

# Oracle adatbázis újdonságok

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GREAT-IT

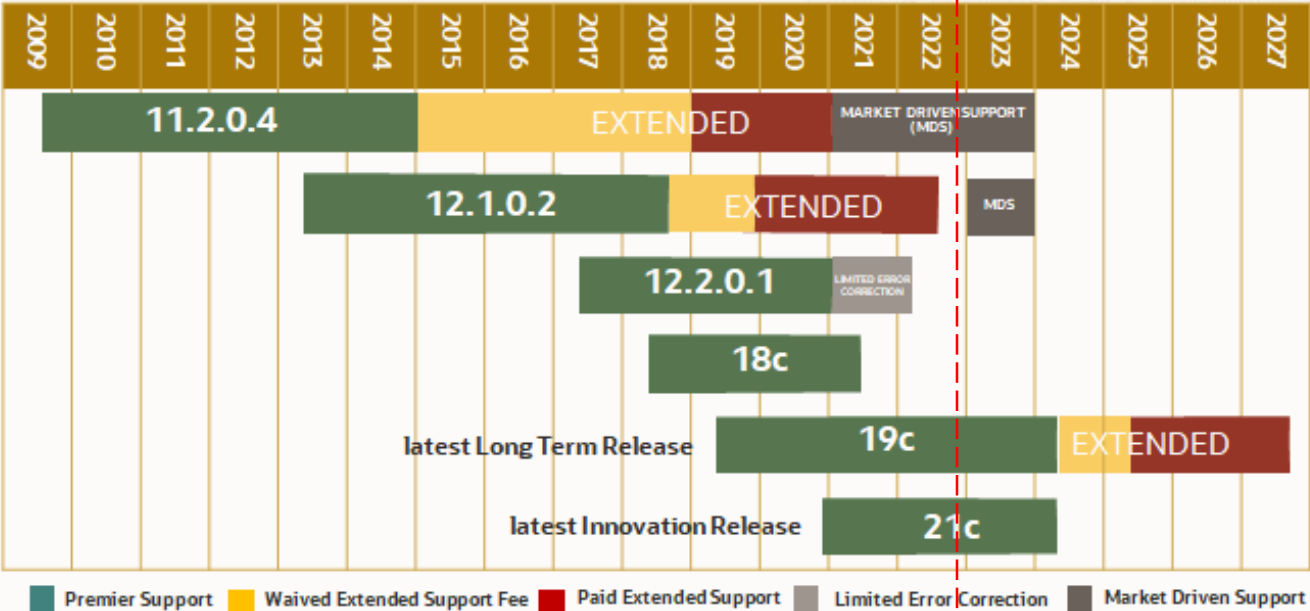


# Tartalomjegyzék

- Roadmap
- Multitenant
- AutoUpgrade tool
- Patch
- Automatizáció
- OEM
- Érdekességek

# Roadmap

## Database Releases and Support Timelines



*Dec 31, 2020 with paid ES, ULA, or EBS waiver*

*Jul 31, 2022 with paid ES, ULA, or EBS waiver*

*March 31, 2022*

*Jun 30, 2021*

*One year of free Extended Support (ES) will be in effect from May 1, 2024 until April 30, 2025.*

*April 30, 2024*

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### Release Schedule of Current Database Releases (Doc ID 742060.1)



Golden Ratio

# Multitenant

## 8.1.1 Deprecation of Non-CDB Architecture

The non-CDB architecture is deprecated in Oracle Database 12c, and may be desupported and unavailable in a release after Oracle Database 12c Release 2. Oracle recommends use of the CDB architecture.

Forrás: <https://docs.oracle.com/database/121/UPGRD/deprecated.htm#BABDBCJI>

### Deprecation of Non-CDB Architecture

The non-CDB architecture was deprecated in Oracle Database 12c. It can be desupported and unavailable in a release after Oracle Database 19c .

Oracle recommends use of the CDB architecture.

Forrás: <https://docs.oracle.com/en/database/oracle/oracle-database/19/upgrd/behavior-changes-deprecated-desupport-oracle-database.html#GUID-23F9C9D3-4267-4638-824D-C198D042B05B>

### Desupport of Non-CDB Oracle Databases

Starting with Oracle Database 21c, installation of non-CDB Oracle Database architecture is no longer supported.

