Oracle® Database

Oracle Database Patch Maintenance Using Database Configuration Assistant

Release 23ai and Later Releases

F96304-01

July 2024

Database Configuration Assistant (DBCA) Database Maintenance

DBCA is the recommended patch maintenance for single-instance Oracle Database.

To simplify the patching process, Oracle recommends that you use DBCA for most single-instance Oracle Database deployments. DBCA is a preferred database maintenance utility to use for all On Premises database patch maintenance.

> **Note:**
>
> As a best practice to simplify maintenance and avoid potential issues, Oracle strongly recommends that you perform database maintenance using a new Oracle home and out-of-place patching. This is the preferred deployment choice for patching operations.

- When Do You Need to Patch Your Database
  To support the security of your database, and to maintain that security over time, Oracle recommends that you perform database maintenance using the quarterly Release Updates (RUs).
- About Oracle Database Release Update Patches
  Oracle provides quarterly updates in the form of Release Updates (RUs) to release new features, upgrade existing features, enhance security, or fix problems with supported software.
- Load SSH Keys Into Memory Before Starting DBCA
  Load SSH keys into memory for the terminal session where you start Oracle DBCA, to avoid user equivalency errors while starting Oracle DBCA.
- Start Release Update Maintenance Using DBCA
  Beginning with Oracle Database 23ai, you can use Database Configuration Assistant (DBCA) to perform software maintenance.
- Documentation Accessibility

When Do You Need to Patch Your Database

To support the security of your database, and to maintain that security over time, Oracle recommends that you perform database maintenance using the quarterly Release Updates (RUs).

Be aware of these guidelines as a best practice before you begin:

- Record the version numbers, patches, and other configuration information for your database
- Review the README for the Release Update before beginning.

About Oracle Database Release Update Patches

Oracle provides quarterly updates in the form of Release Updates (RUs) to release new features, upgrade existing features, enhance security, or fix problems with supported software.

Starting with Oracle Database 23ai, RUs are delivered in two formats:

- As a gold image that you can install out-of-place like a new software release.
- As a binary patch that you can apply in-place using OPatch or OPatchAuto.

You can apply out-of-place Oracle Database patches using the following steps:

1. Download the RU as a gold image.
2. Create a new Oracle home (target) identical to the old Oracle home (source) in the same Oracle base as the source Oracle home, using `runInstaller -setupDBHomeAs`.
3. Move Oracle Database from the old Oracle home to the new Oracle home.

After you move the database to the new Oracle home, all database services will start from the new home.

Related Topics

- runInstaller -setupDBHomeAs
- Creating a CDB with DBCA
- User Interface for PDB Relocation

Load SSH Keys Into Memory Before Starting DBCA

Load SSH keys into memory for the terminal session where you start Oracle DBCA, to avoid user equivalency errors while starting Oracle DBCA.

If you use a pass phrase on your system for SSH, then you must provide the pass phrase to load the SSH keys.

- Use the following commands to load SSH keys:

```
$ exec /usr/bin/ssh-agent $SHELL
$ /usr/bin/ssh-add
```

If needed, provide the pass phrase when prompted. You can then start Oracle Database Configuration Assistant (Oracle DBCA).

Start Release Update Maintenance Using DBCA

Beginning with Oracle Database 23ai, you can use Database Configuration Assistant (DBCA) to perform software maintenance.

The recommended procedure for software maintenance is to deploy Release Updates (RUs) into a new Oracle home. This process requires minimal downtime, because the patch process is an out-of-place update. Oracle provides a variety of patching technologies. However, for ease of use, Oracle recommends that you perform database patch maintenance using either DBCA or Oracle Fleet Patching and Provisioning.

For single-iunstance databases, DBCA is the recommended utility to use. For clustered environments, if you do not use Oracle Fleet Patching and Provisioning, then DBCA is commonly the easiest choice to assist you with patch maintenance.

For more information about patch deployment options, see Oracle Database Patch Maintenance Guidelines

1. Determine if you need to update Oracle Database software.

   Update software if the last software update was performed before your Apply Frequency policy permits. Apply Frequency policy defines how often you apply proactive software updates: quarterly, semiannually, or annually. Oracle recommends quarterly Apply Frequency.

