Patch Delivery Methods for Oracle AI Database

In this article, you can learn about patch delivery methods for Oracle AI Database.

- Introduction to Oracle AI Database Patch Maintenance
  Discover how reactive patch maintenance differs from proactive patch maintenance.
- In-Place and Out-of-Place Patch Maintenance
  Oracle recommends that you perform Out-of-Place patch maintenance. Learn about the differences between In-Place and Out-of-Place patching.
- Proactive Maintenance with RUs and MRPs
  Proactive maintenance means that you routinely apply the quarterly Release Update, and, if you choose, apply Monthly Recommended Patches to update the Release Update patch.
- Reactive Maintenance with Interim Patches
  All patch methods allow interim (or "one-off") patches to be installed, but the version of an interim patch that is required can vary depending on the patching method.
- Streamlining Your Update Experience with Oracle Update Advisor
  Oracle Update Advisor is a software update recommendation framework that provides accurate, up-to-date information to keep software at recommended versions.
- Oracle Update Advisor Advanced Concepts and Use Cases
  Learn how to leverage advanced features of Oracle Update Advisor, such as standardizing environments, and other features to enhance your production environment management.
- Patch Conflict Resolution
  If you choose not to use Gold Image patch maintenance, then interim patches used in conjunction with other proactive maintenance methods, including custom Gold Images, may cause patch conflicts.
- Patching Oracle AI Database and Oracle GoldenGate
  When you use Oracle GoldenGate with Oracle AI Database, you must ensure that Oracle GoldenGate processes are shut down before patching the database.

- Frequently Asked Questions
  Find answers to common questions, and learn details about how you can address common issues.

Introduction to Oracle AI Database Patch Maintenance

Discover how reactive patch maintenance differs from proactive patch maintenance.

The Critical Patch Update (CPU) is the primary mechanism for the delivery of security bug fixes for all Oracle on-premises products. Critical Patch Updates are released quarterly on the third Tuesday of January, April, July, and October, and published on the Critical Patch Updates and Security Alerts page. Oracle retains the ability to issue out of schedule patches or workaround instructions in case of particularly critical vulnerabilities and/or when active exploits are reported in the wild. This program is known as the Security Alert program.

To protect your Oracle database estate from new AI-enabled threats, Oracle strongly recommends that you upgrade the major version of your databases to either Oracle Database 19c or Oracle AI Database 26ai. Oracle also strongly recommends that customers apply very recent quarterly Release Updates (RUs) to their databases. For more information about these recommendations, see *Recommendations to Help Protect Oracle Databases from Emerging AI-enabled Security Threats (PNEWS3015)*:

Recommendations to Help Protect Oracle Databases from Emerging AI-enabled Security Threats PNEWS3015

You can obtain up-to-date information on Oracle's Critical Patch Updates, Security Alerts and Bulletins site:

Critical Patch Updates, Security Alerts and Bulletins

The following terms are often used to refer to patches:

Reactive Patches react to specific maintenance issues. They are characterized as follows:

- Usually delivered as “Interim Patches”
- Historically known as “one-off” patches
- Are provided on demand for a given “defect, version, platform” combination
- Go through basic sanity tests
- Certain reactive fixes may be included in future Release Updates

Proactive Patches provide recommended updates for all Oracle AI Database customers. Proactive patches employ bundles of patches optimized to be delivered together. Starting with Oracle AI Database 26ai, these patch bundles will also be provided as gold images.

Proactive patches (patch bundles) are characterized as follows:

- Address high impact bugs that affect a given configuration
- Contain proven, low-risk fixes
- Include cumulative prior fixes

- Undergo additional levels of testing, determined by the features affected by the patch
- Are available on "My Oracle Support" by clicking on the **Patches** tab
- Are available as Release Updates (RU) and Monthly Recommended Patches (MRPs)

Starting with Oracle AI Database, for proactive patch bundles, Oracle recommends that you perform software maintenance using one of the following methods:

- **Database Configuration Assistant (DBCA)**: Use DBCA as the recommended software maintenance method for single-instance Oracle databases.
- **Oracle Fleet Patching and Provisioning (FPP)**: Use FPP as the recommended software maintenance method for Oracle Real Application Clusters (Oracle RAC) databases, and for Oracle databases deployed with Oracle Data Guard. In addition, Oracle recommends that you use FPP for larger database fleets, and with Exadata databases.

You can continue to use OPatch and OPatchAuto for in-place and out-of-place patching (installing the software update into a new Oracle home). Oracle recommends that all patch operations are performed as Out-of-Place patching.

> ⚠ **Caution**
>
> To avoid the risk of logical corruption, before you start patch maintenance, ensure that all running Oracle Data Pump jobs are stopped before applying patches or before performing any other software maintenance. You also must not start any new Oracle Data Pump jobs until the patching process is fully completed. Oracle strongly recommends that you stop all data movement operations of any kind during maintenance windows. For more information, see "Datapatch: Database 12c or later Post Patch SQL Automation KB148594 (formerly My Oracle Support 1585822.1)".

