



Release Notes 2.8

g9

Version 2.8.1

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News and Changes

Aggregation associations

The g9 domain model honor aggregation on associations through the *Composite* property on associations in the domain model. The property is set in the modeling tools as follows:

- **Enterprise Architect:** Set property *Aggregate* to *composite* for the owner part of an association.
- **Ecore:** Set property *Containment* to *true* for the reference from the owner class.
- **Xcore:** Use a *contains* declaration rather than a *reference* declaration.
- **Java:** Use the *G9Association* annotation and set *isComposite* to *true*.

In g9, a composite association always goes from the owner to the member and should be navigable in that direction.

A new Domain Model Problem is added: Composite association is not navigable to member class.

New index property on Associations

Associations can be the source of foreign keys. Some of those should be indexed and that can be defined by an *Index on foreign key* property. It can be defined as described:

- **Enterprise Architect:** New boolean tagged value *Index on Foreign Key* for Association links stereotyped with Association. Default value is *False*.
- **Java modeling:** New annotation value *isIndexOnForeignKey* in *@G9Association*.
- **Ecore/Xcore modeling:** New g9 annotation for Associations, *isIndexOnForeignKey*.
- **Domain model:** New property on Association, *Index on Foreign Key*.
- **Database Models:** If an Association has property *Index on Foreign Key*, the derived Foreign key in the database model will have default value *True* on its *Index* property.

Java source version for the Java Model import

When creating the domain model from java source code, the code is parsed by the JDT (Java Development Tool) installed with Eclipse. The source version accepted is dependent on the JDT version installed. As a minimum the JDT must support Java 8. The default version is:

- Neon: Java 8
- Oxygen release 1, 2, and 3: Java 9
- Oxygen release 3a: Java 10
- Photon release 1: Java 10

Support for Java 10 in g9 projects

The default setting for java version in example projects and wizard generated projects are java 1.8. If you want to upgrade to java 10, do as follows.

Add the following dependencies to your `pom.xml`:

pom.xml

```
<dependency>
  <groupId>javax.xml.bind</groupId>
  <artifactId>jaxb-api</artifactId>
  <version>2.3.0</version>
</dependency>
<dependency>
  <groupId>com.sun.xml.bind</groupId>
  <artifactId>jaxb-core</artifactId>
  <version>2.3.0</version>
</dependency>
<dependency>
  <groupId>com.sun.xml.bind</groupId>
  <artifactId>jaxb-impl</artifactId>
  <version>2.3.0</version>
</dependency>
<dependency>
  <groupId>javax.activation</groupId>
  <artifactId>activation</artifactId>
  <version>1.1.1</version>
</dependency>
```

Example projects

Change the java version settings in the example project pom.xml files to this:

pom.xml

```
<configuration>
  <source>10</source>
  <target>10</target>
</configuration>
```

g9 Modeling projects

Change the java version settings in the generated pom.xml file to this:

