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Introduction

The aim of this guide is to assist you migrating an existing application using any version 7.0.x of Hibernate Search to the latest of the 7.1.x series.

If you think something is missing or something does not work, please contact us.

If you're looking to migrate from an earlier version, you should migrate step-by-step, from one minor version to the next, following the migration guide of each version.

To Hibernate Search 5 users

Be aware that a lot of APIs have changed since Hibernate Search 5, some only because of a package change, others because of more fundamental changes (like moving away from using Lucene types in Hibernate Search APIs).

When migrating from Hibernate Search 5, you are encouraged to migrate first to Hibernate Search 6.0 using the 6.0 migration guide, and only then to later versions (which will be significantly easier).
Requirements

The requirements of Hibernate Search 7.1.0.Final are the same as those of Hibernate Search 7.0:

- JDK 11 or later;
- Lucene 9 for its Lucene backend;
- Elasticsearch 7.10+ or OpenSearch 1.3+ for its Elasticsearch backend;
- Hibernate ORM 6.4.x for the Hibernate ORM integration.
Artifacts

The coordinates of Maven artifacts in Hibernate Search 7.1.0.Final are the same as in Hibernate Search 7.0.
Data format and schema

Indexes

The index format and schema in Hibernate Search 7.1.0.Final is backward-compatible with Hibernate Search 7.0: older indexes can be read from and written to without reindexing.

Outbox polling database tables

If you use the incubating outbox-polling coordination strategy, you may be impacted by the changes to entity mapping for entities that represents the outbox event and agent, requiring database schema changes.

Changes are only necessary if configuration properties hibernate.search.coordination.entity.mapping.*.uuid_type are not set or are set to default. If schema changes are not possible to apply at the moment, the following settings can be provided to specify the type to represent UUIDs in the database:

```java
hibernate.search.coordination.entity.mapping.outboxevent.uuid_type=CHAR
hibernate.search.coordination.entity.mapping.agent.uuid_type=CHAR
```

The default type for UUIDs in outbox-polling tables now match the default type for UUIDs in Hibernate ORM. See suggested migration scripts:

**Postgresql:**

```sql
-- change outbox event `id` column type to uuid:
alter table hsearch_outbox_event
alter column id TYPE uuid USING cast(id as uuid);

-- change agent `id` column type to uuid:
alter table hsearch_agent
alter column id TYPE uuid USING cast(id as uuid);
```

**CockroachDB:**

```sql
-- change outbox event `id` column type to uuid:
-- altering type directly is not supported: https://go.crdb.dev/issue-v/47636/v22.1
alter table hsearch_outbox_event
add tmp uuid;
update hsearch_outbox_event
set tmp = cast(id as uuid)
where 1 = 1;
alter table hsearch_outbox_event
alter column tmp set not null;
alter table hsearch_outbox_event
alter primary key using columns (tmp);
alter table hsearch_outbox_event
drop column id;
alter table hsearch_outbox_event
rename column tmp to id;

-- change agent `id` column type to char:
alter table hsearch_agent
```
add tmp uuid;
update hsearch_agent
set tmp = cast(id as uuid)
where 1 = 1;
alter table hsearch_agent
  alter column tmp set not null;
alter table hsearch_agent
  alter primary key using columns (tmp);
alter table hsearch_agent
drop column id;
alter table hsearch_agent
  rename column tmp to id;

MySQL:

-- change outbox event `id` column type to binary(16):
alter table hsearch_outbox_event
  add column tmp binary(16);
update hsearch_outbox_event
set tmp = UUID_TO_BIN(id)
where 1 = 1;
alter table hsearch_outbox_event
drop column id,
  rename column tmp to id;
alter table hsearch_outbox_event
  add primary key (id);

-- change agent `id` column type to binary(16):
alter table hsearch_agent
  add column tmp binary(16);
update hsearch_agent
set tmp = UUID_TO_BIN(id)
where 1 = 1;
alter table hsearch_agent
drop column id,
  rename column tmp to id;
alter table hsearch_agent
  rename column tmp to id;

MariaDB:

-- change outbox event `id` column type to uuid:
alter table hsearch_outbox_event
  modify column id uuid;
-- change agent `id` column type to uuid:
alter table hsearch_agent
  modify column id uuid;

DB2:

-- change outbox event `id` column type to binary(16):
alter table hsearch_outbox_event
  drop primary key;
alter table hsearch_outbox_event
drop column id;
alter table hsearch_outbox_event
  add column id binary(16);
update hsearch_outbox_event
set id = generate_unique()
where 1 = 1;
alter table hsearch_outbox_event
  alter column id set not null;
-- make this call if the adding constraint fails:
call sysproc.admin_cmd('reorg table hsearch_outbox_event);

-- change agent 'id' column type to binary(16):
alter table hsearch_agent
  drop primary key;
alter table hsearch_agent
  drop column id;
alter table hsearch_agent
  add column id binary(16);
update hsearch_agent
set id = generate_unique()
where 1 = 1;
alter table hsearch_agent
  alter column id set not null;
-- make this call if the adding constraint fails:
call sysproc.admin_cmd('reorg table hsearch_agent');
alter table hsearch_agent
  add constraint hsearch_agent_pkey primary key (id);