The non-CDB architecture was deprecated in Oracle Database 12c. It is desupported in Oracle Database 21c. Oracle Universal Installer can no longer be used to create non-CDB Oracle Database instances.

Forrás: <https://docs.oracle.com/en/database/oracle/oracle-database/21/upgrd/behavior-changes-deprecated-desupport-oracle-database.html#GUID-DC25BF7D-F3DE-4B86-A719-B672BF6708B0>



# Multitenant

Database Configuration Assistant - Create a database - Step 4 of 14@rac1

Specify Database Identification Details **21<sup>c</sup> ORACLE Database**

Database Operation  
Creation Mode  
Deployment Type  
**Database Identification**  
Storage Option  
Fast Recovery Option  
Database Options  
Configuration Options  
Management Options  
User Credentials  
Creation Option  
Summary  
Progress Page  
Finish

Provide a unique database identifier information. An Oracle database is uniquely identified by a Global database name, typically of the form "name.domain".

Global database name: orcl  
SID: orcl  
Service name:

Create as Container database

A Container database can be used for consolidating multiple databases into a single database, and it enables database virtualization. A Container database (CDB) can have zero or more pluggable databases (PDB).

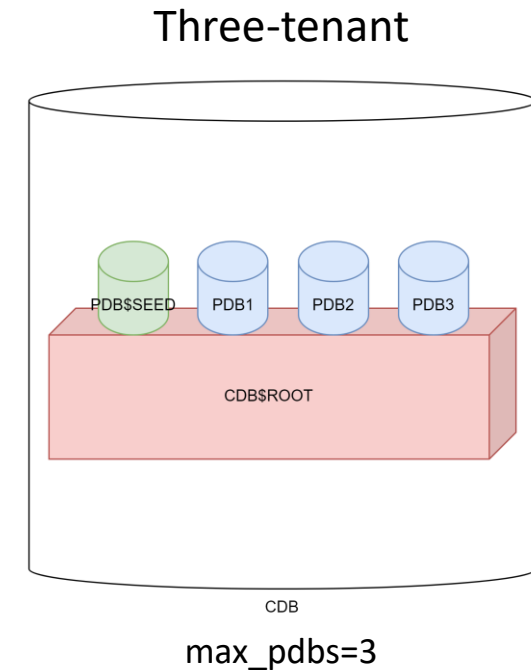
Use Local Undo tablespace for PDBs  
 Create an empty Container database  
 Create a Container database with one or more PDBs

Number of PDBs: 1  
PDB name: orclpdb1

Help < Back Next > Finish Cancel

# Multitenant

Feature / Option / Pack	SE2	EE	EE-ES	DBCS SE	DBCS EE	DBCS EE-HP	DBCS EE-EP	ExaCS/CC	Notes
Oracle Multitenant - # of PDBs	3	252	4096	3	3	4096	4096	4096	<p>The number value in each column indicates the maximum number of pluggable databases (PDBs) that can be created for each offering.</p> <ul style="list-style-type: none"> <li>For all offerings, if you are not licensed for Oracle Multitenant, then you may have up to 3 user-created PDBs in a given container database at any time.</li> <li>EE: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 252 PDBs.</li> <li>EE-ES: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 4096 PDBs.</li> <li>DBCS EE-HP, DBCS EE-EP, and ExaCS/CC: License included option: You can create up to 4096 PDBs. BYOL option: Limit is 3 PDBs, unless you purchase the Oracle Multitenant option.</li> </ul> <p><b>Note:</b> For licensing purposes, one non-CDB instance is equivalent to one user-created PDB inside one CDB.</p>



Forrás: <https://docs.oracle.com/en/database/oracle/oracle-database/19/dblic/Licensing-Information.html#GUID-0F9EB85D-4610-4EDF-89C2-4916A0E7AC87>

# Multitenant

- Megszűnő korlátozások:
  - Karakterkódolás
  - CDB adatbázis opciók
  - Local Undo
- Menedzsment:
  - Flashback és recovery
  - I/O menedzsment
  - CDB Resource Manager konfigurációk:
    - CDB plan/profile direktívák
    - Dynamic CPU Scaling
  - PDB Lockdown Profile