pom.xml

```
<java.version>10</java.version>
```

Database import supports setting of schema

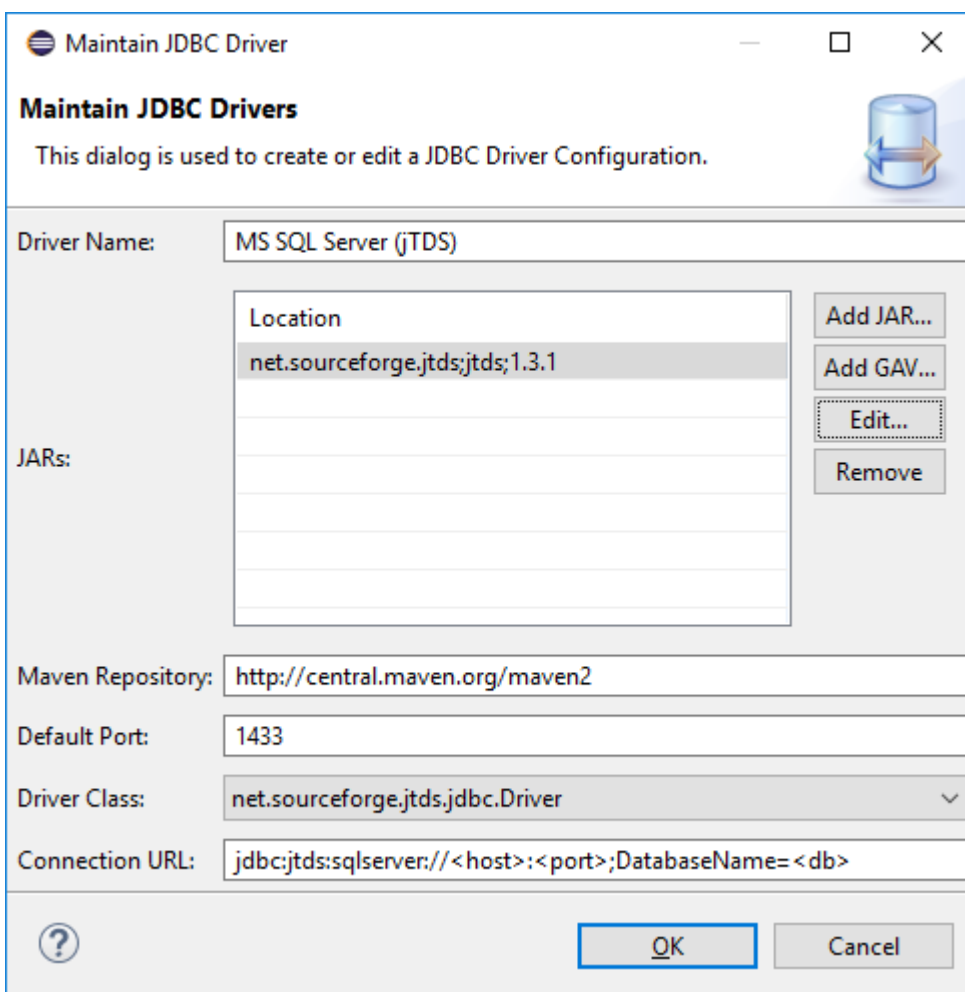
The database import wizard has a new property, *Schema*. For database systems using schemas, you now could choose among the available schemas when specifying which tables to import.

Restore Default for Maintain JDBC Drivers

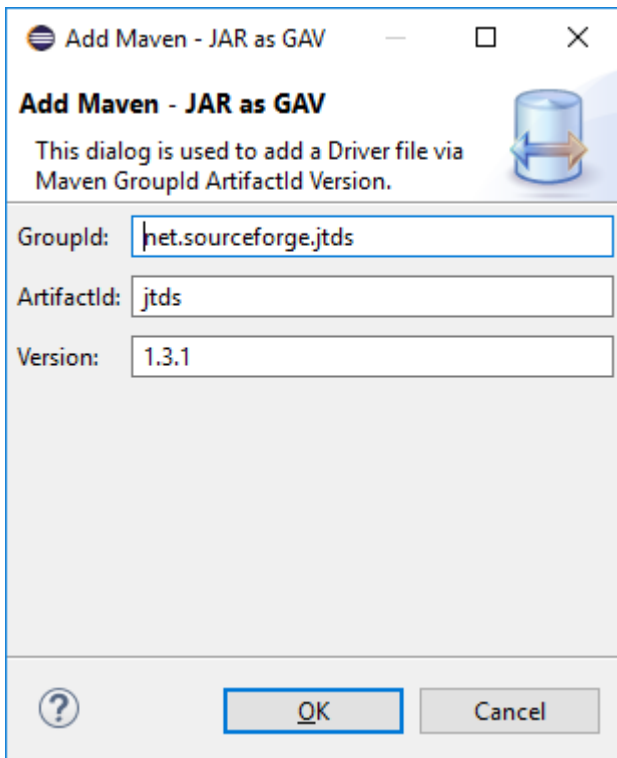
Various JDBC drivers have been updated to newer versions, including Derby, Maria, jTDS and Apache DBCP2. Previous versions are stored in your eclipse workspace. Use the *Restore Defaults* button in the *Maintain JDBC Drivers* dialog to remove old versions. To get new upgraded versions, use the *Install* button in the same dialog.

Add GAV settings to Maintain JDBC Drivers

You may use Maven GroupId, ArtifactId and Version for installation of JDBC drivers in addition to normal jar file import.



Press the *Add GAV...* button and input the GroupId, ArtifactId and Version:



Oracle DB profile upgrade

The system database profile for Oracle is updated regarding data types. The following types are added: clob, nclob, nchar, binary_float, binary_double and nvarchar2.

For Oracle the default mappings are changed so that

- g9 blob maps to blob, used to be long raw
- g9 double maps to binary_double, used to be number
- g9 real maps to binary_float, used to be number
- g9 vartext maps to varchar2, used to be long for text with length greater than 2000

An upgrade of older profiles will add the new types to Oracle. However, existing mappings will not be changed.

