

DOC 4.0.1 (and DBOS 3.2.0)

Migration Guide (from 4.0.0 FP4)

Remember the existence of The Diff Tool at <https://db-gene-web-diff.okd.decisionbrain.io/>.

Version Changes

Gene Platform migrated to Spring boot 2.3.3.RELEASE and Spring cloud Hoxton.SR8. It brings the changes listed in "[Libraries and Version Changes](#)" section below.

We also took the opportunity of this update to rely on the Spring bills of material when it is possible.

So the versions of Junit jupiter, Mockito, Hamcrest and Awaitility are now based on it. That means the versions variables for these libraries have disappeared from Gradle build scripts. Another consequence is that the `spring.gradle` Gradle script plugin has disappeared. It has been replaced with a `spring-bom.gradle` one that is automatically applied to all JDK projects.

Gene is now based on DBOS 3.2.0. The main visible consequence is that the `python-engine-worker/Dockerfile` has changed a bit. Be sure to reflect that change in your Python workers if you have added some.

Structure of a Gene Project

The structure of a scaffolded project has slightly changed. The new structure is described [in the documentation](#). The changes can be summarized as:

- There is no code any longer in the `gene-services` sub-directory.
- The `gene-model` directory now has three sub-directories:
 - `gene-model-dom` contains what was previously generated in `gene-model`
 - `gene-model-dto` contains what was previously generated in `gene-services/data/data-service-dto`
 - `gene-model-jpa` contains classes that were previously generated under `gene-services/data/data-service`
- All micro-services now have a dedicated sub-directory under the `extensions` directory.

The major impact of this change in structure is that you should move your customizations to the `extensions` sub-directories. You may already have moved your code there. However, customization of the `application.yml` files was previously done by modifying the scaffolded files. These files are no longer scaffolded, so you should put your additions or overrides in an `application.yml` file under the `resources` directory of your extension library. Finally, there should be no need to put code or configuration under `gene-services`. (Note that it would work nevertheless, so if as a first step it's simpler for you...)

The other impacts of this change include:

- The paths of Gradle projects have changed, and more generally the Gradle build scripts have been adapted to the new structure.
- The JDL files are now located under `gene-model/spec`.
- The name of the project used to generate the Docker image of the data service is now `gene-services:data-service`. You may need to adjust your `Jenkinsfile`.

Finally, this change makes it harder for IntelliJ to automatically create run configurations. This is due to a [bug in IntelliJ](#) for the resolution of which you are encouraged to vote. To address this issue, run configurations are generated during the scaffolding, which you can either use as is, or as a basis to create yours. The [documentation](#) has been adjusted and explains how to use them.

Migration details

Taking in account the above information you can use the the steps described below that come from a real-world project migration. The method used was to

- scaffold a gene project from scratch with the 4.0.1 version, and the `entities.jdl` and `entities-extended.jdl` that are used in existing project.
- delete files from existing project directory
- copy freshly generated files to the existing project folder

Using this approach you will be able to see new files which you might want to commit, modified files that will require merging, and "deleted" files which are the customizations that were made on the project that you 'll need to revert then probably move to the right place (see the structure changes above)

- `gradle/versions.gradle` : ensure to have `dbgene` version set to "4.0.1" and `dbos` to "3.2.0"
- **settings.gradle**:

- ensure to have all the “:extensions:***”, included :
 - include ':extensions:gateway-service-extension'
 - include ':extensions:data-service-extension'
 - include ':extensions:scenario-service-extension'
 - include ':extensions:execution-service-extension'
 - include ':extensions:backend-service-extension'
- replace `include ':gene-model'` with :
 - include ':gene-model:gene-model-dom' include ':gene-model:gene-model-dto' include ':gene-model:gene-model-jpa'
- **/deployment :**
 - **shell** : run scripts were modified to use new structure : safe to take 4.0.1 version
 - **docker/dbos** : .env has new version of dbos: take the new version
 - **docker/infra:**
 - docker-compose.yml : some settings changed, merge if you made changes or accept new
 - sh scripts moved to a sub-directories
 - keycloak/ : gene-theme.tar.gz archive changed, accept new
 - **docker/app:**
 - docker-compose.yml : new rabbit mq environment variables added
- **/web** : if your project does not need samples you might not merge new samples module
 - merge package.json taking care that all “@gene/xxx” libraries point to 4.0.1 version
 - assets/i18n: merge files, new translations were added and some moved
- **/gene-services** : as stated in the introduction this folder should contain only the scaffolded code, meaning you should keep the version generated in 4.0.1. If you had code in this folder, restore it , then move it in the corresponding extension module under **/extensions**

