

JPMS (Java 9 and beyond)

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Introduction

One of the major features introduced along with Java 9 release is [JPMS](#): Java Platform Module System. As of now, Apache CXF modules are not built / released as Java modules however the work in this direction has been started.

Automatic-Module-Name

Starting from **3.2.5** release, all Apache CXF modules contain the **Automatic-Module-Name** manifest entry in order to provide stable and convenient way to reference them from the descriptors of the modular (JPMS-based) Java applications. The list of the modules and their **Automatic-Module-Name** is presented below.

The naming scheme has been adopted following the Stephen Colebourne recommendations (<http://blog.joda.org/2017/04/java-se-9-jpms-module-naming.html>) and based on package name.

Test Module	Automatic-Module-Name
cxf-distribution-manifest- <version> .jar	org.apache.cxf.manifest
cxf-bundle-compatible- <version> .jar	org.apache.cxf.bundle
cxf-codegen-plugin- <version> .jar	org.apache.cxf.plugin.codegen
cxf-corbatools-maven-plugin- <version> .jar	org.apache.cxf.plugin.corbatools
cxf-core- <version> .jar	org.apache.cxf.core
cxf-distribution-javadoc- <version> .jar	org.apache.cxf.javadoc
cxf-integration-cdi- <version> .jar	org.apache.cxf.cdi
cxf-integration-jca- <version> .jar	org.apache.cxf.jca
cxf-integration-tracing-brave- <version> .jar	org.apache.cxf.tracing.brave
cxf-integration-tracing-htrace- <version> .jar	org.apache.cxf.tracing.htrace
cxf-integration-tracing-opentracing- <version> .jar	org.apache.cxf.tracing.opentracing
cxf-java2swagger-plugin- <version> .jar	org.apache.cxf.plugin.java2swagger
cxf-java2wadi-plugin- <version> .jar	org.apache.cxf.plugin.java2wadi
cxf-java2ws-plugin- <version> .jar	org.apache.cxf.plugin.java2ws
cxf-karaf-commands- <version> .jar	org.apache.cxf.karaf.commands
cxf-rt-bindings-coloc- <version> .jar	org.apache.cxf.binding.coloc
cxf-rt-bindings-corba- <version> .jar	org.apache.cxf.binding.corba
cxf-rt-bindings-soap- <version> .jar	org.apache.cxf.binding.soap
cxf-rt-bindings-xml- <version> .jar	org.apache.cxf.binding.xml
cxf-rt-databinding-aegis- <version> .jar	org.apache.cxf.databinding.aegis
cxf-rt-databinding-jaxb- <version> .jar	org.apache.cxf.databinding.jaxb
cxf-rt-features-clustering- <version> .jar	org.apache.cxf.clustering
cxf-rt-features-logging- <version> .jar	org.apache.cxf.logging
cxf-rt-features-metrics- <version> .jar	org.apache.cxf.metrics
cxf-rt-features-throttling- <version> .jar	org.apache.cxf.throttling
cxf-rt-frontend-jaxrs- <version> .jar	org.apache.cxf.frontend.jaxrs

