Internal Dependencies

References

- Analyze java package metrics in a graph database
- Calculate metrics
- Neo4j Python Driver

Artifacts

List the artifacts this notebook is based on. Different sorting variations help finding artifacts by their features and support larger code bases where the list of all artifacts gets too long.

Only the top 30 entries are shown. The whole table can be found in the following CSV report: `List_all_Java_artifacts`

Table 1a - Top 30 artifacts with the highest package count

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-messaging-4.10.1.jar	64	787	8	0
1	axon-server-connector-4.10.1.jar	11	132	1	4
2	axon-modelling-4.10.1.jar	10	158	6	1
3	axon-eventsourcing-4.10.1.jar	9	133	5	2
4	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
5	axon-test-4.10.1.jar	8	87	1	3
6	axon-configuration-4.10.1.jar	1	41	2	4
7	axon-disruptor-4.10.1.jar	1	22	1	3
8	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1

Table 1b - Top 30 artifacts with the highest type count

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-messaging-4.10.1.jar	64	787	8	0
1	axon-modelling-4.10.1.jar	10	158	6	1
2	axon-eventsourcing-4.10.1.jar	9	133	5	2
3	axon-server-connector-4.10.1.jar	11	132	1	4
4	axon-test-4.10.1.jar	8	87	1	3
5	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
6	axon-configuration-4.10.1.jar	1	41	2	4
7	axon-disruptor-4.10.1.jar	1	22	1	3
8	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1

Table 1c - Top 30 artifacts with the highest number of incoming dependencies

The following table lists the top 30 artifacts that are used the most by other artifacts (highest count of incoming dependencies, highest in-degree).

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-messaging-4.10.1.jar	64	787	8	0
1	axon-modelling-4.10.1.jar	10	158	6	1
2	axon-eventsourcing-4.10.1.jar	9	133	5	2
3	axon-configuration-4.10.1.jar	1	41	2	4
4	axon-disruptor-4.10.1.jar	1	22	1	3
5	axon-server-connector-4.10.1.jar	11	132	1	4
6	axon-test-4.10.1.jar	8	87	1	3
7	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
8	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7

Table 1d - Top 30 artifacts with the highest number of outgoing dependencies

The following table lists the top 30 artifacts that are depending on the highest number of other artifacts (highest count of outgoing dependencies, highest out-degree).

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
1	axon-configuration-4.10.1.jar	1	41	2	4
2	axon-server-connector-4.10.1.jar	11	132	1	4
3	axon-disruptor-4.10.1.jar	1	22	1	3
4	axon-test-4.10.1.jar	8	87	1	3
5	axon-eventsourcing-4.10.1.jar	9	133	5	2
6	axon-modelling-4.10.1.jar	10	158	6	1
7	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
8	axon-messaging-4.10.1.jar	64	787	8	0

Table 1e - Top 30 artifacts with the lowest package count

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-configuration-4.10.1.jar	1	41	2	4
1	axon-disruptor-4.10.1.jar	1	22	1	3
2	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
3	axon-test-4.10.1.jar	8	87	1	3
4	axon-eventsourcing-4.10.1.jar	9	133	5	2
5	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
6	axon-modelling-4.10.1.jar	10	158	6	1
7	axon-server-connector-4.10.1.jar	11	132	1	4
8	axon-messaging-4.10.1.jar	64	787	8	0

Table 1f - Top 30 artifacts with the lowest type count

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
1	axon-disruptor-4.10.1.jar	1	22	1	3
2	axon-configuration-4.10.1.jar	1	41	2	4
3	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
4	axon-test-4.10.1.jar	8	87	1	3
5	axon-server-connector-4.10.1.jar	11	132	1	4
6	axon-eventsourcing-4.10.1.jar	9	133	5	2
7	axon-modelling-4.10.1.jar	10	158	6	1
8	axon-messaging-4.10.1.jar	64	787	8	0

Table 1g - Top 30 artifacts with the lowest number of incoming dependencies

The following table lists the top 30 artifacts that are used the least by other artifacts (lowest count of incoming dependencies, lowest in-degree).

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7
1	axon-disruptor-4.10.1.jar	1	22	1	3
2	axon-server-connector-4.10.1.jar	11	132	1	4
3	axon-test-4.10.1.jar	8	87	1	3
4	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
5	axon-configuration-4.10.1.jar	1	41	2	4
6	axon-eventsourcing-4.10.1.jar	9	133	5	2
7	axon-modelling-4.10.1.jar	10	158	6	1
8	axon-messaging-4.10.1.jar	64	787	8	0

Table 1h - Top 30 artifacts with the lowest number of outgoing dependencies

The following table lists the top 30 artifacts that are depending on the lowest number of other artifacts (lowest count of outgoing dependencies, lowest out-degree).

	artifactName	packages	types	incomingDependencies	outgoingDependencies
0	axon-messaging-4.10.1.jar	64	787	8	0
1	axon-modelling-4.10.1.jar	10	158	6	1
2	axon-tracing-opentelemetry-4.10.1.jar	1	5	1	1
3	axon-eventsourcing-4.10.1.jar	9	133	5	2
4	axon-disruptor-4.10.1.jar	1	22	1	3
5	axon-test-4.10.1.jar	8	87	1	3
6	axon-configuration-4.10.1.jar	1	41	2	4
7	axon-server-connector-4.10.1.jar	11	132	1	4
8	axon-spring-boot-autoconfigure-4.10.1.jar	9	75	0	7

Cyclic Dependencies

Cyclic dependencies occur when one package uses a class of another package and vice versa. These dependencies can lead to problems when one of these packages needs to be changed.