For more information about preparing a maintenance plan for your release, see the following My Oracle Support notes:

Related Topics

- Critical Patch Updates, Security Alerts and Bulletins
- Primary Note for Database Quarterly Release Updates KB106822 (formerly My Oracle Support 888.1)
- Oracle Database 19c and Oracle AI Database 26ai Important Recommended One-off Patches KB188772 (formerly My Oracle Support 555.1)
- Release Schedule of Current Database Releases PNEWS1360 (formerly My Oracle Support 742060.1)
- Datapatch: Database 12c or later Post Patch SQL Automation KB148594 (formerly My Oracle Support 1585822.1)

In-Place and Out-of-Place Patch Maintenance

Oracle recommends that you perform Out-of-Place patch maintenance. Learn about the differences between In-Place and Out-of-Place patching.

In-Place Patching means that you have one single Oracle home, and you apply the next Release Update (RU) or one-off patch as a patch to this Oracle home. **Out-of-Place patching** means that you move the database stack to run from a new Oracle home that is at the desired level of software version. Oracle releases the RU as software images that you can download to set up the new Oracle home. After the home is set up, the database stack can be moved to operate from this new Oracle home.

Understanding Out-of-Place Patching

Out-of-Place patching is performed by deploying gold images into a new Oracle home. This method has many benefits, including reducing downtime, reducing the risk of patch deployment issues, reducing the time required for switching services from the existing home to the updated home, and generally simplifying the process of deployment.

As a best practice, Oracle recommends that you use Out-of-Place patch maintenance. For simplicity and ease of deployment, Oracle also recommends that you use the specific Oracle patch maintenance utilities we recommend for your configuration type. The recommended utilities are Database Configuration Assistant (DBCA) for single-instance databases and Oracle Fleet Patching and Provisioning for Oracle Real Application Clusters (Oracle RAC) and Oracle AI Database deployments using Oracle Data Guard.

Understanding In-Place Patching

In-Place patching is performed by applying patch binaries to an existing Oracle home. You can use In-Place Patching to deploy individual patches as well as RUs using either OPatch or OPatchAuto. In this case, you deploy the RU or patch to your existing Oracle home in the form of binary patches. However, In-Place patch maintenance requires more manual work, and can be more complex to perform successfully. For most customers, Oracle strongly recommends that you choose Out-of-Place patching.

Quarterly Release Updates (RUs) are created with the intention to merge the latest RU into the preceding RU, as cumulative patch update bundles. Release Update Revisions (RURs) and one-off patches are also built to deploy in an Oracle home with a specific RU. As a result, before you can deploy the latest RU with cumulative updates, you need to remove patches deployed for the earlier different RU from the existing Oracle home before you can apply the latest RU to your existing Oracle home.

When you perform an in-place Oracle home patch update, you must stop all Oracle AI Database instances using that existing Oracle home, so you require a longer downtime maintenance window to perform manual patch management. Depending on the complexity of your patch environment in the existing Oracle home, the downtime required for this work can be significant. If an issue occurs, then you will have to create a new Oracle home as part of your recovery process. And even if you clone the Oracle home, you also clone the Oracle home history, which can create unexpected complications.

Proactive Maintenance with RUs and MRPs

Proactive maintenance means that you routinely apply the quarterly Release Update, and, if you choose, apply Monthly Recommended Patches to update the Release Update patch.

Oracle delivers two types of proactive content: Release Updates, and Monthly Recommended Patches. These software updates are available from the My Oracle Support (MOS) Customer Portal for each Oracle AI Database software release.

About Release Updates and Monthly Recommended Patches

Release Updates (RUs) are released quarterly, typically on the third Tuesday of January, April, July and October. To help to ensure your software performance and security, the RUs are required updates for Oracle software. Oracle recommends that you update your software quarterly, when the RUs are released.

Monthly Recommended Patches (MRPs) are optional software updates that are applied to the RUs. They contain recommended updates and fixes of known issues, grouped together for ease of deployment. These software updates are released monthly for software deployed on Linux systems. Each RU will be given a maximum of six Monthly Recommended Patches. The MRP updates are additional, optional fixes applied on top of a specific RU.

For platforms other than Linux, in place of MRPs, you can continue to download recommended interim patches and known issues patches to the Oracle software home.

Software updates are announced in the following locations

- *Primary Note for Database Proactive Patch Program (Doc ID 888.1)*
- Monthly Recommended Patches (MRPs)
- *Critical Patch Updates, Security Alerts and Bulletins*

Quarterly release updates are announced on the "Critical Patch Updates, Security Alerts and Bulletins" page each January, April, July, and October. Monthly Recommended Patches are released each month in between a quarterly RU, and are cumulative bundles of recommended patches. To receive email notifications when the quarterly RU software updates are available, subscribe to Oracle Security alerts.

