292-b10

If you're running JBoss EAP on Java jdk8u292-b10 and using a legacy security realm or an Elyton Lightweight Directory Access Protocol (LDAP) keystore, you cannot use a Public-Key Cryptography Standards (PKCS) #12 keystore. The workaround is to configure your instance of JBoss EAP to use a stronger default key protection algorithm for PKCS #12 keystores. Other Elytron keystore types are not affected by this defect.

RESTEasy parameters

RESTEasy provides a Servlet 3.0 **ServletContainerInitializer** integration interface that performs an automatic scan of resources and providers for a servlet. Containers can use this integration interface to start an application. Therefore, use of the following RESTEasy parameters is no longer supported:

- resteasy.scan
- resteasy.scan.providers
- resteasy.scan.resources

MicroProfile capabilities

The following MicroProfile capabilities that were included as technical preview in JBoss EAP 7.3 are not included in JBoss EAP 7.4 or in future versions:

- MicroProfile Config
- MicroProfile REST client
- MicroProfile Health
  JBoss EAP no longer includes the **microprofile-smallrye-health** subsystem, so application healthiness checks are no longer available. JBoss EAP continues to include healthiness check for the server runtime.
- MicroProfile Metrics
  JBoss EAP no longer includes the **microprofile-smallrye-metrics** subsystem, so application metrics are no longer available. JBoss EAP continues to include endpoints for JVM and server metrics.
- MicroProfile OpenTracing
  MicroProfile OpenTracing is now part of the **observability** decorator layer.

These capabilities are now part of the JBoss EAP Expansion Pack (JBoss EAP XP). Install JBoss EAP XP for full MicroProfile support in JBoss EAP.

For complete information about support for MicroProfile and JBoss EAP XP, see the JBoss EAP XP lifecycle and support policies page.

Red Hat JBoss Operations Network

Using Red Hat JBoss Operations Network (JON) for JBoss EAP management is deprecated since JBoss EAP version 7.2. For JBoss EAP 7.4, support for Red Hat JON for JBoss EAP management is deprecated.

MS SQL Server 2017

MS SQL Server 2017 is not supported in JBoss EAP 7.4.

Microsoft Windows Server 2012

JBoss EAP 7.4 does not support the use of the Microsoft Windows Server 2012 virtual operating system when using JBoss EAP 7.4 in Microsoft Azure.

3.2. DEPRECATED FEATURES

Some features have been deprecated with this release. This means that no enhancements will be made to these features, and they may be removed in the future, usually the next major release.

Red Hat will continue providing full support and bug fixes under our standard support terms and conditions. For more information about the Red Hat support policy, see the Red Hat JBoss Middleware Product Update and Support Policy located on the Red Hat Customer Portal.

For details of which features have been deprecated, see the JBoss Enterprise Application Platform Component Details located on the Red Hat Customer Portal.

Platforms and features

Support for the following platforms and features is deprecated:

Eclipse MicroProfile REST Client API

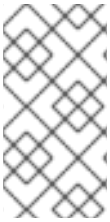
The Eclipse MicroProfile REST Client API is deprecated from the **jaxrs** subsystem.

OpenShift Container Platform 3.11

OpenShift Container Platform (OCP) 3.11 is deprecated for JBoss EAP7.4.

Operating systems

- Microsoft Windows Server on i686
- Red Hat Enterprise Linux (RHEL) 6 on i686



NOTE

Although support for these platforms was deprecated in a previous JBoss EAP release, some artifacts and resources linked to these platforms were not removed, such as the **wildfly-openssl** native library binding . For Red Hat JBoss Enterprise Application Platform 7.4, those artifacts and resources have been removed.

Spring BOM
The following Spring BOM that is located in the Red Hat Maven repository is now deprecated:

- jboss-eap-jakartaee8-with-spring4

Although Red Hat tests that Spring applications run on Red Hat JBoss Enterprise Application Platform 7.4, you must use the latest version of the Spring Framework and its BOMs (for example, **x.y.z.RELEASE**) for developing your applications on JBoss EAP 7.4.