Table 2a - Cyclic Dependencies Overview

Show the top 40 cyclic dependencies sorted by the most promising to resolve first. This is done by calculating the number of forward dependencies (first cycle participant to second cycle participant) in relation to backward dependencies (second cycle participant back to first cycle participant). The higher this rate (approaching 1), the easier it should be to resolve the cycle by focussing on the few backward dependencies.

Only the top 40 entries are shown. The whole table can be found in the following CSV report: `Cyclic_Dependencies`

Columns:

- *artifactName* identifies the artifact of the first participant of the cycle
- *packageName* identifies the package of the first participant of the cycle
- *dependentArtifactName* identifies the artifact of the second participant of the cycle
- *dependentPackageName* identifies the package of the second participant of the cycle
- *forwardToBackwardBalance* is between 0 and 1. High for many forward and few backward dependencies.
- *numberForward* contains the number of dependencies from the first participant of the cycle to the second one
- *numberBackward* contains the number of dependencies from the second participant of the cycle back to the first one
- *someForwardDependencies* lists some forward dependencies in the text format "type1 -> type2"
- *backwardDependencies* lists the backward dependencies in the format "type1 <- type2" that are recommended to get resolved

	artifactName	packageName	dependentArtifactName	dependentPackageName	forwardToBackwardBalance
0	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	0.900000
1	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	0.882353
2	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.tracing	0.875000
3	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging	0.857143
4	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging.annotation	0.840000
5	axon-messaging-4.10.1	org.axonframework.deadline	axon-messaging-4.10.1	org.axonframework.tracing	0.800000
6	axon-messaging-4.10.1	org.axonframework.commandhandling	axon-messaging-4.10.1	org.axonframework.tracing	0.777778
7	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing.eventstore	0.777778
8	axon-messaging-4.10.1	org.axonframework.commandhandling.callbacks	axon-messaging-4.10.1	org.axonframework.commandhandling	0.733333
9	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.util	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	0.666667
10	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.serialization	0.647059
11	axon-messaging-4.10.1	org.axonframework.messaging.unitofwork	axon-messaging-4.10.1	org.axonframework.messaging	0.647059
12	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	0.615385
13	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	0.571429
14	axon-messaging-4.10.1	org.axonframework.eventhandling.async	axon-messaging-4.10.1	org.axonframework.eventhandling	0.538462
15	axon-messaging-4.10.1	org.axonframework.eventhandling.replay	axon-messaging-4.10.1	org.axonframework.eventhandling	0.454545
16	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.util	0.333333
17	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query.s...	0.333333
18	axon-messaging-4.10.1	org.axonframework.serialization.upcasting.event	axon-messaging-4.10.1	org.axonframework.eventhandling	0.333333
19	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing.eventstore.jdbc	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing.eventstore.jdb...	0.317073
20	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.eventhandling.tokenstore	0.285714
21	axon-modelling-4.10.1	org.axonframework.modelling.command.inspection	axon-modelling-4.10.1	org.axonframework.modelling.command	0.250000
22	axon-messaging-4.10.1	org.axonframework.queryhandling.registration	axon-messaging-4.10.1	org.axonframework.queryhandling	0.250000
23	axon-messaging-4.10.1	org.axonframework.messaging	axon-messaging-4.10.1	org.axonframework.serialization	0.238095
24	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.command	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	0.222222
25	axon-messaging-4.10.1	org.axonframework.messaging.annotation	axon-messaging-4.10.1	org.axonframework.messaging.interceptors	0.200000

	artifactName	packageName	dependentArtifactName	dependentPackageName	forwardToBackwardBalance
26	axon-modelling-4.10.1	org.axonframework.modelling.saga	axon-modelling-4.10.1	org.axonframework.modelling.saga.metamodel	0.142857
27	axon-messaging-4.10.1	org.axonframework.commandhandling.distributed....	axon-messaging-4.10.1	org.axonframework.commandhandling.distributed	0.076923

Table 2b - Cyclic Dependencies Break Down

Lists packages with cyclic dependencies with every dependency in a separate row sorted by the most promising dependency first.

Only the top 40 entries are shown. The whole table can be found in the following CSV report: `Cyclic_Dependencies_Breakdown`

Columns in addition to Table 2a:

