

### Axon Framework - Application Configuration Guide

The configuration guide covers the possible configuration areas for your Axon application when you utilize the Axon Server (Standard Edition / Enterprise Edition)

- Axon Application General Configuration
- Axon Application Serialization Configuration
- Axon Application Event Processing Configuration

Each individual list is split into two sections. The first section gives a list of all the possible configurations. The second section gives a recommendation against the configurations to enable developers/operators/administrators to optimize their Axon Application Deployment

### Axon Application General Configuration

A group of properties that allows easy general configuration for Axon Framework based Applications that connect to an Axon Server (*Standard / Enterprise / SaaS*)

#### Parameter List (prefix = axon.axonserver)

Name	Description
<i>enabled</i>	Determines automatic configuration of the Axon Server connector
<i>servers</i>	Comma Separated list of Axon Server instances in format {{hostname}} or {{hostname}}:{{grpc_port}}.
<i>clientId</i>	Unique identifier for the Axon Application as it registers with an Axon Server
<i>componentName</i>	Name for the Axon Application
<i>token</i>	Token for access control to the Axon Server
<i>context</i>	Operational Bounded Context for the Axon Application
<i>sslEnabled</i>	Flag to enable SSL connectivity to the Axon Server
<i>certFile</i>	Certificate file for SSL
<i>initialNrOfPermits</i>	Initial number of permits that an Axon Application can accept for message streams (events, commands, queries)
<i>nrOfNewPermits</i>	Additional number of permits that an Axon Application can accept for message streams (events, commands, queries)
<i>newPermitsThreshold</i>	Threshold at which application sends new permits to server
<i>commandThreads</i>	Number of threads executing commands
<i>queryThreads</i>	Number of threads executing queries
<i>processorsNotificationRate</i>	Interval (in ms.) application sends status updates on event processors to AxonServer
<i>processorsNotificationInitialDelay</i>	Initial delay (in ms.) before application sends first status update on event processors to AxonServer
<i>eventCipher</i>	Used to encrypt and decrypt events and snapshots
<i>keepAliveTimeout</i>	Timeout (in ms) for keep alive requests
<i>keepAliveTime</i>	Interval (in ms) for keep alive requests, 0 is keep-alive disabled. Defaults to {@code 1000}.



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### Parameter List (prefix = axon.axonserver) (cont)

<i>snapshotPrefetch</i>	Value indicating the maximum number of Aggregate snapshots which will be retrieved.
<i>maxMessageSize</i>	Grpc max inbound message size
<i>commitTimeout</i>	Timeout (in milliseconds) to wait for response on commit
<i>disableEventBlacklisting</i>	Flag that allows blacklisting of Event types to be disabled
<i>maxGrpcBufferedMessages</i>	The number of messages that may be in-transit on the network/grpc level when streaming data from the server
<i>commandLoadFactor</i>	It represents the fixed value of load factor sent to Axon Server for any command's subscription if no specific implementation of CommandLoadFactorProvider is configured
<i>connectTimeout</i>	Represents the maximum time in milliseconds a request for the initial Axon Server connection may last

### Value Recommendations (prefix = "axon.axonserver")

Name	Default Value	Recommendation
<i>enabled</i>	true	Recommended to retain the default value. Also this value kicks in only when using automatic configuration via Application Containers
<i>servers</i>	localhost	In Axon SE, the single node hostname needs to be supplied. In Axon EE (cluster deployment), input the name of the designated leader among the nodes.
<i>componentName</i>	{{spring.application.name}}	Recommended to provide a business name for the Axon application. Multiple instances of the same Axon application will have the same application name
<i>clientid</i>	{{ManagementFactory.getRuntimeMXBean().getName()}}	The client identifier for an Axon application has to be unique for every instance of that Axon application connecting to an Axon Server. Recommended to retain the default value as it creates a unique identifier



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### Value Recommendations (prefix = "axon.axonserver") (cont)

<i>token</i>	None	Needs to be provided if the Axon Server deployment (SE/EE) has enabled access control restrictions. Recommended to be enforced for non-development environments. If you are using the SaaS edition, this token needs to be supplied always
<i>context</i>	"default"	This applies only to Axon EE. If supplied, each context will have its own set of files (stored in a separate directory). Recommended to be implemented in case multiple applications connecting to the same event store have data protection policies. Each context may have a different master in an Axon Server cluster. The context name must start with a letter and followed by a combination of letters, digits, hyphens and underscores.
<i>sslEnabled</i>	false	Needs to be enabled (true) for non-development environments as a hardening measure to enforce TLS connections to the Axon Server
<i>certFile</i>	None	In case SSL is enabled, this would need to be supplied as the public key
<i>initialNrOfPermits</i>	5000	Retain default value
<i>nrOfNewPermits</i>	null	Retain default value. A value of null, 0, and negative values will have the client (i.e. the Axon application) request the number of permits required to get from the "new-Permits-Threshold" or "initial-nr-of-permits".
<i>newPermitsThreshold</i>	null	Retain default value. A value of null, 0, and negative values will have the threshold set to 50% of "initial-nr-of-permits"



