Migration Guide
DB Gene 4.1.0

January 2nd, 2024

DB Gene 4.1.0 Migration Guide

- *For more details, please refer to the DB Gene Documentation available **here**.*

- *The order of the sections and subsections is based on the DB Gene Release Notes Changelog, available **here**.*

- *Content in each subsection is structured as follows: Removed, Deprecated, Updated, and New.*

- *Changes made to the DB Gene REST API are listed in Section **Dev Changes** > **REST API**.*

- *Changes made to the DB Gene dependencies are listed in Section **Dev Changes** > **3rd-Party Components**.*

- *Deprecations for removal in 4.2.0 are listed in Section **Deprecated Features and APIs Scheduled for Removal in 4.2.0**.*

Application Changes

This part lists all changes related to:

- *general features on application element management, including events and hooks, in Section* **General Application Changes***.*

General Application Changes

This section lists all changes related to general features on the application element management, including events and hooks.

New Alert for Failed Excel Export

Failed Excel export from the data service now returns a 206 status if the scenario data is too big. Excel has a maximum row limit set to 1048576.

The Excel file exported will export no data for entity types (sheet) having more entries (rows) than the `EXCEL_MAX_ROWS` limit.

Instead, the sheet will be created empty in the exported Excel file (i.e. only column names and no data).

Note that:

- All sheets are created in the exported Excel file.
- The Job will be completed with `ALERTING` status.

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Data Changes

This part lists all changes related to:

- *the GraphQL interface elements or extensions, in Section **GraphQL**.*
- *the Data Service API, in Section **Data Service**.*

GraphQL

This section lists all changes related to the GraphQL interface elements or extensions.

Deprecated GraphQL Classes

- `SchemaResponse` class from `@gene/data` is now deprecated.
- `GraphQLSchemaMetaData` class from `@gene/data` is now deprecated.
- `GeneRelayConnectionHelper` class from `@gene/data` is now deprecated.
- `DataBaseGenericAccess` class from `@gene/data` is now deprecated.
- `GeneQueryBuilderUtil` class from `@gene/data` is now deprecated.
- `GeneQueryBuilderService` class from `@gene/data` library is now deprecated.
- The methods `getTypeByName()`, `getQueryByName()`, and `getSchemaFromUrl()` from `GeneSchemaService` are now deprecated.

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Data Service

This section lists all changes related to the Data Service API.

Removed Data Service Classes

The following internal classes have been removed:

- `TestApplicationConfigurationModule`
- `DataSourceServiceImpl`

Removed Data Service Methods

The following internal methods have been removed (deprecated since 4.0.1-fp4) from the `StatelessSessionService` class:

- `consumeInConstraintDeferredTransaction()`
- `consumeInConstraintDeferredTransactionWithLock()`

Deprecated Data Service Methods

The following internal methods have been marked as deprecated:

- `ClassDescription#getFieldsByColumnName`. Use metamodel instead.
- `ClassDescription#getTableName`. Use metamodel instead.

DBOS Changes

This part lists all changes related to:

- *the DBOS Python task definition, worker library, and data model mapping, in Section **Worker (Python)**.*

Workers (Python)

This section lists all changes related to the DBOS Python task definition, worker library, and data model mapping.

New Python Dependencies Configuration at Worker Level

It is now possible to add Python dependencies used only by a Python task. To do so, add them to the `worker-requirements.txt` file.

Dev Changes

This part lists all changes related to:

- *the DB Gene REST API, in Section **REST API**.*
- *the DB Gene external dependencies and libraries, such as Spring, Angular, or Keycloak, in Section **3rd-Party Components**.*
- *the DB Gene Scaffolding and Gradle scripts, in Section **Build**.*
- *the DB Gene integration to Docker or Helm, in Section **Deployment**.*
- *the Python integration to DOC, except for **Workers (Python)**, in Section **Python**.*
- *the DB Gene integration to CPLEX, in Section **CPLEX**.*

REST API

This section lists all changes related to the DB Gene REST API, except for the Data Integration Framework, Data Service, and Scenario Service API.

Deprecated "GET" for "scenariosIdsAndNames"

For the `/api/scenario/scenariosIdsAndNames` endpoint, the GET method is now deprecated. Use the POST method instead.

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3rd-Party Components

This section lists all changes related to the DB Gene external dependencies and libraries, such as Spring, Angular, or Keycloak.

Removed UI Classes

The following UI classes have been removed:

- `TestApplicationConfigurationModule`
- `TaskServiceToken`
- `TaskServiceFactoryProvider`
- `GeneExecutionApiDeprecatedProvider`
- `GenePathListModule`
- `GeneFileDropZoneModule` (from `gene-task-wizard`)

Removed UI Parameters

The following UI parameters have been removed:

- `uuids` parameter (from `GeneScenarioEven`)
- `compactMode` and `showBorder` properties (from `GeneJobDetailsConfiguration`)
- `isGeneInternalType` static method (from `GeneRelayConnectionHelper`)

Removed Gradle Dependency

Here is the list of the removed Gradle dependencies:

```
// ------ Removed Gradle Dependency
com.pswidersk:helm-gradle-plugin:1.0.6
```

Updated Platform Dependency

Here is the list of the updated Platform dependencies:

```
// ------ Updated Platform Dependency
NodeJs v16.15.1 -> 20.9.0
```

Updated Angular Dependencies

The Angular compilation cache needs to be deleted.

