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Performance Management Advisors Deployment Guide

Least Privileges: How to Configure Advisors Database Accounts with Minimal Privileges

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Least Privileges: How to Configure Advisors Database Accounts with Minimal Privileges

In the general Advisors installation scenario with Oracle, the Oracle schema owners are also used by Advisors components to access the database during runtime.

Starting with Advisors release 8.5.202, access to an Oracle database 12c R2 can be configured in such a way that the Advisors components access the database through low-privileged, runtime users that are not schema owners. The runtime users are granted only DML privileges and the privileges to execute a selected list of stored procedures that operate only within the Advisors database environment.

Advisors installations with MS SQL Server could be configured to access the database through lowprivileged runtime users in previous releases. In release 8.5.2, a dedicated security procedure has been added to help further restrict the privileges and allow access only to a minimum set of necessary stored procedures and functions, rather than access to all.

There can be different acceptable scenarios for configuring database accounts with reduced privileges to achieve the same goal. However, this page contains only recommended scenarios that were tested and have passed the evaluation.

This page describes how to configure users with least privileges, which can be used by Advisors components during runtime. You must set up the runtime users before you run the Advisors installation wizards.

The procedures on this page are divided by RDBMS type:

- Microsoft SQL Server
- Oracle

Microsoft SQL Server

This section includes information about the Advisors database users, and the privileges associated with each, for the following setup and installation tasks:

- Creating the Advisors Databases
- Creating the Database Objects
- Creating the Runtime User
- Running the Bulk Configuration Tool
- Running the Advisors Installation Wizards

Creating the Advisors Databases

You require one privileged database user. That user sets up all three Advisors databases. The privileged user requires privileges to create a database, create a login account, create a user, and to back up the database.

Creating Database Objects

The database owner (db owner) of all three Advisors databases creates the database objects in each database. The db owner executes the "new-database" SQL scripts, which are provided in the Advisors Installation Package (IP) for each database:

- Advisors Genesys Adapter (AGA) metrics database creation script is located in the Advisors Genesys Adapter IP.
- Advisors Platform database creation script is located in the Advisors Platform IP.
- Advisors metric graphing database creation script is located in the Advisors Platform IP starting with Advisors release 8.5.202, and in the Contact Center Advisor/Workforce Advisor IP in earlier releases.

Creating the Runtime User

You must make the low-privileged user, to be used during Advisors application runtime, a member of the [db_datareader] and [db_datawriter] roles in each of the three Advisors databases. The low-privileged user account must have a default schema that holds all objects within each database.

For example, let's say that three databases are created by the "sa" user during the database creation stage. The "sa" user creates a "callcenter01" user login account, which is mapped to each of the three databases and is assigned a default schema, "dbo".

Least Privileges: How to Configure Advisors Database Accounts with Minimal Privileges

Login Properties - callcenter	01				
Select a page General	Script	🔻 🛐 Help			
Server Roles	Users ma	pped to this login:			
	Мар	Database	User	Default Schema	*
🚰 Status	V	advisors_gametricsdb	callcenter01	dbo	
	V	advisors_mgdb	callcenter01	dbo	
	V	advisors_platformdb	callcenter01	dbo	
		master			-
		model			
		msdb			
		ReportServer			
		ReportServerTempDB			
		tempdb	callcenter01	dbo	🔻
Connection	Database	role membership for: advis	ors_gametricsdb		
Server: inf-bobcat-02		ccessadmin ackupoperator atareader			
Connection:	✓ db_datawriter				
sa		dladmin enydatareader			
View connection properties		enydatawriter			
Progress	db_se	curityadmin			
Ready	v public	:			
				ОК	Cancel

Once the user is added, the db owner must execute the spGrantExecute procedure, located in each of the three Advisors databases. The spGrantExecute procedure has the same name in each database, but has different content depending on the database that holds it. For example:

• AGA metrics database:

```
USE [advisors_gametricsdb]
GO
EXEC [dbo].[spGrantExecute]
@UserName = N'callcenter01'
GO
```

• Advisors metric graphing database:

```
USE [advisors_mgdb]
```

GO

```
EXEC [dbo].[spGrantExecute]
@UserName = N'callcenter01'
```

GO

Advisors Platform database:

```
USE [advisors_platformdb]
G0
EXEC [dbo].[spGrantExecute]
@UserName = N'callcenter01'
G0
```

It is possible to set up a separate "data reader/data writer" user for each database. However, in that case, the Platform user must also be made a data reader in the Advisors metrics database, or, at a minimum, must be granted a select permission on all views contained in the AGA metrics database. A corresponding database user name must be provided in the spGrantExecute procedure and in the Advisors installation wizard prompts.