- *dependency* shows the cycle dependency in the text format "type1 -> type2" (forward) or "type2<-type1" (backward)

	artifactName	packageName	dependentArtifactName	dependentPackageName	dependency	forward
0	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventBus$Builder->NoOpSpanFactory	
1	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventProcessor->Span	
2	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventProcessorSpanFactory->SpanFactory	
3	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventProcessor$Builder->NoOpSpanFactory	
4	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	EventMessage<-NestingSpanFactory	
5	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventBusSpanFactory->Span	
6	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventProcessor$Builder->SpanFactory	
7	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventProcessorSpanFactory->Span	
8	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventBusSpanFactory$Builder->SpanFactory	
9	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	EventProcessorSpanFactory->Span	
10	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventBus->SpanScope	
11	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventProcessorSpanFactory->NoOpSpanFact...	
12	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventBus$Builder->SpanFactory	
13	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventProcessorSpanFactory$Builder->Span...	
14	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	AbstractEventBus->Span	
15	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	SimpleEventBus$Builder->SpanFactory	
16	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultEventBusSpanFactory->SpanFactory	
17	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	SubscribingEventProcessor$Builder->SpanFactory	
18	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	TrackingEventProcessor$Builder->SpanFactory	
19	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	EventBusSpanFactory->Span	
20	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	QueryMessage->ResponseType	
21	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	GenericStreamingQueryMessage->ResponseType	
22	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	QuerySubscription->ResponseType	
23	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SimpleQueryUpdateEmitter->PublisherResponseType	
24	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SimpleQueryUpdateEmitter->MultipleInstancesRes...	
25	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SubscriptionQueryMessage->ResponseType	

	artifactName	packageName	dependentArtifactName	dependentPackageName	dependency	forward
26	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SimpleQueryUpdateEmitter->OptionalResponseType	
27	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	GenericStreamingQueryMessage->PublisherRespons...	
28	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	QueryGateway->ResponseTypes	
29	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	QueryGateway->ResponseType	
30	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	DefaultQueryGateway->ResponseType	
31	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SimpleQueryUpdateEmitter->ResponseType	
32	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	GenericQueryMessage->ResponseType	
33	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	QueryResponseMessage<-ConvertingResponseMessage	
34	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	StreamingQueryMessage->ResponseType	
35	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	SimpleQueryBus->ResponseType	
36	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	GenericSubscriptionQueryMessage->ResponseType	
37	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.tracing	QueryMessage<-SpanUtils	
38	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultQueryUpdateEmitterSpanFactory->Span	
39	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.tracing	DefaultQueryUpdateEmitterSpanFactory->SpanFactory	

Table 2c - Cyclic Dependencies Break Down - Backward Dependencies Only

Lists packages with cyclic dependencies with every dependency in a separate row sorted by the most promising dependency first. This table only contains the backward dependencies from the second participant of the cycle back to the first one that are the most promising to resolve.

Only the top 40 entries are shown. The whole table can be found in the following CSV report: `Cyclic_Dependencies_Breakdown_BackwardOnly`

	artifactName	packageName	dependentArtifactName	dependentPackageName	
0	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.tracing	EventMess
1	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.messaging.responsetypes	C Cor
2	axon-messaging-4.10.1	org.axonframework.queryhandling	axon-messaging-4.10.1	org.axonframework.tracing	C
3	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging	TrackingToken<-S
4	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging	Domai
5	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging	
6	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging.annotation	DomainEventMessage<-Sour
7	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.messaging.annotation	Aggreg
8	axon-messaging-4.10.1	org.axonframework.deadline	axon-messaging-4.10.1	org.axonframework.tracing	Dea
9	axon-messaging-4.10.1	org.axonframework.commandhandling	axon-messaging-4.10.1	org.axonframework.tracing	Com
10	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing.eventstore	EventStreamUtils<-Ab
11	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing	axon-eventsourcing-4.10.1	org.axonframework.eventsourcing.eventstore	EventStreamU
12	axon-messaging-4.10.1	org.axonframework.commandhandling.callbacks	axon-messaging-4.10.1	org.axonframework.commandhandling	LoggingCallback<-Sin
13	axon-messaging-4.10.1	org.axonframework.commandhandling.callbacks	axon-messaging-4.10.1	org.axonframework.commandhandling	NoOpCallback<-Sin
14	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.util	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	Excep
15	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.serialization	C Gap
16	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.serialization	GenericEventMessage<-
17	axon-messaging-4.10.1	org.axonframework.eventhandling	axon-messaging-4.10.1	org.axonframework.serialization	GenericDomainEventMessag
18	axon-messaging-4.10.1	org.axonframework.messaging.unitofwork	axon-messaging-4.10.1	org.axonframework.messaging	UnitOfWork
19	axon-messaging-4.10.1	org.axonframework.messaging.unitofwork	axon-messaging-4.10.1	org.axonframework.messaging	UnitOfWork<-M
20	axon-messaging-4.10.1	org.axonframework.messaging.unitofwork	axon-messaging-4.10.1	org.axonframework.messaging	CurrentUnit
21	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerEventStore$Bui
22	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerEventStoreFacto
23	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerEventStore<-Se
24	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerEventStoreFact
25	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.axon	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	EventProcessorInfoConfig

	artifactName	packageName	dependentArtifactName	dependentPackageName	
26	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerQueryDisp
27	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerRemote(
28	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerQueryBus$Builde
29	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerQueryBus<-Serv
30	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	QueryPriorityCalculator<
31	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	AxonServerNonTransientRem
32	axon-messaging-4.10.1	org.axonframework.eventhandling.async	axon-messaging-4.10.1	org.axonframework.eventhandling	SequencingPolicy<-S
33	axon-messaging-4.10.1	org.axonframework.eventhandling.async	axon-messaging-4.10.1	org.axonframework.eventhandling	SequencingPolicy<-SimpleI
34	axon-messaging-4.10.1	org.axonframework.eventhandling.async	axon-messaging-4.10.1	org.axonframework.eventhandling	SequentialPerAggregatePo
35	axon-messaging-4.10.1	org.axonframework.eventhandling.replay	axon-messaging-4.10.1	org.axonframework.eventhandling	GenericResetContext<-Ann
36	axon-messaging-4.10.1	org.axonframework.eventhandling.replay	axon-messaging-4.10.1	org.axonframework.eventhandling	ResetContext<-Annot
37	axon-messaging-4.10.1	org.axonframework.eventhandling.replay	axon-messaging-4.10.1	org.axonframework.eventhandling	Re
38	axon-server-connector-4.10.1	org.axonframework.axonserver.connector	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.event.util	ErrorCo
39	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query	axon-server-connector-4.10.1	org.axonframework.axonserver.connector.query.s...	GrpcBa

