April 2016 Oracle Patch Set Update for Ex Libris Products Using 12.1

CONFIDENTIAL INFORMATION

The information herein is the property of Ex Libris Ltd. or its affiliates and any misuse or abuse will result in economic loss. DO NOT COPY UNLESS YOU HAVE BEEN GIVEN SPECIFIC WRITTEN AUTHORIZATION FROM EX LIBRIS LTD.

This document is provided for limited and restricted purposes in accordance with a binding contract with Ex Libris Ltd. or an affiliate. The information herein includes trade secrets and is confidential.

DISCLAIMER

The information in this document will be subject to periodic change and updating. Please confirm that you have the most current documentation. There are no warranties of any kind, express or implied, provided in this documentation, other than those expressly agreed upon in the applicable Ex Libris contract. This information is provided AS IS. Unless otherwise agreed, Ex Libris shall not be liable for any damages for use of this document, including, without limitation, consequential, punitive, indirect or direct damages.

Any references in this document to third-party material (including third-party Web sites) are provided for convenience only and do not in any manner serve as an endorsement of that third-party material or those Web sites. The third-party materials are not part of the materials for this Ex Libris product and Ex Libris has no liability for such materials.

TRADEMARKS

"Ex Libris," the Ex Libris Bridge to Knowledge , Primo, Aleph, Voyager, SFX, MetaLib, Verde, DigiTool, Rosetta, bX, URM, Alma , and other marks are trademarks or registered trademarks of Ex Libris Ltd. or its affiliates.

The absence of a name or logo in this list does not constitute a waiver of any and all intellectual property rights that Ex Libris Ltd. or its affiliates have established in any of its products, features, or service names or logos.

Trademarks of various third-party products, which may include the following, are referenced in this documentation. Ex Libris does not claim any rights in these trademarks. Use of these marks does not imply endorsement by Ex Libris of these third-party products, or endorsement by these third parties of Ex Libris products.

Oracle is a registered trademark of Oracle Corporation.

UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Ltd.

Microsoft, the Microsoft logo, MS, MS-DOS, Microsoft PowerPoint, Visual Basic, Visual C++, Win32,

Microsoft Windows, the Windows logo, Microsoft Notepad, Microsoft Windows Explorer, Microsoft Internet Explorer, and Windows NT are registered trademarks and ActiveX is a trademark of the Microsoft Corporation in the United States and/or other countries.

Unicode and the Unicode logo are registered trademarks of Unicode, Inc.

Google is a registered trademark of Google, Inc.

Document released: October 2013

Web address: http://www.exlibrisgroup.com

Table of Contents

1

Before You Upgrade

Make sure the application is stopped. Call the Hub if necessary.

For productions that use the Veritas cluster:

1   Freeze the cluster:

    a   As the root user, get the cluster name:

```
hagrp -list
```

    For example:

```
# hagrp -list
ClusterService              db01
ClusterService              db02
Group_Alma_Prod_DB_NA03     db01
Group_Alma_Prod_DB_NA03     db0
```

    b   Freeze it:

```
hagrp -freeze <NAME>
```

    For example:

```
# hagrp -freeze   Group_Alma_Prod_DB_NA03
```

2   Shutdown the DB and ask CPG to make a cold backup snapshot of the DB

This section lists the prerequisites for upgrading, provides an overview of the quick upgrade package, and describes the pre-upgrade procedures that you should perform.

Upgrade Prerequisites

The upgrade of your Oracle software and databases must be performed by a local DBA only.

Before starting an upgrade, a full backup of all Oracle 11 software and databases is absolutely necessary.

For information as to whether the application and application version with which you are working supports Oracle 11g2, refer to the documentation for your application.

Quick Upgrade Package Overview

The package contains Oracle 11.2 software and has been pre-built by Ex Libris.

Pre-Upgrade Procedure

Before you upgrade, you must perform the following procedure.

1   Log on to the Oracle server as an Oracle user (typically `oracle`).

2   Use the following command to determine which operating system is installed on the Oracle server:

    `uname`

    Note that the upgrade packages on the Ex Libris FTP server (ftp.exlibris.co.il) are compatible with the Linux, Sun Solaris, and AIX operating systems.