If a CISCO data source is present, the Platform user must be granted permissions as described elsewhere in guide.

Running the Bulk Configuration Tool

The bulk configuration tool supplied with the Advisors Platform IP is used outside of the applications and is a candidate for a high-privileged user. The spGrantExecute procedure excludes the bulk configuration procedures. Genesys recommends that privileges to execute all procedures with names that start with "spBlk" be temporarily granted to a user when it is necessary to use the bulk configuration tool, and revoked once the Advisors configuration is complete and needs to be frozen. At this point, Genesys also recommends that you back up the Platform database.

Running the Advisors Installation Wizards

Once the database setup is complete, you can run the Advisors installation wizards. Enter the runtime database user name(s) in the installation wizard prompts for each database. The following examples show the runtime user specified in all of the database user-related fields.

• Advisors Genesys Adapter installation wizard > AGA metrics database

Service Servic	
Adapter Metrics Database	
Database server: Database name / Service name: Database port: Database user: Database user password: Confirm database user password:	
🔀 Cancel 🗢 Back 🔿 Next < Install	

• Advisors Genesys Adapter installation wizard > Platform database

Advisors Genesys Adapter In	
S GENESYS	
Advisors Platform Data	base
Database server:	reacted (2) and amongstations
Database name / Service name	advisors_platformdb
Database port:	1433
Database user:	callcenter01
Database user password:	
Confirm database user password:	••••••
🗶 Cancel	- Back - Next C Install

• Platform installation wizard > Platform database

Advisors Platform Da	atabase
Host name, IP address, or named database.	d instance of the database server for the Platform
Database server:	et lobold-02 us Hit generystals com
instance, then omit the port numb	se server is listening on. If database server is a named per. (1499 is the diffault port number for MS SQL Server).
Database port number:	1433
Database name:	advisors_platformdb
Database user:	callcenter01
Database user password:	/
Confirm database user passwor	ref:

• Platform installation wizard > metric graphing database

Metric Graphing Data	abase
Host name, IP address, or named	instance of the database server for the database.
Database server:	en-balloof-12 us int generaysteb.com
The port number that the databas	se several difference on. If named instance, then omit.
Database port number:	1433
Database name:	advisors_mgdb
Database user:	callcenter01
Database user password: 🔪	
Confirm database user passwor	d: •••••

• CCAdv/WA installation wizard > Genesys data source

Data Source 1	
Data source to be used by XMLGer Deployment Guide for database nar	n and Workforce Advisor (if installed.) Please see the ne format explanation.
Do not re-enter a data source a	leeady in the CCAW, database.
Database Link Name	advisors_gametricsdb
Data Source Type	GENESYS 👻
Display Name (optional)	
Threshold Update Delay (minutes)	5
RDBMS Type	SQL Server 💌
Add another data source	v
🔀 Cancel	Sack Next Constall

• CCAdv/WA installation wizard > Platform database

dvisors CCAdv/WA/RMC In:	staller		X
<mark>ଟ</mark> GENESYS			
Genesys Advisors Plat	tform Database		
Host name, IP address, or named in database.	nstance of the database server for the	Platform	
Database server:	inf-bolical-52 us int pressystab com		
	server is listening on. If database serv r. (1433 is the default port number for N		
Database port number:	1433		
Database name:	advisors_platformdb		
Database user:	callcenter01		
Database user password:			
Confirm database user password:			
🔀 Cancel	🗢 Back 🗪 Next 💌 Install		