DBOS

The `ExecutionContext.setAbortCallback()` method is deprecated, in favor of `setAbortCallbackWithPolicy(AbortPolicy)`. The `AbortPolicy` enum contains the following values:

- `BREAK_AND_CONTINUE_FROM_CURRENT_SOLUTION` — if the DBOS task is implemented in successive steps, it should stop the computation in its current step and proceed to the next step
- `TERMINATE_WITH_CURRENT_SOLUTION` — the DBOS task should stop its computation and emit its current solution. This is the equivalent of the previous behavior. You can trigger it from Gene’s “Job Details” widget by clicking the “Next Step” button in front of the DBOS task in the execution steps of the Gene job.
- `TERMINATE_WITH_NO_SOLUTION` — the DBOS task stop its computation, with no requirement to emit a solution, which would be ignored. You can trigger it from Gene’s “Job Details” widget by choosing “Stop Job” on the Gene job that executes the DBOS task as one of its steps.
- `OTHER` — left unspecified, for use by the application.

Other Changes

The configuration of Postgress has changed a bit. Look at the `deployment/docker/infra/docker-compose.yml` file if you need to know how.

Some entries have been added to `web/src/assets/i18n/en.json`.

The base image used to create an `engine-worker` must be updated to use a up-to-date version of Ubuntu. The `Dockerfile` first line has been updated as shown below:

```
FROM ubuntu:20.04
```

The “simple export to Excel” no longer uses a routine, but a new `EXCEL` persistence format for scenario data. As a consequence, the `ScenarioDataFormat` enum is no longer deprecated.

Libraries and Version Changes

Java test libraries changes

org.junit.jupiter:junit-jupiter-api:5.5.2 5.6.2
org.junit.jupiter:junit-jupiter-engine:5.5.2 5.6.2
org.junit.jupiter:junit-jupiter-params:5.5.2 5.6.2
org.junit.jupiter:junit-jupiter:5.5.2 5.6.2
org.mockito:mockito-core:2.25.1 3.3.3
org.mockito:mockito-junit-jupiter:2.25.1 3.3.3
org.hamcrest:hamcrest-core:1.3 2.2
org.hamcrest:hamcrest-library:1.3 2.2
org.hamcrest:hamcrest:1.3 2.2
org.awaitility:awaitility:3.1.7 4.0.3

Java Version Changes

com.fasterxml_classmate:1.4.0 -> 1.5.1
com.google.errorprone_error_prone_annotations:2.1.3 -> 2.3.4
com.google.guava_guava:16 -> 29.0-jre
com.google.guava_guava:26.0-jre -> 29.0-jre
com.google.j2objc_j2objc-annotations:1.1 -> 1.3
com.h2database_h2:1.4.199 -> 1.4.200
com.sun.activation_jakarta.activation:1.2.1 -> 1.2.2
com.zaxxer_HikariCP:3.2.0 -> 3.4.5
commons-codec_commons-codec:1.11 -> 1.14
commons-fileupload_commons-fileupload:1.3.3 -> 1.4
io.github.openfeign.form_feign-form-spring:3.5.0 -> 3.8.0
io.github.openfeign.form_feign-form:3.5.0 -> 3.8.0
io.github.openfeign_feign-core:10.1.0 -> 10.10.1
io.github.openfeign_feign-hystrix:10.1.0 -> 10.10.1
io.github.openfeign_feign-slf4j:10.1.0 -> 10.10.1
io.micrometer_micrometer-core:1.1.5 -> 1.5.4
io.netty_netty-buffer:4.1.36.Final -> 4.1.51.Final
io.netty_netty-codec-http2:4.1.36.Final -> 4.1.51.Final
io.netty_netty-codec-http:4.1.36.Final -> 4.1.51.Final
io.netty_netty-codec-socks:4.1.36.Final -> 4.1.51.Final
io.netty_netty-codec:4.1.36.Final -> 4.1.51.Final
io.netty_netty-common:4.1.36.Final -> 4.1.51.Final
io.netty_netty-handler-proxy:4.1.36.Final -> 4.1.51.Final
io.netty_netty-handler:4.1.36.Final -> 4.1.51.Final
io.netty_netty-resolver:4.1.36.Final -> 4.1.51.Final