Upgrade package.json in React target

Generated "package.json" configuration file has been updated to recent versions of various dependencies. Among those are "react" 15.5 -> 16.2 and "webpack" 2.6 -> 4.1.

Spring version upgrades

This g9 version supports Spring WS 2.4.2.RELEASE and Spring 4.3.14.RELEASE. However, Spring WS 2.4.2 is dependent of Spring 4.2.9, but it may work using Spring 4.3.14. This combination will result in conflicting versions based on the g9 generated pom.xml. To avoid this, add necessary dependencies to the pom.xml for spring-oxm, spring-web, spring-aop, spring-beans, spring-webmvc.

The Jouteur generated code will result in a runtime exception, which can be avoided. Add the following to your G9Service.xml file:

G9Service.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:util="http://www.springframework.org/schema/util"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
    http://www.springframework.org/schema/beans/spring-beans-2.5.xsd
    http://www.springframework.org/schema/util
    http://www.springframework.org/schema/util/spring-util.xsd">
  <util:list id="x-dummy">
  </util:list>
</beans>
```

Licensing

The licensing regarding trial licenses are changed. When g9 or g9 Anonymizer is run for the first time on a computer, a trial license is automatically installed. If desired, you may register this trial license with Esito, using the License Ordering Form reached via *Windows > Preferences > g9 > License > Get a License*.

Generated code and Model Changes

Changes in model files

The Database Profile is upgraded.

Changes in generated code

Regeneration of code is necessary for generators mentioned in this release note.

Dependent versions

g9 runtime libraries uses 3. party open source libraries. Supported versions in this release are:

Library	Version		Library	Version
Spring	4.3.14.RELEASE		Hibernate	5.1.12.Final
ICEfaces	4.2.0 4.1.0-GA		JSF	2.2.10

Library	Version		Library	Version
log4j	2.10.0		Jetty	9.4.8.v20171121
Jackson	2.9.4		Spring WS	2.4.2.RELEASE
Castor	1.4.1		JasperReports	6.4.3
Joda Time	2.9.9		Apache POI	3.9
EJB	3.2.0		Guava	24.0-jre
React	16.2		Webpack	3.1.0
Spring Boot	1.5.11.RELEASE			

Improvements and corrected Errors

If nothing is written in the *Release Comment* section about an error, the error is corrected and a comment is not necessary.

g9

SUP-4938 - NumberFormatException when Restore Default on Up-to-limit on database profiles

SUP-5595 - A built in generator is not reinstalled when a local generator override project is closed

SUP-5705 - Oracle DB profile upgrade

Release Comment: The system database profile for Oracle is updated regarding data types. The following types are added: clob, nlob, nchar, binary_float, binary_double and nvarchar2. For Oracle the default mappings are:

- g9 blob maps to blob, used to be long raw
- g9 double maps to binary_double, used to be number
- g9 real maps to binary_float, used to be number
- g9 vartext maps to varchar2, used to be long for text with length greater than 2000

An upgrade of older profiles will add the new types to Oracle. However, existing mappings will not be changed in any way.

SUP-5737 - Opening models in project without g9 nature fails

SUP-5757 - NPE in dependency manager for bind model during build

SUP-5873 - Use Java 8 as Java source version for the Java Model import

SUP-5977 - Version settings in g9 products

Release Comment: Plugin dependencies are now versioned to avoid problems with installation of multiple g9 products such as g9, WSg, Database Import and Anonymizer.

SUP-5997 - New Model Projects fails and the wizard dialog remains open

SUP-6000 - NPE when one of the classes connected with an association can't be found

SUP-6012 - Ask to save Object Selection before creating a Dialog Model from it

Release Comment: When creating a Dialog Model from an Object Selection that is changed in an editor the action will ask you to save the editor content before the Dialog Model is created.

SUP-6020 - Problem in model if a java class implements an interface defined with generics

SUP-6023 - Content of database editor does not get refreshed after Refresh Database Model

SUP-6029 - Resizing of property sheet is a little too narrow for browse button to be seen

SUP-6034 - Multiple nature issues with Anonymizer and g9 getModelManager()

Release Comment: Now it is possible to have both g9 and Anonymizer nature on the same project.

SUP-6042 - Resources models should be allowed other places than just model catalog

SUP-6044 - The problem text for missing Dialog Template is still using "StyleGuide"

SUP-6067 - Too many drivers in eclipse cache

Release Comment: When configuring database drivers it sometimes leaves temporary bundles behind in the configuration/org.eclipse.osgi area. It previously left them also when restarting Eclipse. By systematically "uninstalling" these dynamic bundles it has significantly reduced the number of redundant temp bundles. Running Eclipse with the "-clean" parameter will purge this temp area on startup.