• Frontline Advisor installation wizard > Platform database

Frontline Advisor Installer		
<mark>ଟ</mark> GENESYS		
Genesys Advisors Plat	tform Database	
Host name, IP address, or named in database.	nstance of the database server for the Platform	
Database server:	erf-bolicati-02 us int genesystati com	
The port number that the database server is listening on.		
Database port number:	1433	
Database name:	advisors_platforrmdb	
Database user:	callcenter01	
Database user password:		
Confirm database user password:		
X Cancel	← Back → Next < Install	

Oracle

This section includes the following topics:

- Prerequisites
- Creating the Runtime User
- What to do if something goes wrong
- Running the Advisors Installation Wizards
- Alternative Method to Configure Oracle Runtime Database Access
- Reusing Application and Database Roles

Prerequisites

- Use the Oracle 12c Release 2 RDBMS for your Advisors installation.
- Create three Advisors database users/schemas and the corresponding database objects using the procedures described in the base Oracle Database Installation section of this guide.

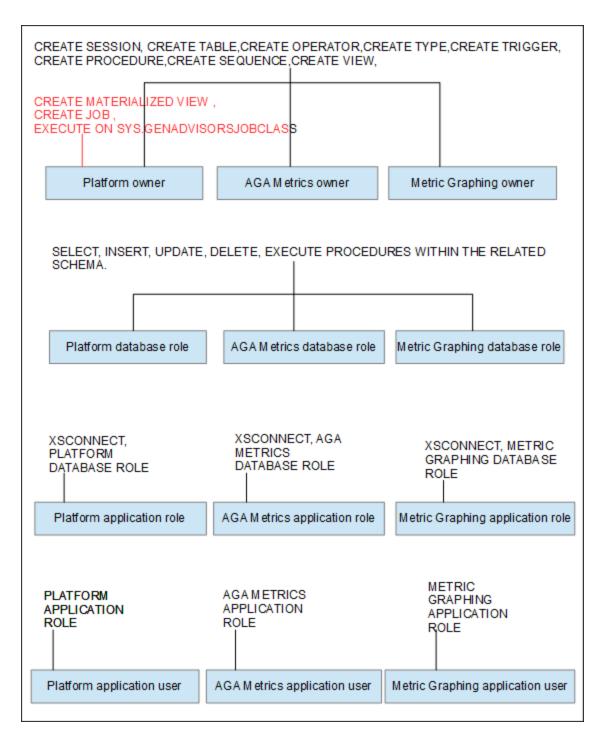
Creating the Runtime User

The solution described on this page is based on the Oracle Database Real Application Security feature and direct-login application users. Application users do not own database schemas by definition, but can create application sessions in the database. Application users can be assigned traditional database schemas owned by other users as their default schemas.

The overall procedure consists of four groups of tasks:

- 1. Application roles creation and direct-login application users creation with the XS_PRINCIPAL package.
- 2. Granting roles to direct-login application users with the XS_PRINCIPAL package.
- 3. Database roles creation and granting a set of restricted object-level privileges to the database roles.
- 4. Granting database roles to the corresponding application roles.

The following figure is a simplified schema showing the resulting schema owner privileges and the application user privileges.



The Platform schema owner might require an additional privilege if the Advisors application is installed using an Oracle database that does not have the JServer Java Virtual Machine installed.

EXECUTE ON SYS.DBMS_LOCK will be required in addition to the three privileges shown in red in the figure above. You must modify the advisors-platform-<version>_UsersAndRoles.sql script to accommodate the additional privilege.

Procedure:

Steps

- 1. Decide what you will use as names for the following entities:
 - The names and passwords for direct-login application users with a restricted set of privileges that Advisors components will use to access the database during runtime.
 - The names for the application roles that will be granted to the direct-login application users.
 - The names for regular database roles that will hold the restricted set of object-level privileges and that will be granted to application roles.

You will also need to provide the names of schema owners that should have been created already, using the base database creation procedure (these are the Platform, AGA metrics, and Metric Graphing schema owners).