io.netty_netty-transport-native-epoll:4.1.36.Final -> 4.1.51.Final
io.netty_netty-transport-native-unix-common:4.1.36.Final -> 4.1.51.Final
io.netty_netty-transport:4.1.36.Final -> 4.1.51.Final
io.projectreactor.addons_reactor-extra:3.2.3.RELEASE -> 3.3.3.RELEASE
io.projectreactor.netty_reactor-netty:0.8.9.RELEASE -> 0.9.11.RELEASE
io.projectreactor_reactor-core:3.2.10.RELEASE -> 3.3.9.RELEASE
io.reactivex_rxjava:1.2.0 -> 1.3.8
jakarta.activation_jakarta.activation-api:1.2.1 -> 1.2.2
jakarta.xml.bind_jakarta.xml.bind-api:2.3.2 -> 2.3.3
net.bytebuddy_byte-buddy:1.9.13 -> 1.10.14
org.apache.httpcomponents_httpclient:4.5.9 -> 4.5.12
org.apache.httpcomponents_httpcore:4.4.11 -> 4.4.13
org.apache.tomcat.embed_tomcat-embed-core:9.0.21 -> 9.0.37
org.apache.tomcat.embed_tomcat-embed-websocket:9.0.21 -> 9.0.37
org.aspectj_aspectjweaver:1.9.4 -> 1.9.6
org.checkerframework_checker-qual:2.5.2 -> 2.11.1
org.dom4j_dom4j:2.1.1 -> 2.1.3
org.flywaydb_flyway-core:5.2.4 -> 6.4.4
org.glassfish.hk2.external_aopalliance-repackaged:2.5.0-b42 -> 2.6.1
org.glassfish.hk2_hk2-api:2.5.0-b42 -> 2.6.1
org.glassfish.hk2_hk2-locator:2.5.0-b42 -> 2.6.1
org.glassfish.hk2_hk2-utils:2.5.0-b42 -> 2.6.1
org.glassfish.hk2_osgi-resource-locator:1.0.1 -> 1.0.3
org.glassfish.jersey.core_jersey-client:2.27 -> 2.30.1
org.glassfish.jersey.core_jersey-common:2.27 -> 2.30.1
org.glassfish.jersey.ext_jersey-entity-filtering:2.27 -> 2.30.1
org.glassfish.jersey.inject_jersey-hk2:2.27 -> 2.30.1
org.glassfish.jersey.media_jersey-media-json-jackson:2.27 -> 2.30.1
org.glassfish.jersey.media_jersey-media-multipart:2.27 -> 2.30.1
org.hibernate.common_hibernate-commons-annotations:5.0.4.Final -> 5.1.0.Final
org.hibernate.validator_hibernate-validator:6.0.17.Final -> 6.1.5.Final
org.hibernate_hibernate-core:5.3.10.Final -> 5.4.20.Final
org.javassist_javassist:3.22.0-CR2 -> 3.24.0-GA
org.javassist_javassist:3.23.2-GA -> 3.24.0-GA
org.jboss_jandex:2.0.5.Final -> 2.1.3.Final
org.jvnet.mimepull_mimepull:1.9.11 -> 1.9.13
org.mapstruct_mapstruct:1.3.1.Final -> 1.4.1.Final

org.mongodb_bson:3.8.2 -> 4.0.5
org.mongodb_mongodb-driver-core:3.8.2 -> 4.0.5
org.postgresql_postgresql:42.2.5 -> 42.2.14
org.reactivestreams_reactive-streams:1.0.2 -> 1.0.3
org.slf4j_jul-to-slf4j:1.7.26 -> 1.7.30
org.springframework.amqp_spring-amqp:2.1.7.RELEASE -> 2.2.10.RELEASE
org.springframework.amqp_spring-rabbit:2.1.7.RELEASE -> 2.2.10.RELEASE
org.springframework.boot_spring-boot-actuator-autoconfigure:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-actuator:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-autoconfigure:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-configuration-processor:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-actuator:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-amqp:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-aop:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-data-jpa:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-data-mongodb:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-jdbc:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-json:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-logging:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-reactor-netty:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-security:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-tomcat:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-validation:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-web:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-webflux:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter-websocket:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot-starter:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.boot_spring-boot:2.1.6.RELEASE -> 2.3.3.RELEASE
org.springframework.cloud_spring-cloud-commons:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-context:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-gateway-core:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-netflix-archaius:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-netflix-ribbon:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-openfeign-core:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-starter-gateway:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-starter-openfeign:2.1.0.RELEASE -> 2.2.5.RELEASE
org.springframework.cloud_spring-cloud-starter:2.1.0.RELEASE -> 2.2.5.RELEASE