Interface Segregation Candidates

Well known from Design Principles and Design Patterns by Robert C. Martin, the *Interface Segregation Principle* suggests that software components should have narrow, focused interfaces rather than large, general-purpose ones. The goal is to minimize the dependencies between components and increase modularity, flexibility, and maintainability.

Smaller, focused and purpose-driven interfaces

- make it easier to modify individual components without affecting the rest of the system.
- make it clearer which client is affected by which change.
- don’t force their clients to depend on methods they don’t need.
- reduce the scope of changes since a change to one component doesn’t affect others.
- lead to a more loosely coupled architecture that is easier to understand and maintain.

Reference: Analyze java package metrics in a graph database

How to apply the results

If just one method of a type is used, especially in many places, then the result of this method can be used to call e.g. a method or constuct an object instead of using the whole object and then just calling that single method.

If there are a couple of methods that are used for a distinct purpose, those could be factored out into a separate interface. The original type can extended/implement the new interface so that there are no breaking changes. Then all the callers, that use only this group of methods, can be changed to the new interface.

Table 4 - Top 40 most used combinations of methods

The following table shows the top 40 most used combinations of methods of larger types that might benefit from applying the *Interface Segregation Principle*. The whole table can be found in the CSV report `Candidates_for_Interface_Segregation`.

	fullDependentTypeName	declaredMethods	calledMethodNames	calledMethods	callerTypes
0	org.axonframework.commandhandling.CommandMessage	9	[getCommandName]	1	20
1	org.axonframework.eventhandling.EventMessage	9	[getIdentifier, getTimestamp]	2	10
2	org.axonframework.eventhandling.DomainEventMes...	10	[getSequenceNumber]	1	9
3	org.axonframework.eventhandling.EventMessage	9	[getIdentifier]	1	9
4	org.axonframework.eventhandling.TrackedEventMe...	10	[trackingToken]	1	8
5	org.axonframework.commandhandling.GenericComma...	14	[asCommandResultMessage]	1	6
6	org.axonframework.eventhandling.DomainEventMes...	10	[getAggregateIdentifier, getType, getSequenceN...	3	6
7	org.axonframework.messaging.ResultMessage	9	[isExceptional, exceptionResult]	2	6
8	org.axonframework.eventhandling.ReplayToken	13	[createReplayToken]	1	5
9	org.axonframework.deadline.GenericDeadlineMessage	11	[asDeadlineMessage]	1	5
10	org.axonframework.eventhandling.DomainEventMes...	10	[getAggregateIdentifier]	1	5
11	org.axonframework.eventhandling.TrackedEventMe...	12	[trackingToken]	1	4
12	org.axonframework.deadline.DeadlineMessage	10	[getDeadlineName]	1	4
13	org.axonframework.eventhandling.DomainEventMes...	10	[getType]	1	4
14	org.axonframework.eventhandling.GenericEventMe...	10	[asEventMessage]	1	4
15	org.axonframework.deadline.DefaultDeadlineMana...	8	[builder]	1	4
16	org.axonframework.common.transaction.NoTransac...	4	[instance]	1	4
17	org.axonframework.queryhandling.SimpleQueryUpd...	17	[builder]	1	3
18	org.axonframework.commandhandling.GenericComma...	15	[asCommandResultMessage]	1	3
19	org.axonframework.eventhandling.ReplayToken	13	[isReplay]	1	3
20	org.axonframework.modelling.command.inspection...	13	[type]	1	3
21	org.axonframework.queryhandling.SubscriptionQu...	12	[getUpdateResponseType]	1	3
22	org.axonframework.eventhandling.DomainEventMes...	11	[getAggregateIdentifier, getType, getSequenceN...	3	3
23	org.axonframework.eventhandling.GenericEventMe...	11	[asEventMessage]	1	3
24	org.axonframework.queryhandling.SimpleQueryBus	11	[builder]	1	3
25	org.axonframework.eventhandling.DomainEventMes...	10	[getAggregateIdentifier, getSequenceNumber]	2	3
26	org.axonframework.eventhandling.GapAwareTracki...	10	[newInstance, withGapsTruncatedAt, advanceTo, ...	5	3
27	org.axonframework.queryhandling.DefaultQueryBu...	10	[builder]	1	3
28	org.axonframework.commandhandling.gateway.Defa...	9	[builder]	1	3
29	org.axonframework.config.Configuration	9	[getComponent]	1	3
30	org.axonframework.config.Configuration	9	[snapshotFilter, upcasterChain]	2	3
31	org.axonframework.eventhandling.EventMessage	9	[getTimestamp]	1	3
32	org.axonframework.messaging.MessageDecorator	9	[describeTo]	1	3
33	org.axonframework.queryhandling.QueryMessage	9	[getQueryName, getResponseType]	2	3
34	org.axonframework.commandhandling.DefaultComma...	5	[builder]	1	3
35	org.axonframework.eventhandling.TrackedEventData	5	[trackingToken]	1	3
36	org.axonframework.eventhandling.tokenstore.Con...	5	[get]	1	3
37	org.axonframework.eventhandling.DefaultEventBu...	4	[builder]	1	3
38	org.axonframework.queryhandling.DefaultQueryUp...	4	[builder]	1	3
39	org.axonframework.eventhandling.TrackerStatus	17	[getTrackingToken, split, getSegment]	3	2