# Multitenant

- Provisioning:
  - Hot copy
  - Subset copy
  - Snapshot PDB copy (ACFS)
  - PDB archive
  - Refreshable PDB
  - PDB relocation
- ODA / Exadata / Cloud features:
  - Refreshable PDB Switchover
  - PDB Snapshot Carousel



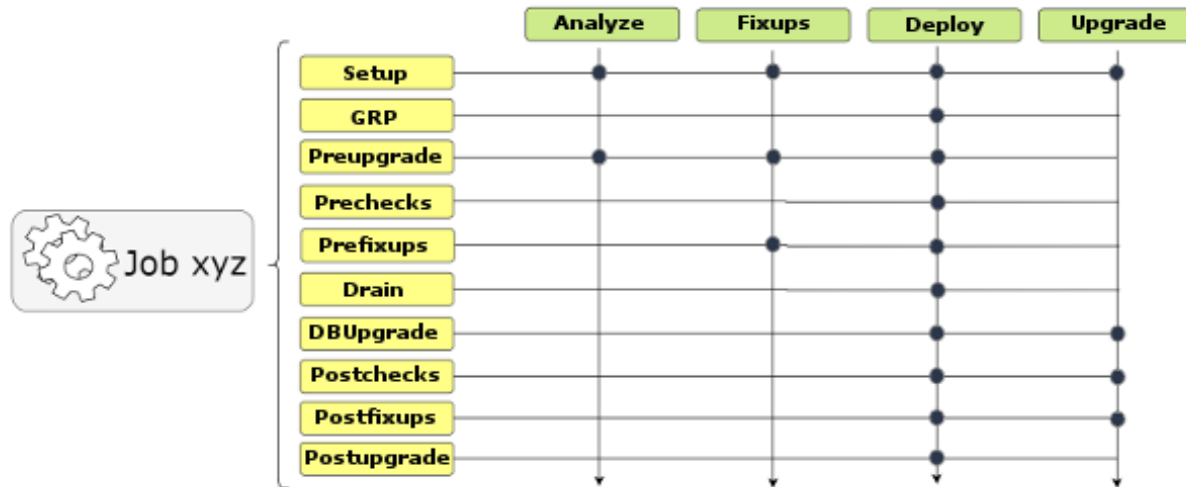


# AutoUpgrade tool

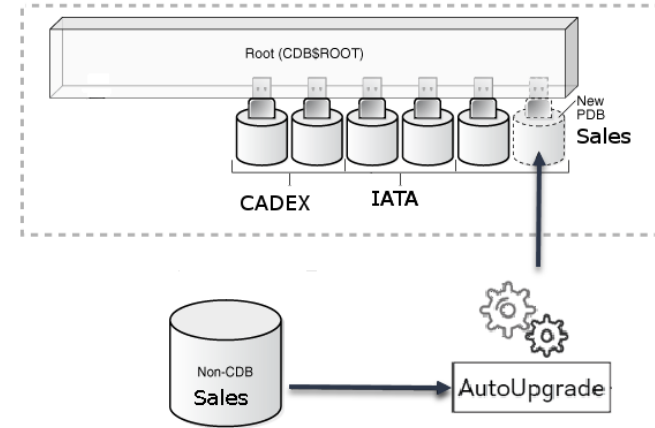
- Az adatbázis upgrade folyamatának automatizált végrehajtását biztosító eszköz
- Oracle által biztosított java alapú program
- Egy parancssori utasítás segítségével upgrade-elhető akár több adatbázis is egyszerre
- Azonosítja a lehetséges hibákat már az upgrade előtt
- Pre és Post upgrade műveleteket is elvégzi
- config fájl és job keretrendszer alapú működés
- AutoUpgrade Tool (Doc ID 2485457.1)