Recommended Apply Frequency for Proactive Maintenance Patches

Apply frequency defines how often you apply an update to the database software. The Apply Frequency does not define selecting earlier Release Update or Monthly Recommended Patches.

- Release Updates (RUs)
  RUs are highly tested bundles of critical fixes which enable you to avoid known issues. They usually contain the following type of fixes: security, regression (bug), optimizer, and functional (which may include feature extensions as well).
- Monthly Recommended Patches (MRP)
  Oracle provides MRPs for Linux x86-64 to provide simplified recommended and interim software updates between the quarterly Release Updates.
- Additional Proactive Patches
  In addition to RUs and MRPs, there are quarterly full stack download patches and combo patches, as well as other proactive patches.
- Proactive Apply Frequency Patching Strategy
  Oracle recommends that you keep your database and Oracle Grid Infrastructure software current by applying the most recent Release Updates (RUs).

Related Topics

- Primary Note for Database Proactive Patch Program (Doc ID 888.1)
- Subscribe to Oracle Security Alerts
- Introducing Monthly Recommended Patches (MRPs) and FAQ (Doc ID 2898740.1)

Release Updates (RUs)

RUs are highly tested bundles of critical fixes which enable you to avoid known issues. They usually contain the following type of fixes: security, regression (bug), optimizer, and functional (which may include feature extensions as well).

Oracle recommends that you stay current by using RUs. By doing this, you minimize the chance of encountering known bugs and security vulnerabilities.

The nomenclature for the RU patches is a five-field number, such as 23.26.1.0.0.

- First numeral: This numeral indicates the major release version. It also denotes the last two digits of the year in which the Oracle AI Database version was released for the first time.
- Second numeral: This numeral indicates the release update year. In this example the release update year is 2026.
- Third numeral: This numeral indicates a refresh of an RU version. In this example, the numeral is , indicating that this is the first quarter release update.
- Fourth numeral: The fourth numeral indicates the Monthly Recommended Release Update patch level (MRP). Only MRPs will advance the fourth field. In this example, the numeral is 0.
- Fifth numeral: This numeral indicates the recut level of the version. In this example, the recut level is 0.

> **Note**
>
> The first three numerals mainly identify an Oracle AI Database release.

An RU is always Oracle RAC Rolling installable. The list of available RUs is documented in "Primary Note for Database Proactive Patch Program (Doc ID 888.1)"

Related Topics

- Primary Note for Database Quarterly Release Updates (Doc ID 888.1)

Monthly Recommended Patches (MRP)

Oracle provides MRPs for Linux x86-64 to provide simplified recommended and interim software updates between the quarterly Release Updates.

MRPs are a collection of recommended and interim software updates bundled together. Unlike an RU, an MRP does not affect the release revision number. The release number continues to be designated by the RU number. The MOS Conflict Checker will treat the MRP fixes as it does with other bundled software updates. Regular conflict resolution will take place. The patches in an MRP are tracked in the Oracle Inventory directory (`oraInventory`), which is updated to indicate which interim patches are installed from the MRP.

MRPs can be provided for each RU in the 6 months following each RU release. MRPs are provided for specific RUs, and will include the fixes documented in "Oracle AI Database Important Recommended Patches" (My Oracle Support Doc ID 555.1), plus the prior MRPs for the RU. All fixes in the MRP will always be Oracle RAC Rolling and Oracle Data Guard Rolling installable. While RUs will continue to be available on all supported platforms, and recommended and interim patches are available separately for all platforms, MRPs will only be offered on Linux x86-64 platforms. Customers can continue to request one-off patches on all supported platforms. The list of available MRPs is documented in "Primary Note for Database Proactive Patch Program (Doc ID 888.1)".

MRPs are provided as separate software updates for the database (RDBMS), Oracle Clusterware (OCW), Advanced Cluster File System (ACFS) and Rapid Home Provisioning (RHP). Oracle recommends applying MRPs using the out-of-place patching method. Where out-of-place patching is not feasible, you can still apply or uninstall MRPs in place by using `opatchauto` or `opatch` (for example, `opatch napply`).

> **Note**
>
> Because Oracle Grid Infrastructure MRPs are system patches, you cannot use `opatch napply` to apply these patches.

Related Topics

- Primary Note for Database Quarterly Release Updates (Doc ID 888.1)

- Oracle Database 19c and Oracle AI Database 26ai Important Recommended One-off Patches (Doc ID 555.1)
- Introducing Monthly Recommended Patches (MRPs) and FAQ (Doc ID 2898740.1)

Additional Proactive Patches

In addition to RUs and MRPs, there are quarterly full stack download patches and combo patches, as well as other proactive patches.