3   Download the appropriate upgrade package from the `/oracle/12.1.0.2/<platform>/quick` directory on the Ex Libris FTP server.

4   Place the upgrade package in a temporary directory, such as `/exlibris/ftp_from_exlibris`.

5   Extract the package using the following:

    - the `tar` utility, if your Oracle server is running on a Linux platform
    - the `gnu_tar` utility, if your Oracle server is running on a Sun Solaris platform
    - the `gnu_tar_aix` utility, if your Oracle server is running on an AIX platform

    For detailed instructions on using these utilities, see step 10 in Upgrading Oracle Software.

    The `tar` utility is available with your operating system installation. The `gnu_tar` and `gnu_tar_aix` utilities are available on the FTP server, along with the Oracle packages.

    If you are working with the `gnu_tar_aix` utility, you must rename it to `gnu_tar` after downloading it. If you are working with either `gnu_tar` utility, you must change permissions after downloading the utility. To do so, use the following commands:

```
cd /exlibris/ftp_from_exlibris

chmod +x gnu_tar*
```

Note: Make sure that the `oraInst.loc` file resides on the Oracle server – in the `/var/opt/oracle` directory on a Sun Solaris OS and in the `/etc` directory on a Linux OS. The contents of the `oraInst.loc` file are as follows:

```
inventory_loc=/exlibris/app/oracle/product/12r1/oraInventory
inst_group=dba
```

2

Upgrading Your Oracle Software and Database

This section describes how to upgrade your Oracle software, as well as each database associated with Oracle 12.

Upgrading Oracle Software

The upgrade instructions below relate to a standard Oracle installation in the `/exlibris/app/oracle/product/12r1` directory. These instructions are relevant for customers using the quick upgrade package, according to Ex Libris recommendations.

To upgrade your Oracle software:

1 Log on to the Oracle server as an application user (for example, Aleph, Rosetta).

2 Shut down the Ex Libris applications associated with Oracle 12.

3 Log on again to the Oracle server as an Oracle user (typically `oracle`).

4 Stop the Oracle listener:

    lsnrctl stop

5 Stop `EM dbconsole`, if active:

    setenv ORACLE_UNQNAME $ORACLE_SID

    emctl stop dbconsole

(If an error is received, then EM is probably not configured).

6 Check for invalid DB objects that may exist before the upgrade:

```
sqlplus /nolog

SQL> CONNECT / AS SYSDBA

SQL> set pause off

SQL> spool /tmp/before_upg_invld_objs.log

SQL> col owner form a20

col object_name form a40

col object_type form a30

select owner,object_name,object_type from all_objects where status <>
'VALID' ;

SQL> spool off

SQL> exit
```

7 Shut down all Oracle 11 databases.

8 Back up the existing database and listener configurations:

```
cd $ORACLE_HOME

tar -cf ./../conf12r1.tar ./dbs ./network/admin/listener*
./network/admin/tnsnames* ./.ssh
```

9 Back up the current Oracle software located in the `/exlibris/app/oracle/product/12r1`
directory and remove or rename it:

```
cd $ORACLE_HOME/..

mv 12r1 12r1_old
```

10 Extract the Oracle 11.2.0.3 quick upgrade package from the temporary directory in which you
placed it to the `/exlibris/app/oracle/product` directory:

```
cd /exlibris/app/oracle/product
```

- For Sun Solaris x-86 platforms:

```
cat /exlibris/<ftp_from_exlibris>/ora12.1.0.2_solaris_x86.tar.gz_* |
gnu_tar
-xzvf –
```

- For Sun Solaris Sparc platforms:

```
cat /exlibris/<ftp_from_exlibris>/ora12.1.0.2_solaris.tar.gz_* | gnu_tar
-xzvf –
```

- For Linux platforms:

```
cat /exlibris/<ftp_from_exlibris>/ ora12.1.0.2_linux64.tar.gz_*| tar -
xzvf –
```

11 Restore the original configuration of the databases and listener:

```
cd $ORACLE_HOME

tar -xf ./../conf12r1.tar
```

12 Open the `.cshrc` file under `$ORACLE_HOME` and change the `ORACLE_SID` environment variable to the appropriate variable.

