

External Dependencies of Java Artifacts with Neo4j

References

- [jqassistant](#)
- [py2neo](#)

External Package Usage

Table 1 - Top 20 most used external packages overall

A package is categorized as "external" if it is utilized as a dependency, or if any of its enclosed types are used as dependencies, but the code within it has not been analyzed. This would also apply to all build-in Java types, but they are explicitly filtered out here.

The aforementioned classification encompasses external annotation dependencies as well. These dependencies introduce significantly less interdependency and are not indispensable for compiling code. On the other hand they would also lose their effectiveness. Hence, they are included in the overall view for reference purposes.

The *numberOfExternalTypeCaller* refers to the distinct types that make use of the external package, while the *numberOfExternalTypeCalls* includes every invocation or reference to the types in the package. The *allTypes* column represents the total count of all analyzed types in general.

Lastly, the *externalTypeNames* list enumerates the specific types within the external package that are actually utilized.

	externalPackageName	numberOfExternalTypeCaller	numberOfExternalTypeCalls	allTypes	externalTypeNames
0	javax.annotation	319	1381	2489	[Nonnull, Nullable, PreDestroy]
1	org.slf4j	191	536	2489	[Logger, LoggerFactory]
2	javax.persistence	71	330	2489	[IdClass, MappedSuperclass, Id, Entity, Index,...]
3	jakarta.persistence	66	324	2489	[Id, IdClass, MappedSuperclass, Table, Entity,...]
4	org.hamcrest	61	498	2489	[CoreMatchers, Matcher, Description, StringDes...]
5	com.fasterxml.jackson.annotation	54	84	2489	[JsonGetter, JsonProperty, JsonTypeInfo\$Id, Js...]
6	org.quartz	37	226	2489	[JobDataMap, Job, Scheduler, SchedulerContext,...]
7	reactor.core.publisher	33	149	2489	[Flux, Mono, FluxSink\$OverflowStrategy, FluxSi...]
8	com.fasterxml.jackson.databind	15	73	2489	[DeserializationContext, JsonSerializer, Jso...]
9	org.reactivestreams	13	41	2489	[Publisher]
10	com.thoughtworks.xstream.io	9	46	2489	[HierarchicalStreamWriter, HierarchicalStreamR...]
11	com.lmax.disruptor	9	29	2489	[RingBuffer, LifecycleAware, EventHandler, Wai...]
12	javax.cache.event	8	34	2489	[CacheEntryEventFilter, CacheEntryListener, Ca...]
13	javax.sql	6	24	2489	[DataSource]
14	com.thoughtworks.xstream.converters	6	12	2489	[UnmarshallingContext, MarshallingContext]
15	nu.xom	5	16	2489	[Document, ParsingException, Builder]
16	net.sf.ehcache	5	63	2489	[Element, Ehcache, CacheException]
17	com.lmax.disruptor.dsl	5	22	2489	[EventHandlerGroup, Disruptor, ProducerType]
18	com.thoughtworks.xstream.mapper	5	10	2489	[Mapper, CannotResolveClassException]
19	javax.validation	5	22	2489	[Validator, Validation, ValidatorFactory, Cons...]