Package Usage

Table 5 - Types that are used by multiple packages

This table shows the top 40 packages that are used by the highest number of different packages. The whole table can be found in the CSV report `List_types_that_are_used_by_many_different_packages`.

	fullQualifiedDependentTypeName	dependentTypeName	dependentTypeLabels	numberOfUsingPackages
0	org.axonframework.common.BuilderUtils	BuilderUtils	[Type, File, Java, ByteCode, Class, Mark4TopCe...	49
1	org.axonframework.common.AxonConfigurationExce...	AxonConfigurationException	[Type, File, Java, ByteCode, Class, Mark4TopCe...	42
2	org.axonframework.messaging.Message	Message	[Type, File, Java, ByteCode, GenericDeclaratio...	41
3	org.axonframework.messaging.MetaData	MetaData	[Type, File, Java, ByteCode, Class, Mark4TopCe...	39
4	org.axonframework.serialization.Serializer	Serializer	[Type, File, Java, ByteCode, Interface, Mark4T...	36
5	org.axonframework.eventhandling.EventMessage	EventMessage	[Type, File, Java, ByteCode, GenericDeclaratio...	35
6	org.axonframework.messaging.unitofwork.UnitOfWork	UnitOfWork	[Type, File, Java, ByteCode, GenericDeclaratio...	32
7	org.axonframework.common.transaction.Transacti...	TransactionManager	[Type, File, Java, ByteCode, Interface, Mark4T...	31
8	org.axonframework.common.Assert	Assert	[Type, File, Java, ByteCode, Class, Mark4TopCe...	29
9	org.axonframework.serialization.SerializedObject	SerializedObject	[Type, File, Java, ByteCode, GenericDeclaratio...	27
10	org.axonframework.serialization.SerializedType	SerializedType	[Type, File, Java, ByteCode, Interface, Mark4T...	27
11	org.axonframework.messaging.unitofwork.Current...	CurrentUnitOfWork	[Type, File, Java, ByteCode, Class, Mark4TopCe...	22
12	org.axonframework.common.Registration	Registration	[Type, File, Java, ByteCode, Interface, Mark4T...	22
13	org.axonframework.tracing.SpanFactory	SpanFactory	[Type, File, Java, ByteCode, Interface, Mark4T...	22
14	org.axonframework.lifecycle.Lifecycle	Lifecycle	[Type, File, Java, ByteCode, Interface, Mark4T...	20
15	org.axonframework.lifecycle.Lifecycle$Lifecycl...	Lifecycle$LifecycleRegistry	[Type, File, Java, ByteCode, Interface, Mark4T...	20
16	org.axonframework.common.ObjectUtils	ObjectUtils	[Type, File, Java, ByteCode, Class, Mark4TypeW...	20
17	org.axonframework.eventhandling.TrackingToken	TrackingToken	[Type, File, Java, ByteCode, Interface, Mark4T...	20
18	org.axonframework.eventhandling.DomainEventMes...	DomainEventMessage	[Type, File, Java, ByteCode, GenericDeclaratio...	19
19	org.axonframework.messaging.annotation.Paramet...	ParameterResolverFactory	[Type, File, Java, ByteCode, Interface, Mark4T...	19
20	org.axonframework.common.AxonNonTransientExcep...	AxonNonTransientException	[Type, File, Java, ByteCode, Class, Mark4TopCe...	18
21	org.axonframework.eventhandling.GenericEventMe...	GenericEventMessage	[Type, File, Java, ByteCode, Class, GenericDec...	18
22	org.axonframework.messaging.MessageDispatchInt...	MessageDispatchInterceptor	[Type, File, Java, ByteCode, GenericDeclaratio...	18
23	org.axonframework.messaging.MessageHandlerInte...	MessageHandlerInterceptor	[Type, File, Java, ByteCode, GenericDeclaratio...	18
24	org.axonframework.serialization.SimpleSerializ...	SimpleSerializedObject	[Type, File, Java, ByteCode, Class, GenericDec...	18
25	org.axonframework.tracing.NoOpSpanFactory	NoOpSpanFactory	[Type, File, Java, ByteCode, Class, Mark4TypeW...	17
26	org.axonframework.commandhandling.CommandMessage	CommandMessage	[Type, File, Java, ByteCode, GenericDeclaratio...	16
27	org.axonframework.eventhandling.EventBus	EventBus	[Type, File, Java, ByteCode, Interface, Mark4T...	15
28	org.axonframework.messaging.annotation.Handler...	HandlerDefinition	[Type, File, Java, ByteCode, Interface, Mark4T...	15
29	org.axonframework.common.transaction.NoTransac...	NoTransactionManager	[Type, File, Java, ByteCode, Enum, Mark4TypeWe...	15
30	org.axonframework.messaging.ResultMessage	ResultMessage	[Type, File, Java, ByteCode, GenericDeclaratio...	15
31	org.axonframework.tracing.Span	Span	[Type, File, Java, ByteCode, Interface, Mark4T...	15
32	org.axonframework.messaging.unitofwork.Default...	DefaultUnitOfWork	[Type, File, Java, ByteCode, Class, GenericDec...	14
33	org.axonframework.common.ReflectionUtils	ReflectionUtils	[Type, File, Java, ByteCode, Class, Mark4TypeW...	14
34	org.axonframework.eventhandling.TrackedEventMe...	TrackedEventMessage	[Type, File, Java, ByteCode, GenericDeclaratio...	13
35	org.axonframework.common.AxonException	AxonException	[Type, File, Java, ByteCode, Class, Mark4TopCe...	12
36	org.axonframework.common.DateTimeUtils	DateTimeUtils	[Type, File, Java, ByteCode, Class, Mark4TypeW...	12
37	org.axonframework.messaging.DefaultInterceptor...	DefaultInterceptorChain	[Type, File, Java, ByteCode, Class, GenericDec...	12
38	org.axonframework.eventhandling.GenericDomainE...	GenericDomainEventMessage	[Type, File, Java, ByteCode, Class, GenericDec...	12
39	org.axonframework.messaging.InterceptorChain	InterceptorChain	[Type, File, Java, ByteCode, Interface, Mark4T...	12