# AutoUpgrade tool



Forrás: <https://docs.oracle.com/en/database/oracle/oracle-database/19/upgrd/understanding-non-cdb-to-pdb-upgrades-autoupgrade.html#GUID-D739E4A4-F1B9-45BE-B0E2-F213FE70F665>



```
#  
# Database TST - Noncdb to PDB upgrade  
#  
TST.log_dir=/install/19c/upgrade_logs  
TST.sid=TST  
TST.source_home=/u01/app/oracle/product/12.2.0.1/dbhome_1  
TST.target_cdb=CDB  
TST.target_home=/u01/app/oracle/product/19.0.0.0/dbhome_1  
TST.target_pdb_name=TST  
TST.run_utlrp=yes  
TST.timezone_upg=yes  
TST.raise_compatible=yes  
TST.target_pdb_copy_option=file_name_convert=NONE  
TST.drop_grp_after_upgrade=YES
```



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# Patch

- A korábbi RU és RUR alapú patch-elési stratégia módosításra kerül 19-es verzió esetén:
  - 3 havonta RU és minden RU-hoz 2 RUR készült az eddigiekben
  - 19.16.2-es RUR után nem készül több Revision

	2021				2022				2023				2024		
	January	April	July	October	January	April	July	October	January	April	July	October	January	April	July
19c	19.10.0	19.11.0	19.12.0	19.13.0	19.14.0	19.15.0	19.16.0	19.17.0	19.18.0	19.19.0	19.20.0	19.21.0	19.22.0	19.23.0	19.24.0
	19.9.1	19.10.1	19.11.1	19.12.1	19.13.1	19.14.1	19.15.1	19.16.1							
	19.8.2	19.9.2	19.10.2	19.11.2	19.12.2	19.13.2	19.14.2	19.15.2	19.16.2						
21c		21.3.0	21.4.0	21.5.0	21.6.0	21.7.0	21.8.0	21.9.0	21.10.0	21.11.0	21.12.0	21.13.0	21.14.0	21.15.0	21.16.0

Forrás: <https://mikedietchde.com/2022/10/26/patching-news-rurs-are-gone-long-live-mrps/>

# Patch

- Az RUR-t felváltja az MRP (Monthly Recommended Patch) Linux platform esetén
  - one-off patch-ek gyűjteménye
  - Adott RU-hoz 6 db MRP készül összesen
  - opatchauto-val telepítendő
  - Introducing Monthly Recommended Patches (MRPs) and FAQ (Doc ID

	2022						2023							
	October	November	December	January	February	March	April	May	June	July	August	September	October	November
19.17.0	19.17.0	MRP1	MRP2	MRP3	MRP4	MRP5	MRP6							
19.18.0				19.18.0	MRP1	MRP2	MRP3	MRP4	MRP5	MRP6				
19.19.0							19.19.0	MRP1	MRP2	MRP3	MRP4	MRP5	MRP6	
19.20.0										19.20.0	MRP1	MRP2	MRP3	MRP4
19.21.0													19.21.0	MRP1

★  Patch 34737974: DATABASE MRP 19.17.0.0.221115

Last Updated Nov 15, 2022 11:29 AM

Forrás: <https://mikedietchde.com/2022/10/26/patching-news-rurs-are-gone-long-live-mrps/>



# Patch - egyéb témakörök

Oracle Database 21c Installer - Step 9 of 10@rac1

**21<sup>c</sup> ORACLE Database**

**Install Product**

Configuration Option  
Database Installation Options  
Database Edition  
Installation Location  
Operating System Groups  
Root script execution  
Prerequisite Checks  
Summary  
**Install Product**  
Finish

**Progress**  
10%  
Linking RMAN Utility

**Status**

➔ Configure Local Node	In Progress
• Prepare	Succeeded
➔ • Link binaries	In Progress
• Setup	Pending
Setup Oracle Base	Pending
Setup Read-Only Oracle Home	Pending
Execute Root Scripts	Pending

Details Revert All Revert Retry Skip

**21<sup>c</sup> ORACLE Database**

Help < Back Next > Install Cancel

# Patch - egyéb témakörök

- Read-Only Oracle Home Default (21c)
  - orabasehome
  - orabaseconfig
  - orabasetab
- Zero-Downtime Oracle Grid Infrastructure Patching (19c)
  - `rhpctl move gihome -tgip -sourcewc ... -destwc`
- Oracle Grid Infrastructure SwitchHome (19.9)
  - `gridSetup.sh -switchGridHome`
- Zero Downtime Upgrade of Timezone Data (21c)
  - `TIMEZONE_VERSION_UPGRADE_ONLINE`