SUP-6068 - Context sensitive help does not work on example projects

SUP-6071 - Pom file generated from New Model Project wizard uses 2.8.0-SNAPSHOT as first version

Release Comment: The first version is set to 0.0.1-SNAPSHOT

SUP-6073 - Composite associations in Enterprise Architect could also be modeled directly as a composite

SUP-6080 - Opposite role is not set for one way associations in Java model update

SUP-6081 - IndexOutOfBoundsException when selecting OS association when assoc is missing

SUP-6085 - Associations need an index property

Release Comment:

- Enterprise Architect: New boolean tagged value *Index on Foreign Key* for Association links stereotyped with Association. Default value is *False*.
- Java modeling: New annotation value *isIndexOnForeignKey* in *@G9Association*
- Ecore/Xcore modeling: New g9 annotation for Associations, *isIndexOnForeignKey*
- Domain model: New property an Association, *Index on Foreign Key*
- Database Models: If an Association has property *Index on Foreign Key* the derived Foreign key in the database model will have default value *True* on its *Index* property.

SUP-6086 - Automatic-Module-Name setting in example and new projects

SUP-6096 - Wrong default property values shown in project settings

SUP-6101 - Sometimes the generation of a trial license fails

SUP-6102 - License file reference is not stored when a trial license is installed

SUP-6103 - Default build does not register builds correctly when the selected object is a container

SUP-6104 - Trial license should be installed automatically

Database Import

SUP-5673 - A foreign key column is also imported as a group if the column is part of the primary key

SUP-5674 - Import from a derby database gives synthetic names for associations

Release Comment: All associations will get names based on the foreign key name.

SUP-5677 - When importing from database the primary key property generated for columns is missing

SUP-5689 - DBImport does not mark unique on some fields

Release Comment: This error occurred when an index consisted of more than one column and the index wasn't the table's primary key.

SUP-5706 - Database imports should set a schema

Release Comment: The database import wizard has a new property, schema. For database systems using schemas you now could choose among the available schemas when specifying which tables to import.

SUP-5804 - Default value for a column is not imported to the domain model

SUP-5886 - Add GAV settings to Maintain JDBC drivers

SUP-5892 - Update JDBC drivers

Release Comment: Various JDBC drivers have been updated to newer versions, including Derby, Maria, jTDS and Apache DBCP2.

SUP-5914 - SQLException: The result set is closed when fetching meta data from a DBMS

Release Comment: The error is jdbc-driver dependent. Observed with mssql-jdbc version 6.2.2.jre8.

SUP-6017 - Restore Default for Maintain JDBC Drivers

Release Comment: Please use the Restore Defaults button in Maintain JDBC Drivers to get upgraded versions of system supplied drivers.

SUP-6033 - Fetch clears previous sub-package settings

SUP-6035 - Name collision when importing from database

Release Comment: The DBImport Groups in the generated model code, will get names based on constraint names, but prefixed with the class/table name. In g9 Anonymizer such groups will be shown with the original constraint name only.

SUP-6067 - Too many drivers in eclipse cache

Release Comment: When configuring database drivers it sometimes leaves temporary bundles behind in the configuration/org.eclipse.osgi area. It previously left them also when restarting Eclipse. By systematically "uninstalling" these dynamic bundles it has significantly reduced the number of redundant temp bundles. Running Eclipse with the "-clean" parameter will purge this temp area on startup.

SUP-6077 - DBImport - "Create Value Objects" should default to false

Release Comment: DBImport will now default to use groups instead of value objects.

SUP-6087 - Database drivers Default choice is not pre-installed

Client/React generator

SUP-6013 - Upgrade package.json i React target

Release Comment: Generated "package.json" config file has been updated to recent versions of various dependencies. Among those are "react" 15.5 -> 16.2 and "webpack" 2.6 -> 4.1.

Service/jGrape generator

SUP-5615 - The DefaultManager imports Date even if it is not used in the code

Release Comment: Unnecessary import statements have been removed from jGrape generated code

SUP-6106 - Creating an object with newInstance() should be based on getDeclaredConstructor()

Release Comment: This applies to generated code from the Jgrape generator.

Java Domain generator

SUP-5679 - Java generator with JPA does not use a key attributes PrimaryKeyCreator property