Table 6 - Packages that are used by multiple artifacts

This table shows the top 30 artifacts that only use a few (compared to all existing) packages of another artifact. The whole table can be found in the CSV report `ArtifactPackageUsage`.

	artifactName	dependentArtifactName	dependentPackages	dependentArtifactPackages	packageUsagePercentage	dependentFullQualifiedPackageNames
0	axon-tracing-opentelemetry-4.10.1	axon-messaging-4.10.1	3	64	0.046875	[org.axonframework.common, org.axonframework.t...
1	axon-server-connector-4.10.1	axon-modelling-4.10.1	1	10	0.100000	[org.axonframework.modelling.command]
2	axon-spring-boot-autoconfigure-4.10.1	axon-test-4.10.1	1	8	0.125000	[org.axonframework.test.server]
3	axon-disruptor-4.10.1	axon-messaging-4.10.1	9	64	0.140625	[org.axonframework.common, org.axonframework.m...
4	axon-test-4.10.1	axon-messaging-4.10.1	10	64	0.156250	[org.axonframework.common, org.axonframework.d...
5	axon-eventsourcing-4.10.1	axon-modelling-4.10.1	2	10	0.200000	[org.axonframework.modelling.command.inspectio...
6	axon-disruptor-4.10.1	axon-modelling-4.10.1	2	10	0.200000	[org.axonframework.modelling.command, org.axon...
7	axon-test-4.10.1	axon-eventsourcing-4.10.1	2	9	0.222222	[org.axonframework.eventsourcing, org.axonfram...
8	axon-disruptor-4.10.1	axon-eventsourcing-4.10.1	2	9	0.222222	[org.axonframework.eventsourcing.eventstore, o...
9	axon-modelling-4.10.1	axon-messaging-4.10.1	18	64	0.281250	[org.axonframework.messaging.annotation, org.a...
10	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	20	64	0.312500	[org.axonframework.common.transaction, org.axo...
11	axon-server-connector-4.10.1	axon-eventsourcing-4.10.1	3	9	0.333333	[org.axonframework.eventsourcing.eventstore, o...
12	axon-spring-boot-autoconfigure-4.10.1	axon-server-connector-4.10.1	4	11	0.363636	[org.axonframework.axonserver.connector, org.a...
13	axon-server-connector-4.10.1	axon-messaging-4.10.1	25	64	0.390625	[org.axonframework.messaging, org.axonframewor...
14	axon-configuration-4.10.1	axon-eventsourcing-4.10.1	4	9	0.444444	[org.axonframework.eventsourcing.snapshotting,...
15	axon-test-4.10.1	axon-modelling-4.10.1	5	10	0.500000	[org.axonframework.modelling.saga.repository, ...
16	axon-configuration-4.10.1	axon-messaging-4.10.1	34	64	0.531250	[org.axonframework.eventhandling.tokenstore.in...
17	axon-spring-boot-autoconfigure-4.10.1	axon-eventsourcing-4.10.1	5	9	0.555556	[org.axonframework.eventsourcing.eventstore, o...
18	axon-configuration-4.10.1	axon-modelling-4.10.1	6	10	0.600000	[org.axonframework.modelling.saga.repository, ...
19	axon-spring-boot-autoconfigure-4.10.1	axon-modelling-4.10.1	6	10	0.600000	[org.axonframework.modelling.saga, org.axonfra...
20	axon-modelling-4.10.1	axon-modelling-4.10.1	6	10	0.600000	[org.axonframework.modelling.saga, org.axonfra...
21	axon-spring-boot-autoconfigure-4.10.1	axon-messaging-4.10.1	39	64	0.609375	[org.axonframework.common.legacyjpa, org.axonf...
22	axon-test-4.10.1	axon-test-4.10.1	5	8	0.625000	[org.axonframework.test.eventscheduler, org.ax...
23	axon-messaging-4.10.1	axon-messaging-4.10.1	41	64	0.640625	[org.axonframework.common, org.axonframework.c...
24	axon-eventsourcing-4.10.1	axon-eventsourcing-4.10.1	7	9	0.777778	[org.axonframework.eventsourcing.eventstore, o...
25	axon-server-connector-4.10.1	axon-server-connector-4.10.1	9	11	0.818182	[org.axonframework.axonserver.connector, org.a...