cxfrtfrontendjaxws- <version> .jar	org.apache.cxf.frontend.jaxws
cxfrtfrontendjs- <version> .jar	org.apache.cxf.frontend.js
cxfrtfrontendsimple- <version> .jar	org.apache.cxf.frontend.simple
cxfrtjavascript-3.2.5- <version> .jar	org.apache.cxf.js
cxfrtjavascripttests- <version> .jar	org.apache.cxf.js.tests
cxfrtmanagement- <version> .jar	org.apache.cxf.management
cxfrtrsclient- <version> .jar	org.apache.cxf.rs.client
cxfrtrsextensionproviders- <version> .jar	org.apache.cxf.rs.provider
cxfrtrsextensionreactivestreams- <version> .jar	org.apache.cxf.rs.reactivestreams
cxfrtrsextensionreactor- <version> .jar	org.apache.cxf.rs.reactor
cxfrtrsextensionrx2- <version> .jar	org.apache.cxf.rs.rx2
cxfrtrsextensionrx- <version> .jar	org.apache.cxf.rs.rx
cxfrtrsextensionsearch- <version> .jar	org.apache.cxf.rs.search
cxfrtrshttpsci- <version> .jar	org.apache.cxf.rs.sci
cxfrtrsjsonbasic- <version> .jar	org.apache.cxf.rs.json
cxfrtrsmpclient- <version> .jar	org.apache.cxf.rs.client.mp
cxfrtrssecuritycors- <version> .jar	org.apache.cxf.rs.security.cors
cxfrtrssecurityjose- <version> .jar	org.apache.cxf.rs.security.jose
cxfrtrssecurityjosejaxrs- <version> .jar	org.apache.cxf.rs.security.jose.jaxrs
cxfrtrssecurityoauth2- <version> .jar	org.apache.cxf.rs.security.oauth2
cxfrtrssecurityoauth2saml- <version> .jar	org.apache.cxf.rs.security.oauth2.saml
cxfrtrssecurityoauth- <version> .jar	org.apache.cxf.rs.security.oauth
cxfrtrssecurityssooidc- <version> .jar	org.apache.cxf.rs.security.sso.oidc
cxfrtrssecurityssosaml- <version> .jar	org.apache.cxf.rs.security.sso.saml
cxfrtrssecurityxml- <version> .jar	org.apache.cxf.rs.security.xml
cxfrtrs servicedescription- <version> .jar	org.apache.cxf.rs.wadl
cxfrtrs servicedescriptionopenapi-v3- <version> .jar	org.apache.cxf.rs.openapi.v3
cxfrtrs servicedescriptionswagger- <version> .jar	org.apache.cxf.rs.swagger
cxfrtrs servicedescriptionswaggerui- <version> .jar	org.apache.cxf.rs.swagger.ui
cxfrtrs-sse- <version> .jar	org.apache.cxf.rs.sse
cxfrtsecurity- <version> .jar	org.apache.cxf.security
cxfrtsecuritysaml- <version> .jar	org.apache.cxf.security.saml
cxfrttransports-http- <version> .jar	org.apache.cxf.transport.http
cxfrttransports-http-hc- <version> .jar	org.apache.cxf.transport.http.hc
cxfrttransports-http-jetty- <version> .jar	org.apache.cxf.transport.http.jetty
cxfrttransports-http-netty-client- <version> .jar	org.apache.cxf.transport.http.netty.client
cxfrttransports-http-netty-server- <version> .jar	org.apache.cxf.transport.http.netty.server
cxfrttransports-http-undertow- <version> .jar	org.apache.cxf.transport.http.undertow
cxfrttransports-jms- <version> .jar	org.apache.cxf.transport.jms
cxfrttransports-local- <version> .jar	org.apache.cxf.transport.local

cxfrttransportsudp-<version>.jar	org.apache.cxf.transport.udp
cxfrttransportswebsocket-<version>.jar	org.apache.cxf.transport.websocket
cxfrtwsaddr-<version>.jar	org.apache.cxf.ws.addr
cxfrtwsdl-<version>.jar	org.apache.cxf.wsdl
cxfrtwseventing-<version>.jar	org.apache.cxf.ws.eventing
cxfrtws-mex-<version>.jar	org.apache.cxf.ws.mex
cxfrtws-policy-<version>.jar	org.apache.cxf.ws.policy
cxfrtws-rm-<version>.jar	org.apache.cxf.ws.rm
cxfrtws-security-<version>.jar	org.apache.cxf.ws.security
cxfrtws-transfer-<version>.jar	org.apache.cxf.ws.transfer
cxfservicessts-core-<version>.jar	org.apache.cxf.sts.core
cxfservicesws-discovery-api-<version>.jar	org.apache.cxf.ws.discovery
cxfservicesws-discovery-service-<version>.jar	org.apache.cxf.ws.discovery.service
cxfserviceswsn-api-<version>.jar	org.apache.cxf.wsn
cxfserviceswsn-core-<version>.jar	org.apache.cxf.wsn.core
cxfserviceswsn-osgi-<version>.jar	org.apache.cxf.wsn.osgi
cxfservices-xkms-client-<version>.jar	org.apache.cxf.xkms.client
cxfservices-xkms-common-<version>.jar	org.apache.cxf.xkms.common
cxfservices-xkms-itests-<version>.jar	org.apache.cxf.xkms.itests
cxfservices-xkms-osgi-<version>.jar	org.apache.cxf.xkms.osgi
cxfservices-xkms-service-<version>.jar	org.apache.cxf.xkms.service
cxfservices-xkms-x509-handlers-<version>.jar	org.apache.cxf.xkms.x509.handlers
cxfservices-xkms-x509-repo-ldap-<version>.jar	org.apache.cxf.xkms.x509.ldap
cxfspringboot-autoconfigure-<version>.jar	org.apache.cxf.spring.boot.autoconfigure
cxfspringboot-starter-jaxrs-<version>.jar	org.apache.cxf.spring.boot.jaxrs
cxfspringboot-starter-jaxws-<version>.jar	org.apache.cxf.spring.boot.jaxws
cxftestutils-<version>.jar	org.apache.cxf.testutils
cxftools-common-<version>.jar	org.apache.cxf.tools.common
cxftools-corba-<version>.jar	org.apache.cxf.tools.corba
cxftools-java2ws-<version>.jar	org.apache.cxf.tools.java2ws
cxftools-misctools-<version>.jar	org.apache.cxf.tools.misc
cxftools-validator-<version>.jar	org.apache.cxf.tools.validator
cxftools-wadlto-jaxrs-<version>.jar	org.apache.cxf.tools.wadl
cxftools-wadlto-core-<version>.jar	org.apache.cxf.tools.wadl.core
cxftools-wadlto-databinding-jaxb-<version>.jar	org.apache.cxf.tools.wadl.jaxb
cxftools-wadlto-frontend-javascript-<version>.jar	org.apache.cxf.tools.wadl.js
cxftools-wadlto-frontend-jaxws-<version>.jar	org.apache.cxf.tools.wadl.jaxws
cxftools-wadlto-test-<version>.jar	org.apache.cxf.tools.wadl.test
cxfwadl2java-plugin-<version>.jar	org.apache.cxf.plugin.wadl2java
cxfwsdl-validator-plugin-<version>.jar	org.apache.cxf.wsdl.plugin.validator