For this example, we will use the following names:

- Adv1PltOwner,Adv2AgaOwner,Adv3MgOwner as schema owners.
- Adv1,Adv2,Adv3 as direct-login application users that will become Advisors runtime users.
- AdvPlt approle,AdvAga approle,AdvMg approle as application roles.
- AdvPlt dbrole,AdvAga dbrole,AdvMg dbrole as regular database roles.
- 2. Connect to SQL*Plus as a privileged user (such as "system") who has access to all three Advisors schemas. Execute the advisors-platform-<version>_UsersAndRoles.sql script, providing the names and passwords when prompted:

Connected to: Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production SQL> @advisors-platform-8.5.202.09_UsersAndRoles.sql Platform schema owner: Adv1PltOwner AGA Metrics schema owner: Adv2AgaOwner MG Metrics schema owner: Adv3MgOwner Platform runtime user name: Adv1 AGA Metrics runtime user name: Adv2 MG runtime user name: Adv2 MG runtime user name: Adv3 Platform application role: AdvPlt_approle AGA Metrics application role: AdvPlt_approle AGA Metrics application role: AdvPlt_approle MG application role: AdvMga_approle Platform database role: AdvPlt_dbrole AGA Metrics database role: AdvPlt_dbrole Enter value for platform_runtime_password: password1 Enter value for mg_runtime_password: password3

If you prefer, instead of executing the advisors-platform-<version>_UsersAndRoles.sql SQL*Plus script, you can use the Alternative Method to Configure Oracle Runtime Database Access procedure, described below. Using the alternative method, you execute the same commands that are provided in the SQL* Plus script, but in a more controlled way.

3. Once the setup is complete, use the following query to verify the direct-login application users (runtime users) that you have created:

SELECT * FROM DBA_XS_USERS;

The Name column contains the names of the direct-login application users that you created. The Schema column contains the default schema of the corresponding direct-login application user.

The user name must match the name that you planned for your runtime user. The default schema for the application user must be the name of the Platform, AGA metrics, or Metric Graphing schema that you added during the initial database creation. This will ensure that all of the database objects that the application accesses during runtime through the direct-login application user account will be pulled from the correct schema (Platform, AGA metrics, or Metric Graphing schema), while access control during runtime is restricted to the privileges assigned to the application user.

Considering the sample names used in this procedure, you should see results that are similar to the following:

NAME	SCHEMA
ADV1	ADV1PLTOWNER
ADV1	ADV1AGAOWNER
ADV1	ADV1MGOWNER

4. Verify your "direct login application user - application role" and "application role - db role" mappings using the following query:

SELECT GRANTEE, GRANTED_ROLE FROM DBA_XS_ROLE_GRANTS ORDER BY GRANTEE;

The application roles must be granted to the corresponding direct-login application users, while the DB roles are granted to the corresponding application roles. Considering the sample names used in this procedure, you should see results that are similar to the following:

GRANTEE	GRANTED_ROLE
ADV1	XSPUBLIC
ADV1	XSCONNECT
ADV1	ADVPLT_APPROLE
ADVPLT_APPROLE	ADVPLT_DBROLE
ADV2	XSPUBLIC
ADV2	XSCONNECT
ADV2	ADVAGA_APPROLE
ADVAGA_APPROLE	ADVAGA_DBROLE
ADV3	XSPUBLIC
ADV3	XSCONNECT
ADV3	ADVPLT_APPROLE
ADV3	ADVMG_APPROLE
ADVMG_APPROLE	ADVMG_DBROLE

What to do if something goes wrong

If it looks like something went wrong during your attempt to add the application users and the application and database roles, then you can remove those users and roles as shown in the samples below. For consistency, the following examples use the same names that were used in the preceding procedure. Removing application users and the application and database roles does not impact the initial database installation or the schema owner permissions.

Sample: Removing application users and application and database roles

```
EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL ('Adv1',xs_admin_util.cascade_option);
EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL ('Adv2',xs_admin_util.cascade_option);
EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL ('Adv3',xs_admin_util.cascade_option);
```

EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL('AdvPlt_role'); EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL('AdvAga_role'); EXEC SYS.XS_PRINCIPAL.DELETE_PRINCIPAL('AdvMg_role'); DROP ROLE AdvPlt_dbrole; DROP ROLE AdvAga_dbrole; DROP ROLE AdvMg_dbrole;

Running the Advisors Installation Wizards

Once the database setup is complete, you can run the Advisors installation wizards. Enter the runtime database user name(s) in the installation wizard prompts for each database. The following examples show the runtime user specified in all of the database user-related fields.