	artifactName	dependentArtifactName	dependentPackages	dependentArtifactPackages	packageUsagePercentage	dependentFullQualifiedPackageNames
26	axon-spring-boot-autoconfigure-4.10.1	axon-spring-boot-autoconfigure-4.10.1	8	9	0.888889	[org.axonframework.actuator, org.axonframework...
27	axon-server-connector-4.10.1	axon-configuration-4.10.1	1	1	1.000000	[org.axonframework.config]
28	axon-spring-boot-autoconfigure-4.10.1	axon-tracing-opentelemetry-4.10.1	1	1	1.000000	[org.axonframework.tracing.opentelemetry]
29	axon-configuration-4.10.1	axon-disruptor-4.10.1	1	1	1.000000	[org.axonframework.disruptor.commandhandling]

Table 7 - Types that are used by multiple artifacts

This table shows the top 30 types that only use a few (compared to all existing) types of another artifact. The whole table can be found in the CSV report `ClassesPerPackageUsageAcrossArtifacts`.

	artifactName	dependentArtifactName	packageName	dependentPackage.fqn	dependentTypes	dependentPac
0	axon-spring-boot-autoconfigure-4.10.1	axon-messaging-4.10.1	org.axonframework.springboot.util	org.axonframework.eventhandling	1	
1	axon-modelling-4.10.1	axon-messaging-4.10.1	org.axonframework.modelling.saga.metamodel	org.axonframework.eventhandling	1	
2	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.snapshotting	org.axonframework.eventhandling	1	
3	axon-server-connector-4.10.1	axon-messaging-4.10.1	org.axonframework.axonserver.connector	org.axonframework.eventhandling	1	
4	axon-spring-boot-autoconfigure-4.10.1	axon-messaging-4.10.1	org.axonframework.springboot.autoconfig.legacyjpa	org.axonframework.eventhandling	1	
5	axon-test-4.10.1	axon-messaging-4.10.1	org.axonframework.test.matchers	org.axonframework.eventhandling	1	
6	axon-eventsourcing-4.10.1	axon-modelling-4.10.1	org.axonframework.eventsourcing.eventstore.jdbc	org.axonframework.modelling.command	1	
7	axon-eventsourcing-4.10.1	axon-modelling-4.10.1	org.axonframework.eventsourcing.conflictresolu...	org.axonframework.modelling.command	1	
8	axon-server-connector-4.10.1	axon-modelling-4.10.1	org.axonframework.axonserver.connector	org.axonframework.modelling.command	1	
9	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.conflictresolu...	org.axonframework.eventhandling	2	
10	axon-test-4.10.1	axon-messaging-4.10.1	org.axonframework.test.eventscheduler	org.axonframework.eventhandling	2	
11	axon-modelling-4.10.1	axon-messaging-4.10.1	org.axonframework.modelling.command	org.axonframework.eventhandling	2	
12	axon-modelling-4.10.1	axon-messaging-4.10.1	org.axonframework.modelling.command.legacyjpa	org.axonframework.eventhandling	2	
13	axon-server-connector-4.10.1	axon-eventsourcing-4.10.1	org.axonframework.axonserver.connector.event.axon	org.axonframework.eventsourcing	1	
14	axon-spring-boot-autoconfigure-4.10.1	axon-configuration-4.10.1	org.axonframework.springboot.autoconfig.legacyjpa	org.axonframework.config	1	
15	axon-spring-boot-autoconfigure-4.10.1	axon-configuration-4.10.1	org.axonframework.springboot	org.axonframework.config	1	
16	axon-server-connector-4.10.1	axon-configuration-4.10.1	org.axonframework.axonserver.connector.processor	org.axonframework.config	1	
17	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.eventstore	org.axonframework.messaging	1	
18	axon-test-4.10.1	axon-messaging-4.10.1	org.axonframework.test.matchers	org.axonframework.messaging	1	
19	axon-test-4.10.1	axon-messaging-4.10.1	org.axonframework.test	org.axonframework.messaging	1	
20	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.conflictresolu...	org.axonframework.messaging	1	
21	axon-spring-boot-autoconfigure-4.10.1	axon-messaging-4.10.1	org.axonframework.springboot.autoconfig.legacyjpa	org.axonframework.serialization	1	
22	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.eventstore.jpa	org.axonframework.serialization	1	
23	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.eventstore.jdbc	org.axonframework.serialization	1	
24	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.eventstore.leg...	org.axonframework.serialization	1	
25	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.eventstore.jdb...	org.axonframework.eventhandling	3	

	artifactName	dependentArtifactName	packageName	dependentPackage.fqn	dependentTypes	dependentPacl
26	axon-test-4.10.1	axon-modelling-4.10.1	org.axonframework.test.utils	org.axonframework.modelling.saga	1	
27	axon-test-4.10.1	axon-messaging-4.10.1	org.axonframework.test.matchers	org.axonframework.commandhandling	1	
28	axon-eventsourcing-4.10.1	axon-messaging-4.10.1	org.axonframework.eventsourcing.conflictresolu...	org.axonframework.commandhandling	1	
29	axon-server-connector-4.10.1	axon-eventsourcing-4.10.1	org.axonframework.axonserver.connector	org.axonframework.eventsourcing.eventstore	1	

Table 8 - Duplicate package names across artifacts

This table shows the top 30 duplicate package names across artifacts. They are ordered by the number of duplicates descending.