Release Comment: If the PrimaryKeyCreator property has a value in an primary key attribute, this value will be used when generating JPA annotations. If the value is DatabaseSystem a @GeneratedValue annotation is generated.

SUP-6105 - The constructors for primitive wrapper types should be replaced with valueOf

Release Comment: This applies to generated code from the Java Domain generator.

SUP-6119 - Case mismatch between folder name and package name

Release Comment: The package names and folder names are now both lower case.

EA/Xcore/Java synchronization

SUP-5698 - Read Aggregation property from Model tool

Release Comment: The g9 domain model honor aggregation on associations through the *Composite* property on associations in the domain model. The property is set in the modeling tools as follows:

- Enterprise Architect: Set property *Aggregate* to composite for the owner part of an association.
- Ecore: Set property *Containment* to true for the reference from the owner class.
- Xcore: Use a *contains* declaration rather than a *reference declaration*.
- Java: Use the G9Association annotation and set isComposite to true

In g9 a composite association always goes from the owner to the member and should be navigable in that direction.

SUP-6117 - Use java version more flexible when importing model from java source code

Release Comment: When importing the java source code is parsed by eclipse JDT and then interpreted by the model importer. The source version accepted is dependent on the JDT installed with Eclipse.

- Neon: Java 8
- Oxygen release 1, 2, 3: Java 9
- Oxygen release 3a: Java 10
- Photon release 1: Java 10

RESTful services generator

SUP-5964 - Generate Maven project with Jackson support for JSR-310 datatypes

Release Comment: The Jackson datatype dependency is added to the generated pom file in new model Project when at least one of the generators REST JGrape wrapper, REST server or REST Client are included.

JasperReport generator

SUP-6059 - Upgrades to jasper generated pom

Java Runtime

SUP-6032 - Upgrade of the g9 runtime dependencies

SUP-6093 - Support for the MySQL year type with LocalDate

Release Comment: Columns with DB-type year are now supported in the Hibernate generator and the g9 runtime, using LocalDate as the Java type.

Known Issues

New example projects can get cyclic dependency errors

This can happen occasionally due to issues with some versions of Xcore/Xtext. New Example projects can get into a cyclic dependency error situation, shown as an exclamation mark on the project node. In this situation "Clean" or reopening the project does not always help, however it is usually resolved by restarting Eclipse.

Slow Eclipse workspaces

If you experience that your Eclipse IDE is becoming slow, it is possible to improve. Here are some improvement suggestions:

1. Plugin cache - "eclipse.exe -clean"
Reloads all plugin cache (safe - you won't lose anything)
2. Local history
Remove ".metadata/.plugins/org.eclipse.core.resources/.history/"
3. Markers
In sub-directories of ".metadata/.plugins/org.eclipse.core.resources/.projects/" remove ".markers" and ".markers.snap" files.
<https://codedrawer.wordpress.com/2011/07/25/slow-or-frozen-eclipse-ide-start-after-a-crash/>
4. Settings
When upgrading major version of Eclipse, settings are not cleaned up properly.
Export your settings, then rename the ".metadata" directory, then import your settings.
<http://blog.pdark.de/2011/09/02/restoring-a-corrupted-workspace-in-eclipse/>
5. Create a new Eclipse workspace and import your projects into it.

Distribution & Requirements

Distribution

The g9 2.8 distribution consists of the g9 plugin update site. Information about downloading and installation is available on www.esito.no.

The g9 plugins contain all generators and the Java run-time jars. The run-time jars are available on Maven Central.

Requirements

The g9 tool-set consists of code that runs on Windows and Linux operating systems. The tool set runs as an Eclipse plug-in and requires Java version 8, and Eclipse Neon or newer.

Xcore modeling

To use Xcore for creating the domain models for g9, the Xcore and Xtext plugins must be installed. Some Eclipse packages already have Xcore and Xtext installed. If not, the recommended update site for Xtext is "Xtext All In One - Releases" <http://download.eclipse.org/modeling/tmf/xtext/updates/composite/releases/> . The recommended update site for Xcore is <http://download.eclipse.org/modeling/emf/emf/updates/2.10.x/>.

For Xcore modeling, the following plugin versions have been tested:

- EMF Xcore version 1.4.0-1.6.0
- Xtext version 2.12.0-2.14.0

Writing generators in Xtend

To be able to create your own generators in the Xtend language, the Xtend and Xtext plugins must be installed. Some Eclipse packages already have Xtend and Xtext pre-installed. If not, the recommended update site is "Xtext All In One - Releases"

For Xtend support, the following plugin versions have been tested:

- Xtend and Xtext versions: 2.12.0-2.14.0