

Microsoft SQL Server Internal Database Versions and Compatibility Levels

Exception Message: Msg 948, Level 20, State 1, Line 1. The database '<Database Name>' cannot be opened because it is version <version number>. This server supports version <version number> and earlier. A downgrade path is not supported.

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Environment Configuration

Operating System	Microsoft Windows Server XXX
Cloud Environment	Azure\VM\Physical
SQL Database Version	Microsoft SQL Server 6.0 to 2022

Background

A database created by a more recent version of Microsoft SQL Server cannot be attached or restored to an earlier version because SQL Server is not 'forward compatible'. The restriction is in place because an older version cannot be aware of file format changes etc., that may have been introduced in the newer release. If you attempt to attach a database to an earlier version, you will get SQL Server error 948 with the internal version numbers listed in the error message text.

Solution

The internal database versions for SQL Server aren't clearly documented in the Microsoft documentation. To get the internal database version, you can use one of the following:

```
SELECT DATABASEPROPERTYEX(N'<database name>', 'Version');
-- Column DatabaseVersion
RESTORE HEADERONLY FROM DISK = N'<path to backup file>.bak';
-- Column status: search "Version="
EXEC sp_helpdb;
```

Below table defines the SQL Server Versions and their internal database version numbers:

SQL Server Version	Internal Database Version	Database Compatibility Level	Supported Database Compatibility Levels
SQL Server 2022	?	160	?
SQL Server 2019 CTP 3.2 / RC 1 / RC 1.1 / RTM	904	150	150,140,130,120,110,100
SQL Server 2019 CTP 3.0 / 3.1	902	150	150,140,130,120,110,100
SQL Server 2019 CTP 2.3 / 2.4 / 2.5	897	150	150,140,130,120,110,100
SQL Server 2019 CTP 2.1 / 2.2	896	150	150,140,130,120,110,100
SQL Server 2019 CTP 2.0	895	150	150,140,130,120,110,100
SQL Server 2017	868 / 869	140	140,130,120,110,100
SQL Server 2016	852	130	130,120,110,100
SQL Server 2014	782	120	120,110,100
SQL Server 2012	706	110	110,100,90
SQL Server 2012 CTP1 (a.k.a. SQL Server 2011 Denali)	684	110	110,100,90
SQL Server 2008 R2	660 / 661	100	100,90,80
SQL Server 2008	655	100	100,90,80
SQL Server 2005 SP2+ with VarDecimal enabled	612	90	90,80,70
SQL Server 2005	611	90	90,80,70
SQL Server 2000	539	80	80,7
SQL Server 7.0	515	70	70
SQL Server 6.5	408	65	65
SQL Server 6.0	406	60	60

Legend: ? = investigating, RTM = Release to manufacturing, SPn = Service Pack, CTP = Community Technology Preview (beta)



References

<https://docs.microsoft.com/en-us/troubleshoot/sql/general/determine-version-edition-update-level>

Disclaimer: It is always recommended to log a support request with SQL Support for any SQL error you may encounter in your environment.