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External Package Usage

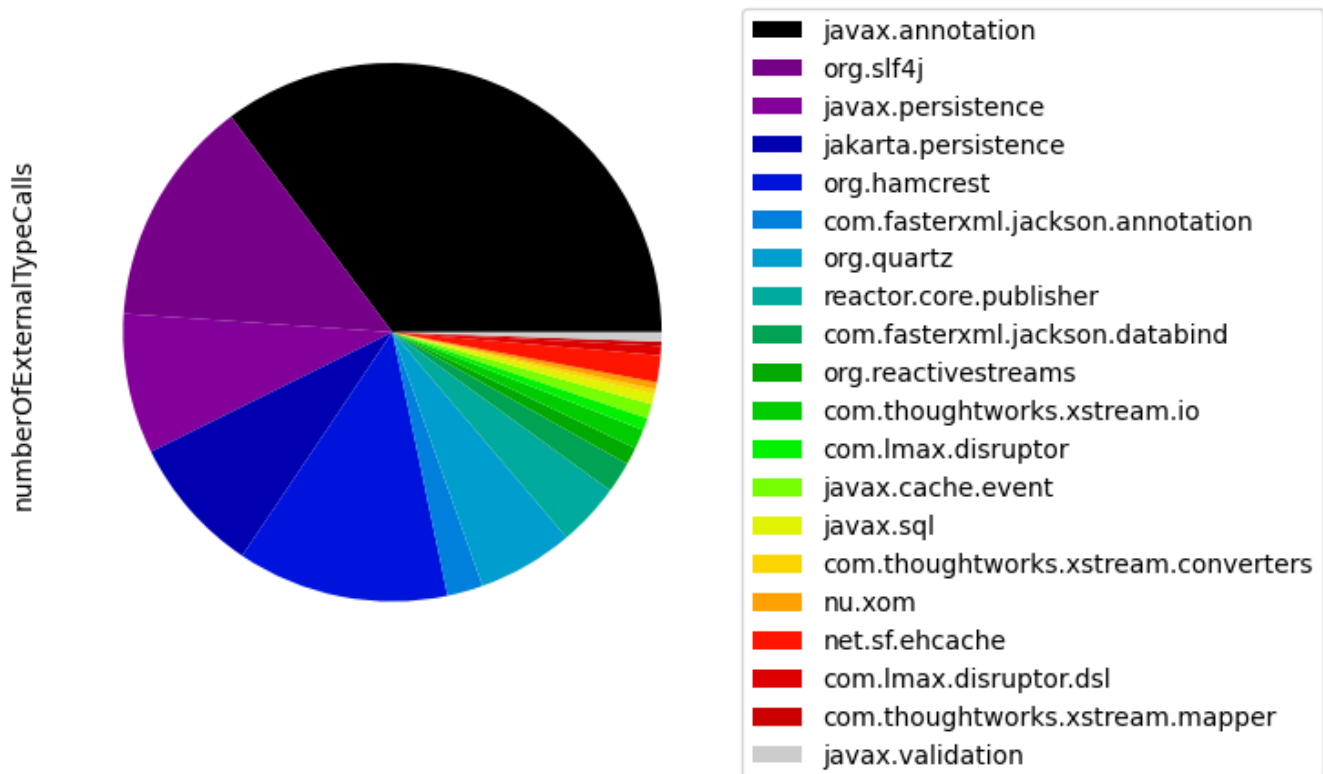


Table 2 - Top 20 least used external packages overall

	externalPackageName	numberOfExternalTypeCalls
0	org.junit.rules	1
1	org.junit.jupiter.api	1
2	javax.xml.stream	2
3	org.junit.runner	2
4	reactor.core	2
5	org.testcontainers.containers.wait.strategy	2
6	com.fasterxml.jackson.datatype.jsr310	2
7	org.quartz.impl.matchers	2
8	org.dom4j.io	3
9	reactor.util.concurrent	3
10	com.fasterxml.jackson.databind.type	3
11	com.fasterxml.jackson.databind.jsontype	3
12	com.fasterxml.jackson.databind.module	3
13	org.junit.jupiter.api.extension	6
14	reactor.util.context	7
15	com.thoughtworks.xstream.converters.collections	7
16	org.testcontainers.containers	8
17	org.junit.runners.model	8
18	net.sf.ehcache.event	9
19	com.thoughtworks.xstream.mapper	10

Table 3 - External usage per artifact

	artifactName	externalPackageName	numberOfExternalTypeCaller	numberOfExternalTypeCalls	numberOfTypesInArtifact	externalTypeNames
0	axon-configuration-4.7.5	javax.annotation	12	104	39	[Nonnull]
1	axon-configuration-4.7.5	org.slf4j	9	28	39	[Logger, LoggerFactory]
2	axon-disruptor-4.7.5	org.slf4j	12	22	22	[LoggerFactory, Logger]
3	axon-disruptor-4.7.5	com.lmax.disruptor	9	29	22	[RingBuffer, EventHandler, WaitStrategy, Block...]
4	axon-disruptor-4.7.5	javax.annotation	6	23	22	[Nonnull]
...
61	axon-test-4.7.5	org.testcontainers.containers.wait.strategy	2	2	85	[Wait]
62	axon-test-4.7.5	org.testcontainers.containers	2	8	85	[GenericContainer]
63	axon-test-4.7.5	org.junit.jupiter.api	1	1	85	[Assertions]
64	axon-test-4.7.5	org.junit.rules	1	1	85	[TestRule]
65	axon-test-4.7.5	org.junit.runner	1	2	85	[Description]

66 rows × 6 columns

Table 4 - External usage per artifact and package

	artifactName	fullPackageName	externalPackageName	numberOfExternalTypeCaller	numberOfExternalTypeCalls	numberOfTypesInI
0	axon-test-4.7.5	org.axonframework.test.matchers	org.hamcrest	38	188	
1	axon-messaging-4.7.5	org.axonframework.queryhandling	reactor.core.publisher	26	115	
2	axon-messaging-4.7.5	org.axonframework.eventhandling.scheduling.quartz	org.quartz	19	95	
3	axon-messaging-4.7.5	org.axonframework.deadline.quartz	org.quartz	18	131	
4	axon-messaging-4.7.5	org.axonframework.eventhandling	org.slf4j	15	55	
...	
119	axon-modelling-4.7.5	org.axonframework.modelling.saga.repository.jdbc	javax.sql	1	2	
120	axon-modelling-4.7.5	org.axonframework.modelling.saga.repository.jpa	javax.persistence	1	2	
121	axon-test-4.7.5	org.axonframework.test.aggregate	org.junit.rules	1	1	
122	axon-test-4.7.5	org.axonframework.test.aggregate	org.junit.runner	1	2	
123	axon-test-4.7.5	org.axonframework.test.saga	org.junit.jupiter.api	1	1	