Quarterly Full Stack Download Patch and Combo Patch

Oracle delivers a number of different patches packaged together. For example:

- Quarterly Full Stack Download Patch for Exadata, which includes the quarterly Grid Infrastructure RU along with the OJVM update and other Exadata system patches in a single download.
- Combo Patch of Database RU

Other Proactive Patches

Oracle produces some proactive patches for very specific purposes outside of the normal update and revision cycle. Such patches are usually delivered as "Interim Patches". For example, special time zone patches are released every six months for customers who require systems to use latest time zone data.

> **Note**
>
> If you are using Oracle Grid Infrastructure software in addition to Oracle AI Database software, then you should use the parallel Oracle Grid Infrastructure RU. These Oracle Grid Infrastructure RUs include everything that the parallel database RU contains.

Proactive Apply Frequency Patching Strategy

Oracle recommends that you keep your database and Oracle Grid Infrastructure software current by applying the most recent Release Updates (RUs).

Apply frequency defines how often you apply an update to the database software. It does not define selecting a Release Update that is not the latest RU. Oracle recommends that you always update to the latest available RU for your release.

Release Update Lag and Apply Frequency

Oracle recommends you install the latest Release Update (RU), whenever you perform an installation. RUs include the most recent security, regression, and critical fixes. Applying RUs minimizes the chance of encountering known bugs and security vulnerabilities. Staying current with RUs reduces the likelihood of requiring separate

interim one-off patches, which lead to unique software baselines and a potential for ongoing costly patch maintenance.

> **Note**
>
> As part of your proactive maintenance policy, Oracle recommends that you apply quarterly Release Updates (RU) promptly, use Oracle Database security tools and features, and adopt security best practices. You can obtain up-to-date information on Oracle's Critical Patch Updates, Security Alerts and Bulletins site:
>
> Critical Patch Updates, Security Alerts and Bulletins

Example 1-1 Apply the Most Recent RU each quarter

This is the default plan for single-instance databases. The simplest maintenance schedule plan is to apply the latest Release Update (`RU_Latest`) quarterly, and never apply MRPs.

> **Note**
>
> If you choose this strategy, then Oracle recommends that your apply frequency is quarterly (every three months).

Table 1-1 Quarterly RU Software Maintenance Plan (RU_N)

Apply Frequency	Release Updates (RU_N)
Monthly	Not applicable
Quarterly	Every 3 months - Apply `RU_Latest` (*N*)
Semiannually	Every 6 months - Apply `RU_Latest` (*N*)
Annually	Every 12 months - Apply `RU_Latest` (*N*)

Example 1-2 Apply the most recent quarterly RU and most recent MRP for that RU

RU_LatestNN

> **Note**
>
> If you choose this strategy, then Oracle recommends that your apply frequency is quarterly (every three months).

Table 1-2 RU (RU_*N*) and Monthly Recommended Patches Software Maintenance Plan (MRP_*N*)

Apply Frequency	RU (*RU_Latest*) + *MRP_N*
Monthly	Every 1 month - Apply `RU_Latest` + *`MRP_N`*
Quarterly	Every 1 month - Apply `RU_Latest` + `Recommended_Latest_`*`N`*
Semiannually	Every 6 months - Apply `RU_Latest` + `Recommended_Latest_`*`N`*
Annually	Every 12 months - Apply `RU_Latest` + `Recommended_Latest_`*`N`*

Reactive Maintenance with Interim Patches

All patch methods allow interim (or "one-off") patches to be installed, but the version of an interim patch that is required can vary depending on the patching method.

Microsoft Windows platforms do not support normal interim (also known as “one-off") patches. See Oracle Database - Overview of Database Patch Delivery Methods for 12.2.0.1 and greater (Doc ID 2337415.1) for details of current and historic proactive patches.

Interim patches are delivered on request as standalone patches for a given “defect, version, platform” combination.

- Interim patches are provided on top of any release or Release Updates (RUs) for supported software versions as long as it is technically feasible to do so.
- Interim patches go through basic functional, stress and performance sanity tests.
- Interim patches are considered for inclusion in Release Updates (RUs) based on their technical severity or number of affected features.

Generally, instead of requesting an interim patch, Oracle recommends that you apply the most recent Release Update that includes the fix. For an additional discussion of the pros and cons of asking for interim bug fixes in patches instead of following an RU maintenance schedule, see Should I ask for a one-off bug fix or wait for the next Release Update (Doc ID 2648544.1).

Oracle Database online patching (or **hot patching**) enables you to apply particular interim patches to a running database without shutting down instances. Using this option can minimize application disruption. Database online patching is always performed in-place using the OPatch utility. For more information, see RDBMS Online Patching Aka Hot Patching (Doc ID 761111.1).