You can type the following command from the root folder of your project to achieve this goal:

```
(cd web && rm -rf .angular)
```

Angular has been updated to version 17. To run the migration script in your project, use the following command:

```
npx ng update @angular/core --from 16 --to 17 --migrate-only
```

Here is the list of the updated Angular dependencies:

```
// ------ Updated Angular Dependencies
@angular-devkit/build-angular: 16.2.5 -> 17.0.7
@angular/animations: 16.2.8 -> 17.0.7
@angular/cli: 16.2.5 -> 17.0.7
@angular/cdk: 16.2.5 -> 17.0.7
@angular/common: 16.2.8 -> 17.0.7
@angular/compiler: 16.2.8 -> 17.0.7
@angular/compiler-cli: 16.2.8 -> 17.0.7
@angular/core: 16.2.8 -> 17.0.7
@angular/forms: 16.2.8 -> 17.0.7
@angular/language-service: 16.2.8 -> 17.0.7
@angular/localize: 16.2.8 -> 17.0.7
@angular/platform-browser: 16.2.8 -> 17.0.7
@angular/platform-browser-dynamic: 16.2.8 -> 17.0.7
@angular/router: 16.2.8 -> 17.0.7
typescript: 5.1.3 -> 5.2.2
zone.js: 0.13.1 -> 0.14.2
keycloak-angular: 14.0.0 -> 15.0.0
angular-gridster2: 16.0.0 -> 17.0.0
@asymmetrik/ngx-leaflet: 16.0.1 -> 17.0.0
@asymmetrik/ngx-leaflet-markercluster: 16.0.0 -> 17.0.0
@clr/angular: 15.5.1 -> 16.2.0
@fullcalendar/angular: 6.1.8 -> 6.1.10
@fullcalendar/core: 6.1.8 -> 6.1.10
@fullcalendar/daygrid: 6.1.8 -> 6.1.10
@fullcalendar/interaction: 6.1.8 -> 6.1.10
@fullcalendar/list: 6.1.8 -> 6.1.10
@fullcalendar/timegrid: 6.1.8 -> 6.1.10
@danielmoncada/angular-datetime-picker: 16.0.1 -> 17.0.0
@ng-select/ng-select: 11.0.0 -> 12.0.4
```

Angular 17 introduces many new features, such as deferrable views, built-in control flows, @Input value transforms, and more. The list of new features is available in the Angular blog post on Angular 17.

For a complete overview of the breaking changes, please refer to the official changelog of Angular. This section only focuses on the most notable changes.

For instance, the `mutate` method has been removed from signals. Use the `update` method instead with immutable changes to the value, as in the example below:

```
// ------ Before:
items.mutate(itemsArray => itemsArray.push(newItem));

// ------ After:
items.update(itemsArray => [itemsArray, ...newItem]);
```

Updated Java Dependencies

Here is the list of the updated Java dependencies:

```
// ------ Updated Java Dependencies
Spring Boot BOM 3.0.3 → 3.0.12
Spring Cloud BOM 2022.0.1 → 2022.0.3
Spring Framework BOM 6.0.5 → 6.0.13
com.decisionbrain.db-keycloak 21.0.0 → 21.1.0
com.decisionbrain.platform:platform-util 1.0.3 → 1.1.0
com.decisionbrain:code-replicate-plugin 0.1.5 → 0.1.6
```

Also, Java Persistence API (JPA) entities and repositories now use a composite primary key to reflect what is defined in the database.

The ID object is represented by the `GeneEntityId` class.

Updated Python Dependencies

Here is the list of the updated Python dependencies:

```
Minimal pandas version 2.0.0 → 1.5.3
ibm-watson-machine-learning 1.0.34 → 1.0.338
```

Build

This section lists all changes related to the DB Gene Scaffolding and Gradle scripts.

Updated Gradle files

The Helm chart implementation has been changed.

The API is the same but the task `com.pswidersk.gradle.helm.HelmTask` has been replaced by `com.decisionbrain.gradle.plugin.helmchart.task.HelmTask`.

Deployment

This section lists all changes related to DB Gene integration to Docker and Helm.

Updated Scaffolded "values" File

The `environment/values-k8s*.yaml` files have been factorized. Some values have been moved to `src/values.yaml`, while the rest is now in file `values-k8s125-to-k8s128.yaml`, which you can use as a model for your environment-specific values file.