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### Value Recommendations (prefix = "axon.axonserver") (cont)

<i>commandThreads</i>	10	Retain default value. Has performance impact if changed.
<i>queryThreads</i>	10	Retain default value. Has performance impact if changed.
<i>processorsNotificationRate</i>	10	Retain default value
<i>processorsNotificationInitialDelay</i>	5000	Retain default value
<i>eventCipher</i>	EventCipher#EventCipher()	Default encryption algorithm used is <i>AES/CBC/PKCS5Padding</i> which should suffice
<i>keepAliveTimeout</i>	5000	Retain default value
<i>keepAliveTime</i>	1000	Retain default value
<i>snapshotPrefetch</i>	1	Retain default value
<i>maxMessageSize</i>	0 (Keeps default value for grpc size)	Retain default value
<i>commitTimeout</i>	10000	Retain default value
<i>disableEventBlacklisting</i>	false	Retain default value. Has high performance impact if enabled.
<i>maxGrpcBufferedMessages</i>	500	Retain default value
<i>commandLoadFactor</i>	100	Retain default value
<i>connectTimeout</i>	5000	Retain default value

### Axon Serialization Configuration

A group of properties that allows easy configuration of the serializers used for different types of objects that Axon needs to serialize. This configuration controls the serialization of the following types of **Axon Messages** (*Events/Commands/Queries*) and **Axon objects** (*Sagas/Tokens and Snapshots*)

### Parameter List (prefix = axon.serializer)

Name	Description
<i>events</i>	The Event Serializer is used to serialize the payload and meta data of Event Messages only as they are stored in the event store and published.
<i>messages</i>	The Message Serializer is used to serialize the payload and meta-data of all messages and, where relevant, their return values. Commands, Queries and Events ( <i>only if no Event Serializer is configured</i> ), but also the Command Result and Query Responses are serialized using this serializer
<i>general</i>	The General Serializer is used to serialize the rest of the objects, such as TrackingTokens, Saga state, Snapshot Events and all other data that needs to be serialized, but is not expected to be shared with other systems.



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### Parameter Recommendations

Name	Default Value	Recommendation
<i>events</i>	XSTREAM	Recommended to change to JACKSON ( <i>JSON Output</i> ) which provides a nice compact serialized form which is optimal in case you have events being stored for a long duration of time. This however, requires adherence to the conventions enforced by JACKSON
<i>messages</i>	XSTREAM	Retain the default value. For high performance requirements recommended to build Custom Converters/Serialization mechanism
<i>general</i>	XSTREAM	Retain the default value.

**Note 1** : The following serializers are available -> *DEFAULT (XSTREAM)* , *JACKSON* and *JAVA*

**Note 2** : There is an implicit ordering between the configurable serializer -> *Event Serializer* -> *Message Serializer* -> *Default Serializer*

**Note 3** : The following criteria of the Axon Messages/Objects needs to be considered while choosing any of the available serialization mechanisms or customizing it -> *Duration of storage* / *Size* / *Shareability* / *Compaction* / *Interoperability*.

### Axon Event Processing Configuration List

A group of properties that allows for the configuration of Event Processors within an Axon Application.

#### List (prefix = axon.eventhandling.processors)

Name	Description
<i>{{name}}.mode</i>	<<TBD>>
<i>{{name}}.source</i>	<<TBD>>
<i>{{name}}.initialSegmentCount</i>	<<TBD>>
<i>{{name}}.tokenClaimInterval</i>	<<TBD>>
<i>{{name}}.threadCount</i>	<<TBD>>
<i>{{name}}.batchSize</i>	<<TBD>>
<i>{{name}}.sequencingPolicy</i>	<<TBD>>
<i>{{name}}.tokenClaimIntervalTimeUnit</i>	<<TBD>>

**Note 1** : *{{name}}* is the name of the Event Processor within the Axon application.

### Parameter Recommendations

Name	Default Value	Recommendation
<i>{{name}}.mode</i>	<<TBD>>	<<TBD>>
<i>{{name}}.source</i>	<<TBD>>	<<TBD>>
<i>{{name}}.initialSegmentCount</i>	<<TBD>>	<<TBD>>
<i>{{name}}.tokenClaimInterval</i>	<<TBD>>	<<TBD>>
<i>{{name}}.threadCount</i>	<<TBD>>	<<TBD>>
<i>{{name}}.batchSize</i>	<<TBD>>	<<TBD>>
<i>{{name}}.sequencingPolicy</i>	<<TBD>>	<<TBD>>
<i>{{name}}.tokenClaimIntervalTimeUnit</i>	<<TBD>>	<<TBD>>



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