This might lead to confusion, makes importing more error prone and might even lead to duplicate classes where only one of them will be loaded by the class loader. If a package is named the same way in two or more artifacts this even allows another artifact to access package protected classes, methods or members which might not be intended.

The whole table can be found in the CSV report `DuplicatePackageNamesAcrossArtifacts`.

packageName	duplicates	artifactNames

Table 9 - Annotated elements

This table shows 30 most used Java Annotations including some examples where they are used.

	annotationName	languageElement	numberOfAnnotatedElements	examples
0	javax.annotation.Nonnull	Parameter	1616	[org.axonframework.test.aggregate.ResultValida...
1	java.lang.Deprecated	Method	132	[org.axonframework.test.aggregate.ResultValida...
2	org.springframework.context.annotation.Bean	Method	111	[org.axonframework.springboot.autoconfig.Infra...
3	org.springframework.boot.autoconfigure.conditi...	Method	78	[org.axonframework.springboot.autoconfig.Infra...
4	java.lang.FunctionalInterface	Interface	65	[org.axonframework.test.matchers.FieldFilter, ...
5	javax.annotation.Nullable	Parameter	61	[org.axonframework.eventsourcing.eventstore.Ev...
6	javax.annotation.Nonnull	Method	50	[org.axonframework.test.aggregate.AggregateTes...
7	java.lang.annotation.Retention	Annotation	43	[org.axonframework.eventsourcing.EventSourcing...
8	java.lang.Deprecated	Class	43	[org.axonframework.test.aggregate.StubAggregat...
9	java.lang.annotation.Target	Annotation	43	[org.axonframework.eventsourcing.EventSourcing...
10	javax.persistence.Basic	Field	39	[org.axonframework.eventhandling.AbstractDomai...
11	jakarta.persistence.Basic	Field	33	[org.axonframework.eventhandling.AbstractDomai...
12	com.fasterxml.jackson.annotation.JsonProperty	Parameter	32	[org.axonframework.commandhandling.distributed...
13	java.lang.annotation.Documented	Annotation	23	[org.axonframework.eventsourcing.EventSourcing...
14	org.springframework.boot.autoconfigure.AutoCon...	Class	22	[org.axonframework.springboot.autoconfig.Infra...
15	java.beans.ConstructorProperties	Constructor	21	[org.axonframework.commandhandling.distributed...
16	org.springframework.beans.factory.annotation.Q...	Parameter	20	[org.axonframework.springboot.autoconfig.AxonS...
17	java.lang.Deprecated	Constructor	20	[org.axonframework.axonserver.connector.query....
18	com.fasterxml.jackson.annotation.JsonCreator	Constructor	16	[org.axonframework.eventhandling.GapAwareTrack...
19	org.springframework.boot.autoconfigure.AutoCon...	Class	16	[org.axonframework.springboot.autoconfig.Infra...
20	org.springframework.boot.autoconfigure.conditi...	Method	15	[org.axonframework.springboot.autoconfig.Metri...
21	org.springframework.boot.autoconfigure.AutoCon...	Class	14	[org.axonframework.springboot.autoconfig.AxonS...
22	org.springframework.boot.autoconfigure.conditi...	Class	12	[org.axonframework.springboot.autoconfig.Infra...
23	javax.persistence.Column	Field	12	[org.axonframework.eventhandling.AbstractEvent...
24	jakarta.persistence.Column	Field	11	[org.axonframework.eventhandling.AbstractEvent...
25	org.springframework.boot.context.properties.En...	Class	11	[org.axonframework.springboot.autoconfig.legac...
26	org.axonframework.common.Priority	Class	11	[org.axonframework.test.FixtureResourceParamet...
27	org.springframework.boot.autoconfigure.conditi...	Method	10	[org.axonframework.springboot.autoconfig.Metri...
28	javax.persistence.Lob	Field	10	[org.axonframework.eventhandling.AbstractEvent...
29	javax.persistence.Id	Field	10	[org.axonframework.eventsourcing.eventstore.Ab...

Table 10 - Distance distribution between dependent files

This table shows the file directory distance distribution between dependent files. Intuitively, the distance is given by the fewest number of change directory commands needed to navigate between a file and a dependency it uses. Those are aggregate to see how many dependent files are in the same directory, how many are just one change directory command apart, and so on.

	dependency.fileDistanceAsFewestChangeDirectoryCommands	numberOfDependencies	numberOfDependencyUsers	numberOfDependencyProviders	
0	0	2600	1026	1160	[/axon-spring-b
1	1	90	82	38	[/org/axonframev
2	2	2503	760	472	[/org/axonframev
3	4	2595	449	541	[/org/axonframew