Since we publish test artifacts as well, they have been enriched with **Automatic-Module-Name** manifest entry:

Test Module	Automatic-Module-Name
cxf-services-sts-systests-advanced- <version> .jar	org.apache.cxf.systests.sts.advanced
cxf-services-sts-systests-basic- <version> .jar	org.apache.cxf.systests.sts.basic
cxf-services-sts-systests-itests- <version> .jar	org.apache.cxf.systests.sts.integration
cxf-services-sts-systests-osgi- <version> .jar	org.apache.cxf.systests.sts.osgi
cxf-systests-cdi-base- <version> .jar	org.apache.cxf.systests.cdi.base
cxf-systests-cdi-base- <version> -tests.jar	org.apache.cxf.systests.cdi.base.tests
cxf-systests-cdi-owb-multiple-apps- <version> .jar	org.apache.cxf.systests.cdi.owb.multiapp
cxf-systests-cdi-owb-multiple-apps- <version> -tests.jar	org.apache.cxf.systests.cdi.owb.multiapp.tests
cxf-systests-cdi-owb-no-apps- <version> .jar	org.apache.cxf.systests.cdi.owb.noapp
cxf-systests-cdi-owb-no-apps- <version> -tests.jar	org.apache.cxf.systests.cdi.owb.noapp.tests
cxf-systests-cdi-owb-producers- <version> .jar	org.apache.cxf.systests.cdi.owb.producers
cxf-systests-cdi-owb-producers- <version> -tests.jar	org.apache.cxf.systests.cdi.owb.producers.tests
cxf-systests-cdi-weld-multiple-apps- <version> .jar	org.apache.cxf.systests.cdi.weld.multiapp
cxf-systests-cdi-weld-multiple-apps- <version> -tests.jar	org.apache.cxf.systests.cdi.weld.multiapp.tests
cxf-systests-cdi-weld-no-apps- <version> .jar	org.apache.cxf.systests.cdi.weld.noapp
cxf-systests-cdi-weld-no-apps- <version> -tests.jar	org.apache.cxf.systests.cdi.weld.noapp.tests
cxf-systests-cdi-weld-producers- <version> .jar	org.apache.cxf.systests.cdi.weld.producers
cxf-systests-cdi-weld-producers- <version> -tests.jar	org.apache.cxf.systests.cdi.weld.producers.tests
cxf-systests-ci-grizzly- <version> .jar	org.apache.cxf.systests.ci.grizzly
cxf-systests-codegen- <version> .jar	org.apache.cxf.systests.plugin.codegen
cxf-systests-databinding- <version> .jar	org.apache.cxf.systests.databinding
cxf-systests-databinding- <version> -tests.jar	org.apache.cxf.systests.databinding.tests
cxf-systests-http-sci- <version> .jar	org.apache.cxf.systests.rs.sci
cxf-systests-java2ws- <version> .jar	org.apache.cxf.systests.plugin.java2ws
cxf-systests-http-sci- <version> -tests.jar	org.apache.cxf.systests.rs.sci.tests
cxf-systests-jaxrs- <version> .jar	org.apache.cxf.systests.jaxrs
cxf-systests-jaxrs- <version> -tests.jar	org.apache.cxf.systests.jaxrs.tests
cxf-systests-jaxws- <version> .jar	org.apache.cxf.systests.jaxws
cxf-systests-jaxws- <version> -tests.jar	org.apache.cxf.systests.jaxws.tests
cxf-systests-kerberos- <version> .jar	org.apache.cxf.systests.kerberos
cxf-systests-kerberos- <version> -tests.jar	org.apache.cxf.systests.kerberos.tests
cxf-systests-ldap- <version> .jar	org.apache.cxf.systests.ldap
cxf-systests-ldap- <version> -tests.jar	org.apache.cxf.systests.ldap.tests
cxf-systests-microprofile-weld- <version> .jar	org.apache.cxf.systests.microprofile.weld
cxf-systests-rs-security- <version> .jar	org.apache.cxf.systests.security
cxf-systests-rs-security- <version> -tests.jar	org.apache.cxf.systests.security.tests
cxf-systests-rs-sse-base- <version> .jar	org.apache.cxf.systests.rs.sse.base