• Advisors Genesys Adapter installation wizard. Make sure you specify ojdbc8.jar as the Oracle JDBC driver.

🥫 Advisors Genesys Adapter Installer 📃 🗖	х
Server States and Se	
Oracle JDBC Driver.	
Oracle JDBC driver can be downloaded from	
http://www.oracle.com	
12c Release 1 or higher is recommended.	
Add Oracle JDBC driver:	
🗶 Cancel 🗢 Back 💌 Next 💌 Install	

• Advisors Genesys Adapter installation wizard. The AGA runtime user is specified in the **Database user** field.

Server Serve Server Serve	
Adapter Metrics Databa	15e
Database server: Database name / Service name: Database port: Database user: Database user password: Confirm database user password:	1521 Adv2
X Cancel	🗢 Back 🔿 Next

 Advisors Genesys Adapter installation wizard. The Platform runtime user is specified in the **Database** user field.

🛃 Advisors Genesys Adapter Ir		
GENESYS		
Advisors Platform Data	base	
Database server:	ent lance devit so let generativelab com	
Database name / Service name:	knodev?pdb1 us int generyvlab com	
Database port:	1521	
Database user:	Adv1)	
Database user password:		
Confirm database user password:	•••••	
🔀 Cancel	- Back - Next C Install	

• Platform installation wizard. The Platform runtime user is specified in the **Database user** field.

Advisors Platform Database	
Host name, IP address, or nam database.	ed instance of the database server for the Platform
Database server:	Int lynu-dev1 us Hill generytikk com
The port number that the datab for Oracle.)	ase server is listening on. (1521 is the default port number
Database port number:	1521
Service name:	product yield us into generatively com-
Database user:	Adv1
Database user password: 🗸	
Confirm database user passw	ord:

• Platform installation wizard. Make sure you specify ojdbc8.jar as the Oracle JDBC driver.

😽 Advisors Platform, Admin, and Web Services Installer	
Server Genesys"	
Oracle JDBC Driver	
Oracle JDBC driver can be downloaded from http://www.oracle.com	
12c Release 1 or higher is recommended.	
Add Oracle JDBC driver: C:\OracleJdbc\ojdbc <mark>8.j</mark> ar	Select File
	Select file
🔀 Cancel 🗢 Back 🔿 Next 💎 Install	

• Platform installation wizard. The metric graphing runtime user is specified in the **Database user** field.

abase
latabase server for the database.
ed-lynu-dev1 us Ht genesystals.com
se server is listening on. 1521 is the default port number
1521
product part at H generyclids con-
Adv3
d: ••••••

 CCAdv/WA/RMC installation wizard. The AGA schema owner is specified in the Database link name field.

Data assumes 4	
Data source 1	
Data source to be used by XMLGer	and Workforce Advisor (if installed). Please see the
Deployment Guide for database link	format explanation.
Do not re-enter a data source a	Iready in the CCA/WA database.
Database link name: 🦯	Adv2AgaOwner
Data source type:	
Display name (optional):	
Threshold update delay (minutes):	5
RDBMS type:	Oracle 💌
Add another data source:	

• CCAdv/WA/RMC installation wizard. Make sure you specify ojdbc8.jar as the Oracle JDBC driver.

Second and a	🗧 Advisors CCAdv/WA/RMC Installer	
XML Generator Page 13 - Oracle JDBC Driver Oracle JDBC driver can be downloaded from http://www.or.ele.com 12c Release 1 or higher is recommended.	S GENESYS"	
Oracle JDBC driver can be downloaded from http://www.or-sle.com 12c Release 1 or higher is recommended.		
12c Release 1 or higher is recommended.	XML Generator Page 13 - Oracle JDBC Driver	
	12c Release 1 or higher is recommended.	Select File
🗶 Cancel 🗢 Back 🔿 Next 💌 Install		

• CCAdv/WA/RMC installation wizard. The Platform runtime user is specified in the **Database user** field.

