MS SQL New Functions, Syntaxes, Tips & Tricks

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AD 2018 - Leading Data Events in Croatia

AD 2019 - Introduced SQL Saturday in Croatia

AD 2020 - Co-founder & organizer of #Dataweekender…

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Slides & Demos

https://aka.3nf.hr/DBAVUG

Strings – SQL 2019

String or binary data would be truncated

Old error message

```
Msg 8152, Level 16, State 30, Line 18

String or binary data would be truncated.
```

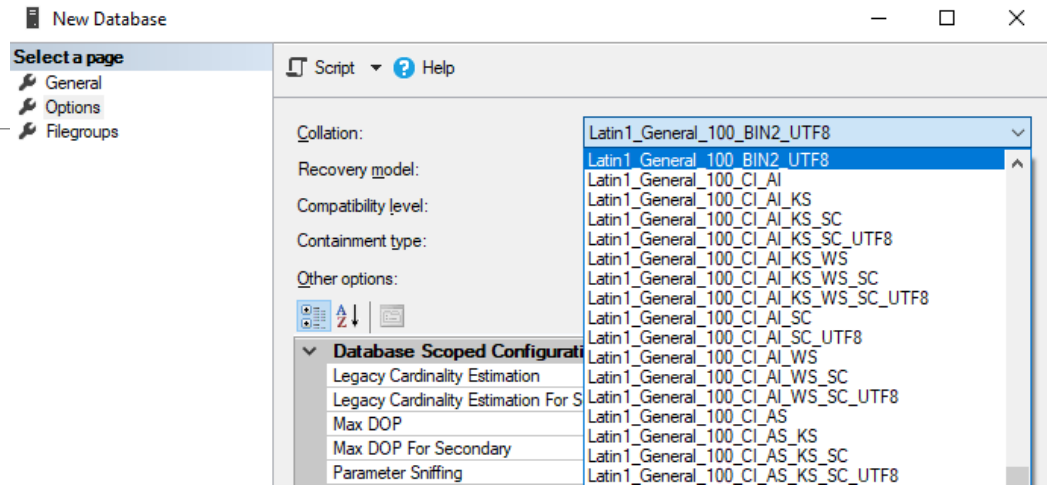
New error message

```
Msg 2628, Level 16, State 1, Line 35

String or binary data would be truncated in table
'SomeDatabase.dbo.SomeTable ', column 'Col'. Truncated value: 'XXX'
```

```
ALTER DATABASE SCOPED CONFIGURATION SET
VERBOSE_TRUNCATION_WARNINGS = OFF;
```

Strings – SQL 2019 UTF8



SQL 2019 supports UTF 8 collation -> SQL 2019 підтримує сортування UTF 8

```
USE NONUTF8
GO

DECLARE @v VARCHAR(100) = 'SQL 2019 підтримує сортування UTF 8';
SELECT @v AS String, DATALENGTH(@v) AS DataLengthValue;
DECLARE @nv NVARCHAR(100) = N'SQL 2019 підтримує сортування UTF 8';
SELECT @nv AS String, DATALENGTH(@nv) AS DataLengthValue;
GO
```

```
USE UTF8;
GO

DECLARE @8v VARCHAR(100) = 'SQL 2019 підтримує сортування UTF 8';
SELECT @8v AS String, DATALENGTH(@8v) AS DataLengthValue;
DECLARE @8nv NVARCHAR(100) = N'SQL 2019 підтримує сортування UTF 8
SELECT @8nv AS String, DATALENGTH(@8nv) AS DataLengthValue;
GO
```

Results Messages

String	DataLengthValue
SQL 2019 ????????? ?????????? UTF 8	35

String	DataLengthValue
SQL 2019 підтримує сортування UTF 8	70

Results Messages

	String	DataLengthValue
1	SQL 2019 підтримує сортування UTF 8	54

	String	DataLengthValue
1	SQL 2019 підтримує сортування UTF 8	70

COMPRESS AND DECOMPRESS

2016+

ROW, PAGE…

Syntax:

COMPRESS (expression)

- **Expression** - nvarchar(n), nvarchar(max), varchar(n), varchar(max), varbinary(n), varbinary(max), char(n), nchar(n), or binary(n) expression.

- Return

GZIP

INDEX

XML, Log-s, Rarely used data

COMPRESS AND **DECOMPRESS**

Opposite of COMPRESS?