   To determine the last software update, run `oraversion -compositeVersion`. For example:

   ```
   $ORACLE_HOME/bin/oraversion -compositeVersion
   23.04.0.0.0
   ```

2. If the patch update is out of date, then download the latest Oracle Database software RU image into a temporary file location, such as `/tmp`.

   > **Note:**
   >
   > The most recent Oracle Database release updates for all database releases in support are available from Primary Note for Database Proactive Patch Program (Doc ID 888.1)

3. Deploy the new RU image into a new Oracle Database Oracle home using the `runInstaller -deployDBGoldImage` command.

   For example, where the RU image is p123456, and the new Oracle Database Oracle home is `/u01/app/oracle/product/23.0.0.0/dbhome_2`:

   ```
   $ sudo runInstaller -deployDBGoldImage -imagePath /tmp/p123456.zip -
   targetHome /u01/app/oracle/product/23.0.0.0/dbhome_2
   ```

4. Run DBCA Precheck for Apply Software Update to check for any issues before you move the database.

   For example, where the target home is `/u01/app/oracle/product/23.0.0.0/dbhome_2` and the database unique name that you want to move is `sales`:

   ```
   $ cd $ORACLE_HOME/bin
   $ /u01/app/oracle/product/23.0.0.0/dbhome_2/bin/dbca -silent -
   moveDatabase -sourceDB sales -executePrereqs
   ```

   If DBCA reports that the target database home is missing patches that are already present in the source database home, then it means that one or more interim (one-off) patches were previously installed in the source database home, and these patches are not yet included in the Release Update used for the target database home. In that case, follow these steps:

   a. Build a gold image using the steps documented in My Oracle Support Creating Gold Image for Oracle Database and Grid Infrastructure Installations (Doc ID 2915366.2). To create the image, supply the following information:

      - The source database home (`opatch lsinventory`).
      - The target database home Release Update patch number in the candidate patch input text box.

   b. When the new gold image is available, run DBCA Precheck for Apply Software Update again using the new gold image.

5. Run DBCA to move the database to the new Oracle Database Oracle home. .

   To start a noninteractive (silent) session of DBCA, start DBCA using the following command, where *`source_DB_name`* is the Oracle system identifier (SID) for the single-instance database. For example, where the new Oracle Database home is `/u01/app/oracle/product/23.0.0.0/dbhome_2/` and the database unique name is `sales`:

   ```
   $ /u01/app/oracle/product/23.0.0.0/dbhome_2/bin/dbca -silent -
   moveDatabase -sourceDB sales
   ```

   DBCA is run from the target RU version Oracle Home to perform the move. DBCA provides both Noninteractive (silent) and graphic user interface (UI) modes to move the database. In silent mode, DBCA provides advanced options to control the behavior of the move operation. You can access the help for these commands in the following path:

   ```
   /u01/app/oracle/product/23.0.0.0/dbhome_2/bin/dbca -silent -
   moveDatabase -help
   ```

> **See Also:**
>
> The Database Configuration Assistant Command Reference in Oracle Multitenant Administrator's Guide *Oracle Multitenant Administrator's Guide* for information about creating a configuration file, and for additional DBCA commands and options.

6. After the database move operation is completed successfully, and you have verified the database functionality in the new target Oracle home, consider deleting the source Oracle Database Oracle home using the `deinstall` command.

> **Caution:**
>
> Only remove the source Oracle home after you verify the functionality of the relocated database in the target new Oracle home.

Related Topics

- *Oracle Multitenant Administrator's Guide*
- Oracle Database Installer Command-Line Options in *Oracle Database Installation Guide for Linux*

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Oracle Database Oracle Database Patch Maintenance Using Database Configuration Assistant, Release 23ai and Later Releases
F96304-01

Copyright © 2020, 2024, Oracle and/or its affiliates

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software, software documentation, data (as defined in the Federal Acquisition Regulation), or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software," "commercial computer software documentation," or "limited rights data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle®, Java, MySQL, and NetSuite are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.