Advisors Platform D	Jatabase
Host name or IP address of the	database server for the Platform database.
Database server:	Inf Ayroundervin up 24 generoystels.com
The port number that the datab for Oracle.	ase server is listening on. 1521 is the default port number
Database port number:	1521
Service name:	produce yield us hit generytike con-
Database user:	Adv1
Database user password: 🗸	
Confirm database user passwi	ord:
	· · · · ·

• CCAdv/WA/RMC installation wizard. The metric graphing runtime user is specified in the **Database user** field.

Metric Graphing Database	
Host name or IP address of the	e database server for the database.
Database server:	int-lynu-dev1 us int generations con-
The port number that the datab for Oracle.	base server is listening on. 1521 is the default port number
Database port number:	1521
Service name:	triviter' part on H genery tild, con
Database user:	Adv3
Database user password:	
Confirm database user passw	vord:

Alternative Method to Configure Oracle Runtime Database Access

If you prefer to use a more controlled security setup, then instead of executing the SQL*Plus advisors-platform-<version>_UsersAndRoles.sql script as described in the procedure above, you can run the script in sections.

- 1. Connect to Oracle SQL Developer as a privileged user (such as system) who has access to all three Advisors schemas.
- Copy the entire contents of the script section below and paste it into the Oracle SQL Developer query window. Highlight Section 1 and execute. Answer all 12 prompts. This will provide the substitutions for all variables contained in the next sections of the script, which you will execute later. If you make a mistake with the substitute variables, repeat Section 1.

The scripts from all sections must be executed within the same session; that is, all queries must be run from the same SQL Developer window. The only exception is the object permission script that is generated in Section 3, which can be executed from any session, including your current session.

- 3. Once you are satisfied with the substitution, execute all of Section 2. Provide passwords, where prompted.
- 4. Highlight Section 3, and execute. This will generate Section 4.
- 5. Copy the results that were generated after you executed the Section 3 queries (that is, Section 4), and execute those as a privileged user (such as system).
- 6. Execute Section 5.

- - 1

SET HEADING OFF SET LINE 512 SET FEEDBACK OFF Accept PLATFORM_USERNAME char Prompt 'Platform schema owner: ' Accept AGA_USERNAME char Prompt 'AGA Metrics schema owner: ' Accept MG_USERNAME char Prompt 'MG Metrics schema owner: ' Accept PLATFORM_RUNTIME_USERNAME char Prompt 'Platform runtime user name: ' Accept AGA_RUNTIME_USERNAME char Prompt 'AGA Metrics runtime user name: ' Accept AGA_RUNTIME_USERNAME char Prompt 'AGA Metrics runtime user name: ' Accept MG_RUNTIME_USERNAME char Prompt 'MG runtime user name: ' Accept MG_RUNTIME_USERNAME char Prompt 'AGA Metrics runtime user name: ' Accept PLATFORM_APPLICATION_ROLE char Prompt 'Platform application role: ' Accept MG_APPLICATION_ROLE char Prompt 'AGA Metrics application role: ' Accept MG_APPLICATION_ROLE char Prompt 'Platform database role: ' Accept AGA_DATABASE_ROLE char Prompt 'AGA Metrics database role: ' Accept MG_DATABASE_ROLE char Prompt 'MG database role: '

- - 2

SET VERIFY 0FF; EXEC SYS.XS_PRINCIPAL.CREATE_USER (name => '&&PLATFORM_RUNTIME_USERNAME', schema => '&&PLATFORM_USERNAME'); EXEC SYS.XS_PRINCIPAL.CREATE_USER (name => '&&AGA_RUNTIME_USERNAME', schema => '&&AGA_USERNAME'); EXEC SYS.XS_PRINCIPAL.CREATE_USER (name => '&&MG_RUNTIME_USERNAME', schema => '&&MG_USERNAME');

EXEC SYS.XS_PRINCIPAL.SET_PASSWORD('&&PLATFORM_RUNTIME_USERNAME', '&&PLATFORM_RUNTIME_password'); EXEC SYS.XS_PRINCIPAL.SET_PASSWORD('&&AGA_RUNTIME_USERNAME', '&&AGA_RUNTIME_password'); EXEC SYS.XS_PRINCIPAL.SET_PASSWORD('&&MG_RUNTIME_USERNAME', '&&MG_RUNTIME_password');

EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&PLATFORM_APPLICATION_ROLE', ENABLED => TRUE); EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&AGA_APPLICATION_ROLE', ENABLED => TRUE); EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&MG_APPLICATION_ROLE', ENABLED => TRUE);

EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&PLATFORM_RUNTIME_USERNAME', 'XSCONNECT'); EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&AGA_RUNTIME_USERNAME', 'XSCONNECT'); EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&MG_RUNTIME_USERNAME', 'XSCONNECT');

EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&PLATFORM_RUNTIME_USERNAME', '&&PLATFORM_APPLICATION_ROLE'); EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&AGA_RUNTIME_USERNAME', '&&AGA_APPLICATION_ROLE'); EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&MG_RUNTIME_USERNAME', '&&MG_APPLICATION_ROLE'); EXEC SYS.XS_PRINCIPAL.GRANT_ROLES('&&MG_RUNTIME_USERNAME', '&&PLATFORM_APPLICATION_ROLE');

CREATE ROLE & PLATFORM DATABASE ROLE; CREATE ROLE & AGA DATABASE ROLE; CREATE ROLE & MG DATABASE ROLE: - - 3 --Grant permissions to database objects SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'.'||TABLE NAME||' TO &&AGA DATABASE ROLE;' FROM DBA TABLES WHERE OWNER=UPPER('&&AGA USERNAME') UNION SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'.'||VIEW NAME||' TO &&AGA DATABASE ROLE;' FROM DBA VIEWS WHERE OWNER=UPPER('&&AGA_USERNAME') UNION SELECT 'GRANT SELECT ON '||OWNER||'.'||VIEW NAME||' TO &&PLATFORM USERNAME;' FROM DBA VIEWS WHERE OWNER=UPPER('&&AGA USERNAME') UNION SELECT 'GRANT SELECT ON '||OWNER||'."'||VIEW NAME||'" TO &&PLATFORM USERNAME WITH GRANT OPTION;' FROM DBA VIEWS WHERE OWNER='&&AGA USERNAME' UNION SELECT 'GRANT EXECUTE ON '||OWNER||'.'||OBJECT NAME||' TO &&AGA DATABASE_ROLE;' FROM DBA_PROCEDURES WHERE OWNER=UPPER('&&AGA USERNAME') AND OBJECT TYPE<> 'PACKAGE' AND OBJECT TYPE<> 'TYPE' AND OBJECT TYPE<> 'TRIGGER' UNION SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'.'||TABLE NAME||' TO &&MG DATABASE ROLE;' FROM DBA TABLES WHERE OWNER=UPPER('&&MG USERNAME') UNION SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'.'||VIEW NAME||' TO &&MG DATABASE ROLE;' FROM DBA VIEWS WHERE OWNER=UPPER('&&MG USERNAME') UNION SELECT 'GRANT EXECUTE ON '||OWNER||'.'||OBJECT NAME||' TO &&MG DATABASE ROLE;' FROM DBA PROCEDURES WHERE OWNER=UPPER('&&MG USERNAME') AND OBJECT TYPE<>'PACKAGE' AND OBJECT TYPE<'TYPE' AND OBJECT TYPE<>'TRIGGER' UNION SELECT 'GRANT SELECT ON '||OWNER||'.'||OBJECT NAME||' TO &&MG DATABASE ROLE;' FROM DBA OBJECTS WHERE OWNER=UPPER('&&MG USERNAME') AND OBJECT TYPE='SEQUENCE' UNION SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'."'||TABLE NAME||'" TO &&PLATFORM DATABASE ROLE;' FROM DBA TABLES WHERE OWNER=UPPER('&&PLATFORM USERNAME') UNION SELECT 'GRANT SELECT, INSERT, UPDATE, DELETE ON '||OWNER||'.'||VIEW NAME||' TO &&PLATFORM DATABASE ROLE;' FROM DBA VIEWS WHERE OWNER=UPPER('&&PLATFORM USERNAME') AND VIEW NAME NOT IN (SELECT VIEW NAME FROM DBA VIEWS WHERE OWNER=UPPER('&AGA USERNAME')) AND VIEW NAME NOT LIKE '%REAL TIME%' AND VIEW NAME NOT LIKE '%LOGICAL CONTROLLER%' AND VIEW NAME NOT LIKE '%DS SERVICE MEMBER%' AND VIEW NAME NOT LIKE 'AGENT SKILL GROUP REAL TIME%' AND VIEW NAME NOT LIKE 'INTERACTION QUEUE REAL TIME%' AND VIEW NAME NOT LIKE 'SKILL GROUP%' AND VIEW NAME NOT LIKE 'CALL TYPE%' AND VIEW NAME NOT LIKE 'SERVICE%' AND VIEW NAME NOT LIKE 'INTERACTION QUEUE%' AND VIEW NAME NOT LIKE 'PERIPHERAL%' AND VIEW NAME NOT