For more information about versions of the Spring Framework, see Spring Framework Versions on *GitHub*.

BOMs
The existing BOMs are deprecated with a view to providing BOMs (perhaps including some of the existing ones) relevant to the functionality in the next major version of JBoss EAP.

Java Development Kits (JDKs)

- JDK 8
- JDK 11
  NOTE

In future JBoss EAP releases, Java SE requirements will be reevaluated based on the industry (for example, Jakarta EE 10+, MicroProfile and so on) and market needs.

JBoss EAP OpenShift templates
JBoss EAP templates for OpenShift are deprecated.

eap74-beta-starter-s2i.json and **eap73-third-party-db-s2i.json** templates
The **eap74-beta-starter-s2i.json** and **eap74-beta-third-party-db-s2i.json** templates are deprecated and are removed in JBoss EAP 7.4.0.GA.

Legacy security subsystem
The **org.jboss.as.security** extension and the legacy **security** subsystem it supports are now deprecated. Migrate your security implementations from the **security** subsystem to the **elytron** subsystem.

PicketLink
The **org.wildfly.extension.picketlink** extension, and the **picketlink-federation** and **picketlink-identity-management** subsystems this extension supports, are now deprecated. Migrate your single sign-on implementation to Red Hat Single Sign-On.

PicketBox
The PicketBox-based security vault, including access by using the legacy **security** subsystem and the **core-service=vault** kernel management resources, is now deprecated in this release.

Managed domain support for previous versions of JBoss EAP
Support for hosts running JBoss EAP 7.3 and earlier versions in a JBoss EAP 7.4 managed domain is deprecated. Migrate the hosts in your managed domains to JBoss EAP 7.4.

Server configuration files using namespaces from JBoss EAP 7.3 and earlier
Using server configuration files (**standalone.xml**, **host.xml**, and **domain.xml**) that include namespaces from JBoss EAP 7.3 and earlier is deprecated in this release. Update your server configuration files to use JBoss EAP 7.4 namespaces.

JBoss EAP Server Side JavaScript support
Previously, JBoss EAP Server Side JavaScript support was offered as a Technology Preview. It is now deprecated in this release.

Agroal subsystem
The **datasources-agroal** subsystem is deprecated.

Codehaus Jackson
The Codehaus Jackson 1.x module, which is currently unsupported, is deprecated in JBoss EAP 7.4.

application-security-domain resources
The **application-security-domain** resources in **ejb3** and **undertow** subsystems are deprecated.

Clustering subsystems
The following resources in the clustering subsystems are deprecated:

- The **infinispan** subsystem

```
/subsystem=infinispan/remote-cache-container=*/component=transaction
```

```
/subsystem=infinispan/remote-cache-container=*/near-cache=*
```

- The **jgroups** subsystem

```
/subsystem=jgroups/stack=*/protocol=S3_PING
```

```
/subsystem=jgroups/stack=*/protocol=GOOGLE_PING
```

- The **modcluster** subsystem

Salted Challenge Response Authentication Mechanism
The following Salted Challenge Response Authentication Mechanisms (SCRAMs) and their channel-binding variants are deprecated:

- **SCRAM-SHA-512**
- **SCRAM-SHA-384**

Quickstarts

The existing Quickstarts are deprecated with a view to providing Quickstarts (perhaps including some of the existing ones), relevant to the functionality in the next major version of JBoss EAP.

Hibernate ORM 5.1

The Hibernate ORM 5.1 native API bytecode transformer has always been deprecated since it was originally introduced.

HornetQ messaging client

The HornetQ messaging client is deprecated.

CHAPTER 4. RESOLVED ISSUES

See Resolved Issues for JBoss EAP 7.4 to view the list of critical issues we have resolved for this release.

Additionally, be aware of the following:

- After completing source-to-image builds, OpenShift now clears the source directory (/**tmp**/**src**). As a result of this change, built images should be smaller.