Syntax:

DECOMPRESS (expression)

- Expression - Is a varbinary(n), varbinary(max), or binary(n)

- Return -> data in varbinary(max)

Casting is recommended

STRING_SPLIT – SQL 2016

STRING_SPLIT (string , separator)

- table-valued function
- splitting string values by a separator

STRING_SPLIT – SQL 2022

STRING_SPLIT (string , separator [, enable_ordinal])

STRING_AGG – SQL 2017

STRING_AGG

- string aggregation using a separator

DATE_BUCKET

DATE_BUCKET(<datepart>, <bucket_width>, <input date/time> [, <origin>])

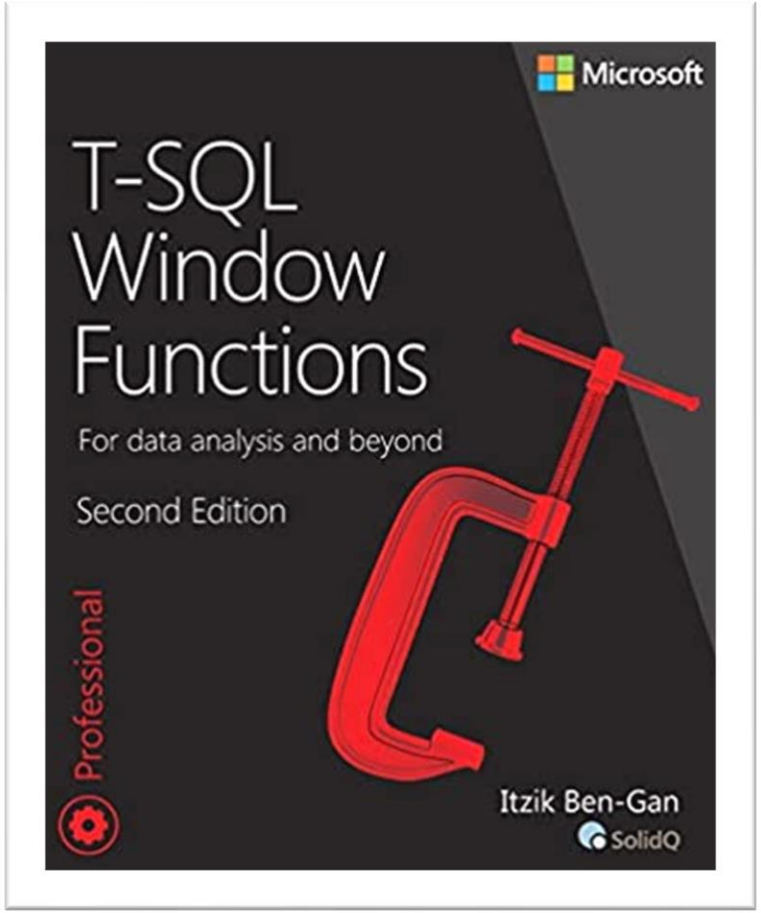
datePart	Abbreviations
day	**dd**, **d**
week	**wk**, **ww**
month	**mm**, **m**
quarter	**qq**, **q**
year	**yy**, **yyyy**
hour	**hh**
minute	**mi**, **n**
second	**ss**, **s**
millisecond	**ms**

GENERATE_SERIES

GENERATE_SERIES(<start>, <stop> [, STEP = <step>])

WINDOW

Itzik Ben-Gan



The WINDOW Clause

```
WINDOW window_name AS (
    [ reference_window_name ]
    [ <PARTITION BY clause> ]
    [ <ORDER BY clause> ]
    [ <ROW or RANGE clause> ]
)
```

SELECT
FROM
WHERE
GROUP BY
HAVING
WINDOW
ORDER BY

FIRST_VALUE, LAST_VALUE

FIRST/LAST_VALUE ([scalar_expression])

OVER ([partition_by_clause] order_by_clause [rows_range_clause])

TRIM, LTRIM, RTRIM

LTRIM (character_expression , [characters])

RTRIM (character_expression , [characters])

TRIM ([LEADING | TRAILING | BOTH] [characters FROM] string)

IS NOT DISTINCT (The Distinct Predicate)

IS [NOT] DISTINCT FROM

```
DECLARE @dt AS DATE = '20220212';

SELECT orderid, shippeddate

FROM Sales.Orders

WHERE shippeddate = @dt;
```

DECLARE @dt AS DATE = NULL; ??

GREATEST() & LEAST()

GREATEST/LEAST (expression1 [,...expressionN])

same data type or implicitly convert

NULL

Types not supported for comparison: varchar(max), varbinary(max) or nvarchar(max) exceeding 8,000 bytes, cursor, geometry, geography, image, non-byte-ordered user-defined types, ntext, table, text, and xml.

Approximate Percentile Functions

PERCENTILE_CONT i PERCENTILE_DISC - SQL Server 2005 and later

APPROX_PERCENTILE_CONT i APPROX_PERCENTILE_DISC

JSON enhancements

SQL 2016

Functions - ISJSON, JSON_VALUE, JSON_QUERY, JSON_MODIFY

Operators - FOR JSON i OPENJSON

JSON enhancements

SQL 2016

- Funkcije - ISJSON, JSON_VALUE, JSON_QUERY, JSON_MODIFY
- Operatori - FOR JSON i OPENJSON

SQL 2022

- ISJSON
- JSON_PATH_EXISTS
- JSON_OBJECT
- JSON_ARRAY

DATETRUNC

DATETRUNC (datepart, date)


DEMO