

12 Installation, Upgrade, and Patching

In Oracle Database 23ai, you get significant improvements with the installation process, especially with upgrades using the AutoUpgrade utility.

AutoUpgrade Release Update (RU) Upgrades

AutoUpgrade supports the option of using AutoUpgrade to perform out-of-place Oracle home Release Update patching.

For an out-of-place patch of Oracle Database using AutoUpgrade, AutoUpgrade moves the source database that you want to patch to a new Oracle Database Oracle home, and then patches the database binaries in that target Oracle home with the Release Update that you select. With this option, you can use AutoUpgrade at any time that you want to move the database to a new Oracle home, either as part of a planned upgrade or as part of a patch plan. In a patch operation, AutoUpgrade performs the patch using the following workflow:

1. AutoUpgrade recognizes that the source database and the target Oracle Database are the same base release.
2. AutoUpgrade skips the upgrade steps.
3. AutoUpgrade patches the target database using the Release Update.

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AutoUpgrade Sets Parallelism Based on System Resources

AutoUpgrade automatically evaluates system resources and makes an intelligent decision as to how many upgrade jobs can run simultaneously.

AutoUpgrade uses the `CPU_COUNT` value and system process parameters to determine available system resources, and calibrates both the number of upgrades that can run at a time and the number of parallel threads for each upgrade. Upgrades that exceed a safe threshold are put in a queue so that they can be run as system resources become available.

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AutoUpgrade Supports Upgrades with Keystore Access to Databases Using TDE

AutoUpgrade enhances support for databases that use transparent data encryption (TDE) by enabling keystore generation.

AutoUpgrade now enables you to provide passwords to an external key manager generated and maintained by AutoUpgrade. With this configuration, AutoUpgrade supports unmanned or automated operations of TDE-enabled databases.

AutoUpgrade can open the source database keystore without prompting for the keystore password, and enroll the target database into the TDE external keystore for key management, so that the target database can start automatically.

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AutoUpgrade Unplug-Plugin Upgrades to Different Systems

You can now use the Oracle Database AutoUpgrade Unplug/Plug method to unplug a PDB from one system and plug into a different system and upgrade.

In earlier releases, AutoUpgrade supported unplug/plugin/upgrades on the same server, but it was not possible to unplug a PDB from one server, plug it into a different system, and then upgrade the PDB. With this feature, you can now migrate and upgrade the PDB in a single operation, including migrations to the cloud.

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REST APIs for AutoUpgrade

To facilitate safe and secure remote use of the AutoUpgrade for Oracle Database upgrades, AutoUpgrade now provides REST APIs (ORDS and OCI).

The Oracle REST Data Services (ORDS) database API is a database management and monitoring REST API embedded into Oracle REST Data Services. The Oracle Cloud Infrastructure (OCI) REST API is enabled by configuring the REST Adapter connection to use the OCI Signature Version 1 security policy. You can now use these features to run AutoUpgrade upgrades remotely over SSH.

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