124 rows × 8 columns

Table 5 - Top 20 external package usage per type

	artifactName	fullPackageName	typeName	numberOfExternalTypeCaller	numberOfExternalType
0	axon-messaging-4.7.5	org.axonframework.serialization.json	JacksonSerializer	9	
1	axon-messaging-4.7.5	org.axonframework.serialization.xml	XStreamSerializer	7	
2	axon-disruptor-4.7.5	org.axonframework.disruptor.commandhandling	DisruptorCommandBus\$DisruptorRepository	4	
3	axon-disruptor-4.7.5	org.axonframework.disruptor.commandhandling	DisruptorCommandBus	6	
4	axon-messaging-4.7.5	org.axonframework.deadline.quartz	QuartzDeadlineManager	13	
5	axon-messaging-4.7.5	org.axonframework.messaging.responsetypes	MultipleInstancesResponseType	7	
6	axon-messaging-4.7.5	org.axonframework.queryhandling	SimpleQueryBus	6	
7	axon-messaging-4.7.5	org.axonframework.queryhandling	SimpleQueryUpdateEmitter	13	
8	axon-messaging-4.7.5	org.axonframework.serialization	GapAwareTrackingTokenConverter\$ReflectivelyCon...	6	
9	axon-messaging-4.7.5	org.axonframework.serialization	GapAwareTrackingTokenConverter	6	
10	axon-messaging-4.7.5	org.axonframework.serialization	AbstractXStreamSerializer\$MetaDataConverter	6	
11	axon-messaging-4.7.5	org.axonframework.serialization.json	MetaDataDeserializer	6	
12	axon-disruptor-4.7.5	org.axonframework.disruptor.commandhandling	DisruptorCommandBus\$ExceptionHandler	3	
13	axon-disruptor-4.7.5	org.axonframework.disruptor.commandhandling	BlacklistDetectingCallback	4	
14	axon-eventsourcing-4.7.5	org.axonframework.eventsourcing.eventstore.jpa	SQLExceptionCodesResolver	4	
15	axon-eventsourcing-4.7.5	org.axonframework.eventsourcing.eventstore.jpa	JpaEventStorageEngine	6	
16	axon-eventsourcing-4.7.5	org.axonframework.eventsourcing.eventstore.leg...	JpaEventStorageEngine	6	
17	axon-eventsourcing-4.7.5	org.axonframework.eventsourcing.eventstore.leg...	SQLExceptionCodesResolver	4	
18	axon-messaging-4.7.5	org.axonframework.deadline.jobrunr	JobRunrDeadlineManager	5	
19	axon-messaging-4.7.5	org.axonframework.eventhandling.deadletter.jpa	JpaSequencedDeadLetterQueue	7	

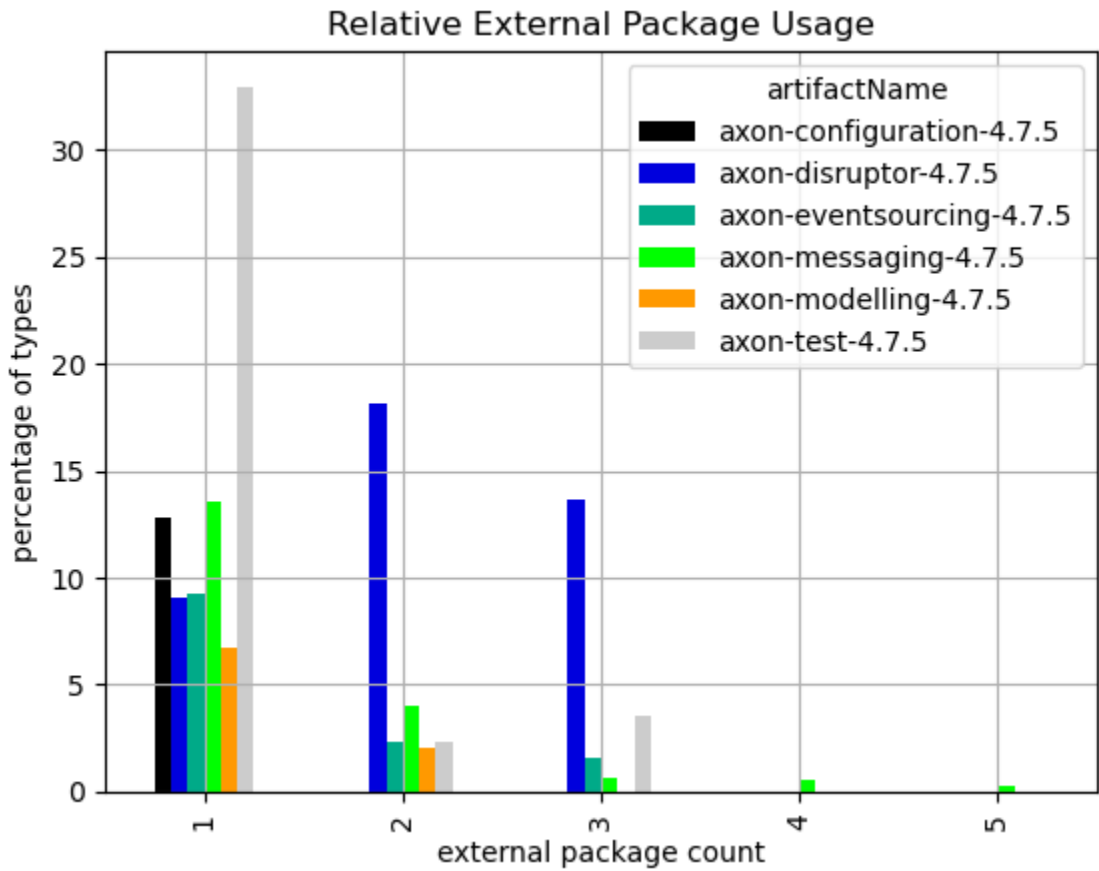
Table 6 - External package usage distribution per type