Streamlining Your Update Experience with Oracle Update Advisor

Oracle Update Advisor is a software update recommendation framework that provides accurate, up-to-date information to keep software at recommended versions.

- What is Oracle Update Advisor
  Oracle Update Advisor analyzes your Oracle AI Database and Grid Infrastructure homes, identifies necessary updates, and delivers preconfigured deployment packages.
- How Do I Get Started with Oracle Update Advisor
  To get started with Oracle Update Advisor, you just need your Oracle user information, secure HTTP, and a supported Oracle software maintenance tool.
- Example of Using Oracle Update Advisor with DBCA
  See how you can use Database Configuration Assistant (DBCA) with the Oracle Update Advisor features to simplify proactive checks during maintenance.
- Example of Using Oracle Update Advisor with Oracle FPP
  Oracle recommends that you use Oracle Fleet Patching and Provisioning (Oracle FPP) with the Oracle Update Advisor features to maintain Oracle Real Application Clusters (Oracle RAC) databases.

What is Oracle Update Advisor

Oracle Update Advisor analyzes your Oracle AI Database and Grid Infrastructure homes, identifies necessary updates, and delivers preconfigured deployment packages.

Maintaining software is not easy. To understand what you need to maintain your software enterprise security and functionality, administrators must review multiple product information sources, including My Oracle Support documents, and support recommendation technical briefs. You then must apply that information in accordance with your maintenance polices.

Streamlined Access to Updates

Oracle Update Advisor provides you with a powerful software update recommendation framework to streamline your maintenance. The advisor analyzes your Oracle AI Database and Oracle Grid Infrastructure homes, and identifies up-to-date guidance based on your defined maintenance policy, in a single, easy-to-understand report. Oracle Update Advisor also provides you with a preconfigured, fully functional gold image zip file that you can use to simplify the deployment of consistent operating system and Oracle software updates across your enterprise.

The Oracle Update Advisor commands are added to Oracle AI Database Configuration Assistant (DBCA) and Oracle Fleet Patching and Provisioning (FPP). With the release of Database Configuration Assistant Utility (`dbcactl`) , a lightweight self extractable executable version of the Database Configuration Assistant, DBCA now also supports Oracle Database 19c as well as Oracle AI Database. It is not available with Oracle Database 21c. These commands enable you to provide to Oracle information that can help you to maintain the Oracle AI Database and Oracle Grid Infrastructure software at recommended versions. Other Oracle tools are planned to interact with the Oracle Update Advisor in the future.

Accurate Software Health Status, Up-to-Date Version Guidance

Oracle Update Advisor provides two fundamental functions:

- Software Status
- Software Recommendations

Software Status indicates whether the currently installed software meets Oracle's current recommendations. When the installed software does not meet current recommendations, Oracle Update Advisor provides a list of **Software Recommendations** and also a **software image** of updates and maintenance fixes that you can use to bring your software up to the current recommendations for your software. That image is then used to create a new Oracle Home that meets the software recommendations.

Where to learn more about Oracle Update Advisor

The "Oracle Update Advisor API Reference and Integration Guide" is now available directly on Oracle Help Center, without requiring a login to Oracle Support:

Oracle AI Database Oracle Update Advisor API Reference and Integration Guide

The Knowledge Base article KB886700 continues to be available.

Related Topics

- Oracle Update Advisor API Reference and Integration Guide KB886700

How Do I Get Started with Oracle Update Advisor

To get started with Oracle Update Advisor, you just need your Oracle user information, secure HTTP, and a supported Oracle software maintenance tool.

What do you need?

Using Oracle Update Advisor is simple, as it enhances the use of features you already use. To enable Oracle Update Advisor functionality, you just need the following:

- A valid Oracle Support contract, Customer Support Identifier (CSI) number, and a My Oracle Support user
- Secure HTTP (HTTPS) network connectivity to Data Transport Services (DTS), https://transport.oracle.com to transport information for obtaining proactive advice on product use and configurations
- Oracle Object Store service, which is required to download the Oracle Update Advisor image.

> **Note**
>
> Oracle Update Advisor uses Data Transport Services (DTS) to handle customer registration for Oracle Update Advisor, to upload configuration data (such as RU and patch inventory), and to deliver patch update status and recommendations.

How does it work?

Using Oracle Update Advisor can be as simple as 1, 2, 3:

1. Register a My Oracle Support user for the Oracle Update Advisor service.
2. Use either Database Configuration Assistant (DBCA), Fleet Patching and Provisioning (FPP), or Database Configuration Assistant Utility (`dbcactl`) with Oracle Update Advisor commands to run a check on the software status of an installed Oracle home
3. Review the status report. If the status is not green, then download and install the recommended software image.