Oracle:

-- change outbox event 'id' column type to raw:
alter table hsearch_outbox_event
  add tmp raw(16);
update hsearch_outbox_event
set tmp = SYS_GUID()
where 1 = 1;
alter table hsearch_outbox_event
  modify tmp not null;
alter table hsearch_outbox_event
  drop column id;
alter table hsearch_outbox_event
  rename column tmp to id;
alter table hsearch_outbox_event
  add constraint hsearch_outbox_event_pkey primary key (id);

-- change agent 'id' column type to raw:
alter table hsearch_agent
  add tmp raw(16);
update hsearch_agent
set tmp = SYS_GUID()
where 1 = 1;
alter table hsearch_agent
  modify tmp not null;
alter table hsearch_agent
  drop column id;
alter table hsearch_agent
  rename column tmp to id;
alter table hsearch_agent
  add constraint hsearch_agent_pkey primary key (id);

MSSQL:

-- change outbox event 'id' column type to uniqueidentifier:
alter table hsearch_outbox_event
  drop constraint if exists hsearch_outbox_event_pkey;
alter table hsearch_outbox_event
  alter column id uniqueidentifier not null;
alter table hsearch_outbox_event
  add constraint hsearch_outbox_event_pkey primary key (id);
-- change agent `id` column type to uuid:
alter table hsearch_agent
    drop constraint if exists hsearch_agent_pkey;
alter table hsearch_agent
    alter column id uniqueidentifier not null;
alter table hsearch_agent
    add constraint hsearch_agent_pkey primary key (id);

H2:

-- change outbox event `id` column type to uuid:
alter table hsearch_outbox_event
    alter column id uuid not null;

-- change agent `id` column type to uuid:
alter table hsearch_agent
    alter column id uuid not null;
Configuration

The configuration properties in Hibernate Search 7.1.0.Final are backward-compatible with Hibernate Search 7.0.
API

All stable API in Hibernate Search 7.1.0.Final is backward-compatible with Hibernate Search 7.0.

However, some incubating APIs changed:

- `SearchMapping.builder(...) in the Standalone POJO Mapper expects different arguments. See this section of the documentation for usage.
- `org.hibernate.search.mapper.pojo.standalone.mapping.metadata.EntityConfigurator, org.hibernate.search.mapper.pojo.standalone.mapping.metadata.EntityConfigurationContext, as well as StandalonePojoMappingConfigurationContext#addEntity(...) methods have been deprecated.

The Standalone POJO Mapper no longer expects entities and their loading strategies to be primarily defined using a mapping configurer, but rather using the `@SearchEntity annotation.

Programmatic definition of entities is still available, but is now fully integrated in the programmatic mapping API.
SPI

Most SPI in Hibernate Search 7.1.0.Final is backward-compatible with Hibernate Search 7.0.

However, a few SPIs are not:

• `org.hibernate.search.mapper.pojo.mapping.spi.PojoMappingDelegate.createPojoScope` has been deprecated.
  Consider taking advantage of `org.hibernate.search.mapper.pojo.mapping.spi.PojoMappingDelegate#createPojoScopeForClasses` or `org.hibernate.search.mapper.pojo.mapping.spi.PojoMappingDelegate.createPojoScopeForEntityNames`, which should greatly simplify the implementation of a mapper.

• `markAsEntity(...)` and `markAsIndexed(...)` `org.hibernate.search.mapper.pojo.model.additionalmetadata.building.spi.PojoAdditionalMetadataCollectorTypeNode` have been deprecated in favor of methods with the same name but not taking any argument.
  Use methods in the returned `PojoAdditionalMetadataCollectorEntityTypeNode` and `PojoAdditionalMetadataCollectorIndexedTypeNode` to pass this information instead.

• A few SPIs related to loading in `hibernate-search-mapper-pojo-base` have changed in pull request #3954.
  In particular, `pojo-base` now exposes entity definition APIs (including loading configuration), and handles most of the loading during search and mass indexing; mappers are only expected to implement `org.hibernate.search.mapper.pojo.mapping.building.spi.PojoTypeExtendedMappingCollector#applyLoadingBinder` to turn a user-provided (or mapper-provided) binder into loading strategies on startup.
  As a consequence, mappers are no longer expected to provide loading strategies at runtime, e.g. in `PojoMassIndexingContext`, and some SPI types/methods have been removed in that area.

  Loading strategy interfaces (`PojoSelectionLoadingStrategy`, `PojoMassLoadingStrategy`), experienced some changes as well, mostly to provide them with more context coming from the mapper, and to move them to the loading package (`org.hibernate.search.mapper.pojo.loading.spi`).

• A few SPIs related to loading in the Hibernate ORM mapper have changed in pull request #3954.

• Deprecated class `org.hibernate.search.mapper.pojo.model.path.spi.PojoPathsDefinition` has been removed.

Feel free to reach out to the Hibernate Search team if you integrate with those SPIs and need help upgrading.
Behavior

The behavior of Hibernate Search 7.1.0.Final is backward-compatible with Hibernate Search 7.0.