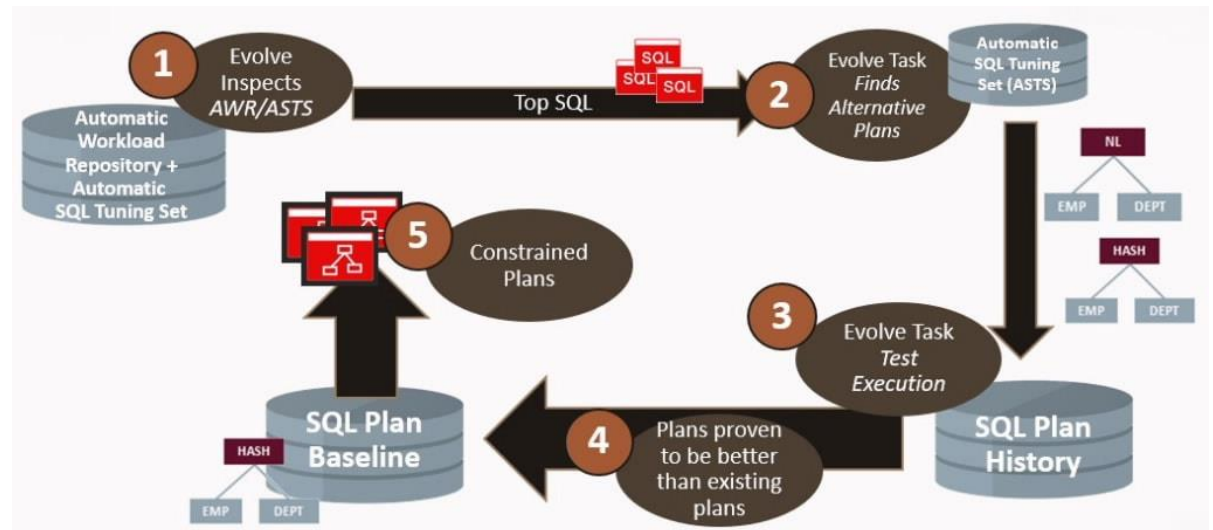
# Automatizáció

- Enterprise Edition:
  - AutoShrink for ACFS (21c)
    - acfsutil size -s kapcsoló
  - Automatic In-Memory (21c - In-Memory Option)
    - INMEMORY\_AUTOMATIC\_LEVEL: HIGH
  - Automatic Index Optimization (21c - Advanced Compression Option)
    - Compression / Merge / Rebuild
    - Tiering
  - Automatic Temporary / Undo Tablespace Shrink (21c)
    - TBS Shrink tasks
  - Automatic Flashback Standby Database (19c)



# Automatizáció

- Exadata / Exadata Cloud Service / Exadata Cloud@Customer:
  - Automatic Indexing (19c)
    - DBMS\_AUTO\_INDEX
  - Automatic SQL Plan Management (19c)
    - DBMS\_SPM
  - Automatic Materialized Views (21c)
    - DBMS\_AUTO\_MV



Forrás: Oracle Optimizer Blog (<https://blogs.oracle.com/optimizer/post/what-is-automatic-sql-plan-management-and-why-should-you-care>)