CHAPTER 5. FIXED CVES

JBoss EAP 7.4 includes fixes for the following security-related issues:

- CVE-2020-14317: WildFly: With JBoss EAP, the race condition on process identification number (PID) files lets local users terminate arbitrary processes.

CHAPTER 6. KNOWN ISSUES

See Known Issues for JBoss EAP 7.4 to view the list of known issues for this release.

6.1. CHANGED BEHAVIORS FOR JBOSS EAP 7.4

Setting OPENSHIFT_DNS_PING_SERVICE_NAME to an empty value results in boot error

Do not set **OPENSHIFT_DNS_PING_SERVICE_NAME** to an empty value. A boot error occurs and clustering is disabled.

Unpredictable web session expiration

Previously, JBoss EAP mistakenly recalculated some web session timeouts, and these sessions did not expire as specified in the web application configuration file (such as **web.xml**, **jboss-web.xml** or **jboss-all.xml**). JBoss EAP no longer performs this mistaken calculation, so web sessions now expire as specified in the application configuration.

Memory leaks in distributed JSF applications when caching managed beans in a WebInjectionContainer

JBoss EAP cluster membership changes, such as starting or stopping a server, can cause the events that correspond to a given session to resume on a different cluster member than the one that last handled those events. Specifically, **org.jboss.as.web.common.WebInjectionContainer** caches references to all managed beans and their references so that it can call **ManagedReference.release**, which causes a memory leak. This issue affects distributed Jakarta Server Faces (JSF) applications that use the JBoss EAP high-availability (HA) server configuration. References to session-scoped beans can persist after the associated HTTP session expires, if a different cluster member handles that expiration. As a workaround, change the **distributable-web** subsystem like in the following example:

```
/subsystem=distributable-web/infinispan-session-management=default/affinity=local:add
```

Java.lang.NullPointerException error when using ibm-java-1.8 and Bouncy Castle

If you're directly or indirectly using the Bouncy Castle provider with IBM JDK 1.8 on JBoss EAP, you might get the following error:

```
Caused by: java.lang.NullPointerException
 at
org.bouncycastle.jcajce.provider.asymmetric.rsa.BCRSAPrivateKey.getAlgorithm(BCRSAPrivateKey.java:79)
 at com.ibm.crypto.provider.bf.supportsParameter(Unknown Source)
 at javax.crypto.Cipher.a(Unknown Source)
 at javax.crypto.Cipher.init(Unknown Source)
 at javax.crypto.Cipher.init(Unknown Source)
 at
org.bouncycastle.operator.jcajce.JceAsymmetricKeyUnwrapper.generateUnwrappedKey(JceAsymmetricKeyUnwrapper.java:109)
 at
org.bouncycastle.cms.jcajce.JceKeyTransRecipient.extractSecretKey(JceKeyTransRecipient.java:208)

 at
org.bouncycastle.cms.jcajce.JceKeyTransEnvelopedRecipient.getRecipientOperator(JceKeyTransEnvelopedRecipient.java:26)
 at
org.bouncycastle.cms.KeyTransRecipientInformation.getRecipientOperator(KeyTransRecipientInformation.java:48)
 at org.bouncycastle.cms.RecipientInformation.getContentStream(RecipientInformation.java:169)
```

```
at org.bouncycastle.cms.RecipientInformation.getContent(RecipientInformation.java:150)
at org.jboss.resteasy.security.smime.EnvelopedInputImpl.getEntity(EnvelopedInputImpl.java:168)
... 76 more
```

To work around this issue, modify your JBoss EAP **module.xml** structure similarly to that of the WFLY-14688 diff, which you can access in the Additional resources section.

Additional resources

- For more information about working around this issue, see WFLY-14688 diff.
- For more information about Bouncy Castle cryptography APIs, see bouncycastle.org.

Revised on 2021-10-07 13:25:24 UTC