Related Topics

- Overview of Object Storage service
- Database Configuration Assistant Utility (dbcactl) - Standalone Software Package (Doc ID 3099785.1)

Example of Using Oracle Update Advisor with DBCA

See how you can use Database Configuration Assistant (DBCA) with the Oracle Update Advisor features to simplify proactive checks during maintenance.

If your preferred patching tool is DBCA then you just need to add an Oracle Update Advisor command to your patching process.

To register the user for Oracle Update Advisor, use the following command syntax, where *`sso_username`* is the name of the Oracle user account, and *`csi_number`* is the Customer Support Identifier (CSI) number

```
dbca -managePatches -silent -registerUser -ssoUserName sso_username -
csiNumber csi_number
```

To check software service, use the following command syntax:

```
dbca -managePatches -checkPatchStatus -silent
```

Example of Using Oracle Update Advisor with Oracle FPP

Oracle recommends that you use Oracle Fleet Patching and Provisioning (Oracle FPP) with the Oracle Update Advisor features to maintain Oracle Real Application Clusters (Oracle RAC) databases.

To manage the maintenance updates in your cluster, you use the Oracle Fleet Patching and Provisioning Control (RHPCTL) command-line utility with Oracle Update Advisor commands.

For maintenance with Oracle Update Advisor, you use Oracle Fleet Patching and Provisioning in Local Mode. This enables you to perform version updates on a local Oracle RAC Cluster without any configuration except for connectivity to the Oracle Update Advisor. See how in this example:

1. Register with Oracle Update Advisor using the command `rhpctl manage updateadvisor update`. The syntax is as follows:

   ```
   $ rhpctl manage updateadvisor
         {-registeruser -ssousername <sso_username>
               [-csinumber <csi_number]
               [-proxyserver <proxy_server> -proxyport <port_number>
                     [-proxyuser <proxy_user>] ]
               [-endpoint <endpoint_url>] |
          -unregisteruser}
   ```

   These options are as follows:

   - `-registeruser`: Register user to Oracle update advisor
   - `-ssousername <sso_username>`: SSO user name
   - `csinumber <csi_number>`: Customer Support Identifier (CSI)
   - `-proxyserver <proxy_server>`: Proxy server IP/name
   - `-proxyport <proxy_port>`: Proxy server port number
   - `-proxyuser <proxy_user>`: Proxy server user name
   - `-endpoint <endpoint_url>` Oracle Update Advisor end point URL
   - `-unregisteruser` Unregister the user from Oracle Update Advisor

   In this example, the My Oracle Support user is `enterprise1`, the CSI number is `123456789`, the proxy server is 192.0.2.1, the proxy port is 20001, and the proxy user `maint1`:

   ```
   rhpctl manage updateadvisor update -registeruser --ssousername
   enterprise1 -csinumber 123456789 -proxyserver -192.0.2.1 -proxyport
   20001 -proxyuser maint1
   ```

2. Use the command `rhpctl evaluate patch` to check the status of the Oracle AI Database or Grid Infrastructure home that you are maintaining. In this example, we check the Oracle RAC home `/u01/app/oracle/product/23.0.0/dbhome_1`:

   ```
   rhpctl evaluate patch -path /u01/app/oracle/product/23.0.0/dbhome_1
   ```

3. After you validate the software installed on that test system, you can deploy the gold image software version on your production environment

This is a simple example. For examples using a centralized approach, you can refer to the Oracle Fleet Patching and Provisioning documentation. With Oracle Fleet Patching and Provisioning, you can centrally manage a complete Oracle AI Database landscape, including Oracle Exadata, Oracle Grid Infrastructure, Oracle AI Database, Oracle Restart, and Oracle Single instance deployments.

Related Topics

- Fleet Patching and Provisioning Use Cases in *Oracle Fleet Patching and Provisioning Administrator's Guide*
- Using Oracle Update Advisor in Oracle FPP Local Mode in *Oracle Fleet Patching and Provisioning Administrator's Guide*
- Using Oracle Update Advisor in Oracle FPP Server Mode in *Oracle Fleet Patching and Provisioning Administrator's Guide*

Oracle Update Advisor Advanced Concepts and Use Cases

Learn how to leverage advanced features of Oracle Update Advisor, such as standardizing environments, and other features to enhance your production environment management.

- Proactive Enterprise Maintenance Using Policies with Oracle Update Advisor
  Oracle Update Advisor can help you implement policies across your enterprise.
- Network Configuration Considerations for Oracle Update Advisor
  To use Oracle Update Advisor, configuring secure HTTP protocol. proxy networks and access can require decisions and configuration choices.
- Understanding Oracle Update Advisor Recommendations
  The Oracle Update Advisor status recommendations are simple, but here are some additional details.
- Obtaining Oracle Software Images with Oracle Update Advisor
  The maintenance utility you use with Oracle Update Advisor downloads and deploys the Oracle software image on your system.