cxf-systests-rs-sse-base- <version> -tests.jar	org.apache.cxf.systests.rs.sse.base.tests
cxf-systests-rs-sse-jetty- <version> .jar	org.apache.cxf.systests.rs.sse.jetty
cxf-systests-rs-sse-jetty- <version> -tests.jar	org.apache.cxf.systests.rs.sse.jetty.tests
cxf-systests-rs-sse-tomcat- <version> .jar	org.apache.cxf.systests.rs.sse.tomcat
cxf-systests-rs-sse-tomcat- <version> -tests.jar	org.apache.cxf.systests.rs.sse.tomcat.tests
cxf-systests-rs-sse-undertow- <version> .jar	org.apache.cxf.systests.rs.sse.undertow
cxf-systests-rs-sse-undertow- <version> -tests.jar	org.apache.cxf.systests.rs.sse.undertow.tests
cxf-systests-tracing- <version> .jar	org.apache.cxf.systests.tracing
cxf-systests-tracing- <version> -tests.jar	org.apache.cxf.systests.tracing.tests
cxf-systests-transport-jms- <version> .jar	org.apache.cxf.systests.transport.jms
cxf-systests-transport-jms- <version> -tests.jar	org.apache.cxf.systests.transport.jms.tests
cxf-systests-transports- <version> .jar	org.apache.cxf.systests.transport
cxf-systests-transports- <version> -tests.jar	org.apache.cxf.systests.transport.tests
cxf-systests-transports-ssl3- <version> .jar	org.apache.cxf.systests.transport.ssl3
cxf-systests-transports-ssl3- <version> -tests.jar	org.apache.cxf.systests.transport.ssl3.tests
cxf-systests-transport-undertow- <version> .jar	org.apache.cxf.systests.transport.undertow
cxf-systests-transport-undertow- <version> -tests.jar	org.apache.cxf.systests.transport.undertow.tests
cxf-systests-uncategorized- <version> .jar	org.apache.cxf.systests.uncategorized
cxf-systests-uncategorized- <version> -tests.jar	org.apache.cxf.systests.uncategorized.tests
cxf-systests-ws-rm- <version> .jar	org.apache.cxf.systests.ws.rm
cxf-systests-ws-security- <version> .jar	org.apache.cxf.systests.ws.security
cxf-systests-ws-security- <version> -tests.jar	org.apache.cxf.systests.ws.security.tests
cxf-systests-ws-security- <version> .jar	org.apache.cxf.systests.ws.security.examples
cxf-systests-ws-security- <version> -tests.jar	org.apache.cxf.systests.ws.security.examples.tests
cxf-systests-ws-specs- <version> .jar	org.apache.cxf.systests.ws.specs
cxf-systests-ws-specs- <version> -tests.jar	org.apache.cxf.systests.ws.specs.tests
cxf-systests-ws-transfer- <version> .jar	org.apache.cxf.systests.ws.transfer

Example Usage

Here is a quick example of using Apache CXF SSE capabilities from modular Java application through the **module-info.java** descriptor.

```
module sample.sse {  
    ...  
  
    requires org.apache.cxf.frontend.jaxrs;  
    requires org.apache.cxf.transport.http;  
    requires org.apache.cxf.rs.sse;  
    requires com.fasterxml.jackson.jaxrs.json;  
    requires com.fasterxml.jackson.annotation;  
    requires io.reactivex.rxjava2;  
  
    requires transitive java.ws.rs;  
    requires transitive org.reactivestreams;  
  
    requires javax.servlet.api;  
    requires jetty.server;  
    requires jetty.servlet;  
    requires jetty.util;  
  
    requires java.xml.bind;  
}
```