The table shown here only includes the first 20 rows at most which typically represents the most significant entries. Have a look above to find out which types have the highest external package dependency usage.

	artifactName	artifactTypes	numberOfExternalPackages	numberOfTypes	numberOfTypesPercentage
0	axon-configuration-4.7.5	39	1	5	12.820513
1	axon-disruptor-4.7.5	22	1	2	9.090909
2	axon-disruptor-4.7.5	22	2	4	18.181818
3	axon-disruptor-4.7.5	22	3	3	13.636364
4	axon-eventsourcing-4.7.5	130	1	12	9.230769
5	axon-eventsourcing-4.7.5	130	2	3	2.307692
6	axon-eventsourcing-4.7.5	130	3	2	1.538462
7	axon-messaging-4.7.5	729	1	99	13.580247
8	axon-messaging-4.7.5	729	2	29	3.978052
9	axon-messaging-4.7.5	729	3	5	0.685871
10	axon-messaging-4.7.5	729	4	4	0.548697
11	axon-messaging-4.7.5	729	5	2	0.274348
12	axon-modelling-4.7.5	149	1	10	6.711409
13	axon-modelling-4.7.5	149	2	3	2.013423
14	axon-test-4.7.5	85	1	28	32.941176
15	axon-test-4.7.5	85	2	2	2.352941
16	axon-test-4.7.5	85	3	3	3.529412

artifactName	axon-configuration-4.7.5	axon-disruptor-4.7.5	axon-eventsourcing-4.7.5	axon-messaging-4.7.5	axon-modelling-4.7.5	axon-test-4.7.5
numberOfExternalPackages						
1	12.820513	9.090909	9.230769	13.580247	6.711409	32.941176
2	0.000000	18.181818	2.307692	3.978052	2.013423	2.352941
3	0.000000	13.636364	1.538462	0.685871	0.000000	3.529412
4	0.000000	0.000000	0.000000	0.548697	0.000000	0.000000
5	0.000000	0.000000	0.000000	0.274348	0.000000	0.000000

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Maven POMs

Table 7 - Maven POMs and their declared dependencies

	pom.artifactId	pom.name	scope	dependency.optional	dependentArtifact.group	dependentArtifact.name
0	axon-configuration	Axon Framework - Configuration	default	True	jakarta.annotation	jakarta.annotation-api
1	axon-configuration	Axon Framework - Configuration	test	False	javax.inject	javax.inject
2	axon-configuration	Axon Framework - Configuration	test	True	io.projectreactor	reactor-core
3	axon-configuration	Axon Framework - Configuration	test	False	org.hsqldb	hsqldb
4	axon-configuration	Axon Framework - Configuration	provided	False	com.google.code.findbugs	jsr305
...
104	axon-test	Axon Framework - Test Fixtures	default	False	\${project.groupId}	axon-eventsourcing
105	axon-test	Axon Framework - Test Fixtures	default	True	org.hamcrest	hamcrest
106	axon-test	Axon Framework - Test Fixtures	default	True	junit	junit
107	axon-test	Axon Framework - Test Fixtures	test	False	jakarta.persistence	jakarta.persistence-api
108	axon-test	Axon Framework - Test Fixtures	default	True	org.testcontainers	testcontainers

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