Proactive Enterprise Maintenance Using Policies with Oracle Update Advisor

Oracle Update Advisor can help you implement policies across your enterprise.

Oracle Update Advisor includes policy attributes that you can configure for your enterprise. When establishing an update policy, you must decide the following:

- How many times a year do I want or need to maintain my software?

- Do I want to apply the latest release update at the time of my software maintenance window, or install an earlier release update, using a different apply frequency model?

As part of your proactive maintenance policy, Oracle recommends that you apply quarterly Release Updates (RU) promptly, use Oracle Database security tools and features, and adopt security best practices. You can obtain up-to-date information on Oracle's Critical Patch Updates, Security Alerts and Bulletins site:

Critical Patch Updates, Security Alerts and Bulletins

The following options are available :

Policy Attribute	Description
Apply Frequency	How often do you want to apply an update to the software: • Monthly • Quarterly (default) • Semiannually • Annually
Release Update Lag	With release update lag, you can delay installing the latest Release Updates to reflect your planning and preferences: • NoLag (default) • N-1 (one Release Update behind the latest Release Update) • N-2 (two Release Updates behind the latest Release Update)

Network Configuration Considerations for Oracle Update Advisor

To use Oracle Update Advisor, configuring secure HTTP protocol. proxy networks and access can require decisions and configuration choices.

The Oracle Update Advisor API is hosted within Oracle Cloud Infrastructure (OCI) and is publicly accessible over the internet. Authorized customers can interact with the Oracle Update Advisor API without requiring a private or dedicated network connection. To access Oracle Update Advisor API, client systems must be able to initiate outbound HTTPS connections to the following endpoint:

https://transport.oracle.com

This endpoint serves as the primary access point for the Oracle Update Advisor service. It is built on standard RESTful API protocols, ensuring compatibility with a wide range of client applications and integration tools. Clients can connect to this endpoint in one of two ways:

- Directly over the internet using standard HTTP or HTTPS client libraries or tools.
- Indirectly using a configured HTTP or HTTPS proxy, which is often used in enterprise environments where direct internet access is restricted or filtered.

> **Note**
>
> The client environment must permit outbound traffic on TCP port 443 (HTTPS) to the transport.oracle.com domain.

Understanding Oracle Update Advisor Recommendations

The Oracle Update Advisor status recommendations are simple, but here are some additional details.

Oracle Update Advisor gives you three easy-to-understand status indicators for your Oracle home: **Green**, **Yellow**, **Red**:

- **Green**: No action needed, as your system is updated in accordance with Oracle-Recommended best practices.
- **Yellow**: Update recommended. Typically, this status indicates that your Oracle software is one release update cycle behind the recommended Release Update.
- **Red**: Update required. Typically, this status indicates that your Oracle software is more than one release update cycle behind the recommended Release Update, or that it is missing critical application fixes or security fixes.

These basic status indicators can be modified by the Oracle Update Advisor policies that you establish. For example, if you have set a policy for release updates to lag one release behind the latest update (N-1), then an N-1 Oracle home status is Green, because it is your policy to be one release behind the latest Release Update.

If the status is not Green, then Oracle strongly recommends that you follow the recommendations Oracle Update Advisor reports for your Oracle home, and update your software with the recommended software image. You can choose whether to download and deploy this image with Database Configuration Assistant (DBCA) or with Fleet Patching and Provisioning (FPP).

Obtaining Oracle Software Images with Oracle Update Advisor

The maintenance utility you use with Oracle Update Advisor downloads and deploys the Oracle software image on your system.

Software images with release update fixes are obtained automatically with the maintenance tool that you use, which can be either Database Configuration Assistant (DBCA) or Oracle Fleet Patching and Provisioning (FPP).

Standard Release Update gold images are available instantly, and can be downloaded directly.

Gold images that have additional fixes can take longer to be available to use. In that event, Oracle provides you with an estimate for when the software image for your software can be downloaded.

Advanced software image considerations

- As Oracle proactive fixes and guidelines can change dynamically in response to events, the recommendations that you receive can change, depending on when you ask the Oracle Update Advisor for a software status.
- Standardization of environments is key when doing software maintenance. For that reason, it is important to ensure that your Production environment doesn't have untested software.
- As always, Oracle recommends that you back up your software before starting any maintenance. To ensure that you minimize any application or other issues resulting from an update, Oracle recommends that you test deployments in one environment, such as a Test environment that has software that is in sync with your Production environment. After you test the system, you can use the software on that test system as the source for other environments. As a key policy for maintenance, Oracle recommends that you standardize.
- To simplify your software management responsibilities, Oracle recommends that you limit the numbers of gold images that you download per Release Update version.

Patch Conflict Resolution

If you choose not to use Gold Image patch maintenance, then interim patches used in conjunction with other proactive maintenance methods, including custom Gold Images, may cause patch conflicts.