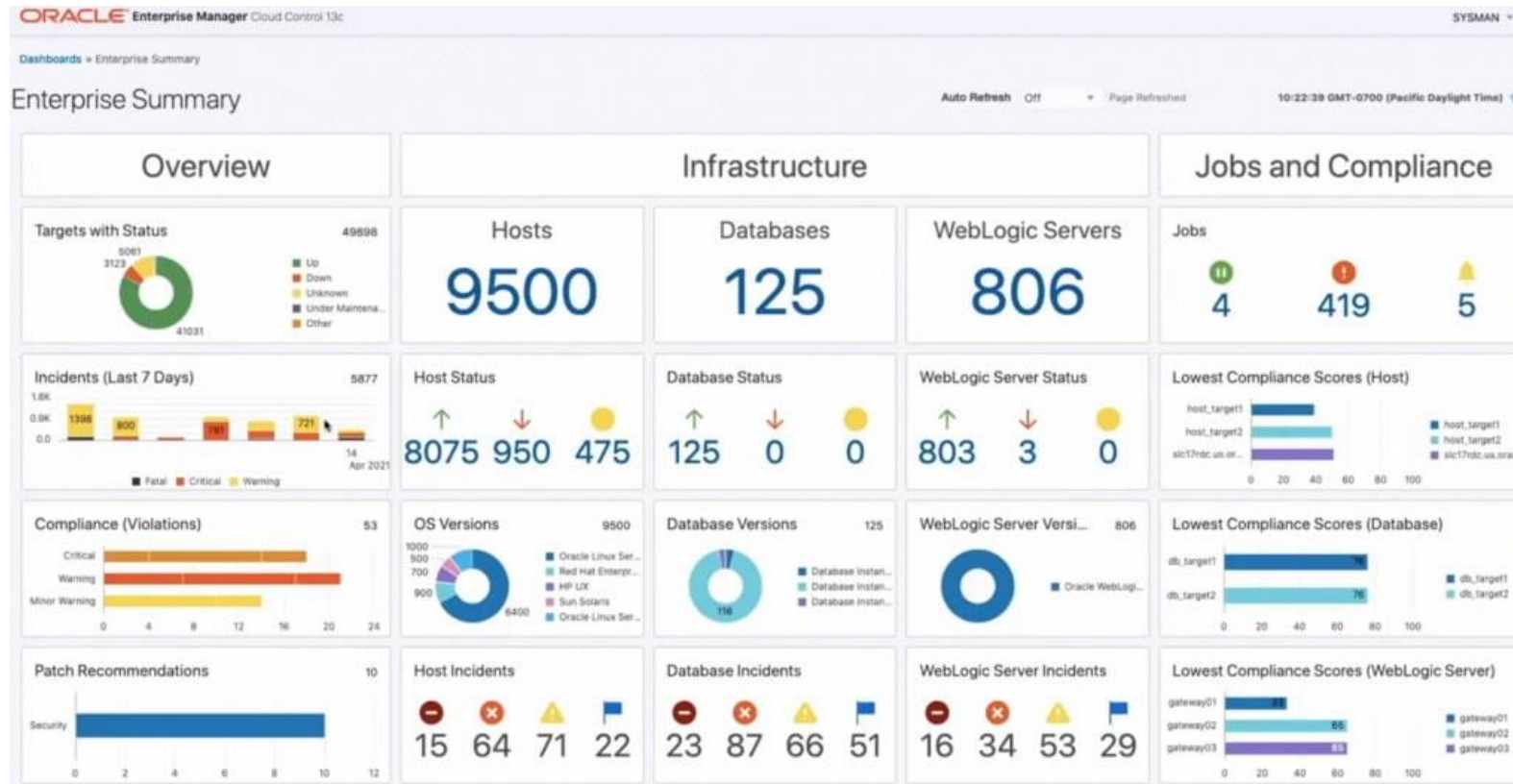


# OEM 13.5

- Az Enterprise Manager patch-elése nem csak hibajavításokat tartalmaz, hanem RU-k esetén új funkcionalitás is bevezetésre kerül:
  - Compliance Standards
    - CIS (RU1)
    - STIG (RU6)
    - DBSAT (RU5)
  - Oracle Enterprise Manager Dashboards (RU3)
    - Filters (RU5)
    - Custom Widget (RU9 és RU11)
  - Dynamic Runbooks (RU7)



# OEM 13.5



Forrás: <https://blogs.oracle.com/observability/post/oracle-enterprise-manager-13c-release-5-update-2-13502-is-now-available>



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# Érdekeségek

- Immutable (19.11 ) / Blockchain (19.10) table
- MAX\_IDLE\_BLOCKER\_TIME (19c)
- Active Data Guard DML redirection (19c)
- Active Data Guard Standby Result Cache (21c)
- Hybrid Partitioned Tables (19c)
- Database In-Memory Base Level (19.8)

Köszönöm a figyelmet!



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