org.springframework.data_spring-data-commons:2.1.9.RELEASE -> 2.3.3.RELEASE
org.springframework.data_spring-data-jpa:2.1.9.RELEASE -> 2.3.3.RELEASE
org.springframework.data_spring-data-mongodb:2.1.9.RELEASE -> 3.0.3.RELEASE
org.springframework.security_spring-security-config:5.1.5.RELEASE -> 5.3.4.RELEASE
org.springframework.security_spring-security-core:5.1.5.RELEASE -> 5.3.4.RELEASE
org.springframework.security_spring-security-crypto:5.1.5.RELEASE -> 5.3.4.RELEASE
org.springframework.security_spring-security-messaging:5.1.5.RELEASE -> 5.3.4.RELEASE
org.springframework.security_spring-security-rsa:1.0.7.RELEASE -> 1.0.9.RELEASE
org.springframework.security_spring-security-web:5.1.5.RELEASE -> 5.3.4.RELEASE
org.springframework_spring-aop:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-aspects:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-beans:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-context:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-core:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-expression:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-jcl:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-jdbc:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-messaging:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-orm:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-tx:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-web:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-webflux:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-webmvc:5.1.8.RELEASE -> 5.2.8.RELEASE
org.springframework_spring-websocket:5.1.8.RELEASE -> 5.2.8.RELEASE

New Libraries

com.google.guava_failureaccess:1.0.1
com.google.guava_listenablefuture:9999.0-empty-to-avoid-conflict-with-guava
com.rabbitmq_amqp-client:5.9.0
com.sun.istack_istack-commons-runtime:3.0.11
jakarta.annotation_jakarta.annotation-api:1.3.5
jakarta.persistence_jakarta.persistence-api:2.2.3
jakarta.transaction_jakarta.transaction-api:1.3.3
jakarta.validation_jakarta.validation-api:2.0.2
jakarta.ws.rs_jakarta.ws.rs-api:2.1.6
org.apache.commons_commons-lang3:3.1
org.apache.logging.log4j_log4j-api:2.13.3
org.apache.logging.log4j_log4j-to-slf4j:2.13.3

org.bouncycastle_bcpkix-jdk15on:1.64
org.bouncycastle_bcprov-jdk15on:1.64
org.glassfish.hk2.external_jakarta.inject:2.6.1
org.glassfish.jaxb_jaxb-runtime:2.3.3
org.glassfish.jaxb_txw2:2.3.3
org.glassfish_jakarta.el:3.0.3
org.hdrhistogram_HdrHistogram:2.1.12
org.jboss.logging_jboss-logging:3.4.1.Final
org.mongodb_mongodb-driver-sync:4.0.5
org.slf4j_slf4j-api:1.7.30
org.springframework.retry_spring-retry:1.2.5.RELEASE
org.yaml_snakeyaml:1.26

Features

Must-have

- Vulnerabilities Screening [Vulnerabilities Screening](#) Adrien
 - DOC - Dependencies upgrade (!!! Nov 11th for Open Source finalization)
 - DbGene - Check what has been done in DBOS to automate reporting
- Support for soft-interruption during engine execution (Dassault case) Bruno + Ahmed <https://decisionbrain.atlassian.net/browse/DBPF-2006>
 - DBOS impact
 - DbGene impact
- WML Demonstrator Bruno
 - DBOS impact
 - DbGene impact
- Configurable Tree-like organization of Views/Dashboards (Daimler case) Alex + David + Patrice
 - DbGene [Hierarchical organization of Views and Dashboards](#)
- Job Worker (vs Daemon Worker) Bruno + Ahmed
 - DBOS
 - DbGene - Impact on scaffolding + samples + others?
- SWID Tags (IBM requirement) Michel
 - DBOS - impact unknown
- API Support/Update (Dassault case) Adrien
 - DbGene
- Concurrent editing support (Daimler case) Patrice (+Alexandre M)
 - DbGene [Platform - Collaborative Edition](#)
- Validate performance with large number of scenarios (Daimler/Dassault cases) David
 - DbGene - this is related to the home view and access-right mechanisms
 - DbGene : validate UI with large number of scenarios

Strong Candidates (ONLY when Must-have are covered)

- Excel/CSV/DBRF format clean-up
 - DbGene

Nice to have

- Scenario Comparison Widgets
 - DbGene
- Chart Configuration Enhancements

- DbGene
- Merging app configurations

IBM-related Dates

- **Deliver documentation as MD files (not DITA) - Early November**
 - DBOS + DOC
- **Open Source finalization - Nov 11th**
 - no new libraries after that date (Vulnerabilities must have been managed before)
- Open Source clearance - Nov 18th
- Certificate of Originality - Nov 20th
- **SWID Tags - Nov 20th**
 - to be updated in scaffolding
 - inclusion in DBOS Master?
- IBM Installer - Nov 27th
- Upload to Dublin - Dec 4th
- Deliver final documentation - Dec 4th
- **General Availability - Dec 11th**
 - Docker images must be available in DB repository
 - DOC web page must point to new release information