> **Note**
>
> Oracle recommends that you use one of the Quarterly Gold Image deployment methods for database maintenance. With Gold Image deployment, patch conflict resolution and merges are included as part of the Gold Image creation. Custom gold images do not have this optimization.

For the quarterly proactive patches (Quarterly Exadata Patch, RU, and MRPs), Oracle proactively produces new interim patches for existing patches that would conflict. The new interim patches are usually released at the same time as the proactive patches.

For information about resolving patch conflicts, see the My Oracle Support notes for patch conflicts.

Related Topics

- My Oracle Support Patch Conflict Checker Overview
- How to Use the My Oracle Support Conflict Checker Tool for Patches Installed with OPatch
- Database Patch Conflict Resolution (Doc ID 1321267.1)

Patching Oracle AI Database and Oracle GoldenGate

When you use Oracle GoldenGate with Oracle AI Database, you must ensure that Oracle GoldenGate processes are shut down before patching the database.

When you patch Oracle AI Database, and you are using Oracle GoldenGate, you must disable all Oracle GoldenGate processes before starting to patch the database. The reason for this is that patches and upgrades can modify the RDBMS internal tables and views, which cause stored procedures that call them to be invalidated. All dependent objects are invalidated as well. You cannot use SQL queries alone on the database to ensure that GoldenGate processes such as **Extract**, **Pump**, or **Replicat** are shut down, because they run at the operating system level, and are managed by the GoldenGate software. At a high level, the process of checking for such processes is as follows:

1. Query the status of GoldenGate processes:

   ```
   GGSCI> info all
   ```

2. Stop all processes

   ```
   GGSCI> stop extract *
   GGSCI> stop replicat *
   .
   .
   .
   ```

   The * wildcard stops all processes of that type. If you have other Oracle GoldenGate processes (for example, `manager`), ensure that they are stopped as well.

3. Run a GGSCI `info all` command

   ```
   GGSCI> info all
   ```

   You should see that all processes have the status `STOPPED`.

For enterprise automation, consider using shell scripts that use GGSCI commands and parse their output. To ensure Oracle GoldenGate processes are shut down, always use the GGSCI utility, and if necessary, combine this with operating system level and application-level checks.

For details about this procedure, refer to the Oracle GoldenGate documentation, and to My Oracle Support.

Related Topics

- Stopping Oracle GoldenGate Processes
- Do I Need To Disable The GoldenGate DDL Trigger Before An Oracle DB Upgrade or PSU patching? (Doc ID 971222.1)
- Latest Oracle GoldenGate For Oracle AI Database & Oracle Database Patch Recommendations (Doc ID 2193391.1)

Frequently Asked Questions

Find answers to common questions, and learn details about how you can address common issues.

Do proactive patches include optimizer fixes?

- "Windows Database Bundle Patch" can include optimizer fixes.
- Oracle AI Database RUs can include optimizer fixes for issues that arise from inaccurate optimizer results, but only in a form that enables or disables them individually, as required. RUs include optimizer fixes in the "disabled by default" state. For more information, see: Managing "installed but disabled" bug fixes in Database Release Updates using DBMS_OPTIM_BUNDLE (Doc ID 2147007.1).

How can I tell what patching method an installation uses?

Review the `opatch lsinventory` output to see what patches are applied. RUs and RURs include a description of the patch name and version in the output.

What is the difference between "Windows Database Bundle Patch" and "QFSDP for Exadata" and so on?

These bundles are targeted at different environments. The latest versions include the same update content, but all other content is specific to the target environment. There may be some other common content but there are differences in content.

Do proactive patches affect the database version as reported in trace files and database views like `V$VERSION`?

For Oracle AI Database 26ai (23.4.0.0 and later), the patch level in the `ORACLE_HOME` is reflected in the `opatch lsinventory` data, and for some patch types, the patch level is reflected in `DBA_REGISTRY` or `DBA_REGISTRY_HISTORY`. The `DBA_REGISTRY_SQLPATCH` view tells you the SQL patches that are applied to the database.

Should I ask for a one-off bug fix or wait for the next RU?

For a discussion of the pros and cons of asking for one-off bug fixes instead of waiting on RUs, see .Should I ask for a one-off bug fix or wait for the next Release Update (Doc ID 2648544.1)

How to apply patches? Use either the `opatch` utility or the `OPLAN` utility?

Refer to the README to learn how to install patches.

OPatch - Where Can I Find the Latest Version of OPatch?

See How To Download And Install The Latest OPatch(6880880) Version (Doc ID 274526.1) or OPatch - Where Can I Find the Latest Version of OPatch(6880880)? [Video] (Doc ID 224346.1)

Oracle AI Database Oracle AI Database Patch Maintenance Guidelines Release 26ai
G43965-03