Updated Credentials

The default root username and password for Rabbit, Mongo, Postgres, and Keycloak have been changed. **Warning: if you update an existing environment (with existing data), you must reuse your existing credentials.** To do this, you will have to create values for the "dbos-secret" chart (more details on this page). Check `app-umbrella/dbos-secrets/values.yaml` to see the default credentials.

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Python

*This section lists all changes related to the Python integration to DOC, except for **Workers (Python)**.*

Removed Parameter

The `encoding` parameter has been removed from the constructor of class `CsvCollectorArchive`.

Updated Minimal Python Version

The minimal Python version has been downgraded to 3.11. This opens the possibility to develop Python workers with CPLEX (currently, the CPLEX Python package does not support 3.12).

Important notice:

Due to a limitation of the Python 3.11 `csv` module, there is an issue with this version of Python when CSV collector zip archives are written. An empty `str` is stored as a `None` value from the point of view of the Gene backend services. So, as Gene Python tasks cannot transmit empty strings in an output scenario, they will be interpreted as missing values.

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CPLEX

This section lists all changes related to CPLEX.

Updated CPLEX/CPO/OPL Packaging Worker

Starting from CPLEX 21.1.1, the engine-worker does not need to have CPLEX Studio configured anymore to be able to use CPLEX, CPO, or OPL.

You will need to revert the `build.gradle` file to the original content and define the rules to unpack the optim libraries:

```
  //Let Spring Boot know that cplex studio native libraries should be unpacked.
 bootJar {
     requiresUnpack '**/cplex*.jar'
     requiresUnpack '**/cpo*.jar'
     requiresUnpack '**/opl*.jar'
     }
```

To embed CPLEX, CPO, or OPL dependencies, you need to add them into the engine part, look at `/processing/engine/build.gradle` and uncomment the desired library.

Scripted Tasks Changes

This part lists all changes related to:

- *the task definition and script language, in Section **Definition**.*

Definition

This section lists all changes related to the task definition and script language.

Removed method

The method `evaluateImplementationClass` has been removed from the class `ExecuteRoutineStatement` (deprecated since 4.0.1-fp2).

UI Changes

This part lists all changes related to:

- *all table-based widgets, regardless of their type, such as the Data Explorer, Data Grid, Job List, Scenario List, Workspace List, Issue List, and Issue Details widgets, in Section **Tables**,*
- *the Rich Text widget, in Section **Rich Text**.*

Tables

This section lists the changes related to all table-based widgets, regardless of their type, such as the Data Explorer, Data Grid, Job List, Scenario List, Workspace List, Issue List, and Issue Details widgets.

Removed Deprecated Elements

`GeneScenarioListParams` has been removed. Instead, use `GeneScenarioListConfiguration`. Property `comparisonState` has been removed from class `GeneTableWidgetState`.

Updated Libraries

The `gene-ag-grid-utils.ts` that exports methods `getGeneTranslateService`, `setGeneTranslateService`, `setGeneContext`, and `getGeneContext` has been moved to library `@gene/widget-core`. If you use these methods in your Web UI code, you should update the imports.

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Rich Text Widget

This section lists all changes related to the Rich Text widget.

Updated Minimum Size of the Rich Text Widget

The minimum size of the Rich Text widget has been reduced to 1x1. To benefit from this change, the existing widgets should be removed and re-created. The CSS of the Rich Text widget has also been modified to reduce the margin on top of the text.

Deprecated Features and APIs Scheduled for Removal in 4.2.0

This section lists all removals that are planned to come in DB Gene 4.2.0.

- In class `GeneContextService`, methods `setScenarioIds()` and `addScenarioId()` have been deprecated since June 2020 and will be removed in 4.2.0.
  Instead, use `setScenarioSelection()` and `addToScenarioSelection()` respectively.

- The type and constant `GeneScenarioEventType` have been deprecated since 4.0.1-fp2 and will be removed in 4.2.0.
  Instead, use `ScenarioNotificationType`.

- In class `GeneSettingsService`, methods `registerDefaultSettings()` and `resetSettings()` have been deprecated since April 2020 and will be removed in 4.2.0.
  Instead, use `registerDefaultApplicationSettings()` and `resetApplicationSettings()` respectively.

- In interface `GeneWidgetHeaderConfiguration`, member `showMenu` has been deprecated since October 2021 and will be removed in 4.2.0.
  Instead, use `GeneMenuItemsProvider`.

- In interface `GeneModalDialogButton`, member shortcut, and associated type `GeneDialogButtonShortcut` have been deprecated since February 2021 and will be removed in 4.2.0.

- In class `ExecuteOptimizationServerTaskStatement`, the variant of the `withOutputScenario()` method that takes a format as argument has been deprecated since 4.0.0-fp4 and will be removed in 4.2.0.
  Instead, use the other variant of this method as only the CSV format is supported.

- In type `JobInputType`, the constant `NUMERIC` and the method `numeric()` have been deprecated since 4.0.1-fp3 and will be removed in 4.2.0.
  Instead, use `REAL` and `real()` respectively.