13 Make sure ORACLE_HOME is owned by oracle:dba, and change permissions for the Oracle binary files:

If $ORACLE_HOME directory and sub-directories/files are not owned by oracle:dba, change it:

As `oracle` issue:

```
chown oracle:dba
```

as `root`:

```
cd /exlibris/app/oracle/product/12r1
./root.sh
chmod +s $ORACLE_HOME/bin/oracle
cd  $ORACLE_HOME
find . -type d | xargs chmod +x
```

On a Linux server:

```
find . -print0 |  xargs -0 chmod o+r
On AIX and Solaris servers:
find . | sed 's/.*/"&"/' | xargs chmod +r
```

Upgrading Oracle Databases

The following procedure should be performed for each database associated with Oracle 11.

To upgrade your Oracle databases:

1 Log on to the Oracle server as an Oracle user (typically `oracle`).

2 Start the Oracle Net listener:

```
lsnrctl start
```

3 For each database instance running on the Oracle home being patched, connect to the database using SQL*Plus. Connect as `SYSDBA` and run the following:

4
```
cd $ORACLE_HOME/OPatch
sqlplus /nolog
SQL> CONNECT / AS SYSDBA

   SQL>set pause off
   SQL> startup upgrade
   SQL> quit

   ./datapatch -verbose
```

```
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> shutdown
SQL> startup
```

5   Check the following log files for any errors:

- /exlibris/app/oracle/cfgtoollogs/sqlpatch/22674709/
  22674709_apply_<SID>_< TIMESTAMP >.log

- /exlibris/app/oracle/cfgtoollogs/sqlpatch/22291127/19694308/2229112
  7_apply_ SID>_< TIMESTAMP >.log

where `TIMESTAMP` is in the following format: YYYYMMMDD_HH_MM_SS.

6   Run the `utlrp.sql` script as follows:

```
cd $ORACLE_HOME/rdbms/admin
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> set pause off
SQL> @utlrp.sql
```

7   Check if any Invalid objects still exist using the command:

```
SQL> select owner,object_name,object_type from all_objects where status <>
'VALID' ;
```

8   Manually recompile any invalid objects. For example:

```
SQL> alter <object_type> owner.<object_name> compile;
```

Note: Those objects that were found to be in status INVALID before the upgrade, may not compile successfully after the upgrade, as well.

---

9   As the root user, run the root.sh script:

```
cd /exlibris/app/oracle/product/12r1
./root.sh
```

10   Assure that PSU was applied for the DB:

col DESCRIPTION form a40

col status form a20

col action_time form a40

select patch_id,action_time,description

from sys.registry$sqlpatch;

The result should contain (with your current date) the following:

```
PATCH_ID  ACTION_TIME                      DESCRIPTION
--------  ---------------------------      --------------------------------
```

```
21555660  09-MAY-16 07.54.09.468617 AM  Database PSU 12.1.0.2.5, Oracle JavaVM
Component (Oct2015)

22674709  09-MAY-16 07.54.09.480762 AM Database PSU 12.1.0.2.160419, Oracle
JavaVM Component (Apr2016)

22291127  09-MAY-16 07.54.09.913201 AM Database Patch Set Update : 12.1.0.2.160
419 (22291127)
```

Note: If the result does not show that the patch was applied, run the procedure again from step 4 (startup upgrade).

For DB's in **cloud environment only (**for backup purpose**),** perform the following:

From **oracle** UNIX user:

```
$cd $ORACLE_HOME/sqlplus /admi
$echo "col name for a9" >> glogin.sql
$echo "set lines 200" >> glogin.sql
```

If DB Console (EM) is configured and used, copy the following two directories and their contents from the previous `ORACLE_HOME` to the current `ORACLE_HOME`. (If the DB Console is not configured, these directories may not exist).

$ORACLE_HOME/<hostname_dbname>
$ORACLE_HOME/oc4j/j2ee/OC4J_DBConsole_<hostname_dbname>

For example:

cd /exlibris/app/oracle/product/12r1_old/oc4j/j2ee

cp -r OC4J_DBConsole_il-dba02.corp.exlibrisgroup.com_prm7 ../../../12r1/oc4j/j2ee

```
cd 12r1_old
```

```
cp -r il-dba02.corp.exlibrisgroup.com_prm7 ../12r1
```

Once the upgrade is finished, start the Ex Libris application and perform sanity checks.