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LIKE 'CONTROLLER TIME%'AND VIEW NAME NOT LIKE 'QUEUE SET%'

UNION

UNION

UNION

UNION

- - 5

OWNER=UPPER('&&PLATFORM USERNAME')

'CONTROLLER TIME%'OR VIEW NAME LIKE 'QUEUE SET%')

AND UPPER(OBJECT NAME) NOT LIKE 'SPBLK%'

SELECT 'GRANT SELECT ON '||OWNER||'.'||VIEW NAME||' TO &&PLATFORM DATABASE ROLE;' FROM DBA VIEWS WHERE

OWNER=UPPER('&&PLATFORM USERNAME')AND OBJECT_TYPE='PACKAGE'

OWNER=UPPER('&&PLATFORM USERNAME') AND OBJECT TYPE='SEQUENCE';

GRANT & AGA DATABASE ROLE TO & AGA APPLICATION ROLE; GRANT &&MG DATABASE ROLE TO &&MG APPLICATION ROLE;

GRANT & PLATFORM DATABASE ROLE TO & PLATFORM APPLICATION ROLE;

SELECT 'GRANT EXECUTE ON '||OWNER||'."'||OBJECT NAME||'" TO &&PLATFORM DATABASE ROLE;' FROM DBA PROCEDURES WHERE

OWNER=UPPER('&&PLATFORM USERNAME') AND OBJECT TYPE<> 'PACKAGE' AND OBJECT TYPE<> 'TYPE' AND OBJECT TYPE<> 'TRIGGER'

SELECT 'GRANT SELECT ON 'IOWNERII'.'IIOBJECT NAMEII' TO &&PLATFORM DATABASE ROLE:' FROM DBA OBJECTS WHERE

LIKE '%LOGICAL CONTROLLER%' OR VIEW NAME LIKE '%DS SERVICE MEMBER%'

AND (VIEW NAME IN (SELECT VIEW NAME FROM DBA VIEWS WHERE OWNER=UPPER('&&AGA USERNAME')) OR VIEW NAME LIKE '%REAL TIME%' OR VIEW NAME

VIEW NAME LIKE 'CALL TYPE%'

OR VIEW NAME LIKE 'AGENT SKILL GROUP REAL TIMES' OR VIEW NAME LIKE 'INTERACTION QUEUE REAL TIMES' OR VIEW NAME LIKE 'SKILL GROUPS' OR

OR VIEW NAME LIKE 'SERVICE%' OR VIEW NAME LIKE 'INTERACTION QUEUE%' OR VIEW NAME LIKE 'PERIPHERAL%' OR VIEW NAME LIKE

SELECT DISTINCT 'GRANT EXECUTE ON '||OWNER||'.'||OBJECT_NAME||' TO &&PLATFORM_DATABASE_ROLE;' FROM DBA_PROCEDURES WHERE

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Reusing Application and Database Roles

If you plan to have several Advisors installations that will use the same Oracle database, you can reuse the roles. You can also reuse the roles in application upgrades.

If you reuse the roles, then the following part can be omitted from section 1.

EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&PLATFORM_APPLICATION_ROLE', ENABLED => TRUE); EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&AGA_APPLICATION_ROLE', ENABLED => TRUE); EXEC SYS.XS_PRINCIPAL.CREATE_ROLE(NAME => '&&MG_APPLICATION_ROLE', ENABLED => TRUE); CREATE ROLE &&PLATFORM_DATABASE_ROLE; CREATE ROLE &&AGA_DATABASE_ROLE; CREATE ROLE &&MG_DATABASE_ROLE;